

# Traffic Congestion in Hampton Roads: Myths And Realities



# TRAFFIC CONGESTION IN HAMPTON ROADS: MYTHS AND REALITIES

*Death and taxes may be inevitable, but what about traffic congestion?*  
– Anonymous

**W**hen we stir each weekday morning, many of us rely upon our televisions, radios and smartphones to tell us about traffic conditions. These reports can be rather repetitious because they usually announce things that are utterly predictable – for example, that the Hampton Roads Bridge-Tunnel (HRBT) is backed up in both directions. Nor can we really be surprised when we learn once again that there is significant traffic congestion near the I-64 exit for Camp Peary, or that the Midtown Tunnel is experiencing backups extending halfway up the West Norfolk Bridge. Further, almost ritually we are advised to avoid miscellaneous accidents that may be causing problems on I-264 in Virginia Beach, on the High Rise Bridge in Chesapeake or (perish the thought) either inside or near the Midtown and Downtown tunnels.

There are times when our freeways and arterial streets function more like parking lots than free-flowing motorways. In truth, however, traffic problems always have existed in Hampton Roads. Much of this is a function of our geography. Our most abundant natural resource – water – divides and segments our region. The far-reaching tentacles of the Elizabeth, James and York rivers, as well as indentations such as the Lynnhaven River, channel traffic into a series of choke points that result in traffic congestion and longer commuting times.

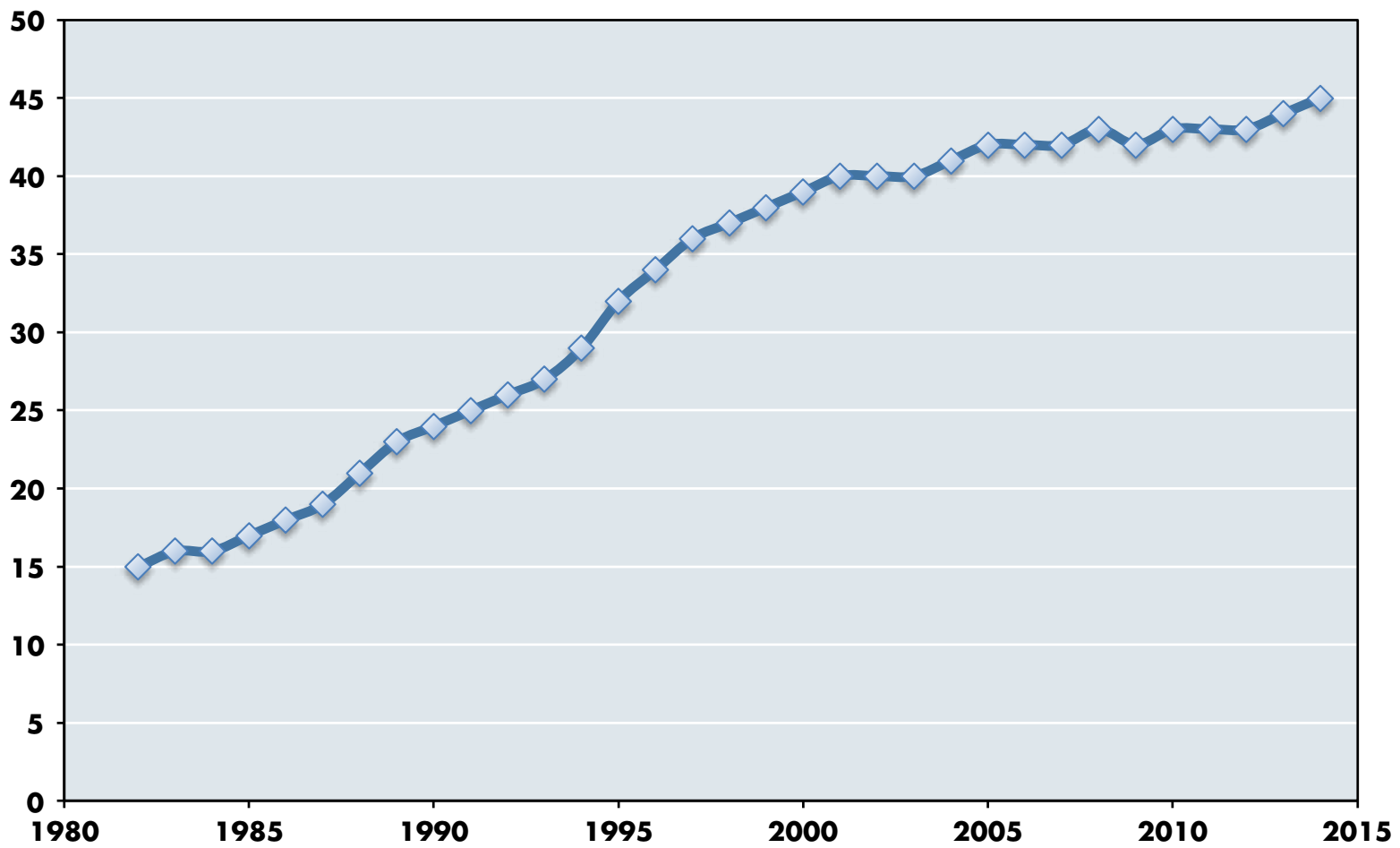
The amount of time we spend in traffic mimics other urbanized areas of the United States. Graph 1 reveals that Hampton Roads drivers have been spending an increasing amount of time stuck in traffic. There has been a steady increase from 15 commuting hours of delay annually per commuter in the early 1980s to 45 hours of delay in recent years.

In Hampton Roads, as elsewhere, traffic congestion and delays are tied to population size and economic growth. Whatever base one starts from, population growth and economic expansion (such as in the 1990s) nearly always strain existing road capacity and result in congestion. Conversely,

slower rates of population growth and economic expansion (such as those connected to the Great Recession of 2008) put a damper on an increase in congestion.

**This highlights our first traffic congestion conundrum. Obviously, we don't like traffic congestion and the costs and delays attached to it. However, when congestion occurs, it usually is a sign of a growing population and an expanding economy. If we desire a growing economy that is generating additional jobs, then some traffic congestion is almost an inevitable consequence.**

**GRAPH 1**  
**ANNUAL HOURS OF DELAY PER COMMUTER IN HAMPTON ROADS**



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

# Traffic Patterns In Hampton Roads

We can't say much about congestion without looking at existing traffic patterns. Hampton Roads is an economically interdependent region and almost 65 percent of all jobholders cross city or county lines when they go to work. In addition, virtually every citizen travels from one jurisdiction to another for social and entertainment purposes, to patronize restaurants, to attend church, etc. Often, this requires them to cross one of our several waterways and means that they must travel through one of our transportation choke points. Conjure in your mind pictures of the Hampton Roads Bridge-Tunnel, the Midtown and Downtown tunnels, the Lesner Bridge, the High Rise Bridge, and the bridges across the James and York rivers as you consider the reality of these traffic choke points.

Table 1 provides data disclosing where people live and work within the seven largest cities in Hampton Roads. The main diagonal of the table displays the number of residents that live and work in the same city, while the off-diagonal numbers indicate the number of people who commute across city lines. For example, looking down the column labeled Newport News, we can see that 8,775 individuals who live in Newport News commute to Hampton to work, while 29,006 stay in Newport News to work.

Looking left to right across the columns, and looking this time at Virginia Beach, we can see that it receives 18,624 workers from Chesapeake and 16,353 from Norfolk. We also can verify in Table 1 that more residents of Virginia Beach work in Norfolk (33,263) than Norfolians (31,121). The fundamental lesson of Table 1 is straightforward. More than 60 percent of those who hold jobs in Hampton Roads commute to another city or county for their employment.

Table 1 tells us that very large numbers of people are on the move across city lines when they go to work. Over the last decade, their average commuting times have been slowly increasing. Graph 2 shows that the average commuting time in the region increased by .7 minutes between 2005 and 2014. While an extra minute in your vehicle each day might only sound like

a minor inconvenience, the time adds up in a hurry when we consider that approximately 800,000 people in our region travel to work each day.

Of course, commuting times vary considerably and some workers undertake much longer commutes than others. Graph 3 shows the distribution of average work commuting times in Hampton Roads. In 2014, over 33 percent of drivers experienced a commute that is half an hour or longer, while 5.1 percent had commutes of an hour or longer.

Further, those associated with the military in our region typically undertake longer commutes on average than other drivers. The Hampton Roads Transportation Planning Organization (HRTPO) conducted a survey of military service members in 2012.<sup>1</sup> The HRTPO found that it took military personnel an average of 37.9 minutes to commute to their posting – approximately 12 minutes longer than civilians not employed by the Department of Defense.<sup>2</sup>

Does traffic congestion deter people from traveling to other cities to do business? Yes, it appears so. The Social Science Research Center at Old Dominion University asked a sample of the citizenry questions about driving in our region. In 2015, 46.2 percent of respondents indicated that they had been discouraged from patronizing a business in another city because of traffic congestion concerns.

1 <http://hrtpo.org/uploads/docs/T12-11%20Military%20Commuter%20Survey%202012%20FINAL%20Report.pdf>.

2 The survey also revealed that military personnel perceived traffic congestion problems to be one of the least attractive characteristics associated with being stationed in Hampton Roads.

**TABLE 1**

**WHERE PEOPLE LIVE AND WHERE THEY WORK: HAMPTON ROADS, 2014**

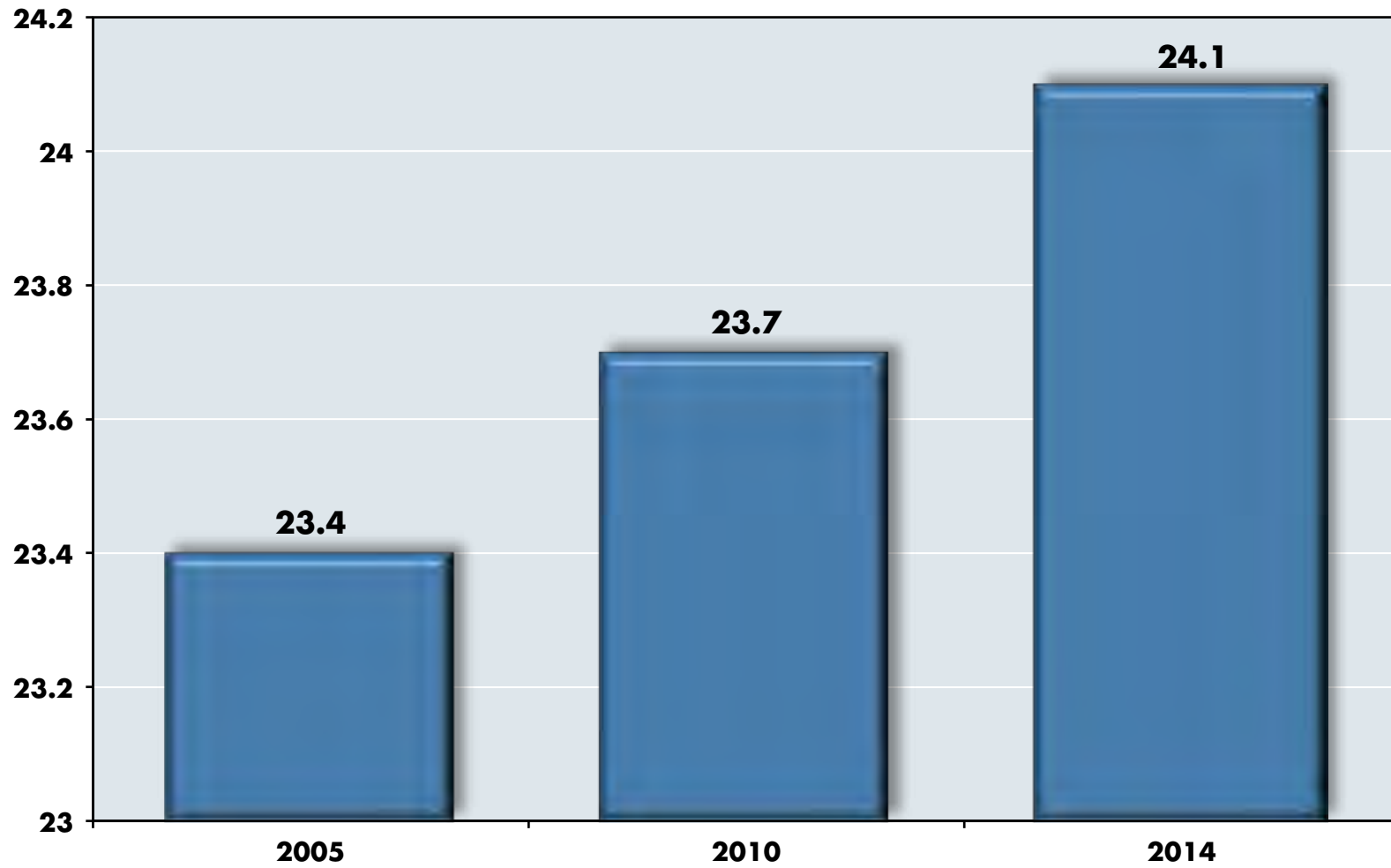
		Where People Live							
		Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach	Working in Area
Job Location	Chesapeake	28,522	2,071	2,129	9,451	6,485	4,448	21,345	91,624
	Hampton	2,385	14,903	8,775	2,436	1,230	1,366	3,222	48,737
	Newport News	3,483	14,775	29,006	2,790	2,480	3,169	4,086	92,437
	Norfolk	17,714	4,178	3,525	31,121	6,201	4,412	33,263	120,870
	Portsmouth	5,636	893	975	3,331	7,739	2,475	4,193	30,035
	Suffolk	2,797	607	868	988	1,910	8,015	1,900	24,087
	Virginia Beach	18,624	2,540	2,653	16,353	4,877	3,629	85,653	158,139
	<b>Living in Area</b>	<b>91,355</b>	<b>51,436</b>	<b>68,999</b>	<b>78,524</b>	<b>36,525</b>	<b>34,086</b>	<b>178,778</b>	

Source: U.S. Census Bureau, 2015, Longitudinal-Employer Household Dynamics Program, <http://onthemap.ces.census.gov>



**GRAPH 2**

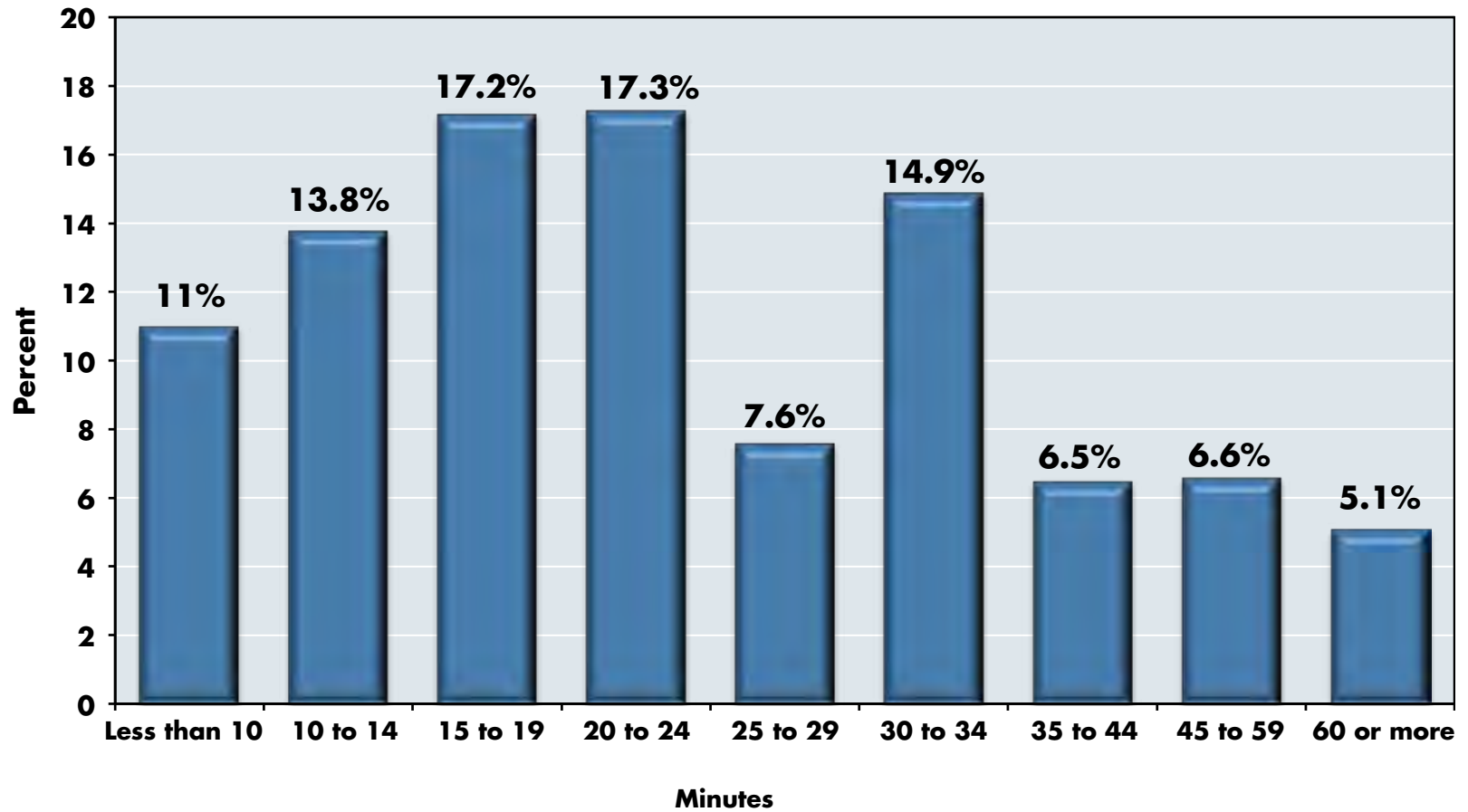
**AVERAGE MINUTES OF DAILY COMMUTING TIME: HAMPTON ROADS, 2005-2014**



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

**GRAPH 3**

**LENGTH OF COMMUTES OF WORKERS IN HAMPTON ROADS, 2014 (AVERAGE DAILY MINUTES)**



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

Basic economic analysis suggests that some commuters, when faced with traffic congestion, will seek alternative means to get to work. That is, they will switch to mass transportation, choose to ride The Tide, begin to telecommute, etc. Interestingly, this does not appear to be happening on a large scale in our region – which in turn suggests that automobile traffic congestion perhaps is not quite as bad as some allege and also that our public transportation system is not well developed. Graph 5 compares the use of various traffic modes by commuters in Hampton Roads over the last decade. The vast majority of commuters (over 82 percent) still drive by themselves to and from work. This “one car, one person” percentage is higher than the national average – which hovers around 75 percent. Between 2011 and 2015 in our region, there were slight increases in alternative transit methods such as biking, walking and public transit, and a rise in telecommuting or working from home. Further, we have also seen a drop in the amount of carpooling in the region by more than 2.5 percent.

**Graphs 3 through 5 highlight a second traffic congestion conundrum for Hampton Roads. Despite numerous complaints about traffic congestion, measured congestion has not increased dramatically in recent years and it has not caused very many commuters to change their behavior (despite some reports to the contrary).**

What about “all those trucks” (the comment of a Norfolk resident)? Those who ply the streets and highways of Hampton Roads know that freight traffic to and from the various sites of the Port of Virginia can be an important contributor to traffic congestion during certain times of the day. Area residents are wont to complain about the volume of truck traffic and its consequences.<sup>3</sup> Nevertheless, the HRTPO reported in its State of Transportation in 2015 that the number of trucks passing through the region actually peaked almost 10 years ago in 2007 when more than 20,000 trucks passed through our region each weekday.<sup>4</sup> The Great Recession put a crimp in this traffic and it has yet to return to the pre-recession level. Even so, in 2014, the Hampton Roads Bridge-Tunnel still handled an average of 6,000 trucks during each workday. The proportion of cargo handled at the Port of Virginia via rail has increased in

recent years, but it remains true that more than 60 percent of all of the cargo it handles comes and goes via trucks.

**This is our third traffic conundrum. Perceptions to the contrary, truck traffic today is not as heavy as it was a decade previous. The HRTPO reported that in 2014, truck traffic in Hampton Roads was about 15 percent below what it was in 2007.<sup>5</sup>**

<sup>3</sup> <http://interactives.wavy.com/photomojo/gallery/14205>.

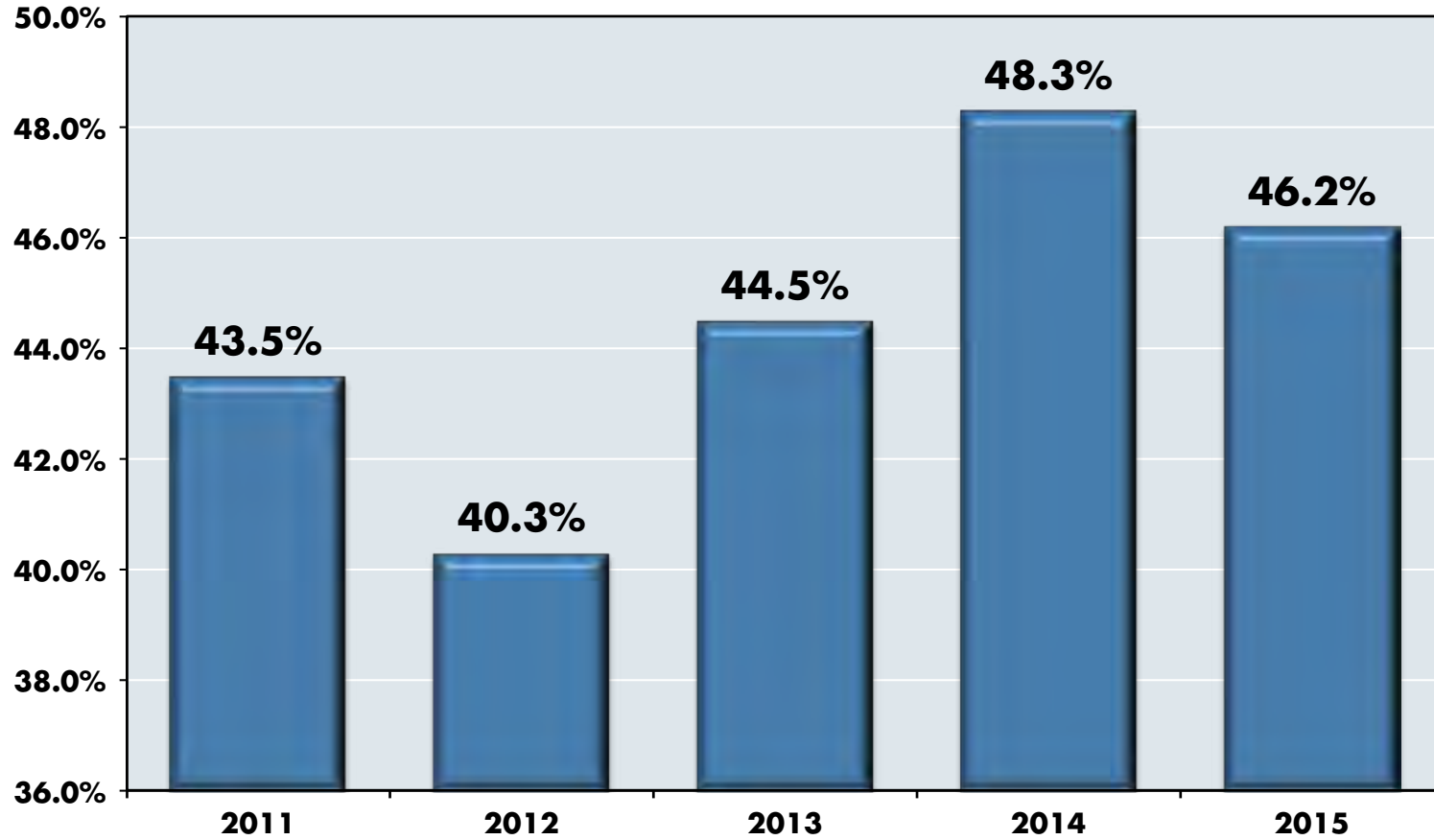
<sup>4</sup> <http://hrtpo.org/uploads/docs/State%20of%20Transportation%202015%20Final%20Report.pdf>.

<sup>5</sup> Ibid.



**GRAPH 4**

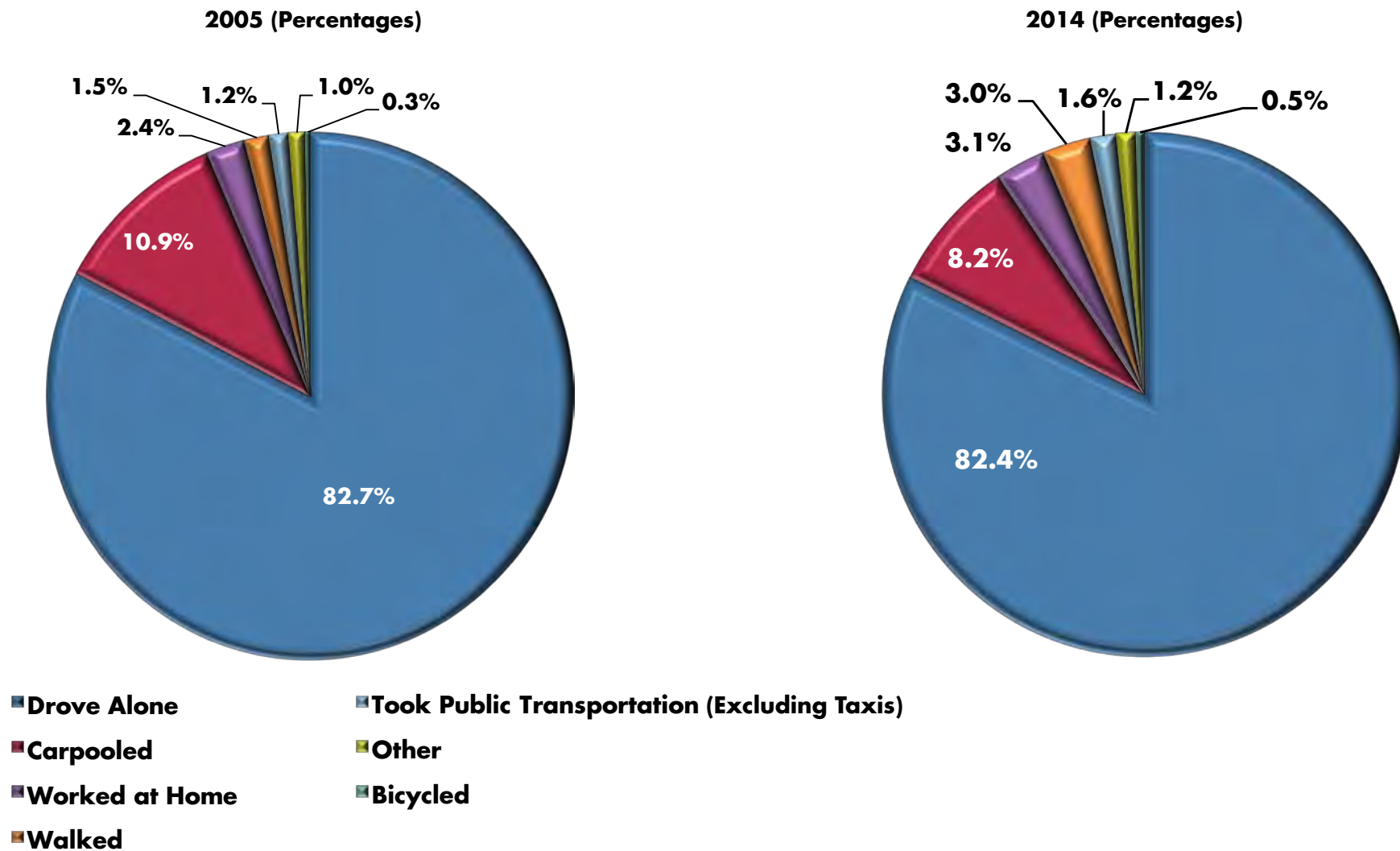
**PERCENTAGE OF INDIVIDUALS WHO SAID THEY AVOIDED VISITING OTHER CITIES IN HAMPTON ROADS BECAUSE OF TRAFFIC CONGESTION, 2011-2015**



Source: Social Science Research Center, Old Dominion University

GRAPH 5

HOW COMMUTERS IN HAMPTON ROADS TRAVELED TO WORK, 2005 AND 2014



Source: Social Science Research Center, Old Dominion University

# How Do We Compare To Other Regions?

Perhaps the grass isn't actually greener on the other side of the fence insofar as traffic congestion is concerned. Even though average commuter travel time in Hampton Roads has been slowly creeping up over the last decade, Table 2 reveals that the average travel time in our region is second to the lowest among eight reasonably comparable metropolitan regions along the East Coast. Only Savannah, which is about one-fifth the size of Hampton Roads, has a lower average commuting time. Indeed, Hampton Roads has held this "almost the lowest" status consistently throughout the 2000s. The bottom line is that our average commuting time has been increasing, but not as fast as in other cities/metropolitan areas.

Notably, Charlotte's regional workforce expanded by 43.1 percent between 2005 and 2014, but the average commuting time in that region increased by only 3.11 percent – barely more than Hampton Roads, where our workforce expanded by a much more modest 9.6 percent. What should we make of this? Light rail supporters point to Charlotte's Lynx light rail system, which opened in 2007 and is now undergoing expansion. Daily ridership was 15,800 in 2014 (as compared to a reported 5,800 daily trips on The Tide in the same year).<sup>6</sup> While the Lynx no doubt was helpful, it cannot account for Charlotte's rather remarkable performance in handling traffic. Charlotte does not have to contend with the traffic choke points we endure in Hampton Roads and it also has benefited from some strategic road building.

The Texas Transportation Institute (TTI) at Texas A&M annually publishes an Urban Mobility Scorecard that provides several useful metrics for comparing congestion. The TTI's Travel Time Index compares each region's peak commuting travel period to free-flow conditions. Essentially, this index shows how much extra time one should anticipate if one wants to take a typical trip (commuting or otherwise) during peak congestion time periods. Graph 6 shows the Travel Time Index for 31 large U.S. cities with populations between 1 million and 3 million. Hampton Roads, with a Travel Time Index of 1.19, has

only the 18th-highest index on this list of comparably sized regions. This means that on average travelers should expect a typical trip across town that would take 30 minutes in free-flow conditions to require  $30 * 1.19 = 35.7$  minutes during peak congestion periods. This does not represent the beginning of a transportation dark age.

The TTI's Travel Time Index in Graph 6 covers trips on all types of metropolitan area roads (arterial and freeway). However, many commuters have no choice but to utilize freeways when they travel to and from work. In Hampton Roads, this necessarily means utilizing I-64, I-264, Route 164, I-564 and I-664. This makes a significant difference. Graph 7 reports the TTI's Freeway Travel Time Index, which quantifies the time reliability of each region's freeway system. This index measures how much time a traveler should plan on adding to a peak congestion trip in order to be on time 95 percent of the time. The 2.52 index measure for Hampton Roads implies that if a trip would take 30 minutes in light traffic, drivers should allocate 75 minutes for the same trip during periods of peak congestion. By this metric, Hampton Roads fares worse – it has the 11th-highest index among the 31 comparable metropolitan regions.

INRIX, a private-sector firm that analyzes the nation's transportation infrastructure, ranks congestion on individual freeway segments in metropolitan areas around the United States. INRIX ranks the Hampton Roads Bridge-Tunnel connecting Southside to the Peninsula as the 170th-worst traffic corridor in the country. If one excludes New York City, Los Angeles and Chicago, then the HRBT jumps to 95th. By this measure, it is the worst travel choke point in our regional freeway system and perhaps the worst choke point of any kind in Hampton Roads. Even so, it only barely edges into the top 100.

<sup>6</sup> [https://en.wikipedia.org/wiki/List\\_of\\_United\\_States\\_light\\_rail\\_systems\\_by\\_ridership](https://en.wikipedia.org/wiki/List_of_United_States_light_rail_systems_by_ridership).

TABLE 2

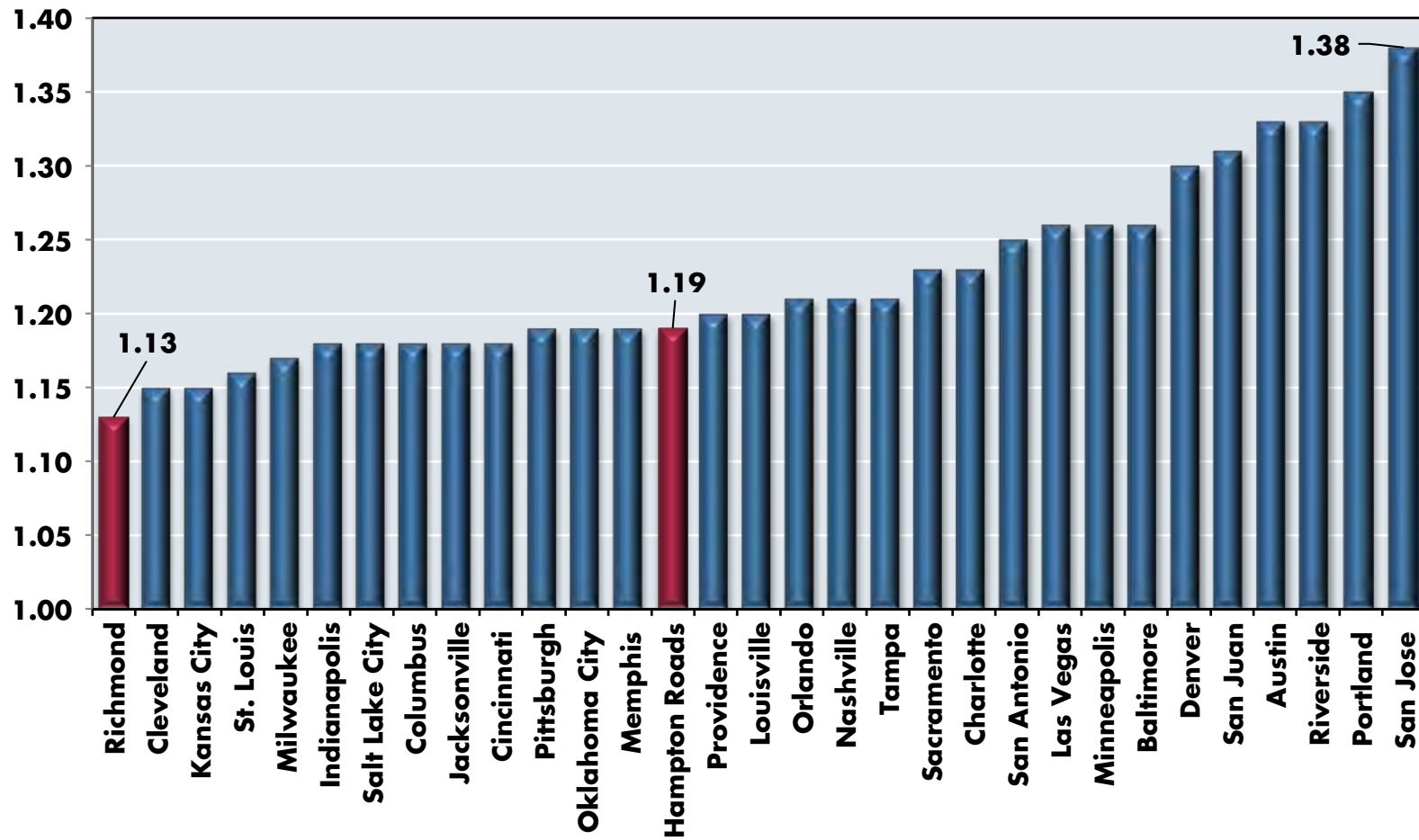
## NUMBER OF WORKERS AND TRAVEL TIMES IN SELECTED EAST COAST CITIES

MSA	Number of Workers 2005	Mean Travel Time to Work (Minutes) 2005	Number of Workers 2014	Mean Travel Time to Work (Minutes) 2014	% Change in Workers (2005-2014)	% Change in Mean Travel Time (2005-2014)
<b>Baltimore, MD</b>	<b>1,256,076</b>	<b>29</b>	<b>1,370,828</b>	<b>30.3</b>	<b>8.7%</b>	<b>4.39%</b>
<b>Charlotte, NC</b>	<b>729,042</b>	<b>25.3</b>	<b>1,121,688</b>	<b>26.1</b>	<b>43.1%</b>	<b>3.11%</b>
<b>Hampton Roads</b>	<b>763,184</b>	<b>23.4</b>	<b>839,837</b>	<b>24.1</b>	<b>9.6%</b>	<b>2.95%</b>
<b>Jacksonville, FL</b>	<b>574,334</b>	<b>25.5</b>	<b>640,484</b>	<b>26.1</b>	<b>10.9%</b>	<b>2.33%</b>
<b>Raleigh, NC</b>	<b>473,446</b>	<b>25</b>	<b>620,561</b>	<b>25.2</b>	<b>27.1%</b>	<b>0.80%</b>
<b>Richmond, VA</b>	<b>563,297</b>	<b>24.4</b>	<b>619,172</b>	<b>24.8</b>	<b>9.5%</b>	<b>1.63%</b>
<b>Savannah, GA</b>	<b>139,948</b>	<b>24.2</b>	<b>169,222</b>	<b>23.9</b>	<b>19.0%</b>	<b>-1.25%</b>
<b>Washington, DC</b>	<b>2,646,427</b>	<b>33.4</b>	<b>3,152,741</b>	<b>34.5</b>	<b>17.5%</b>	<b>3.24%</b>

Source: American Community Survey, [www.census.gov/programs-surveys/acs](http://www.census.gov/programs-surveys/acs)

GRAPH 6

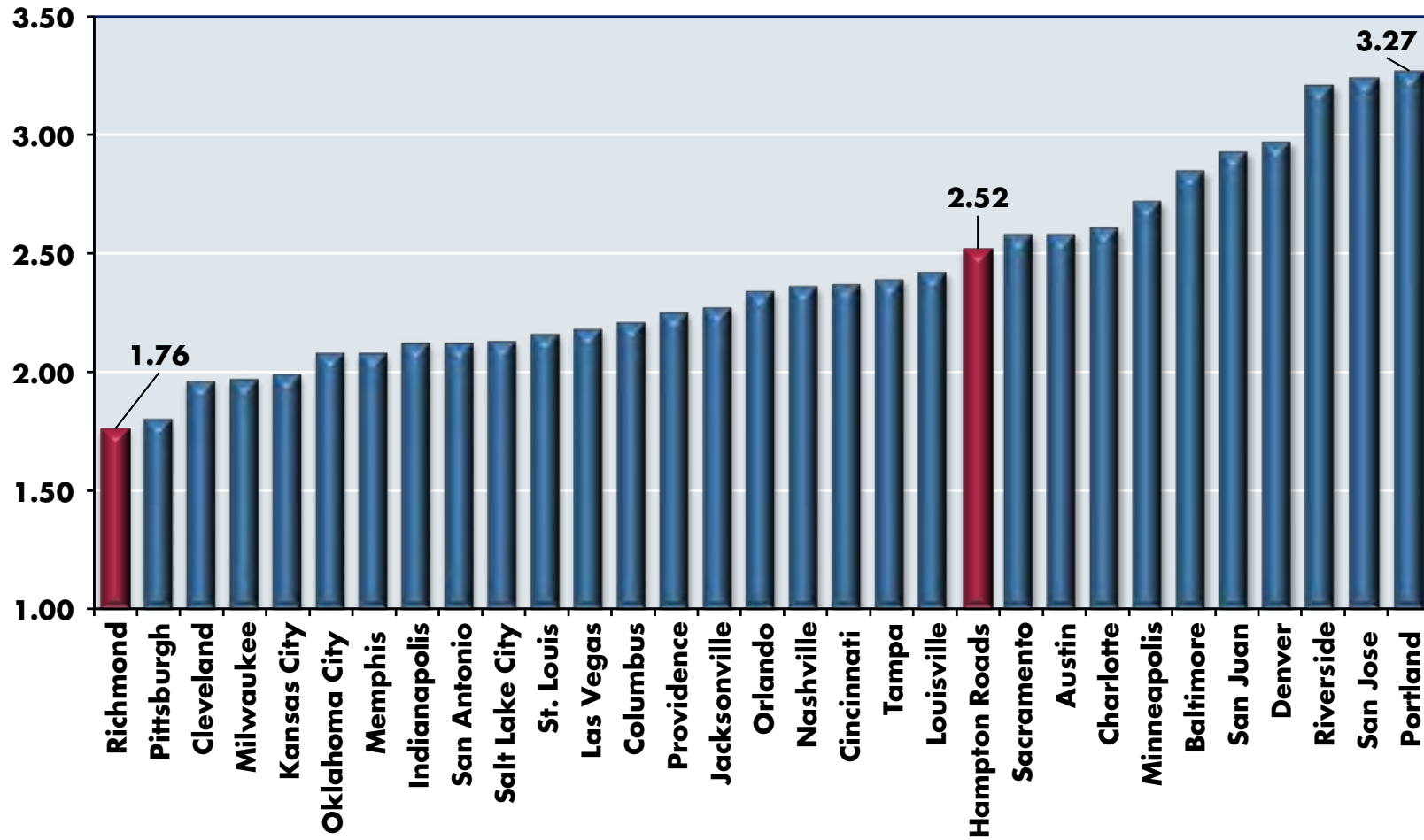
THE TTI'S TRAVEL TIME INDEX: SELECTED METROPOLITAN REGIONS, 2014



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

GRAPH 7

THE TTI'S FREEWAY TRAVEL TIME INDEX: SELECTED METROPOLITAN REGIONS, 2014



Source: Urban Mobility Scorecard 2015, Texas A&M Transportation Institute

# What Costs Does Congestion Impose On Us?

It can be difficult to quantify the full costs of extra vehicles on a city's roadways and any increased traffic congestion that results. Some costs can be rather easily identified. For example, we can compute the cost of the gasoline that is burned when drivers sit in traffic jams. Similarly, these traffic jams also often waste the time of those sitting in the ensnared automobiles and, as the old adage advises, time is money.<sup>7</sup> We can approximate this cost by multiplying the hours lost in congestion times the wage rates of those being delayed.

Other congestion costs resist easy calculation. These include the costs of higher vehicle emissions that result when automobiles sit in traffic. These are "negative externalities," or spillovers, and adversely affect all citizens, whether or not they drive. Health ailments such as asthma, which is exacerbated by automobile-generated pollution, are obvious spillovers, as are corroded metals, deteriorating paint on houses, etc. These phenomena are not so easily measured. However, one reputable economic study estimated these pollution costs to be about \$.015 per mile traveled per vehicle in 2000.<sup>8</sup> At first glance, this may not seem to be an impressively large number, but the cost mounts up rapidly when one considers the number of vehicles being driven and average mileage. In Hampton Roads, for example, suppose 400,000 vehicles each day travel 10 miles round-trip as individuals drive to and from their places of work. This translates to 4,000,000 daily miles, which at \$.015, results in a daily pollution cost of \$60,000. If there are 200 commuting days in a year, then the total annual cost is \$12 million. This does not take into account non-commuting miles driven and further does not take into account truck air pollution costs, which considerably exceed \$.015 per mile. One can jiggle with the figures by adjusting the number of vehicles and length of trips, but the total cost remains large in any realistic scenario.

<sup>7</sup> Smartphones and iPads may have reduced these losses, however.

<sup>8</sup> See *Transportation Cost and Benefit Analysis II – Air Pollution Costs* (Victoria Transport Policy Institute, 2011), [www.vtpi.org/tca](http://www.vtpi.org/tca) for a survey of this and other studies.

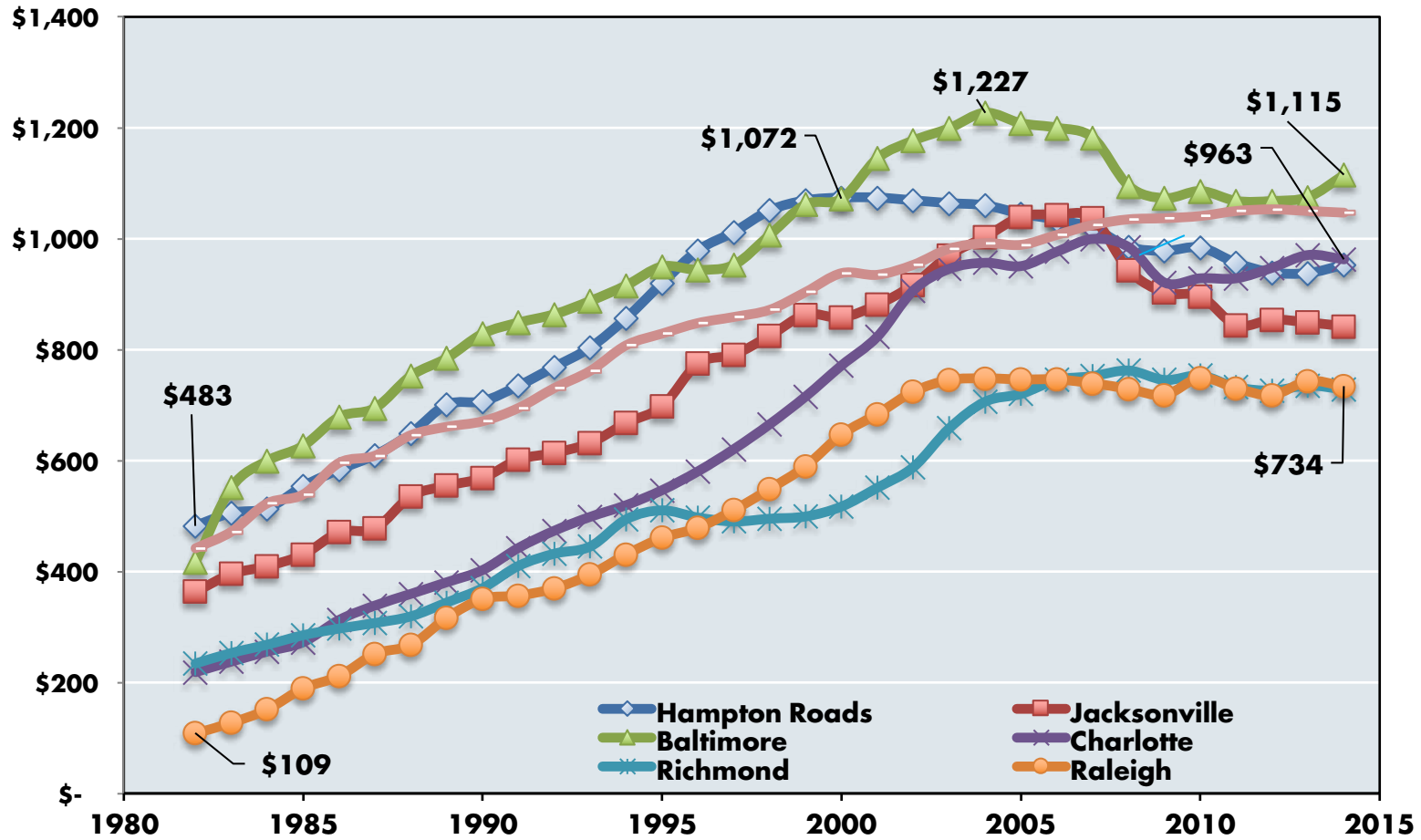
## LOST TIME AND FUEL

We recognize the existence of spillover costs, but don't have the ability to measure them precisely for Hampton Roads. Instead, we'll focus on the monetary costs of the time and fuel that accrue from traffic congestion in Hampton Roads and comparable East Coast cities. The Texas A&M Traffic Institute calculates these costs by estimating the travel time delays incurred by people and trucks and then relates those delays to additional fuel consumption. Graph 8 displays the estimated lost time and fuel costs incurred per commuter in Hampton Roads and six other metropolitan regions between 1982 and 2014. One can see that these costs grew steadily over the 1980s and 1990s in all of the regions and peaked in the 2005-2007 time period.

The lost time of drivers and wasted fuel costs due to traffic congestion peaked in Hampton Roads at \$1,072 per commuter in the late 1990s. Since then, this annual cost has fallen gradually. Why? More fuel-efficient automobiles, fewer miles driven and the Great Recession. The recent decline in gasoline prices likely will continue this trend.

GRAPH 8

ANNUAL CONGESTION COSTS PER AUTO COMMUTER, 1982-2014



Source: Texas A&M Transportation Institute



## INFRASTRUCTURE BENEFITS AND COSTS

Any competent examination of the costs of driving must take into account infrastructure costs – the expense associated with building and maintaining roads. This, too, is a complicated subject because of the tortuous manner in which road construction and maintenance are funded and related costs recorded. One example will suffice: What proportion of the cost of a typical Virginia Beach police officer should be allocated to transportation in general and roads and highways in particular? We will not leap into this statistical chasm here, but instead will briefly look at some of the costs associated with building new transportation infrastructure in Hampton Roads.

Infrastructure improvements are often touted as a means to reduce traffic congestion and offset the monetary costs that commuters face. The Hampton Roads Transportation Planning Organization (HRTPO) is the organization legally tasked with analyzing regional transportation infrastructure projects. The HRTPO scores and prioritizes projects based on three criteria: 1) project effectiveness, which relates to reducing congestion, safety and system connectivity; 2) potential economic gains to the region; and 3) project readiness.

Few argue about these criteria. Instead, it is the weights attached to each of these criteria that separate the wheat from the chaff. Shuffling the weights attached to each criterion easily can alter the ranking of competing projects. Surprisingly, there has been relatively little pointed discussion about the weights the HRTPO utilizes to rank projects in our region, even though the weights have huge importance. Even elected officials relatively familiar with virtually every proposed transportation project appear to regard the weights the HRTPO adopts as an arcane, specialized topic about which they will not argue.

Unfortunately, the pervasive presence of water courses in our region causes our most significant transportation solutions to be more expensive per mile than projects in other comparable regions (namely, Charlotte). The proposed Patriots Crossing, or “Third Crossing,” would connect Norfolk to I-664 and the Monitor-Merrimac Memorial Bridge-Tunnel. This project has been on the region’s radar screen for some time and it scores high on the list of proposed projects HRTPO has been analyzing. It was included as one of the

proposed major improvement projects to be advanced under the regional transportation funding referendum vote in 1999. It would provide relief for the often-congested HRBT and perhaps Hampton Boulevard in Norfolk as well. The estimated cost of this project was \$3.1 billion to \$4.2 billion already in 2013. Widening the HRBT, a less favorably ranked alternative, would cost an estimated \$8 billion. The HRTPO also provides an outline of the future transportation spending needs of the region in its 2040 Long Range Transportation Plan. In it, the organization highlights \$12.8 billion in potential spending on a long list of projects.

The means to pay for these projects unfortunately is rather cloudy. In 2013, the Virginia General Assembly overhauled funding for transportation infrastructure projects. It created a Hampton Roads Transportation Fund, based substantially on new sales tax-based revenue, to fund regional transit projects. The new taxes generate in excess of \$200 million annually, though the tendency of drivers to reduce their driving mileage and falling gasoline prices have disrupted forecasts. In any case, this tax revenue is dispersed at the discretion of the Hampton Roads Transportation Accountability Commission.

Only brief analysis is required for one to ascertain that the Hampton Roads Transportation Fund by itself will not generate funds sufficient to pay for the projects that have been described as essential by the HRTPO. While some regional projects, such as the expansion of I-64 on the Peninsula, already are underway, other projects (for example, the Patriots Crossing) now seem unlikely to occur for decades unless new revenue sources are established.

Currently, the HRTPO attaches a weight of 30 percent to traffic congestion when it evaluates the worth of competing projects. However, in some cases, the Commonwealth’s Transportation Board assigns a 50 percent weight to traffic congestion. We do not argue for or against either weighting scheme, but note that different weighting arrangements can produce different project rankings.

## WORDS OF CAUTION: INFRASTRUCTURE IMPROVEMENTS MAY NOT REDUCE CONGESTION VERY MUCH

**If we undertake the projects the HRTPO has identified and given favorable rankings, will we really notice a difference in our traffic? The truthful answer – based both on economic theory and empirical evidence – is “probably not as much as many would hope.”**

This answer might cause readers to scratch their heads. Huh? Why wouldn't new road infrastructure lead to noticeable improvements in traffic flows? After all, if this really is true, then why build new infrastructure if the new projects really aren't going to make much of a difference?

Let's introduce a concept known as *induced demand* in order to answer these questions. In a nutshell, the notion of induced demand tells us that most consumers tend to substitute less-expensive versions of items for the more-expensive versions (holding constant things such as product quality and service). For example, consumers prefer to purchase regular-grade gasoline at \$2 per gallon rather than at \$2.25 per gallon and consistently will opt for the lower-priced gasoline if they have the opportunity to do so.

What does this have to do with newly constructed roads? **If a new roadway is constructed and actually makes travel less expensive by reducing driver and passenger travel times and gasoline usage, then this will cause some individuals to: 1) switch their travel patterns and begin to use this new, improved path more often; and (2) increase the number of miles they will drive because driving has become less expensive.** The first effect ordinarily is the larger of the two and reflects natural, predictable economic behavior. If Mary Jones learns that she can get to work five minutes faster by taking, say, a newly improved Jefferson Avenue instead of I-64, then likely she will switch her travel path to Jefferson Avenue. She may learn this by word of mouth, or by accident, but if she is internet savvy, she can rely on software applications such as Google and Waze to tell her how long it should take her to get to her destination via alternate routes.

Consumers (and drivers) often substitute less-expensive products and processes for more expensive ones, assuming everything else (such as quality and service) is held constant. Thus, the shorter travel times that are produced by improvements on Jefferson Avenue likely will stimulate more traffic on that thoroughfare.

Let's drive home this notion with a different type of example. In your mind's eye, consider two identical water glasses, with one containing more water than the other. Suppose we now make it possible for water to flow freely from one glass to the other. Water will begin to flow from the glass with the higher water level into the glass with the lower water level. This process will continue until the water levels in each glass are the same. This is the same dynamic we observe with respect to induced traffic demand. Drivers will switch to Jefferson Avenue when it is improved.

At the same time, in our Jefferson Avenue vs. I-64 example, traffic congestion will decline somewhat on I-64 when some drivers there switch to Jefferson Avenue. Hence, those who continue to drive on I-64 will end up a little bit better off – just as drivers on Jefferson Avenue will end up a bit better off.

The moral to this story is that infrastructure improvements alone often do not result in dramatic reductions in the amount of time commuters spend in traffic. Exceptions to this dynamic are confined to cases in which no alternate methods of transportation exist. Suppose, for example, a bridge is constructed to an island that previously could only be reached via a ferry, or a new highway is constructed that crosses an area that previously had no roads. In general, however, drivers search out the most efficient way to reach their destinations and this soon results in a competitive balance between alternatives.

Economists and transportation researchers have thoroughly documented the existence of this phenomenon in transportation. An illustration is a 2011 study published in *American Economic Review* that found when the number of lanes on a road is increased, the distance traveled by drivers on those lanes increases by almost the same proportion.<sup>9</sup> To paraphrase the memorable words of the movie “Field of Dreams,” “If you build it, they will come.”

<sup>9</sup> Giles Duranton and Mathew A. Turner. “The Fundamental Law of Road Congestion: Evidence from U.S. Cities.” *American Economic Review*, 101, October 2011, 2616-52.

But, note this. The logic that shifts drivers to less congested routes also applies to situations when the price of driving is increased, for example, when tolls are imposed or increased on roadways or tunnels. Graph 9 lists many of the things commuters in Hampton Roads say they have done to avoid paying the newly imposed tolls on the Midtown and Downtown tunnels. Over 50 percent of respondents to this 2015 survey indicated that they had changed their driving routes, while 37 percent reported that they had reduced their total travel.

Of course, the anger attached to the imposition of tolls may cause some drivers to experiment with alternate travel routes that subsequently do not prove to be cost efficient. In the case of the Midtown and Downtown tunnels, vehicle traffic volumes initially dropped significantly, but then recovered to levels that were about 15 percent below pre-toll levels.<sup>10</sup> Usage likely will increase further when tunnel construction ends.

#### NEW TRANSPORTATION INFRASTRUCTURE AND THE LOCATION OF BUSINESS ACTIVITY

While increasing traffic infrastructure may not have a major impact on traffic congestion, it can change the locations where economic activity takes place. We see this clearly as businesses and residential developments pop up at freeway off-ramps. It also shows up in the aforementioned HRTPO scoring scheme. For example, the Patriots Crossing receives high scores on the economic vitality criteria. This is largely due to opportunities for growth in the western sections of Hampton Roads.

The potential relocation of economic activity because of transportation improvements raises questions of equity, however. If one chooses to construct the Patriots Crossing and this moves the preferred location of business activity from, say, Norfolk and Virginia Beach to Suffolk, is this a good idea? Is this something Norfolk and Virginia Beach should support because it is good for the region? If the extension of The Tide to the Virginia Beach Town Center area results in significantly increased property values for those who already own properties adjacent to Tide stations, should property owners elsewhere in Virginia Beach attempt to “tax away” these incremental gains, arguing that

otherwise they, in effect, would be redistributing their own incomes and wealth to these owners?

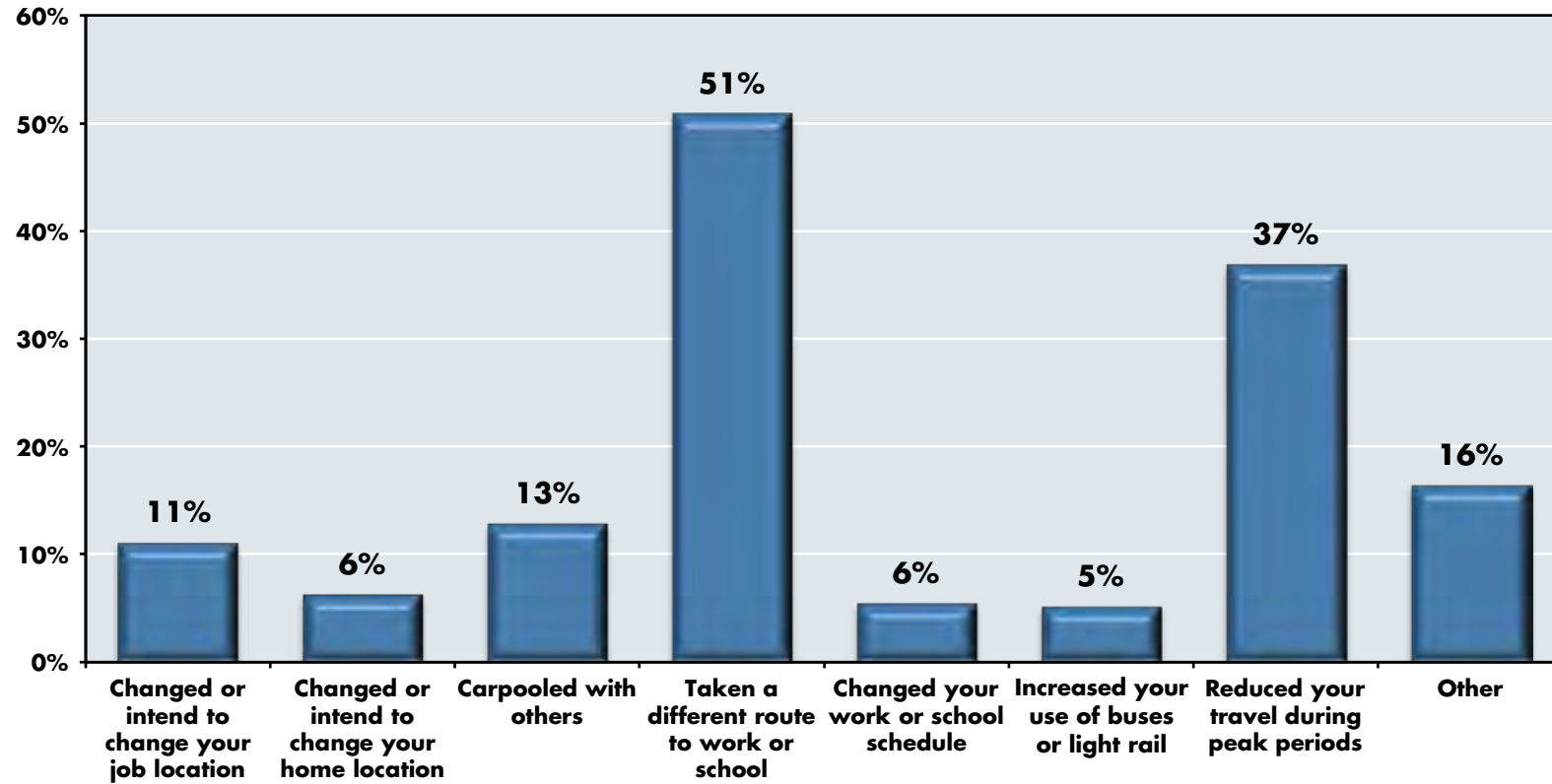
These are ticklish questions for which there are no firm economic answers. The political process ultimately decides such issues. **Our point is simply to underline that the better and more efficient a transportation system is, the more likely it is to redistribute economic benefits and change the location of economic activity.**



<sup>10</sup> James V. Koch, “The Impact of Tolls on the City of Portsmouth,” April 15, 2015, [www.jamesvkoch.com](http://www.jamesvkoch.com).

**GRAPH 9**

**ACTIONS DRIVERS SAY THEY TOOK IN RESPONSE TO THE IMPOSITION OF TOLLS ON THE MIDTOWN AND DOWNTOWN TUNNELS**



Source: Life in Hampton Roads Survey 2015, Old Dominion University Social Science Research Center

# Summing It Up

**Transportation infrastructure is essential to economic development and this is especially true in Hampton Roads, which sometimes is said to be located at the end of one of the longest cul-de-sacs in North America. That there also are ubiquitous fingers of water that divide our region only exacerbates the need for cost-efficient roads, bridges and tunnels that enable residents to work and leisure. Absent good connections to the outer world and the ability to cross our region with a minimum of expense, we clearly risk withering on the economic vine. Hence, quality transportation infrastructure is critical to our future prosperity, especially if defense spending continues to stagnate.**

**Even so, as we have just seen, specific transportation infrastructure projects typically only provide marginal improvements in traffic congestion because drivers soon learn to distribute themselves amongst alternate routes until these alternatives offer them roughly the same travel efficiency. Thus, widening I-64 to Richmond will provide some relief to drivers, but it also will attract additional traffic that previously traveled on Routes 60 and 460 and even induce some drivers to travel to and from Richmond who previously declined to do so. This reflects a natural economic process that is well documented.**