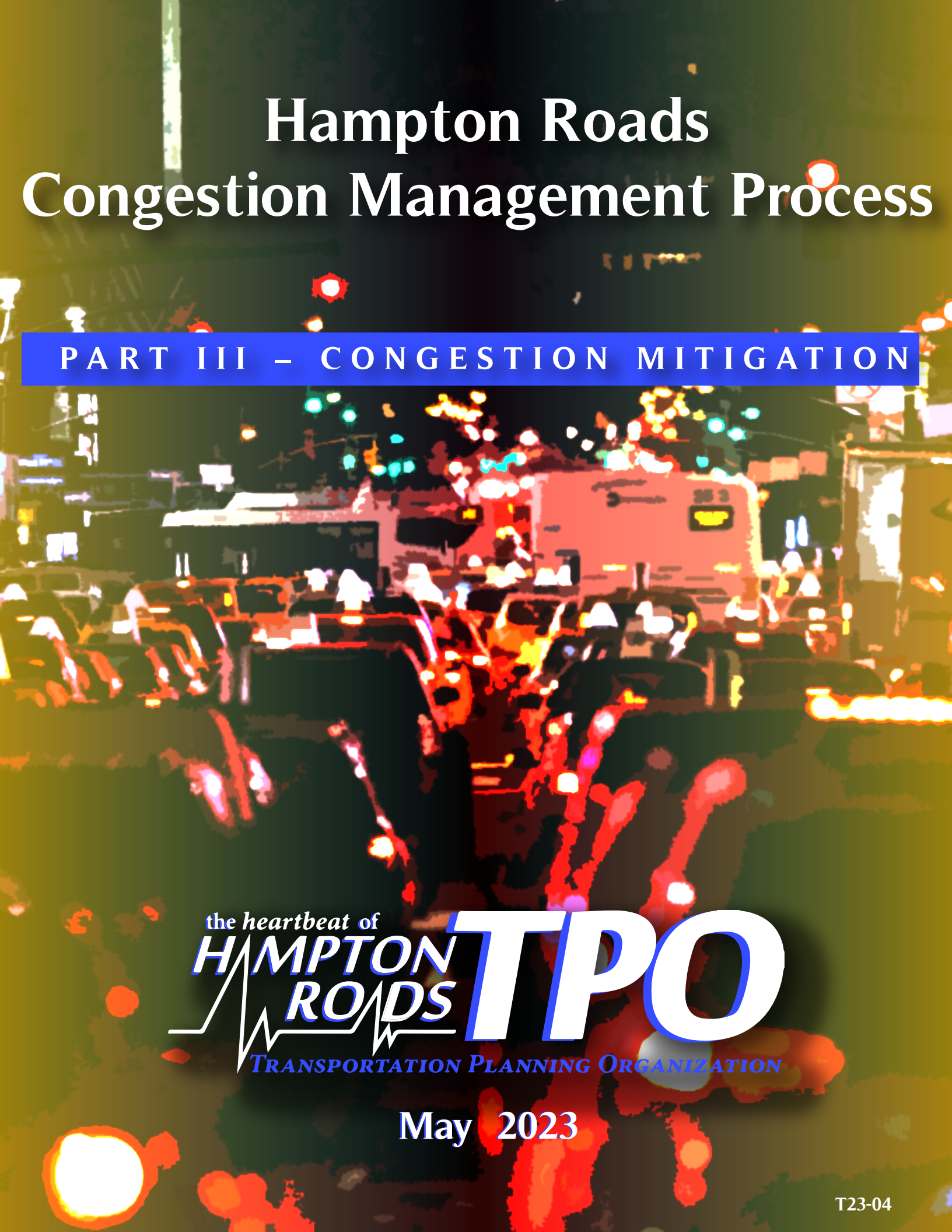
# Hampton Roads Congestion Management Process

## PART III – CONGESTION MITIGATION



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May 2023

T23-04

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# HAMPTON ROADS
# CONGESTION MANAGEMENT PROCESS

## SYSTEM PERFORMANCE AND MITIGATION REPORT
## PART III – CONGESTION MITIGATION

**PREPARED BY:**

the heartbeat of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

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**TITLE:**
Hampton Roads Congestion Management Process:
System Performance and Mitigation Report
Part III – Congestion Mitigation

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**ABSTRACT**

As the federally designated Metropolitan Planning Organization (MPO) for the Hampton Roads region, the Hampton Roads Transportation Planning Organization (HRTPO) is required by federal legislation to develop and implement a Congestion Management Process (CMP) as an integrated part of the metropolitan transportation planning process. The Hampton Roads CMP is an on-going systematic process for managing congestion that provides information and analysis on multimodal transportation system performance and on strategies to alleviate congestion and enhance the mobility of persons and goods regionwide. During this process, HRTPO works with many stakeholders to develop these strategies and mobility options.

The Congestion Management Process Report is being released in three parts. This report – Part III – includes Congestion Mitigation Strategies and application of those strategies to congested corridors. The Introduction and information on System Monitoring were included in Part I of the study, and Part II of the study highlighted System Performance.

**ACKNOWLEDGMENTS**

This document was prepared by the Hampton Roads Transportation Planning Organization (HRTPO) in cooperation with the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Virginia Department of Transportation (VDOT), Virginia Department of Rail and Public Transportation (DRPT), and the local jurisdictions and transit agencies within the Hampton Roads metropolitan planning area. The contents of this report reflect the views of the HRTPO. The HRTPO staff is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the FHWA, FTA, VDOT or DRPT. This report does not constitute a standard, specification, or regulation. FHWA, FTA, VDOT or DRPT acceptance of this report as evidence of fulfillment of the objectives of this program does not constitute endorsement/approval of the need for any recommended improvements nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

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# TABLE OF CONTENTS

**Introduction** ..... 1

**Future and Ongoing Roadway Projects** ..... 2
- Hampton Roads Long-Range Transportation Plan ..... 2
- VTrans ..... 3
- Six-Year Improvement Program ..... 5
- Transportation Improvement Program ..... 5
- SMART SCALE ..... 6
- Upcoming Planned and Programmed Projects ..... 6

**Congestion Mitigation Strategies** ..... 13
- Congestion Mitigation Strategy "Toolbox" ..... 13
- Land Use and Activity Centers ..... 17
- Public Transportation ..... 17
  - Williamsburg Area Transit Authority ..... 18
  - Suffolk Transit ..... 19
  - Hampton Roads Transit ..... 20
  - HRT Transit Extension Studies ..... 23
  - Peninsula Bus Rapid Transit ..... 25
  - 757 Express ..... 25
- Transportation Demand Management ..... 26
  - TRAFFIX Programs and Services ..... 26
  - TRAFFIX Annual Report ..... 28
- Active Transportation ..... 29
- HRTPO Board Advisory Committees ..... 33
- Hampton Roads Transportation Accountability Commission ..... 34
- Hampton Roads Regional Transit Program ..... 34
- Transportation Operations and ITS ..... 37
  - HRTO Subcommittee ..... 40
  - RCTO-TIM Working Group ..... 40
- Military Transportation Needs ..... 42
  - Military Challenges ..... 42
  - Strategies to Address Military Concerns ..... 43

**Application of Strategies to CMP Congested Corridors** ..... 47

**Conclusions and Next Steps** ..... 113

**Public Involvement** ..... 121

## LIST OF MAPS

Map 1 – Planned and Programmed Roadway Projects - Peninsula ..... 7
Map 2 – Planned and Programmed Roadway Projects - Southside ..... 8
Map 3 – Williamsburg Area Transport Authority (WATA) Routes ..... 18
Map 4 – Suffolk Transit Routes ..... 19
Map 5 – Hampton Roads Transit (HRT) System Map - Peninsula ..... 21
Map 6 – Hampton Roads Transit (HRT) System Map - Southside ..... 22
Map 7 – The Tide Light Rail System (Norfolk) Map ..... 23
Map 8 – Naval Station Norfolk Transit Corridor Project Study Area ..... 23
Map 9 – NSN Transit Corridor Project Tier 2 Alternatives ..... 24
Map 10 – Peninsula BRT Corridor Alternatives ..... 25
Map 11 – Hampton Roads Park and Ride Lots ..... 27
Map 12 – Regional Transit Program Route Classifications - Peninsula ..... 35
Map 13 – Regional Transit Program Route Classifications - Southside ..... 36
Map 14 – Roadways Serving the Military – Hampton Roads ..... 44
Map 15 – Top Ranked CMP Congested Corridors - Freeways ..... 49
Map 16 – Top Ranked CMP Congested Corridors - Arterials ..... 50

## LIST OF FIGURES

Figure 1 – Roadway Widening Projects Included in the SYIP/TIP ..... 9
Figure 2 – Intersection/Interchange Improvements Included in the SYIP/TIP ..... 10
Figure 3 – Additional Roadway Widening Projects Included in the 2045 Long-Range Transportation Plan ..... 12
Figure 4 – Congestion Mitigation Strategy "Toolbox" ..... 14
Figure 5 – Active Transportation Facility Types in Hampton Roads ..... 29
Figure 6 – New Developments in Active Transportation ..... 30
Figure 7 – Linking Hampton Roads Active Transportation Plan ..... 31
Figure 8 – Birthplace of America Trail ..... 32
Figure 9 – ITS Technologies Used in Hampton Roads ..... 37
Figure 10 – Recent Developments in Transportation Operations ..... 39
Figure 11 – CMP Congested Corridors ..... 47
Figure 12 – CMP Congested Corridor Freeway #1 - HRBT (I-64) Between I-664 and I-564 ..... 51
Figure 13 – CMP Congested Corridor Freeway #2 - I-64 Between Indian River Rd and I-264 ..... 53
Figure 14 – CMP Congested Corridor Freeway #3 - I-64/High Rise Bridge Between I-264 & I-664 (Bowers Hill) and Greenbrier Pkwy ..... 55
Figure 15 – CMP Congested Corridor Freeway #4 - I-264/Downtown Tunnel Between Frederick Blvd and Brambleton Ave ..... 57
Figure 16 – CMP Congested Corridor Freeway #5 - I-664/MMMBT Between College Dr and Chestnut Ave ..... 59
Figure 17 – CMP Congested Corridor Freeway #6 - I-264 Between I-64 and Newtown Rd ..... 61
Figure 18 – CMP Congested Corridor Freeway #7 - Chesapeake Expressway Between Battlefield Blvd and I-64 ..... 63
Figure 19 – CMP Congested Corridor Freeway #8 - I-564 Between Terminal Blvd and Admiral Taussig Blvd ..... 65
Figure 20 – CMP Congested Corridor Freeway #9 - I-64 Between Yorktown Rd and Fort Eustis Blvd ..... 67
Figure 21 – CMP Congested Corridor Freeway #10 - I-64 Between I-564 and Norview Ave ..... 69
Figure 22 – CMP Congested Corridor Arterial #1 – Tidewater Dr from Brambleton Ave to Princess Anne Rd ..... 71
Figure 23 – CMP Congested Corridor Arterial #2 – Battlefield Blvd from Johnstown Rd to I-64 ..... 73

Figure 24 – CMP Congested Corridor Arterial #3 – Mercury Blvd from Power Plant Pkwy to Armistead Ave ..... 75
Figure 25 – CMP Congested Corridor Arterial #4 – George Washington Hwy from Moses Grandy Trail to I-64 ... 77
Figure 26 – CMP Congested Corridor Arterial #5 – Dam Neck Rd from Holland Rd to London Bridge Rd ..... 79
Figure 27 – CMP Congested Corridor Arterial #6 – Tidewater Dr from Cromwell Dr to Norview Ave ..... 81
Figure 28 – CMP Congested Corridor Arterial #7 – Hampton Blvd from Brambleton Ave to 27th St ..... 83
Figure 29 – CMP Congested Corridor Arterial #8 – Route 199 from John Tyler Hwy to Brookwood Dr ..... 85
Figure 30 – CMP Congested Corridor Arterial #9 – Little Creek Rd from Tidewater Dr to Military Hwy ..... 87
Figure 31 – CMP Congested Corridor Arterial #10 – Newtown Rd from I-264 to Virginia Beach Blvd ..... 89
Figure 32 – CMP Congested Corridor Arterial #11 – Brambleton Ave from Tidewater Dr to I-264 ..... 91
Figure 33 – CMP Congested Corridor Arterial #12 – Indian River Rd from I-64 to Ferrell Pkwy ..... 93
Figure 34 – CMP Congested Corridor Arterial #13 – Campostella Rd from Indian River Rd to Wilson Rd ..... 95
Figure 35 – CMP Congested Corridor Arterial #14 – Church St from Brambleton Ave to Virginia Beach Blvd ..... 97
Figure 36 – CMP Congested Corridor Arterial #15 – Military Hwy from I-464 to Battlefield Blvd ..... 99
Figure 37 – CMP Congested Corridor Arterial #16 – Route 17 from Route 258 to James River Bridge ..... 101
Figure 38 – CMP Congested Corridor Arterial #17 – Oyster Point Rd from Jefferson Ave to I-64 ..... 103
Figure 39 – CMP Congested Corridor Arterial #18 – Northampton Blvd from Military Hwy to Diamond Springs Rd ..... 105
Figure 40 – CMP Congested Corridor Arterial #19 – Towne Point Rd from Twin Pines Rd to Western Fwy ..... 107
Figure 41 – CMP Congested Corridor Arterial #20 – Route 60 from Centerville Rd to Route 199 ..... 109
Figure 42 – CMP Congested Corridor Arterial #21 – J Clyde Morris Blvd from I-64 to Harpersville Rd ..... 111
Figure 43 – Existing Congestion Levels by Lane-Mile for the CMP Roadway Network ..... 113
Figure 44 – Elements of the Congestion Management Process ..... 114
Figure 45 – Steps for Integrating the CMP into the Metropolitan Planning Process ..... 114
Figure 46 – CMP Congested Corridor Congestion Mitigation Strategies - Freeways ..... 115
Figure 47 – CMP Congested Corridor Congestion Mitigation Strategies - Arterials ..... 117

# INTRODUCTION

As the federally-designated Metropolitan Planning Organization (MPO) for the Hampton Roads region, the Hampton Roads Transportation Planning Organization (HRTPO) develops and implements a Congestion Management Process (CMP) as an integrated part of the metropolitan transportation planning process. The Hampton Roads CMP is an on-going systematic process for managing congestion that provides information and analysis on multimodal transportation system performance and on strategies to alleviate congestion and enhance the mobility of persons and goods regionwide. During this process, HRTPO works with many stakeholders to develop these strategies and mobility options.

The Congestion Management Process Report is being released in three parts. Part I of the study included the Introduction and focused on information related to System Monitoring and Part II highlighted System Performance. This report – Part III – includes Congestion Mitigation Strategies and application of those strategies to congested corridors. More information on what is included in each of the three parts of this Congestion Management Process Report update is shown in the box to the right.

As described in the CMP Elements section of Part I of this report, the Federal Highway Administration (FHWA) noted eight elements, or actions, that are common in successful CMPs. These actions include:

1. **Develop regional objectives for congestion management**
2. **Define the CMP network**
3. **Develop multimodal performance measures**
4. **Collect data/monitor system performance**
5. **Analyze congestion problems and needs**
6. **Identify and assess strategies**
7. **Program and implement strategies**
8. **Evaluate strategy effectiveness**

All eight of these elements are included in this CMP report and are highlighted with the numbers that correspond to the particular element.

## CMP REPORT CONTENTS

### PART I – INTRODUCTION AND SYSTEM MONITORING

1) **INTRODUCTION** – Contains information on Performance Management and Performance-Based Planning and Programming, the elements of a CMP, CMP goals and objectives, and how the CMP is incorporated into the regional transportation planning process.

2) **SYSTEM MONITORING** – Contains information on HRTPO's system monitoring efforts including the State of Transportation report, Annual Roadway Performance report, and regional performance measures and target setting. This section also includes information on regional roadway travel and trends, traffic volumes and characteristics at major bridges and tunnels, recently completed roadway projects, and the benefits of selected projects.

### PART II – SYSTEM PERFORMANCE

3) **SYSTEM PERFORMANCE** – Includes a description of the CMP roadway network and the data used in this study, and the roadway congestion analysis.

4) **RANKING OF CMP CONGESTED CORRIDORS** – Includes a ranking of congested corridors throughout the region, and a description of the criteria used to produce the rankings.

### PART III – CONGESTION MITIGATION

5) **FUTURE AND ONGOING ROADWAY PROJECTS** – Describes ongoing and upcoming planned and programmed projects included in both short-term and long-term planning documents.

6) **CONGESTION MITIGATION STRATEGIES** – Describes the tools and methods that have been and can be implemented to improve congested roadways.

7) **APPLICATION OF STRATEGIES TO CMP CONGESTED CORRIDORS** – Identifies causes of congestion and recommends improvements to the highest ranked congested freeways and arterial roadways.

8) **CONCLUSIONS/NEXT STEPS**

9) **PUBLIC INVOLVEMENT** – Describes HRTPO's public involvement efforts for this study.

# 7 FUTURE AND ONGOING ROADWAY PROJECTS

Planned and programmed roadway improvement projects for Hampton Roads are included in three documents: the Hampton Roads Long-Range Transportation Plan (LRTP), the Virginia Six-Year Improvement Program (SYIP), and the HRTPO Transportation Improvement Program (TIP). Each of these three documents is detailed in this section. In addition, the statewide VTrans long-range multimodal transportation plan and SMART SCALE process are also highlighted.

## HAMPTON ROADS LONG-RANGE TRANSPORTATION PLAN

The Hampton Roads Transportation Planning Organization is responsible for producing the regional Long-Range Transportation Plan (LRTP). The LRTP is a comprehensive and multimodal transportation blueprint that identifies and plans for critically important transportation improvements that impact the region's economic vitality and every citizen's quality of life. The LRTP is designed to meet the transportation goals of the HRTPO, which include enhancing mobility and accessibility for all users, increasing reliability across modes, improving safety, minimizing negative impacts to the environment, and identifying funding to maintain and improve the transportation system.

The LRTP must be updated every five years in metropolitan areas such as Hampton Roads that are in attainment of all applicable National Ambient Air Quality Standards (which are air quality standards to help ensure public health). The LRTP must encompass a minimum of a 20-year time horizon, which is much longer than the 6-year time horizon of VDOT's Six-Year Improvement Program (SYIP) and the 4-year time horizon of the Transportation Improvement Program (TIP). Many stakeholders are involved in the preparation of the LRTP including staff from each city and county, VDOT, the military, the Port, local transit officials, and the public.


Federal regulations require that LRTPs be fiscally constrained – meaning that all projects in the plan must have realistic assumptions about future revenues for funding and construction during the horizon of the plan. Projects in the LRTP cover several modes of surface transportation; however, only roadway projects that add capacity to the regional roadway network, fixed-guideway transit projects (which are those that use exclusive right-of-way such as trains), and certain active transportation projects are typically individually identified in the plan. Smaller projects, such as traffic signals and turn bays, are not individually identified in the LRTP. This differs from the SYIP and the TIP, which include all of these types of projects. Although smaller scoped projects are not individually listed in the LRTP, they are still deemed consistent with the plan.

As new long-range plans are being developed, candidate projects are submitted to the HRTPO by local jurisdictions, VDOT, and the public. Approximately 280 submitted candidate transportation projects were evaluated for the 2045 LRTP, with estimated costs for these projects totaling over $70 billion.

Given the discrepancy between the region's transportation needs and the anticipated funding that was available for capacity improvements (approximately $13.7 billion between 2021 and 2045), projects included in the Hampton Roads 2045 Long-Range Transportation Plan – which was approved by the HRTPO Board in June 2021 – were chosen based on a variety of factors, including the results of a project prioritization process across multiple growth scenarios. HRTPO staff performs a rigorous multidisciplinary analysis for each candidate project based on the best available data and technical processes. This prioritization process ranked candidate projects based on each project's utility in terms of capacity and operational effectiveness; viability in terms of progress in design, permitting, and land use/environmental compatibility; and economic vitality in terms of its

potential to stimulate economic growth. Data and inputs for the Project Prioritization Tool are collected from localities, the CMP, and other HRTPO studies and resources.

In addition to the fiscally constrained capacity improvements listed in the 2045 LRTP, the plan also contains a number of "studies" as well as a "Vision Plan." Studies and projects in the "Vision Plan" include projects that were submitted for consideration but not included for construction due to insufficient funding being available over the horizon period of the LRTP.


**Corridors of Statewide Significance**
Source: OIPI

## VTRANS

VTrans is the Commonwealth of Virginia's statewide long-range multimodal transportation plan. VTrans – which is prepared by Virginia's Office of Intermodal Planning and Investment (OIPI) in cooperation with a variety of stakeholders – identifies the overarching vision and goals for transportation in the state. VTrans also identifies transportation investment priorities and provides direction on strategies and programs that can be incorporated into locality and MPO plans.

VTrans focuses on the transportation needs on three levels: 1) Interregional travel through Corridors of Statewide Significance, 2) Intraregional travel through Regional Networks, and 3) Travel in local activity centers through Urban Development Areas.

As part of the original VTrans effort, the state developed a network of Corridors of Statewide Significance (CoSS). VTrans defines these CoSS as "an integrated, multimodal network of transportation facilities that connect major centers of activity within and through the Commonwealth and promote the movement of people and goods essential to the economic prosperity of the state." There are twelve Corridors of Statewide Significance throughout Virginia and five of them – the Coastal Corridor (US Route 17), the East-West Corridor (I-64), the Eastern Shore Corridor (US Route 13), the Heartland Corridor (US Route 460), and the Southside Corridor (US Route 58) – are located within Hampton Roads.

In addition to the Corridors of Statewide Significance, VTrans focuses on Regional Networks. Regional Networks are defined in VTrans as multimodal networks that facilitate intraregional travel within urbanized areas. While Corridors of Statewide Significance serve statewide objectives, Regional Networks focus on the transportation network needed to support each region's economic competitiveness.

VTrans also focuses on the needs of local activity centers referred to as Urban Development Areas (UDAs). UDAs can be any area designated by a locality for higher density development that incorporates traditional neighborhood development principles in their comprehensive plan. UDAs cover a wide variety of community types, including small towns, village centers, suburban activity areas, and urban downtown areas. UDAs were created to help localities and regional entities focus investments that attract both businesses and workers.

Finally, VTrans also focuses on the needs of Industrial and Economic Development Areas (IEDAs). The Virginia Economic Development Partnership (VEDP) promotes the development and characterization of these 535 business-ready sites, and VTrans prioritizes

access between these IEDAs and Corridors of Statewide Significance.

The most recent completed version of the VTrans plan is VTrans2040, which was completed in January 2018. The VTrans2040 plan was developed in two phases: the VTrans2040 Vision and the VTrans2040 Multimodal Transportation Plan. The VTrans2040 Vision is:

> "Virginia's multimodal transportation system will be Good for Business, Good for Communities, and Good to Go. Virginians will benefit from a sustainable, reliable transportation system that advances Virginia businesses, attracts a 21st century workforce, and promotes healthy communities where Virginians of all ages and abilities can thrive."

In addition to the vision, the VTrans2040 Vision document includes guiding principles, goals, and objectives to direct investment decisions over the horizon of the plan. The Vision also includes an analysis of the impacts in demographic changes, commuting and mobility, economic trends, climate change, rural areas, transportation technology, and freight movement. Stakeholder input and a public survey were also included in the Vision document.

The VTrans2040 Multimodal Transportation Plan is comprised of two components: (1) 2025 Transportation Needs Assessment and (2) 2040 Scenario Analysis. The 2025 Transportation Needs Assessment addresses statewide transportation needs at the three levels listed previously – Corridors of Statewide Significance, Regional Networks, and Urban Development Areas. One primary purpose of the Transportation Needs Assessment is to serve as a screen for projects applying for consideration in the SMART SCALE project prioritization process.

The 2040 Scenario Analysis was conducted to reflect that the future is uncertain. Four alternative future scenarios were developed and tested to account for this uncertainty:

- **Industrial Renaissance** – High growth industrial development that is less urban with higher assumptions for the level of roadway travel.
- **Techtopia** – High growth and high tech with more urban development and more multimodal travel.
- **Silver Age** – Moderate growth with older demographics and more walkable places.
- **General Slowdown** – Reduced growth with a reduction in federal spending and a slower adoption of technology.

A similar scenario planning effort was used by HRTPO staff to develop the 2045 Hampton Roads Long-Range Transportation Plan.

OIPI is currently in the process of developing the VTrans2045 plan. The VTrans2045 plan will have four major elements: (1) Vision and Goals; (2) Mid-term Needs and Priorities; (3) Long-term Needs; and, (4) Strategic Actions. As of mid-2021 the Vision and Goals and Mid-term Needs and Priorities sections have been completed, and OIPI is currently developing the Long-term Needs and Strategic Actions sections. The VTrans2045 plan is expected to be completed by the end of 2021.

More information on the VTrans long-range multimodal transportation plan is available at http://oipi.virginia.gov/programs/vtrans/default.asp.

**Hampton Roads Bridge-Tunnel Project**
Source: HRBT

## SIX-YEAR IMPROVEMENT PROGRAM

Developed annually, the Six-Year Improvement Program (SYIP) is a Virginia statewide document through which the Commonwealth Transportation Board (CTB) allocates funds for the construction, development, or study of transportation projects. The projects included in the SYIP not only encompass major projects such as new roadway construction and widening existing facilities but also smaller projects such as adding traffic signals, paving shoulders, and adding or extending intersection turn bays. In addition, non-roadway projects such as improvements to bike lanes, sidewalks, rail, and public transportation are also included in the SYIP.

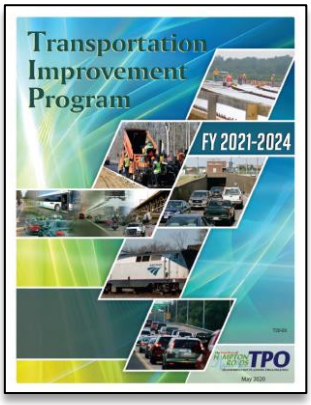

Per its name, the Six-Year Improvement Program includes information on funding allocations for each project over the course of the upcoming six state fiscal years. The SYIP also includes dates for the expected initiation of preliminary engineering design, right-of-way acquisition, and construction phases of each project.

The Commonwealth Transportation Board typically approves an updated SYIP annually in June, and the current SYIP[1] was approved by the CTB in June 2022.

## TRANSPORTATION IMPROVEMENT PROGRAM

In addition to the SYIP, the Hampton Roads Transportation Improvement Program (TIP) is also a multi-year document detailing the implementation of transportation projects. The TIP is a federally-mandated, regional document that identifies the programming of transportation funds over a four-year period. It lists all projects for which federal funds are anticipated, along with non-federally funded projects that are determined to be regionally significant. Before any federally-funded and/or regionally significant surface transportation project can be built, it must be included in the current TIP that has been approved by the HRTPO.

The TIP[2] is developed by the HRTPO in cooperation with the Virginia Department of Transportation (VDOT), the Virginia Department of Rail and Public Transportation (DRPT), Hampton Roads Transit (HRT), and the Williamsburg Area Transit Authority (WATA). The HRTPO-approved TIP is incorporated into the Statewide Transportation Improvement Program (STIP), which is submitted to the FHWA and FTA for approval.




The TIP is a financially-constrained document, which means that the amount of funding programmed in the TIP cannot exceed the expected amount of available funding. Before any federally-funded and/or regionally significant surface transportation project can be constructed, it must be included in the most recent TIP approved by the HRTPO Board. The TIP must also be consistent with the regional Long-Range Transportation Plan, which was described previously.

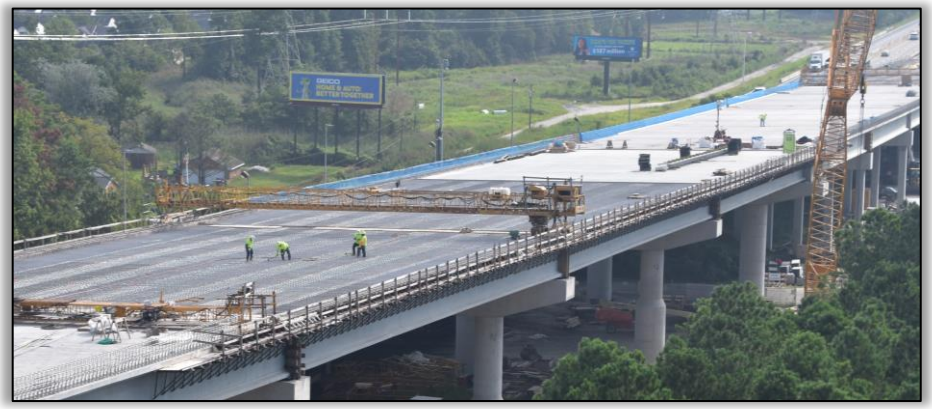
The Hampton Roads TIP may be revised as needed in order to add new projects, delete projects, and update or change project information. Similar to the SYIP, the TIP not only includes roadway projects but also transit, active transportation, enhancement, and freight-related projects. Although the TIP (a federally mandated, regional document that covers a 4-year time horizon) and the SYIP (a statewide document that covers a 6-year time horizon) are separate documents, most of the projects included in the TIP are also included in the SYIP.

[1] *FY 2023-2028 Six-Year Improvement Program*, Commonwealth Transportation Board, June 2022.

[2] *Hampton Roads Transportation Improvement Program FY 2021-2024*, HRTPO, May 2020, with amendments through May 2021.

## SMART SCALE

Many of the projects that are included in the TIP and SYIP are selected through the SMART SCALE process. Signed into law in 2014, Virginia House Bill (HB) 2 was created to ensure that limited tax dollars are invested in the projects that meet the most critical transportation needs in Virginia. Starting with the FY 2017 SYIP, candidate transportation projects throughout the Commonwealth are being scored biennially using a prioritization process – now referred to as SMART SCALE – that is based on an objective analysis of the congestion mitigation, economic development, safety, environmental quality, accessibility, and land use impacts of each project.



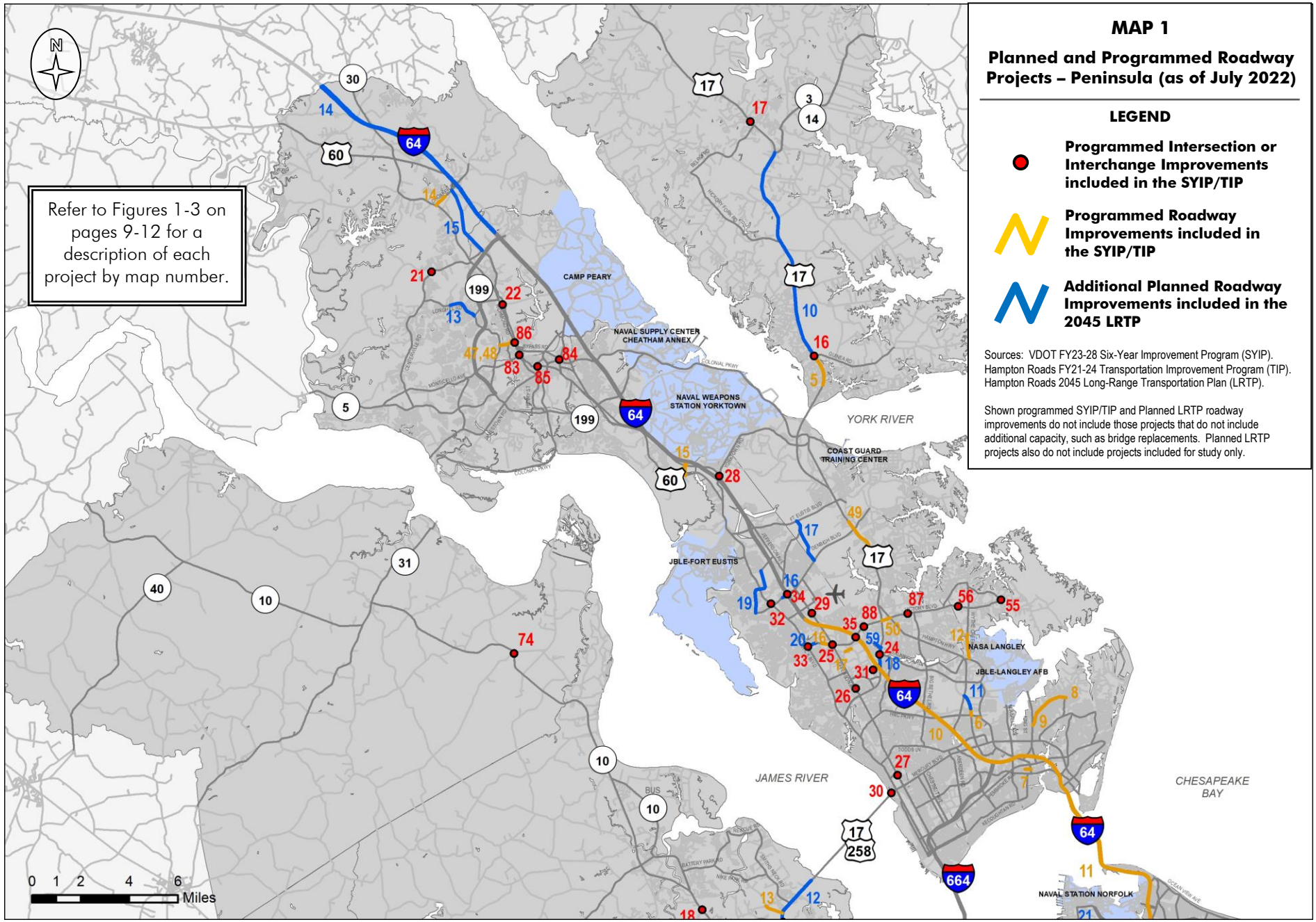
**I-64/High Rise Bridge Project**
Source: HRTAC

Each screened candidate project that is submitted by an eligible applicant (which includes localities and regional entities such as Planning District Commissions, Metropolitan Planning Organizations, and transit agencies) is scored and ranked, and the Commonwealth Transportation Board (CTB) uses this information as guidance when selecting projects for inclusion in the Six-Year Improvement Program. This process is used to allocate funding from the construction District Grants Program (DGP) and the High-Priority Projects Program (HPPP). The projects must meet an identified need in the VTrans statewide long-range multimodal transportation plan (described previously in this report).

As part of the SMART SCALE process, different weights are applied to each of the six factors in different parts of the state. Most HRTPO localities (excluding Franklin, Gloucester County, and Southampton County) are in Weighting Category A. Congestion mitigation is the priority for areas in Category A, as 45% of the candidate project's SMART SCALE Project Score is based on congestion mitigation in these areas. Other factors, such as economic development (5%) and safety (5%), have much lower weights in Category A areas than in other areas of the state.

## UPCOMING PLANNED AND PROGRAMMED PROJECTS

**Maps 1 and 2** on pages 7-8 as well as **Figures 1-3** on pages 9-12 show the planned and programmed projects throughout Hampton Roads included in the FY 2023-2028 Six-Year Improvement Program, FY 2021-2024 Transportation Improvement Program, and the 2045 Hampton Roads Long-Range Transportation Plan.




## MAP 1

### Planned and Programmed Roadway Projects – Peninsula (as of July 2022)

**LEGEND**

- **Programmed Intersection or Interchange Improvements included in the SYIP/TIP**
- **Programmed Roadway Improvements included in the SYIP/TIP**
- **Additional Planned Roadway Improvements included in the 2045 LRTP**

Sources: VDOT FY23-28 Six-Year Improvement Program (SYIP). Hampton Roads FY21-24 Transportation Improvement Program (TIP). Hampton Roads 2045 Long-Range Transportation Plan (LRTP).

Shown programmed SYIP/TIP and Planned LRTP roadway improvements do not include those projects that do not include additional capacity, such as bridge replacements. Planned LRTP projects also do not include projects included for study only.

## MAP 2

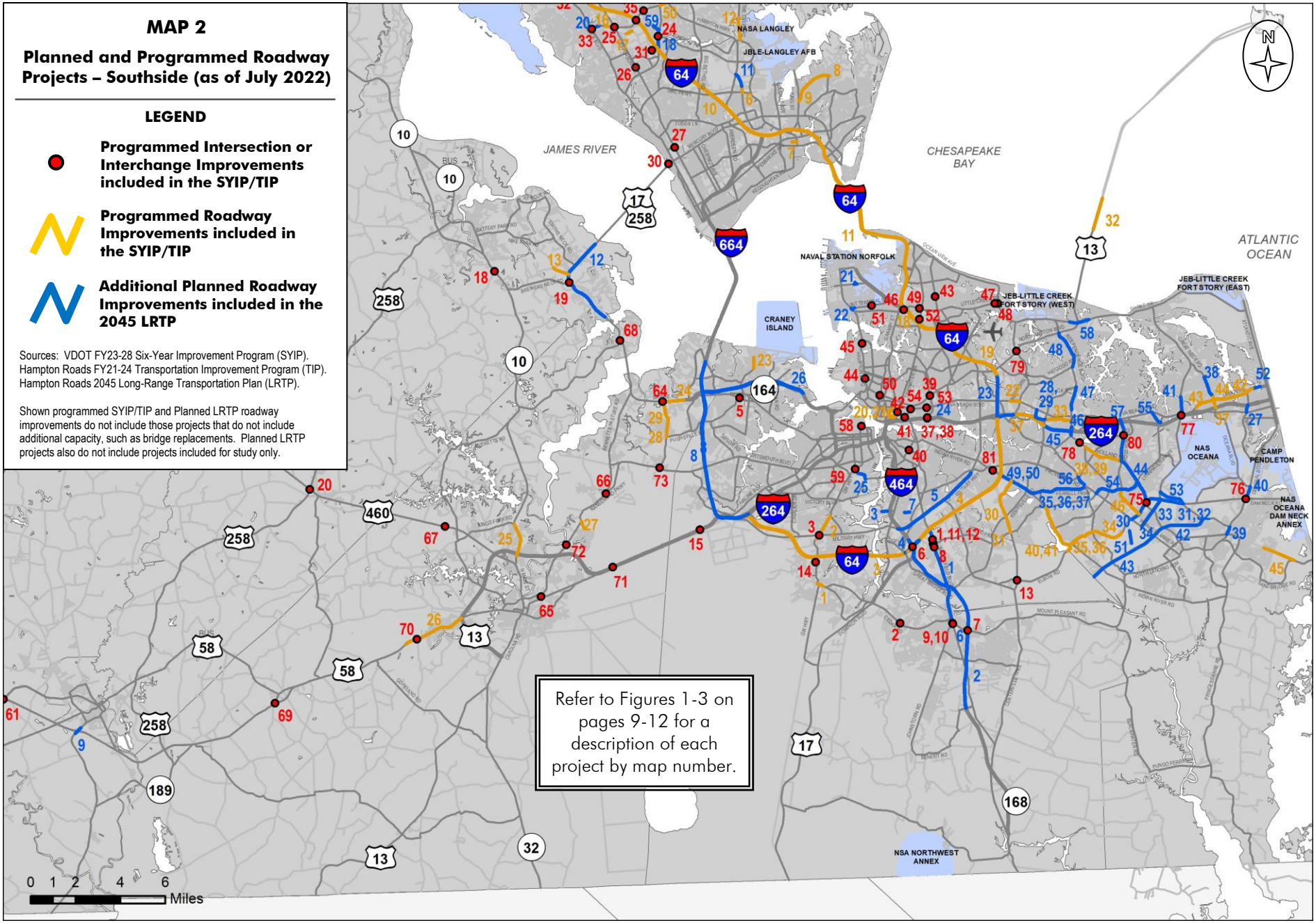
### Planned and Programmed Roadway Projects – Southside (as of July 2022)

**LEGEND**

- **Programmed Intersection or Interchange Improvements included in the SYIP/TIP**
- **Programmed Roadway Improvements included in the SYIP/TIP**
- **Additional Planned Roadway Improvements included in the 2045 LRTP**

Sources: VDOT FY23-28 Six-Year Improvement Program (SYIP). Hampton Roads FY21-24 Transportation Improvement Program (TIP). Hampton Roads 2045 Long-Range Transportation Plan (LRTP).

Shown programmed SYIP/TIP and Planned LRTP roadway improvements do not include those projects that do not include additional capacity, such as bridge replacements. Planned LRTP projects also do not include projects included for study only.



## Figure 1 – Roadway Widening Projects Included in the Six-Year Improvement Program/Transportation Improvement Program (as of July 2022)

| Map # | UPC | Jurisdiction | Facility | Project | Projected Construction Begin | Projected Construction End | Projected Cost ($000s) |
|---|---|---|---|---|---|---|---|
| 1 | 109382 | Chesapeake | Deep Creek Bridge | Widen to 5 Lanes | Jun-22 | Jun-24 | $61,427 |
| 2 | 115423 | Chesapeake | George Washington Hwy - Yadkin Rd to Canal Rd | Widen to 4 Lanes | Jan-25 | May-27 | $36,024 |
| 3 | 106692 | Chesapeake | I-64/High Rise Bridge - I-464 to I-264/I-664 | Widen to 6 Lanes + 2 Shoulder Lanes | UNDERWAY | Dec-22 | $431,956 |
| 4 | 112923 | Ches./Va Beach | I-64 Express Lanes - Segment 2 | Convert HOV to HOT Lanes | UNDERWAY | Oct-22 | $25,000 |
| 5 | 110627 | Gloucester County | George Washington Memorial Hwy - Farmwood Rd to Hook Rd | Widen to 6 Lanes | Feb-27 | Oct-28 | $31,171 |
| 6 | 108731 | Hampton | Coliseum Dr Ext. A - Hampton Roads Center Pkwy to Butler Farm Rd | New 4 Lane Facility | UNDERWAY | Oct-22 | $4,726 |
| 7 | 117115 | Hampton | Grant St - Grant Circle to Armistead Ave | New 2 Lane Facility | Jun-24 | Jun-25 | $6,393 |
| 8 | 115527 | Hampton | Little Back River Rd - Clemwood Pkwy to Harris Creek Rd | Widen to 3 Lanes with peak directional lane | Oct-28 | Jun-30 | $8,835 |
| 9 | 109304 | Hampton | Little Back River Rd - King St to Clemwood Pkwy | Widen to 3 Lanes with peak directional lane | Jun-23 | Jun-26 | $9,270 |
| 10 | 119824 | Hampton/NN | I-64 Express Lanes - Segment 4A/4B | Convert HOV to HOT Lanes | May-23 | Dec-25 | $171,306 |
| 11 | 115008* | Hampton/Norfolk | I-64/Hampton Roads Bridge-Tunnel Expasion - I-664 to I-564 | Widen to 6 Lanes + 2 Shoulder Lanes | UNDERWAY | Nov-25 | $3,800,000 |
| 12 | 97715 | Hampton/Poquoson | Wythe Creek Rd - Commander Shepard Blvd to Carys Chapel Rd | Widen to 3 Lanes with peak directional lane | Oct-21 | Jun-25 | $41,627 |
| 13 | 109314 | Isle of Wight County | Nike Park Rd Extension - Reynolds Dr to Route 17 | New 2 Lane Facility | Feb-25 | Apr-26 | $12,824 |
| 14 | 100920 | James City County | Croaker Rd - Route 60 to Library | Widen to 4 Lanes | May-23 | Aug-25 | $22,401 |
| 15 | 100200 | James City County | Skiffes Creek Connector | New 4 Lane Facility | UNDERWAY | Oct-22 | $40,642 |
| 16 | 119360 | Newport News | Oyster Point Rd - Operations Dr to Jefferson Ave | Widen to 6 Lanes | Jan-29 | Jan-30 | $15,986 |
| 17 | 108722 | Newport News | Tech Center Pkwy - Jefferson Ave to Canon Blvd | New 4 Lane Facility | UNDERWAY | Mar-23 | $11,155 |
| 18 | 119637 | Norfolk | I-64 Express Lanes - Segment 1A | Add New HOT Lane | Jul-24 | Mar-26 | $162,891 |
| 19 | 120863 | Norfolk | I-64 Express Lanes - Segment 1B | Add New HOT Lane | Nov-26 | Jun-28 | $208,860 |
| 20 | 117138 | Norfolk | St. Paul's Roadway Improvements (Phase I) | New/Realigned Roadways | UNDERWAY | Sep-22 | $16,286 |
| 21 | 118642 | Norfolk | St. Paul's Roadway Improvements (Phase II) | New/Realigned Roadways | Sep-22 | May-24 | $22,618 |
| 22 | 115244 | Norfolk | Virginia Beach Blvd - George St to Newtown Rd | Widen to 6 Lanes | Apr-28 | Sep-29 | $15,701 |
| 23 | 117139 | Portsmouth | Twin Pines Rd - Swanonoa Dr to Sunset Point | Add left turn lanes | Jul-27 | Jul-28 | $1,800 |
| 24 | 120649 | Suffolk | Bridge Road - Windward Ln to Harbour View Blvd | Widen to 6 Lanes | Jul-25 | Apr-27 | $12,797 |
| 25 | 119334 | Suffolk | Godwin Blvd - Suffolk Bypass to Kings Fork Rd | Widen to 6 Lanes | Dec-25 | Nov-26 | $11,061 |
| 26 | 100937 | Suffolk | Holland Rd - 0.7 miles west of Manning Bridge Rd to Suffolk Bypass | Widen to 6 Lanes | UNDERWAY | Jan-25 | $83,781 |
| 27 | 110634 | Suffolk | Nansemond Pkwy - Commonwealth Railway Railroad Crossing | New Grade Separation | Jan-23 | Jul-25 | $27,479 |
| 28 | 121101 | Suffolk | Shoulders Hill Rd - Pughsville Rd to Bennetts Creek Park Rd | Widen to 4 Lanes | Jan-31 | Dec-32 | $15,716 |
| 29 | 121102 | Suffolk | Shoulders Hill Rd - Bennetts Creek Park Rd to Laycock Ln | Widen to 4 Lanes | Jan-29 | Dec-30 | $9,603 |
| 30 | 103005 | Virginia Beach | Centerville Tpke - Kempsville Rd to Indian River Rd | Widen to 4 Lanes | Aug-24 | Sep-27 | $42,907 |
| 31 | 109381 | Virginia Beach | Centerville Tpke - Lynnhaven Pkwy to Kempsville Rd | Widen to 4 Lanes | Nov-26 | May-29 | $38,047 |
| 32 | - | Virginia Beach | Chesapeake Bay Bridge-Tunnel - Thimble Shoals Tunnel | Widen to 4 Lanes | UNDERWAY | Nov-24 | $924,791 |
| 33 | 110803 | Virginia Beach | Cleveland St - Witchduck Rd to Independence Blvd | Widen to 3 Lanes | Jun-26 | Oct-28 | $24,347 |
| 34 | 112318 | Virginia Beach | Dam Neck Rd - Salem Rd to Virginia Beach Amphitheater | Widen to 4 Lanes | Jul-25 | Nov-27 | $27,274 |
| 35 | 15828 | Virginia Beach | Elbow Rd - Chesapeake CL to Margaret Dr | Relocate roadway | Sep-23 | May-26 | $46,700 |
| 36 | 112317 | Virginia Beach | Elbow Rd - Chesapeake CL to Salem Rd | Widen to 4 Lanes | Nov-25 | Jul-28 | $24,834 |
| 37 | 111711 | Virginia Beach | First Colonial Road - I-264 to Laurel Ln | Widen to 6 Lanes | UNDERWAY | Aug-23 | $55,779* |
| 38 | 119222 | Virginia Beach | Holland Rd - Independence Blvd to South Plaza Trail | Widen to 6 Lanes w/ Superstreet Standards | Jan-30 | Sep-31 | $24,510 |
| 39 | 119265 | Virginia Beach | Holland Rd - South Plaza Trail to Rosemont Rd | Improve to Superstreet Standards | Sep-29 | Sep-30 | $1,059 |
| 40 | 15829 | Virginia Beach | Indian River Rd - Lynnhaven Pkwy to Elbow Rd (Phase A) | Relocate roadway and widen to 4 Lanes | Dec-23 | Apr-27 | $54,465 |
| 41 | 110804 | Virginia Beach | Indian River Rd - Lynnhaven Pkwy to Elbow Rd (Phase B) | Relocate roadway and widen to 4 Lanes | Feb-23 | Jul-25 | $11,430 |
| 42 | 12546 | Virginia Beach | Laskin Rd - Fremac Dr to Oriole Dr | Widen to 6 Lanes | UNDERWAY | Aug-23 | $86,061 |
| 43 | 119275 | Virginia Beach | Laskin Rd - Phillip Ave to Republic Rd | Widen to 6 Lanes | Dec-30 | Aug-32 | $31,503 |
| 44 | 111711 | Virginia Beach | Laskin Rd - Republic Rd to Fremac Dr | Widen to 8 Lanes | UNDERWAY | Aug-23 | $55,779* |
| 45 | 115543 | Virginia Beach | Nimmo Pkwy - Albuquerque Dr to Sandbridge Rd | New 2 Lane Facility | Jun-28 | Mar-31 | $41,912 |
| 46 | 105623 | Virginia Beach | Rosemont Rd - Dam Neck Rd to Lynnhaven Pkwy | Widen to 4 Lanes | Aug-24 | Mar-28 | $18,541 |
| 47 | 111020 | Williamsburg | Ironbound Rd - DePue Dr to Treyburn Dr | Widen to 3 Lanes | Oct-23 | Jun-24 | $3,312 |
| 48 | 111018 | Williamsburg | Ironbound Rd - Treyburn Dr to Richmond Rd | Widen to 3 Lanes | Jul-25 | Jul-26 | $1,923 |
| 49 | 111787 | York County | George Washington Memorial Hwy - Dare Rd to Denbigh Blvd | Widen to 6 Lanes | Oct-26 | Nov-28 | $22,135 |
| 50 | 111791 | York County | Victory Blvd - Route 17 to Hampton Hwy | Widen to 6 Lanes | Sep-24 | Dec-25 | $3,968 |

Sources: FY 2023-2028 Six-Year Improvement Program, FY 2021-2024 Transportation Improvement Program. UPCs are unique Universal Project Codes assigned to each project by VDOT. * - Includes multiple UPCs.

## Figure 2 – Intersection/Interchange Improvements Included in the Six-Year Improvement Program or the Transportation Improvement Program (as of July 2022)

| Map # | UPC | Jurisdiction | Project | Projected Construction Begin | Projected Construction End | Projected Cost ($000s) |
|---|---|---|---|---|---|---|
| 1 | 119232 | Chesapeake | Continuous Right Turn Lane - NB Battlefield Blvd from Volvo Pkwy to WalMart Way | Aug-28 | Aug-29 | $2,836 |
| 2 | 111006 | Chesapeake | Flashing Yellow Arrow - Cedar Rd (8 signals) | UNDERWAY | Dec-22 | $130 |
| 3 | 113825 | Chesapeake | Flashing Yellow Arrow - Military Hwy at George Washington Hwy (8 signals) | UNDERWAY | Dec-22 | $218 |
| 4 | 113824 | Chesapeake | Flashing Yellow Arrow - Providence Rd and Mount Pleasant Rd (11 signals) | UNDERWAY | Dec-22 | $226 |
| 5 | 111005 | Chesapeake | Flashing Yellow Arrow - Western Branch Blvd (4 signals) | UNDERWAY | Dec-22 | $97 |
| 6 | 120375 | Chesapeake | Interchange Improvements - I-64 at I-464 Interchange | Jul-26 | Mar-28 | $140,000 |
| 7 | 115526 | Chesapeake | Interchange Improvements - Mount Pleasant Rd at Great Bridge Bypass | Apr-25 | Sep-26 | $6,001 |
| 8 | 119267 | Chesapeake | Intersection Improvements - Battlefield Blvd at Byron St | Oct-30 | Oct-31 | $675 |
| 9 | 119209 | Chesapeake | Intersection Improvements - Battlefield Blvd at Johnstown Rd | Jan-29 | Jan-30 | $3,248 |
| 10 | 119270 | Chesapeake | Intersection Improvements - Battlefield Blvd at Johnstown Rd | Jun-30 | Jun-31 | $2,673 |
| 11 | 115350 | Chesapeake | Intersection Improvements - Battlefield Blvd at Volvo Pkwy | Aug-25 | Aug-26 | $1,475 |
| 12 | 115516 | Chesapeake | Intersection Improvements - Battlefield Blvd at Volvo Pkwy | Jul-27 | Nov-28 | $828 |
| 13 | 119269 | Chesapeake | Intersection Improvements - Centerville Tpke at Elbow Rd | Dec-30 | Dec-31 | $4,850 |
| 14 | 119264 | Chesapeake | Intersection Improvements - Margaret Booker Dr at Forehand Dr | Jun-30 | Jun-31 | $2,100 |
| 15 | 119271 | Chesapeake | Intersection Improvements - Route 13/58/460 | Jun-30 | Jun-31 | $14,186 |
| 16 | 113413 | Gloucester County | Intersection Improvements - Route 17 at Guinea Rd | Mar-23 | Jan-24 | $978 |
| 17 | 113412 | Gloucester County | Intersection Improvements - Route 17 at Main St | Jun-24 | Jun-25 | $1,256 |
| 18 | 119216 | Isle of Wight County | Intersection Improvements - Route 10 at Turner Dr | Mar-28 | Mar-29 | $972 |
| 19 | 109481 | Isle of Wight County | Intersection Improvements - Route 17 at Route 258 | UNDERWAY | Aug-22 | $5,319 |
| 20 | 115528 | Isle of Wight County | Intersection Improvements - Route 460 at Route 258 | Mar-26 | Dec-27 | $3,235 |
| 21 | 121185 | James City | Intersection Improvements - Centerville Rd at Jolly Pond Rd | Jan-29 | Dec-29 | $600 |
| 22 | 119376 | James City/York Co. | Intersection Improvements - Airport Rd at Mooretown Rd/Richmond Rd | Mar-30 | Dec-31 | $12,569 |
| 23 | 111034 | Newport News | Flashing Yellow Arrows - 41 locations | UNDERWAY | Jul-23 | $776 |
| 24 | 115237 | Newport News | Intersection Improvements - J Clyde Morris Blvd at Louise Dr, Traverse Rd, and Harpersville Rd | Dec-25 | Apr-27 | $1,769 |
| 25 | 115241 | Newport News | Intersection Improvements - Jefferson Ave at Oyster Point Rd | Feb-26 | Jun-27 | $10,857 |
| 26 | 111035 | Newport News | Intersection Improvements - Jefferson Ave at Pavilion Place | Oct-22 | Jan-24 | $645 |
| 27 | 117135 | Newport News | Intersection Improvements - Jefferson Ave at Wilcox Ln | Mar-24 | Apr-25 | $500 |
| 28 | 111091 | Newport News | Intersection Improvements - Jefferson Ave at Yorktown Rd | Jun-24 | Nov-25 | $2,460 |
| 29 | 108723 | Newport News | Intersection Improvements - Jefferson Ave at Habersham Dr | UNDERWAY | Feb-23 | $2,685 |
| 30 | 121094 | Newport News | Intersection Improvements - Mercury Blvd at River Rd | Jan-29 | Dec-29 | $3,202 |
| 31 | 111065 | Newport News | Intersection Improvements - Rock Landing Dr at Omni Blvd | Jan-24 | Oct-25 | $1,095 |
| 32 | 113819 | Newport News | Intersection Improvements - Warwick Blvd at Oriana Rd | Aug-24 | Dec-25 | $825 |
| 33 | 115504 | Newport News | Intersection Improvements - Warwick Blvd at Oyster Point Rd | Apr-26 | Aug-27 | $5,446 |
| 34 | 119217 | Newport News | New Interchange - I-64 at Denbigh Blvd (First Phase) | Aug-28 | Mar-30 | $73,804 |
| 35 | 113259 | Newport News | Ramp Improvements - Oyster Point at I-64 | Sep-22 | Jan-24 | $4,269 |
| 36 | 113748 | Norfolk | Flashing Yellow Arrows - Various locations (Phase 2) | UNDERWAY | Jan-23 | $689 |
| 37 | 111788 | Norfolk | Interchange Improvements - I-264 WB Off-Ramp at Ballentine Blvd | Oct-25 | Oct-26 | $1,710 |
| 38 | 115235 | Norfolk | Intersection Improvements - Ballentine Blvd at I-264 Ramps | May-26 | May-28 | $1,067 |
| 39 | 120916 | Norfolk | Intersection Improvements - Ballentine Blvd at Princess Anne Rd | Jan-30 | Dec-30 | $2,112 |
| 40 | 120911 | Norfolk | Intersection Improvements - Berkley Ave Extended at Wilson Rd | Jan-30 | Dec-30 | $2,030 |
| 41 | 111019 | Norfolk | Intersection Improvements - Brambleton Ave at Park Ave | Mar-24 | Feb-26 | $594 |
| 42 | 111017 | Norfolk | Intersection Improvements - Brambleton Ave at Tidewater Dr | Feb-24 | Feb-25 | $646 |
| 43 | 120908 | Norfolk | Intersection Improvements - Chesapeake Blvd at Sheppard Ave | Jan-30 | Dec-30 | $1,922 |
| 44 | 113194 | Norfolk | Intersection Improvements - Hampton Blvd at Azalea Ct | Jul-22 | Jun-23 | $934 |
| 45 | 120917 | Norfolk | Intersection Improvements - Hampton Blvd at Magnolia Ave | Jan-30 | Dec-30 | $1,597 |
| 46 | 113202 | Norfolk | Intersection Improvements - Little Creek Rd at Admiral Taussig Blvd | UNDERWAY | Jan-22 | $856 |
| 47 | 120905 | Norfolk | Intersection Improvements - Little Creek Rd at Ransom Rd | Jan-30 | Dec-30 | $1,658 |
| 48 | 113201 | Norfolk | Intersection Improvements - Little Creek Rd at Shore Dr | Jul-22 | Jan-24 | $1,886 |
| 49 | 120907 | Norfolk | Intersection Improvements - Little Creek Rd at Van Patten Rd | Jan-30 | Dec-30 | $1,077 |
| 50 | 113750 | Norfolk | Intersection Improvements - Princess Anne Rd at Llewelyn Ave | Jun-23 | Oct-24 | $871 |

Sources: FY 2023-2028 Six-Year Improvement Program, FY 2021-2024 Transportation Improvement Program. UPCs are unique Universal Project Codes assigned to each project by VDOT.

## Figure 2 (Continued) – Intersection/Interchange Improvements Included in the Six-Year Improvement Program or the Transportation Improvement Program (as of July 2022)

| Map # | UPC | Jurisdiction | Project | Projected Construction Begin | Projected Construction End | Projected Cost ($000s) |
|---|---|---|---|---|---|---|
| 51 | 115236 | Norfolk | Intersection Improvements - Terminal Blvd at Diven St | May-26 | Oct-27 | $1,733 |
| 52 | 113886 | Norfolk | Intersection Improvements - Tidewater Dr at Easy St | Mar-25 | Jul-26 | $658 |
| 53 | 120913 | Norfolk | Intersection Improvements - Virginia Beach Blvd at Merrimac Ave | Jan-30 | Dec-30 | $1,523 |
| 54 | 120909 | Norfolk | Intersection Improvements - Virginia Beach Blvd at Park Ave | Jan-30 | Dec-30 | $1,730 |
| 55 | 121103 | Poquoson | Intersection Improvements - Little Florida Rd at Poquoson Ave | Jan-29 | Dec-29 | $700 |
| 56 | 115524 | Poquoson | Intersection Improvements - Victory Blvd between Carys Chapel Rd and Wythe Creek Rd | May-26 | Sep-27 | $3,729 |
| 57 | 108798 | Portsmouth | Flashing Yellow Arrows - 55 locations | UNDERWAY | Mar-23 | $981 |
| 58 | 113269 | Portsmouth | Intersection Improvements - Effingham St between Crawford Pkwy and Naval Medical Center | UNDERWAY | Jul-23 | $500 |
| 59 | 107035 | Portsmouth | Intersection Improvements - George Washington Hwy at Elm Ave | Feb-25 | Feb-26 | $5,950 |
| 60 | 103025 | Portsmouth | Signal Upgrades - 32 intersections along Churchland Blvd, High St and Victory Blvd | UNDERWAY | Jul-22 | $4,936 |
| 61 | 119218 | Southampton | Intersection Improvements - Route 58 at Camp Pkwy | Sep-28 | Sep-29 | $2,349 |
| 62 | 119213 | Southampton | Intersection Improvements - Route 58 at New Market Rd (Route 688) | Apr-26 | Apr-27 | $1,151 |
| 63 | 119282 | Southampton | Intersection Improvements - Route 58 at Southampton High School | Jul-26 | Jul-27 | $3,644 |
| 64 | 69050 | Suffolk | Intersection Improvements - Bridge Rd at Shoulders Hill Rd | Jun-22 | May-24 | $25,824 |
| 65 | 119266 | Suffolk | Intersection Improvements - Constance Rd at Wilroy Rd | Jul-29 | Jul-30 | $2,900 |
| 66 | 107265 | Suffolk | Intersection Improvements - Nansemond Pkwy at Bennetts Pasture Rd | Mar-23 | Jul-24 | $10,802 |
| 67 | 107267 | Suffolk | Intersection Improvements - Pruden Blvd at Prudence Rd | Jul-22 | Oct-23 | $4,767 |
| 68 | 111089 | Suffolk | Intersection Improvements - Route 17 at Crittenden Rd | Sep-22 | Jun-23 | $10,072 |
| 69 | 121099 | Suffolk | Intersection Improvements - Route 58 at Holland Bypass | Jan-29 | Dec-29 | $1,433 |
| 70 | 104359 | Suffolk | Intersection Improvements - Route 58 at Manning Bridge Rd | UNDERWAY | Jan-25 | $8,138 |
| 71 | 118375 | Suffolk | Intersection Improvements - SPSA Interchange | Nov-23 | Apr-26 | $39,266 |
| 72 | 119378 | Suffolk | Intersection Improvements - Wilroy Rd at Progress Rd | Jul-29 | Jul-30 | $2,500 |
| 73 | 102990 | Suffolk | Signal Upgrades - Shoulders Hill Rd, Nansemond Pkwy and Wilroy Rd | UNDERWAY | Mar-23 | $1,402 |
| 74 | 111789 | Surry County | Intersection Improvements - Route 10 at Route 617 | Oct-23 | Jan-25 | $6,017 |
| 75 | 110802 | Virginia Beach | Intersection Improvements - Dam Neck Rd at Holland Rd | Jul-25 | Feb-27 | $2,190 |
| 76 | 115245 | Virginia Beach | Intersection Improvements - General Booth Blvd at Oceana Blvd | Jan-26 | Jun-27 | $4,100 |
| 77 | 115371 | Virginia Beach | Intersection Improvements - Great Neck Rd/London Bridge Rd at Virginia Beach Blvd | May-26 | Oct-27 | $2,157 |
| 78 | 119231 | Virginia Beach | Intersection Improvements - Independence Blvd at Edwin Dr | Jan-30 | Sep-31 | $14,592 |
| 79 | 119234 | Virginia Beach | Intersection Improvements - Northampton Blvd at Diamond Springs Rd | Jan-30 | Sep-31 | $13,431 |
| 80 | 108966 | Virginia Beach | Intersection Improvements - Rosemont Rd at South Plaza Trail | Apr-25 | Mar-26 | $1,025 |
| 81 | 108959 | Virginia Beach | Signal Improvements - Indian River Rd between Military Hwy and Indian Lakes Blvd | Sep-24 | Sep-25 | $390 |
| 82 | 113827 | Williamsburg | Flashing Yellow Arrows - 12 Locations | Jun-23 | Feb-24 | $243 |
| 83 | 115505 | Williamsburg | Install Roundabout - Monticello Ave at Richmond Rd | Nov-28 | Sep-29 | $6,381 |
| 84 | 111022 | Williamsburg | Intersection Improvements - Capitol Landing Rd at Bypass Rd | Nov-24 | Aug-25 | $2,145 |
| 85 | 115503 | Williamsburg | Signal Improvements - Lafayette St | Feb-26 | Jun-27 | $91 |
| 86 | 115418 | Williamsburg | Signal Improvements - Richmond Rd | Feb-26 | Jun-27 | $204 |
| 87 | 115509 | York County | Intersection Improvements - Victory Blvd between Hampton Hwy and Route 1740 | Feb-27 | Dec-27 | $3,630 |
| 88 | 113633 | York County | Right Turn Lane Extension - Victory Blvd WB at Kiln Creek Pkwy | Dec-24 | Oct-25 | $455 |

Sources: FY 2023-2028 Six-Year Improvement Program, FY 2021-2024 Transportation Improvement Program. UPCs are unique Universal Project Codes assigned to each project by VDOT.

## Figure 3 – Additional Roadway Widening Projects Included in the 2045 Long-Range Transportation Plan

| Map # | Project ID | Jurisdiction | Facility | Project | Projected YOE Cost ($ millions) |
|---|---|---|---|---|---|
| 1 | 2045-122 | Chesapeake | Battlefield Blvd - Johnstown Rd to I-64 | Widen to 6/8 Lanes | $121 |
| 2 | 2045-129 | Chesapeake | VA 168 Bypass - Hillcrest Pkwy to I-64 | Widen to 6/8 Lanes | $355 |
| 3 | 2045-10 | Chesapeake | Freeman Ave Railroad Overpass | New Grade Separation | $25 |
| 4 | 2045-309 | Chesapeake | I-64/I-464 Interchange | Interchange Improvements | $339 |
| 5 | 2045-146 | Chesapeake | Military Hwy - I-464 to Virginia Beach CL | Widen to 8 Lanes | $149 |
| 6 | 2045-9 | Chesapeake | Mount Pleasant Rd/Great Bridge Bypass | Interchange Improvements | $6 |
| 7 | 2045-602 | Chesapeake | Portlock Rd Railroad Overpass | New Grade Separation | $36 |
| 8 | 2045-308 | Chesapeake/Suffolk | I-664 Widening including Bowers Hill Interchange - Bowers Hill to College Dr | Improve interchange/Add Express Lanes | $772 |
| 9 | 2045-307 | Franklin/Southampton | US 58/258 Interchange | Interchange Improvements | $2 |
| 10 | 2045-151 | Gloucester County | George Washington Memorial Hwy - Hook Rd to Main St (@ Walmart) | Widen to 6 Lanes | $211 |
| 11 | 2045-154 | Hampton | Coliseum Drive Ext. B - Butler Farm Rd to Magruder Blvd/Neil Armstrong Pkwy | New 4 lane facility | $15 |
| 12 | 2045-157 | Isle of Wight | US 17/Carrollton Blvd - End of Chuckatuck Creek Bridge to James River Bridge | Widen to 6 Lanes | $88 |
| 13 | 2045-161 | James City | Longhill Rd - Warhill Rd to Olde Towne Rd | Widen to 4 Lanes | $55 |
| 14 | 2045-160 | James City/York Co. | I-64 Peninsula Segment 4 - New Kent CL to Route 199/646 | Widen to 6 Lanes | $250 |
| 15 | 2045-111 | James City/York Co. | Mooretown Rd Extension - Lightfoot Rd to Croaker Rd | New 4 lane facility | $95 |
| 16 | 2045-314 | Newport News | I-64/Denbigh Blvd Interchange | New interchange | $220 |
| 17 | 2045-19 | Newport News | Independence Blvd - Denbigh Blvd to Fort Eustis Blvd | New 4 Lane Facility | $15 |
| 18 | 2045-171 | Newport News | J Clyde Morris Blvd - I-64 to York CL | Widen to 6 Lanes | $21 |
| 19 | 2045-176 | Newport News | Lucas Creek Rd Extension - Denbigh Blvd to Atkinson Blvd | New 4 lane facility | - |
| 20 | 2045-180 | Newport News | Oyster Point Rd - Warwick Blvd to Radcliff Ln | Widen to 6 Lanes | $16 |
| 21 | 2045-316 | Norfolk | Air Terminal Interchange | New interchange | $187 |
| 22 | 2045-603 | Norfolk | Hampton Blvd at Terminal Blvd Overpass | New Grade Separation | $210 |
| 23 | 2045-301 | Norfolk | I-64/I-264 Interchange Phase IIIA | Widen EB by 1-2 lanes | $510 |
| 24 | 2045-318 | Norfolk | I-264 at Ballentine Blvd - Diverging Diamond Interchange | Interchange Improvements | $11 |
| 25 | 2045-200 | Portsmouth | Elm Ave - Victory Blvd to George Washington Hwy | Widen to 4 Lanes | $15 |
| 26 | 2045-119 | Portsmouth/Suffolk | Western Freeway - I-664 to West Norfolk Rd | Widen to 6 Lanes | $493 |
| 27 | 2045-215 | Virginia Beach | Birdneck Rd - I-264 to Virginia Beach Blvd | Widen to 6 Lanes | $20 |
| 28 | 2045-216 | Virginia Beach | Clearfield Ave - Virginia Beach Blvd to Cleveland St | Widen to 4 Lanes | $22 |
| 29 | 2045-31 | Virginia Beach | Cleveland St - Witchduck Rd to Clearfield Ave | Widen to 4 Lanes | - |
| 30 | 2045-217 | Virginia Beach | Dam Neck Rd - Princess Anne Rd to Holland Rd | Widen to 6 Lanes | $44 |
| 31 | 2045-218 | Virginia Beach | Dam Neck Rd - Holland Rd to Drakesmile Rd | Widen to 6 Lanes | $50 |
| 32 | 2045-219 | Virginia Beach | Dam Neck Rd - Drakesmile Rd to London Bridge Rd | Widen to 6 Lanes | $70 |
| 33 | 2045-220 | Virginia Beach | Drakesmile Extended - Dam Neck Rd to Holland Rd | New 4 lane facility | $22 |
| 34 | 2045-221 | Virginia Beach | Drakesmile Extended - Holland Rd to Princess Anne Rd | New 4 lane facility | $17 |
| 35 | 2045-222 | Virginia Beach | Ferrell Pkwy - Indian River Rd to Indian Lakes Blvd | Widen to 6 Lanes | $3 |
| 36 | 2045-223 | Virginia Beach | Ferrell Pkwy - Indian Lakes Blvd to Pleasant Valley Rd | Widen to 6 Lanes | $48 |
| 37 | 2045-224 | Virginia Beach | Ferrell Pkwy - Pleasant Valley Rd to Salem Rd | Widen to 6 Lanes | $54 |
| 38 | 2045-225 | Virginia Beach | First Colonial Rd - Old Donation Pkwy to Laskin Rd | Widen to 6 Lanes | $74 |
| 39 | 2045-229 | Virginia Beach | General Booth Blvd - London Bridge Rd to Nimmo Pkwy | Widen to 6 Lanes | $29 |
| 40 | 2045-227 | Virginia Beach | General Booth Blvd - Oceana Blvd to Dam Neck Rd | Widen to 8 Lanes | $42 |
| 41 | 2045-253 | Virginia Beach | Great Neck Rd - Virginia Beach Blvd to Wolfsnare Rd | Widen to 6 Lanes | $46 |
| 42 | 2045-114 | Virginia Beach | Greenbelt Segment Phase I - London Bridge Rd to Princess Anne Rd | New 4 lane facility | $53 |
| 43 | 2045-114A | Virginia Beach | Greenbelt Segment Phase II - Princess Anne Rd to Chesapeake CL | New 4 lane facility | $79 |
| 44 | 2040-231 | Virginia Beach | Holland Rd - Dam Neck Rd to Rosemont Rd | Widen to 6 Lanes | $98 |
| 45 | 2045-232 | Virginia Beach | I-264 - Witchduck Rd to Independence Blvd | Widen by additional travel lane | $669 |
| 46 | 2045-326 | Virginia Beach | I-264 at Independence Blvd | Interchange Improvements | $208 |
| 47 | 2045-234 | Virginia Beach | Independence Blvd - Virginia Beach Blvd to Pembroke Blvd | Widen to 8 Lanes | $83 |
| 48 | 2045-233 | Virginia Beach | Independence Blvd - Haygood Rd to Northampton Blvd | Widen to 6 Lanes | $88 |
| 49 | 2045-236 | Virginia Beach | Indian River Rd - I-64 to Centerville Tpke | Widen to 10 Lanes | $23 |
| 50 | 2045-235 | Virginia Beach | Indian River Rd - Centerville Tpke to Ferrell Pkwy | Widen to 8 Lanes | $83 |
| 51 | 2045-240 | Virginia Beach | Landstown Rd - Landstown Centre Way to Landstown Rd | Widen to 4 Lanes | $6 |
| 52 | 2045-245 | Virginia Beach | Laskin Rd - Oriole Dr to 30th/31st St | Widen to 6 Lanes | $28 |
| 53 | 2040-247 | Virginia Beach | London Bridge Rd - Dam Neck Rd to Shipps Corner Rd | Widen to 4 Lanes | $58 |
| 54 | 2045-248 | Virginia Beach | Lynnhaven Pkwy - Holland Rd to Princess Anne Rd | Widen to 6 Lanes | $105 |
| 55 | 2045-254 | Virginia Beach | North Lynnhaven Rd - Virginia Beach Blvd to Lynnhaven Pkwy | Widen to 4 Lanes | $21 |
| 56 | 2040-256 | Virginia Beach | Princess Anne Rd - Providence Rd to Salem Rd | Widen to 6 Lanes | $24 |
| 57 | 2045-258 | Virginia Beach | Rosemont Rd - Virginia Beach Blvd to Holland Rd | Widen to 6 Lanes | $38 |
| 58 | 2045-262 | Virginia Beach | Shore Dr - Pleasure House Rd to Treasure Island Dr | Widen to 6 Lanes | $35 |
| 59 | 2045-265 | York | Commonwealth Drive Extension - GW Memorial Hwy to Commonwealth Dr | New 4 lane facility | $6 |

Projects in this table are included in the 2045 Long-Range Transportation Plan but not included for construction in the current SYIP/TIP.

Source: Hampton Roads 2045 Long-Range Transportation Plan.

# 6 CONGESTION MITIGATION STRATEGIES

The previous CMP report (Part II – System Performance) ranked congested segments in the Hampton Roads CMP Roadway Network in order to determine the list of CMP Congested Corridors that would be further analyzed in this report. This section provides a generalized Congestion Mitigation Strategy "Toolbox" and highlights various strategies that are currently used in Hampton Roads. These strategies will be applied to the CMP Congested Corridors in the next section.

## CONGESTION MITIGATION STRATEGY "TOOLBOX"

As a part of the CMP, a "toolbox" of specific congestion mitigation measures has been assembled to promote strategic solutions involving all modes of transportation, more effective land use coordination, and more efficient use of the existing transportation system as required by federal CMP regulations.

During the strategy evaluation process, it is important to consider using the strategies listed in the box to the right in the order presented in a "top-down" approach that would examine strategies to eliminate or shift automobile trips or improve roadway operations prior to adding capacity. Given budgetary constraints, it is imperative to first investigate strategies that utilize the existing capacity of the transportation network. It is also important for regional decision makers, planners, engineers, and other stakeholders involved with transportation to communicate and coordinate their efforts on a regular basis to solve existing problems and mitigate future congestion in Hampton Roads.

**Figure 4** on pages 14-16 provides a detailed description of all five strategies contained in the Congestion Mitigation Strategy "Toolbox"[3]. It also provides examples and ways to apply these strategies to reduce overall congestion. Most of the congestion mitigation strategies are intended to be applied to individual corridors; however, there are several strategies that may be applied to the entire region.

**HRTPO GENERAL CONGESTION MITIGATION STRATEGIES**

1) Eliminate Person Trips or Reduce VMT
2) Shift Trips from Automobile to Other Modes
3) Shift Trips from SOV to HOV
4) Improve Roadway Operations
5) Add Capacity

The Hampton Roads region is already implementing many of these congestion mitigation strategies through state, regional, and local initiatives. The following section describes these strategies and their local application.

[3] Primary Source: Wilmington Area Planning Council (WILMAPCO)

**Figure 4 – Congestion Mitigation Strategy "Toolbox"**

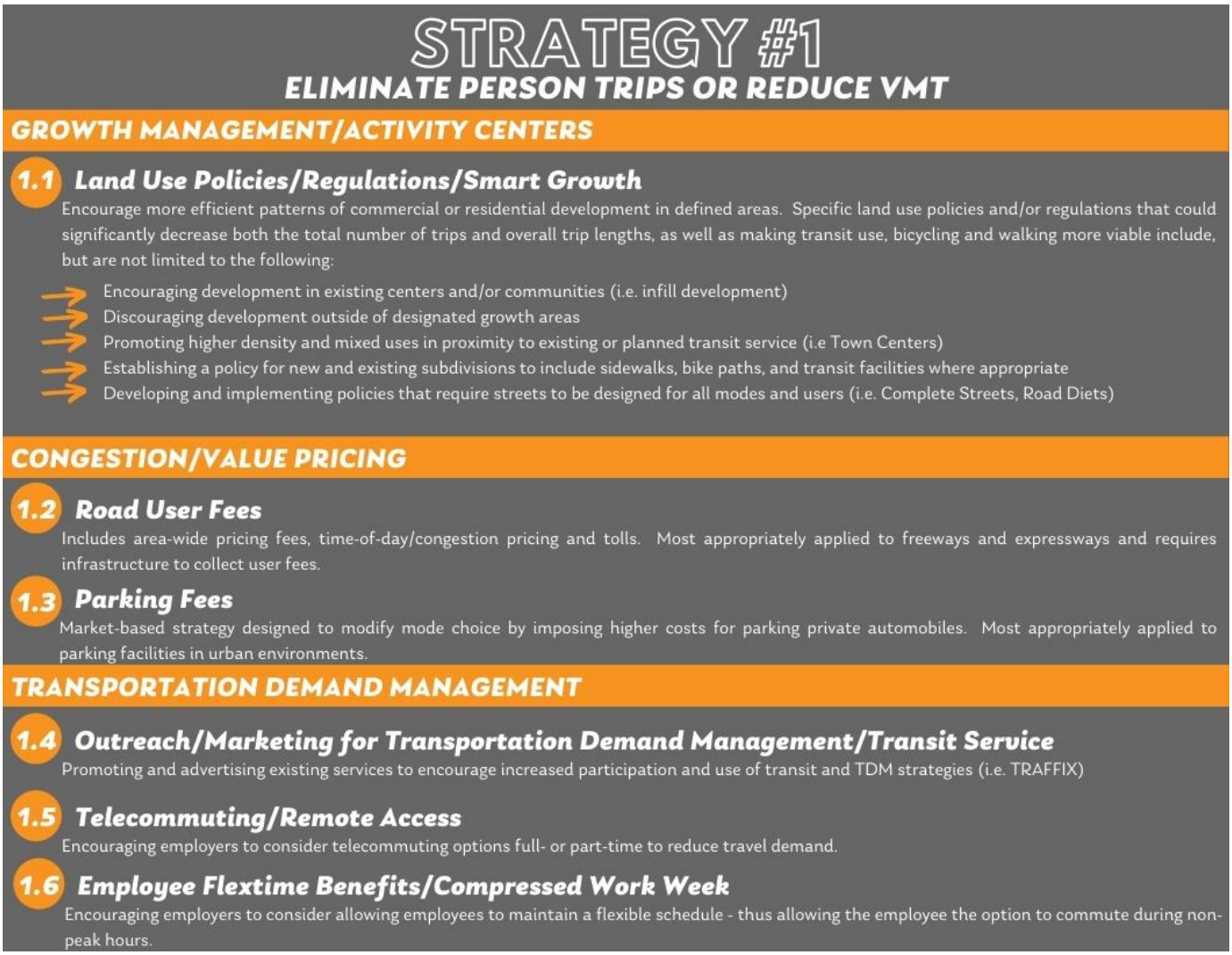


**Figure 4 – Congestion Mitigation Strategy "Toolbox" (continued)**

**Figure 4 – Congestion Mitigation Strategy "Toolbox" (continued)**

# STRATEGY #4
## IMPROVE ROADWAY OPERATIONS

### TRAFFIC OPERATIONAL & SAFETY IMPROVEMENTS

**4.1 Geometric Improvements**
Improvements to roadway and intersection geometrics to improve overall efficiency and operation.

**4.2 Intersection Channelization**
Infrastructure improvements that provide physical separation or delineation of conflicting traffic movements.

**4.3 Intersection Turn Restrictions**
Providing intersection turn restrictions to reduce conflicts and increase overall intersection performance.

**4.4 Intersection Signalization Improvements**
Improving signal operations through re-timing signal phases, adding signal actuation, event/holiday timing plans, flashing yellow arrow traffic signals, emergency vehicle preemption, etc.

**4.5 Innovative Intersections and Interchanges**
Innovative intersection and interchange designs modify vehicle, pedestrian and bicycle movements at conventional intersections to reduce delay, increase efficiency and provide safer travel for all road users.

**4.6 Coordinated Intersections Signals**
Improve traffic signal progression along identified corridors.

**4.7 Roadway Environment**
Includes pavement markings, pavement condition, pavement reflectors, signage, rumble strips, guardrails, line-of-sight clearances, roadway lighting, etc.

**4.8 Traffic Calming**
A variety of techniques used to reduce traffic speeds and increase safety.

**4.9 Intelligent Transportation Systems/Transportation Operations Center (TOC)**
Utilizing the latest technology to assist in congestion mitigation, information dissemination, and traffic planning efforts. Examples include road sensors, video detection, changeable message signs, E-ZPass (electronic toll), red light enforcement equipment, truck height/weight enforcement technologies, fiber optic network, ITS data archives, 511 Traveler service, and Smart Travel Laboratories.

**4.10 Reversible Lanes**
Reversible Lane Systems enable the maximum use of roadways with heavy directional distribution of traffic by changing the direction of the individual travel lanes. Lane control signs, displayed well in advance of a merge, are often used to close lanes with lower traffic volume and open additional lanes for higher volume.

**4.11 Freight Policies and Improvements**
Includes delivery hour restrictions, truck lane restrictions, truck route signage and enforcement, truck route diversion, truck only lanes, bridge lift restrictions, etc.

**4.12 Transportation Security**
Includes improvements and programs to mitigate negative transportation impacts of major events, such as severe weather, criminal/terrorist activities, cyber security attacks, or other large scale events.

**4.13 Active Traffic Management (ATM)**
Dynamically managing recurring and nonrecurring congestion based on prevailing traffic conditions. ATM strategies include variable speed limits/displays, dynamic lane assignment, hard shoulder/flex lanes, dynamic ramp metering, junction control, and queue warning system.

**4.14 Incident Management, Detection, Response & Clearance**
Utilize Safety Service Patrol (SSP), traveler radio, travel alert notification (via e-mail, fax, etc.), and general public outreach to enhance incident-related information dissemination.

**4.15 Construction/Work Zone Management**
Minimizing congestion caused by roadway maintenance and construction, and alert travelers to construction activities.

**4.16 Elimination of Bottlenecks**
Eliminating high-traffic areas where one or more travel lane(s) is dropped.

**4.17 Ramp Metering**
Metering vehicular access to a freeway during peak periods to optimize the operational capacity of the freeway.

**4.18 Part-Time Shoulder Use**
Using freeway shoulders to provide additional capacity during congested time periods.

**4.19 High Occupancy Toll (HOT)/Express Lanes**
High Occupancy Toll (HOT)/Express lanes – combines HOV and pricing strategies by allowing single occupancy vehicles to gain access to HOV lanes by paying a toll.

**4.20 Access Control and Connectivity**
Reduction or elimination of "side friction", especially from driveways via traffic engineering, regulatory techniques, and purchase of property rights. Also includes connections between properties, developments, and roadways.

**4.21 Median Control**
Reduction of centerline and "side friction", via traffic engineering and regulatory techniques.

# STRATEGY #5
## ADD CAPACITY

### ADDITION OF GENERAL PURPOSE LANES

**5.1 Freeway Lanes**
Increasing the capacity of congested freeways through additional travel lanes.

**5.2 Arterial lanes**
Increasing the capacity of congested arterials through additional travel lanes.

**5.3 Interchanges**
Providing carpool/vanpool matching, ridesharing infromation resources and services, car sharing, and guaranteed ride programs.

**5.4 Improve Alternate Routes**
Constructing new roadways or increasing the capacity of other roadways that will decrease demand on congested existing facilities.

## LAND USE AND ACTIVITY CENTERS

**(Included in Strategy #1)**

One strategy to mitigate congestion is to plan for and manage urban land use and growth patterns. Encouraging more efficient commercial and residential growth patterns can reduce both the number of trips as well as overall trip lengths. Since land use decisions are generally made at the local level, jurisdictions within Hampton Roads are encouraged to keep growth management strategies in mind. Land development strategies oftentimes incorporate public transit, bicycling, and walking, which help areas manage transportation demand and meet air quality conformity standards. Some examples of land use strategies include transit-oriented development, densification and infill strategies, and encouragement of mixed-use development.

Several jurisdictions in Hampton Roads have planned and constructed high density mixed-use activity centers offering an assortment of modern offices, shops, entertainment, restaurants, apartments and condos in a single area. These developments offer residents a vibrant, livable community in which they can live, work, and play. Activity centers that are currently open and/or under development include: The Town Center of Virginia Beach, City Center at Oyster Point (Newport News), Port Warwick (Newport News), Downtown Norfolk/Ghent, Downtown Portsmouth, Coliseum Central/Peninsula Town Center (Hampton), Harbour View Station Town Center and Marketplace (Suffolk), Summit Pointe (Chesapeake), and New Town (Williamsburg). Many of these activity centers are destination points for residents living in the immediate area and those traveling by automobile.

## PUBLIC TRANSPORTATION

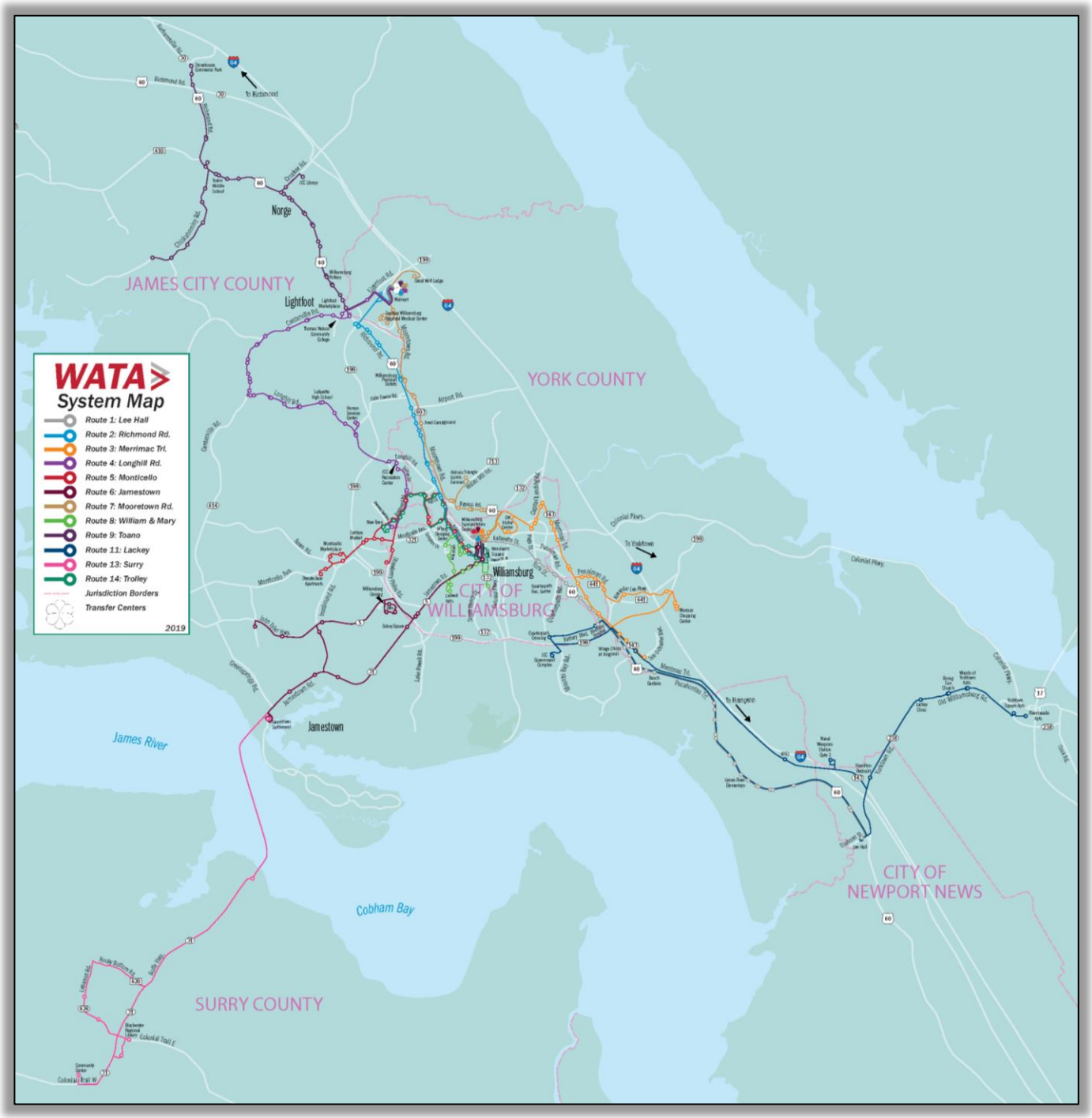
**(Included in Strategy #2)**

Public transportation is an integral component of addressing congestion in both the near-term and long-term. Transit services offer a means of transportation for the traveling public as well as a cost-effective alternative to single occupant vehicles that can reduce the overall number of vehicles on the transportation network. Public transit capital improvements along a fixed route or guideway can lead to transit-oriented development/redevelopment, which can in turn boost ridership and overall success of the program. Transit vehicles, particularly buses that share local roadways, are vulnerable to congestion, limiting transit's ability to maintain and attract new riders. For this reason, it is important to make roadway improvements and accommodations for transit routes. Over the long term, public transit can be a sustainable congestion mitigation strategy, shortening trip times from origins to destinations and moving more residents using fewer vehicles. There are three public transit agencies in the Hampton Roads region, which are described below.


**Hampton Roads Transit Modes – Bus, Light Rail, Ferry**
Source: HRT

### *Williamsburg Area Transit Authority*

Williamsburg Area Transit Authority (WATA) provides public transportation services in James City County, the City of Williamsburg, and York County. WATA's primary objective is to "to provide safe, efficient, and accessible public transit to residents and visitors in the Williamsburg area." WATA currently operates 11 bus routes and one trolley route seven days a week. **Map 3** shows the existing WATA transit routes. Visit www.gowata.org for more information.



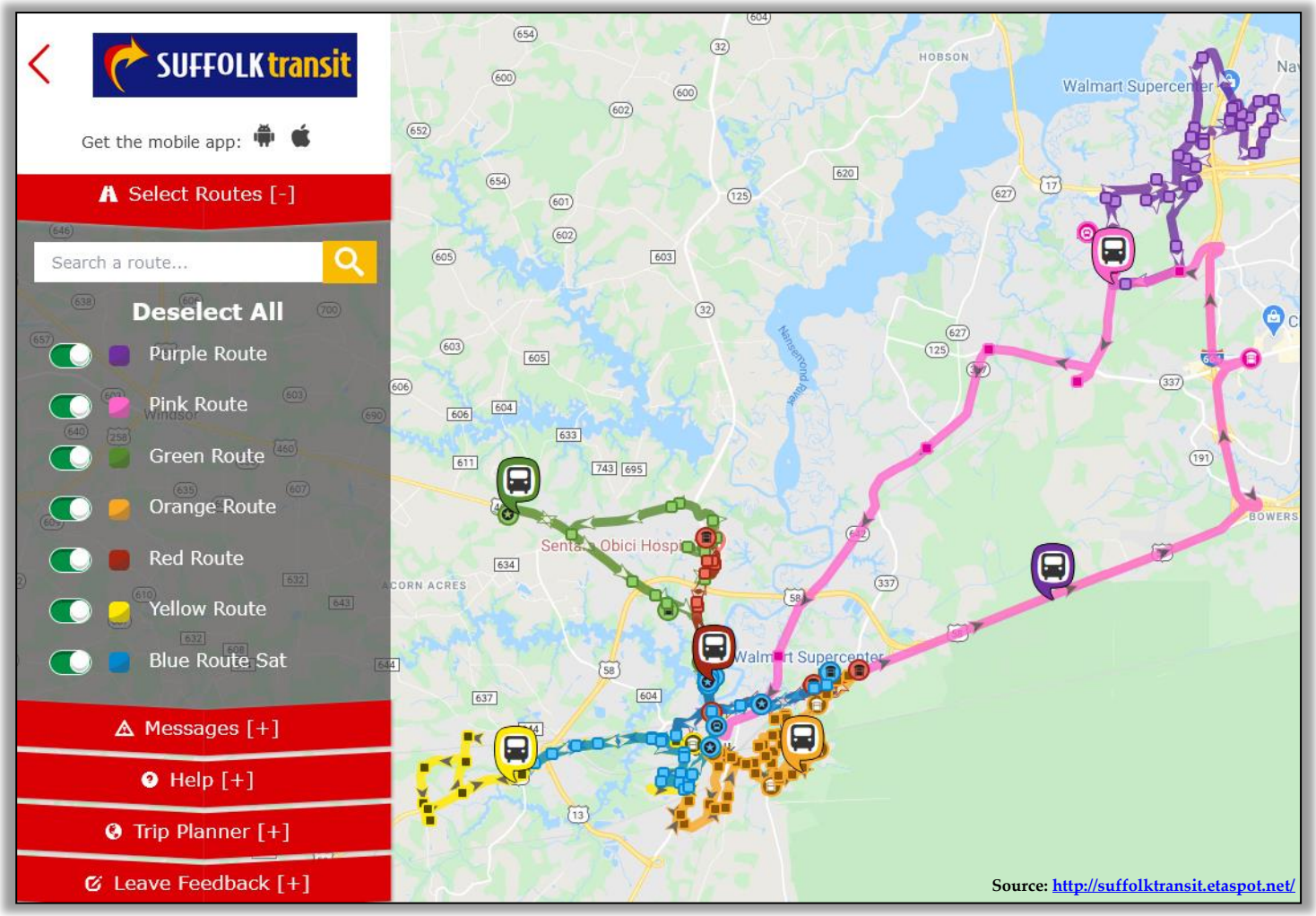

**Map 3 – Williamsburg Area Transit Authority (WATA) Routes**

**Source: WATA**

The latest *WATA Transit Development Plan (TDP) and Comprehensive Operational Analysis (COA)*[4] was completed in 2016 and updated in 2018. A Transit Development Plan (TDP) is a short-range transit plan that outlines the services that a transit system intends to implement during a six-year planning horizon, estimates what resources will be needed, and what funding opportunities are likely to be available. The Virginia Department of Rail and Public Transportation (DRPT) requires that any public transit operator receiving state funding prepare, adopt, and submit a TDP at least every six years. The COA is a more detailed look at specific areas of operation, including routes, staffing, and the preparation of a passenger profile.

### *Suffolk Transit*

In January 2012, Virginia Regional Transit began providing public transportation service in the city of Suffolk under the name Suffolk Transit. The system – which currently includes 6 weekday routes and 1 Saturday route and operates for approximately 12 hours on weekdays and reduced hours on Saturdays – is provided by Virginia Regional Transit through a contract with the city. Suffolk Transit partnered with ETA Transit Services to allow riders the ability to plan their trips and to track buses in real time via the **Suffolk Transit SPOT Web Portal**. The *Suffolk Transit Strategic Plan*[5] was completed in December 2019.




**Map 4 – Suffolk Transit Routes (Suffolk Transit SPOT Web Portal)**

[4] Transit Development Plan and Comprehensive Operational Analysis: Final Report, Williamsburg Area Transit Authority, June 2016, Updated January 17, 2018.

[5] Transit Strategic Plan FY2020-FY2029, Suffolk Transit, December 2019.

### *Hampton Roads Transit*

Hampton Roads Transit (HRT) is the largest public transportation agency for the Hampton Roads region, serving a population of more than 1.4 million in the cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach. HRT's mission is to connect Hampton Roads with transportation solutions that are reliable, safe, efficient, and sustainable. The *HRT - Transit Strategic Plan*[6] has recently been developed and can be used as a planning tool for mitigating regional congestion through transit improvements.

HRT currently offers the following transit services:

- Fixed Regular Bus Routes in Hampton Roads – 33 (Southside) and 21 (Peninsula)
- Peninsula Commuter Service – Express bus service to major employers (5 Routes)
- MAX (Metro Area Express) – Express Bus Service (7 Routes with faster speeds and limited stops)
- VB Wave Trolley and Bayfront Shuttle System – Serving the Virginia Beach Oceanfront and Chesapeake Bay (3 Seasonal Routes)
- Paratransit/Handi-Ride – Service available for persons with disabilities
- Elizabeth River Ferry – Serving Downtown Norfolk and Olde Towne Portsmouth
- TRAFFIX – Providing transportation alternatives

**Maps 5 and 6** on pages 21-22 show the HRT system for the Hampton Roads Peninsula and Southside. Visit www.gohrt.com for more information on HRT services.

### The Tide

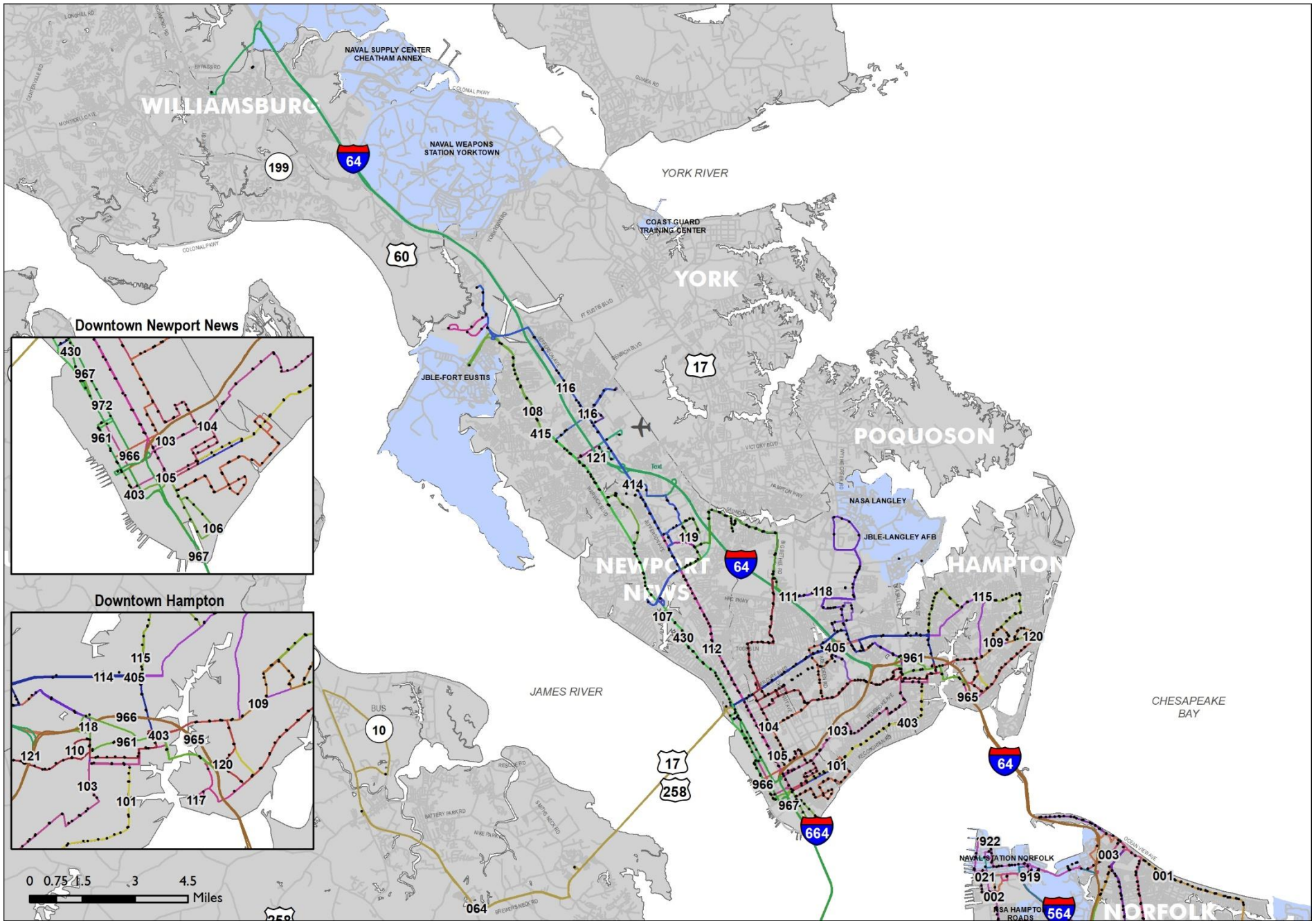
"The Tide" light rail system began operating on August 19, 2011. It currently extends 7.4 miles in the City of Norfolk from the Eastern Virginia Medical Center through Downtown Norfolk to the western edge of Virginia Beach along the former Norfolk Southern right-of-way adjacent to I-264. The Tide is served by eleven stations and four park and ride lots. Six stations provide direct connections to 19 HRT bus routes. The Tide also provides access to major destination areas such as Norfolk State University, Tidewater Community College Norfolk Campus, Harbor Park, City Hall, MacArthur Center, and the Sentara Norfolk General Hospital. **Map 7** on page 23 shows the Tide route and stations.

Trains generally run every 15 minutes – 10 minutes during peak periods and every 30 minutes during early weekend mornings and late evenings. Service is provided from 6 am through 10 pm Monday-Thursday, 6 am through midnight Friday-Saturday, 7 am through 9 pm on Sundays, and 9 am through 9 pm on holidays.

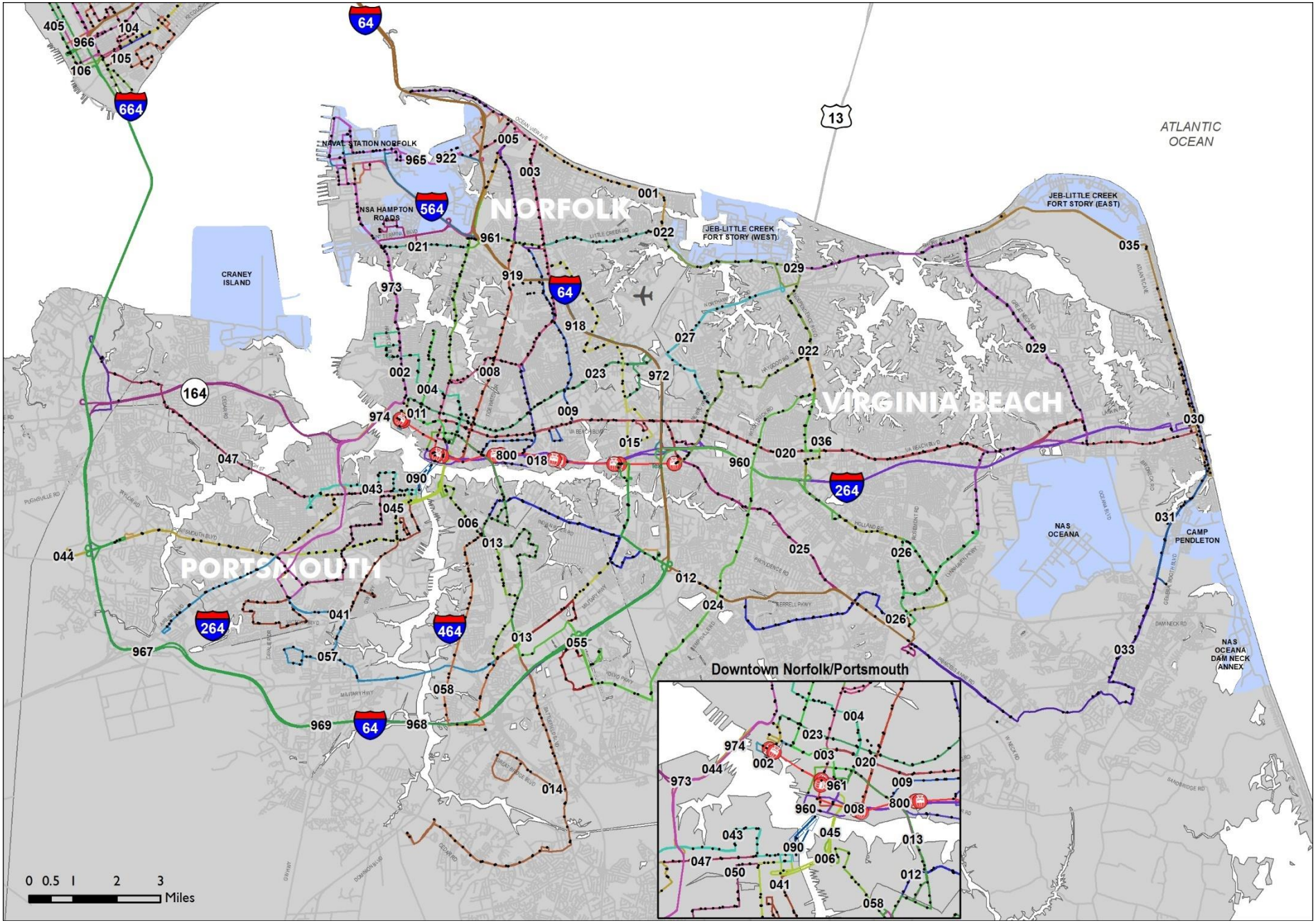
Tickets can be purchased to ride the Tide at ticket vending machines, at select retail outlets, and online. One-way tickets can only be purchased from ticket vending machines, and they expire 90 minutes from the time of purchase.

**The Tide** Source: HRT

[6] Transit Strategic Plan FY2021-FY2030, Hampton Roads Transit, Final Report, June 2020.




Map 5 – Hampton Roads Transit (HRT) System Map - Peninsula




Map 6 – Hampton Roads Transit (HRT) System Map - Southside


Source: HRT

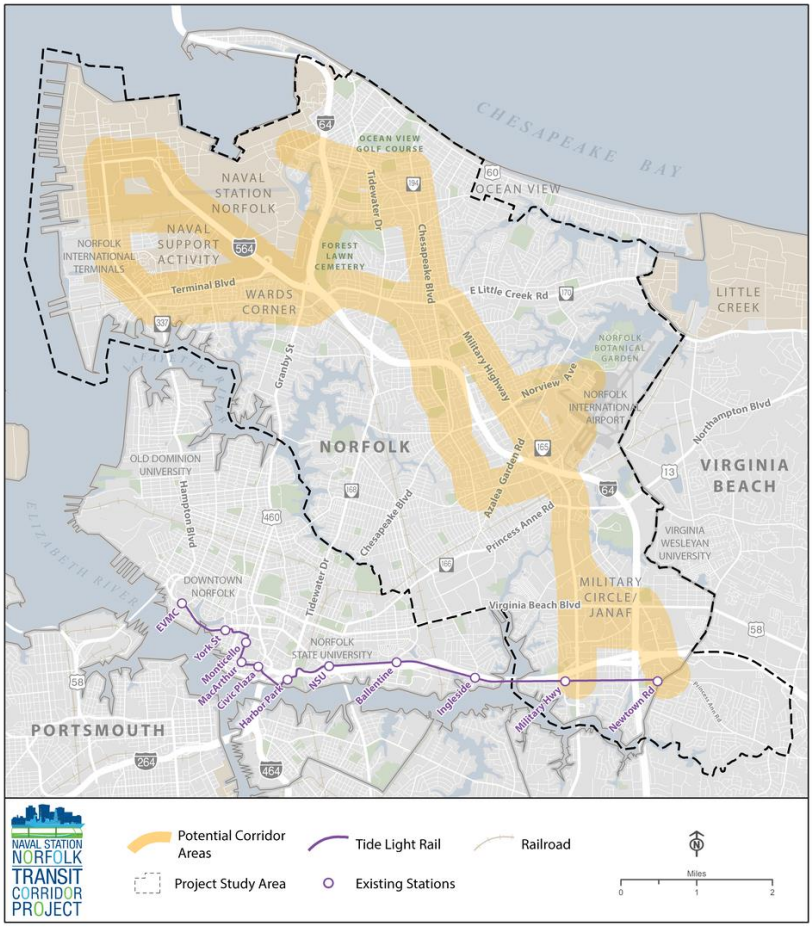
**Map 7 – The Tide Light Rail System (Norfolk) Map**

### *HRT Transit Extension Studies*

Hampton Roads Transit (HRT), the City of Norfolk, and the Hampton Roads region have identified a need for high capacity transit mobility and connectivity on the east side of the City of Norfolk from The Tide light rail system to Naval Station Norfolk. This initiative is called the Naval Station Norfolk Transit Corridor Project (NSNTC). The purpose of this transit connection is to increase mobility choice, improve access between activity centers and neighborhoods, and help meet the region's needs for a time-competitive, flood-resilient, sustainable, cost-effective alternative to automobiles.

Goals of the NSNTC Project are:

1. Evaluate future high-capacity transit services for Norfolk's east side
2. Assess viability of high-capacity transit service to Naval Station Norfolk
3. Focus on light rail or Bus Rapid Transit (BRT) as a potential option
4. Lay the conceptual foundation for an innovative transit plan and Draft Environmental Impact Statement that will qualify for future state and federal funding




**Map 8 – Naval Station Norfolk Transit Corridor Project Study Area**
Source: HRT

**Map 8** on page 23 highlights the project study area, potential transit corridors, and the current Tide Light Rail network.

In September 2020, the HRT study team completed an evaluation of initial "Tier 1" alternatives. The Tier 1 Alternatives were made up of potential corridor segments in three main connection areas of the project study area: Naval Station Norfolk, Norfolk International Airport, and the east end of The Tide light rail. Both Light Rail Transit and Bus Rapid Transit, which is a high-quality, bus-based transit system that often includes dedicated lanes, busways, traffic signal priority, off-board fare collection, and elevated platforms, were evaluated.

The 18 corridor segments were each given high, medium, or low scores for 12 evaluation criteria. The best-scoring segments serving each of the main connection points were then selected for further evaluation in the Tier 2 phase of the analysis.


**Map 9 – NSN Transit Corridor Project Tier 2 Alternatives**
Source: HRT

In Tier 2, the study team analyzed four alignments, each with two technologies (Light Rail and Bus Rapid Transit), for a total of eight alternatives. These alternatives included bus circulators to connect Norfolk International Airport, Naval Station Norfolk, and Naval Support Activity (NSA) from new transit stations. The Tier 2 analysis, which was completed in August 2021, considered transit ridership, development potential, environmental and traffic impacts, capital costs, and operating costs.

Tier 2 key findings were:

- Ratings for all alternatives are very close, but alternatives that serve the Main Gate of Naval Station Norfolk rate higher.
- Environmental impacts are roughly the same for all alternatives since they share most of the same alignment through the middle of the study area.
- The biggest differences in ratings between the alternatives were in ridership and cost estimates.
- Bus Rapid Transit rated better in up-front and annual costs, and Light Rail rated better in attracting higher ridership.

The Tier 2 results indicated that the greatest challenge will be moving forward with a project that would be competitive for federal funding. When compared to similar national projects, the Tier 2 alternatives were not supported by enough riders to justify the cost to complete. However, two projects have been identified for advancement in a multi-phased expansion of the transit network in the Military Highway Corridor that could be more cost-competitive than a single light rail or BRT project:

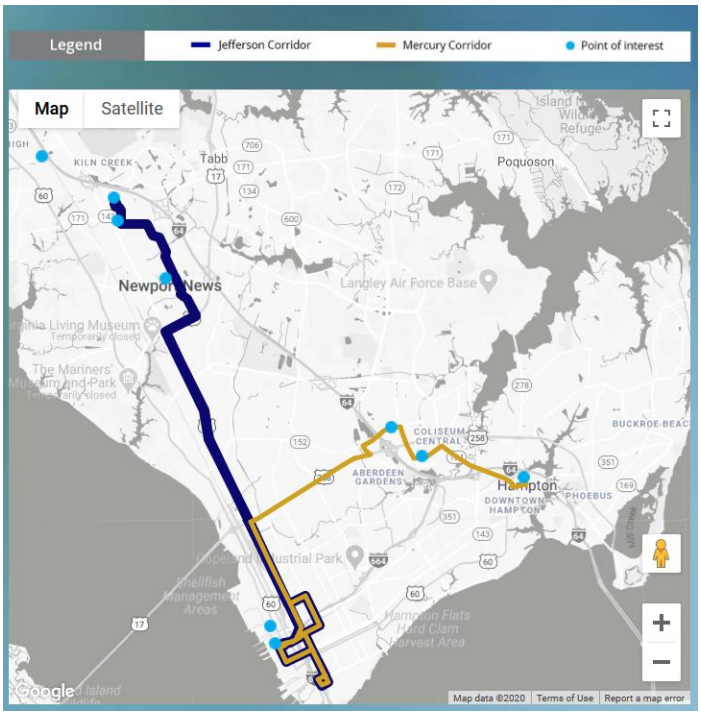
- **Phase 1:** A Tide extension to Sentara Leigh Hospital and Military Circle could be a highly competitive transit service in the near-term connecting these activity centers to downtown and strategically coordinating timing with the design phase of the Military Circle Redevelopment Project.
- **Phase 2**: BRT to Naval Station Norfolk has the potential to be a highly competitive transit service when refined further. This is an opportunity to coordinate with HRT's Chesapeake High Capacity Transit Study connecting to the Greenbrier area.

### *Peninsula Bus Rapid Transit (BRT)*

Hampton Roads Transit (HRT), the Federal Transit Administration (FTA), the City of Hampton, and the City of Newport News are conducting an environmental review of the Peninsula Bus Rapid Transit (BRT) project. The environmental review will evaluate major BRT corridors that will assist passenger movement on the Hampton Roads Peninsula.

The 2016–17 Peninsula Corridor Study defined potential high-capacity transit connections between existing and future activity centers in Hampton and Newport News. The study identified two BRT corridors – Jefferson Avenue and Mercury Boulevard – as the most feasible and cost-effective alternatives, representing the Peninsula's best opportunity to meet the high-capacity transit needs of the community and effectively compete for FTA funding. These corridors provided the best mobility and community benefits with the least impacts to the existing environment—which the project team seeks to confirm with this review.

The Peninsula BRT project will further define the BRT routes and an environmental review will be completed under the National Environmental Policy Act (NEPA). A NEPA review is required for projects that utilize federal funds for construction. Environmental review considers the natural, cultural, and human elements of the project as they relate to the environment as well as local and regional travel changes. A Locally Preferred Alternative (LPA) for the Peninsula BRT was adopted in June 2021.




**Map 10 – Peninsula BRT Corridor Alternatives**
Source: www.peninsulabrt.com/

### *757 Express*

In 2022, Hampton Roads Transit (HRT) will deploy a new expanded bus service called the 757 Express, a network of 13 regional, high-frequency bus routes that will offer 15-minute headway service reaching the six cities (Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach) that the agency serves. Other HRT routes typically have had 30 to 60-minute headway service. The expanded service will provide timely connections to major activity centers with a much better frequency compared to today's local bus transit network, providing an improved transit option for commuters.

The 757 Express will be deployed in phases, starting with a select number of Peninsula routes, and then will expand to include service on the Southside. The new service will include "work trip" routes that HRT uses to carry workers to the Newport News Shipyard. The plan calls for adding some additional trips to these Peninsula Commuter Routes to better match worker shift times.

The 757 Express is being funded from the Hampton Roads Regional Transit Program, which is described later in this section.

## *TRANSPORTATION DEMAND MANAGEMENT*

**(Included in Strategies #1, #2, and #3)**

Transportation Demand Management (TDM) programs are designed to reduce traffic congestion through a variety of mobility options, such as ridesharing, transit usage, telecommuting, and spreading out peak period traffic. TDM strategies focus on alternatives to driving alone by encouraging the use of alternate modes or programs.

In Hampton Roads, TRAFFIX is a cooperative public service, established in 1995, that implements TDM strategies by offering information and services on transportation alternatives to area commuters. TRAFFIX promotes and implements a wide variety of programs and incentives, including:

- Carpooling
- Commuter rideshare matching
- Guaranteed ride programs
- Agile Mile (formally NuRide) commuter rewards
- GoPass365 program
- Military transportation incentive program
- Park and ride/park and sail
- Vanpooling and van leasing
- Bike/walk commuter services
- Teleworking

TRAFFIX works with area employers, including the military, to educate, develop, and implement transportation alternative programs for their employees. TRAFFIX currently has outreach offices at Naval Station Norfolk and the Downtown Newport News Transit Center.

TRAFFIX staff are employees of Hampton Roads Transit (HRT); however, funding is provided through the Hampton Roads Transportation Planning Organization (HRTPO). The HRTPO has authorized annual funding for TRAFFIX through Congestion Mitigation and Air Quality (CMAQ) and/or Regional Surface Transportation Program (RSTP) funding since 1995. The TRAFFIX Subcommittee (TS) is made up of transportation professionals from the cities and counties in the Metropolitan Planning Area (MPA), the Virginia Department of Transportation (VDOT), the Federal Highway Administration (FHWA), U.S. Navy, and the Virginia Department of Rail and Public Transportation (DRPT). The TS, which reports to the Transportation Technical Advisory Committee (TTAC), meets regularly to review the progress and status of the TRAFFIX program.

**TRAFFIX Vanpools**
Image Source: HRT/TRAFFIX

In Hampton Roads, TRAFFIX outreach efforts consist of working with area businesses to educate them on the benefits and importance of saving money, gas, and the environment while reducing VMTs. Newly created partnerships with the Hampton Roads Chamber of Commerce, Hampton Roads Workforce Development Council, Greater Peninsula Workforce Board, and Peninsula Chamber of Commerce will increase employer engagement through this partnership.

For more information on TRAFFIX, visit: https://gotraffix.com/.

### *TRAFFIX Programs and Services*

Below is a brief description of TRAFFIX programs and services.

#### Bike/Walk Commuter Services

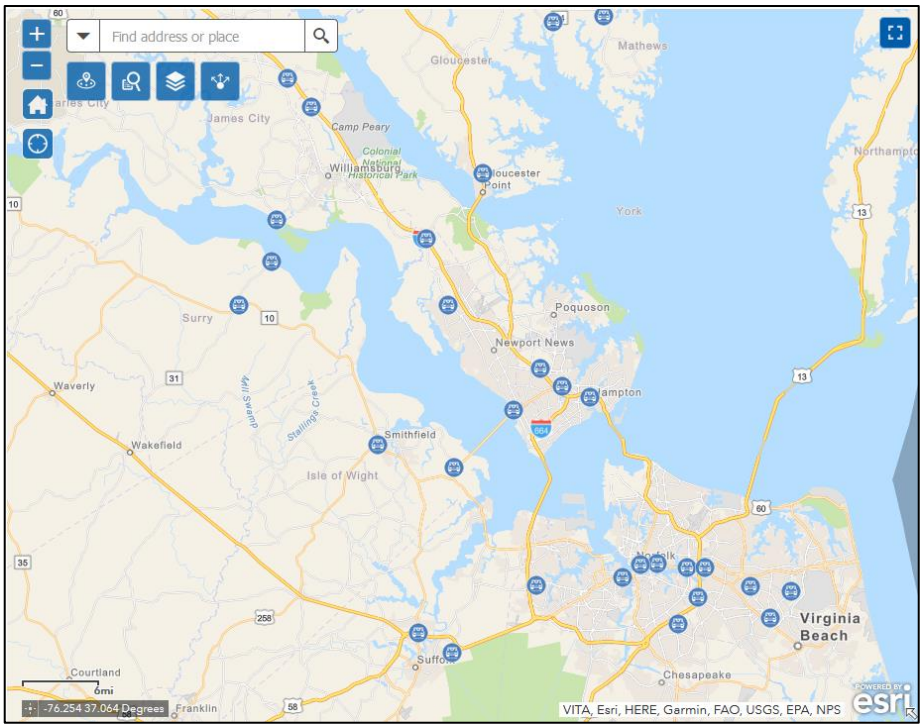
TRAFFIX supports bike commuters by providing bike lockers, repair stations, and information on biking paths. To help commuters learn about the bike services available, TRAFFIX promotes Bike to Work Month and Bike to Work Week. TRAFFIX also supports commuters who walk to work with commuter planning and rewards.

### Commuter Rewards

The Agile Mile (formally NuRide) Program is a commuter incentive program that provides rewards to commuters who use alternative commuting methods. When a commuter walks, bikes, telecommutes, carpools, vanpools, rides public transportation, or works a compressed work week, they can log the trip into the Agile Mile system to receive reward points. The points can be redeemed for discounts at local restaurants, retailers, and grocery stores.

### Employer-Based Marketing

TRAFFIX Employee Transportation Coordinators (ETC) work with local employers to promote TDM services and strategies to help employees improve their commutes.




**Map 11 – Hampton Roads Park & Ride Lots**

Source: https://gotraffix.com/programs/park-ride/

### GoPass365

This annual pass, offered through employers or educational institutions, allows the owner unlimited access to every mode of transit offered by Hampton Roads Transit (HRT).

### Guaranteed Ride Program

This program supports commuters who take alternative transportation with a ride back to their point of origin when an emergency or unplanned circumstance arises after arriving to work.

### Park and Ride/Park and Sail

Through Park and Ride and Park and Sail programs, TRAFFIX provides park and ride information to local commuters, researches potential park and ride locations, and provides parking tags upon commuter request. TRAFFIX works with HRT, VDOT, and the Hampton Roads jurisdictions to provide Park and Ride/Park and Sail lots (**Map 11**). These facilities provide free, all-day parking and are convenient for express buses, carpools, and vanpools. Registration is required for some lots. For registration and more information click here.

### Rideshare Matching

TRAFFIX helps match carpool and vanpool commuters in Hampton Roads that share similar work hours and locations, taking more single occupancy vehicles off the roads.

### Surveys

TRAFFIX designs and conducts employee surveys that gather information on commuter behaviors, route changes, and employee transportation needs. TRAFFIX establishes commuter programs based on these surveys.

### Naval Station Norfolk Office

This centrally located TDM office allows military commuters an opportunity to learn more about commuting options, purchase transit passes at the ticket vending machine, and conduct meetings with area commands.

### Transit Information

TRAFFIX provides commuters with route information for Hampton Roads Transit, Suffolk Transit, Star

Transit, and Williamsburg Area Transit Authority services.

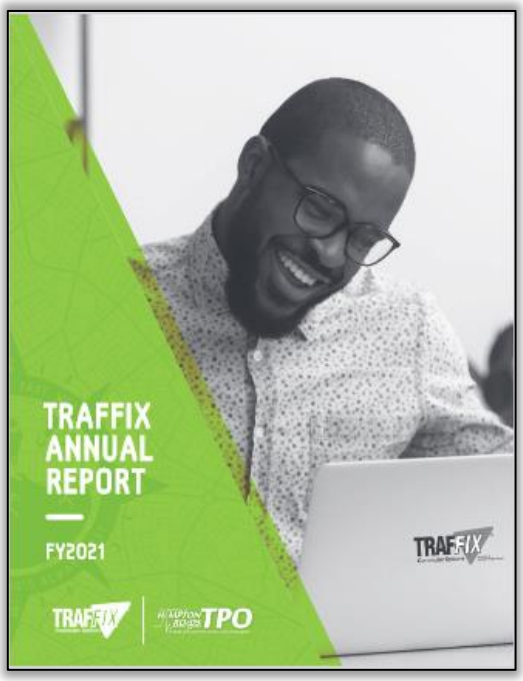
**Vanpool Services**

TRAFFIX provides information about local vanpool vendors and financial assistance to commuters who want to start or maintain a vanpool.

### *TRAFFIX Annual Report*

TRAFFIX prepares an annual report in coordination with the TRAFFIX Subcommittee, Transportation Technical Advisory Committee (TTAC), and Hampton Roads Transportation Planning Organization (HRTPO). This report includes a description of TRAFFIX programs/services, goals, performance measures, outreach efforts, and the annual TRAFFIX budget.

TRAFFIX Annual Reports are located on the following HRTPO webpage:
**http://www.hrtpo.org/page/transportation-demand-management**.



## ACTIVE TRANSPORTATION
**(Included in Strategy #2)**

Active transportation planning, which aims to improve the user safety and mobility of all types of non-motorized transportation options, has expanded both in Hampton Roads and across the country. The term active transportation refers to transportation such as walking or using a bicycle, tricycle, wheelchair, scooter, skates, skateboard, push scooter, or similar devices. Bicycle lanes, multi-use paths, sidewalks, crosswalks, and trails are all non-motorized transportation facilities designed to improve the mobility and safety of active transportation users. The various types of non-motorized facilities used in Hampton Roads are shown in **Figure 5**.

Making investments in non-motorized modes of transportation, such as biking and walking, can increase safety and mobility in a cost-efficient manner. Active transportation facilities provide a zero-emission alternative to motorized modes and can mitigate congestion in localized areas of the region. These facilities must be coordinated with local land use plans and policies and integrated with other modes, such as transit, to be effective.

In Hampton Roads, VDOT and many jurisdictions require developers to incorporate facilities for non-motorized transportation into new developments. In some cases, this has resulted in gaps in the network of sidewalks and bikeways. Many local jurisdictions within Hampton Roads are working toward providing the necessary connections to improve the overall network.

There are currently over 1,300 miles of shared use paths, bike lanes, paved shoulders, wide sidewalks, signed shared roadways, and trails that comprise the bicycle and pedestrian network across Hampton Roads. These non-motorized facilities vary greatly, from secluded

### ACTIVE TRANSPORTATION FACILITY TYPES

There are various types of non-motorized facilities throughout Hampton Roads. Examples of these non-motorized facilities include:

**Bike Lanes**
A portion of the roadway is designated by signs and pavement markings for the preferential or exclusive use of bicycles.

**Signed Shared Roadway**
A roadway designated by bike route signs that serve to provide continuity to other bicycle facilities.


**Shared Use Paths**
A facility physically separated from motorized vehicular traffic intended for the use of bicycles, pedestrians, and other active transportation users.

**Grade Separated Crossing**
Facilities that are designed to continue non-motorized facilities through high volume roadways, railroads, or natural barriers.

**Paved Shoulders**
A paved portion of a roadway to the right of the edge stripe on which bicyclists may ride. These areas are not to be marked as bike lanes.

**Sidewalks**
Non-motorized facilities between the curb line and adjacent property line that are designed primarily for foot traffic and users with smaller wheeled devices.

**Wide Outside Lanes**
An outside travel lane with a width of at least 14 feet.

**Trails**
Routes developed primarily for outdoor recreational purposes.

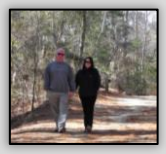


**Figure 5 – Active Transportation Facility Types in Hampton Roads**

## NEW DEVELOPMENTS IN ACTIVE TRANSPORTATION

**Norfolk Bike Loop** – The City of Norfolk created a 4-mile bike loop along 35th Street, Llewellyn Avenue, Olney Road, 26th Street, 27th Street, and Colley Avenue. Construction of the dedicated facility – which is comprised of various types of bicycle facilities – was completed in late 2016.

**Suffolk Seaboard Coastline Trail** – The Suffolk Seaboard Coastline Trail is envisioned as an 11-mile trail that will connect Downtown Suffolk with the City of Chesapeake. The first portion of the trail, a 2.3-mile section near the village of Driver, opened in 2015 and another 1.1-mile section of the trail between Shoulders Hill Road and the Chesapeake City Line was completed in early 2017. Another phase spanning between Nansemond Parkway and Suburban Drive was completed in 2021, and a continuation of the trail into the City of Chesapeake is expected to begin construction in the near future.

**Regional Trails** – Planning is underway on a number of facilities throughout the region. The South Hampton Roads Trail (SHRT) is planned as a 41-mile trail connecting Suffolk with the Virginia Beach Oceanfront. Existing portions of the Seaboard Coastline Trail in Suffolk, the Elizabeth River Trail in Norfolk, and the Virginia Beach Trail are completed portions of the SHRT. Plans are also underway for portions of this trail in Chesapeake and Portsmouth. Planning is also underway on the Birthplace of America Trail, which is described later in this section.

**Figure 6 – New Developments in Active Transportation**

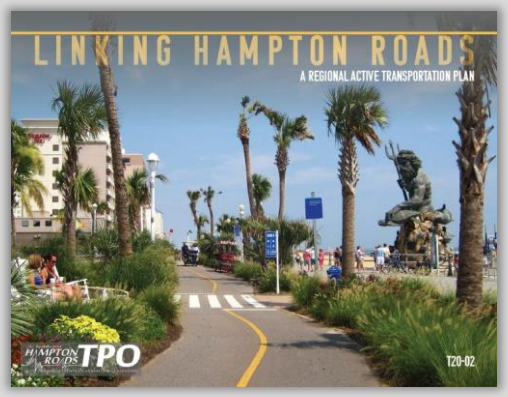
park trails to dedicated bike lanes along major roadways to popular multi-use paths such as the 52-mile Virginia Capital Trail.

In recent years, several Active Transportation facilities have been added throughout Hampton Roads. Examples of these facilities include sections of the Suffolk Seaboard Coastline Trail, the addition of bike lanes along Shore Drive in Virginia Beach, road diets on various roadways including Lafayette Boulevard and Ocean View Avenue, and the Bike Loop in the Ghent section of Norfolk.

Most jurisdictions in Hampton Roads have created plans that are specifically dedicated to improving active transportation. Examples include:

- A bicycle advisory committee that helped prepare a Regional Bicycle Facilities Plan and Bikeway Map in the Historic Triangle (James City County, Williamsburg, and York County)
- Virginia Beach's Active Transportation Plan
- Norfolk's Strategic Bike and Pedestrian Plan
- Hampton's Bike Walk Hampton Strategic Bicycle and Pedestrian Plan
- Suffolk's Bicycle and Pedestrian Master Plan
- Portsmouth's Bicycle and Pedestrian Plan

## LINKING HAMPTON ROADS




In the summer of 2017, HRTPO began developing a regional active transportation plan for the Hampton Roads region. The purpose of this regional plan is to provide a clear structure for the development of new facilities, programs, and policies that will link the region by developing greater active transportation facilities and promoting active and healthy lifestyles throughout the region.

The development of the Linking Hampton Roads regional active transportation plan included an open public participation process with residents providing input through online surveys, public events, stakeholders meetings, advocacy group input, and the regional Active Transportation Subcommittee.

The Linking Hampton Roads plan includes a regional analysis of current conditions and existing facilities, recommendations for a complete network of proposed active transportation facilities, and recommended design guidelines for the development of future facilities. Goals of the plan include:

- Improve safety for all users including people with access and functional needs
- Link the region throughout with active transportation facilities
- Improve health outcomes in the region
- Promote and encourage the growth of the region's economy and tourism

The final version of the Linking Hampton Roads report was approved by the HRTPO Board in 2020. The Linking Hampton Roads report is available at **https://www.hrtpo.org/page/active-transportation**.

**Figure 7– Linking Hampton Roads: A Regional Active Transportation Plan**

- Isle of Wight County's **Pedestrian and Bicycle Facilities Master Plan**
- Southampton County's **Active Transportation Plan**
- Surry County's **Comprehensive Bicycle and Pedestrian Plan**

In addition, VDOT has developed statewide active transportation plans. The **State Bicycle Policy Plan** includes policy recommendations that will guide the planning, design, construction, operation, and maintenance of bicycle facilities. The **State Pedestrian Policy Plan** establishes a vision for the future of walking in Virginia. The plan is a guide for officials, organizations, and individuals to improve pedestrian policy and accommodations. VDOT has also recently developed a **Pedestrian Safety Action Plan**. Much of the planning for these efforts has been conducted through the Virginia Statewide Bicycle and Pedestrian Advisory Committee (BPAC), and the Hampton Roads Pedestrian and Bicycle Advisory Committee (PABAC).

## BIRTHPLACE OF AMERICA TRAIL

HRTPO staff, with assistance from VDOT and a subcommittee made up of localities and local agencies, has been involved in studying the Birthplace of America Trail (BOAT). The BOAT is envisioned as an extension of the Virginia Capital Trail from its current terminus at Jamestown to Fort Monroe and the western terminus of the South Hampton Roads Trail, which would provide a connection all the way to the Virginia Beach Oceanfront. Once built, the Virginia Capital Trail, Birthplace of America Trail, and South Hampton Roads Trail will connect Richmond to Coastal Virginia with over 140 miles of separated, paved off-road trails.

The **Birthplace of America Trail study** was adopted by the HRTPO Board in July 2017. With the study adopted, HRTPO staff and localities are working towards finding funding for constructing and marketing the trail.

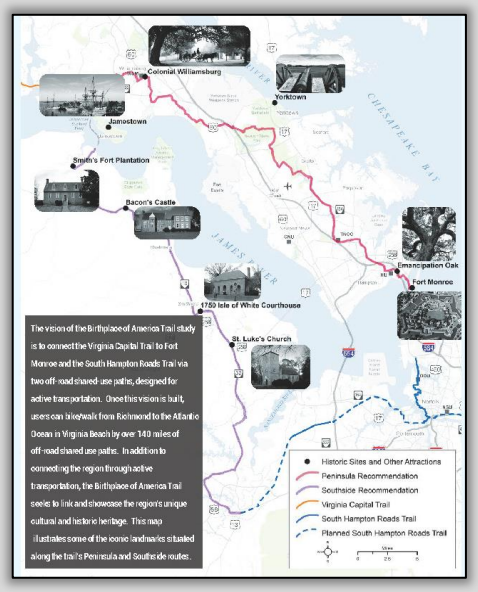



**Figure 8– Birthplace of America Trail**

HRTPO is also heavily involved in Regional Active Transportation Planning. This includes evaluating active transportation projects as part of the Long-Range Transportation Plan and working with regional stakeholders in a variety of ways including via the Active Transportation Subcommittee.

In addition, HRTPO has also developed the Linking Hampton Roads regional active transportation plan, as described further in **Figure 7** on the previous page. More information on HRTPO's expanding Active Transportation planning efforts is available at **http://www.hrtpo.org/page/active-transportation**.

While nearly all jurisdictions in Hampton Roads incorporate a multimodal transportation vision in their projects and planning efforts, certain localities are adopting policies known as Complete Streets. Complete Streets policies ensure that corridors are planned, designed, and maintained to enable safe usage for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets also increase connectivity between neighborhoods and streets and encourage the use of alternative forms of transportation.

In Hampton Roads, some localities have already incorporated Complete Streets into their comprehensive plans (or bicycle and pedestrian master plans) and others have identified it as a goal. Examples include:

- **James City County** has provided for the design of Complete Streets in their 2015 Comprehensive Plan.
- **Norfolk** adopted a Complete Streets policy in 2017 and maintains a Complete Streets Committee.
- **Portsmouth** recommends Complete Streets design standards in their 2020 Bicycle and Pedestrian Plan.
- **Virginia Beach** adopted a Complete Streets policy in 2014 and recommends Complete Streets strategies as a part of their Active Transportation Plan.

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## HRTPO BOARD ADVISORY COMMITTEES

**(Included in All Strategies)**

Members of the Hampton Roads Transportation Planning Organization (HRTPO) Board's advisory committees and subcommittees work collaboratively to address transportation issues and implement congestion mitigation strategies. Below is a description of each committee and their roles and responsibilities:

The **Transportation Technical Advisory Committee (TTAC)** acts as an advisory body to the HRTPO for transportation issues that are technical in nature. It is staffed by transportation professionals from member localities, the Federal Highway Administration (FHWA), Virginia Department of Transportation (VDOT), Hampton Roads Transit (HRT), Williamsburg Area Transit Authority (WATA), Virginia Department of Rail and Public Transportation (DRPT), Virginia Port Authority (VPA), Federal Transit Administration (FTA), Virginia Department of Aviation, and the U.S. Navy. The TTAC interacts with HRTPO staff on technical matters related to regional transportation planning and programming. Through this work, the TTAC develops recommendations on projects and programs for HRTPO Board consideration.

The **Community Advisory Committee (CAC)** serves as an advisory committee to the HRTPO and HRPDC Boards and membership is decided by both boards. The CAC provides public input to the HRTPO Board on transportation issues. Established in 2010 as the Citizen Transportation Advisory Committee (CTAC), the CAC gives the citizens of Hampton Roads a unique opportunity to help guide the transportation planning process and to lend a citizen's lens through which the regional transportation planning process can be viewed. Members of the CAC are selected from the public by the HRTPO and HRPDC Boards, and include citizens from every jurisdiction. The chair of the CAC attends HRTPO Board meetings as a non-voting member. This CMP document in only on the HRTPO Board agenda for approval.

The **Legislative Ad-Hoc Committee** serves as an advisory committee to the HRTPO Board and provides input as circumstances require on transportation-related legislative issues. Committee members are from several member localities and the Virginia General Assembly.

The **Freight Transportation Advisory Committee (FTAC)** advises the HRTPO Board on regional freight-related transportation issues. The FTAC is primarily composed of members from the shipping, trucking, and warehousing industries. The mission of FTAC includes advocating on behalf of the movement of freight in the region. The FTAC consists of nine members, and the committee chair serves as a non-voting member of the HRTPO Board.

The **Hampton Roads Transportation Operations (HRTO) Subcommittee**, which is described in more detail later in this section, advises the TTAC on regional transportation operations issues. The **TRAFFIX Subcommittee (TS)**, which was discussed in the Transportation Demand Management section of this report, reviews the progress of TRAFFIX and reports to TTAC regularly. Regional transportation committees such as the **Hampton Roads Regional Concept of Transportation Operations – Traffic Incident Management working group (RCTO-TIM)** are led by other organizations and are discussed in more detail in the ITS & Operations section.

More information on these HRTPO Board advisory committees is available at **http://hrtpo.org/page/board-advisory-committees**.

## HAMPTON ROADS TRANSPORTATION ACCOUNTABILITY COMMISSION

**(Included in All Strategies)**

In April 2014, Governor Terry McAuliffe signed into law the establishment of the **Hampton Roads Transportation Accountability Commission (HRTAC)**. HRTAC is comprised of 23 members – 14 chief elected officers from local governments, 2 Virginia Senators, 3 Virginia Delegates, and 4 non-voting members (the Commissioner of Highways, Director of

Rail and Public Transportation, Executive Director of the Virginia Port Authority, and a member of the Commonwealth Transportation Board).

HRTAC serves as a political subdivision of the Commonwealth of Virginia to procure, finance, build, and operate high priority transportation projects in Hampton Roads using Hampton Roads Transportation Fund (HRTF) revenues from House Bill 2313 approved by the 2013 General Assembly. HRTF projects include the Hampton Roads Bridge-Tunnel Widening, I-64 Southside Widening (which includes the High-Rise Bridge, I-64/I-264 Interchange Improvements, I-64 Peninsula Widening, and the Regional Express Lanes Network.

More information on HRTAC is available at http://www.hrtpo.org/page/hrtac.

### *HAMPTON ROADS REGIONAL TRANSIT PROGRAM*

**(Included in Strategy #2)**

On September 18, 2020, Governor Ralph Northam signed a new law that provides a dedicated regional public transportation funding source for the first time. The new Hampton Roads Regional Transit Program and Fund, which is being administered through the Hampton Roads Transportation Accountability Commission (HRTAC), is expected to generate up to $31 million annually. This is being done through an additional grantor's tax of $0.06 per $100 real estate value in the six cities served by HRT (Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach), a regional transient occupancy tax of 1% of the charge for occupancy in the six cities, and a reallocation of statewide recordation taxes. The goal is to provide a modern, safe, and efficient core network of transit services across Hampton Roads region.

The centerpiece of the Hampton Roads Regional Transit Program is a new core and connected bus network, or "Regional Backbone" routes, that will connect the six cities served by HRT with high-frequency, inter-jurisdictional service. The Regional Backbone routes and Limited/Express routes are the only classification of bus routes that will be eligible to be funded using the Hampton Roads Regional Transit Fund. For these routes, operating and capital costs for expansion and ongoing State of Good Repair will be the primary use of Program funds. **Maps 12 and 13** show route classifications and delineate two route types within the Program (Regional Backbone and Limited/Express shown in red and light blue) on both the Peninsula and Southside.

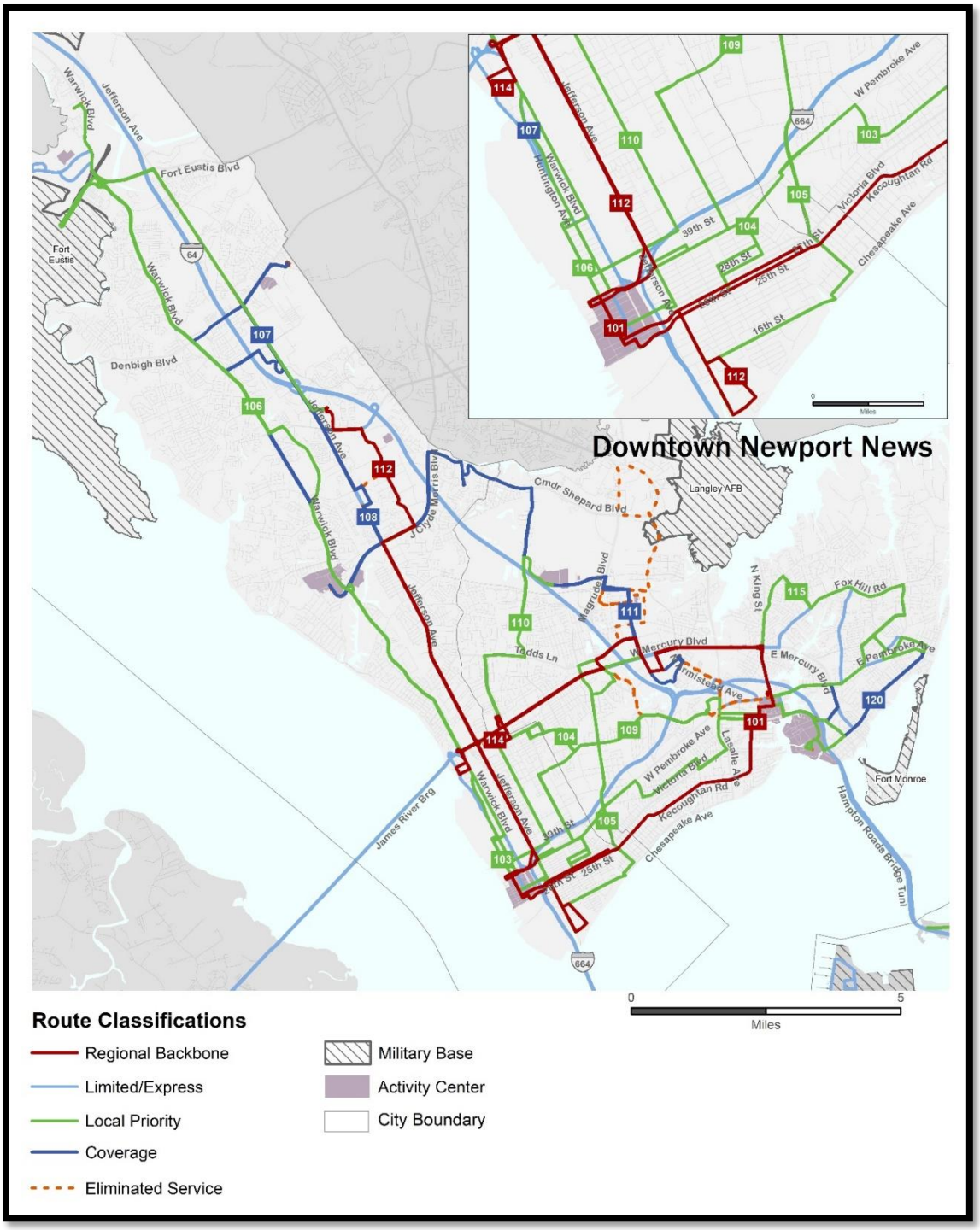
The legislation also calls for the HRTPO to create a Regional Transit Advisory Panel (RTAP), which will be tasked with providing feedback to the regional planning process on the long-term vision for a multimodal regional public transit network in Hampton Roads.

In accordance with the legislation, the RTAP membership is composed of members and appointed representatives from:

- Major business and industry groups
- Major employers
- Shopping destinations
- Tourist destinations
- Institutions of higher education
- Military installations
- Hospitals and health care centers
- Real estate
- Public transit entities
- Air travel
- Community representatives

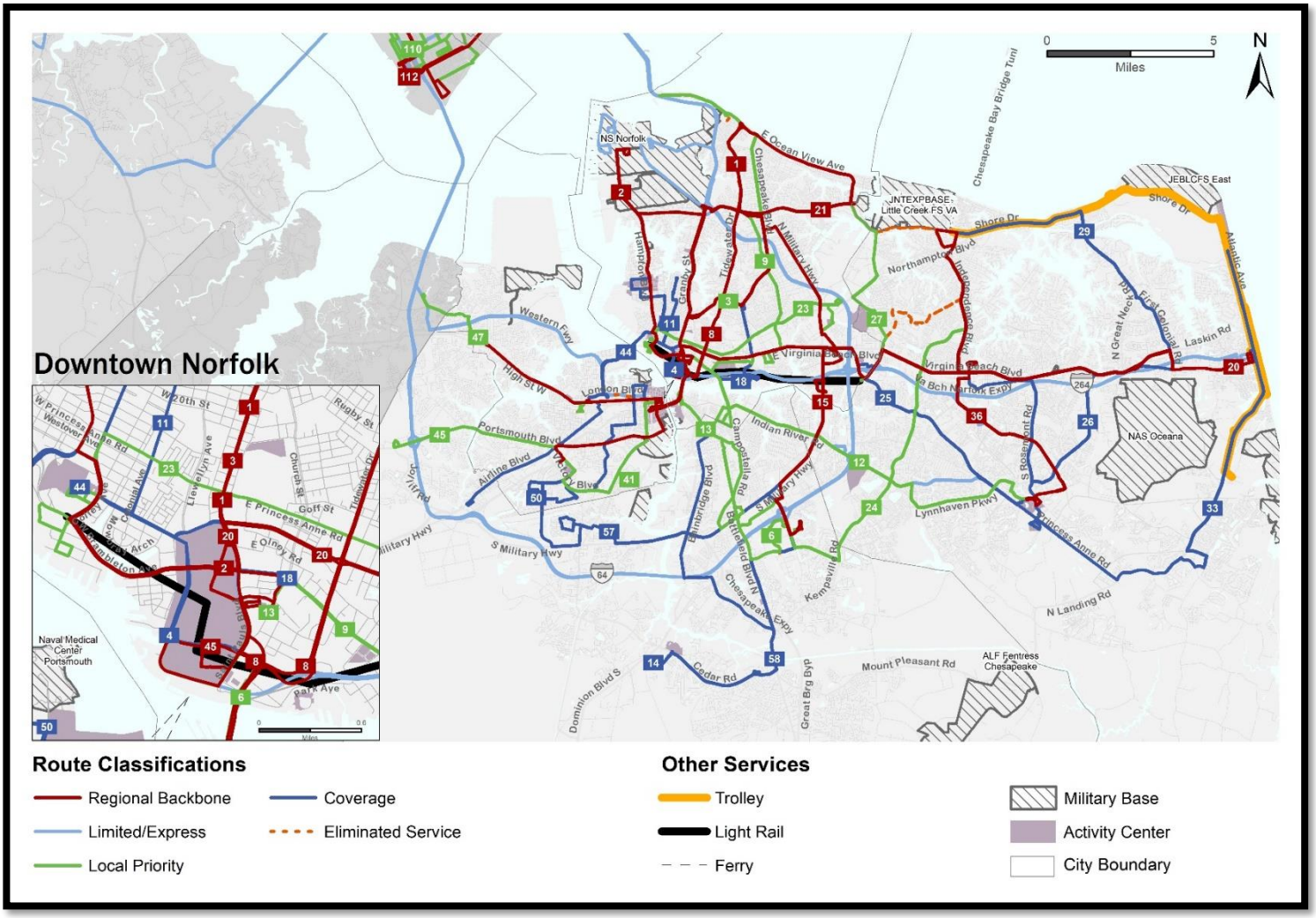
The RTAP held its first meeting on November 18, 2020, and met eight times between November 2020 and November 2021. To begin its work, the RTAP received information briefings from the three transit agencies serving the Hampton Roads region: Hampton Roads Transit, Williamsburg Area Transit Authority (WATA) and Suffolk Transit. The RTAP also reviewed the legislation approved by the Virginia General Assembly and discussed the importance of a regional transit network to the economic health and competitiveness of the Hampton Roads region. The RTAP membership also held an extensive roundtable discussion on issues, challenges and opportunities related to transit in the Hampton Roads region.

The RTAP members proceeded to select their preferred work groups/topics and endorsed memberships and assignments to these work groups at the RTAP's March 31, 2021 meeting. Each work group was assigned with identifying a short list of action steps that could be taken in each topic area in the near term to advance/strengthen transit in the Hampton Roads/757 Region.




**Map 12 – Regional Transit Program Route Classifications – Peninsula**
Source: HRT Transit Strategic Plan FY2021-FY2030

The RTAP work groups each met several times over a three month period and reported their recommendations under each topic area back to the full RTAP membership. The RTAP membership discussed and reached consensus on additions/revisions to the recommendations. The full RTAP membership then endorsed a full list of recommendations for advancing/strengthening transit in the Hampton Roads region.




**Map 13 – Regional Transit Program Route Classifications – Southside**
Source: HRT Transit Strategic Plan FY2021-FY2030

## TRANSPORTATION OPERATIONS & ITS

**(Included in Strategy #4)**

The purpose of transportation operations is to maximize the safety, security, and mobility of roadway users by actively managing the regional transportation system. Transportation operations involves trained and coordinated personnel managing the system with Intelligent Transportation Systems (ITS) technologies. Examples of transportation operations include incident management (such as VDOT's Safety Service Patrol), traffic signal coordination, E-ZPass electronic toll collection, changeable message signs, and traveler information. Including Intelligent Transportation Systems (ITS) technologies and transportation operations – cost-effective methods of maximizing the capacity of the existing roadway network – have become more attractive as roadway projects have become more costly and more difficult to construct. Examples of ITS technologies used in Hampton Roads are shown in **Figure 9** below.

### ITS TECHNOLOGIES IN HAMPTON ROADS

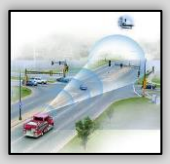
Hampton Roads has been a national leader in the use of Intelligent Transportation Systems (ITS). Nearly every mile of Interstate in the region is instrumented with ITS technologies, and cities throughout the region maintain ITS infrastructure as well. The following are examples of ITS technologies in use throughout Hampton Roads:

**Transportation Operations Centers (TOCs)**
Centers that incorporate various ITS technologies to assist staff with traffic monitoring, incident response, and information dissemination.

**Vehicle Detection Devices**
Records traffic volumes and speeds. Also notifies TOC staff of congestion and incidents.

**Reversible Roadway Gates**
Allows traffic on limited-access roadways to be reversed based on commuting patterns, maximizing the use of the existing roadway.

**Emergency Vehicle Signal Preemption**
Changes the traffic signal when emergency vehicles approach, improving safety and response time.



**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.

**Shoulder/Lane Control**
Allows the shoulder to be opened to vehicles during peak travel periods.

**CCTV Cameras**
Provides roadway images to transportation operations centers and the public.

**Electronic Toll Collection**
Allows travelers to pass quickly through toll gantries, avoiding backups due to paying tolls.

**511 Virginia**
Provides up-to-date traveler information via smart phones, the internet, and other methods.

**Changeable Message Signs**
Provides up-to-date information to the traveling public.

**Transit Automatic Vehicle Location (AVL)**
Provides the location of transit vehicles, aiding on-time performance.

**Highway Advisory Radio**
Provides up-to-date traveler information through radio broadcasts on 1680 AM.


**Overheight Detection**
Detects overheight vehicles to prevent damage to the region's tunnels and bridges.

Figure 9 – ITS Technologies Used in Hampton Roads

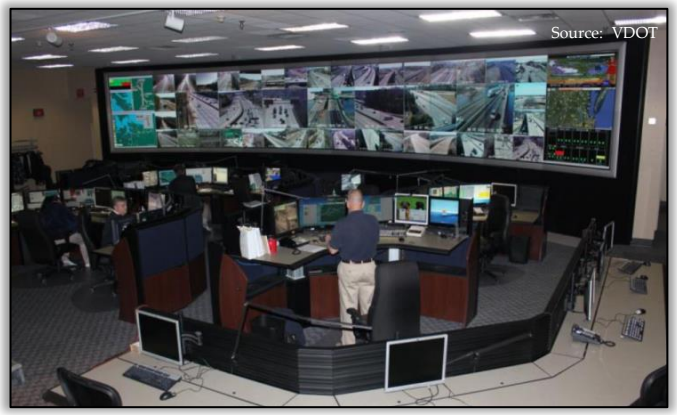
In Hampton Roads, the freeway system is managed by the VDOT Eastern Region Transportation Operations Center (TOC). The Eastern Region TOC monitors traffic conditions throughout the region, maintains and operates ITS infrastructure on the regional Interstate system, responds to and clears crashes and other types of incidents with the Safety Service Patrol, and informs travelers of roadway conditions via changeable message signs, highway advisory radio, and the 511 Virginia phone, smartphone app, social media, and other online services.

The Eastern Region TOC serves as the backbone for transportation operations in the region. Some facts about the TOC and its Safety Service Patrol:

- Currently covers 141 miles, which is nearly the entire regional Interstate system and selected arterial roadways.
- Operates over 300 closed-circuit cameras (CCTV), 200 dynamic message signs, five reversible roadway gate entrances, and hundreds of vehicle detection devices, linked together by fiber optic cable.
- Responded to nearly 45,000 incidents and drove over 3 million miles in 2018 via the Safety Service Patrol.
- In 2018, the average incident duration time was 62 minutes.

Many Hampton Roads cities also maintain their own transportation operations centers (or traffic management centers). These centers manage and operate local traffic signal systems, changeable message signs, and CCTV cameras. In some cases, these centers are connected with the Hampton Roads Transportation Operations Center, allowing for data and video sharing and instant communication.

Another service provided by VDOT to improve mobility is 511 Virginia. 511 Virginia provides real-time traveler information via phone, email, Twitter, text message, smartphone app, and the www.511virginia.org website. 511 Virginia includes information on road conditions, traffic speeds, work zones, camera images, changeable sign messages, weather closures, truck parking, and incidents. Information is also provided on tourist destinations, rest areas, airports, ridesharing, and transit throughout Virginia. Customizable route information is also available.



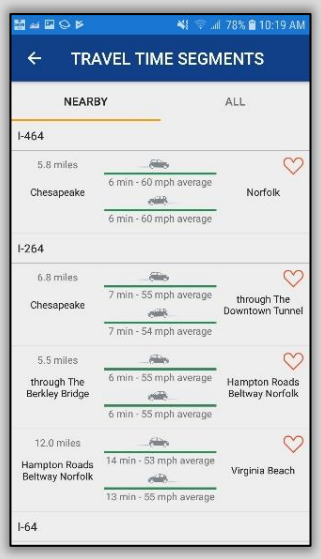

**VDOT Eastern Region Transportation Operations Center (TOC)**

Traveler information is also provided on many platforms by private sector companies. Examples include Google and Bing Maps, INRIX, Waze (which is also available through the 511 Virginia website), and local television and radio stations.

More information on recent regional developments in transportation operations is shown in **Figure 10**, and more information on regional ITS and transportation operations and available at http://hrtpo.org/page/operations-and-its.

## RECENT DEVELOPMENTS IN TRANSPORTATION OPERATIONS

**511 Virginia** – In late 2017 VDOT released a major update to its 511 Virginia traveler information smartphone app. The app includes a list of travel times, maps, camera images, Reach the Beach information, weather information, truck parking availability, and the 511 Virginia Twitter feed. The recent update also includes turn-by-turn navigation via Waze as well as push notifications of traffic alerts.




**VDOT SmarterRoads Data Portal** – VDOT launched "**SmarterRoads**", a cloud-based data portal that provides free, widespread access to a wealth of VDOT roadway and transportation information. Current datasets that are available include traffic volumes, crashes, sensors, sign messages and locations, tolling and trip pricing, weather events, and signal phasing and timing data.

Through the creation of the SmarterRoads portal, VDOT is assisting Connected and Automated Vehicle technology development by sharing operations data with third-party sector business, application developers and university partners.

**Instant Tow** – In April 2017 VDOT initiated a quick incident clearance policy called Operation Instant Tow in the Hampton Roads area. In this program, a tow truck is dispatched simultaneously with the initial Virginia State Police (VSP) trooper to specific incident types, thus saving critical clearance time. Prior to this program, tow dispatch occurred after a VSP trooper responded to and verified the incident.

The objective of Operation Instant Tow is to reduce incident clearance time by 15 minutes, which will help mitigate congestion and reduce the likelihood of additional secondary incidents.

Figure 10 – Recent Developments in Transportation Operations

### *Hampton Roads Transportation Operations (HRTO) Subcommittee*

The Hampton Roads Transportation Operations (HRTO) subcommittee is dedicated to improving transportation operations in the region. The HRTO Subcommittee is comprised of regional transportation professionals from Hampton Roads jurisdictions, Virginia Department of Transportation (VDOT), local transit agencies, the Virginia Port Authority (VPA), and other invited participants, such as local police and fire/EMS personnel. The group serves as an advisory subcommittee to the Transportation Technical Advisory Committee (TTAC) to discuss methods that can be utilized to improve transportation operations.

When the HRTO Subcommittee (formerly known as the ITS Subcommittee) was formed, it was one of the first cooperative, inter-agency, multi-jurisdictional ITS groups in the nation. The accomplishments of the Hampton Roads ITS Subcommittee served as a model for the advancement of ITS throughout the country.

The HRTO subcommittee has taken many actions to improve operations in the region. Some of these actions include:

- **River Crossing Closures** – On September 15, 2012, simultaneous maintenance projects occurred at the Hampton Roads Bridge-Tunnel and James River Bridge. These simultaneous closings led to hours-long backups at the Monitor-Merrimac Memorial Bridge-Tunnel. In response to the traffic disruptions resulting from the simultaneous closings, HRTPO staff, through the HRTO Subcommittee, led the operators of key river crossings in Hampton Roads in the preparation of a regional procedures document for planned closures at these crossings.
- **ITS Plan/Operations Strategy** – The Hampton Roads ITS Subcommittee developed the first regional ITS plan in 1995, and modified it in 2000 and 2004. With the current plan more than a decade old, the HRTO Subcommittee decided to update the ITS Strategic Plan. Operational improvements typically have much shorter life spans than other transportation investments, so instead of focusing solely on technologies in a static plan like the previous Hampton Roads ITS Strategic Plans, the subcommittee decided to pursue a regional Operations Strategy.

  The focus of the Operations Strategy is to provide goals and performance expectations for operations, and also to advise the HRTPO Board on Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Regional Surface Transportation Program (RSTP) allocations for operational improvements. The Operations Strategy was created to support the frequent updating of agency plans and strategies, and support changes in technologies and management policies.

More information on the HRTO subcommittee is available at http://hrtpo.org/page/hampton-roads-transportation-operations-subcommittee-(hrto).

### *Hampton Roads Regional Concept of Transportation Operations – Traffic Incident Management Working Group (RCTO-TIM)*

In Hampton Roads, the Regional Concept of Transportation Operations – Traffic Incident Management (RCTO-TIM) working group meets on a regular basis to develop and implement strategies to improve emergency response to roadway incidents in the region. The RCTO-TIM working group, which is led by VDOT, is comprised of various representatives from the Virginia State Police (VSP), local police, fire and

rescue agencies, local traffic engineering and planning departments, HRTPO, as well as other operating and first responding agencies.

The goal of the Hampton Roads RCTO-TIM is to reduce the number of injuries incurred by responders while decreasing the clearance times associated with these incidents. The RCTO-TIM seeks to improve collaboration among the region's planners, operators, and responders to enhance various aspects of highway incident management.

The Hampton Roads RCTO-TIM has established six primary objectives:

- **Objective 1** - Increase responder safety by eliminating struck-by incidents and fatalities
- **Objective 2** - Decrease incident clearance time
- **Objective 3** - Decrease secondary incident occurrences
- **Objective 4** - Improve inter-agency communication during incidents
- **Objective 5** - Identify existing regional incident management resources and establish plans for inter-agency utilization and acquisition
- **Objective 6** - Establish a regional incident management proactive and post-incident review consortium

Some accomplishments of the Hampton Roads RCTO-TIM include:

- Began a practice of collecting and analyzing traffic incident management performance measurement data.
- Annually produces performance measure reports to track progress toward the RCTO's operations objectives.
- Regularly holds post-incident reviews with key participants to discuss "lessons learned".
- Developed a standard hazmat reporting document.
- Planned joint outreach for the "Slow Down, Move Over" law.
- Worked to obtain three more total stations to be utilized by Virginia State Police in fatal incident investigations in order to reduce clearance times.
- Began consolidating and distributing real-time traffic incident information gathered from different agencies and jurisdictions to local traffic management centers and VDOT's Hampton Roads Transportation Operations Center (TOC).
- Distributed revisions to the Virginia Work Area Protection Manual to local first responders to improve safety for responders and the traveling public.
- Adopted Lane Designation Terminology to locate incidents faster and reduce clearance times.
- Installed 2/10th mile marker signs at various locations in the region to assist with identifying incident locations.
- Over 7,000 emergency responders have been trained in the region since 2011 using the Strategic Highway Research Program 2 (SHRP2) National Traffic Incident Management (TIM) Responder Training Program. Virginia is the second highest state in the U.S. for TIM training through this program.

**VDOT Safety Service Patrol**

More information on the Regional Concept of Transportation Operations – Traffic Incident Management (RCTO-TIM) working group is available at http://www.hrtpo.org/page/traffic-incident-management.

## MILITARY TRANSPORTATION NEEDS

**(Included in All Strategies)**

HRTPO's planning and analysis of military transportation needs is a newer component of the regional CMP. Its purpose is to determine military transportation needs and to provide an efficient and safe transportation network for the military in Hampton Roads.

### Military Challenges

The Hampton Roads region contains one of the largest natural harbors in the world, making the region an attractive location for military facilities. The region's military presence is comprised of nine major military installations (including three joint-base complexes that span multiple locations). The largest military installation in the region is Naval Station Norfolk, which is the largest Naval base in the world by population. Hampton Roads is also home to dozens of other military and supporting sites with representation from all five branches of the military—Navy, Army, Air Force, Coast Guard, and Marine Corps.

According to the Hampton Roads Chamber of Commerce, the total military population in the region is approximately 150,000[7] (active duty and civilian), in a regional area that has a total population of 1.7 million. This estimate, however, does not include military contractors, which adds even more military-related employment. As a result of the area's large military presence, much of the local economy is driven by the U.S. Department of Defense (DoD). Efficient military operations require a transportation network that moves cargo and personnel quickly and safely. Not only does the condition of the Hampton Roads transportation network impact the future viability of the region as a military hub, but it impacts national security as well.

### Military Transportation Concerns

Given the strong military presence in the Hampton Roads region, the HRTPO engaged various stakeholders to determine military concerns related to transportation. Several local military representatives (active and retired) provided verbal[8] and written statements to the HRTPO Board to express their concerns regarding transportation in Hampton Roads[9]. Some representatives requested that the HRTPO Board consider their ability to respond quickly to military crisis as well as being able to evacuate in times of national defense emergencies or natural disaster. They stated that traffic congestion affects commuting for their military personnel as well as travel times between installations. Delays at some bridges/tunnels significantly detract from mission performance effectiveness and efficiency. Military leaders are also concerned about traffic congestion's impact on overall quality of life for service members and their dependents.

According to these military representatives, mobility is currently impeded by insufficient local transportation infrastructure. They mentioned several proposed projects as being important to the military, including a light rail extension to Naval Station Norfolk. They also requested consideration of time savings associated with high-speed and intercity passenger rail service connecting Hampton Roads to Richmond, Washington, D.C., and beyond. For example, a high-speed rail connection would allow military servicemen and officials to conduct a full day's business in Washington, D.C., without staying overnight.

These military representatives expressed concern regarding traffic safety and congestion and suggested some potential consequences for the Hampton Roads region. They stated that local service members and their families who are routinely impacted by traffic challenges are therefore less likely to spend additional tours of duty in this location or consider this area for retirement. Furthermore, they suggested that transportation congestion may hinder the ability to maintain or bring additional military personnel to the region. For these reasons, it is important for the HRTPO to plan and implement transportation improvement projects that provide a safe and efficient transportation network for the military.

[7] Hampton Roads Chamber of Commerce, www.hamptonroadschamber.com/page/our-military, September 2021.

[8] HRTPO Board Meeting, December 16, 2009.

[9] HRTPO Board Meeting - Retreat, February 10, 2010.

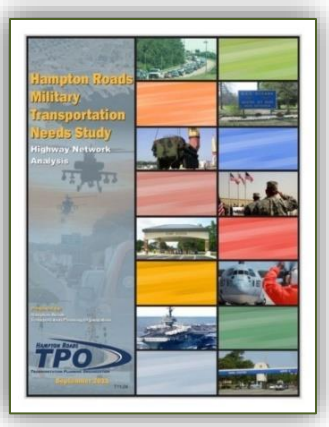
### *Strategies to Address Military Concerns*

Late in 2009, several local military representatives told the HRTPO Board that congestion and delays at bridges and tunnels hurt mission performance effectiveness and efficiency. Rear Admiral Byron E. Tobin (Retired US Navy) addressed the HRTPO Board in February 2010 stating:

> "…we are dependent, in large measure, upon the resources and support of this region for the efficient and successful conduct of our mission. One of the key components of that success is mobility, [which is currently impeded] because our transportation infrastructure is in decline and struggling to meet our needs."

In response, the HRTPO Board placed greater emphasis on military transportation planning in the region and endorsed military briefings by military representatives to the HRTPO Board and to the Commonwealth Transportation Board, and included a new Hampton Roads Military Transportation Needs Study in its work program (FY 2011 Unified Planning Work Program) to identify and address the transportation needs of the military in Hampton Roads as part of the Congestion Management Process. The overall purpose of this planning effort is to determine military transportation needs and to provide an efficient and safe transportation network for the military in Hampton Roads.

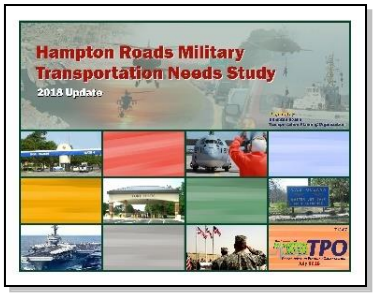
It is important to note that many military congestion concerns were prior to the formation of the Hampton Roads Transportation Accountability Commission (HRTAC). In 2014, the General Assembly established the Hampton Roads Transportation Accountability Commission (HRTAC) to manage revenues and deploy several significant regional transportation projects.




The original *Hampton Roads Military Transportation Needs Study* is comprised of three phases:

1. Highway Network Analysis (September 2011)
2. Military Commuter Survey (September 2012)
3. Roadways Serving the Military and Sea Level Rise/Storm Surge (July 2013)

In July 2018, HRTPO completed the Hampton Roads Military Transportation Needs Study: 2018 Update. This report updated the data and analysis contained in Phase I (Highway Network Analysis) and Phase III (Roadways Serving the Military and Sea Level Rise/Storm Surge) with the most recent data available.

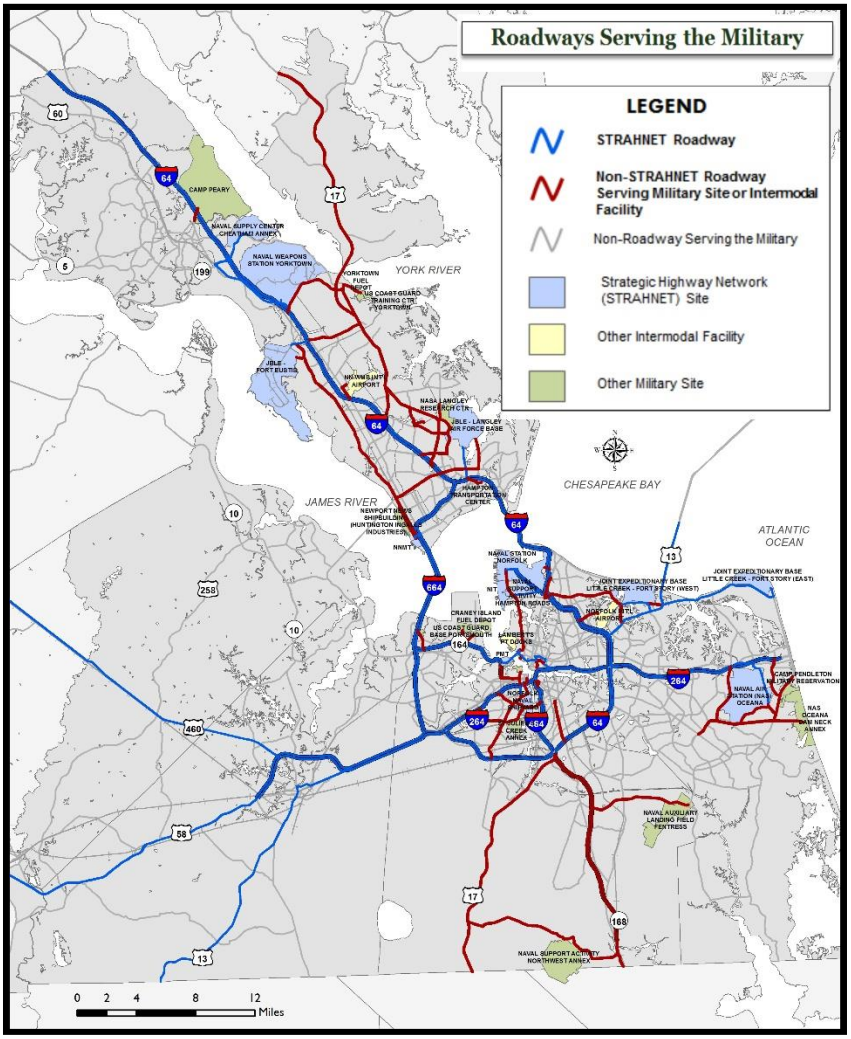



Below is a summary of prior phases.

#### Phase I: Highway Network Analysis

Phase I of the Hampton Roads Military Transportation Needs Study was completed and approved by the HRTPO Board in September 2011. In this first phase, HRTPO staff worked with various stakeholders – local military representatives, state and federal agencies, port officials and local jurisdictions – to determine transportation concerns and needs of the local military. HRTPO staff identified a roadway network that includes both the Strategic Highway Network (STRAHNET) and additional roadways that serve the military sites and intermodal facilities not included in the STRAHNET (see **Map 14** on page 44). STRAHNET (developed by the U.S. Department of Defense) serves as the minimum national defense public highway network needed to support a defense emergency and are used for day-to-day military cargo movement. Staff analyzed this "Roadways Serving the Military"

**Map 14 – Roadways Serving the Military – Hampton Roads**



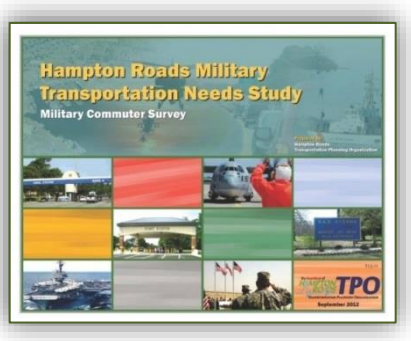

Prepared by: HRTPO Staff, 2018.

network to determine deficient locations, such as congested segments, deficient bridges, and inadequate geometrics. The study made numerous recommendations to address existing deficiencies and to accommodate future military travel needs, including revisions to current STRAHNET designations, increasing vertical clearance of tunnels, expanding the width of highway lanes to accommodate military vehicles, rehabilitating or replacing structurally deficient bridges, extending light rail transit to Naval Station Norfolk, and high-speed passenger rail service to Washington, D.C.

### Phase II: Military Commuter Survey

The HRTPO staff continued this study with the creation of the first region-wide Military Commuter Survey, which was conducted from November 8, 2011 to February 24, 2012. Via the survey, the HRTPO collected information about the commuting experience of military personnel (active-duty, civilians, contractors, reservists and others) travelling to and from the region's military bases, receiving a total of 10,994 survey responses. The survey was developed by HRTPO staff in concert with the commands of the region's military installations and various other transportation stakeholders. The purpose of the survey was to determine the transportation challenges facing local military personnel during their daily commutes in Hampton Roads.

The survey was developed using Google documents and hosted on the HRTPO website. Even though survey




responses were sought from all military commuters in the region, military commuters were specifically targeted who travel to/from 29 of the 38 military and supporting sites identified in Phase I of the study. These 29 military sites are the primary locations for military-related employment. The remaining locations are supporting sites, such as port terminals and airports, which move military personnel and goods in the event of a national or local emergency. One benefit of hosting the survey on the HRTPO website was that thousands of military personnel who reside within Hampton Roads were introduced to the HRTPO, some learning about its metropolitan planning process and activities for the first time.

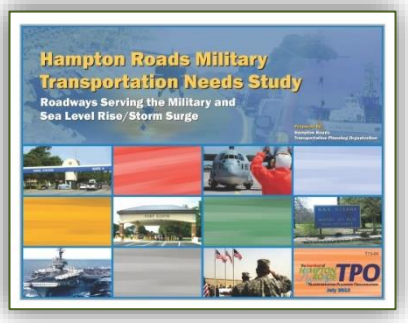
Respondents were asked to identify items such as length of morning and afternoon commutes, mode of transportation, transportation problems, and any locations of recurring issues along their commute. The top reported transportation problems by military commuters were traffic congestion (79%), traffic backups at military gates (67%), and poor roadway maintenance (42%). At the end of the survey, respondents were asked to submit any suggestions they had regarding transportation in the region. Not only was excellent feedback provided, but many expressed thanks for having the opportunity to communicate their transportation challenges.

### Phase III: Roadways Serving the Military and Sea Level Rise/Storm Surge

The impacts of relative sea level rise and storm surge have been recognized along the southeast coast for many years, particularly for low-lying communities such as Hampton Roads. National, state, regional, and local organizations have participated (or are currently participating) in initiatives that address this pressing issue in order to raise awareness and develop potential solutions. This study (Phase III) builds on previous studies and related work to estimate the relative sea level rise and potential storm surge threats to the "Roadways Serving the Military" network established in Phase I of the Hampton Roads Military Transportation Needs Study. This third phase of the study continues the work in Phase I by determining flooding-based deficient locations along the roadway network. It expands upon the work and methodologies developed by the Hampton Roads Planning District Commission (HRPDC) and the Virginia Institute of Marine Science (VIMS) by identifying military roadway segments vulnerable to submergence. Additionally, submergence of other local roadways that provide access to and from the "Roadways Serving the Military", which may be vulnerable to flooding, have been identified.

Given the uncertainty in how much relative sea level rise will occur and how fast it will accelerate, current research suggests that 1.5 feet of rise could occur in Hampton Roads sometime between 2032 and 2065. With the forecast year of the next HRTPO Long-Range Transportation Plan being 2040 at that time, a 1.5-foot relative sea level rise scenario was used in this analysis. Based on past storm events, a 3-foot storm surge is a reasonable level to expect for moderate future storms. For example, the surge at Sewells Point during Hurricane Irene (2011) was measured at 4.2 feet, while the surge from Hurricane Isabel (2003) at the same location was measured at 4.4 feet. The combination of 1.5 feet of relative sea level rise and 3 feet of storm surge would result in a total relative water rise of 4.5 feet.

Phase III used elevation data from the HRPDC in conjunction with Geographic Information System (GIS) software to identify potential flooding for "Roadways




Serving the Military", specific segments that would be submerged by 4.5 feet of relative water rise. The results show that the "Roadways Serving the Military" in the Cities of Chesapeake, Hampton, Norfolk, Portsmouth, and Virginia Beach are vulnerable to potential future relative water rise. Phase III was completed and approved by the HRTPO Board in July 2013.

The integration of special stakeholders, such as the military, into the metropolitan transportation planning process can be a challenging but rewarding experience. For Hampton Roads, the local military represents a unique component of the region comprising a large portion of the population with a tremendous impact on the regional economy. Solving issues pertaining to military transportation needs within Hampton Roads is critical to the local military's success. An efficient regional transportation infrastructure not only affects the quality of life for local military personnel, but is important to national security as well.

It is important for regions with a military presence to engage local military leaders and maintain a cooperative exchange of information. A partnership between the military and transportation stakeholders takes time to develop and strengthen. By providing a thorough assessment of the military's views on this vital topic to an Metropolitan Planning Organization (MPO) Board, MPO staff can enable that Board to respond to those views.

The Military Transportation Needs Study has received both local and statewide interest and recognition as a result of the findings, recommendations, and potential impacts on the military. The study bridges the gap between MPOs, Department of Transportations (DOTs), local communities, and military installations that currently exists for many metropolitan areas throughout the country. Very few MPOs have taken steps to incorporate the military into the planning process; this study builds on the current relationships already established with the local military and expands the list of military and supporting sites as well as roadways serving the military, which are now included as part of the HRTPO Project Prioritization Tool. Mr. Glen Harrison, TRB Military Transportation Committee Chair, said "the outreach of your TPO to the military community to collaborate on regional transportation planning is a model for other locations to follow."

More information on the Hampton Roads Military Transportation Needs Study is available at http://hrtpo.org/page/military-transportation-needs.

## APPLICATION OF STRATEGIES TO CMP CONGESTED CORRIDORS

This section provides an analysis of applying the congestion mitigation strategies detailed in this report to the CMP Congested Corridors in Hampton Roads. The CMP Congested Corridors were selected based on the CMP Ranking Criteria and methodology shown in Part II of this CMP update. The CMP Congested Corridors that resulted from this methodology are shown in **Figure 11 and Maps 15 and 16** on pages 49-50.

Most of these CMP Congested Corridors are analyzed in detail in this section. However, some of these corridors either have projects that were recently completed or are currently underway that will likely alleviate much of the congestion in those corridors. These corridors include Freeway #1 - Hampton Roads Bridge-Tunnel, Freeway #2 – I-64 from Indian River Road (Rd) to I-264, Freeway #3 – High Rise Bridge, Freeway #6 – I-264 from I-64 to Newtown Road, Freeway #9 – I-64 from Yorktown Road to Fort Eustis Boulevard (Blvd), Arterial #4 – Deep Creek Bridge, and Arterial #12 – Indian River Road.

Each CMP Congested Corridor includes two pages summarizing the issues within the corridor and some remedies that could help alleviate congestion. The first page for each corridor includes:

- **Location Map** – Layout of the corridor and weekday traffic

**Freeways**

| Corridor # | Locality | Facility |
|---|---|---|
| 1 | Hampton/Norfolk | I-64/HRBT from I-664 to I-564 |
| 2 | Norfolk/Va Beach | I-64 from Indian River Rd to I-264 |
| 3 | Chesapeake | I-64/High Rise Bridge from Greenbrier Pkwy to I-264/I-664 |
| 4 | Norfolk/Portsmouth | I-264/Downtown Tun. from Frederick Blvd to Brambleton Ave |
| 5 | NN/Suffolk | I-664/MMMBT from College Dr to Chestnut Ave |
| 6 | Norfolk | I-264 from I-64 to Newtown Rd |
| 7 | Chesapeake | Chesapeake Expressway from Battlefield Blvd to I-64 |
| 8 | Norfolk | I-564 from Terminal Blvd to Admiral Taussig Blvd |
| 9 | Newport News | I-64 from Yorktown Rd to Fort Eustis Blvd |
| 10 | Norfolk | I-64 from I-564 to Norview Ave |

**Arterials**

| Corridor # | Locality | Facility |
|---|---|---|
| 1 | Norfolk | Tidewater Dr from Brambleton Ave to Princess Anne Rd |
| 2 | Chesapeake | Battlefield Blvd from Johnstown Rd to I-64 |
| 3 | Hampton | Mercury Blvd from Power Plant Pkwy to Armistead Ave |
| 4 | Chesapeake | George Washington Hwy from Moses Grandy Trail to I-64 |
| 5 | Virginia Beach | Dam Neck Rd from Holland Rd to London Bridge Rd |
| 6 | Norfolk | Tidewater Dr from Cromwell Dr to Norview Ave |
| 7 | Norfolk | Hampton Blvd from Brambleton Ave to 27th St |
| 8 | James City/WMB | Route 199 from John Tyler Hwy to Brookwood Dr |
| 9 | Norfolk | Little Creek Rd from Tidewater Dr to Military Hwy |
| 10 | Norfolk | Newtown Rd from I-264 to Virginia Beach Blvd |
| 11 | Norfolk | Brambleton Ave from Tidewater Dr to I-264 |
| 12 | Virginia Beach | Indian River Rd from I-64 to Ferrell Pkwy |
| 13 | Norfolk | Campostella Rd from Indian River Rd to Wilson Rd |
| 14 | Norfolk | Church St from Brambleton Ave to Virginia Beach Blvd |
| 15 | Chesapeake | Military Hwy from I-464 to Battlefield Blvd |
| 16 | Isle of Wight | Route 17 from Route 258 to James River Bridge |
| 17 | Newport News | Oyster Point Rd from Jefferson Ave to I-64 |
| 18 | Norfolk/Va Beach | Northampton Blvd from Military Hwy to Diamond Springs Rd |
| 19 | Portsmouth | Towne Point Rd from Twin Pines Rd to Western Fwy |
| 20 | James City | Route 60 from Centerville Rd to Route 199 |
| 21 | Newport News | J Clyde Morris Blvd from I-64 to Harpersville Rd |

**Figure 11 – CMP Congested Corridors**

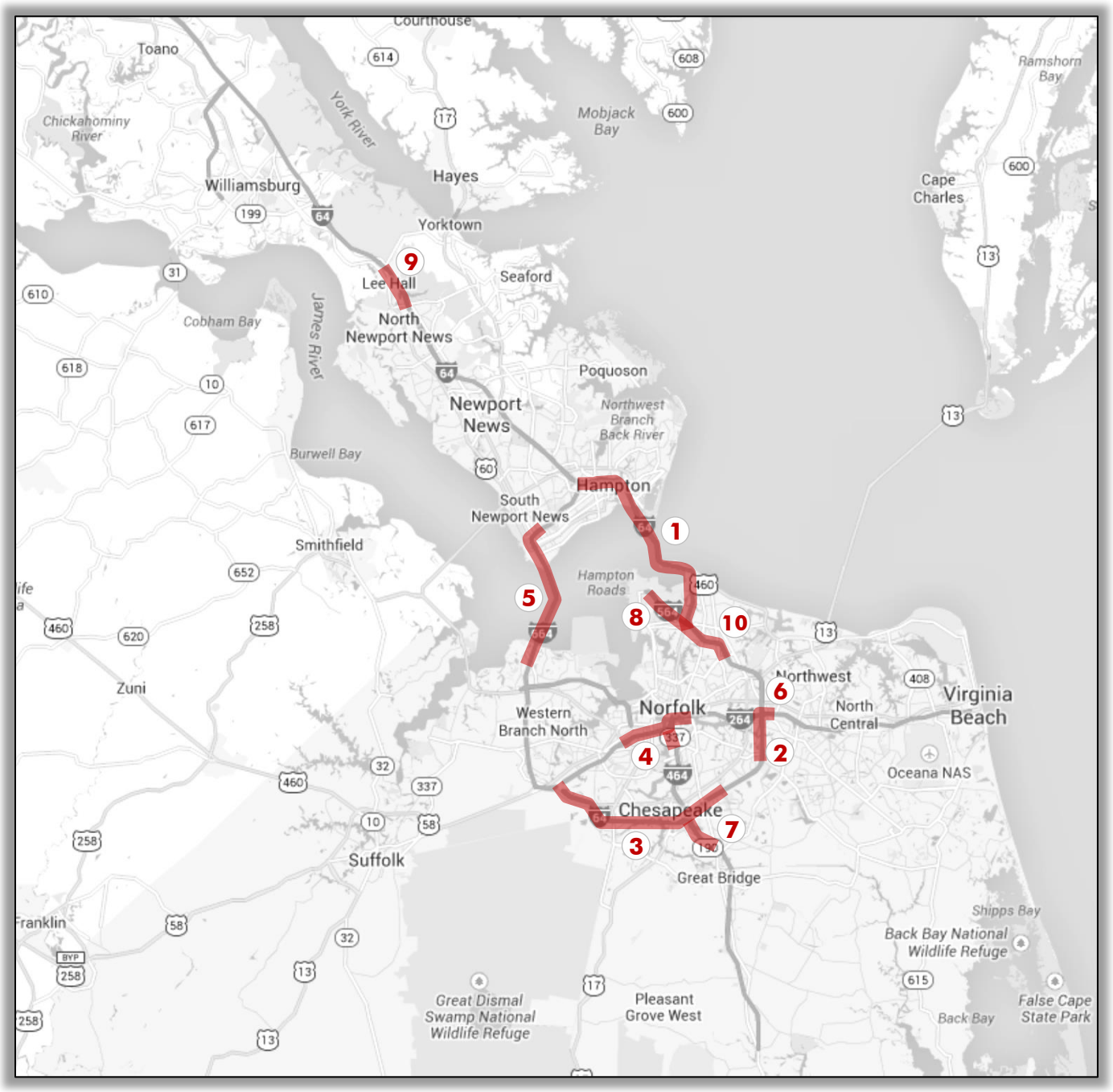
volumes, number of lanes, truck volumes and percentages, and traffic signal locations.

- **Corridor Summary** – Corridor length, speed limits, roadway functional class, and transit service availability in the corridor.
- **Recent Projects** – Description of any projects that were recently completed within or parallel to the corridor or are currently under construction.
- **Future Projects** – Description of any projects planned or programmed for the corridor, including current timelines. Projects must be included in the current Six-Year Improvement Program, Transportation Improvement Program, or the 2045 Long-Range Transportation Plan to be included.
- **Corridor Characteristics Table** – Corridor characteristics including roadway segment lengths, existing number of lanes, congestion measures by direction for the AM and PM Peak Periods (including slowest speed, highest travel time index, number of congested 15-minute intervals, total delay, and congestion level), and CMP Segment Scores.

The second page for each corridor includes:

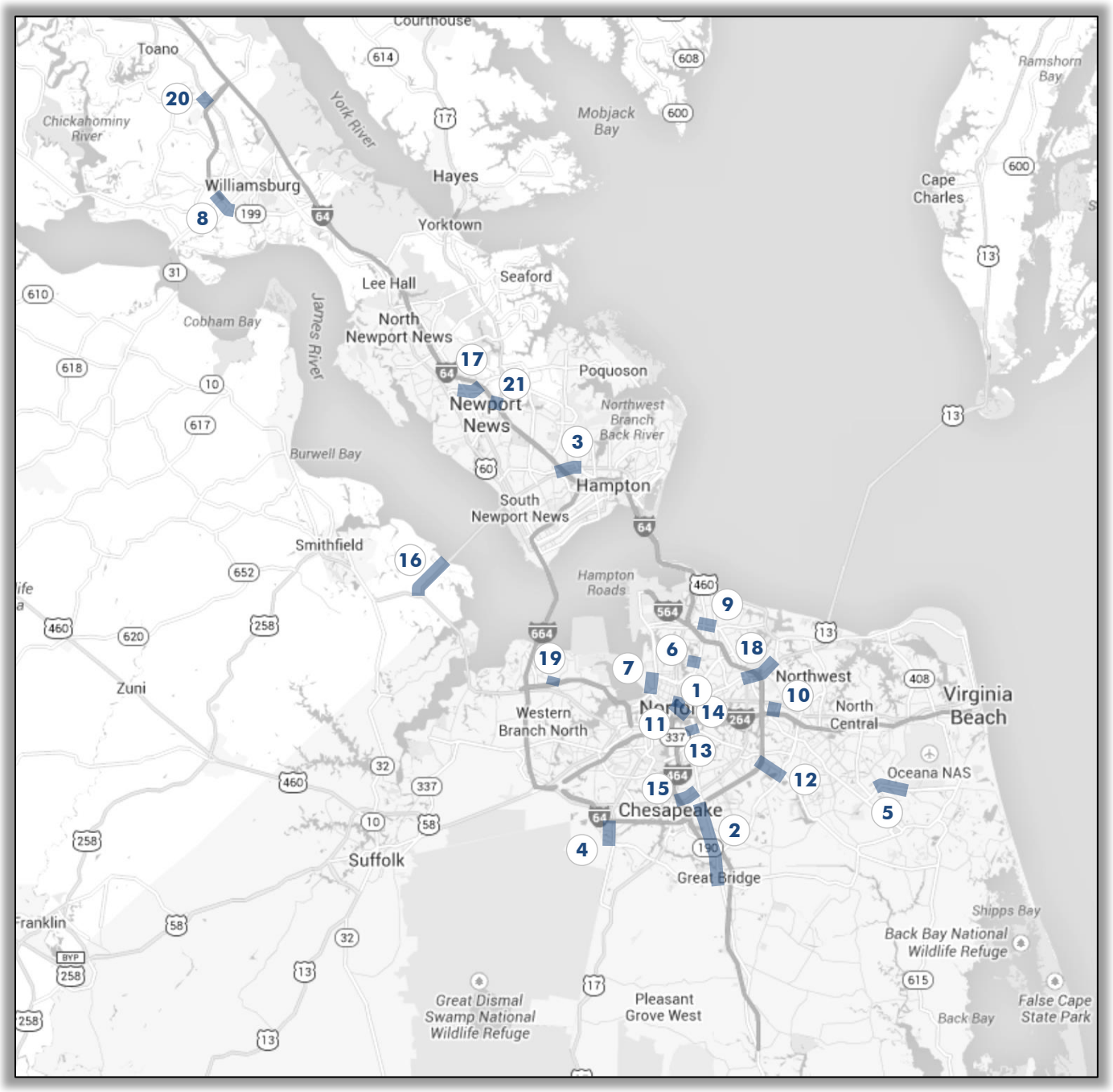
- **Congestion Mitigation Strategy Toolbox** – Shows all of the congestion mitigation strategies described in the previous section and whether each of these strategies are currently in use within the corridor, and if not, whether the particular strategy could be applied to and benefit the corridor.
- **Observations & Possible Causes of Congestion** – Lists observations and possible causes based on data analysis, discussions with officials from the localities, and field observations.
- **Potential Congestion Mitigation Strategies** – Provides potential improvements based on data analysis, site observations, input from localities, and applicable CMP strategies.

**Monitor-Merrimac Memorial Bridge-Tunnel**
Source: VDOT




**Map 15 – Top Ranked CMP Congested Corridors - Freeways**

Background Map Source: Google.




## Map 16 – Top Ranked CMP Congested Corridors - Arterials

Background Map Source: Google.

## FIGURE 12 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #1

### Hampton Roads Bridge-Tunnel (I-64) Between I-664 and I-564
### Cities of Norfolk and Hampton


### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 11.95 Miles |
| **Speed Limit** | 55 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

- Installation of over-height truck detection sensors and new alert signs before the westbound inspection station (2017).

### FUTURE PROJECTS

FY 2022 SYIP Projects

- I-64/Hampton Roads Bridge-Tunnel Expansion – I-664 to I-564, Widen to 6 Lanes + 2 Shoulder Lanes (UPC #115008) – Construction underway and expected to end November 2025).

2045 LRTP Projects

- I-64/LaSalle Ave & I-64/N King St Interchange Studies (Project IDs: 2045-311, 2045-312)

| | | | | | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-64 | I-664 | ARMISTEAD AVE | 0.88 | 6 | 53 | 40 | 1.14 | 1.53 | 0 | 7 | 12 | 56 | LOW | SEV | 18 | 34 | 63 | 63 | 0.98 | 0.99 | 0 | 0 | 0 | 0 | LOW | LOW | 12 | 12 |
| I-64 | ARMISTEAD AVE | RIP RAP RD | 0.46 | 6 | 38 | 19 | 1.59 | 3.14 | 5 | 13 | 34 | 153 | SEV | SEV | 43 | 75 | 64 | 63 | 0.97 | 0.98 | 0 | 0 | 0 | 0 | LOW | LOW | 12 | 12 |
| I-64 | RIP RAP RD | SETTLERS LANDING RD | 1.55 | 6 | 10 | 9 | 5.75 | 6.80 | 11 | 16 | 289 | 519 | SEV | SEV | 92 | 94 | 61 | 62 | 0.99 | 0.99 | 0 | 0 | 0 | 0 | LOW | LOW | 12 | 12 |
| I-64 | SETTLERS LANDING RD | MALLORY ST | 0.54 | 6 | 13 | 11 | 4.26 | 4.75 | 11 | 16 | 349 | 435 | SEV | SEV | 91 | 93 | 52 | 61 | 1.15 | 0.98 | 0 | 0 | 6 | 0 | MOD | LOW | 11 | 11 |
| I-64/HRBT | MALLORY ST | NORFOLK CL | 3.69 | 4 | 42 | 38 | 1.32 | 1.47 | 1 | 12 | 43 | 76 | SEV | SEV | 40 | 49 | 40 | 31 | 1.33 | 1.69 | 1 | 16 | 39 | 121 | SEV | SEV | 22 | 48 |
| I-64/HRBT | HAMPTON CL | OCEAN VIEW AVE | 0.19 | 4 | 42 | 38 | 1.32 | 1.47 | 1 | 12 | 43 | 76 | SEV | SEV | 40 | 49 | 40 | 31 | 1.33 | 1.69 | 1 | 16 | 39 | 121 | SEV | SEV | 22 | 48 |
| I-64 | OCEAN VIEW AVE | 4TH VIEW AVE | 1.82 | 4 | 55 | 53 | 1.08 | 1.12 | 0 | 0 | 2 | 8 | LOW | LOW | 12 | 12 | 37 | 23 | 1.53 | 2.43 | 5 | 16 | 40 | 227 | SEV | SEV | 57 | 89 |
| I-64 | 4TH VIEW AVE | BAY AVE | 1.01 | 4 | 54 | 43 | 1.13 | 1.42 | 0 | 3 | 4 | 27 | LOW | SEV | 12 | 19 | 37 | 13 | 1.60 | 4.66 | 6 | 16 | 35 | 409 | SEV | SEV | 47 | 80 |
| I-64 | BAY AVE | GRANBY ST | 1.60 | 4 | 59 | 52 | 1.01 | 1.15 | 0 | 0 | 0 | 12 | LOW | LOW | 12 | 12 | 44 | 12 | 1.37 | 4.95 | 5 | 16 | 27 | 316 | SEV | SEV | 39 | 80 |
| I-64 | GRANBY ST | I-564/LITTLE CREEK RD | 0.21 | 4 | 61 | 48 | 0.99 | 1.26 | 0 | 0 | 0 | 18 | LOW | MOD | 12 | 12 | 44 | 14 | 1.35 | 4.29 | 1 | 14 | 18 | 201 | SEV | SEV | 33 | 79 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | YES |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | YES |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | YES |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | IN USE |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 12 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #1

**Hampton Roads Bridge Tunnel (I-64)**

Between I-664 and I-564

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

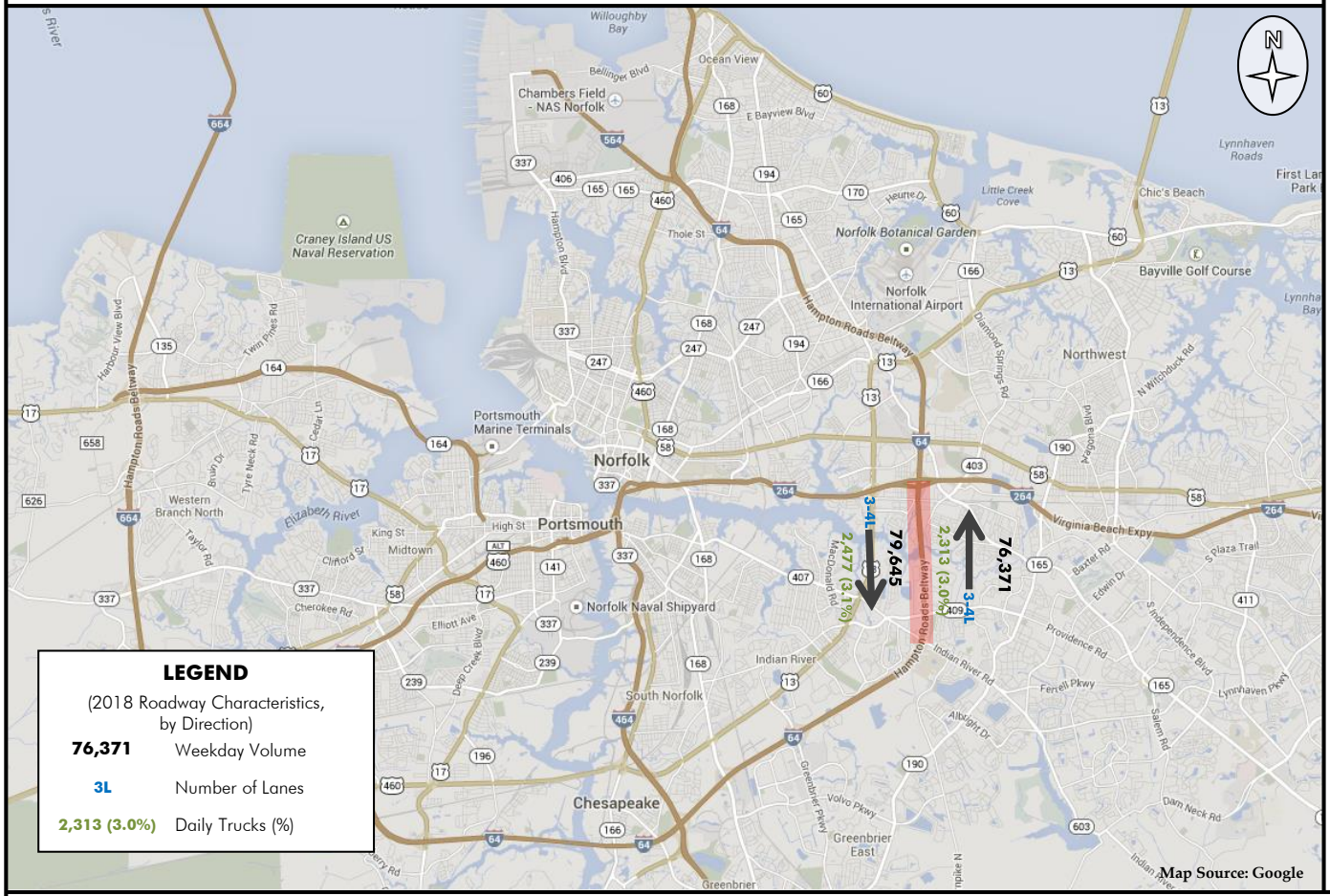
- Tunnels can carry fewer vehicles than typical freeway segments due to larger headways between vehicles. Data indicates that the HRBT has a capacity of about 20% fewer vehicles than a typical freeway lane.
- Another cause of congestion is over-height trucks, particularly in the westbound (WB) direction. In 2018 there were 5,000 trucks stopped, measured, and turned around at the WB HRBT. Of these, 2,486 occurred at the South Island, which requires stopping traffic in both directions to remove the over-height trucks and allow it to enter the eastbound (EB) lanes.
- HRBT traffic backups have major impacts on local roads in Hampton and Norfolk due to all of the diverting traffic.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete I-64/Hampton Roads Bridge-Tunnel Expansion – I-664 to I-564, Widen to 6 Lanes + 2 Shoulder Lanes (UPC #115008). This project will likely alleviate most of the congestion, or at least provide an uncongested alternative at all times.
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.
- Implement ramp metering strategies contained in VDOT's Ramp Metering Feasibility Study for I-64 and I-664 Report (June 2020).
- Eastbound on-ramps from Mallory St and Settlers Landing Rd will be temporarily closed during HRBT construction during the PM Peak Period starting in 2022.

## FIGURE 13 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #2

### I-64 Between Indian River Rd and I-264
### City of Norfolk and Virginia Beach





### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 2.5 Miles |
| **Speed Limit** | 55 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

- I-64/I-264 Interchange – Phase I Widening of I-64 West between the Twin Bridges and the I-264 interchange, two new ramps from I-64 West to I-264 East, and a new system of collector-distributor (CD) roads on I-264 East – Construction completed.
- I-64/I-264 Interchange – Phase II Improved interchanges at Newtown and Witchduck roads and a Greenwich Road flyover across I-264 that connects with Cleveland Street (UPC #17630) – Construction completed.

### FUTURE PROJECTS

FY 2022 SYIP Projects

- I-64 Express Lanes - Segment 2, Convert HOV to HOT Lanes (UPC#112923) – Construction underway and expected to end October 2022.

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-64 | I-264 | VA BEACH CL | 0.93 | 6 | 60 | 50 | 1.00 | 1.21 | 0 | 0 | 0 | 32 | LOW | MOD | 15 | 17 | 37 | 23 | 1.47 | 2.34 | 5 | 15 | 75 | 198 | SEV | SEV | 57 | 86 |
| I-64 | NORFOLK CL | INDIAN RIVER RD | 1.57 | 8 | 60 | 50 | 1.00 | 1.21 | 0 | 0 | 0 | 32 | LOW | MOD | 15 | 17 | 28 | 15 | 1.82 | 3.36 | 6 | 16 | 143 | 373 | SEV | SEV | 79 | 93 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | IN USE |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | IN USE |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | - |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 13 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #2

**I-64 (Norfolk and Virginia Beach)**

Between Indian River Road and I-264

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

• Traffic congestion along this corridor has been largely alleviated by the I-64/I-264 Interchange project – Phase I Widening of I-64 West between the Twin Bridges and the I-264 interchange (UPC# 57048), which includes two new ramps from I-64 West to I-264 East, and a new system of collector-distributor (CD) roads on I-264 East.

• Some of the eastbound (EB) moderate traffic congestion is due to the short merge area on the ramp from I-264 to I-64 EB.

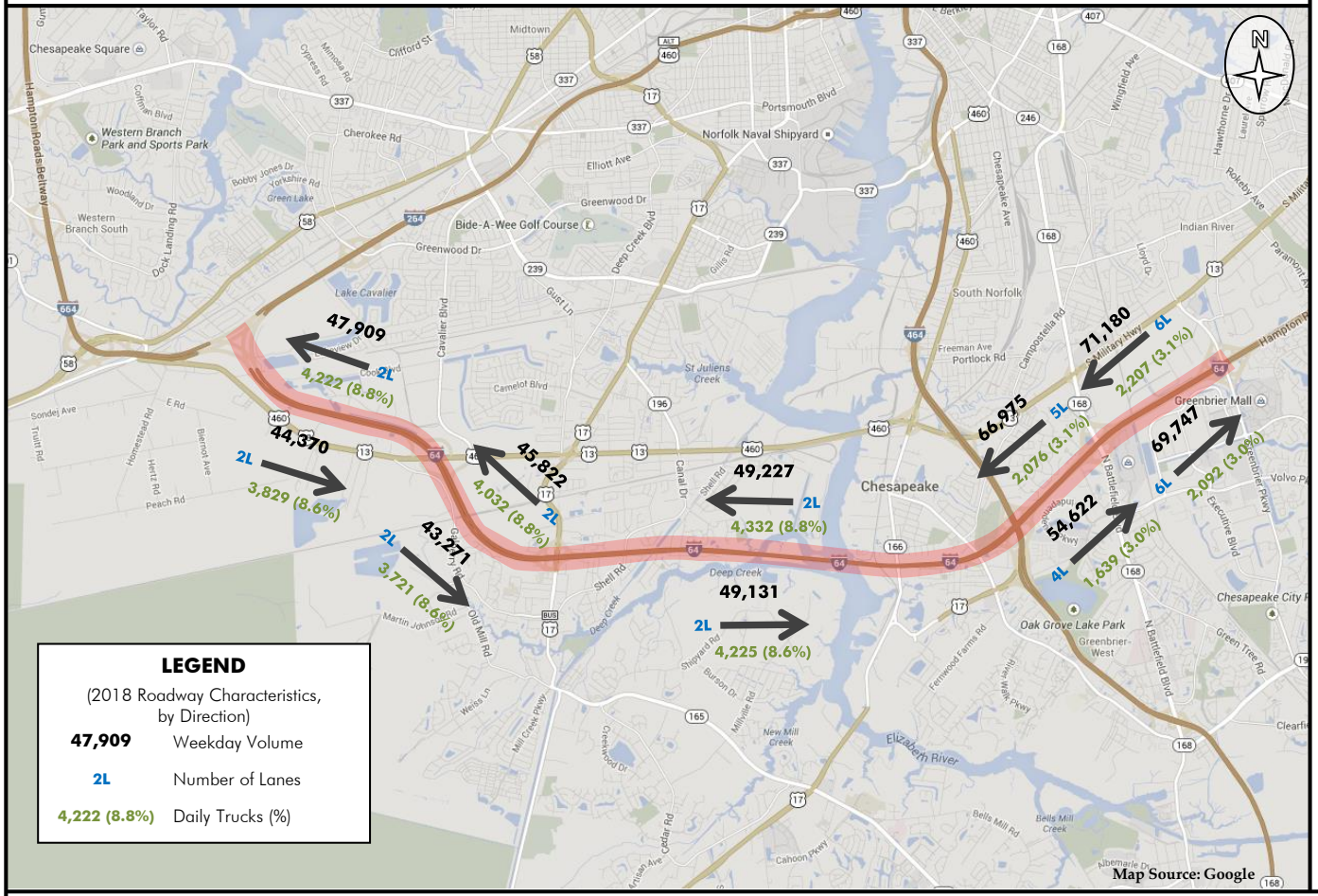
### POTENTIAL CONGESTION MITIGATION STRATEGIES

• I-64/I-264 Interchange Phase III Improvements.

• Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.

## FIGURE 14 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #3

### I-64/High Rise Bridge Between I-264/I-664 (Bowers Hill) and Greenbrier Pkwy City of Chesapeake




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 10.72 Miles |
| **Speed Limit** | 60 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### FUTURE PROJECTS

FY 2022 SYIP Projects

- I-64 Southside/High Rise Bridge - I-464 to I-264/I-664, Widen to 6 Lanes + 2 Shoulder Lanes (UPC #106692) – Construction underway and expected to end Dec 2022.
- I-64 Express Lanes - Segment 2, Convert HOV to HOT Lanes (UPC#112923) – Construction underway and expected to end Oct 2022.

2040 LRTP Projects

- I-664 Widening including Bowers Hill Interchange - Bowers Hill to College Dr - Improve interchange/Add Express Lanes (Project ID: 2045-308)
- I-64/I-464 Interchange Improvements (Project ID: 2045-309)

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-64 | GREENBRIER PKWY | BATTLEFIELD BLVD | 1.42 | 12 | 53 | 25 | 1.15 | 2.48 | 0 | 13 | 3 | 194 | LOW | SEV | 25 | 72 | 60 | 61 | 1.03 | 1.02 | 0 | 0 | 1 | 0 | LOW | LOW | 13 | 13 |
| I-64 | BATTLEFIELD BLVD | I-464 | 1.08 | 9 | 42 | 16 | 1.39 | 3.51 | 2 | 15 | 19 | 484 | SEV | SEV | 39 | 85 | 61 | 62 | 1.01 | 1.00 | 0 | 0 | 0 | 0 | LOW | LOW | 12 | 12 |
| I-64/HIGH RISE BRIDGE | I-464 | GEORGE WASHINGTON HWY | 4.38 | 4 | 49 | 38 | 1.23 | 1.59 | 0 | 10 | 14 | 89 | MOD | SEV | 21 | 47 | 51 | 51 | 1.17 | 1.17 | 0 | 0 | 18 | 24 | MOD | MOD | 16 | 18 |
| I-64 | GEORGE WASHINGTON HWY | MILITARY HWY | 1.53 | 4 | 57 | 47 | 1.07 | 1.29 | 0 | 0 | 4 | 23 | LOW | MOD | 17 | 20 | 16 | 28 | 3.73 | 2.19 | 9 | 10 | 198 | 121 | SEV | SEV | 79 | 79 |
| I-64 | MILITARY HWY | I-264&664 | 2.31 | 4 | 57 | 51 | 1.07 | 1.19 | 0 | 0 | 4 | 19 | LOW | MOD | 15 | 15 | 21 | 28 | 2.95 | 2.19 | 8 | 11 | 92 | 116 | SEV | SEV | 69 | 75 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | YES |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 14 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #3

### I-64/High Rise Bridge

Between I-264/I-664 (Bowers Hill) and Greenbrier Pkwy

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

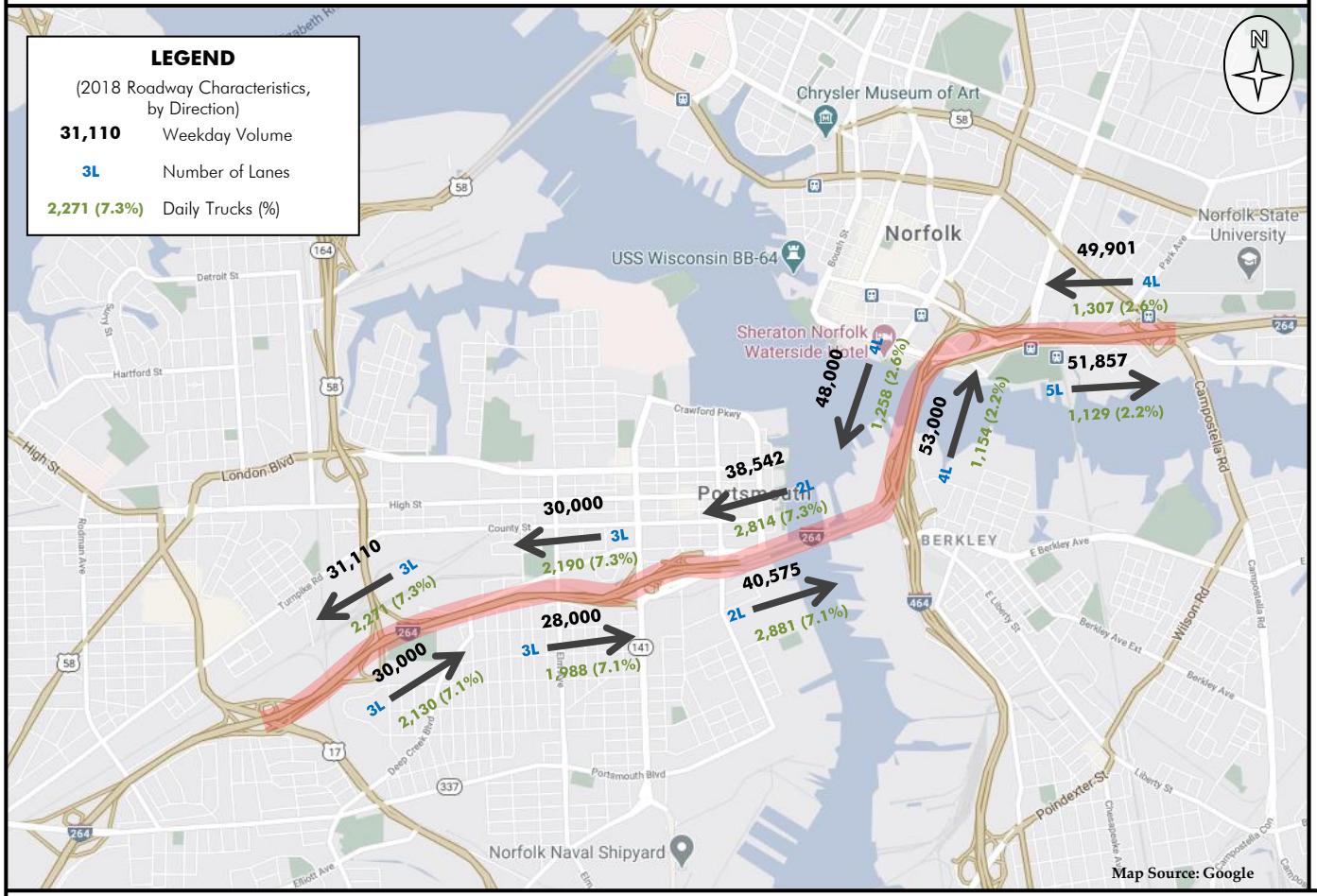
- Traffic backups occur during the AM Peak Period at the merge of George Washington Highway ramps and I-64 westbound (WB) (towards Virginia Beach). Backups regularly occur on I-64 WB from George Washington Highway back to the I-264/I-664 interchange. These backups will improve with the completion of the I-64 Southside/High Rise Bridge project.
- Traffic backups occur on I-64 eastbound (EB) (towards Suffolk) during the PM Peak Period from the High Rise Bridge back to Greenbrier Pkwy. The segment from Battlefield Blvd to I-464 is congested for 15 15-minute intervals during the PM Period. These backups will improve with the completion of the I-64 Southside/High Rise Bridge project, with the exception of the right lane (Exit 291B) to Route 168 S/Route 17 S (Chesapeake Expressway).
- Weaving is an issue on I-64 EB (towards Suffolk) at the I-464/Chesapeake Expressway interchange. Weaving/merging is also an issue at the I-264/I-664 Interchange in Bowers Hill.
- High truck volumes (8.6-8.8% of all daily traffic).
- Sun glare is an issue at times in the corridor.
- The current High Rise Bridge is a movable span and opens for marine traffic about 40 times per month, according to federal regulations. It remains closed from 6 - 9 am and 3 - 6 pm, Monday through Friday, except federal holidays. If a vessel needs it to be opened during peak hours, three days notice is required. It does open for vessels in an emergency.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.
- Completion of I-64 Southside/High Rise Bridge project #106692 will likely alleviate most of the congestion, or at least provide a free flow alternative at all times.
- Improvements to I-64/I-464 interchange ramps to reduce the amount of weaving that is necessary, including the project included in the 2045 LRTP (Project ID: 2045-309). Complete Alternative 4A from the I-64/I-464 Interchange Operational and Safety Analysis Report that includes an I-64 EB to I-464 southbound (SB) (to Rte 168) flyover and maintains I-64 EB to I-464 SB loop ramp for traffic to Route 17.
- Completion of I-664 Widening including Bowers Hill Interchange project, included in the 2045 LRTP - Bowers Hill to College Dr - Improve interchange/Add Express Lanes (Project ID: 2045-308).
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Ramp metering

## FIGURE 15 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #4

### I-264/Downtown Tunnel Between Frederick Blvd and Brambleton Ave
### Cities of Norfolk and Portsmouth




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 4.43 Miles |
| **Speed Limit** | 35/45/55 mph (35 mph in tunnel) |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Regional Backbone #8 |

### RECENT PROJECTS

- Midtown Tunnel – New tunnel that widened the facility from 2 to 4 lanes (completed in 2017).
- MLK Freeway – I-264 to Hight St – New 4 lane limited-access facility (completed in 2016).

### FUTURE PROJECTS

- None

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-264 | FREDERICK BLVD | MLK FWY | 0.45 | 6 | 26 | 51 | 2.03 | 1.05 | 5 | 0 | 49 | 3 | SEV | LOW | 52 | 20 | 57 | 58 | 1.01 | 1.00 | 0 | 0 | 0 | 0 | LOW | LOW | 13 | 13 |
| I-264 | MLK FWY | DES MOINES AVE | 0.51 | 6 | 26 | 51 | 2.03 | 1.05 | 5 | 0 | 49 | 3 | SEV | LOW | 52 | 20 | 57 | 58 | 1.01 | 1.00 | 0 | 0 | 0 | 0 | LOW | LOW | 13 | 13 |
| I-264 | DES MOINES AVE | EFFINGHAM ST | 0.72 | 6 | 12 | 21 | 4.14 | 2.33 | 7 | 9 | 199 | 105 | SEV | SEV | 71 | 74 | 54 | 49 | 0.98 | 1.07 | 0 | 0 | 0 | 5 | LOW | LOW | 13 | 13 |
| I-264/DOWNTOWN TUNNEL | EFFINGHAM ST | NORFOLK CL | 0.72 | 4 | 23 | 21 | 2.04 | 2.26 | 7 | 12 | 88 | 131 | SEV | SEV | 65 | 71 | 32 | 26 | 1.39 | 1.72 | 3 | 11 | 33 | 125 | SEV | SEV | 25 | 54 |
| I-264/DOWNTOWN TUNNEL | PORTSMOUTH CL | I-464 | 0.40 | 4 | 23 | 21 | 2.04 | 2.26 | 7 | 12 | 88 | 131 | SEV | SEV | 65 | 71 | 32 | 26 | 1.39 | 1.72 | 3 | 11 | 33 | 125 | SEV | SEV | 25 | 54 |
| I-264/BERKLEY BRIDGE | I-464 | WATERSIDE/CITY HALL/TIDEWATER | 0.72 | 8 | 42 | 39 | 1.18 | 1.30 | 0 | 1 | 24 | 45 | MOD | SEV | 25 | 31 | 34 | 17 | 1.32 | 2.67 | 2 | 12 | 38 | 227 | SEV | SEV | 44 | 84 |
| I-264 | WATERSIDE/CITY HALL/TIDEWATER | BRAMBLETON AVE | 0.91 | 9 | 58 | 45 | 0.97 | 1.23 | 0 | 0 | 0 | 18 | LOW | MOD | 11 | 11 | 41 | 15 | 1.23 | 3.39 | 0 | 10 | 18 | 236 | MOD | SEV | 28 | 74 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | YES |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | YES |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 15 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #4

### I-264/Downtown Tunnel

Between Frederick Blvd and Brambleton Ave

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

• Tunnels can carry fewer vehicles than typical freeway segments due to larger headways between vehicles. Data indicates that the Downtown Tunnel has a capacity of about 20% fewer vehicles than a typical freeway lane.

• Traffic queues on I-264 eastbound (EB) on a regular basis during the AM Peak Period from Frederick Blvd to the Downtown Tunnel/I-464. I-264 EB between Des Moines Ave and Downtown Tunnel/I-464 are congested for 7 15-minute intervals during the AM Peak Period.

• Traffic queues on I-264 westbound (WB) on a regular basis during the PM Peak Period from Brambleton Ave to the Downtown Tunnel/Effingham St. I-264 WB between Brambleton Ave to the Downtown Tunnel/Effingham St is congested for 10-12 15-minute intervals during the PM Peak Period. I-264 EB between Des Moines Ave and the Downtown Tunnel/I-464 are congested for 9-12 15-minute intervals during the PM Peak Period.

• I-264/Berkley Bridge openings can greatly impact traffic conditions (626 openings in 2019). It can be opened for maritime vessels at 9 a.m., 11 am, 1 pm, and 2:30 pm, Monday through Friday. The bridge does not open during these scheduled times when vessels have not signaled and are not waiting for passage. The duration of the traffic stops due to the bridge lifts are dependent on maritime traffic volumes. Bridge openings do not occur during commute periods, from 5 - 9 am and from 3 - 7 pm, Monday through Friday, except during federal holidays.

• High truck volumes between Frederick Blvd and I-464 (7.1-7.3% of all daily traffic).

• Traffic backups at I-264/Downtown Tunnel has congestion impacts on surrounding local roads in Norfolk and Portsmouth due to diverting traffic.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

• Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service across the Elizabeth River (i.e. outcome of the Regional Transit Backbone).

• Continue to use and improve ITS/Operational strategies to manage traffic at the tunnel and quickly respond to incidents. This can help reduce clearance times and reduce the number of secondary incidents.

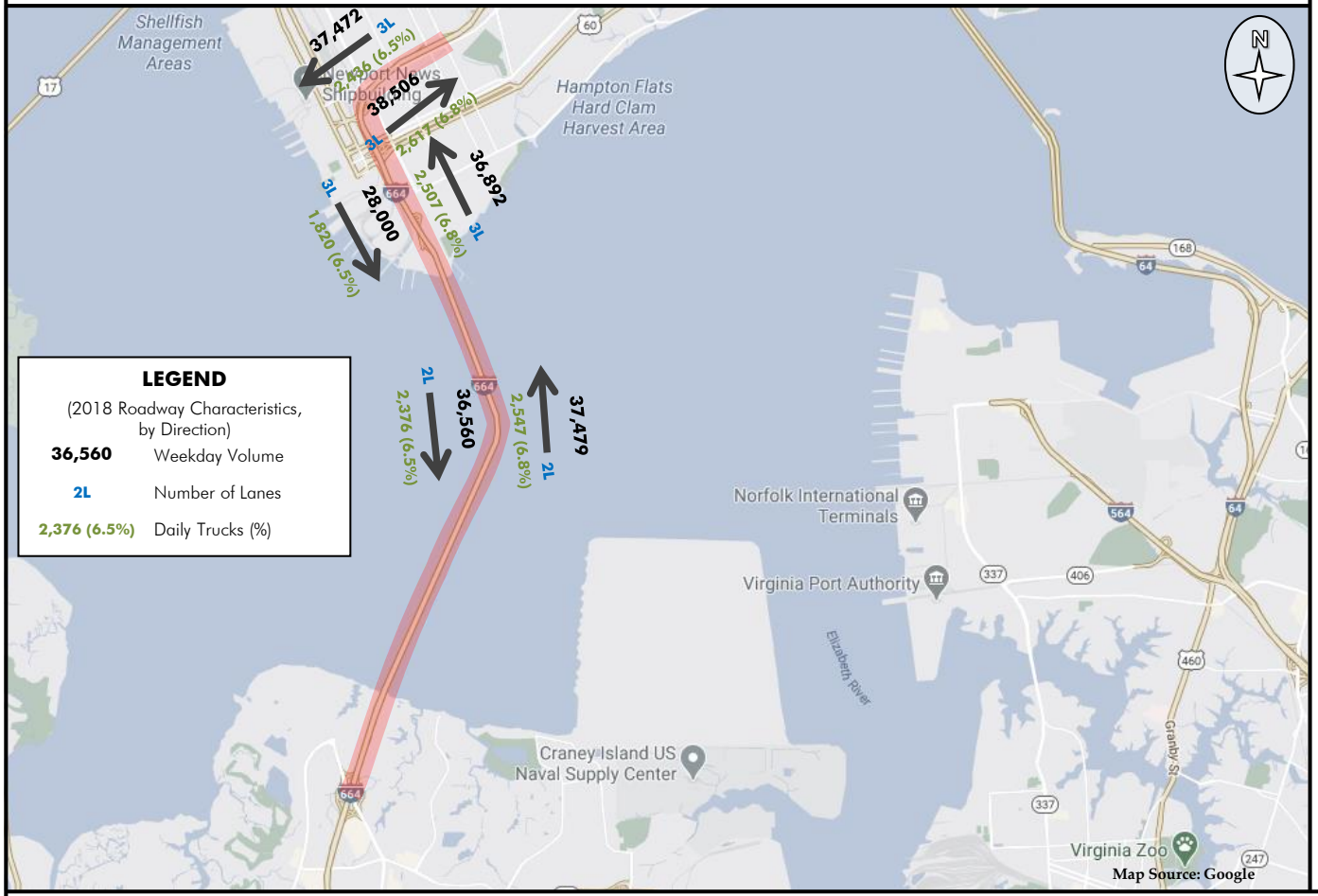
• Completion of I-64 Southside/High Rise Bridge widening project #106692 may reduce traffic volumes at I-264/Downtown Tunnel.

• Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.

• Ramp metering

## FIGURE 16 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #5

### I-664/Monitor-Merrimac Mem. Bridge Tunnel Between College Dr and Chestnut Ave Cities of Suffolk and Newport News





### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 8.74 Miles |
| **Speed Limit** | 60 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

2045 LRTP Projects

- None

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Southbound (2018) | | | | | | | | | | | | Northbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-664/MMMBT | COLLEGE DR | NEWPORT NEWS CL | 3.28 | 4 | 60 | 49 | 1.01 | 1.24 | 0 | 0 | 0 | 27 | LOW | MOD | 13 | 15 | 48 | 49 | 1.23 | 1.20 | 0 | 0 | 14 | 19 | MOD | MOD | 31 | 31 |
| I-664/MMMBT | SUFFOLK CL | TERMINAL AVE | 2.85 | 4 | 60 | 49 | 1.01 | 1.24 | 0 | 0 | 0 | 27 | LOW | MOD | 13 | 15 | 48 | 49 | 1.23 | 1.20 | 0 | 0 | 14 | 19 | MOD | MOD | 31 | 31 |
| I-664 | TERMINAL AVE | 23RD ST | 0.92 | 6 | 53 | 8 | 1.09 | 7.08 | 0 | 16 | 3 | 330 | LOW | SEV | 29 | 79 | 60 | 61 | 1.01 | 0.99 | 0 | 0 | 0 | 0 | LOW | LOW | 14 | 14 |
| I-664 | 23RD ST | CHESTNUT AVE | 1.69 | 6 | 56 | 14 | 1.10 | 4.41 | 0 | 13 | 8 | 252 | LOW | SEV | 30 | 80 | 62 | 58 | 0.99 | 1.06 | 0 | 0 | 0 | 3 | LOW | LOW | 14 | 14 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | YES |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | YES |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | YES |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 16 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #5

### I-664/Monitor-Merrimac Mem. Bridge Tunnel

Between College Ave and Chestnut Ave

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

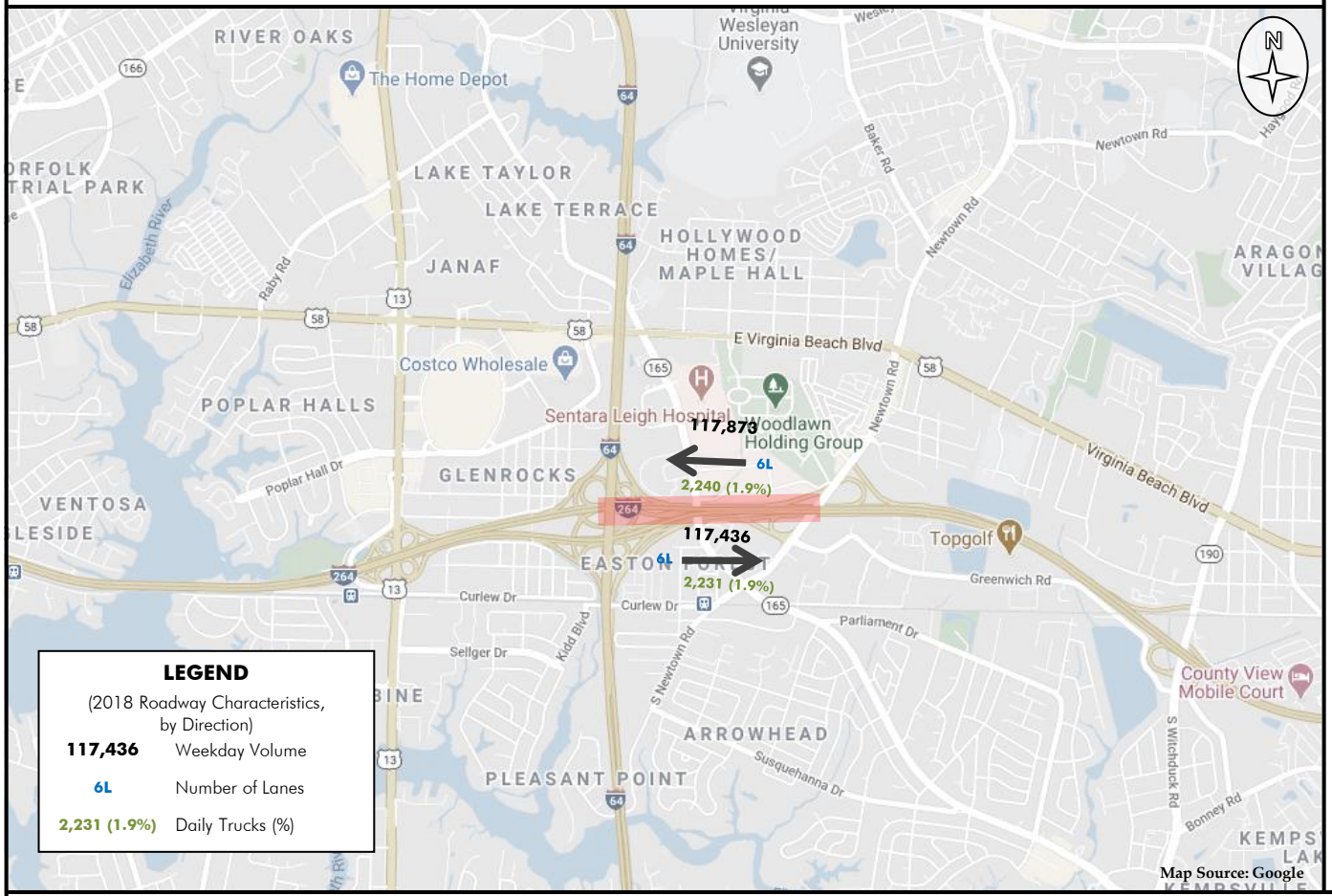
- There is a capacity deficiency at the tunnel. This is due to having only 2 lanes in each direction and also caused by tunnel-related physical and human factors. Whereas a typical freeway can carry up to 2,100 - 2,200 vehicles per hour per lane, the Monitor-Merrimac Memorial Bridge-Tunnel only carries a maximum of approximately 1,750 vehicles per hour per lane.
- Traffic backups in the southbound (SB) direction extend from Terminal Ave/MMMBT entrance back to Chestnut Rd on a regular basis during the PM Peak Period. The segment from 23rd St to Terminal Ave is congested for 16 15-minute intervals during the PM Peak Period. The segment from Chestnut Rd to 23rd St is congested for 13 15-minute intervals during the PM Peak Period.
- Traffic backups in the southbound (SB) direction at the I-664/MMMBT Tunnel has congestion impacts on surrounding local roads in Newport News due to diverting traffic.
- High truck volumes in both directions – 2,376 daily trucks southbound (SB) (6.5%), 2,547 daily trucks northbound (NB) (6.8%).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service across the Hampton Roads Harbor, such as enhancing express bus service (i.e. Regional Transit Backbone) or implementing ferry service.
- Consider "congestion pricing" strategies for the Hampton Roads Harbor crossings.
- Continue to use and improve ITS/Operational strategies to manage traffic at the tunnel and quickly respond to incidents. This can help reduce clearance times and reduce the number of secondary incidents.
- The I-64/Hampton Roads Bridge-Tunnel Expansion project (I-664 to I-564, Widen to 6 Lanes + 2 Shoulder Lanes, UPC #115008) should help alleviate traffic congestion at the MMMBT.
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Implement ramp metering strategies contained in VDOT's Ramp Metering Feasibility Study for I-64 and I-664 Report (June 2020).

## FIGURE 17 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #6

### I-264 Between I-64 and Newtown Rd
### City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.74 Miles |
| **Speed Limit** | 55 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

- I-64/I-264 Interchange – Phase I
Widening of I-64 West between the Twin Bridges and the I-264 interchange, two new ramps from I-64 West to I-264 East, and a new system of collector-distributor (CD) roads on I-264 East – Construction completed.

- I-64/I-264 Interchange – Phase II Improved interchanges at Newtown and Witchduck roads, a Greenwich Road flyover across I-264 that connects with Cleveland Street, and an additional EB lane on I-264 approaching Witchduck Road (UPC #17630) – Construction completed.

| | | | | | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-264 | I-64 | NEWTOWN RD/WCL VA. BEACH | 0.74 | 12 | 51 | 35 | 1.19 | 1.74 | 0 | 10 | 24 | 223 | MOD | SEV | 18 | 53 | 53 | 28 | 1.11 | 2.12 | 0 | 7 | 13 | 207 | LOW | SEV | 32 | 74 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | IN USE |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | - |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 17 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #6

**I-264 (Norfolk)**

Between I-64 and Newtown Road

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

• Westbound (WB) moderate congestion due to traffic backups from the ramps from I-264 on to I-64 eastbound (EB).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

• Most of the eastbound (EB) traffic congestion in this corridor should be alleviated by the I-64/I-264 Interchange Improvements Phases I and II.

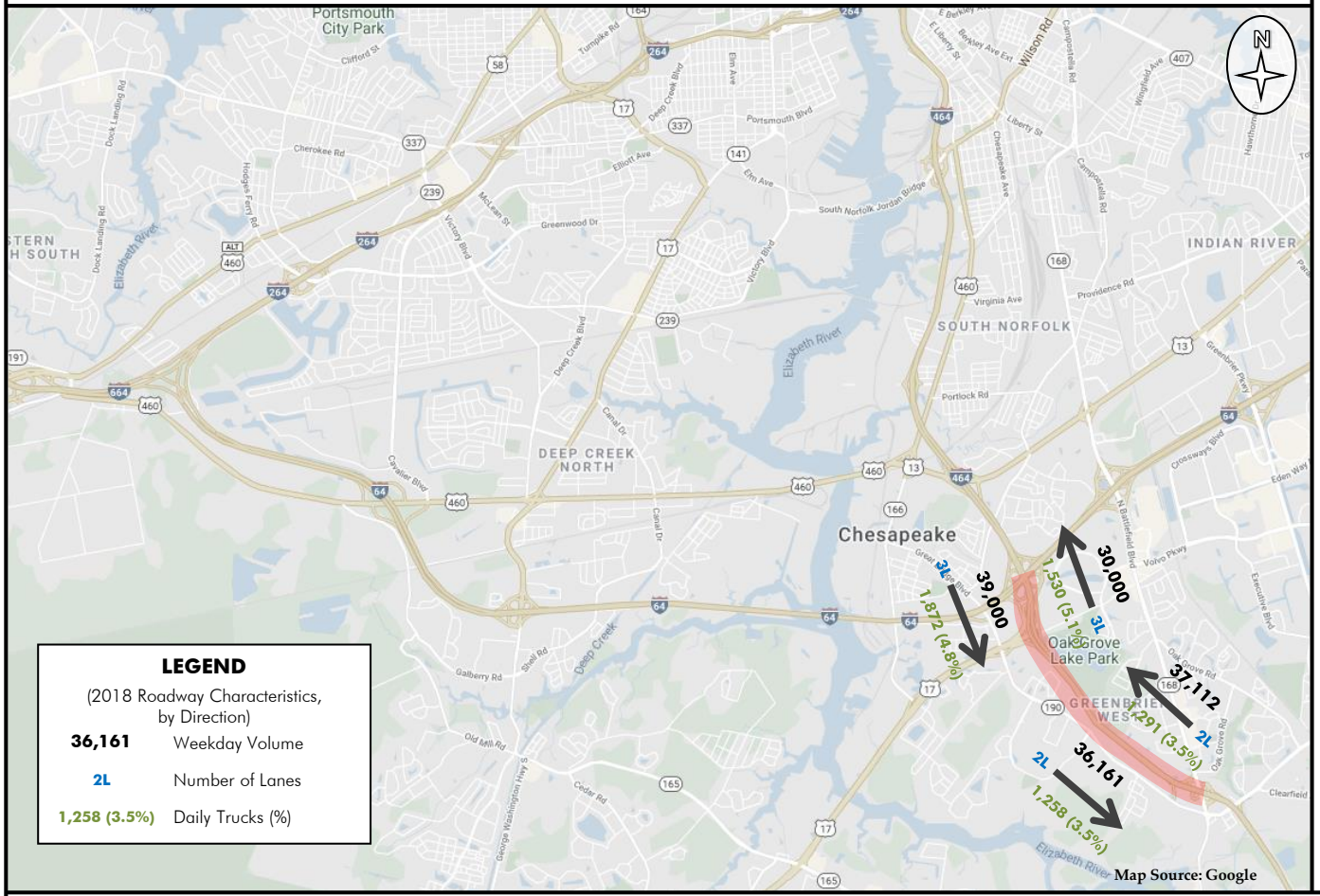
• Westbound (WB) traffic congestion can be improved by additional phases of the I-64/I-264 Interchange Project to lengthen the merge area on I-64 EB.

• Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service, such as enhancing express bus service (i.e. Regional Transit Backbone).

• Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.

## FIGURE 18 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #7

### Chesapeake Expressway Between Battlefield Blvd and I-64
### City of Chesapeake




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 2.47 Miles |
| **Speed Limit** | 55 mph |
| **Roadway Class** | Other Freeway/Expressway |
| **Regional Transit Program Route Classification** | None |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

2045 LRTP Projects

- Chesapeake Expressway - Hillcrest Pkwy to I-64 - Widen to 6 lanes (Project ID: 2045-129)
- I-64/I-464 Interchange – Interchange improvements (Project ID: 2045-309)

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| CHESAPEAKE EXPWY | BATTLEFIELD BLVD (N OF GREAT BRIDGE) | DOMINION BLVD | 1.90 | 4 | 30 | 57 | 1.91 | 0.99 | 6 | 0 | 66 | 0 | SEV | LOW | 41 | 12 | 56 | 38 | 1.04 | 1.55 | 0 | 4 | 2 | 34 | LOW | SEV | 12 | 22 |
| CHESAPEAKE EXPWY | DOMINION BLVD | I-64 | 0.57 | 6 | 18 | 48 | 2.71 | 1.04 | 9 | 0 | 174 | 2 | SEV | LOW | 67 | 22 | 56 | 51 | 1.03 | 1.12 | 0 | 0 | 0 | 5 | LOW | LOW | 14 | 14 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | YES |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | YES |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | - |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 18 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #7

**Chesapeake Expressway**

Between Battlefield Blvd and I-64

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

- Weaving is an issue on I-64 eastbound (EB) (towards Suffolk) at the I-464/Chesapeake Expressway interchange.
- Weaving is an issue from I-64 EB (towards Suffolk) Exit 291B to Rte 17 South (Dominion Blvd)/Rte 168 South (Chesapeake Expressway), which impacts safety and travel speeds. Weekday ramp volumes at this location are high (21,891 vehicles in 2018).
- Weaving/merging/bottleneck on northbound (NB) Chesapeake Expressway/Dominion Blvd onto I-64 westbound (WB) (towards Virginia Beach) in the AM peak period, where 3 ramp lanes (2 NB Dominion Blvd & 1 NB Chesapeake Expressway) are reduced to 1 lane. This ramp has sharp curves that reduce travel speeds during peak/non-peak conditions. The NB segment from Dominion Blvd to I-64 WB is congested for 9 15-minute intervals during the AM Peak Period. Weekday ramp volumes at this location are high (25,795 vehicles in 2018).
- The southbound (SB) segment from Dominion Blvd to Battlefield Blvd is congested for 4 15-minute intervals during the PM Peak Period.
- Entry ramps from Battlefield Blvd onto the Chesapeake Expressway SB are short.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.
- Improve the interchange of I-64 and I-464/Chesapeake Expressway to reduce weaving movements. Complete Alternative 4A from the I-64/I-464 Interchange Operational and Safety Analysis Report that includes an I-64 EB to I-464 SB (to Rte 168) flyover and maintains I-64 EB to I-464 SB loop ramp for traffic to Route 17.
- Widen the single ramp lane to two lanes from NB Dominion Blvd/Chesapeake Expressway to I-64 WB (towards Virginia Beach).
- Continue to use and improve ITS/Operational strategies to manage traffic in the corridor and quickly respond to incidents.
- Widen Chesapeake Expressway from 4 to 6 lanes.
- Improve the interchange of Chesapeake Expressway and Battlefield Blvd.

## FIGURE 19 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #8

### I-564 Between Terminal Blvd and Admiral Taussig Blvd
### City of Norfolk


### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.87 Miles |
| **Speed Limit** | 55 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

• Intermodal Connector – Provides direct access from the interstate to Naval Station Norfolk (NSN) Gate 6 and Truck Inspection area, and to Hampton Blvd (opened in January 2021). This project improved access between I-564 and the western portions of the base.

### FUTURE PROJECTS

2045 LRTP Projects

• Air Terminal Interchange on I-564 at Naval Station Norfolk (Project ID: 2045-316)

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-564 | ADMIRAL TAUSSIG BLVD | FUTURE INTERMODAL CONNECTOR | 0.50 | 4 | 22 | 54 | 2.44 | 1.00 | 12 | 0 | 151 | 0 | SEV | LOW | 67 | 25 | 51 | 51 | 1.06 | 1.06 | 0 | 0 | 1 | 3 | LOW | LOW | 10 | 10 |
| I-564 | FUTURE INTERMODAL CONNECTOR | INTERNATIONAL TERMINAL BLVD | 1.37 | 6 | 22 | 54 | 2.44 | 1.00 | 12 | 0 | 151 | 0 | SEV | LOW | 67 | 25 | 51 | 51 | 1.06 | 1.06 | 0 | 0 | 1 | 3 | LOW | LOW | 10 | 10 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | YES |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | YES |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | YES |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | IN USE |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 19 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #8

**I-564 (Norfolk)**

Between Terminal Blvd and Admiral Taussig Blvd

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

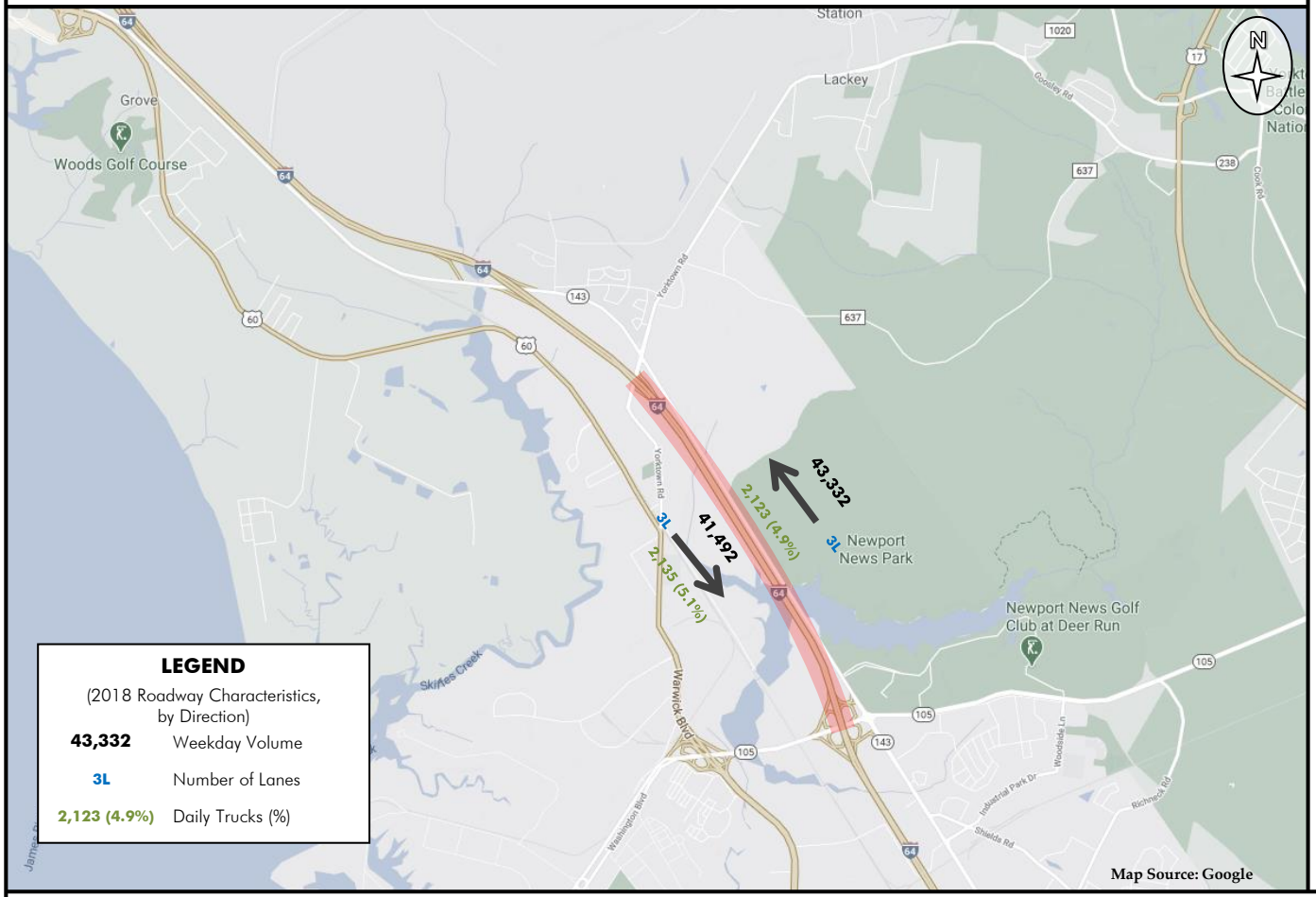
- There is congestion at Naval Station Norfolk (Gates 3/3A, 4, 5, and 22) and Naval Support Activity Hampton Roads (Gate 5) during the AM Peak Period.
- Traffic queues on I-564 northbound (NB) from the Navy gate entrances in the early AM Peak Period. These queues regularly extend (on I-564 NB) from Admiral Taussig Blvd back to Terminal Blvd.
- I-564 NB between Terminal Blvd and Admiral Taussig Blvd is congested for 12 15-minute intervals during the AM Peak Period.
- Traffic control devices (including "railroad" gates on NB Hampton Blvd) are used to prohibit Hampton Blvd traffic from using Gates 1 and 2, which allows traffic to flow uninterrupted from I-564/Taussig into Gates 1 and 2 when they are used during the AM peak.
- There is a high directional distribution of traffic volumes on I-564 during the AM Peak Period (86% NB, 14% SB) and the PM Peak Period (87% SB, 13% NB). This translates to 3,448 vehicles traveling NB during the AM Peak Hour and 4,151 vehicles traveling SB during the PM Peak Hour.
- High K-factor (peak hour traffic volume) in the NB direction during the AM Peak (0.158) and in the southbound (SB) direction during the PM Peak (0.169).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Encourage local military leaders to modify policies concerning work times and work location (by entry gate).
- Encourage local partnerships with Hampton Roads Transit (HRT) and others to increase travel options for military personnel through travel demand management strategies such as working off-peak hours, telecommuting, ridesharing (carpools/vanpools), and using public transit. One successful example of this is HRT's TRAFFIX office on Naval Station Norfolk, which allows military commuters an opportunity to learn more about commuting options, purchase transit passes at the ticket vending machine, and conduct meetings with area commands.
- Encourage all eligible military employees to consider participating in the Transportation Incentive Program (TIP) to help reduce their daily contribution to traffic congestion and air pollution, as well as expand their commuting alternatives. Effective January 1, 2018, Department of the Navy TIP participants are eligible for transit benefits of up to $260 per month (parking fees not included) for specific pre-approved commuter mass transit transportation costs not to exceed actual expenses.
- Provide a shuttle/transit circulator service for travel within Naval Station Norfolk.
- Extend light rail passenger service or Bus Rapid Transit service to/from Naval Station Norfolk. HRT's Naval Station Norfolk Transit Corridor Project (NSNTC) has been studying options.
- Ensure coordination of the signals on Admiral Taussig Blvd.
- Improve the operations of the gates, particularly at Gates 3/3A. This could include adding additional lanes for processing through the gates and improving technologies at the gates.
- Construct the Air Terminal Interchange project to improve access from I-564 to Naval Station Norfolk.

## FIGURE 20 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #9

### I-64 Between Yorktown Rd and Fort Eustis Blvd
### City of Newport News





### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 2.45 Miles |
| **Speed Limit** | 65 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

- I-64 Peninsula Segment I, Widen to 6 lanes from west of Route 143, Jefferson Avenue (Exit 255), to just east of Route 238, Yorktown Road (Exit 247) (completed in 2017)
- I-64 Peninsula Segment II, Widen to 6 lanes from 1.05 miles west of Route 199 near exit 242 to 0.54 miles east of Route 238 (Yorktown Road) near exit 247 (completed in 2019)

### FUTURE PROJECTS

2045 LRTP Projects

- None

| | | | | | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-64 | YORKTOWN RD | FORT EUSTIS BLVD | 2.45 | 6 | 61 | 63 | 1.04 | 1.00 | 0 | 0 | 1 | 0 | LOW | LOW | 22 | 22 | 42 | 31 | 1.37 | 1.84 | 2 | 8 | 18 | 86 | SEV | SEV | 33 | 60 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | YES |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | IN USE |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | - |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 20 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #9

### I-64

Between Yorktown Rd and Fort Eustis Blvd

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

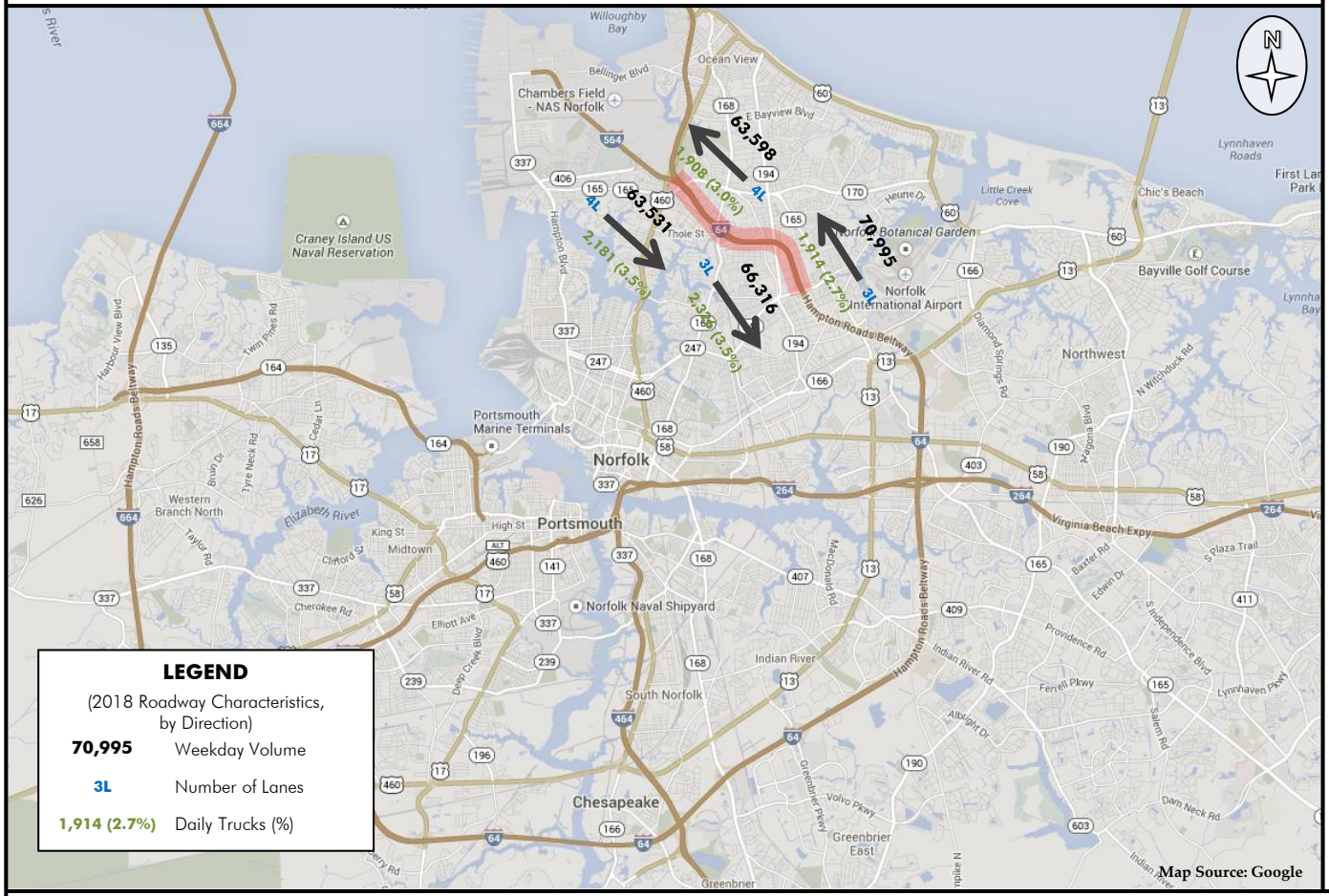
• Traffic congestion along this corridor has been largely alleviated from the I-64 Peninsula widening project. This project widened I-64 from 4 to 6 lanes from near Jefferson Avenue (Exit 255) to Route 199 near Williamsburg.

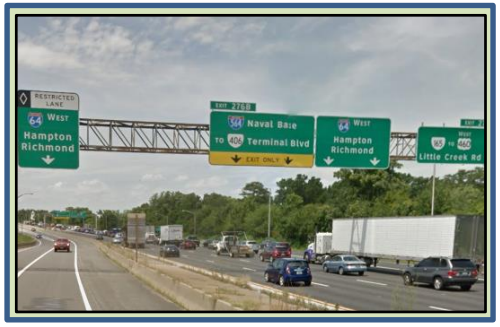
### POTENTIAL CONGESTION MITIGATION STRATEGIES

• Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.

## FIGURE 21 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #10

### I-64 Between I-564 and Norview Ave
### City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 3.18 Miles |
| **Speed Limit** | 55 mph |
| **Roadway Class** | Interstate |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

- I-64 at Norview Ave Interchange improvements (completed in 2013).
- I-64 Express Lanes – converted reversible HOV lanes to Express Lanes (completed in 2018).

### FUTURE PROJECTS

- An existing shoulder will be converted into an Express Part Time Shoulder Lane in each direction for nine miles – I-564 to I-264 (expected completion 2028).

| | | | | | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| I-64 | I-564/LITTLE CREEK RD | TIDEWATER DR | 1.17 | 8 | 54 | 29 | 1.12 | 2.08 | 0 | 8 | 5 | 124 | LOW | SEV | 17 | 57 | 52 | 44 | 1.14 | 1.37 | 0 | 2 | 22 | 31 | LOW | SEV | 17 | 21 |
| I-64 | TIDEWATER DR | CHESAPEAKE BLVD | 1.04 | 6 | 39 | 30 | 1.56 | 2.00 | 3 | 11 | 34 | 157 | SEV | SEV | 26 | 57 | 42 | 58 | 1.45 | 1.04 | 5 | 0 | 64 | 3 | SEV | LOW | 29 | 15 |
| I-64 | CHESAPEAKE BLVD | NORVIEW AVE | 0.97 | 6 | 33 | 32 | 1.81 | 1.88 | 4 | 12 | 53 | 159 | SEV | SEV | 39 | 56 | 44 | 57 | 1.39 | 1.07 | 6 | 0 | 63 | 4 | SEV | LOW | 27 | 13 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | - |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | - |
| | 2-13 Bicycle Storage Systems | - |
| | 2-14 Improved/Expanded Pedestrian Network | - |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | IN USE |
| | 3-2 HOV Toll Savings | YES |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | - |
| | 4-3 Intersection Turn Restrictions | - |
| | 4-4 Intersection Signalization Improvements | - |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | - |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | IN USE |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | - |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | YES |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | YES |
| | 4-20 Access Control and Connectivity | - |
| | 4-21 Median Control | - |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | YES |
| | 5-2 Arterial lanes | - |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 21 - CMP 2022 CONGESTED CORRIDOR - FREEWAY #10

**I-64 (Norfolk)**

Between I-564 and Norview Avenue

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

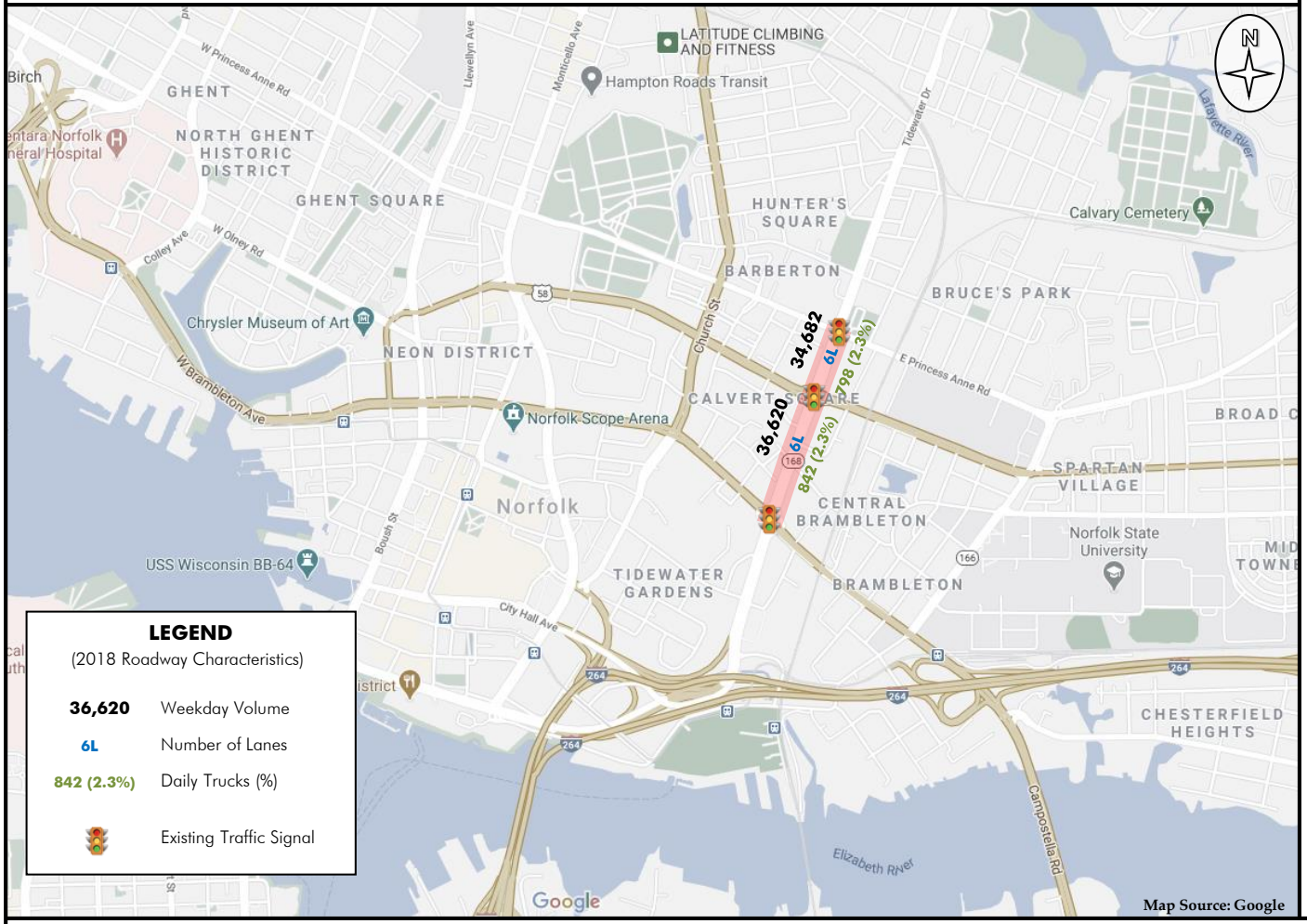
- I-64 westbound (WB) between Tidewater Dr and Norview Ave is congested for 5-6 15-minute intervals during the AM Peak Period.
- I-64 eastbound (EB) between Tidewater Dr and Norview Ave is congested for 3-4 15-minute intervals during the AM Peak Period.
- I-64 EB between Tidewater Dr and Norview Ave is congested for 11-12 15-minute intervals during the PM Peak Period.
- I-64 EB between I-564/Little Creek Rd and Tidewater Dr is congested for 8 15-minute intervals during the PM Peak Period.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete project to convert the shoulder into an Express Part Time Shoulder Lane in each direction for nine miles – I-564 to I-264 (expected completion Winter 2025).
- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service, such as enhancing express bus service (i.e. Regional Transit Backbone).
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Implement ramp metering strategies contained in VDOT's Ramp Metering Feasibility Study for I-64 and I-664 Report (June 2020).
- Encourage local military leaders to modify policies concerning work times and work location (by entry gate).
- Encourage local partnerships with Hampton Roads Transit (HRT) and others to increase travel options for military personnel through travel demand management strategies such as working off-peak hours, telecommuting, ridesharing (carpools/vanpools), and using public transit.
- Encourage all eligible military employees to consider participating in the Transportation Incentive Program (TIP) to help reduce their daily contribution to traffic congestion and air pollution, as well as expand their commuting alternatives. Effective January 1, 2018, Department of the Navy TIP participants are eligible for transit benefits of up to $260 per month (parking fees not included) for specific pre-approved commuter mass transit transportation costs not to exceed actual expenses.

## FIGURE 22 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #1

### Tidewater Dr Between Brambleton Ave and Princess Anne Rd
### City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.43 Miles |
| **Speed Limit** | 35 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Regional Backbone #8 |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Intersection Improvements - Brambleton Ave at Tidewater Dr (UPC #111017) - Construction expected to begin Feb 2024 and end Feb 2025.

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| TIDEWATER DR | BRAMBLETON AVE | VA BEACH BLVD | 0.29 | 6 | 17 | 18 | 1.35 | 1.22 | 0 | 0 | 35 | 33 | MOD | LOW | 23 | 21 | 11 | 9 | 2.15 | 2.39 | 13 | 14 | 154 | 229 | SEV | SEV | 78 | 78 |
| TIDEWATER DR | VA BEACH BLVD | PRINCESS ANNE RD | 0.14 | 6 | 16 | 19 | 1.54 | 1.29 | 3 | 0 | 31 | 39 | SEV | MOD | 28 | 19 | 17 | 11 | 1.37 | 2.21 | 0 | 14 | 36 | 166 | MOD | SEV | 29 | 74 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | NO |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 22 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #1

**Tidewater Drive**

Between Brambleton Avenue and Princess Anne Road

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

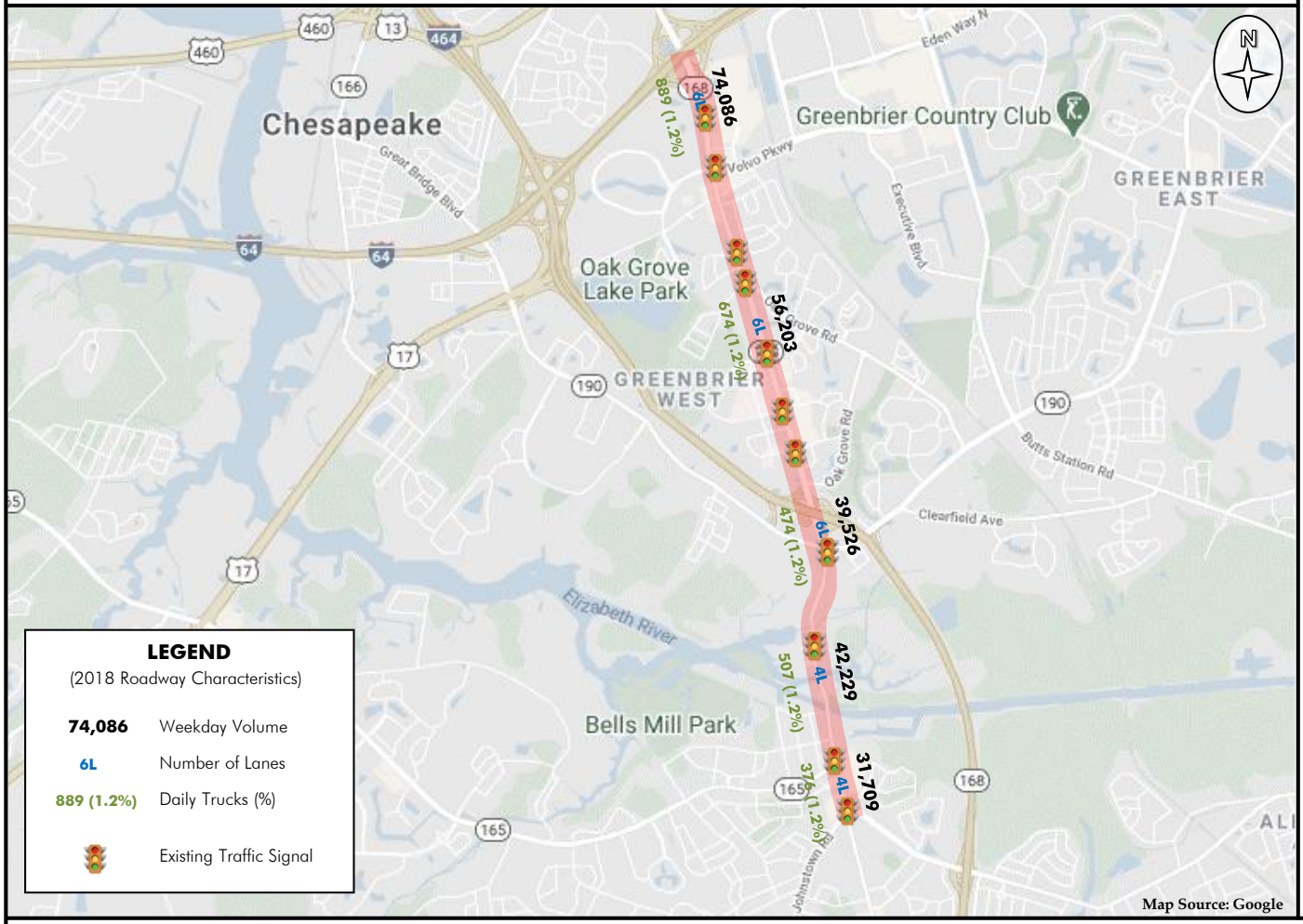
- High number of signals per mile (7.0) in the corridor.
- On-street parking along southbound (SB) Tidewater Dr.
- High peak hour traffic volume during the AM Peak (1,424) and PM Peak (1,526) between Brambleton Ave and Virginia Beach Blvd.
- High directional distribution of volumes between Virginia Beach Blvd and Princess Anne Rd during the AM peak (59% southbound).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete Intersection Improvements - Brambleton Ave at Tidewater Dr (UPC #111017).
- Ensure coordination of signals in the corridor.
- Consider additional turn lanes where traffic volumes warrant.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FIGURE 23 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #2

## Battlefield Blvd Between Johnstown Rd and I-64
## City of Chesapeake




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 4.29 Miles |
| **Speed Limit** | 30-45 mph |
| **Roadway Class** | Principal/Minor Arterial |
| **Regional Transit Program Route Classification** | Local Priority #13/ Coverage #58 |

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Intersection Improvements - Battlefield Blvd at Volvo Pkwy (UPC #115350) - Construction expected to begin Aug 2025 and end Aug 2026.
- Intersection Improvements - Battlefield Blvd at Volvo Pkwy (UPC #115516) - Construction expected to begin Jul 2027 and end Nov 2028.
- Battlefield Blvd Continuous right-turn lane: Volvo Pkwy to Walmart Way (UPC #119232) - Construction expected to begin Aug 2028 and end Aug 2029.
- Intersection Improvements - Battlefield Blvd at Byron St (UPC #119267) – Construction expected to begin Oct 2030 and end Oct 2031.

2045 LRTP Projects

- Battlefield Blvd - Johnstown Rd to I-64 – widen to 6/8 lanes (Project ID: 2045-122)

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| BATTLEFIELD BLVD | JOHNSTOWN RD | CEDAR RD | 0.28 | 4 | 16 | 12 | 1.36 | 1.86 | 0 | 16 | 22 | 136 | MOD | SEV | 21 | 58 | 17 | 14 | 1.27 | 1.46 | 0 | 3 | 11 | 78 | MOD | SEV | 10 | 23 |
| BATTLEFIELD BLVD | CEDAR RD | GREAT BRIDGE BLVD/KEMPSVILLE RD | 1.20 | 4 | 24 | 24 | 1.35 | 1.39 | 0 | 0 | 19 | 34 | MOD | MOD | 6 | 8 | 25 | 13 | 1.18 | 2.25 | 0 | 13 | 4 | 199 | LOW | SEV | 14 | 61 |
| BATTLEFIELD BLVD | GREAT BRIDGE BLVD/KEMPSVILLE RD | GREAT BRIDGE BYPASS | 0.19 | 6 | 28 | 26 | 1.15 | 1.21 | 0 | 0 | 10 | 30 | LOW | LOW | 4 | 6 | 12 | 12 | 2.02 | 1.94 | 11 | 15 | 45 | 139 | SEV | SEV | 52 | 61 |
| BATTLEFIELD BLVD | GREAT BRIDGE BYPASS | VOLVO PKWY | 1.97 | 6 | 26 | 24 | 1.27 | 1.36 | 0 | 0 | 14 | 37 | MOD | MOD | 14 | 17 | 31 | 22 | 1.21 | 1.73 | 0 | 7 | 10 | 91 | LOW | SEV | 12 | 42 |
| BATTLEFIELD BLVD | VOLVO PKWY | I-64 | 0.65 | 6 | 30 | 23 | 1.06 | 1.38 | 0 | 0 | 2 | 73 | LOW | MOD | 13 | 23 | 16 | 10 | 1.87 | 2.83 | 9 | 16 | 137 | 399 | SEV | SEV | 67 | 76 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | PARTIAL |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 23 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #2

**Battlefield Blvd**

Between Johnstown Rd and I-64

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

- Heavy southbound (SB) traffic during PM peak, particularly when the High Rise Bridge or Chesapeake Expressway is congested or Centerville Tnpk Bridge is closed.
- High directional distribution of volumes between Volvo Pkwy and Cedar Rd during the AM peak (57-70% northbound (NB)) and the PM peak (56-64% SB).
- Heavy traffic at Volvo Pkwy, Great Bridge Rd/Kempsville Rd, and Cedar Rd intersections.
- Long traffic queues for all approaches of Battlefield Blvd at Great Bridge Rd/Kempsville Rd during the PM Peak Period.
- Long traffic queues along SB Battlefield Blvd at Wal-Mart Way (particularly dual left-turn lanes) and at Cedar Rd (particularly in the through/right-turn lane) during the PM Peak Period. There is no dedicated SB right-turn lane from Battlefield Blvd to Cedar Rd.
- Eastbound (EB) vehicles on Albemarle Dr are restricted to right-turn only at Battlefield Blvd. Many vehicles turn right into the two-way left-turn lane and then make unsafe U-turns near Causeway Dr toward NB Battlefield Blvd.
- Left-turns are difficult during peak periods for side streets and businesses in the Great Bridge area..
- Existing two-way left-turn lane in Great Bridge encourages unsafe turn movements/conflict points during congested periods.
- Inadequate storage capacity for SB Battlefield Blvd left-turns at Oak Grove Rd during PM peak.
- Cedar Rd/Great Bridge Shopping Center approaches operate as split phase for the existing signal.
- Traffic is impacted by openings of the Great Bridge Bridge, which opens on the hour from 6:00 am – 7:00 pm and on demand at all other times.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Continue to promote TDM, public transit, and active transportation strategies in order to reduce volume in this corridor.
- Consider extending dual left-turn lanes along SB Battlefield Blvd at Wal-Mart Way.
- Add an exclusive right-turn lane on the SB Battlefield Blvd approach at the Cedar Rd intersection.
- Add an additional exit lane for the Great Bridge Shopping Center at Cedar Rd/Battlefield Blvd signalized intersection and redesignate lanes to dual left-turns, one through, and one right-turn (and retime signal).
- Ensure coordination of signals in the corridor.
- Implement rush hour restrictions for Great Bridge Bridge lifts in coordination with the Coast Guard.
- Remove two-way left-turn lane and construct a raised-curb median with openings and channelized left-turn bays at strategic locations along the entire length of Battlefield Blvd south of Great Bridge Blvd/Kempsville Rd. (Note: This may increase congestion but also improve safety.)
- Consider innovative intersection designs for the Great Bridge Blvd/Kempsville Rd intersection to increase capacity.
- Implement projects (UPC #119232 – adds continuous right-turn lane: Volvo Pkwy to Walmart Way, UPC #115516 - Battlefield Blvd/Volvo Parkway Intersection Improvements) and consider other improvements to increase capacity such as adding an exclusive EB through lane for Volvo Pkwy to separate the triple left-turns and through movements.
- This corridor is being studied as part of the VTrans Project Pipeline effort. The goal of this effort is to develop focused alternatives, projects and investment strategies that can be considered for funding in SMART SCALE, Revenue Sharing, Interstate, and other programs. Any recommendations from the Project Pipeline study, which is expected to be completed in 2022, should be considered for this corridor.

# FIGURE 24 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #3

## Mercury Blvd Between Power Plant Pkwy and Armistead Ave
## City of Hampton


**LEGEND**
(2018 Roadway Characteristics)

| | |
|---|---|
| 65,831 | Weekday Volume |
| 8L | Number of Lanes |
| 1,053 (1.6%) | Daily Trucks (%) |
| | Existing Traffic Signal |

### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.39 Miles |
| **Speed Limit** | 45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Regional Backbone #114/ Local Priority #105/ Limited/Express |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

- Pedestrian and Bicycle Improvements – Kilgore Ave to Build America Dr (UPC #111017) – Construction expected to begin 2023.

| | | | | | Eastbound (2018) | | | | | | | | | | Westbound (2018) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| MERCURY BLVD | POWER PLANT PKWY | I-64 | 0.38 | 8 | 32 | 30 | 1.11 | 1.18 | 0 | 0 | 2 | 42 | LOW | LOW | 15 | 21 | 21 | 15 | 1.42 | 1.99 | 1 | 16 | 52 | 304 | SEV | SEV | 41 | 76 |
| MERCURY BLVD | I-64 | COLISEUM DR | 0.35 | 8 | 21 | 16 | 1.32 | 1.72 | 0 | 9 | 29 | 176 | MOD | SEV | 21 | 53 | 27 | 22 | 1.11 | 1.33 | 0 | 0 | 1 | 82 | LOW | MOD | 14 | 27 |
| MERCURY BLVD | COLISEUM DR | CUNNINGHAM DR | 0.42 | 8 | 21 | 16 | 1.32 | 1.72 | 0 | 9 | 21 | 123 | MOD | SEV | 31 | 63 | 27 | 22 | 1.11 | 1.33 | 0 | 0 | 1 | 59 | LOW | MOD | 25 | 32 |
| MERCURY BLVD | CUNNINGHAM DR | ARMISTEAD AVE | 0.24 | 8 | 21 | 16 | 1.32 | 1.72 | 0 | 9 | 23 | 151 | MOD | SEV | 23 | 55 | 27 | 22 | 1.11 | 1.33 | 0 | 0 | 1 | 69 | LOW | MOD | 16 | 26 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | YES |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 24 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #3

**Mercury Boulevard**

Between Power Plant Parkway and Armistead Avenue

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

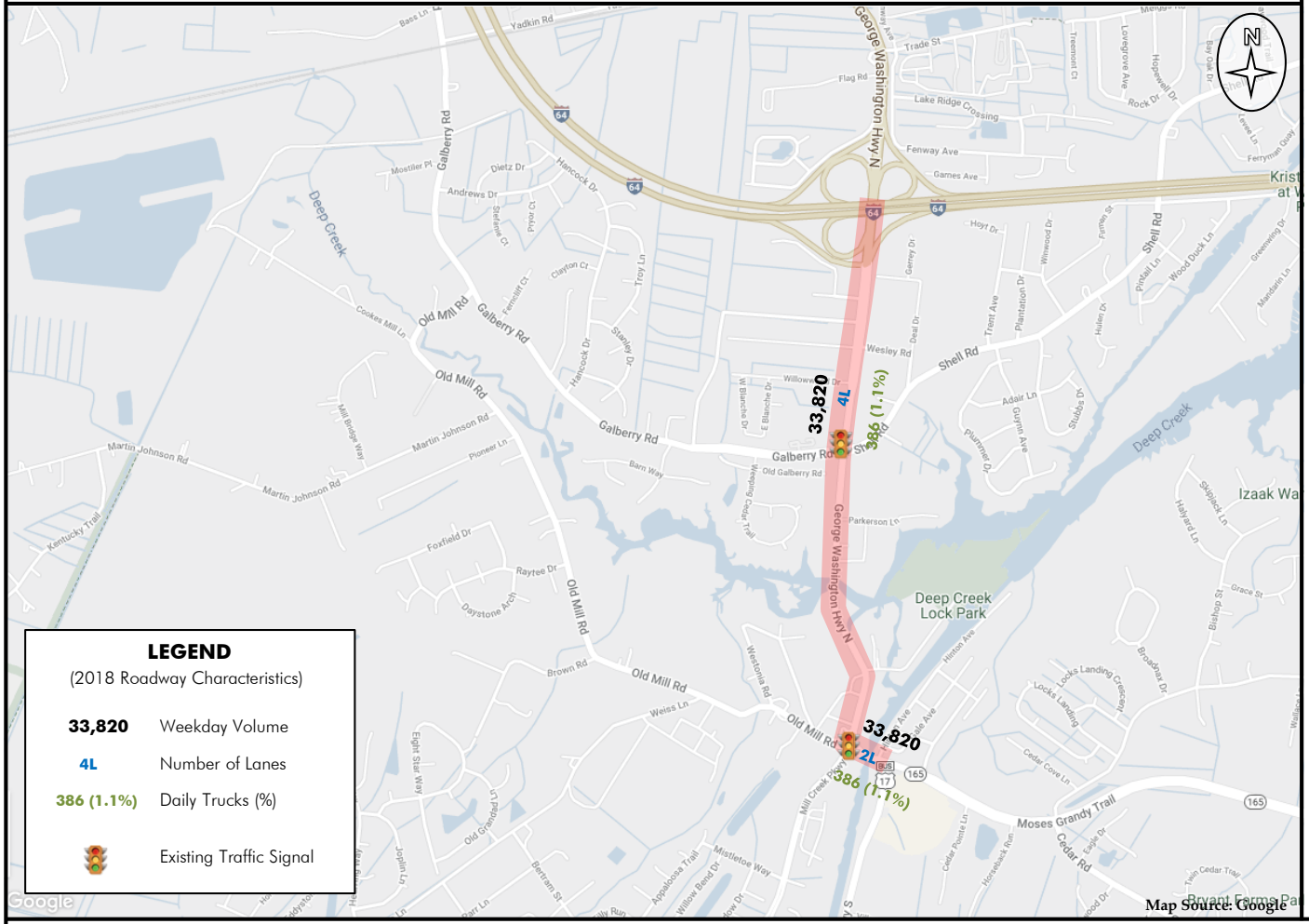
- High number of signals per mile (5.0) in the corridor.
- Heavy PM Peak Hour traffic volume/congestion (3,724 vehicles in eastbound (EB) peak direction from Power Plant Pkwy to I-64).
- Heavy PM Peak Hour volume/congestion (2,132-2,937 vehicles in EB peak direction from I-64 to Armistead Ave).
- Higher directional distribution of volumes between Power Plant Pkwy and Coliseum Dr during the AM peak (57-58% EB)

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Ensure coordination of signals in the corridor.
- Consider additional eastbound left-turn on Mercury Blvd at Power Plant Pkwy.
- Consider additional eastbound left-turn on Mercury Blvd at Cunningham.
- Implement pedestrian and bicycle improvements – Kilgore Ave to Build America Dr (UPC #111017).
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FGIURE 25 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #4

## George Washington Hwy Between Moses Grandy Trail and I-64
## City of Chesapeake




Map Source: Google

### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.28 Miles |
| **Speed Limit** | 35 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | None |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

FY 2022 SYIP Roadway Widening Projects

- Deep Creek Bridge replacement (UPC #109382) – replace 2-lane bridge with 5-lane bridge plus improvements to approaching roadways. Construction expected to begin Jun 2022 and end Jun 2024.

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| GW HWY (DEEP CREEK BRIDGE) | MOSES GRANDY TR @ HINTON AVE | MILL CREEK PKWY | 0.10 | 2 | 25 | 28 | 1.38 | 1.23 | 0 | 0 | 21 | 14 | MOD | LOW | 19 | 17 | 17 | 13 | 1.78 | 2.26 | 6 | 16 | 30 | 179 | SEV | SEV | 47 | 72 |
| GEORGE WASHINGTON HWY | MILL CREEK PKWY | WILLOWOOD DR | 0.80 | 4 | 25 | 28 | 1.38 | 1.23 | 0 | 0 | 21 | 14 | MOD | LOW | 19 | 17 | 17 | 13 | 1.78 | 2.26 | 6 | 16 | 30 | 179 | SEV | SEV | 47 | 72 |
| GEORGE WASHINGTON HWY | WILLOWOOD DR | I-64 | 0.38 | 4 | 25 | 28 | 1.38 | 1.23 | 0 | 0 | 21 | 14 | MOD | LOW | 17 | 15 | 17 | 13 | 1.78 | 2.26 | 6 | 16 | 30 | 179 | SEV | SEV | 45 | 70 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | PARTIAL |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 25 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #4

**George Washington Highway**

Between Moses Grandy Trail and I-64

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

- Traffic movement is greatly restricted by the 2 lane Deep Creek Bridge. The bridge is within 200 feet of the Old Mill Rd/Mill Creek Pkwy signalized intersection and 150 feet of the Moses Grandy Trail/Hinton Ave unsignalized intersection. The drawbridge is permitted to open to marine traffic at 8:30 am, 11:00 am, 1:30 pm, and 3:30 pm.
- There are queues on northbound (NB) George Washington Hwy approaching the I-64 on-ramp towards Virginia Beach during the AM Peak Period.
- High directional distribution of volumes between Moses Grandy Trail and I-64 during the AM peak (71% NB).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Plans are underway to replace the Deep Creek Bridge with a 144-foot long, 60-foot wide five-lane drawbridge located 100 feet south of the existing 2-lane bridge, including improvements to approaching roadways (Project UPC# 109382). Construction is expected to begin in Apr 2022 and end in Apr 2025. This project is expected to alleviate most of the traffic congestion along the corridor.
- Ensure coordination of signals in the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor. Add HRT bus service along the corridor if demand warrants.

## FIGURE 26 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #5

### Dam Neck Rd Between Holland Rd and London Bridge Rd
### City of Virginia Beach


### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.58 Miles |
| **Speed Limit** | 55 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | None |

### RECENT PROJECTS

- Holland Rd – Dam Neck Rd to Nimmo Pkwy - widening from 2 to 4 lanes, including intersection improvements at Holland Rd and Dam Neck Rd (2017).

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Intersection Improvements - Dam Neck Rd at Holland Rd (UPC #110802) - Construction expected to begin Jul 2025 and end Feb 2027.

2045 LRTP Projects

- Dam Neck Rd - Holland Rd to Drakesmile Rd – widen to 6 lanes (Project ID: 2045-218)
- Dam Neck Rd - Drakesmile Rd to London Bridge Rd – widen to 6 lanes (Project ID: 2045-219)
- London Bridge Rd - Dam Neck Rd to Shipps Corner Rd – widen to 4 lanes (Project ID: 2040-247)

| | | | | | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| DAM NECK RD | HOLLAND RD | DRAKESMILE RD | 0.72 | 4 | 23 | 37 | 1.88 | 1.19 | 3 | 0 | 40 | 15 | SEV | LOW | 37 | 15 | 35 | 14 | 1.13 | 2.81 | 0 | 13 | 5 | 148 | LOW | SEV | 25 | 72 |
| DAM NECK RD | DRAKESMILE RD | LONDON BRIDGE RD | 0.86 | 4 | 23 | 37 | 1.88 | 1.19 | 3 | 0 | 40 | 15 | SEV | LOW | 35 | 13 | 35 | 14 | 1.13 | 2.81 | 0 | 13 | 5 | 148 | LOW | SEV | 23 | 71 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 26 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #5

**Dam Neck Road**

Between Holland Road and London Bridge Road

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

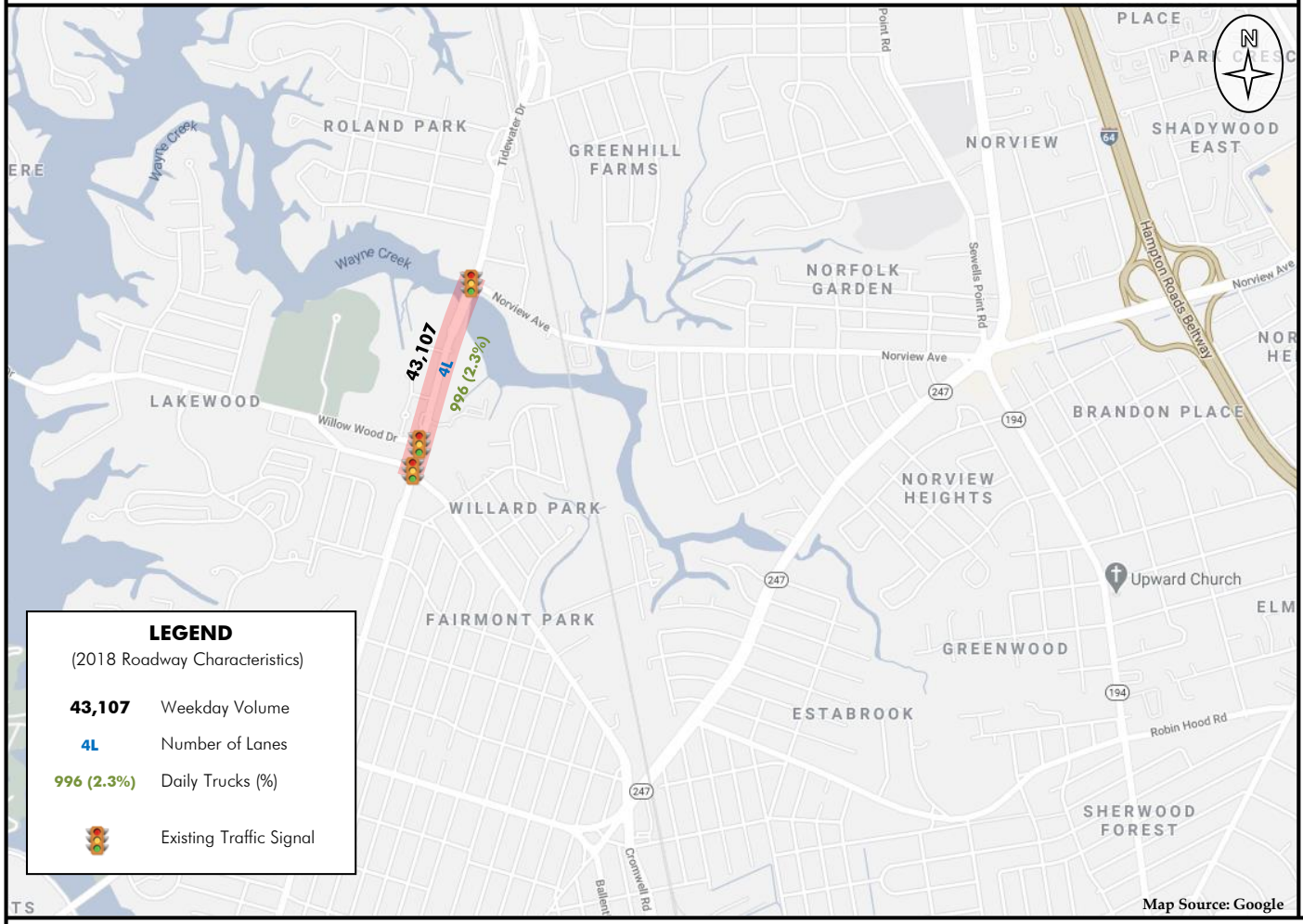
- High directional distribution of volumes between Holland Rd and London Bridge Rd during the AM peak (63% eastbound).
- Heavy traffic congestion in the westbound direction during the PM peak.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Ensure coordination of signals in the corridor.
- Complete UPC#110802 – Add second left-turn lane from westbound Dam Neck Road to southbound Holland Rd. This will likely alleviate Dam Neck Rd traffic congestion.
- Improvements to London Bridge Rd intersection, including dual eastbound right-turn lanes and additional turn lanes on London Bridge Road (rather than shared left/thru lanes).
- Complete 2045 LRTP road widening projects.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

## FIGURE 27 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #6

### Tidewater Dr Between Cromwell Dr and Norview Ave
### City of Norfolk




**LEGEND**
(2018 Roadway Characteristics)

| | |
|---|---|
| 43,107 | Weekday Volume |
| 4L | Number of Lanes |
| 996 (2.3%) | Daily Trucks (%) |
| | Existing Traffic Signal |

### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.43 Miles |
| **Speed Limit** | 35 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Regional Backbone #8 |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

- None

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| TIDEWATER DR | CROMWELL DR | NORVIEW AVE | 0.43 | 4 | 23 | 25 | 1.36 | 1.25 | 0 | 0 | 15 | 38 | MOD | MOD | 14 | 16 | 19 | 13 | 1.65 | 2.43 | 3 | 14 | 35 | 186 | SEV | SEV | 37 | 71 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | YES |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | PARTIAL |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 27 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #6

**Tidewater Drive**

Between Cromwell Drive and Norview Avenue

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

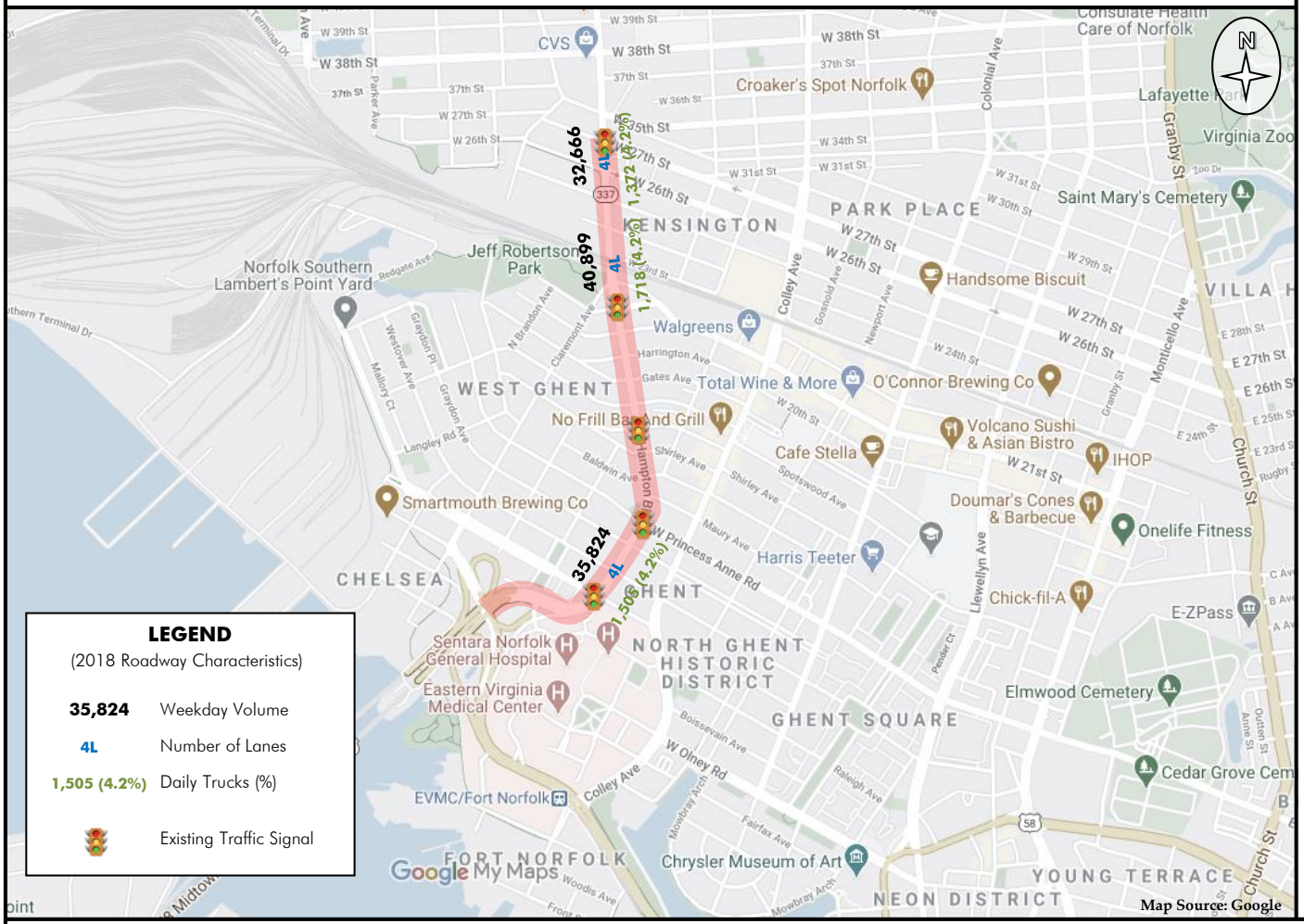
- High number of signals per mile (4.7) in the corridor.
- Northbound (NB) left-turns are prohibited from Tidewater Dr to Willow Wood Dr.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Ensure coordination of signals in the corridor, especially between the closely spaced intersections at Cromwell Dr and Willow Wood Dr.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FIGURE 28 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #7

## Hampton Blvd Between Brambleton Ave and 27th St
## City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.14 Miles |
| **Speed Limit** | 30 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Regional Backbone #2 |

### RECENT PROJECTS

- New 2-lane westbound Midtown Tunnel (2016).
- Eastbound Midtown Tunnel rehabilitation (2017).

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Intersection Improvements - Hampton Blvd at Azalea Ct (UPC #113194) - Construction expected to begin Jul 2022 and end Jun 2023.

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| HAMPTON BLVD | BRAMBLETON AVE | PRINCESS ANNE RD | 0.40 | 4 | 18 | 22 | 1.54 | 1.24 | 3 | 0 | 42 | 29 | SEV | LOW | 37 | 25 | 23 | 15 | 1.21 | 1.93 | 0 | 12 | 15 | 104 | LOW | SEV | 25 | 67 |
| HAMPTON BLVD | PRINCESS ANNE RD | 21ST ST | 0.48 | 4 | 18 | 22 | 1.54 | 1.24 | 3 | 0 | 42 | 29 | SEV | LOW | 41 | 29 | 23 | 15 | 1.21 | 1.93 | 0 | 12 | 15 | 104 | LOW | SEV | 29 | 71 |
| HAMPTON BLVD | 21ST ST | 26TH ST | 0.21 | 4 | 21 | 23 | 1.25 | 1.15 | 0 | 0 | 11 | 10 | LOW | LOW | 18 | 17 | 25 | 14 | 1.12 | 1.99 | 0 | 10 | 3 | 125 | LOW | SEV | 17 | 62 |
| HAMPTON BLVD | 26TH ST | 27TH ST | 0.05 | 4 | 21 | 23 | 1.25 | 1.15 | 0 | 0 | 7 | 6 | LOW | LOW | 14 | 14 | 25 | 14 | 1.12 | 1.99 | 0 | 10 | 3 | 124 | LOW | SEV | 16 | 60 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | IN USE |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | YES |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | IN USE |
| | 4-21 Median Control | PARTIAL |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 28 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #7

**Hampton Blvd**

Between Brambleton Ave and 27th St

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

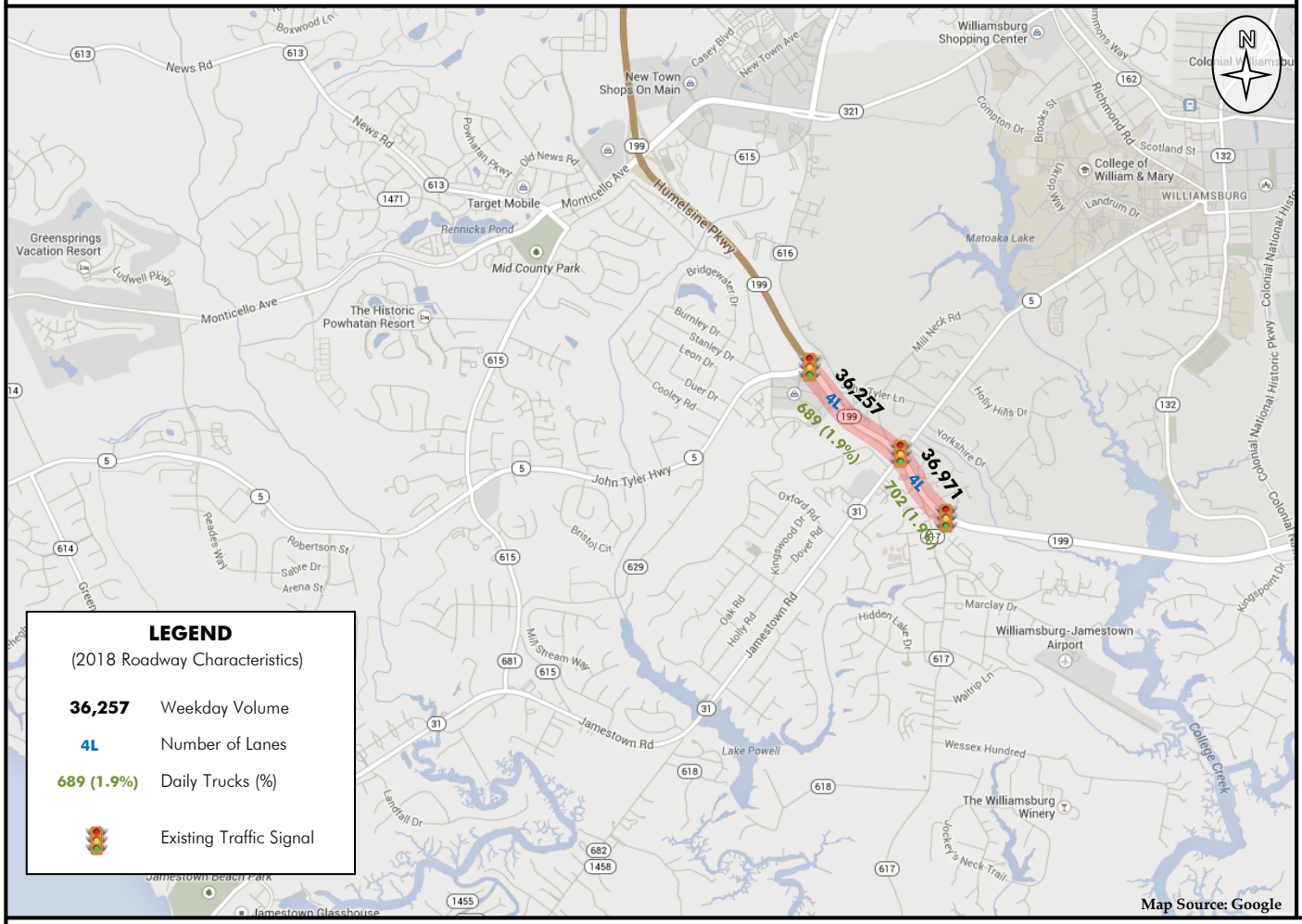
- High directional distribution of volumes between Brambleton Ave and 26th St during the AM peak (63-67% northbound) and between 21st St and 27th St during the PM peak (57-72% SB).
- Heavy PM Peak Hour volume (1,977 vehicles in southbound peak direction from 21st St and 27th St ).
- High number of neighborhood side streets and traffic signals.
- Sharp roadway curvature between Brambleton Ave and Redgate Ave.
- Speed limit 30 mph.
- No roadway median.
- Many intersections do not have left-turn lanes.
- Although travel speeds during the PM Peak in southbound (SB) direction have increased after the Midtown Tunnel widening, travel speeds in the northbound (NB) direction have decreased between the tunnel and ODU post-widening. According to travel time runs conducted by TPO staff, average travels speeds in the PM Peak in the SB direction were 6 mph (pre-toll), 9 mph (post-toll), and 17 mph (post-construction). Pre-toll and post-toll travel speeds in the AM Peak in the NB direction were free flow with no congestion and 11 mph post-construction after exiting the Midtown Tunnel.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete intersection improvements - Hampton Blvd at Azalea Ct (UPC #113194).
- Ensure coordination of signals in the corridor.
- Add turn lanes at intersections where applicable.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FIGURE 29 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #8

## Route 199 Between John Tyler Hwy (Route 5) and Brookwood Dr
## James City County and City of Williamsburg




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.90 Miles |
| **Speed Limit** | 45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | WATA Route 6: Jamestown |

### RECENT PROJECTS

- Upgraded signal and installed second left-turn lane on Westbound Route 199 at John Tyler Highway (completed in 2013)

### FUTURE PROJECTS

- None

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| ROUTE 199 | JOHN TYLER HWY (RTE 5) | WILLIAMSBURG CL | 0.23 | 4 | 25 | 15 | 1.43 | 2.39 | 1 | 13 | 25 | 127 | SEV | SEV | 30 | 68 | 27 | 23 | 1.28 | 1.48 | 0 | 5 | 19 | 60 | MOD | SEV | 13 | 24 |
| ROUTE 199 | JAMES CITY CL (WEST) | JAMESTOWN RD | 0.24 | 4 | 25 | 15 | 1.43 | 2.39 | 1 | 13 | 25 | 127 | SEV | SEV | 32 | 70 | 27 | 23 | 1.28 | 1.48 | 0 | 5 | 19 | 60 | MOD | SEV | 15 | 26 |
| ROUTE 199 | JAMESTOWN RD | JAMES CITY CL (EAST) | 0.16 | 4 | 41 | 41 | 1.16 | 1.17 | 0 | 0 | 6 | 15 | LOW | LOW | 11 | 13 | 38 | 33 | 1.24 | 1.41 | 0 | 2 | 7 | 32 | LOW | SEV | 11 | 20 |
| ROUTE 199 | WILLIAMSBURG CL | BROOKWOOD DR | 0.27 | 4 | 41 | 41 | 1.16 | 1.17 | 0 | 0 | 6 | 13 | LOW | LOW | 9 | 11 | 38 | 33 | 1.24 | 1.41 | 0 | 2 | 6 | 30 | LOW | SEV | 9 | 18 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | YES |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | IN USE |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 29 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #8

**Route 199**

Between John Tyler Hwy (Route 5) and Brookwood Dr

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

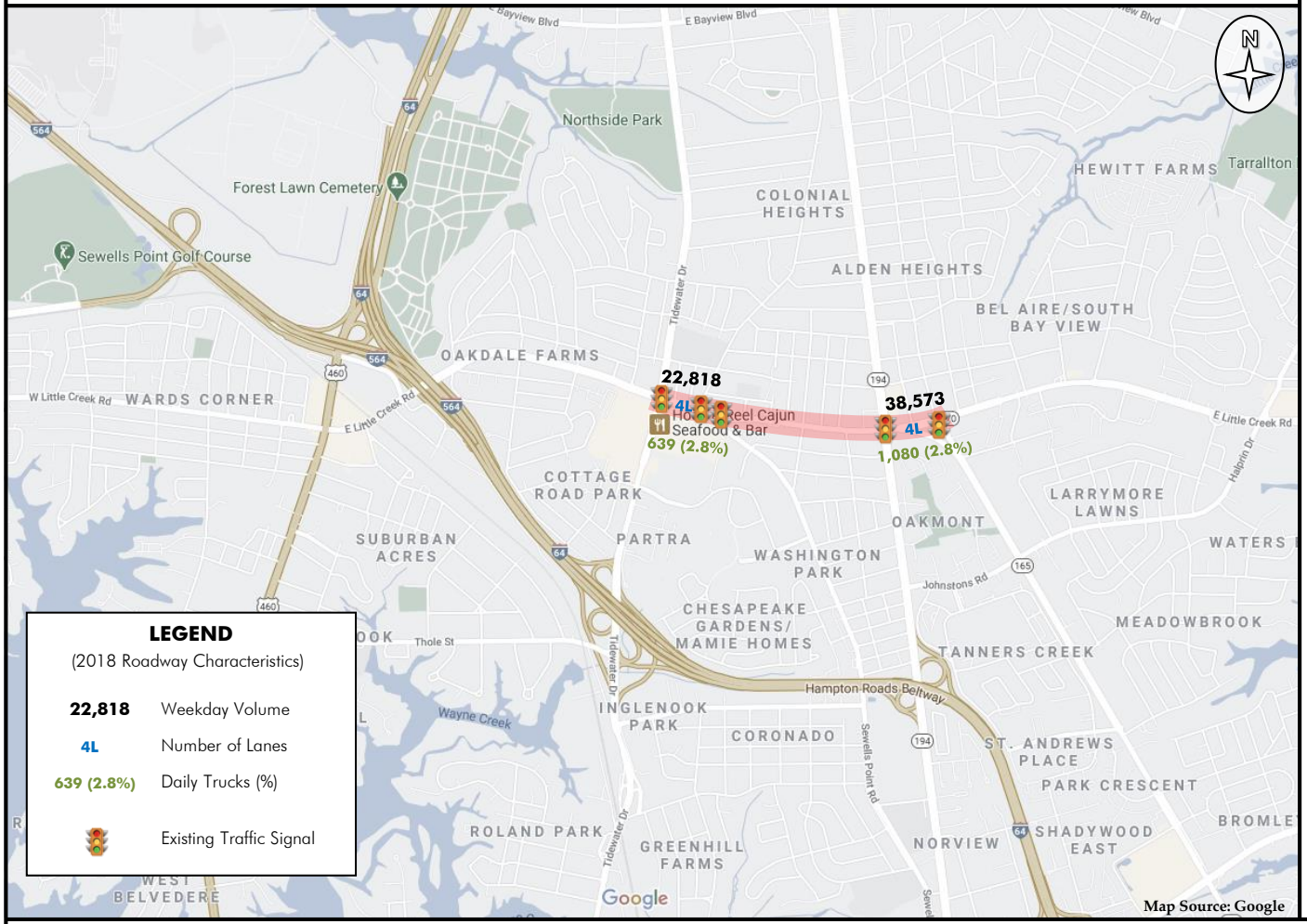
- Heavy PM Peak Hour traffic volume/congestion (1,626-1,741 vehicles in westbound (WB) peak direction from Brookwood Dr to John Tyler Hwy).
- Heavy traffic congestion at the Jamestown Rd intersection during the PM Peak Period.
  - o High number of through vehicles for eastbound (EB) Route 199 approach at Jamestown Rd. This traffic often backs up beyond the turn bays.
  - o High number of vehicles turning left from WB Route 199 to SB Jamestown Rd. Left-turn demand is higher than the allocated green time.
  - o Heavy through volumes for the SB Jamestown Rd approach at Route 199. There is only one lane on SB Jamestown Rd south of the Route 199 intersection.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Evaluate and consider adding dual left-turn lanes for the EB and WB Route 199 approaches at the Jamestown Rd intersection. This would require adding a 2nd receiving lane for SB Jamestown Rd south of the Route 199 intersection, either through new construction or changing the existing northbound (NB) lane uses and restriping the pavement.
- Consider extending the turn bays on EB Route 199 beyond the typical peak period length of the queue.
- Evaluate and consider adding 2nd through lane for SB Jamestown Rd approach at the Route 199 intersection. This would also require adding a 2nd receiving lane for SB Jamestown Rd south of the Route 199 intersection.
- This corridor is being studied as part of the VTrans Project Pipeline effort. The goal of this effort is to develop focused alternatives, projects and investment strategies that can be considered for funding in SMART SCALE, Revenue Sharing, Interstate, and other programs. Any recommendations from the Project Pipeline study, which is expected to be completed in 2022, should be considered for this corridor.

# FIGURE 30 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #9

## Little Creek Rd Between Tidewater Dr and Military Hwy
## City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.86 Miles |
| **Speed Limit** | 35 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Regional Backbone #21 |

### RECENT PROJECTS

- Traffic signal improvements – Little Creek Rd at Chesapeake Blvd (2016).
- Traffic signal improvements and underpass repairs – Little Creek Rd at Tidewater Dr (2014).

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Flashing Yellow Arrows – Little Creek Rd at Military Hwy (Phase 2) (UPC # 113748) - Construction expected to begin Mar 2022 and end Jan 2023
- Flashing Yellow Arrows – Little Creek Rd at Old Ocean View Rd (Phase 2) (UPC # 113748) - Construction expected to begin Mar 2022 and end Apr 2024

| | | | | | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| LITTLE CREEK RD | TIDEWATER DR | SEWELLS POINT RD | 0.18 | 4 | 15 | 17 | 1.31 | 1.18 | 0 | 0 | 18 | 15 | MOD | LOW | 18 | 17 | 14 | 13 | 1.55 | 1.74 | 5 | 16 | 22 | 112 | SEV | SEV | 40 | 63 |
| LITTLE CREEK RD | SEWELLS POINT RD | CHESAPEAKE BLVD | 0.53 | 4 | 19 | 14 | 1.29 | 1.65 | 0 | 9 | 18 | 56 | MOD | SEV | 25 | 47 | 24 | 24 | 1.17 | 1.17 | 0 | 0 | 5 | 15 | LOW | LOW | 20 | 22 |
| LITTLE CREEK RD | CHESAPEAKE BLVD | MILITARY HWY | 0.15 | 4 | 19 | 15 | 1.30 | 1.65 | 0 | 10 | 28 | 103 | MOD | SEV | 31 | 60 | 15 | 12 | 1.37 | 1.73 | 0 | 16 | 28 | 162 | MOD | SEV | 32 | 68 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | PARTIAL |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 30 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #9

**Little Creek Road**

Between Tidewater Drive and Military Highway

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

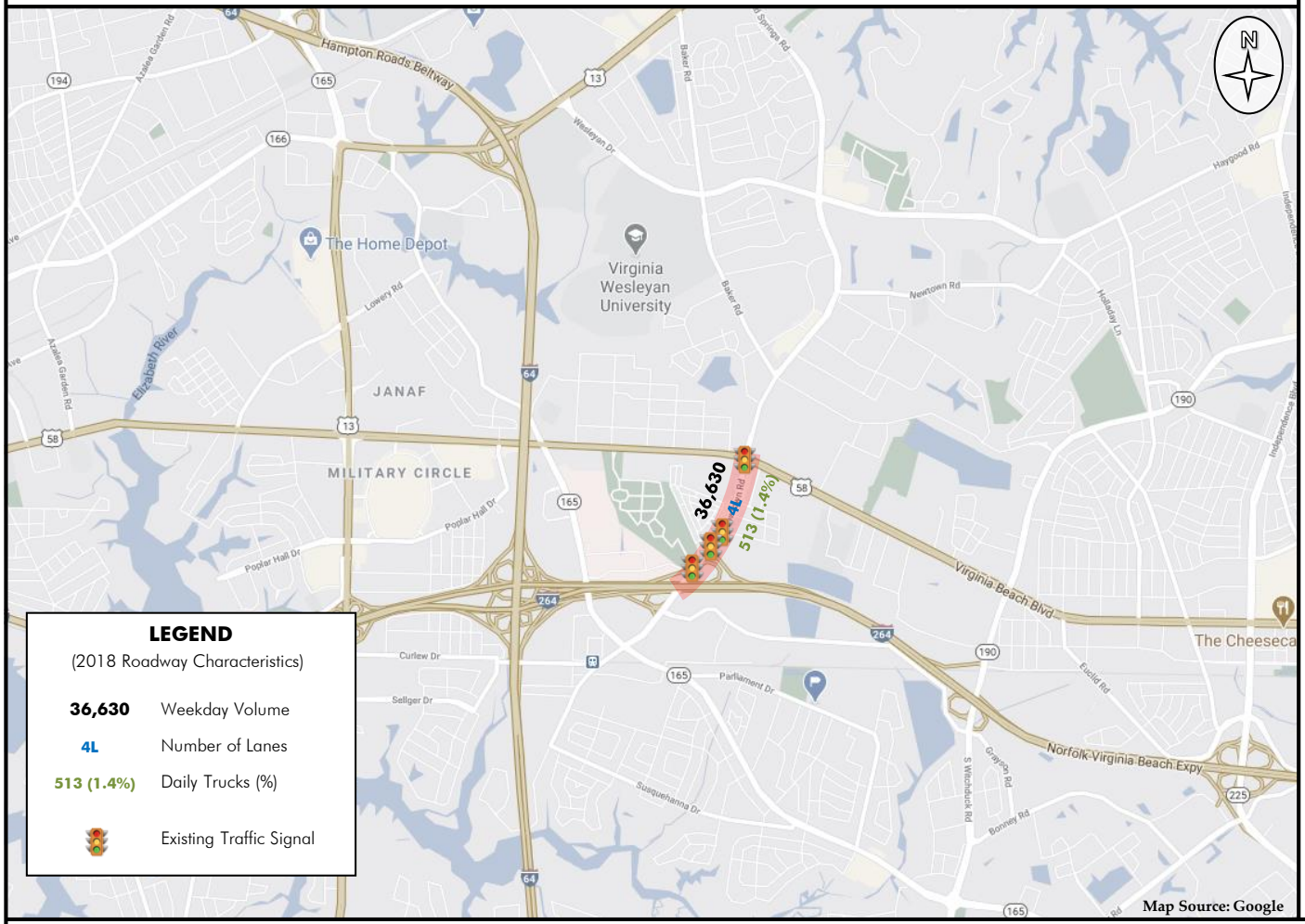
- The signalized intersection of Little Creek Rd and Chesapeake Blvd is congested/over capacity during the PM peak hour. Traffic congestion at this intersection is a primary cause of congestion along the corridor.
- High number of signals per mile (5.8) in the corridor.
- Heavy PM Peak Hour traffic volume/congestion (1,640 vehicles in eastbound (EB) peak direction from Chesapeake Blvd to Military Hwy).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete Flashing Yellow Arrows projects: Little Creek Rd at Military Hwy (Phase 2) (UPC # 113748) & Little Creek Rd at Old Ocean View Rd (Phase 2) (UPC # 113748).
- Ensure coordination of signals in the corridor.
- Add left-turn and right-turn lanes where traffic volumes warrant at Little Creek Rd and Chesapeake Blvd.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

## FIGURE 31 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #10

### Newtown Rd Between I-264 and Virginia Beach Blvd
### City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.66 Miles |
| **Speed Limit** | 35 mph |
| **Roadway Class** | Minor Arterial |
| **Regional Transit Program Route Classification** | Regional Backbone #20 |

### RECENT PROJECTS

- Intersection Improvements – Virginia Beach Blvd at Newtown Rd (UPC #109312) – Extend eastbound dual left-turn lanes, new traffic signal, stormwater management, pavement markings, remove feeder lanes, and signage improvements. Construction began in June 2020 and was completed June 2021.
- Interchange improvements on eastbound I-264 at Newtown Rd – part of Phase II of the I-64/I-264 Interchange Improvements Project – Construction completed.

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Flashing Yellow Arrows – Newtown Rd at Center Dr (Phase 1) (UPC #111024) - Construction expected to begin May 2023 and end May 2024
- Newtown Road Corridor Study (UPC #115379) - FY 2025 RSTP allocations ($250,000)

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| NEWTOWN RD | I-264 | VA BEACH BLVD | 0.66 | 4 | 16 | 9 | 1.34 | 2.35 | 0 | 15 | 24 | 176 | MOD | SEV | 25 | 68 | 20 | 12 | 1.28 | 2.06 | 0 | 14 | 21 | 138 | MOD | SEV | 23 | 66 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 31 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #10

**Newtown Road**

Between I-264 and Virginia Beach Boulevard

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

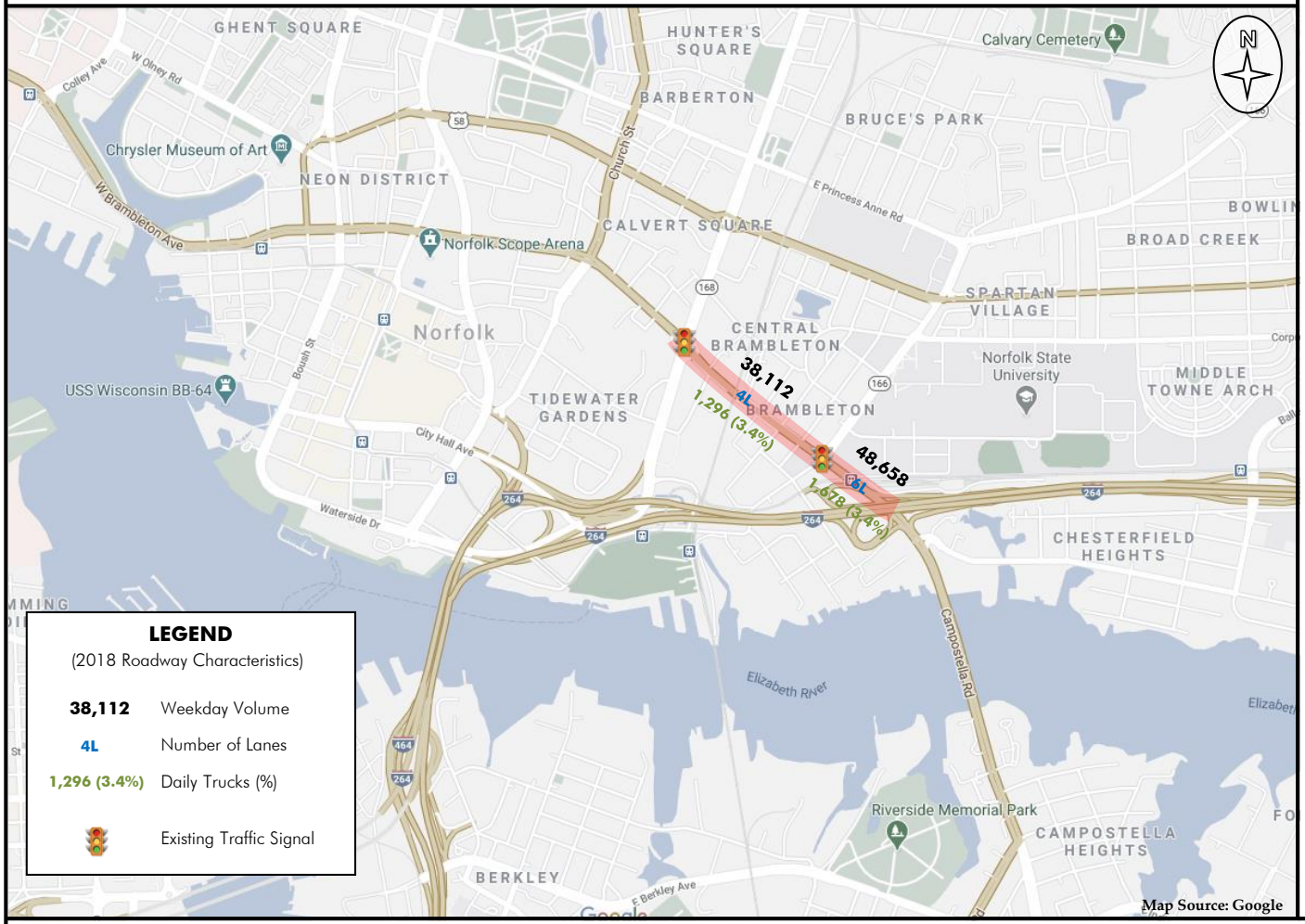
- High number of signals per mile (6.1) in the corridor.
- Peak traffic in southbound (SB) direction for both AM and PM peak hours.
- There is a project to widen Virginia Beach Blvd and remove the frontage roads to the west of Newtown Road (UPC #115244). This would allow for more westbound (WB) through lanes through the intersection which should help the intersection's congestion levels.
- Likely confusion on SB Newtown Road at Center Drive/ WB I-264 on ramp. WB I-264 on ramp is immediately after Center Drive right-turn lane (see picture).


### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete project to widen Virginia Beach Blvd and remove the frontage roads to the west of Newtown Road (UPC #115244).
- Complete Interchange improvements on eastbound (EB) I-264 at Newtown Rd – part of Phase II of the I-64/I-264 Interchange Improvements Project.
- Complete Flashing Yellow Arrows project – Newtown Rd at Center Dr (Phase 1) (UPC #111024).
- Complete Newtown Road Corridor Study (UPC #115379).
- Ensure coordination of signals in the corridor.
- Add left-turn and right-turn lanes (i.e. northbound left-turn, eastbound right-turn, southbound left-turn) where traffic volumes warrant.
- Widen roadway from 4 to 6 lanes.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

## FIGURE 32 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #11

### Brambleton Ave Between Tidewater Dr and I-264
### City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.62 Miles |
| **Speed Limit** | 30 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Local Priority #13 |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Intersection Improvements - Brambleton Ave at Park Ave (UPC #111019) - Construction expected to begin Mar 2024 and end Feb 2026.
- Intersection Improvements - Brambleton Ave at Tidewater Dr (UPC #111017) - Construction expected to begin Feb 2024 and end Feb 2025.

| | | | | | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| BRAMBLETON AVE | TIDEWATER DR | PARK AVE | 0.42 | 4 | 27 | 22 | 1.13 | 1.37 | 0 | 0 | 11 | 39 | LOW | MOD | 20 | 24 | 15 | 14 | 1.69 | 1.82 | 5 | 16 | 43 | 130 | SEV | SEV | 45 | 67 |
| BRAMBLETON AVE | PARK AVE | I-264 | 0.20 | 6 | 27 | 22 | 1.13 | 1.37 | 0 | 0 | 13 | 46 | LOW | MOD | 21 | 25 | 15 | 14 | 1.69 | 1.82 | 5 | 16 | 52 | 184 | SEV | SEV | 43 | 63 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | IN USE |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 32 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #11

**Brambleton Avenue**

Between Tidewater Drive and I-264

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

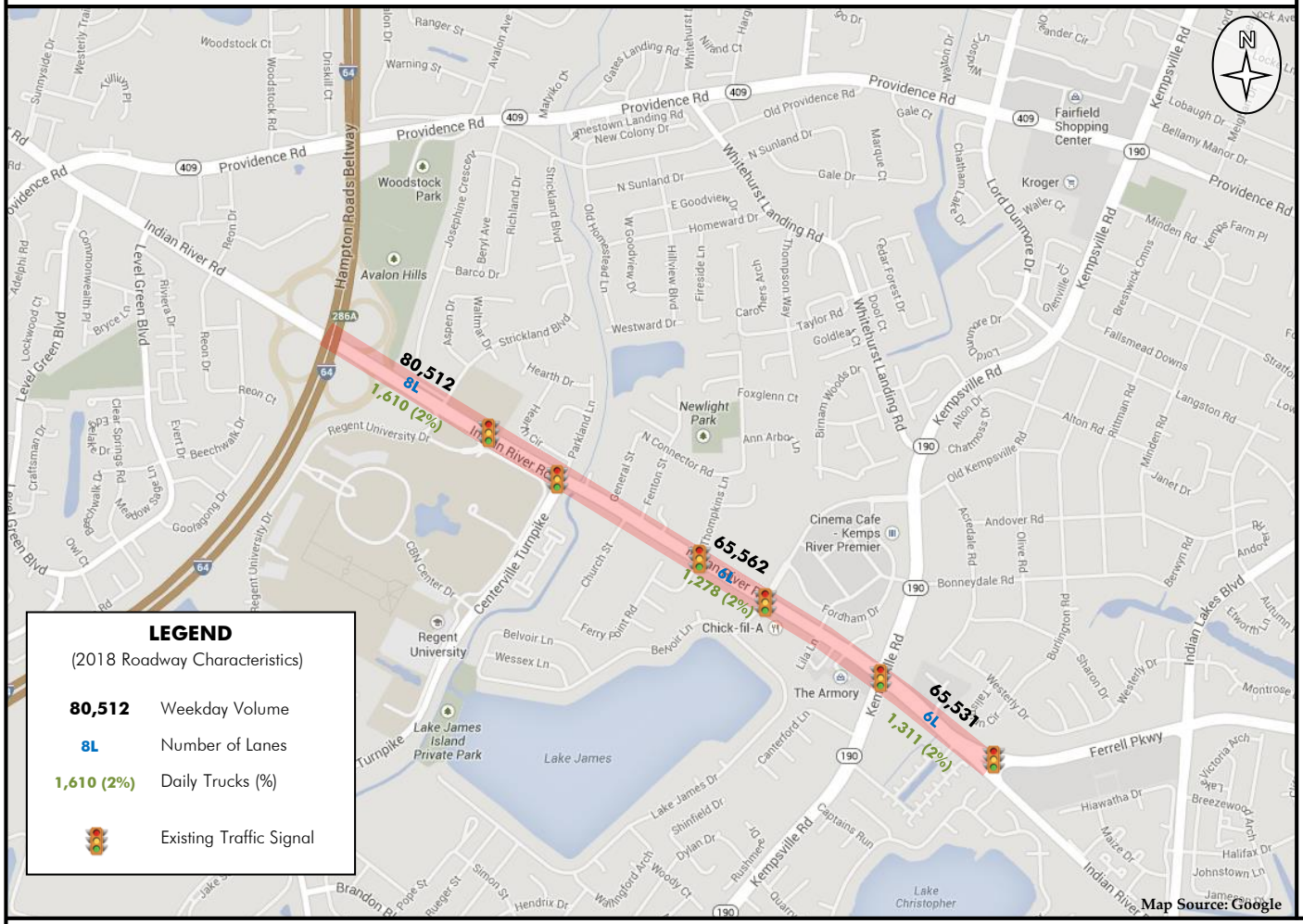
- High directional distribution of volumes between Tidewater Dr and I-264 during the AM peak (61-62% eastbound).
- Heavy PM Peak Hour traffic volume/congestion (2,324 vehicles in westbound peak direction from Park Ave and I-264).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete intersection projects #111019 (Addition of a northbound right-turn lane on Park Ave, increasing the capacity of the approach to the intersection as a whole by allowing for the removal of undesirable split-phasing) and #111017 (Expansion of left-turn storage and capacity by conversion of single left to dual lefts for movements from Tidewater Drive onto Brambleton Avenue).
- In addition to the two intersection projects, add additional turn lanes where traffic volumes warrant. This could include a triple left-turn from southbound Park Ave to eastbound Brambleton Ave.
- Ensure coordination of signals in the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

## FIGURE 33 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #12

### Indian River Rd Between I-64 and Ferrell Pkwy
### City of Virginia Beach




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.53 Miles |
| **Speed Limit** | 45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Local Priority #12 |

### RECENT PROJECTS

- Intersection Improvement – Indian River Road at Kempsville Road (UPC #84366) (completed in 2020)

### FUTURE PROJECTS

2045 LRTP Projects

- Indian River Road between I-64 and Centerville Turnpike - Widen to 10 lanes (Project ID: 2045-236)
- Indian River Road between Centerville Turnpike and Ferrell Parkway - Widen to 8 lanes (Project ID: 2045-235)

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| INDIAN RIVER RD | I-64 | CENTERVILLE TNPK | 0.57 | 8 | 27 | 13 | 1.22 | 2.58 | 0 | 12 | 26 | 339 | LOW | SEV | 22 | 65 | 34 | 30 | 1.07 | 1.19 | 0 | 0 | 6 | 29 | LOW | LOW | 16 | 20 |
| INDIAN RIVER RD | CENTERVILLE TNPK | KEMPSVILLE RD | 0.72 | 6 | 26 | 15 | 1.21 | 2.09 | 0 | 11 | 41 | 193 | LOW | SEV | 23 | 64 | 25 | 25 | 1.21 | 1.18 | 0 | 0 | 8 | 32 | LOW | LOW | 15 | 19 |
| INDIAN RIVER RD | KEMPSVILLE RD | FERRELL PKWY | 0.24 | 6 | 34 | 37 | 1.03 | 0.95 | 0 | 0 | 2 | 0 | LOW | LOW | 12 | 12 | 17 | 20 | 1.72 | 1.48 | 3 | 3 | 57 | 127 | SEV | SEV | 37 | 37 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | YES |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 33 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #12

**Indian River Road**

Between I-64 and Ferrell Pkwy

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

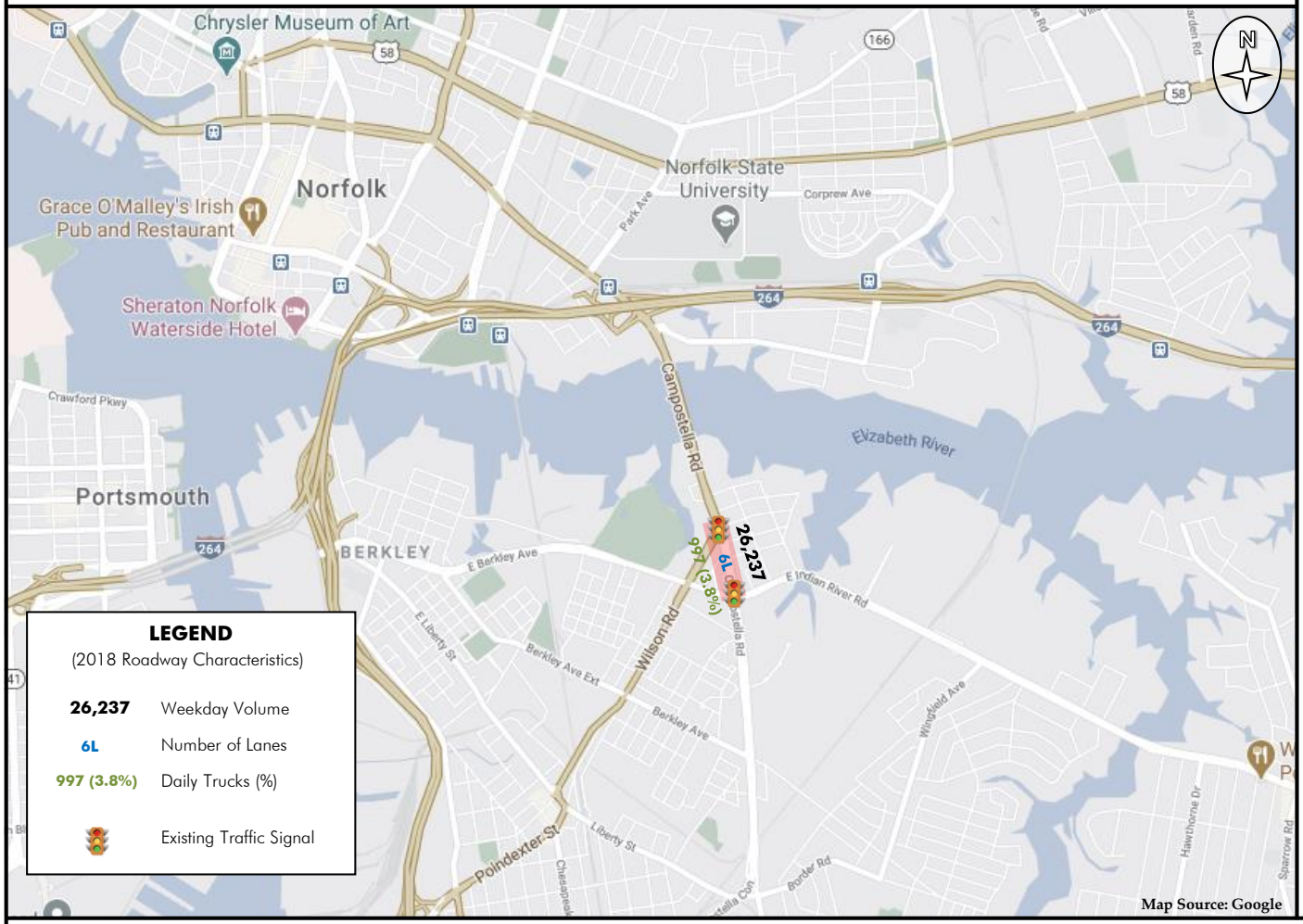
- Heavy westbound (WB) AM peak hour volume (3,443 vehicles from Centerville Tpke to I-64).
- Heavy eastbound (EB) PM peak hour volume (3,694 vehicles from I-64 to Centerville Tpke).
- High directional distribution of volumes between Kempsville Rd and I-64 during AM peak (60% WB).
- High directional distribution of volumes between I-64 and Centerville Tpke during PM peak (62% EB).
- Weaving is an issue on EB Indian River Rd between traffic coming from the WB I-64 off-ramp and drivers attempting to turn right into Regent University or onto Centerville Tpke.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Completion of the Innovative Intersection Improvement Project – Indian River Road at Kempsville Road (UPC #84366) in 2020 has alleviated much of the congestion along the corridor near Kempsville Road.
- Implement LRTP widening project (widen to 10 lanes) between I-64 and Centerville Turnpike (Project ID: 2045-236), which will alleviate traffic congestion along the corridor.
- Implement LRTP widening project (widen to 8 lanes) between Centerville Turnpike and Ferrell Parkway (Project ID: 2045-235), which will alleviate traffic congestion along the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Ensure coordination of signals in the corridor.

## FIGURE 34 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #13

### Campostella Rd Between Indian River Rd and Wilson Rd
### City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.23 Miles |
| **Speed Limit** | 30 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Local Priority #13 |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

- None

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| CAMPOSTELLA RD | INDIAN RIVER RD | WILSON RD | 0.23 | 6 | 20 | 21 | 1.21 | 1.15 | 0 | 0 | 15 | 10 | LOW | LOW | 9 | 6 | 16 | 11 | 1.53 | 2.15 | 3 | 16 | 27 | 179 | SEV | SEV | 30 | 65 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 34 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #13

**Campostella Road**

Between Indian River Road and Wilson Road

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

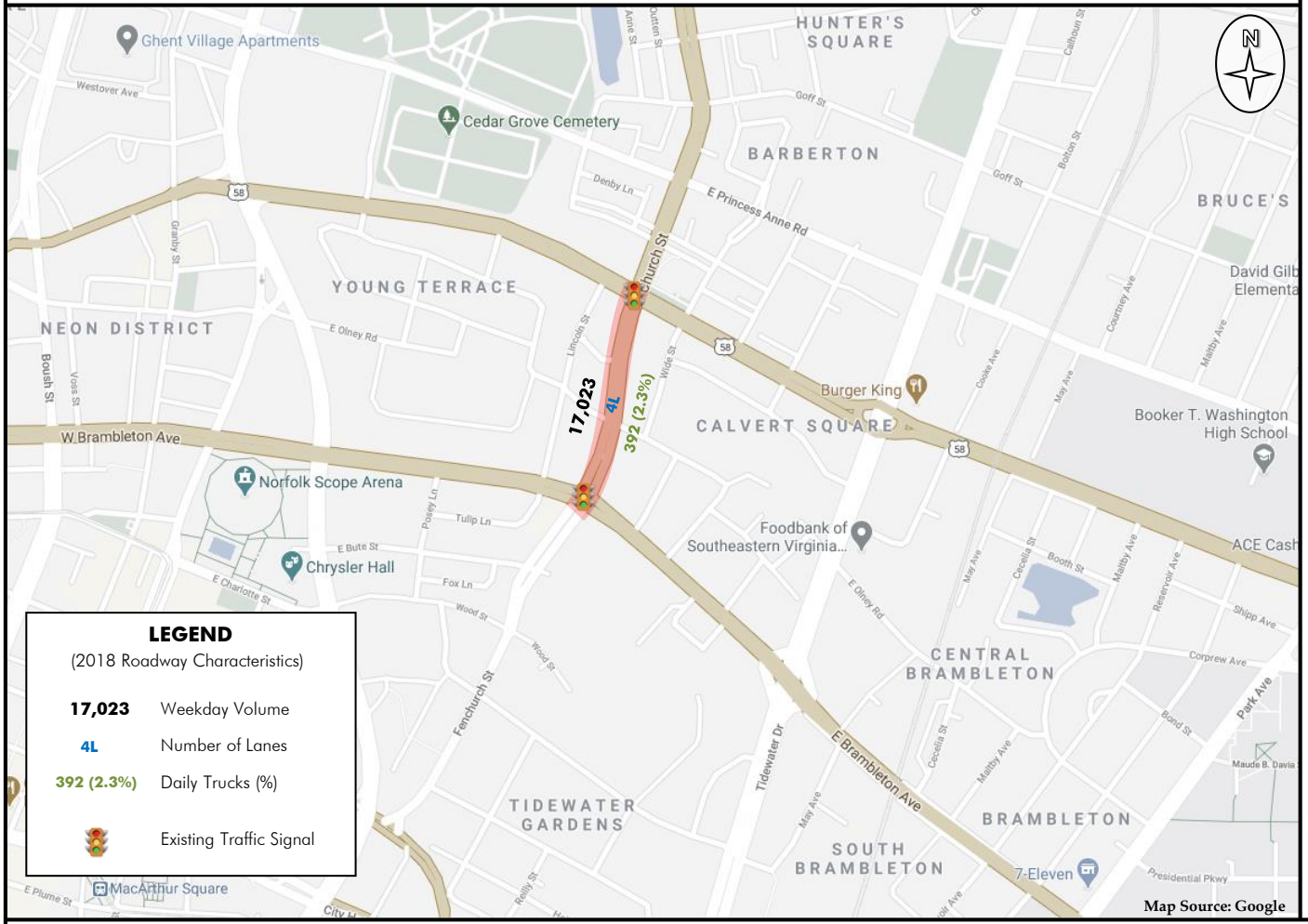
- High number of signals per mile (8.7) in the corridor.
- High directional distribution of volumes between Indian River Rd and Wilson Rd during the AM peak (68% northbound).
- High K-factor (peak hour traffic volume) during the PM Peak (0.103) between Indian River Rd and Wilson Rd.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. This could include a triple left-turn from southbound Campostella Rd to eastbound Indian River Rd, and dual-left turn lanes on the other three approaches of the intersection. Could also include a northbound right-turn bay or dual westbound right-turn bays. At the intersection of Campostella Rd and Wilson Rd, improvements could include a triple left-turn from Wilson Rd to northbound Campostella Rd.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FIGURE 35 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #14

## Church St Between Brambleton Ave and Virginia Beach Blvd
## City of Norfolk




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.22 Miles |
| **Speed Limit** | 25 mph |
| **Roadway Class** | Minor Arterial |
| **Regional Transit Program Route Classification** | None |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Flashing Yellow Arrows – Virginia Beach Blvd at Church St (Phase 1) (UPC #111024) - Construction expected to begin May 2023 and end May 2024

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| CHURCH ST | BRAMBLETON AVE | VA BEACH BLVD | 0.22 | 4 | 12 | 9 | 1.34 | 1.66 | 0 | 13 | 14 | 77 | MOD | SEV | 16 | 44 | 11 | 7 | 1.37 | 2.17 | 0 | 11 | 21 | 139 | MOD | SEV | 21 | 63 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 35 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #14

**Church Street**

Between Brambleton Avenue and Virginia Beach Boulevard

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

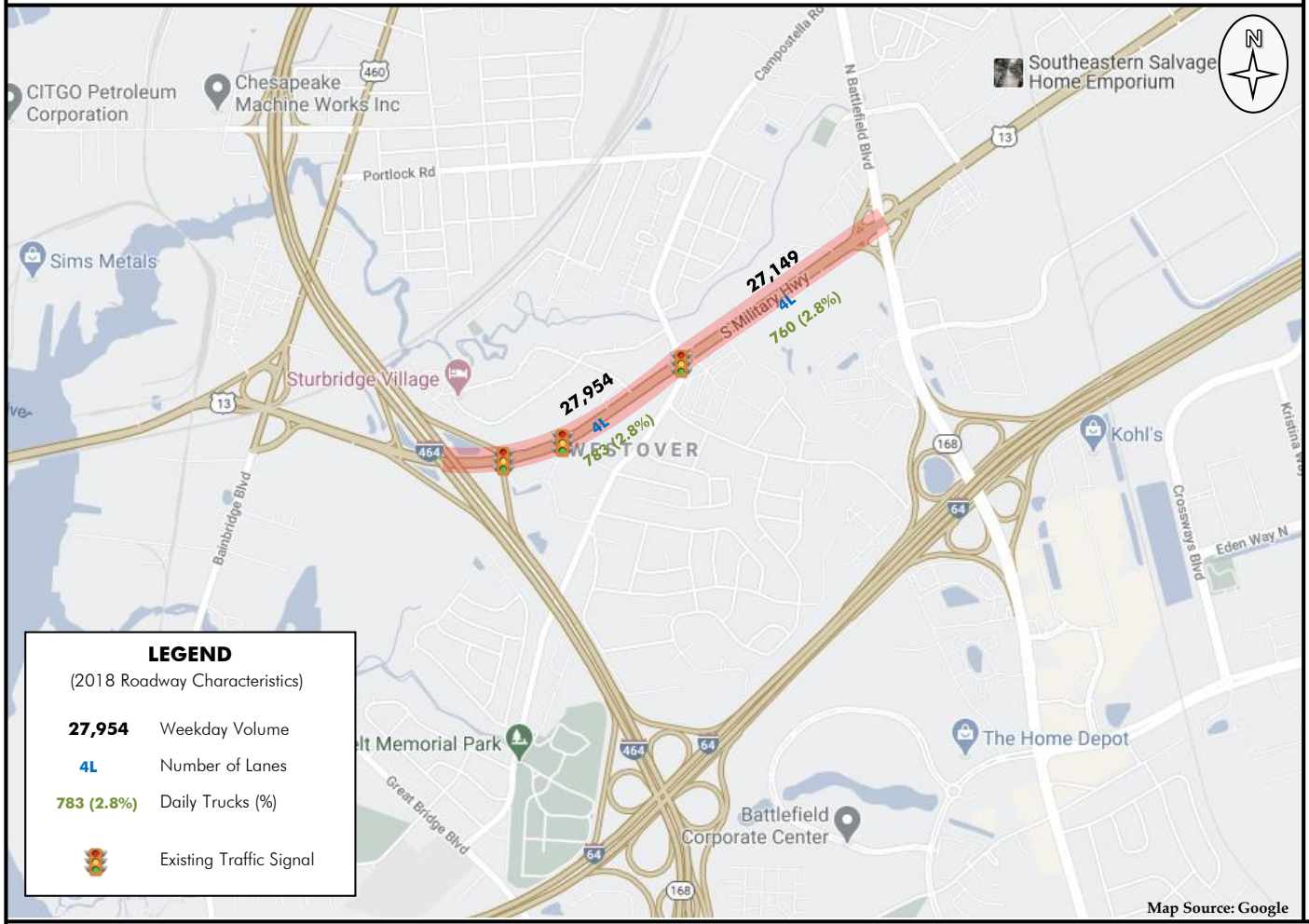
- High number of signals per mile (9.1) in the corridor.
- Just south of this corridor will be impacted by the St. Paul's Transformation Area redevelopment project Phases I and II, which could impact the intersection of Church St and Brambleton Ave. Roadway, pedestrian, and signal improvements are currently being made to Church St, St. Paul's Blvd, Freemason St, Chapel St, Charlotte St, Reilly St, Holt St, Mariner St, Virgin St, and Resilience Dr.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Ensure coordination of signals in the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Consider extending dual left-turn lane for southbound Church St to eastbound Brambleton Ave.
- Add additional turn lanes where traffic volumes warrant.
- Implement Flashing Yellow Arrows project – Virginia Beach Blvd at Church St (Phase 1) (UPC #111024).
- Complete St. Paul's Transformation Area redevelopment project:
  - Phase 1 – This project will create 2,750 linear feet of new roadway infrastructure in the St. Paul's Transformation Area. The project will realign Fenchurch Street, extend Freemason Street across St. Paul's Boulevard, and construct a new road into the Downtown Transit Center (Transit Center Drive). The project also includes a new traffic signal at St. Paul's Blvd. and Freemason Street. Additional work will include stormwater improvements, wide sidewalks, dedicated bike facilities.
  - Phase 2 – This project will create 7,000 linear feet of new roadway infrastructure in the St. Paul's Transformation Area. The project will extend Freemason Street to Tidewater Drive, creating an east-west connection from downtown to the St. Paul's area. The project will also include a reconstruction of the grid network in the Tidewater Gardens area, including Chapel Street, Charlotte Street, Reilly Street, Holt Street, Mariner Street, Virgin Street, and Resilience Drive. The project also includes a new traffic signal at Tidewater Drive and Freemason Street and connections to the future Blue Greenway, a resilience stormwater facility. Additional work will include stormwater improvements, wide sidewalks, dedicated bike facilities.

## FGIURE 36 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #15

### Military Hwy Between I-464 and Battlefield Blvd
### City of Chesapeake




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.24 Miles |
| **Speed Limit** | 45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Local Priority #6 |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

2045 LRTP Projects

- Military Hwy - I-464 to Virginia Beach CL - Widen to 8 lanes (Project ID: 2045-146).

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| MILITARY HWY | I-464 | CAMPOSTELLA RD | 0.64 | 4 | 25 | 21 | 1.33 | 1.54 | 0 | 7 | 23 | 47 | MOD | SEV | 10 | 23 | 24 | 15 | 1.32 | 2.08 | 0 | 13 | 18 | 100 | MOD | SEV | 16 | 59 |
| MILITARY HWY | CAMPOSTELLA RD | BATTLEFIELD BLVD | 0.60 | 4 | 37 | 36 | 1.05 | 1.09 | 0 | 0 | 1 | 6 | LOW | LOW | 3 | 3 | 30 | 14 | 1.15 | 2.44 | 0 | 10 | 5 | 115 | LOW | SEV | 15 | 62 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 36 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #15

**Military Highway**

Between I-464 and Battlefield Boulevard

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

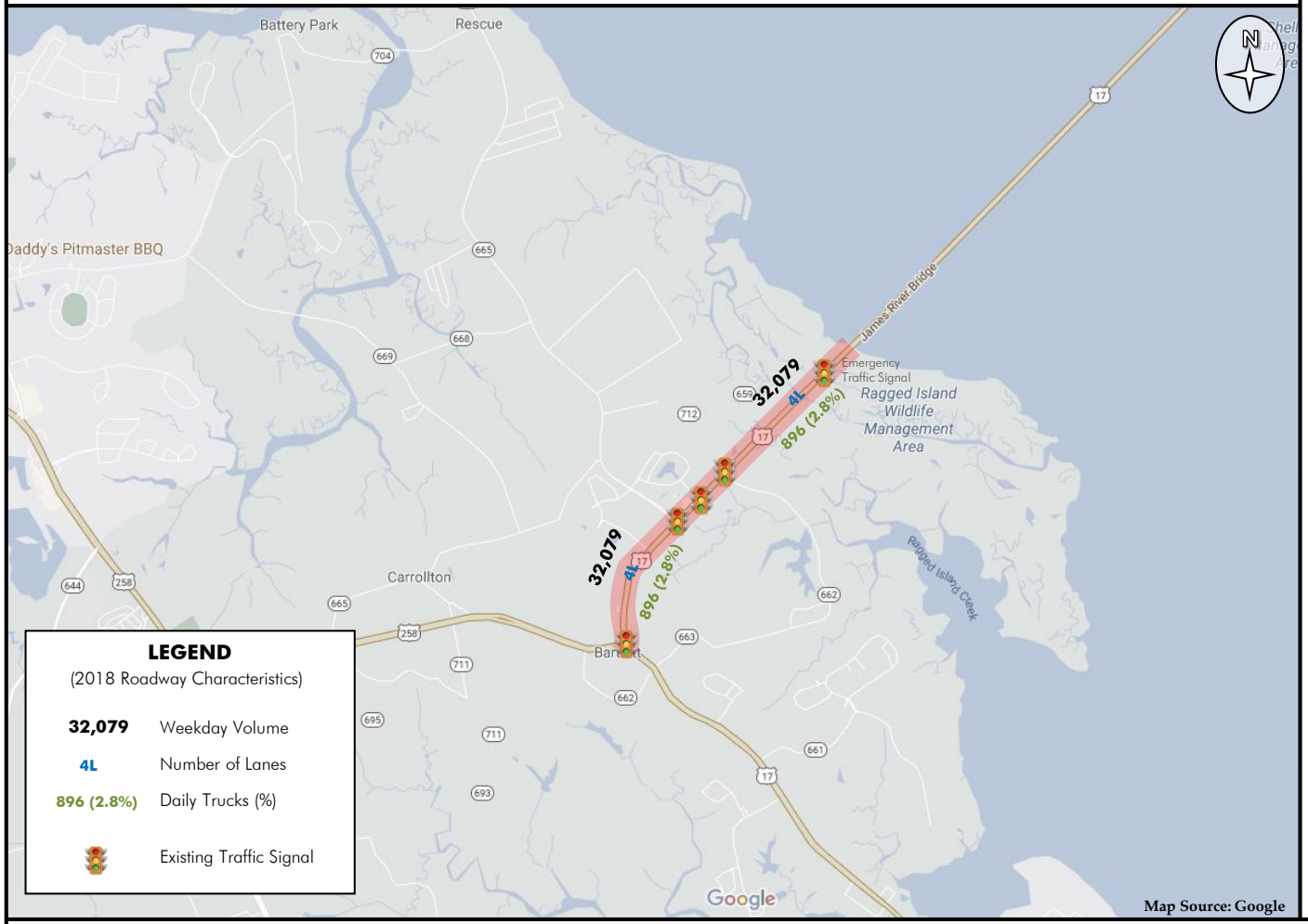
- High directional distribution of volumes between I-464 and Battlefield Blvd during the AM peak (65-68% eastbound).
- High directional distribution of volumes between Campostella Rd and Battlefield Blvd during the PM peak (63% westbound).
- High K-factor (peak hour traffic volume) during the PM Peak (0.096-0.102) between I-464 and Battlefield Blvd.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. At Campostella Rd, dual eastbound and westbound left-turns would require some widening on Campostella Rd. At I-464, this could include dual left-turn lanes on both the northbound and southbound exit ramps.
- Implement the LRTP widening project (4 to 8 lanes) (Project ID: 2045-146).
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FIGURE 37 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #16

## Route 17/Carrollton Blvd Between Route 258 and James River Bridge
## Isle of Wight County




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 2.42 Miles |
| **Speed Limit** | 45-55 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Limited/Express |

### RECENT PROJECTS

- Intersection Improvements - Route 17 at Route 258 (UPC #109481) - Construction completed.

### FUTURE PROJECTS

2045 LRTP Projects

- US 17/Carrollton Blvd - End of Chuckatuck Creek Bridge to James River Bridge - Widen to 6 lanes (Project ID: 2045-157)

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| CARROLLTON BLVD | ROUTE 258 | SMITH'S NECK RD | 0.87 | 4 | 40 | 40 | 1.19 | 1.19 | 0 | 0 | 10 | 9 | LOW | LOW | 12 | 10 | 43 | 23 | 1.07 | 2.01 | 0 | 10 | 2 | 95 | LOW | SEV | 21 | 62 |
| CARROLLTON BLVD/JAMES RIVER BR | SMITH'S NECK RD | NEWPORT NEWS CL | 5.94 | 4 | 42 | 41 | 1.18 | 1.19 | 0 | 0 | 10 | 7 | LOW | LOW | 16 | 16 | 47 | 32 | 1.03 | 1.51 | 0 | 4 | 0 | 41 | LOW | SEV | 19 | 33 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | YES |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

# FIGURE 37 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #16

## Route 17/Carrolton Boulevard

Between Route 258 and James River Bridge

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

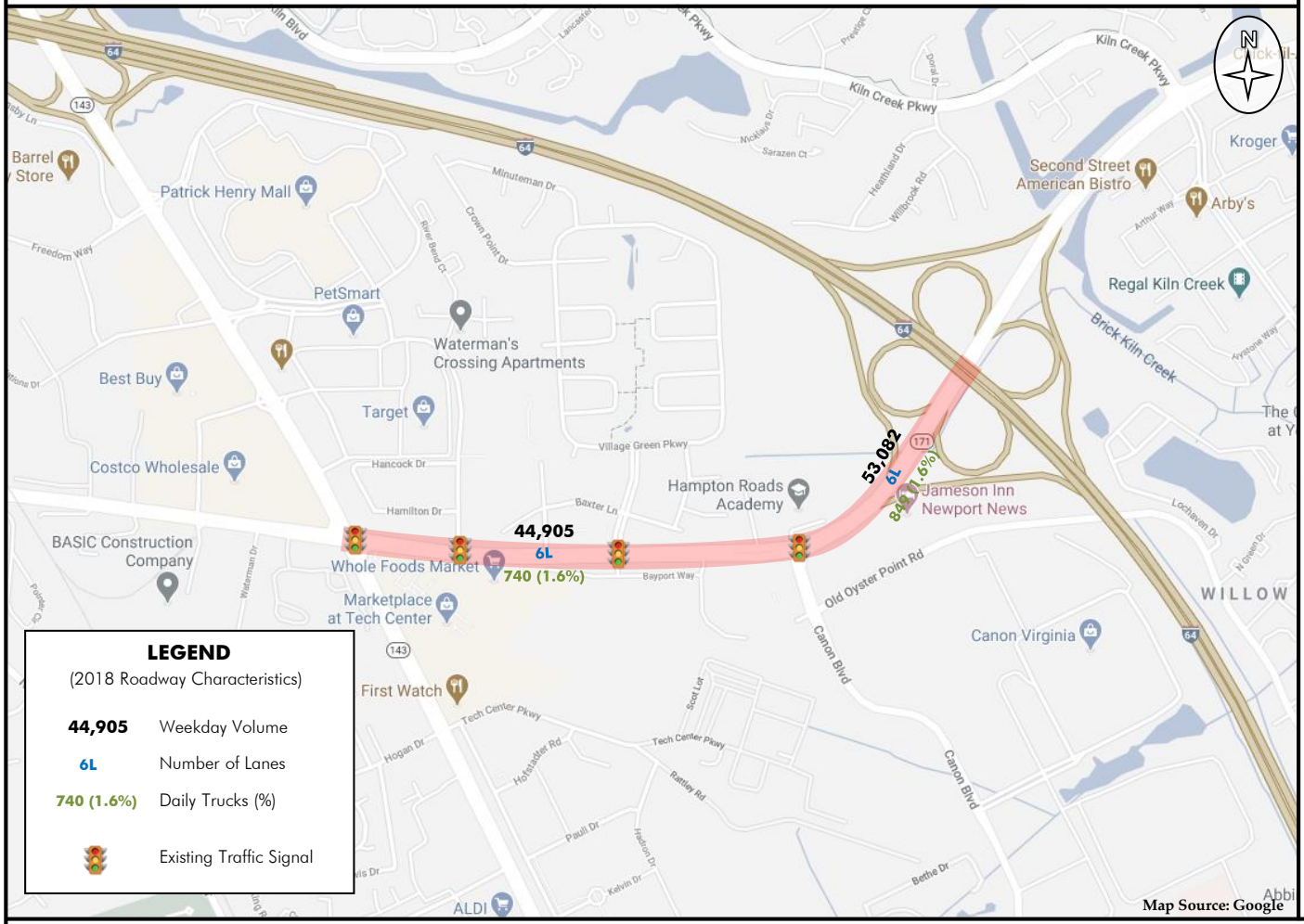
- High directional distribution of volumes between Route 258 and James River Bridge during the AM peak (76% northbound (NB)) and the PM peak (70% southbound (SB)).
- Heavy AM Peak Hour traffic volume/congestion (2,038 vehicles in NB peak direction from Route 258 to James River Bridge).
- Heavy PM Peak Hour traffic volume/congestion (2,116 vehicles in SB peak direction from James River Bridge to Route 258).
- The Nike Park Road Extension project will connect Nike Park Road with Route 17. This project will impact travel patterns in the area, and is expected to be completed in 2025.
- The James River Bridge opens upon vessel demand, according to federal regulations. It does not have any periods where openings are restricted.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete intersection improvements - Route 17 at Route 258 (UPC #109481), which will add a dual NB left-turn lane on Route 17 to Route 258, and add access to new development east of the intersection.
- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. This could include a dual eastbound (EB) left-turn lane on Route 17 at Smiths Neck Rd, and a dual westbound (WB) left-turn lane on Route 17 at Whippingham Pkwy.
- Consider a Superstreet design for Carrolton Blvd (Route 17). This alternative involves constructing Restricted Crossing U-Turn (RCUT) intersections at all signalized intersections in the corridor. RCUTs are intersections that are designed where all side street movements begin with a right-turn. Side street vehicles turn right and make a U-turn at a downstream median opening to complete left-turn and through movements. Superstreet designs tend to improve the safety and efficiency of median-divided highways with heavy through traffic volumes when left-turn and through traffic volumes on the side streets are low.
- Implement LRTP widening project (4 to 6 lanes) along Route 17/Carrollton Blvd from the End of Chuckatuck Creek Bridge to James River Bridge (Project ID: 2045-157).
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FIGURE 38 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #17

## Oyster Point Rd Between Jefferson Ave and I-64
## City of Newport News




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 1.15 Miles |
| **Speed Limit** | 45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Limited/Express/ Regional Backbone #112/ Coverage #108 |

### RECENT PROJECTS

- Intersection Improvements - Oyster Point Rd at Canon Blvd (UPC #113986) - Construction completed.

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Intersection Improvements - Jefferson Ave at Oyster Point Rd (UPC #115241) - Construction is expected to begin Feb 2026 and end Jun 2027.
- Oyster Point Rd – Operations Dr to Jefferson Ave – widen to 6 lanes (UPC #119360)

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| OYSTER POINT RD | JEFFERSON AVE | CANON BLVD | 0.73 | 6 | 26 | 24 | 1.32 | 1.41 | 0 | 1 | 12 | 51 | MOD | SEV | 18 | 28 | 24 | 17 | 1.26 | 1.73 | 0 | 9 | 15 | 121 | MOD | SEV | 18 | 56 |
| OYSTER POINT RD | CANON BLVD | I-64 | 0.42 | 6 | 40 | 43 | 1.04 | 0.96 | 0 | 0 | 2 | 0 | LOW | LOW | 2 | 2 | 21 | 18 | 1.62 | 1.88 | 5 | 15 | 57 | 148 | SEV | SEV | 38 | 62 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | IN USE |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | IN USE |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 38 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #17

**Oyster Point Road**

Between Jefferson Avenue and I-64

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

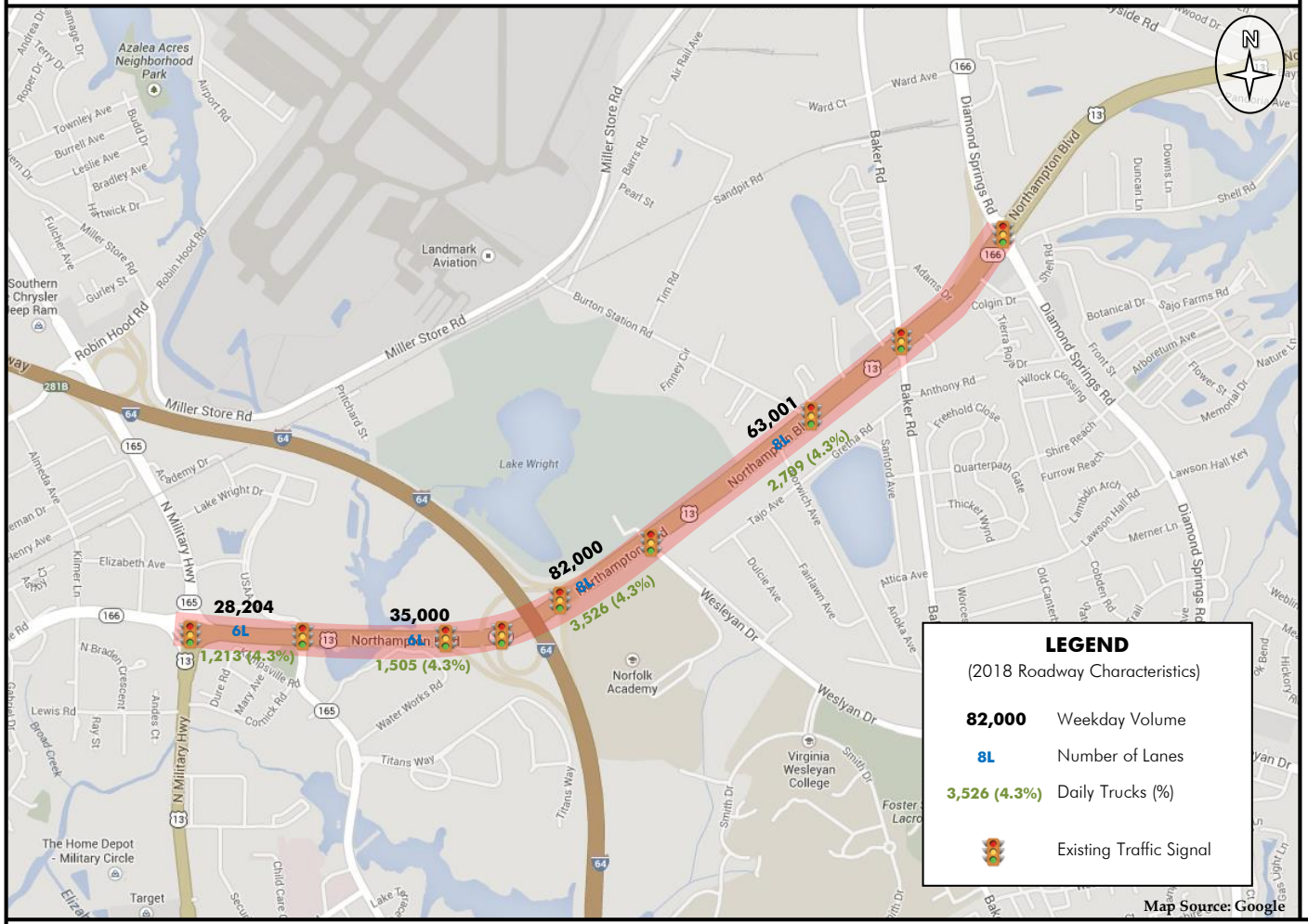
- High number of signals per mile (3.5) in the corridor.
- Heavy PM Peak Hour traffic volume/congestion (2,089 vehicles in westbound (WB) peak direction from Canon Blvd to Jefferson Ave).
- Heavy PM Peak Hour traffic volume/congestion (2,562 vehicles in eastbound (EB) peak direction from Canon Blvd to I-64).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Complete intersection improvements - Jefferson Ave at Oyster Point Rd (UPC #115241), which will add a third EB left-turn lane on Oyster Point Rd and a third WB receiving lane on Oyster Point Rd.
- Complete intersection improvements - Oyster Point Rd at Canon Blvd (UPC #113986), which will add a dual right-turn lane for the northbound (NB) approach, extend the WB left-turn lane, provide pedestrian accommodations across Oyster Point Rd at Canon Blvd, and extend the southbound (SB) left-turn lane at Canon Blvd and Old Oyster Point Rd.
- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. This could include additional triple left-turn lanes on approaches to the Oyster Point Rd and Jefferson Ave intersection.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

# FIGURE 39 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #18

## Northampton Blvd Between Military Hwy and Diamond Springs Rd
## Cities of Norfolk and Virginia Beach




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 2.05 Miles |
| **Speed Limit** | 40-45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Local Priority #27 |

### RECENT PROJECTS

- Realignment of the Wesleyan Drive/Northampton Boulevard intersection 95 feet to the northeast as part of the Wesleyan Drive widening project (completed in 2013). A third left-turn lane and a through only lane were also added on Wesleyan Drive at the intersection.
- Military Hwy at Northampton Blvd/Princess Anne Rd Continuous Flow Intersection (CFI) Intersection (completed in July 2018).
- I-64/Northampton Boulevard Interchange Improvements (UPC 107044) (completed in April 2018).

### FUTURE PROJECTS

<u>FY 2022 SYIP Intersection Improvements</u>

- Northampton Blvd/Diamond Springs Intersection Improvements - (UPC #119234) - Construction is expected to begin Jan 2030 and end Sep 2031.

<u>2045 LRTP Projects</u>

- I-64/I-264 Interchange Phase IIIA - widen EB I-64 by 1-2 lanes from Northampton Blvd entrance ramp (Project ID: 2045-301).

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| NORTHAMPTON BLVD | MILITARY HWY | KEMPSVILLE RD | 0.24 | 6 | 21 | 16 | 1.36 | 1.79 | 0 | 9 | 23 | 87 | MOD | SEV | 19 | 49 | 16 | 14 | 1.58 | 1.80 | 5 | 14 | 35 | 98 | SEV | SEV | 32 | 57 |
| NORTHAMPTON BLVD | KEMPSVILLE RD | I-64 | 0.49 | 6 | 21 | 16 | 1.36 | 1.79 | 0 | 9 | 23 | 118 | MOD | SEV | 22 | 55 | 16 | 14 | 1.58 | 1.80 | 5 | 14 | 61 | 102 | SEV | SEV | 40 | 62 |
| NORTHAMPTON BLVD | I-64 | WESLEYAN DR/VA BEACH CL | 0.34 | 8 | 26 | 25 | 1.23 | 1.28 | 0 | 0 | 52 | 66 | LOW | MOD | 29 | 30 | 20 | 19 | 1.55 | 1.58 | 2 | 10 | 79 | 127 | SEV | SEV | 42 | 55 |
| NORTHAMPTON BLVD | WESLEYAN DR/NORFOLK CL | DIAMOND SPRINGS RD | 0.98 | 8 | 26 | 25 | 1.23 | 1.28 | 0 | 0 | 39 | 46 | LOW | MOD | 33 | 34 | 20 | 19 | 1.55 | 1.58 | 2 | 10 | 45 | 87 | SEV | SEV | 45 | 59 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 39 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #18

**Northampton Blvd**

Between Military Hwy and Diamond Springs Rd

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

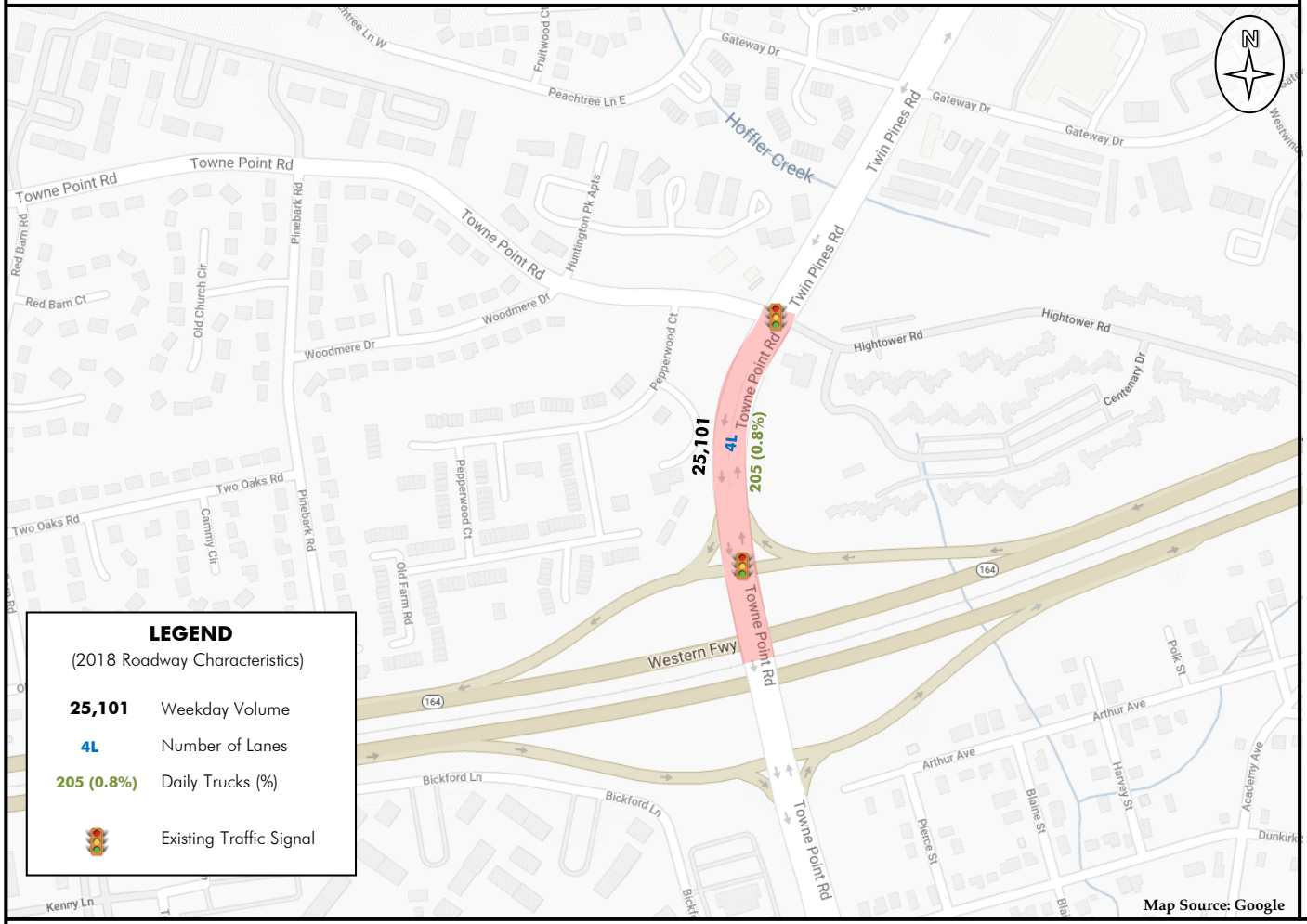
- High number of signals per mile (4.4) in the corridor.
- Traffic regularly backs up from I-64 back onto the ramps and onto southwestbound Northampton Boulevard beyond the Wesleyan Dr intersection during the AM and PM peak periods.
- Heavy traffic volumes during the AM peak hour (3,546 vehicles westbound(WB)) and the PM peak hour (3,402 vehicles eastbound (EB)) along Northampton Blvd between Wesleyan Drive and I-64.
- Military Hwy at Northampton Blvd/Princess Anne Rd Continuous Flow Intersection (CFI) Intersection was completed in July 2018. Construction may have impacted 2018 congestion levels shown on the previous page.
- Norfolk Premium Outlets opened in June 2017. IKEA opened in April 2019.
- There is a short weaving/merging distance for left-turning vehicles from WB Wesleyan Dr to WB Northampton Blvd before the I-64 on-ramps. Four signs are in place on WB Wesleyan Dr to direct users to the correct lanes.
- The intersection of Northampton Blvd at Premium Outlets Blvd/Wesleyan Dr is skewed/aligned, which necessitates running the traffic signal in split phase.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Implement Northampton Blvd/Diamond Springs Intersection Improvements (UPC #119234). This project will convert left-turn movements in both directions of Northampton Boulevard at Diamond Springs Road to displaced left-turns, and include pedestrian improvements.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Ensure coordination of signals in the corridor.
- Implement the LRTP widening project on I-64 (I-64/I-264 Interchange Phase IIIA), which will help alleviate backups from Northampton Blvd onto EB I-64.
- Improve the alignment of the intersection of Wesleyan Drive with Premium Outlets Blvd. This should improve the operation of the signalized intersection and provide safety benefits for both vehicles and pedestrians.
- Add turn lanes where traffic volumes warrant. This includes a dual left turn lane from southwestbound Northampton Boulevard to EB Wesleyan Dr, and a right-turn lane from southwestbound Northampton Blvd to the Premium Outlets Blvd.

# FIGURE 40 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #19

## Towne Point Rd Between Twin Pines Rd and Western Fwy
## City of Portsmouth




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.11 Miles |
| **Speed Limit** | 35 mph |
| **Roadway Class** | Minor Arterial |
| **Regional Transit Program Route Classification** | None |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

- None

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Southbound (2018) | | | | | | | | | | | | Northbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| TOWNE POINT RD | TWIN PINES RD | WESTERN FREEWAY | 0.11 | 4 | 17 | 14 | 1.18 | 1.47 | 0 | 3 | 15 | 52 | LOW | SEV | 6 | 15 | 18 | 12 | 1.32 | 1.99 | 0 | 15 | 7 | 136 | MOD | SEV | 16 | 61 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | YES |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | IN USE |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | YES |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | - |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 40 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #19

**Towne Point Road**

Between Twin Pines Road and Western Freeway

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

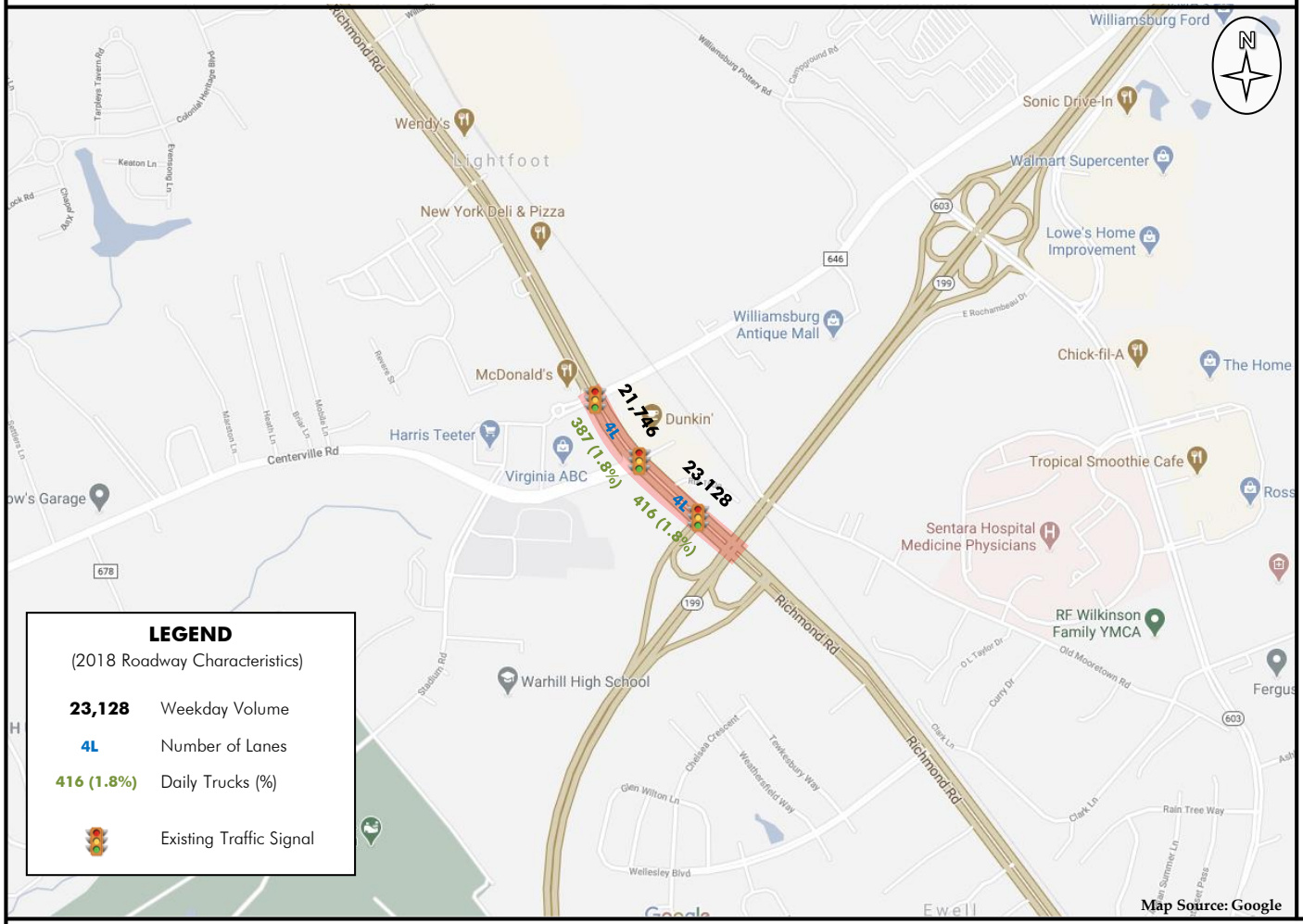
- High number of signals per mile (18.2) in the corridor.
- High directional distribution of volumes between Twin Pines Rd and Western Fwy during the AM peak (76% southbound).
- High PM Peak Hour traffic volume/congestion (1,214 vehicles in northbound peak direction from Western Fwy to Twin Pines Rd).

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Ensure coordination of signals in the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Add additional turn lanes where traffic volumes warrant, such as on the Western Freeway westbound off ramp.

# FIGURE 41 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #20

## Route 60/Richmond Rd Between Lightfoot Rd and Route 199
## James City County




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.34 Miles |
| **Speed Limit** | 45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | WATA Route 9: Toano |

### RECENT PROJECTS

- Richmond Road Intersection Improvements @ Rte 199 West Ramp (UPC #102947).

### FUTURE PROJECTS

- None

| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | Eastbound (2018) | | | | | | | | | | | | Westbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| | | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| ROUTE 60 | LIGHTFOOT RD (RTE 646) | CENTERVILLE RD (RTE 614) | 0.13 | 4 | 35 | 34 | 1.10 | 1.14 | 0 | 0 | 2 | 10 | LOW | LOW | 0 | 0 | 35 | 32 | 1.13 | 1.22 | 0 | 0 | 3 | 16 | LOW | LOW | 0 | 2 |
| ROUTE 60 | CENTERVILLE RD (RTE 614) | ROUTE 199 | 0.21 | 4 | 22 | 19 | 1.27 | 1.52 | 0 | 11 | 16 | 49 | MOD | SEV | 5 | 23 | 12 | 12 | 2.06 | 2.07 | 12 | 16 | 35 | 104 | SEV | SEV | 47 | 60 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | - |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | YES |
| | 4-15 Construction/Work Zone Management | YES |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 41 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #20

**Route 60/Richmond Road**

Between Centerville Road and Route 199

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

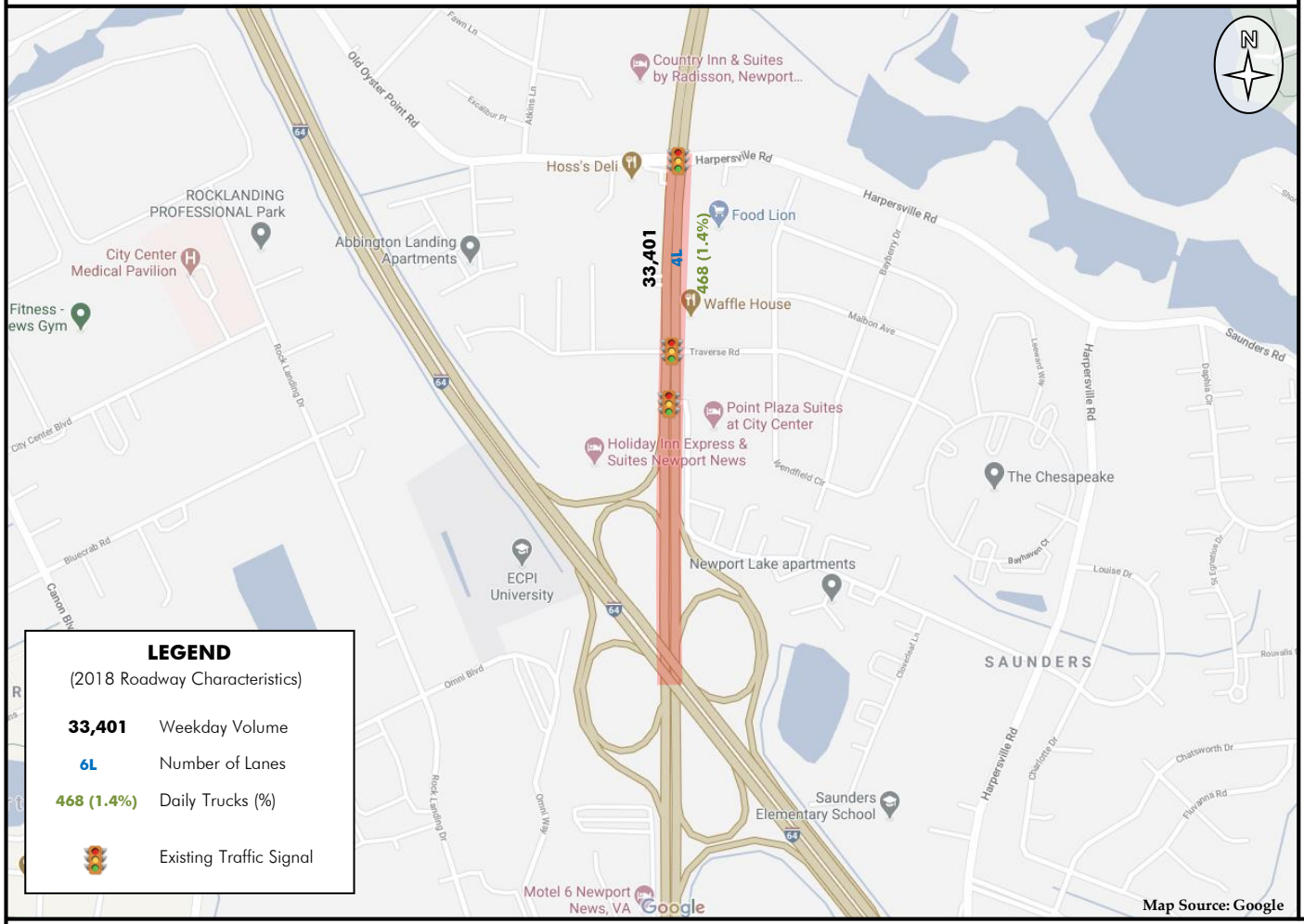
- High number of signals per mile (9.5) in the corridor.
- High directional distribution of volumes between Lightfoot Rd (Rte 646) and Centerville Rd (Rte 614) during the AM peak (60% eastbound)

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Ensure coordination of signals in the corridor.
- Constructing the Mooretown Road Extension LRTP project between Croaker Road and Lightfoot Road would likely improve congestion on this section of Route 60.
- Add turn lanes where traffic volumes warrant (i.e. dual left-turn lanes on Lightfoot Rd).
- Add railroad preemption signal between the Lightfoot Road/Richmond Road traffic signal and the CSX Railroad signal.

# FIGURE 42 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #21

## J Clyde Morris Blvd Between I-64 and Harpersville Rd
## City of Newport News




### CORRIDOR SUMMARY

| | |
|---|---|
| **Corridor Length** | 0.60 Miles |
| **Speed Limit** | 45 mph |
| **Roadway Class** | Principal Arterial |
| **Regional Transit Program Route Classification** | Coverage #111 |

### RECENT PROJECTS

- None

### FUTURE PROJECTS

FY 2022 SYIP Intersection Improvements

- Intersection Improvements - J Clyde Morris Blvd at Louise Dr, Traverse Rd, and Harpersville Rd (UPC #115237) - Construction is expected to begin Dec 2025 and end Apr 2027.

2045 LRTP Projects

- J Clyde Morris Blvd - I-64 to York CL - Widen to 6 lanes (Project ID: 2045-171)

| | | | | | Northbound (2018) | | | | | | | | | | | | Southbound (2018) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | | SLOWEST SPEED (mph) | | HIGHEST TRAVEL TIME INDEX | | # CONG 15-MIN INTERVALS | | TOTAL DELAY (Hrs/Mi) | | CONG LEVEL | | CMP Segment Score | |
| FACILITY NAME | SEGMENT FROM | SEGMENT TO | Length (Mi) | 2018 # Lanes | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| J CLYDE MORRIS BLVD | I-64 | HARPERSVILLE RD | 0.60 | 4 | 30 | 17 | 1.12 | 1.94 | 0 | 13 | 4 | 138 | LOW | SEV | 16 | 60 | 34 | 34 | 1.10 | 1.10 | 0 | 0 | 2 | 7 | LOW | LOW | 15 | 15 |

| | Congestion Management Strategies | Applicable Strategy? |
|---|---|---|
| Strategy #1 Eliminate Person Trips or Reduce | **GROWTH MANAGEMENT/ACTIVITY CENTERS** | |
| | 1-1 Land Use Policies/Regulations/Smart Growth | IN USE |
| | **CONGESTION/VALUE PRICING** | |
| | 1-2 Road User Fees | YES |
| | 1-3 Parking Fees | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 1-4 Outreach/Marketing for TDM/Transit Services | IN USE |
| | 1-5 Telecommuting/Remote Access | IN USE |
| | 1-5 Employee Flextime Benefits/Compressed Work Week | IN USE |
| Strategy #2 Shift Trips from Auto to Other Modes | **PUBLIC TRANSIT CAPITAL IMPROVEMENTS** | |
| | 2-1 Exclusive Right-of-Way - New Rail Service | - |
| | 2-2 Exclusive Right-of-Way - New Bus Facilities | YES |
| | 2-3 Ferry Services | - |
| | 2-4 Fleet Expansion | YES |
| | 2-5 Improved Intermodal Connections | - |
| | 2-6 Improved/Increased Park & Ride Facilites & Capital Improvements | YES |
| | **PUBLIC TRANSIT OPERATIONAL IMPROVEMENTS** | |
| | 2-7 Service Expansion | YES |
| | 2-8 Traffic Signal Preemption | YES |
| | 2-9 Improved Transit Performance | YES |
| | 2-10 Transit Fare Reductions Plan/Reduced Rate of Fare | YES |
| | 2-11 Transit Information Systems | YES |
| | **BICYCLE AND PEDESTRIAN MODES** | |
| | 2-12 Improved/Expanded Bicycle Network | YES |
| | 2-13 Bicycle Storage Systems | YES |
| | 2-14 Improved/Expanded Pedestrian Network | YES |
| Strategy #3 Shift Trips from SOV to HOV | **HIGH OCCUPANCY VEHICLES (HOV)** | |
| | 3-1 Add HOV Lanes | - |
| | 3-2 HOV Toll Savings | - |
| | **TRANSPORTATION DEMAND MANAGEMENT (TDM)** | |
| | 3-3 Rideshare Matching Services | IN USE |
| | 3-4 Vanpool/Employer Shuttle Program | IN USE |
| | 3-5 Trip Reduction Program | IN USE |
| | 3-6 Parking Management | IN USE |
| Strategy #4 Improve Roadway Operations | **TRAFFIC OPERATIONAL IMPROVEMENTS** | |
| | 4-1 Geometric Improvements | YES |
| | 4-2 Intersection Channelization | YES |
| | 4-3 Intersection Turn Restrictions | YES |
| | 4-4 Intersection Signalization Improvements | YES |
| | 4-5 Innovative Intersections and Interchanges | YES |
| | 4-6 Coordinated Intersections Signals | IN USE |
| | 4-7 Roadway Environment | YES |
| | 4-8 Traffic Calming | - |
| | 4-9 Intelligent Transportation Systems/Trans. Operations Center (TOC) | IN USE |
| | 4-10 Reversible Lanes | YES |
| | 4-11 Freight Policies and Improvements | YES |
| | 4-12 Transportation Security | YES |
| | 4-13 Active Traffic Management (ATM) | YES |
| | 4-14 Incident Management, Detection, Response & Clearance | IN USE |
| | 4-15 Construction/Work Zone Management | IN USE |
| | 4-16 Elimination of Bottlenecks | YES |
| | 4-17 Ramp Metering | - |
| | 4-18 Part-Time Shoulder Use | - |
| | 4-19 High Occupancy Toll (HOT)/Express Lanes | - |
| | 4-20 Access Control and Connectivity | YES |
| | 4-21 Median Control | IN USE |
| Strategy #5 Add Capacity | **ADDITION OF GENERAL PURPOSE LANES** | |
| | 5-1 Freeway Lanes | - |
| | 5-2 Arterial lanes | YES |
| | 5-3 Interchanges | YES |
| | 5-4 Improve Alternate Routes | YES |

## FIGURE 42 - CMP 2022 CONGESTED CORRIDOR - ARTERIAL #21

**J Clyde Morris Boulevard**

Between I-64 and Harpersville Road

### OBSERVATIONS & POSSIBLE CAUSES OF CONGESTION

- High number of signals per mile (5.0) in the corridor.
- High directional distribution of volumes between I-64 and Harpersville Rd during the AM peak (63% southbound) and during the PM peak (59% northbound).
- Within the Hampton Roads Transit (HRT) Transit Strategic Plan's (TSP) FY2023-FY2032 (Dec 2021) planned improvements and modifications, there is an limited/express bus corridor recommendation (MAX Route 975) along this corridor on the Hampton roads Peninsula. MAX Route 975 will provide new peak period directional commuter express service between Gloucester (VDOT Park & Ride at the intersection of Route 216-Guinea Rd and York Crossing) and the Newport News Shipyard via US-17 and I-64. HRT's TSP also includes plans to extend bus Route 111 along this corridor beyond Thomas Nelson to connect to Peninsula Town Center, covering a portion of the eliminated Route 118 and providing service to Sentara CarePlex Hospital to cover a portion of the eliminated Route 102.

### POTENTIAL CONGESTION MITIGATION STRATEGIES

- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Ensure coordination of signals in the corridor.
- Complete intersection improvements - J Clyde Morris Blvd at Louise Dr, Traverse Rd, and Harpersville Rd (UPC #115237). Improve efficiency for three consecutive intersections with two 500 ft. long sections of NB lane infill (i.e. NB will be 3 thru lanes between I-64 and Harpersville Rd).
- Consider an alternative intersection design at Harpersville Rd such as a thru-cut.
- Add turn lanes where traffic volumes warrant (i.e. right-turn lanes at Traverse Rd).
- Implement the LRTP widening project – I-64 to York County Line (4 to 6 lanes) (Project ID: 2045-171).
- Implement Hampton Roads Transit (HRT) Transit Strategic Plan's FY2023-FY2032 long-term recommendation for a limited/express bus MAX Route 975 between Gloucester and the Newport News Shipyard and extending bus Route 111 beyond Thomas Nelson to connect to Peninsula Town Center.

# CONCLUSIONS AND NEXT STEPS

The Hampton Roads CMP is an on-going systematic process for managing congestion that provides information and analysis on transportation system performance and on strategies to alleviate congestion and enhance the mobility of persons and goods regionwide. As of 2018, the Hampton Roads region experiences severe congestion on 6% of all CMP Roadway Network lane-miles during the morning peak period and on 14% during the afternoon peak period (**Figure 43**). Severe congestion levels are expected to grow to nearly one quarter of all CMP roadway lane-miles during the afternoon peak hour by the year 2045. Despite this increase, however, caution should be used when making comparisons between the existing and future congestion levels since different methodologies are used.

In order to rank congested corridors, HRTPO staff incorporates both congestion measures and performance measures from previous HRTPO studies such as freight, military, and safety. Each CMP Roadway Network segment was scored by direction for the AM and PM Peak Periods based on five criteria – existing congestion, existing travel time reliability, freight, safety, and National Highway System/Military importance.

After CMP Segment Scores were produced for each roadway segment in the region, congested segments were grouped into corridors – referred to as CMP Congested Corridors – for analysis purposes. CMP Congested Corridors were created based on the location and proximity of each of the congested roadway segments and were ranked based on the roadway segments with the highest CMP Segment Scores.

As congestion increases throughout the region, it is imperative to evaluate, develop, and apply congestion mitigation strategies involving all modes of transportation to improve service levels on the regional transportation system. HRTPO staff prepared a comprehensive "toolbox" of CMP mitigation strategies as part of this report. The strategies were grouped into five major categories:

### HRTPO GENERAL CONGESTION MITIGATION STRATEGIES

1) Eliminate Person Trips or Reduce VMT
2) Shift Trips from Automobile to Other Modes
3) Shift Trips from SOV to HOV
4) Improve Roadway Operations
5) Add Capacity

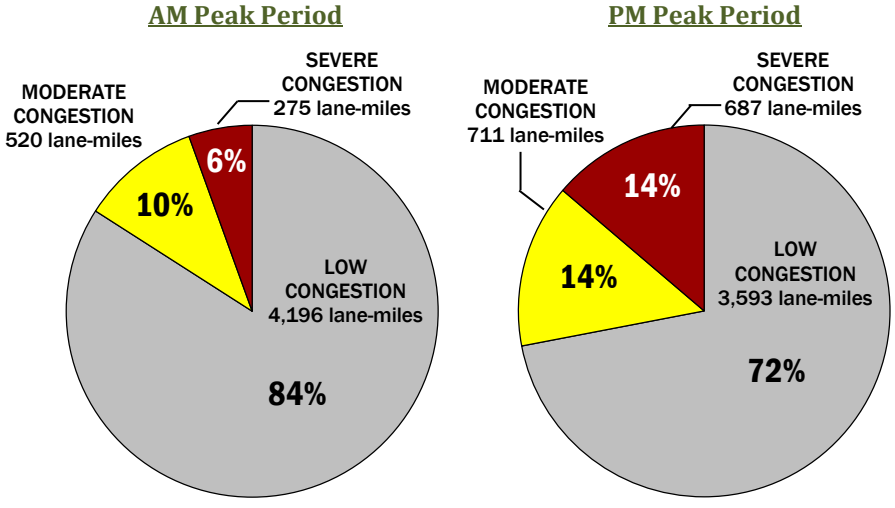



**Figure 43 – Existing (2018) Congestion Levels by Lane-Mile for the CMP Roadway Network**

Source: HRTPO analysis of INRIX and VDOT data.

Figure only include those CMP network roadways within the Hampton Roads MPA.

As part of this CMP update, 10 freeways and 21 arterials were classified as CMP Congested Corridors. Most of these corridors were analyzed in detail to determine probable causes of congestion, peak hour traffic characteristics, recent and future projects, congestion levels, possible application of CMP mitigation strategies, and candidate congestion mitigation strategies. Congestion mitigation recommendations for the CMP Congested Corridors are shown in **Figures 46 and 47** on pages 115-120.

Although other congested CMP roadways are not analyzed in this report, congestion remains a problem within these corridors and they should be considered in any future studies regarding congested locations throughout Hampton Roads. The jurisdictions in which these congested corridors are located are encouraged to perform detailed corridor studies to determine alternative strategies and recommendations to address congestion.

The Congestion Management Process is implemented as a continuous part of the metropolitan planning process, which also includes the Long-Range Transportation Plan (LRTP) and the Transportation Improvement Program (TIP). The CMP is the first step in addressing regional congestion as it monitors the regional roadway network, identifies congestion, and develops strategies to address congestion.

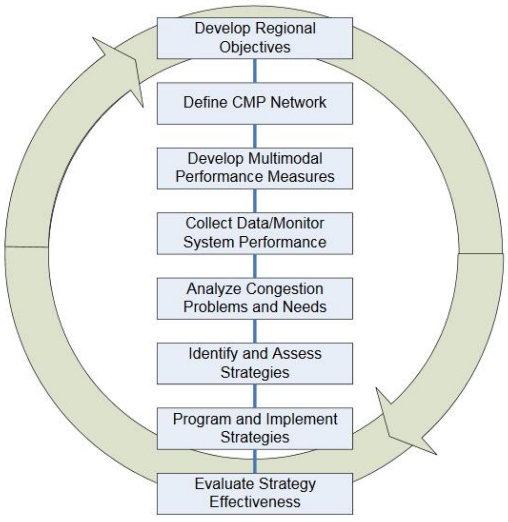



**Figure 44 – Elements of the Congestion Management Process**
Source: FHWA.

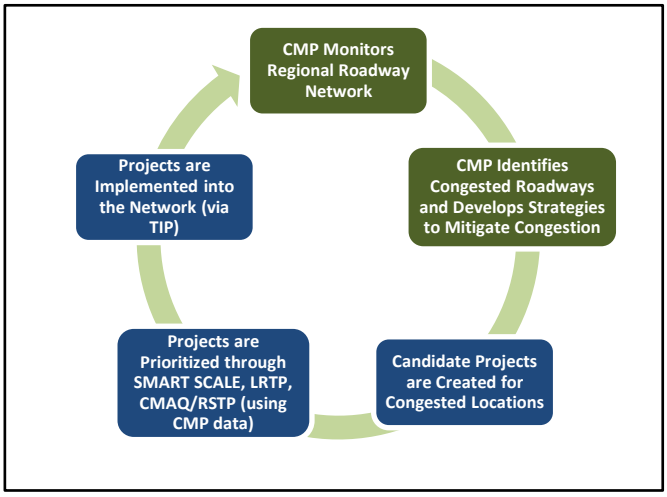



**Figure 45 - Steps for Integrating the CMP into the Metropolitan Planning Process**

As additional funding becomes available for transportation improvements on a federal, state, and regional level, it is important that the most beneficial transportation projects be considered and selected for construction. HRTPO staff encourages local planners, engineers, and decision makers to use the information included in this CMP when developing project proposals for the most congested areas. Once these proposed projects are developed, data from the CMP will be input into the LRTP Project Prioritization Tool in order to assist in the ranking of projects. Finally, the highest priority projects should be programmed for construction via the TIP and the process can begin again.

HRTPO staff will continue to monitor the performance of the regional transportation network and refine the Congestion Management Process. Roadway data – such as traffic volumes, travel speeds, peak hour factors, roadway characteristics, safety data, and truck volumes – will be updated continuously in order to assist with future CMP report releases and other HRTPO planning efforts. Finally, HRTPO staff will continue to gain input from the general public and regional stakeholders to both improve the CMP goals and work towards reducing congestion throughout the region.

## Figure 46 – CMP Congested Corridor Congestion Mitigation Strategies - Freeways

### Freeway Corridor #1 - Hampton Roads Bridge-Tunnel (I-64) from I-664 to I-564

- Complete I-64/Hampton Roads Bridge-Tunnel Expansion – I-664 to I-564, Widen to 6 Lanes + 2 Shoulder Lanes (UPC #115008). This project will likely alleviate most of the congestion, or at least provide an uncongested alternative at all times.
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.
- Implement ramp metering strategies contained in VDOT's Ramp Metering Feasibility Study for I-64 and I-664 Report (June 2020).
- Eastbound on-ramps from Mallory St and Settlers Landing Rd will be temporarily closed during HRBT construction during the PM Peak Period starting in 2022.

### Freeway Corridor #2 - I-64 from Indian River Rd to I-264

- I-64/I-264 Interchange Phase III Improvements.
- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.

### Freeway Corridor #3 - I-64/High Rise Bridge from I-264 & I-664 (Bowers Hill) to Greenbrier Pkwy

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.
- Completion of I-64 Southside/High Rise Bridge project #106692 will likely alleviate most of the congestion, or at least provide a free flow alternative at all times.
- Improvements to I-64/I-464 interchange ramps to reduce the amount of weaving that is necessary, including the project included in the 2045 LRTP (Project ID: 2045-309). Complete Alternative 4A from the I-64/I-464 Interchange Operational and Safety Analysis Report that includes an I-64 EB to I-464 SB (to Rte 168) flyover and maintains I-64 EB to I-464 SB loop ramp for traffic to Route 17.
- Completion of I-664 Widening including Bowers Hill Interchange project - Bowers Hill to College Dr - Improve interchange/Add Express Lanes (Project ID: 2045-308).
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Ramp metering

### Freeway Corridor #4 - I-264/Downtown Tunnel from Frederick Blvd to Brambleton Ave

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service across the Elizabeth River (i.e. impacts of the Regional Transit Backbone).
- Continue to use and improve ITS/Operational strategies to manage traffic at the tunnel and quickly respond to incidents. This can help reduce clearance times and reduce the number of secondary incidents.
- Completion of I-64 Southside/High Rise Bridge widening project #106692 may reduce traffic volumes at I-264/Downtown Tunnel.
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Ramp metering

### Freeway Corridor #5 - Monitor-Merrimac Mem. Bridge-Tunnel (I-664) from College Ave to Chestnut Rd

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service across the Hampton Roads Harbor, such as enhancing express bus service (i.e. Regional Transit Backbone) or implementing
- Consider adding tolls ("congestion pricing") to the Hampton Roads Harbor crossings.
- Continue to use and improve ITS/Operational strategies to manage traffic at the tunnel and quickly respond to incidents. This can help reduce clearance times and reduce the number of secondary incidents.
- The I-64/Hampton Roads Bridge-Tunnel Expansion project (I-664 to I-564, Widen to 6 Lanes + 2 Shoulder Lanes, UPC #115008) should help alleviate traffic congestion at the MMMBT.
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Implement ramp metering strategies contained in VDOT's Ramp Metering Feasibility Study for I-64 and I-664 Report (June 2020).

## Figure 46 – CMP Congested Corridor Congestion Mitigation Strategies - Freeways (continued)

### Freeway Corridor #6 - I-264 from I-64 to Newtown Rd

- Most of the EB traffic congestion in this corridor should be alleviated by the I-64/I-264 Interchange Improvements Phases I and II.
- WB traffic congestion can be improved by additional phases of the I-64/I-264 Interchange Project to lengthen the merge area on I-64 EB.
- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service, such as enhancing express bus service (i.e. Regional Transit Backbone).
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.

### Freeway Corridor #7 - Chesapeake Expressway from Battlefield Blvd to I-64

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.
- Improve the interchange of I-64 and I-464/Chesapeake Expressway to reduce weaving movements. Complete Alternative 4A from the I-64/I-464 Interchange Operational and Safety Analysis Report that includes an I-64 EB to I-464 SB (to Rte 168) flyover and maintains I-64 EB to I-464 SB loop ramp for traffic to Route 17.
- Widen the single ramp lane to two lanes from NB Dominion Blvd/Chesapeake Expressway to I-64 WB (towards Virginia Beach).
- Continue to use and improve ITS/Operational strategies to manage traffic in the corridor and quickly respond to incidents.
- Widen Chesapeake Expressway from 4 to 6 lanes.
- Improve the interchange of Chesapeake Expressway and Battlefield Blvd.

### Freeway Corridor #8 - I-564 from Terminal Blvd to Admiral Taussig Blvd

- Encourage local military leaders to modify policies concerning work times and work location (by entry gate).
- Encourage local partnerships with Hampton Roads Transit (HRT) and others to increase travel options for military personnel through travel demand management strategies such as working off-peak hours, telecommuting, ridesharing (carpools/vanpools), and using public transit.
- Encourage all eligible military employees to consider participating in the Transportation Incentive Program (TIP) to help reduce their daily contribution to traffic congestion and air pollution, as well as expand their commuting alternatives. Effective January 1, 2018, Department of the Navy TIP participants are eligible for transit benefits of up to $260 per month (parking fees not included) for specific pre-approved commuter mass transit transportation costs not to exceed actual expenses.
- Provide a shuttle/transit circulator service for travel within Naval Station Norfolk.
- Extend light rail passenger service or Bus Rapid Transit service to/from Naval Station Norfolk.
- Ensure coordination of the signals on Admiral Taussig Blvd.
- Improve the operations of the gates, particularly at Gates 3/3A. This could include adding additional lanes for processing through the gates and improving technologies at the gates.
- Construct the Air Terminal Interchange project to improve access from I-564 to Naval Station Norfolk.

### Freeway Corridor #9 - I-64 from Yorktown Rd to Fort Eustis Blvd

- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor.

### Freeway Corridor #10 - I-64 from I-564 to Norview Ave

- Complete project to convert the shoulder into an Express Part Time Shoulder Lane in each direction for nine miles – I-564 to I-264 (expected completion Winter 2025).
- Continue to promote TDM and public transit strategies in order to reduce traffic volume in this corridor. This could include increasing transit service, such as enhancing express bus service (i.e. Regional Transit Backbone).
- Consider using additional active traffic management (ATM) and Intelligent Transportation Systems (ITS) technologies, such as shoulder/lane control, changeable message signs, and vehicle detection devices. Moving from static approaches to more active and dynamic managed traffic operations will assist with fluctuating demand and varying conditions.
- Implement ramp metering strategies contained in VDOT's Ramp Metering Feasibility Study for I-64 and I-664 Report (June 2020).
- Encourage local military leaders to modify policies concerning work times and work location (by entry gate).
- Encourage local partnerships with Hampton Roads Transit (HRT) and others to increase travel options for military personnel through travel demand management strategies such as working off-peak hours, telecommuting, ridesharing (carpools/vanpools), and using public transit.
- Encourage all eligible military employees to consider participating in the Transportation Incentive Program (TIP) to help reduce their daily contribution to traffic congestion and air pollution, as well as expand their commuting alternatives. Effective January 1, 2018, Department of the Navy TIP participants are eligible for transit benefits of up to $260 per month (parking fees not included) for specific pre-approved commuter mass transit transportation costs not to exceed actual expenses.

## Figure 47 – CMP Congested Corridor Congestion Mitigation Strategies - Arterials

### Arterial Corridor #1 - Tidewater Dr from Brambleton Ave to Princess Anne Rd

- Complete Intersection Improvements - Brambleton Ave at Tidewater Dr (UPC #111017).
- Ensure coordination of signals in the corridor.
- Consider additional turn lanes where traffic volumes warrant.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #2 - Battlefield Blvd from Johnstown Rd to I-64

- Continue to promote TDM, public transit, and active transportation strategies in order to reduce volume in this corridor.
- Consider extending dual left-turn lanes along SB Battlefield Blvd at Wal-Mart Way.
- Add an exclusive right-turn lane on the SB Battlefield Blvd approach at the Cedar Rd intersection.
- Add an additional exit lane for the Great Bridge Shopping Center at Cedar Rd/Battlefield Blvd signalized intersection and redesignate lanes to dual left-turns, one through, and one right-turn (and retime signal).
- Ensure coordination of signals in the corridor.
- Implement rush hour restrictions for Great Bridge Bridge lifts in coordination with the Coast Guard.
- Remove two-way left-turn lane and construct a raised-curb median with openings and channelized left-turn bays at strategic locations along the entire length of Battlefield Blvd south of Great Bridge Blvd/Kempsville Rd. (Note: This may increase congestion but also improve safety.)
- Consider innovative intersection designs for the Great Bridge Blvd/Kempsville Rd intersection to increase capacity.
- Implement projects (UPC #119232 – adds continuous RTL: Volvo Pkwy to Walmart Way, UPC #115516 - Battlefield Blvd/Volvo Parkway Intersection Improvements) and consider other improvements to increase capacity such as adding an exclusive EB through lane for Volvo Pkwy to separate the triple left-turns and through movements.
- This corridor is being studied as part of the VTrans Project Pipeline effort. The goal of this effort is to develop focused alternatives, projects and investment strategies that can be considered for funding in SMART SCALE, Revenue Sharing, Interstate, and other programs. Any recommendations from the Project Pipeline study, which is expected to be completed in 2022, should be considered for this corridor.

### Arterial Corridor #3 - Mercury Blvd from Power Plant Pkwy to Armistead Ave

- Ensure coordination of signals in the corridor.
- Consider additional EBLT turn lane on Mercury Blvd at Power Plant Pkwy.
- Consider additional EBLT turn lane on Mercury Blvd at Cunningham.
- Implement pedestrian and bicycle improvements – Kilgore Ave to Build America Dr (UPC #111017).
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #4 - George Washington Hwy from Moses Grandy Trail to I-64

- Plans are underway to replace the Deep Creek Bridge with a 144-foot long, 60-foot wide five-lane drawbridge located 100 feet south of the existing 2-lane bridge, including improvements to approaching roadways (Project UPC# 109382). Construction is expected to begin in Apr 2022 and end in Apr 2025. This project is expected to alleviate most of the traffic congestion along the corridor.
- Ensure coordination of signals in the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor. Add HRT bus service along the corridor if demand warrants.

### Arterial Corridor #5 - Dam Neck Rd from Holland Rd to London Bridge Rd

- Ensure coordination of signals in the corridor.
- Complete UPC#110802 – Add second left-turn lane from westbound Dam Neck Road to southbound Holland Rd. This will likely alleviate Dam Neck Rd traffic congestion.
- Improvements to London Bridge Rd intersection, including dual EBRT lanes and additional turn lanes on London Bridge Road (rather than shared left/thru lanes).
- Complete 2045 LRTP road widening projects.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #6 - Tidewater Dr from Cromwell Dr to Norview Ave

- Ensure coordination of signals in the corridor, especially between the closely spaced intersections at Cromwell Dr and Willow Wood Dr.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

## Figure 47 – CMP Congested Corridor Congestion Mitigation Strategies - Arterials (continued)

### Arterial Corridor #7 - Hampton Blvd from Brambleton Ave to 27th St

- Complete intersection improvements - Hampton Blvd at Azalea Ct (UPC #113194).
- Ensure coordination of signals in the corridor.
- Add turn lanes at intersections where applicable.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #8 - Route 199 from John Tyler Hwy (Route 5) to Brookwood Dr

- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Evaluate and consider adding dual left-turn lanes for the EB and WB Route 199 approaches at the Jamestown Rd intersection. This would require adding a 2nd receiving lane for SB Jamestown Rd south of the Route 199 intersection, either through new construction or changing the existing NB lane uses and restriping the pavement.
- Consider extending the turn bays on EB Route 199 beyond the typical peak period length of the queue.
- Evaluate and consider adding 2nd through lane for SB Jamestown Rd approach at the Route 199 intersection. This would also require adding a 2nd receiving lane for SB Jamestown Rd south of the Route 199 intersection.
- This corridor is being studied as part of the VTrans Project Pipeline effort. The goal of this effort is to develop focused alternatives, projects and investment strategies that can be considered for funding in SMART SCALE, Revenue Sharing, Interstate, and other programs. Any recommendations from the Project Pipeline study, which is expected to be completed in 2022, should be considered for this corridor.

### Arterial Corridor #9 - Little Creek Rd from Tidewater Dr to Military Hwy

- Complete Flashing Yellow Arrows projects: Little Creek Rd at Military Hwy (Phase 2) (UPC # 113748) & Little Creek Rd at Old Ocean View Rd (Phase 2) (UPC # 113748).
- Ensure coordination of signals in the corridor.
- Add left-turn and right-turn lanes where traffic volumes warrant at Little Creek Rd and Chesapeake Blvd.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #10 - Newtown Rd from I-264 to Virginia Beach Blvd

- Complete project to widen Virginia Beach Blvd and remove the frontage roads to the west of Newtown Road (UPC #115244).
- Complete Interchange improvements on EB I-264 at Newtown Rd – part of Phase II of the I-64/I-264 Interchange Improvements Project.
- Complete Flashing Yellow Arrows project – Newtown Rd at Center Dr (Phase 1) (UPC #111024).
- Complete Newtown Road Corridor Study (UPC #115379).
- Ensure coordination of signals in the corridor.
- Add left-turn and right-turn lanes (i.e. NBLT, EBRT, SBLT) where traffic volumes warrant.
- Widen roadway from 4 to 6 lanes.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #11 - Brambleton Ave from Tidewater Dr to I-264

- Complete intersection projects #111019 (Addition of a northbound right-turn lane on Park Ave, increasing the capacity of the approach to
- In addition to the two intersection projects, add additional turn lanes where traffic volumes warrant. This could include a triple left-turn from SB Park Ave to EB Brambleton Ave.
- Ensure coordination of signals in the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #12 - Indian River Rd from I-64 to Ferrell Pkwy

- Completion of the Innovative Intersection Improvement Project – Indian River Road at Kempsville Road (UPC #84366) in 2020 has alleviated much of the congestion along the corridor near Kempsville Road.
- Implement LRTP widening project (widen to 10 lanes) between I-64 and Centerville Turnpike (Project ID: 2045-236), which will alleviate traffic congestion along the corridor.
- Implement LRTP widening project (widen to 8 lanes) between Centerville Turnpike and Ferrell Parkway (Project ID: 2045-235), which will alleviate traffic congestion along the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Ensure coordination of signals in the corridor.

## Figure 47 – CMP Congested Corridor Congestion Mitigation Strategies - Arterials (continued)

### Arterial Corridor #13 - Campostella Rd from Indian River Rd to Wilson Rd

- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. This could include a triple left-turn from SB Campostella Rd to EB Indian River Rd, and dual-left turn lanes on the other three approaches of the intersection. Could also include a NB right-turn bay or dual WB right-turn bays. At the intersection of Campostella Rd and Wilson Rd, improvements could include a triple left-turn from Wilson Rd to NB
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #14 - Church St from Brambleton Ave to Virginia Beach Blvd

- Ensure coordination of signals in the corridor.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.
- Consider extending dual left-turn lane for SB Church St to EB Brambleton Ave.
- Add additional turn lanes where traffic volumes warrant.
- Implement Flashing Yellow Arrows project – Virginia Beach Blvd at Church St (Phase 1) (UPC #111024).
- Complete St. Paul's Transformation Area redevelopment project:
  - Phase 1 – This project will create 2,750 linear feet of new roadway infrastructure in the St. Paul's Transformation Area. The project will realign Fenchurch Street, extend Freemason Street across St. Paul's Boulevard, and construct a new road into the Downtown Transit Center (Transit Center Drive). The project also includes a new traffic signal at St. Paul's Blvd. and Freemason Street. Additional work will include stormwater improvements, wide sidewalks, dedicated bike facilities.
  - Phase 2 – This project will create 7,000 linear feet of new roadway infrastructure in the St. Paul's Transformation Area. The project will extend Freemason Street to Tidewater Drive, creating an east-west connection from downtown to the St. Paul's area. The project will also include a reconstruction of the grid network in the Tidewater Gardens area, including Chapel Street, Charlotte Street, Reilly Street, Holt Street, Mariner Street, Virgin Street, and Resilience Drive. The project also includes a new traffic signal at Tidewater Drive and Freemason Street and connections to the future Blue Greenway, a resilience stormwater facility. Additional work will include stormwater improvements, wide sidewalks, dedicated bike facilities.

### Arterial Corridor #15 - Military Hwy from I-464 to Battlefield Blvd

- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. At Campostella Rd, dual EB and WB left-turns would require some widening on Campostella Rd. At I-464, this could include dual left-turn lanes on both the NB and SB exit ramps.
- Implement the LRTP widening project (4 to 8 lanes) (Project ID: 2045-146).
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #16 - Route 17/Carrolton Blvd from Route 258 to James River Bridge

- Complete intersection improvements - Route 17 at Route 258 (UPC #109481), which will add a dual NB left-turn lane on Route 17 to Route 258, and add access to new development east of the intersection.
- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. This could include a dual EB left-turn lane on Route 17 at Smiths Neck Rd, and a dual WB left-turn lane on Route 17 at Whippingham Pkwy.
- Consider a Superstreet design for Carrolton Blvd (Route 17). This alternative involves constructing Restricted Crossing U-Turn (RCUT) intersections at all signalized intersections in the corridor. RCUTs are intersections that are designed where all side street movements begin with a right-turn. Side street vehicles turn right and make a U-turn at a downstream median opening to complete left-turn and through movements. Superstreet designs tend to improve the safety and efficiency of median-divided highways with heavy through traffic volumes when left-turn and through traffic volumes on the side streets are low.
- Implement LRTP widening project (4 to 6 lanes) along Route 17/Carrollton Blvd from the End of Chuckatuck Creek Bridge to James River Bridge (Project ID: 2045-157).
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

### Arterial Corridor #17 - Oyster Point Rd from Jefferson Ave to I-64

- Complete intersection improvements - Jefferson Ave at Oyster Point Rd (UPC #115241), which will add a third EB left-turn lane on Oyster Point Rd and a third WB receiving lane on Oyster Point Rd.
- Complete intersection improvements - Oyster Point Rd at Canon Blvd (UPC #113986), which will add a dual right-turn lane for the NB approach, extend the WB left-turn lane, provide pedestrian accommodations across Oyster Point Rd at Canon Blvd, and extend the SB left-turn lane at Canon Blvd and Old Oyster Point Rd.
- Ensure coordination of signals in the corridor.
- Add additional turn lanes where traffic volumes warrant. This could include additional triple left-turn lanes on approaches to the Oyster Point Rd and Jefferson Ave intersection.
- Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this corridor.

**Figure 47 – CMP Congested Corridor Congestion Mitigation Strategies – Arterials (continued)**

| Arterial Corridor #18 - Northampton Blvd from Military Hwy to Diamond Springs Rd |
|---|
| • Implement Northampton Blvd/Diamond Springs Intersection Improvements (UPC #119234). This project will convert left-turn movements in both directions of Northampton Boulevard at Diamond Springs Road to displaced left-turns, and<br>• Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this<br>• Ensure coordination of signals in the corridor.<br>• Implement the LRTP widening project on I-64 (I-64/I-264 Interchange Phase IIIA), which will help alleviate backups from Northampton Blvd onto EB I-64.<br>• Improve the alignment of the intersection of Wesleyan Drive with Premium Outlets Blvd. This should improve the operation of the signalized intersection and provide safety benefits for both vehicles and pedestrians.<br>• Add turn lanes where traffic volumes warrant. This includes a dual left turn lane from SWB Northampton Boulevard to EB Wesleyan Dr, and a right-turn lane from SWB Northampton Blvd to the Premium Outlets Blvd. |
| **Arterial Corridor #19 - Towne Point Rd from Twin Pines Rd to Western Fwy** |
| • Ensure coordination of signals in the corridor.<br>• Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this<br>• Add additional turn lanes where traffic volumes warrant, such as on the Western Freeway WB off ramp. |
| **Arterial Corridor #20 - Route 60/Richmond Rd from Lightfoot Rd to Route 199** |
| • Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this<br>• Ensure coordination of signals in the corridor.<br>• Constructing the Mooretown Road Extension LRTP project between Croaker Road and Lightfoot Road would likely improve congestion on this section of Route 60.<br>• Add turn lanes where traffic volumes warrant (i.e. dual left-turn lanes on Lightfoot Rd).<br>• Add railroad preemption signal between the Lightfoot Road/Richmond Road traffic signal and the CSX Railroad signal. |
| **Arterial Corridor #21 - J Clyde Morris Blvd from I-64 to Harpersville Rd** |
| • Continue to promote TDM, public transit, and active transportation strategies in order to reduce traffic volume in this<br>• Ensure coordination of signals in the corridor.<br>• Complete intersection improvements - J Clyde Morris Blvd at Louise Dr, Traverse Rd, and Harpersville Rd (UPC #115237). Improve efficiency for three consecutive intersections with two 500 ft. long sections of NB lane infill (i.e. NB will be 3 thru<br>• Consider an alternative intersection design at Harpersville Rd such as a thru-cut.<br>• Add turn lanes where traffic volumes warrant (i.e. right-turn lanes at Traverse Rd).<br>• Implement the LRTP widening project – I-64 to York County Line (4 to 6 lanes) (Project ID: 2045-171).<br>• Implement Hampton Roads Regional Transit Vision Plan's long-term recommendation Express Bus Line 14, which would run along Route 17 and connect Gloucester County to the Oyster Point area of Newport News. |

## PUBLIC INVOLVEMENT

Fewer things impact the quality of life of those who call Hampton Roads home more than traffic congestion. Time spent in traffic means more money spent on fuel, higher emissions, and less time with family and friends. The experience and stories of those who travel in and around Hampton Roads on a daily basis is truly invaluable to the regional transportation planning process.

HRTPO is fully committed to involving and collaborating with Hampton Roads citizens in a public involvement process that is grounded in mutual problem solving and understanding. In other words, a process whereby citizens walk away satisfied in knowing their voice has been legitimately heard and their thoughts, ideas, and opinions have the potential to impact future HRTPO decisions. This principle has been at the core of all HRTPO public involvement activities.

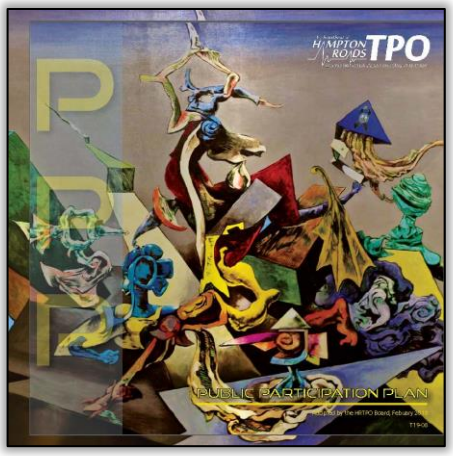
The HRTPO understands "the public" to mean all of those who have the potential to affect or be affected by the Hampton Roads transportation system. From cyclists to environmental activists, the majority of Hampton Roads citizens have a stake in the future of our transportation system.

Equally important, the HRTPO recognizes that not all communities and their members have enjoyed the same level of access or representation in transportation and other decisions made by public agencies. Therefore, as part of its public involvement strategy, the HRTPO will take special steps and measures to understand and consider the wants, needs, and aspirations of minority, low-income, and other underserved groups in Hampton Roads.

The goals of HRTPO's public involvement efforts are:

- Build credibility and trust between the HRTPO and those whom it exists to serve.
- Facilitate an involvement process that begins early, is convenient and meaningful.
- Develop partnerships with local community leaders, groups and organizations to provide an integrated, environmentally aware and multi-modal approach to transportation needs and desires.
- Provide timely and easily understood information to citizens, other interested parties, and segments of the community affected by transportation plans, programs, and projects.
- Integrate citizen concerns and needs into the transportation planning process.
- Ensure adequate public input is obtained for developing solutions during project planning phases.
- Collaborate with traditionally underserved communities to understand and consider their needs by implementing Environmental Justice procedures recommended by federal law.
- Periodically evaluate the effectiveness of the public involvement process to ensure full and open access to all and revise the process as necessary.
- Exceed federal requirements as they pertain to public involvement.
- Facilitate a transparent, flexible public involvement process.

This section details some of HRTPO's public involvement efforts that informed this Congestion Management Process. More information on HRTPO's public involvement process is available at **https://www.hrtpo.org/page/public-involvement**.



## LRTP OUTREACH

HRTPO strives to provide ample opportunity to review and comment on regional transportation priorities. As such, public engagement with residents, stakeholders, elected officials, and other community representatives is a critical part of HRTPO's long-range transportation planning process. For the 2045 Long-Range Transportation Plan (LRTP), in addition to providing early and continuous public engagement opportunities, another major public outreach goal was to engage all citizens of Hampton Roads in meaningful dialogue about their transportation needs and priorities, the transportation planning process, and potential impacts from transportation to their community. This outreach is beneficial not only to the long-range transportation planning process but also to other integrated HRTPO transportation planning efforts, such as the Congestion Management Process.

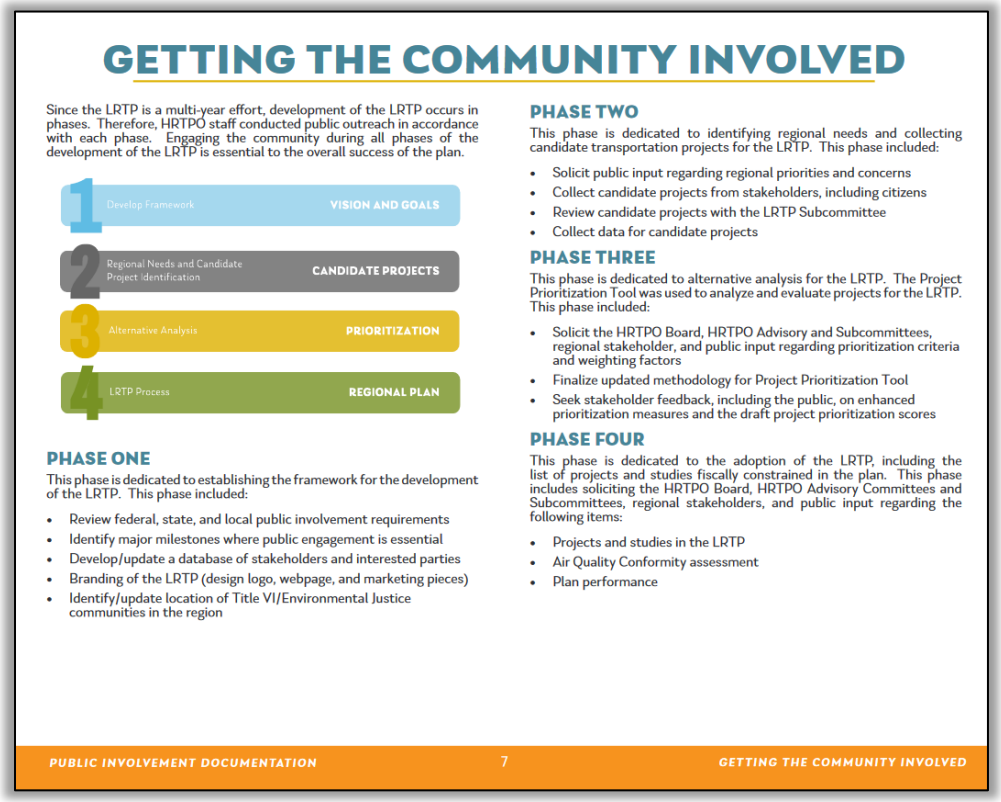
Public involvement for the 2045 LRTP included a variety of methods to inform the public about the regional transportation planning process, raise awareness of the existing transportation network in Hampton Roads, and facilitate a shared vision regarding the future of transportation in our region. In addition, in communities comprised of traditionally underrepresented populations, the HRTPO public involvement approach establishes an outreach framework tailored to reflect the community's potential barriers to participation, such as lack of access to transportation, alternative work hours, and language barriers.

Since the LRTP is a multi-year effort, development of the LRTP occurred in phases, and HRTPO staff conducted public outreach during each phase as shown in the graphic on this page.

The HRTPO LRTP Public Participation objectives include:

- Provide broad-based access to the LRTP planning process.
- Develop and distribute information about the long-range transportation planning process through multiple sources, with clear, non-technical language.
- Engage all aspects of the public, including minority, low-income, disabled, and elderly persons in a meaningful exchange of ideas related to the transportation planning process.
- Establish working relationships with partner and peer organizations in the region with the purpose of sharing information and resources as well as promoting regional dialogue.

In addition, citizen input is provided to the HRTPO Board and its advisory committees so that their input is considered throughout the development of the LRTP and the HRTPO regional transportation planning process. A specific example to note was during the update to the region's Project Prioritization Tool. Public comments received were vetted through the LRTP Subcommittee and positively impacted how some of the new metrics were incorporated into the Tool.



GETTING THE COMMUNITY INVOLVED

Since the LRTP is a multi-year effort, development of the LRTP occurs in phases. Therefore, HRTPO staff conducted public outreach in accordance with each phase. Engaging the community during all phases of the development of the LRTP is essential to the overall success of the plan.

1 Develop Framework — VISION AND GOALS
2 Regional Needs and Candidate Project Identification — CANDIDATE PROJECTS
3 Alternative Analysis — PRIORITIZATION
4 LRTP Process — REGIONAL PLAN

PHASE ONE

This phase is dedicated to establishing the framework for the development of the LRTP. This phase included:

- Review federal, state, and local public involvement requirements
- Identify major milestones where public engagement is essential
- Develop/update a database of stakeholders and interested parties
- Branding of the LRTP (design logo, webpage, and marketing pieces)
- Identify/update location of Title VI/Environmental Justice communities in the region

PHASE TWO

This phase is dedicated to identifying regional needs and collecting candidate transportation projects for the LRTP. This phase included:

- Solicit public input regarding regional priorities and concerns
- Collect candidate projects from stakeholders, including citizens
- Review candidate projects with the LRTP Subcommittee
- Collect data for candidate projects

PHASE THREE

This phase is dedicated to alternative analysis for the LRTP. The Project Prioritization Tool was used to analyze and evaluate projects for the LRTP. This phase included:

- Solicit the HRTPO Board, HRTPO Advisory and Subcommittees, regional stakeholder, and public input regarding prioritization criteria and weighting factors
- Finalize updated methodology for Project Prioritization Tool
- Seek stakeholder feedback, including the public, on enhanced prioritization measures and the draft project prioritization scores

PHASE FOUR

This phase is dedicated to the adoption of the LRTP, including the list of projects and studies fiscally constrained in the plan. This phase includes soliciting the HRTPO Board, HRTPO Advisory Committees and Subcommittees, regional stakeholders, and public input regarding the following items:

- Projects and studies in the LRTP
- Air Quality Conformity assessment
- Plan performance

PUBLIC INVOLVEMENT DOCUMENTATION 7 GETTING THE COMMUNITY INVOLVED

The COVID-19 pandemic significantly impacted traditional outreach methods to engage the public during the 2045 LRTP development, resulting in a reliance on more digital ways to obtain public feedback. This included providing access to virtual meetings, recording meetings for interested viewers to watch at a later date/time, posting recorded presentations to the LRTP webpage, and overall facilitating public engagement via phone calls and emails, and during meeting discussions.

**Social Media**

Social Media was used to disseminate information to the public regarding the LRTP. Facebook was used to encourage people to attend meetings, comment on draft LRTP reports, participate in surveys, and to promote other public events and opportunities. Facebook is an effective venue to reach residents who live in Hampton Roads, and specifically in locations that are often underrepresented at traditional public meetings. HRTPO Facebook posts were shared over 12,000 times from 2016 to 2021 and on average, 232 people per day were engaged via Facebook.

**HRTPO Surveys**

Regional surveys were conducted during the development of the 2045 LRTP to better understand the priorities and travel experiences of Hampton Roads residents, to collect candidate projects, to review those projects to help ensure major significant transportation needs were not being overlooked, and to weigh in on a new scenario planning effort.

As part of the development of the 2045 LRTP vision and goals, two surveys were developed to help identify regional transportation needs and priorities. The first survey was a statistically-valid survey, which was conducted in collaboration with another regional effort, the Regional Connectors Study (RCS). The survey was prepared in order to seek input on important issues facing the region and ideas to reduce congestion and improve connectivity across the region. This survey received 1,732 responses from


the 20,000 surveys that were mailed to randomly selected households in the region.

The second survey was a web-based public survey conducted to seek public input on transportation related topics. Participants were also provided an opportunity to submit candidate projects to be considered for the 2045 LRTP. This survey received 238 responses.

In addition, stakeholder interviews were conducted in collaboration with the RCS planning effort. These stakeholders included representatives from Hampton Roads localities, transit agencies, VDOT, the Virginia Port Authority, the military, regional economic development agencies, and other regional agencies. Regional stakeholders provided responses to questions regarding transportation, economic vitality, quality of life, and emerging trends.

More information on the results of these surveys and stakeholder interviews is included in the 2045 LRTP Regional Needs report. This report is available at **https://www.hrtpo.org/uploads/docs/HR_2045LRTP_RegionalNeeds.pdf**.

During the public review of candidate projects being considered for the 2045 LRTP, another short web-based survey was conducted seeking public input on whether the list of candidate projects provide congestion relief,

lead to greater connectivity, or whether there are any other major candidate projects missing from the list.

HRTPO has started work on the 2050 Hampton Roads Long-Range Transportation Plan. Throughout 2022, HRTPO staff will conduct surveys via Metroquest to obtain public input on regional transportation issues and experiences and to collect ideas on possible candidate projects. This will benefit not only the 2050 LRTP but also other HRTPO planning efforts including the Congestion Management Process.

More information on the LRTP Public Involvement effort is available on the HRTPO website at https://www.hrtpo.org/uploads/docs/HR_2045LRTP_Public_Involvement_Documentation.pdf.

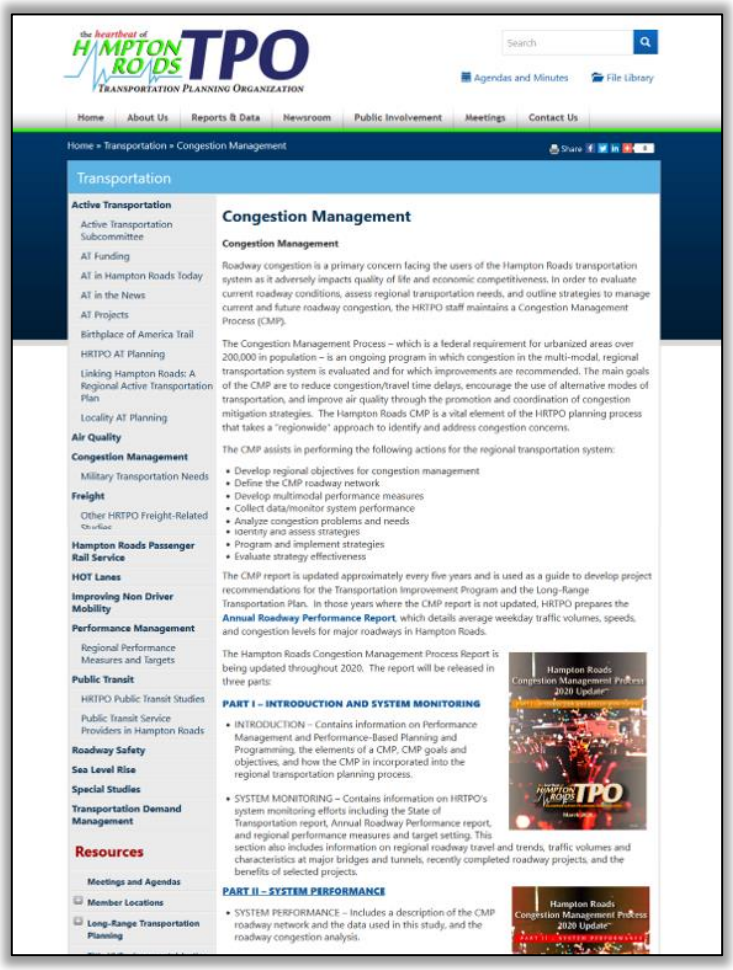
## TIP OUTREACH

In addition to public outreach during the LRTP planning process, public outreach is also conducted as part of the HRTPO Transportation Improvement Program (TIP). Public comment periods are provided as part of the TIP adoption process and each time the TIP is amended. More information on the TIP public involvement effort is available at http://www.hrtpotip.org.

## HRTPO WEBSITE

HRTPO maintains a website where the public can access agendas and minutes from meetings as well as all of the agency's draft and final plans and programs. The website also provides an opportunity for the public to submit comments and requests related to the Hampton Roads transportation system and the regional planning process.

There is a page on the HRTPO website devoted to Congestion Management. This webpage (https://www.hrtpo.org/page/congestion-management) describes the HRTPO Congestion Management Process and includes links to the CMP and Annual Roadway Performance Report documents.




## PUBLIC REVIEW AND COMMENT

Each of the three parts of this CMP Report were open to public review and comment. These public comment opportunities were posted on the HRTPO website (https://www.hrtpo.org/page/public-comment-opportunities). The opportunity to comment on the draft study was available on the following dates:

- Part I – Introduction and System Monitoring – January 29, 2020 to February 21, 2020
- Part II – System Performance – August 26, 2020, to September 28, 2020
- Part III – Congestion Mitigation – March 20, 2023, to April 14, 2023

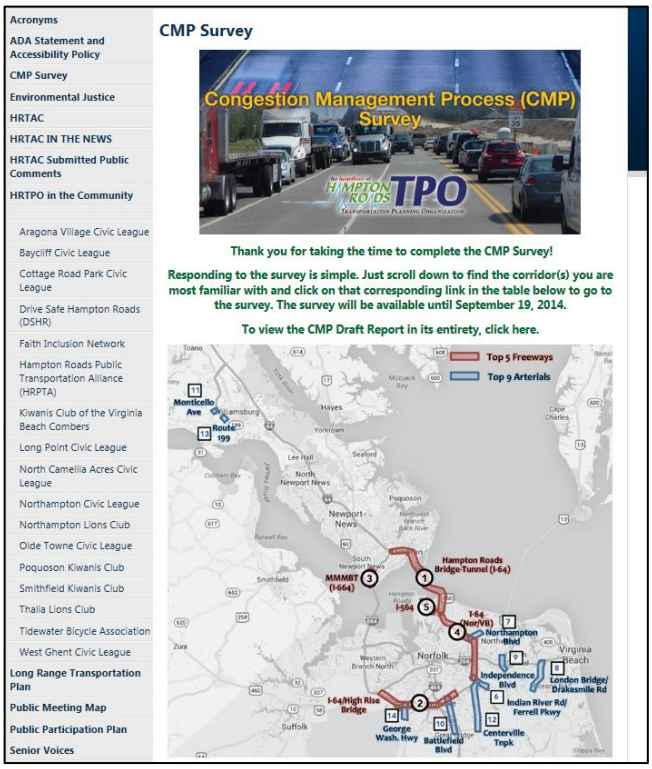
## CMP SURVEY

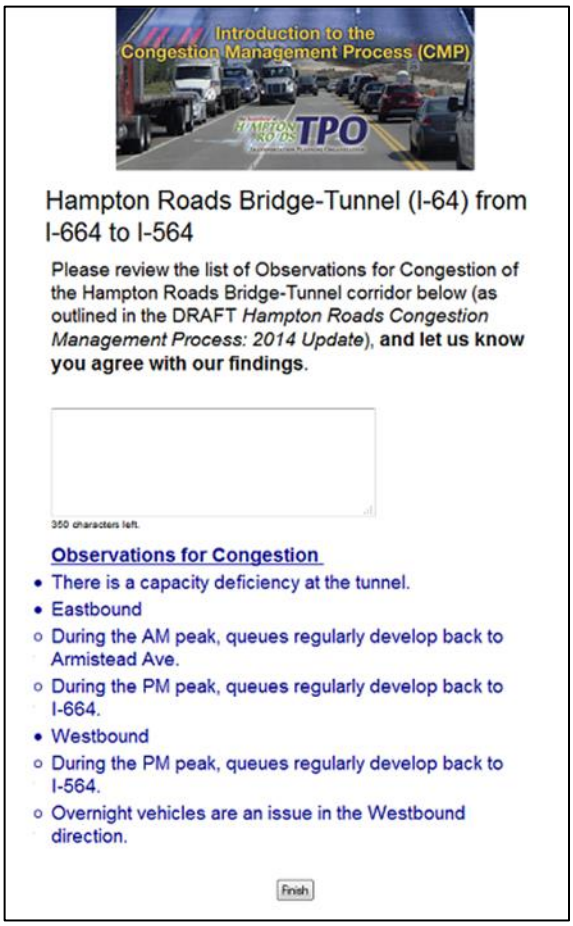
In an effort to gain the public's input on the observations made for contributing causes of congestion along Hampton Roads CMP Congested Corridors, HRTPO staff devised a 14-part survey as part of the previous CMP update. The public was able to view all of the CMP Congested Corridors and select those that they were most familiar with and weigh in on HRTPO's findings.

The survey received a total of 1,156 responses, with 936 individuals offering comments. While 34% of survey responders simply agreed with the findings, 66% shared other observations of causes of congestion not indicated by HRTPO staff findings. Many of those comments were used to enhance the mitigation strategies both in the previous report and this update. Survey comments were also shared with other transportation planning partners, including Hampton Roads localities, HRT, VDOT, the military, and the Port of Virginia.

Over the course of the public comment period, several local media outlets covered the CMP and associated corridor surveys, including the Virginian Pilot, Daily Press, and WVEC. As a result of this and other coverage, hundreds were guided to the HRTPO's website to offer feedback.

HRTPO staff plans on incorporating similar types of questions regarding causes of congestion during travel for regional commuters into the upcoming 2050 LRTP surveys.



## HRPDC/HRTPO NEWSLETTER

Information on the CMP has been included in the HRPDC-HRTPO E-Update Newsletter during this update. The HRPDC-HRTPO E-Update is prepared on a monthly basis to inform members of the Hampton Roads community about project updates, upcoming meetings, public comment opportunities, and other activities occurring at the HRTPO. The newsletter is currently emailed to over 4,200 businesses, civic organizations, associations, agencies, and individuals via Constant Contact.


E-UPDATE Sept. 10, 2020

the heartbeat of HAMPTON ROADS TPO Transportation Planning Organization

HAMPTON ROADS PDC Planning District Commission

**Managing Congestion on Hampton Roads Travel Corridors**

***Congestion Management Process Part II Report Available for Public Review***

The Hampton Roads Congestion Management Process (CMP) is an on-going systematic process for managing congestion that provides information and analysis on multi-modal transportation system performance and on strategies to alleviate congestion and enhance the mobility of persons and goods region-wide.

The following CMP articles have been included in the HRPDC-HRTPO E-Update Newsletter:

- "Congestion Management Process - 2020 Update" - **https://www.hrtpo.org/news/article/february/27/2020/congestion-management-process-_-2020-update**
- "Congestion Management Process Part II Report Available for Public Review" - **https://www.hrtpo.org/news/article/september/09/2020/congestion-management-process-part-ii-report-available-for-public-review**

An additional newsletter article will be prepared for Part III of the CMP update when the report has been released.

## MEMBER LOCALITIES ASSISTANCE

In addition to public involvement, the HRTPO also received technical input and assistance from its member localities throughout this CMP Update. In particular, feedback from localities and agencies on congestion mitigation measures were incorporated into each of the CMP Congested Corridor summaries.