A transportation system is more than the roads people use to commute to work or for a quick trip to the store. A transportation system also includes the airways people fly to attend conventions, vacation, or visit family. It’s the ship or rail car that transports food and manufactured goods from the farm or factory. It’s the trucks that disperse food and products to stores where people buy them for use in their everyday lives. The daily commute to work or the store, though a small part of the larger transportation system, is crucial to regional, state, national and global economic vitality.

Hampton Roads’ regional transportation system is complex and multi-faceted, hosting the major modes of transportation: air, rail, maritime, and roadway. Hampton Roads’ unique geography, its abundance of waterways, encourages maritime commerce, but at the same time, creates multiple chokepoints for the other modes, as numerous and expensive bridges and tunnels are required to traverse these waterways. To have a better understanding of Hampton Roads’ transportation system and the serious transportation dilemma facing Hampton Roads citizens, it’s critical to examine the past and current conditions.

The Hampton Roads community is more mobile now than ever before, with all modes of transportation experiencing noticeable usage increases. Beginning with the Hampton Roads harbor, which provides the fuel for Hampton Roads major economic engines—the military, the ports, shipbuilding and tourism—increased maritime traffic at the Port of Virginia has led to growth and development in the region and the State of Virginia.

The Port is a major economic engine for the State of Virginia, creating 165,000 jobs statewide and $4.8 billion in payroll. Between 1993-2004, general cargo tonnage more than doubled at the Port of Virginia, which includes the public-private marine terminals in Newport News, Norfolk, and Portsmouth. The addition of several distribution centers for major retailers such as Target and Wal-Mart have continued to stimulate growth at the port and throughout the region.

Cargo is not the only thing moving into and out of Hampton Roads’ harbor. In recent years several cruise lines have made Hampton Roads a port of call and homeport. In 2005, more than 110,000 passengers were expected at the downtown Norfolk cruise terminal, up from 35,000 in 2002.

Hampton Roads is also well served by a large rail network. During 1998, rail lines transported 69% of all inbound freight and 11% of outbound freight to the region. Passenger travel is available in Hampton Roads through Amtrak stations in Newport News and Williamsburg, with bus service connecting to Norfolk and Virginia Beach. In 2004, 93,000 passengers boarded Amtrak in Newport News and 35,500 passengers boarded in Williamsburg.

Hampton Roads’ international airports in Newport News (PhF) and Norfolk (ORF) have experienced a growth in passenger volumes that has outpaced national figures in recent years. This growth is largely attributed to the arrival of low-fare service at Norfolk (Southwest) and increased low-fare service at Newport News (AirTran).

In 2004, Norfolk International Airport saw a 10% increase in passenger volumes and Newport News-Williamsburg International Airport saw a 26% increase in passenger volumes versus 2003 figures.

While maritime, rail and air travel play important roles in the Hampton Roads’ transportation system, the most common transportation elements for the region’s citizens are bicycle, pedestrian, and vehicular travel, including cars, buses, and trucks.

Vehicular travel is dependent upon the regional roadway network to move people and goods. However, that movement is often hindered by congestion. In Hampton Roads and across the U.S., roadway congestion is on the rise. And like the rest of the country, Hampton Roads is struggling with a lack of funding to increase capacity on the roadway network as evidenced by limited funded improvements in the coming year.
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The sum of the number of miles vehicles travel, vehicle-miles of travel (VMT), has been consistently increasing across the country. Hampton Roads is no different. VMT in Hampton Roads increased 18%, or over 5 million miles daily, between 1994 and 2003. Travel growth has and continues to outpace roadway capacity improvement and the region’s population growth. Additionally, the number of registered vehicles in Hampton Roads has grown more than four times faster than the population over the same time period. More vehicles and more travel means more congestion on Hampton Roads’ roadways and increased congestion-related costs.

The time travelers spend on Hampton Roads’ congested roadways has increased throughout the years. According to the 2005 Texas Transportation Institute’s (TTI) Urban Mobility Report, Hampton Roads ranked 19th among 26 large urban areas with 26 hours of annual average delay per person during peak travel periods. That means, travelers in Hampton Roads lose over a day of their lives annually just waiting to move through everyday traffic.

Besides lost time, there is a monetary cost associated with congestion. TTI estimated that the cost of being stuck in Hampton Roads peak period traffic is $438 per person annually. For the whole region this totals over $360 million! Given that these are 2003 figures and gas prices have risen significantly since this study was conducted, that congestion cost will certainly rise when the next TTI report is produced.
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Hampton Roads’ geography presents multiple challenges to moving traffic through the region. There are eight major bridge or tunnel facilities that serve as the backbone for Hampton Roads’ transportation system. As vital as they are, they are also the reason for many of the region’s transportation headaches.

Growth in tourism also contributes to the number of travelers crossing the Hampton Roads Harbor. The HRBT, which serves as the main route for tourists heading to the beaches, is at its busiest during the summer months. In 2004, it experienced a 12% growth in traffic from winter to summer.

Interestingly, according to the 2004 figures, the HRBT is not the busiest facility in Hampton Roads. That title belongs to the Downtown Tunnel. During the spring and fall, the Downtown Tunnel is as busy as the HRBT is during the summer, and has more usage than the HRBT during the summer. Daily commuter traffic between Portsmouth and Norfolk contributes to the larger figures.

When congestion occurs on these bridge and tunnel facilities, it spills out onto other already congested roadways, creating longer delays for travelers in Hampton Roads.

Many of Hampton Roads’ most congested roadways do not have any funded planned improvements in the future, and congestion on and around those roadways is expected to worsen. Coupled with the fact that the amount of state funding for construction is falling behind due to significant and necessary increases in maintenance spending, Hampton Roads’ travelers can expect slower, more congested traffic conditions in the future.

Despite the lack of funds for adding capacity, there are several alternatives that could produce some relief if applied.
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The Hampton Roads Congestion Management System (CMAS) roadway network includes 4,698 lane-miles of interstates, expressways, principal and minor arterials, and selected collectors in Hampton Roads. Lane-miles are the length of a road, multiplied by the number of lanes. For example, a two-lane, five-mile long road would have ten lane-miles.

The more lanes a road has the more lane-miles are available. The CMAS network is expected to expand by a total of 550 lane-miles by 2026, equating to a 0.5% annual average growth rate in lane-miles. This minimal increase in road capacity will be outpaced by a 1.1% annual average growth rate in daily vehicle miles of travel during the same period.

Currently, 302 lane-miles in the CMAS network are severely congested. Of those lane-miles, only 212 lane-miles, or 35%, have funded plans for improvement over the next 20 years. Even with these funded improvements, severely congested lane-miles are expected to more than double throughout the region by 2026. And, as evidenced by looking at the PM Peak Hour, the congested lane-miles will not limit to Hampton Roads’ larger cities.

Continuing to look at the PM Peak Hour, there are 447 congested lane-miles that have no funded plans for improvement across Hampton Roads. As such, alternatives must be sought to improve efficiencies at these locations. Fortunately, transportation engineers and planners have developed a congestion mitigation strategy “toolbox” that can be employed.

The congested areas were examined for probable congestion causes, and strategies to improve conditions from this “toolbox” were developed for these locations. Employing such packages at these locations could provide some congestion relief without increasing roadway capacity. Two of the congested areas are depicted for more strategies and locations, consult the HRPDCC’s technical report, Congestion Management System Part-1, Bridges and Tunnels.”

**Next Steps**

**2026 Projected Conditions**

Severe congestion is expected on 1,221 lane miles in Hampton Roads in 2026. Transportation planners and engineers are considering strategies that will improve efficiency.

**Concentration Mitigation Strategy “Toolbox”**

Applying strategies from the Congestion Mitigation Strategy Toolbox to areas with moderate to severe congestion, such as these two locations, can help keep traffic moving.

- **Infrastructure and Expansion:**
  - Add Lane Capacity
  - Add CAPV
  - Improve/Expand Bicycle Network
  - Improve/Expand Pedestrian Network
  - Improved Intermodal Connections
  - Improved Service
  - Improved Intermodal Connections
  - Improved Transfer Points

- **Traffic Operational Improvements:**
  - Incident Management Improvements
  - Incident Signalization Improvements
  - Improved Interchange Signals

- **Public Transportation Improvements:**
  - Public Transit Capital Improvements
  - Public Transit Operational Improvements

- **Freeway Operations & Management:**
  - Freeway Operations Management
  - Incident Management

- **Strategic Access Management:**
  - Strategic Access Management

- **Strategic General Purpose Lanes:**
  - General Purpose Lanes
  - General Purpose Lanes

Across the country, metropolitan areas of all sizes are struggling with congested roads and a lack of available funding to increase roadway capacity. This is becoming more evident with the continued economic and population growth, even if unlimited funding were available. Hampton Roads could not build enough capacity to fully alleviate congestion. Transportation engineers and planners, here in Hampton Roads and across the country, are now looking for ways to make existing transportation systems operate more efficiently.

Hampton Roads’ CMS is a continuous program that provides strategies for improving transportation efficiencies. As these strategies are included in future Transportation Improvement Plans (TIP) and Long Range Plans, they will be evaluated for effectiveness and widespread application.

The Hampton Roads Metropolitan Planning Organization and the HRPDCC, as stewards of regional transportation funding, will continue to monitor and refine Hampton Roads’ CMS to ensure the region is making the most of available transportation funds and that Hampton Roads’ roadway network operates as efficiently as possible.
If you would like a copy of the detailed report, “CMS: Parts I & II”
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