



THE STATE OF
TRANSPORTATION

What road do we take - literally and figuratively - to help solve our traffic congestion woes?

Are you the resident of Hampton Roads who has not been frustrated by a traffic jam. Like many metropolitan regions, Hampton Roads relies heavily on its highway system for the transportation of individuals and freight. However, its growing population and burgeoning ports are straining that system. Highway congestion in particular has increased significantly in recent years and has generated proposals for new and expanded highways and preliminary consideration of alternative modes of transportation.

However, in contrast to many other regions, the response of Hampton Roads to this situation has been what experts term a "pavement" solution - build more roads. The epitome of this approach to the world is the nation's interstate highway system, which was designed to provide high-speed, efficient automobile transportation to the country. And, it did so, with great success. Nonetheless, as Bob Douglas, Maryland's chief highway design engineer put it, "the interstate era is over." Nearly all experts agree that the solution to the long-term transportation needs of the region cannot rely primarily on "pavement" and must include mass transportation and a variety of rail-oriented solutions, including light rail. Yet, discussions inside Hampton Roads continue to focus on the construction of more and better roads. Further, these discussions bog down when the "T Word" (taxes) is mentioned. Without a significant increase in revenues devoted to transportation, it will be impossible even to build the highways necessary to cope with increased congestion, much less construct mass transportation alternatives.

In addition, there is a "stealth" transportation issue on the horizon, namely, the possible construction of a "superport" airport south of the James River in Isle of Wight County. Such a facility might well require the closing of airports in Newport News and Norfolk, and the economic, locational and distributional impacts of such closings have largely been ignored.

The first step to understanding the transportation challenges facing Hampton Roads is to acquire accurate knowledge concerning where we are currently. Subsequently, this report sketches some of the alternatives available to the region and speculates about the future.

Highway Transportation

Among planning districts in the Commonwealth of Virginia, Hampton Roads has the greatest number of highway miles (see Table 1). Passenger vehicle and heavy-duty truck registrations in Hampton Roads reached 1,006,324 and 100,508, respectively, by 1997, an increase of 8.3 percent and 13.4 percent from 1993. These registrations are projected to increase by 200,000 by the end of 2000 (though only 19.9 percent for automobiles and an amazing 59.7 percent for trucks). Total daily vehicle miles traveled in the region are projected to increase 22 percent by 2018, from 30.2 million in 2000 to 36.9 million. Daily vehicle miles traveled by heavy-duty trucks in 1994 were 2.72 million; by 2018, this mileage is expected to increase 34.6 percent to 3.68 million miles.

Approximately 25 percent of all daily trips in Hampton Roads are work trips, generally occurring during rush hours, therefore contributing to highway congestion and the need for greater highway capacity. Nearly 90 percent of work trips are passenger vehicle trips (as opposed to walking and transit work trips); more than half occur within the boundaries of one jurisdiction; one of every six work trips involves car pooling; and the average vehicle occupancy is 1.1 persons per vehicle.

Already by 1995, more than 300 highway miles in Hampton Roads experienced severe congestion, that is, traffic flow conditions in which travel speeds are low, traffic volumes exceed capacity and drivers experience stop-and-go conditions. **In the absence of new and improved highway, bridge and tunnel connections, travel in key corridors in Hampton Roads will become even more problematic by 2015, with 800 miles of roads qualifying as severely congested.** On the Peninsula, 25 percent of vehicle miles traveled during peak hours will experience severe congestion, compared to 6 percent in 1995. Southside numbers will be even higher at 29 percent, compared with 12 percent in 1995.

**TABLE 1
Highway Miles for the Five Top-ranked Virginia Planning Districts, 1998**

Planning District	Inter-State ^a	Primary ^b	Secondary ^c	Urban ^d	Other ^e	Total
Hampton Roads	129.80	415.33	2,116.10	4,504.46	27,667	7,193.35
Northern Virginia	92.69	413.55	4,071.09	614.65	40.09	5,232.07
West Piedmont	—	464.63	3,788.36	416.98	12.83	4,682.80
Richmond Regional	161.78	570.58	2,998.21	864.34	20.49	4,615.40
Mount Rogers	149.65	553.61	3,340.95	369.03	49.15	4,462.39

Source: Weldon Cooper Center for Public Service, Virginia Statistical Abstract, 1999-2000 Edition, 1999.

^aFour-lane, divided highways, built largely with federal funds, that meet certain construction specifications, such as limited access and no traffic lights.

^bRoads designed to connect major population centers with intercity and intercounty traffic.

^cRoads intended to serve local traffic.

^dHighway mileage belonging to towns within counties.

^eFor example, roads running parallel and connected to an interstate highway.⁹²

Proposed Building Projects

The Hampton Roads Metropolitan Planning Organization (HRMPO) is updating its Regional Transportation Plan (RTP) for 2020. The plan must include projects that meet air quality standards, and must address specific financial strategies to ensure the implementation of projects. Seven major projects have been studied and found to be technically feasible for the 2020 RTP.

Although these projects have been designated as technically feasible by HRMPO, there are no true estimates on when they will be completed. If completed, the Hampton Roads Planning District Commission expects the projects will eliminate 54 percent of the region's severely congested highway miles.

At a projected cost of \$2.4 billion, the Hampton Roads Crossing project ("the third crossing") would provide another bridge-tunnel connection between the Peninsula and the Southside. Possible alternatives include running parallel to the existing Monitor-Merrimac Memorial Bridge Tunnel (MMMBT), connecting I-564 to the

- Proposed Projects
Regional Transportation Plan for 2020**
- Hampton Roads Crossing
 - Peninsula I-64
 - Midtown Tunnel
 - Route 460
 - Southeastern Parkway and Greenbelt
 - Norfolk-Virginia Beach Light Rail
 - CSX Corridor Peninsula Light Rail

existing MMBT, a new highway connection to the proposed Craney Island Marine Terminal and improvements to I-664. The crossing might reduce I-64 Hampton Roads Bridge Tunnel traffic by 26 percent.

The Peninsula I-64 project would provide interchange improvements, high-occupancy vehicle (HOV) lanes, and a fourth lane in each direction on I-64 between Jefferson Avenue and Route 199 at Busch Gardens. According to a study by the DCM Group, the project is expected to cost \$1.3 billion and reduce travel time between Hampton and Richmond by 35 minutes.

The Midtown Tunnel project calls for a second tube to extend the Martin Luther King Freeway to I-264 at a cost of \$650 million, allowing for traffic diversion between the Midtown and Downtown tunnels when one of them is congested.

The Route 460 project would provide a new interstate-type highway facility that runs parallel to the existing Route 460, from Suffolk to I-295 near Petersburg, as well as improvements to Route 58 between Bowers Hill and Suffolk. The project is expected to cost \$1 billion, provide an alternative corridor to that of I-64 between Richmond and Hampton Roads, and reduce travel time along the Route 460 corridor by 18 percent.

The Southeastern Parkway and Greenbelt project would add a new highway between I-264 in Virginia Beach and the Oak Grove Connector in Chesapeake at a cost of \$425 million, reducing traffic volume by 10 percent on I-64 near Greenbrier and by 15 percent on I-264.

The Norfolk-Virginia Beach Light Rail project would provide light (or streetcar) rail transit service along the existing Norfolk Southern railroad right-of-way between the Virginia Beach oceanfront and Norfolk, with a connection to the Norfolk Naval Base, at a cost of \$975 million and projected daily ridership of 25,000 passengers. In separate referenda, Virginia Beach voters opposed light rail, while Chesapeake citizens supported it.

The CSX Corridor Peninsula Light Rail project would provide light rail transit service along the existing CSX railroad right-of-way between Hampton and Williamsburg at a cost of \$600 million and projected daily ridership of 12,000 passengers.

The projected total cost of the seven projects is \$7.4 billion; \$3.2 billion would be borne by the region. The HRMPO is considering the following revenue sources to finance the latter: (1) an average toll of \$1.50 on the Hampton Roads Crossing, the Hampton Roads Bridge Tunnel, the MMBT and the Southeastern Parkway; (2) an average increase of 12 cents per gallon in the regional gas tax; and, (3) a toll of \$1 on the new Route 460. The forecasted 20-year revenues from these sources are \$1.5 billion, \$1.5 billion and \$200 million, respectively.

Congestion Management Systems

Federal regulations require that metropolitan areas with populations over 200,000 have Congestion Management Systems (CMSs) for reducing highway congestion and improving mobility and air quality. The Hampton Roads CMS is promoting these goals through highway expansion, an Intelligent Transportation System (ITS), the TRAFFIX program and the HOV system.

Federal funding sources for ITS programs include the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the 1998 Transportation Equity Act for the 21st Century (TEA-21).

The regional TRAFFIX program offers transportation alternatives such as ridesharing, shuttle parking and van pool leasing programs to area commuters. In 1997, the TRAFFIX program was funded in part by \$1.1 million from the region's Surface Transportation Program. HOV lanes are located on the Southside along I-64, I-264 and I-564 and are under construction on the Peninsula along I-64. The reversible HOV lanes of I-64 on the Southside carry 24 percent and 22 percent of corridor commuters in the morning and afternoon rush hours.

All of the previous efforts will improve automobile transportation in Hampton Roads and are worthy of support. However, taken together, they are "pavement"-oriented solutions that are unlikely to provide long-term solutions for Hampton Roads' transportation

Intelligent Transportation System Programs

- traffic signal systems, computerized systems for timing traffic signals
- variable message signs, computerized signs along highways to promote driver awareness of current conditions
- the smart travel center, a regional traffic management center (operating 24 hours a day) that controls video cameras, embedded highway sensors and message signs to monitor traffic, inform motorists of highway conditions and assist in highway emergencies
- the video vehicle detection system, video devices installed at highly traveled intersections for use in improving traffic flow
- smart tag, an automated toll system on the Coleman Bridge

problems. In fact, the region must find the ways and means to move people out of their cars and off roads, rather than simply build more roads. Highway building often generates an "If you build it, they will come" effect. If we build more highways, or even make them more efficient, more people will choose to drive and use those highways. **All great urban areas ultimately come to rely upon mass transportation when they find that they simply cannot construct enough highway lanes to serve the needs of prospective drivers. It does not yet appear that Hampton Roads has arrived at this point of understanding.**

For-Hire Passenger Transportation

For many years, public transit services on the Southside and the Peninsula were provided by two separate agencies – the Tidewater Transportation District Commission, operating as Tidewater Regional Transit (TRT), and the Peninsula District Transportation Commission, operating as Pentran. On October 1, 1999, the two agencies merged into the Transportation District Commission of Hampton Roads, operating as Hampton Roads Transit (HRT). In the short run, HRT will consist of two operating districts – the Southside District (the former TRT service area) and the Peninsula District (the former Pentran service area).

As Table 2 indicates, from 1995-99, the number of bus and trolley passengers increased 28.6 percent and 119.4 percent, respectively, whereas ferry ridership decreased by 25.3 percent. Ridership of the Peninsula District bus transit service increased by 5.7 percent. In addition to HRT, James City County Transit also provides bus transit service in the region. Its ridership declined 13.2 percent over the same period.

In 1998, HRT, under contract with James City County Transit, began visitor shuttle service during the summer months in the James City County area. In late 1998, Hampton-Norfolk Fast Ferry began ferry service between the downtown areas of Hampton and Norfolk.

HRT's Southside District also provides three paratransit services: elderly/handicap, maxi ride and van pool. For the 1995-99 period, ridership for the three services increased 16.5 percent, decreased .5 percent and increased 6.3 percent, respectively. Ridership for all three services peaked in 1997 (see Table 3). The Peninsula District provides one paratransit service, handi-ride, which caters to the disabled; its ridership increased 10.3 percent during 1995-99. James City County Transit also provides a paratransit service catering to the disabled; its ridership, however, decreased 30.8 percent over the same time period.

TABLE 2
Hampton Roads Transit Passengers

Fiscal Year	HRT-Southside District			HRT-Peninsula District	James City County Transit
	Bus	Trolley	Ferry	Bus	Bus
1995	7,049,380	469,300	485,700	6,169,818	80,955
1996	7,397,385	577,483	428,150	6,286,667	62,568
1997	8,101,368	771,344	431,817	6,267,017	71,470
1998	8,655,204	926,385	425,653	6,432,486	62,568
1999	9,065,062	1,029,662	362,867	6,523,258	70,259

Source: Statistics provided by Hampton Roads Transit and James City County Transit.

ACCESSIBILITY
PROPOSALS

HRT has proposed increasing passenger accessibility to public transportation in Hampton Roads through route deviation, HOV/express bus, intercity commuter shuttle and improved commuter access services. Route deviation service is a hybrid of transit and paratransit services, where vehicles deviate from fixed routes to pick up or deliver passengers and then return to their fixed routes.

New HOV/express bus services are planned between: Virginia Beach/Chesapeake and the Norfolk Naval Station, Virginia Beach and Old Dominion University, and Chesapeake/Newport News Shipyard and Norfolk. Intercity commuter shuttle service is slated to be implemented between Williamsburg and Norfolk. Improved commuter access service increases the frequency of service on certain transit routes during rush hours. With the implementation of new services, HRT will also install new technologies in its transit vehicles: (1) automated vehicle locator systems that use global positioning satellites for detecting vehicle location; (2) a new radio system to provide real-time dispatching; and, (3) a new fare box system that uses smart card technology (where the fare is automatically deducted). The total cost of the HRT proposal is \$21.7 million, \$15.9 million in capital costs (80 percent funded by the federal government with a 20 percent state match) and \$5.7 million in operating costs.

INTERCITY RAIL

The region has access to Amtrak, intercity rail passenger service, in the cities of Newport News, Norfolk, Virginia Beach and Williamsburg. The service is provided over the CSX rail line. For 1995-99, the number of Amtrak passengers (total boardings and alightings) at Newport News increased from 119,710 to 156,281, at Norfolk from 259 to 15,813, at Virginia Beach from 153 to 10,781, and at Williamsburg from 39,576 to 48,324.

Several alternatives for improving intercity rail passenger service in the region have been analyzed. The locally preferred alternative consists of: improving the CSX rail corridor so passenger trains can attain maximum speeds of 110 miles per hour; increasing the number of passenger trains from two to six per day; constructing a second track with upgrades to the existing track; and providing rail stations with feeder bus service and enhanced parking facilities. The estimated cost of the proposal for the Richmond/Hampton Roads corridor (including new rail stations at Richmond International Airport, Providence Forge and Newport News/Williamsburg Airport) is \$245.2 million.

AIRPORTS

Hampton Roads has two commercial airports – Norfolk International Airport (NI) and Newport News/Williamsburg International Airport (NNWI). For 1995-99, the number of scheduled airline passengers (arrivals and departures) at NI increased 11.7 percent, from 2,684,715 to 2,999,420 passengers, and the number at NNWI increased 20.5 percent, from 362,000 to 436,249. By comparison, more than 61 million passengers in 1998 traveled through the top-ranked U.S. airport, Hartsfield Atlanta International Airport. Passenger counts at NI and NNWI for the first quarter of 2000 exceed those for the first quarter of 1999 by .65 percent and 3.22 percent, respectively. Based upon airport master plans through 2015, capital expenditures for the 1998-2020 period for NI and NNWI are projected to reach \$429 million and \$240 million, respectively. The majority of the expenditures will be spent on runways, taxiways, off-airport roadways, terminal buildings and terminal parking.

TABLE 3
Hampton Roads Paratransit Passengers*

Fiscal Year	HRT-Southside District			HRT-Peninsula District	James City County
	Elderly/Handicap	Maxi Ride	Van Pool	Handi-Ride	Transit ADA**
1995	167,367	84,480	109,200	77,184	7,087
1996	172,664	77,648	77,070	84,254	6,162
1997	221,307	90,052	199,711	77,338	6,462
1998	205,939	88,305	89,586	77,230	5,652
1999	194,990	84,099	116,046	85,162	4,902

Source: Statistics provided by Hampton Roads Transit and James City County Transit.
*Passenger statistics for taxi (a paratransit) service for the region are unavailable.
**Americans with Disabilities Act.

The major long-term uncertainty on the airport horizon is the possibility that a new “superport” airport might be constructed south of the James River, perhaps in Isle of Wight County. Thus far, planning by the Commonwealth of Virginia has assumed that both the NNWI and NI airports would shut down if a superport were constructed. **While all residents of Hampton Roads would like to have access to more direct flights to major U.S. and foreign cities, the economic impact of closing down both the NNWI and NI airports would be large, perhaps devastating, on the communities they currently serve.** For example, it is not clear whether firms would be anxious to move to or expand in cities such as Newport News, Norfolk and Virginia Beach if they were located 70 miles and more than an hour away from the nearest significant airport. This is an issue that largely has slipped under the proverbial radar screens of Hampton Roads citizens.

Freight Transportation

Freight transportation in Hampton Roads consists of: (1) foreign water-borne freight movements, freight leaving the region and the U.S. by water for a foreign country (exports) and freight arriving in the region and the U.S. by water from a foreign country (imports); (2) interregional freight movements (between Hampton Roads and other U.S. regions); and, (3) intraregional freight movements (within Hampton Roads).

The Port of Hampton Roads consists of general-cargo, dry-bulk and liquid-bulk marine terminals with 30 piers. The three largest general-cargo marine terminals, Norfolk International Terminal, Portsmouth Marine Terminal and Newport News Marine Terminal, are owned by the Commonwealth of Virginia, managed by the Virginia Port Authority (VPA) and operated by Virginia International Terminals (VIT). Among U.S. East Coast ports, the Port of Hampton Roads is ranked second in general-cargo throughput to the Port of New York/New Jersey and slightly ahead of third-ranked Port of Charleston. It has 30 miles of on-dock rail trackage, serviced by Norfolk Southern and CSX railroads, and is located just 18 miles from the open sea with a 50-foot-deep channel, one of the deepest on the East Coast.

The foreign water-borne freight throughput of the port for 1994-98 increased 10.5 percent, from 50.4 to 55.7 million short tons. The greatest increase occurred in general-cargo throughput, an increase of 40.3 percent at VPA marine terminals, from 8 to 11.2 million short tons. **Containerized general-cargo throughput is projected to increase by more than 200 percent by 2010.** In 1998, coal was the top-ranked export, accounting for 82.2 percent of total export tonnage, whereas petroleum products were the top-ranked import, accounting for 27.8 percent of total import tonnage.

Four construction projects have been identified by the Hampton Roads Maritime Association for accommodating the projected growth in port throughput and maintaining the port’s competitive advantage: (1) a 50-foot inbound segment of the authorized 55-foot channel project; (2) the Craney Island Marine Terminal, a fourth VPA general cargo/container terminal; (3) a third bridge-tunnel crossing connecting with the Craney Island Marine Terminal; and, (4) a new intermodal interlining area, a four-square mile area linking Norfolk International Terminal, I-64, airport operations at Naval Station Norfolk and Norfolk Southern rail service. The 2000 Virginia General Assembly addressed these projects in part by allocating \$17.7 million for dredging and \$2.35 million for a Craney Island study. VPA also plans to spend \$419 million over the 2000-20 period for maintenance and improvements in its existing terminals.

Hampton Roads interregional freight movements are provided by rail, truck, water (primarily barge) and air transportation. Truck transportation is the predominant transportation mode for these movements, except for coal. Specifically, when coal is excluded, truck transportation accounts for 68 and 63 percent of inbound and outbound freight (in short tons) in the region, and rail transportation accounts for 24 and 19 percent. Water transportation accounts for 8 and 19 percent, and air transportation accounts for a mere .006 and .016 percent of inbound and outbound freight.

The major threat to interregional truck freight movements is trucker access to the Port of Hampton Roads. In the absence of new and improved highway, bridge and tunnel connections to better link Hampton Roads with other regions, Hampton Roads will become less and less time-accessible (thanks to increasing trip travel times) to container-truck traffic. If so, the loss in interregional container-truck traffic to other regions will have a dampening effect on the Port of Hampton Roads in particular, and the local economy in general.

The Future

Unless dramatic changes occur, Hampton Roads will experience future traffic problems that will dwarf anything seen thus far. Significant future growth in passenger-vehicle and heavy-duty truck traffic will occur. By 2020, the region will have 400 miles of severely congested highways even if the planned HRMPO (highway, bridge, tunnel and light rail) projects are completed. However, that is the “good news” scenario because the availability of funding for all of the HRMPO projects is unlikely. Further, the implementation of the proposed new HRT services is unlikely to significantly reduce this congestion. One problem is that heavy-duty truck traffic is projected to grow at a much greater rate than passenger-vehicle traffic. Hence, among planned HRMPO projects, priority should be given to construction of the Hampton Roads Crossing and Route 460 projects, the former to reduce highway congestion attributed to truck traffic and the latter to provide an alternative truck gateway to the I-64 Newport News gateway, which now accounts for almost half of the region’s interregional truck traffic.

Knowledgeable observers believe that Hampton Roads’ transportation future is clouded by two factors. First, political leaders typically have been reluctant to consider transportation projects that might require tax increases. Second, the citizenry of Hampton Roads has evidenced a disdain for mass transportation, including light rail, that is shortsighted if one is charitable, and almost suicidal for the region if one is pessimistic. **It appears that transportation inside the region will have to become truly dysfunctional, and involve massive congestion and delays, before citizens will give serious consideration to mass transit alternatives. It appears that this will occur in the 2010 to 2020 time frame. The cost of dealing with such a situation will be immense.**

Finally, there is the matter of the region’s land transportation connections to the outside world. It has been said that Hampton Roads is located at the end of the longest cul-de-sac in the world. While this is no doubt an exaggeration, this acerbic observation underlines the salient fact that the region is off the beaten track in terms of major road and rail transportation systems. The region has mediocre road connections directly to the west and especially to the south, and there is the distinct possibility that a new East Coast high-speed rail system might travel down the I-95 corridor and leave Hampton Roads out in the cold. It appears that the most powerful card the region has to play in order to alter this outcome is the significant role of the military services in the region. For example, it does not make good sense to isolate the largest navy base in the world. Without such pressure being brought to bear, however, it seems likely that Hampton Roads would not be included in any East Coast rapid-transit scheme.

All things considered, the transportation outlook for Hampton Roads is not favorable. An honest assessment of the situation reveals that the region appears to be walking slowly and somewhat unknowledgeably down a lengthy path that, despite much road construction, will result in tremendous additional road congestion, mediocre mass transportation, the absence of a rapid transit connection to the I-95 corridor and the rest of the East Coast, and potential reliance upon a questionable “superport” airport located outside the region’s boundaries. Alas, because transportation is so important, the end result likely will be comparative economic stagnation, lower than necessary inflation-adjusted incomes and a reduced quality of life.

