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# ***HAMPTON ROADS REGIONAL TRAVEL DELAY STUDY***

This report was included in the Work Program for Fiscal Year 2008-2009, which was approved by the Commission and the Metropolitan Planning Organization at their meetings of March 19, 2008.

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Hampton Roads Regional Travel Delay Study

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<http://www.hrpdcva.gov>**ABSTRACT**

In 2005, Americans lost 4.2 billion hours and 2.9 billion gallons of fuel due to traffic congestion according to the Texas Transportation Institute, an increase of about 70% since 1995. This congestion not only costs America an estimated \$200 billion annually but also has a wide range of impacts on both the economy and quality of life in Hampton Roads.

This report analyzes congestion occurring on roadways throughout Hampton Roads by measuring the current travel delay and also determining how delay has changed throughout Hampton Roads in recent years. The first section of this report examines changes in delay on the regional and subregional levels using regional travel time data that is collected every five years by the staff of the Hampton Roads Metropolitan Planning Organization (HRMPO). The second section of this report examines delay on the freeway system using travel time data specifically collected for this study.

**ACKNOWLEDGMENTS**

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## INTRODUCTION

“Congestion is one of the single largest threats to our economic prosperity and way of life.”

- Norman Mineta, Former U.S. Secretary of Transportation

According to the United States Department of Transportation, congestion costs America an estimated \$200 billion annually. In 2005, Americans lost 4.2 billion hours and 2.9 billion gallons of fuel due to traffic congestion according to the Texas Transportation Institute. These values increased about 70% from 1995, when 2.5 billion hours and 1.7 billion gallons of fuel were wasted in congestion.

This increase in congestion has a wide range of impacts on both the United States and Hampton Roads. In Hampton Roads, the regional economy and quality of life are affected by congestion. The port becomes less competitive when trucks carrying goods to and from the port are stuck in traffic. The tourism industry can also be impacted if tourists decide to travel elsewhere because of the congestion. More time stuck in traffic also means less time at home with family or friends.

The purpose of this report is to analyze congestion throughout Hampton Roads. This is done by measuring the current delay throughout the region and also determining how delay has changed throughout Hampton Roads in recent years.

This report is broken down into two distinct sections. The first section examines changes in delay on the regional and subregional levels. This is done using regional travel time data that is collected every five years by the staff of the Hampton Roads Metropolitan Planning Organization (HRMPO).



**PICTURE 1** – Significant delays are common approaching the region’s tunnels, including the Midtown Tunnel.

The second section of this report further examines the delay that occurs on the regional freeway system. This delay is broken down into recurring delay, which is delay that occurs regularly due to normal traffic volumes and conditions, and nonrecurring delay, which is delay that is due to events such as crashes, bad weather, special events, and work zones.

## REGIONAL DELAY TRENDS

This section analyzes the changes in peak hour delay that has occurred on the region's roadways. This analysis is done using travel time and speed data collected by the Hampton Roads Metropolitan Planning Organization (HRMPO).

HRMPO staff collects travel time and speed data on a regional level every five years, with the most recent travel time collection effort occurring in 2005. Travel time data is collected using the probe vehicle method. In this method, data was collected using a GPS-equipped vehicle by drivers attempting to be the "average" vehicle in the traffic stream while obeying posted speed limits.

In 2000 and 2005, travel time data was collected on the entire Congestion Management Process (CMP) network. This network, which is used for regional planning purposes, includes every interstate, freeway, principal and minor arterial, and selected collectors throughout the region. In total, the CMP network consists of 1,340 centerline miles of roadway within the MPO boundary and about 85% of the total vehicle-miles traveled in the region.

For each roadway one run was made in each direction during both the morning (AM) and afternoon (PM) peak hour. This peak hour is the hour where traffic volumes were the highest on each individual roadway segment during the morning peak travel period (generally between 6 am and 9 am) and the afternoon peak travel period (generally between 3 pm and 6 pm.)

For the 2000 travel time collection, data was collected by HRMPO staff between October 2000 and April 2001. For the 2005 travel time collection, data was collected between January and mid-December 2005. In both 2000 and 2005, data was collected on Mondays through Fridays but was not collected on Monday mornings and Friday afternoons due to atypical traffic volumes



**PICTURE 2** – Travel time data is collected using a GPS-equipped probe vehicle.

and congestion. Data was also not collected during abnormal traffic conditions, such as crashes, inclement weather, special events, etc.

On some facilities included in the CMP network, travel time data was collected in 2005 but was not collected in 2000, or vice-versa. This occurred for a variety of reasons, including:

- Newly constructed facilities – A number of major roadways in Hampton Roads were constructed between 2000 and 2005. Examples of newly constructed facilities include the Pinners Point Interchange, Southwest Suffolk Bypass, the western portion of the Hampton Roads Center Parkway, and the Monticello Avenue extension.
- Removed facilities – A number of roadways were removed from the CMP network between 2000 and 2005, usually because they were replaced in the network with newly constructed parallel facilities. Examples include roadways within the Port Norfolk neighborhood and Old Oceana Boulevard. The Kings Highway Bridge, which was taken out of service early in 2005, was also removed from the CMP network.

- Facilities under construction – In some cases, travel time data could not be collected because the roadway was closed due to construction. Examples include Washington Street in Suffolk and Norfolk Avenue in Virginia Beach.
- Existing roadways added to CMP Network – Many roadways were added to the CMP network when Isle of Wight County was added to the Hampton Roads MPO between 2000 and 2005. Several rural roadways throughout the region were also added to the CMP network during this time. Examples include Blackwater Road in Chesapeake/Virginia Beach, Hickory Fork Road in Gloucester, and Copeland Road in Suffolk.

These factors had to be addressed before analyzing the changes in regional delay. For this study, facilities that were newly constructed, replaced by other facilities, or under construction were included in this delay analysis. Existing roadways that were added to the CMP network, however, were not included in the analysis.

**Maps 1 and 2** on pages 4 and 5 show the roadways that were included in this regional delay analysis. In total, 1,247 segments composing 1,155 centerline miles were included.

### ***Delay Calculation Methodology***

In this report, average delay is defined as the difference between the actual travel time that was measured during the travel time data collection and the travel time that would have occurred if each driver could have traveled uninterrupted at the speed limit throughout their trip.

Average delay was calculated for each roadway segment for both the morning and afternoon peak hours in both 2000 and 2005. This average delay was then

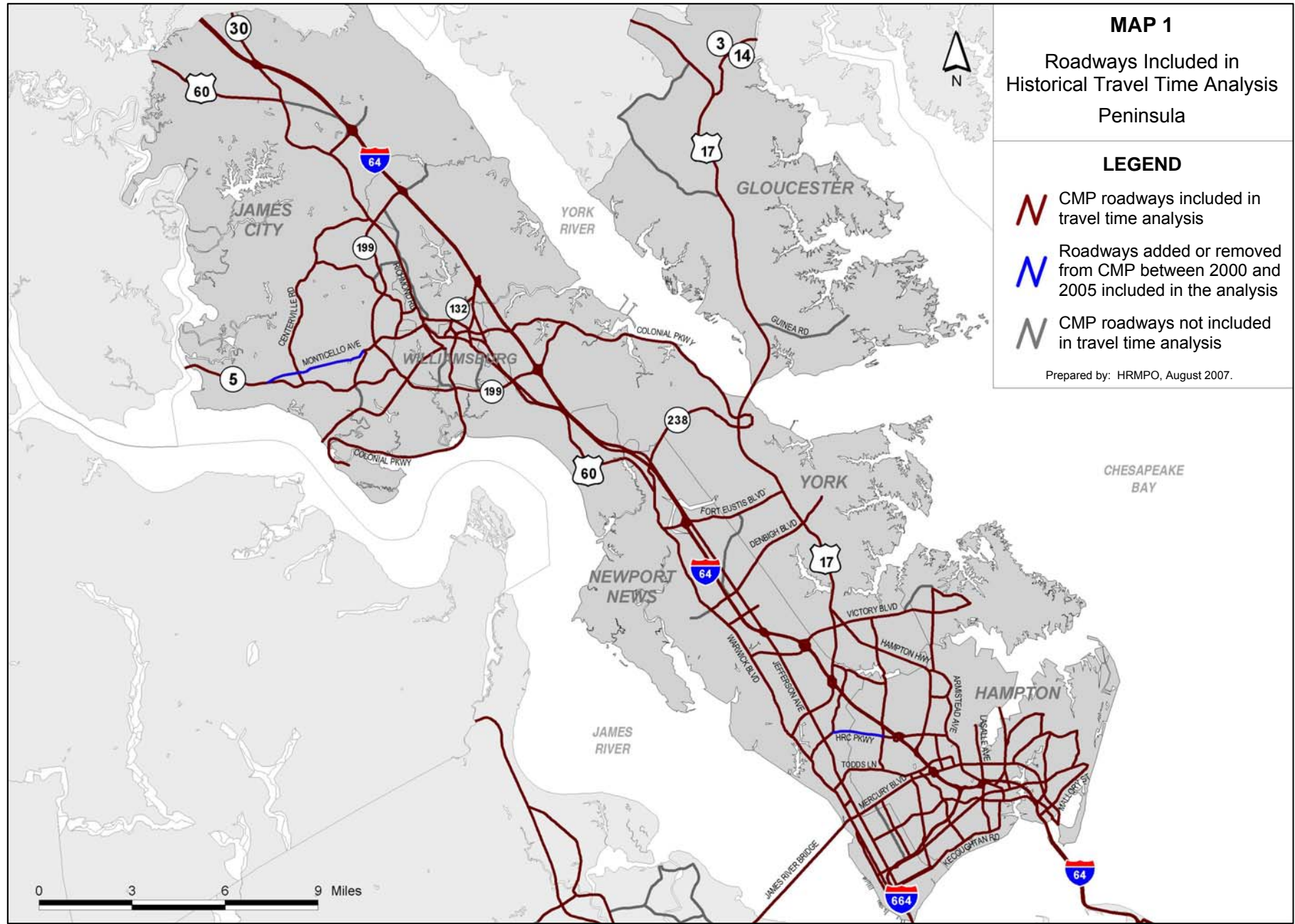


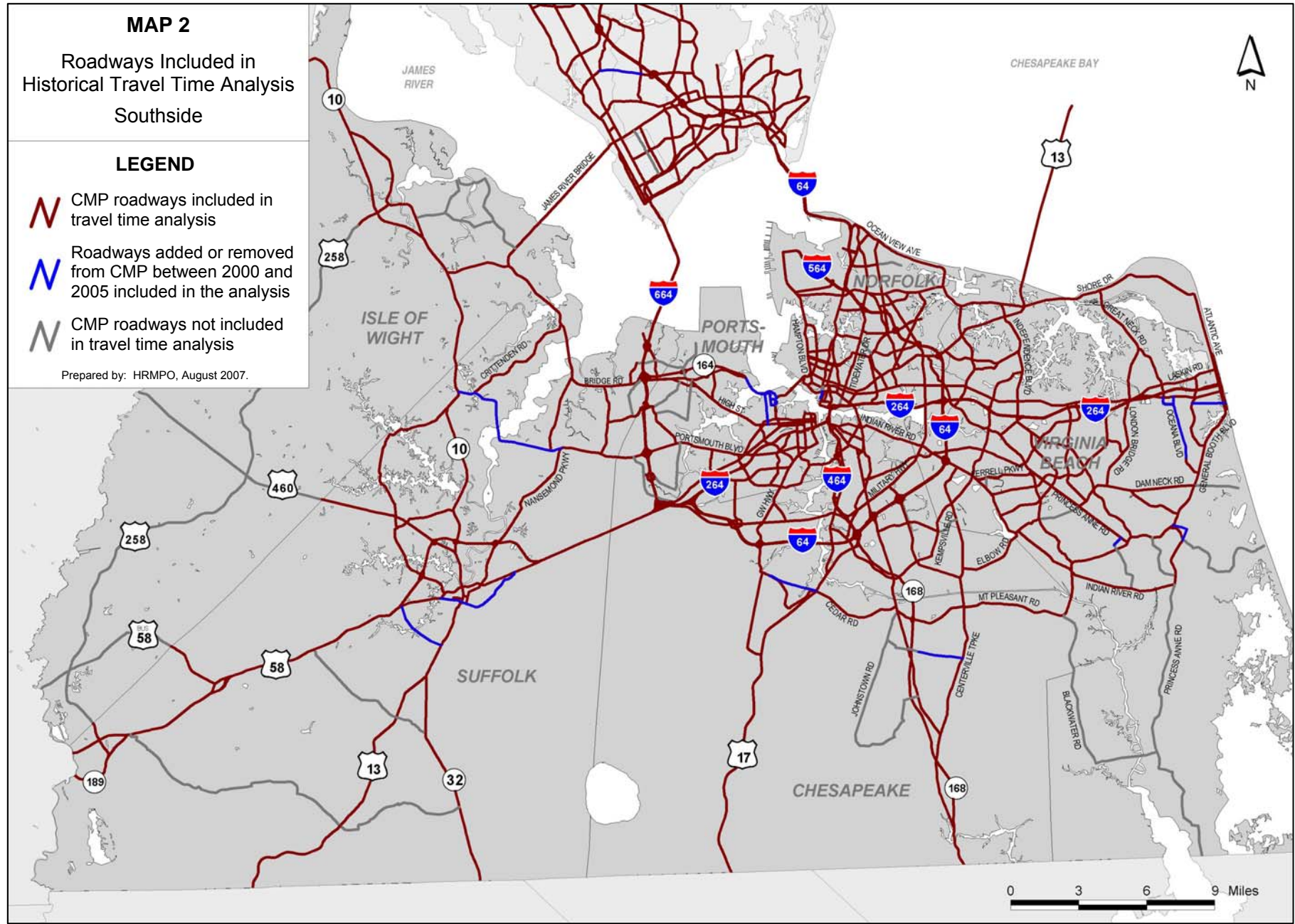
**PICTURE 3** – The Pinners Point Interchange, which opened in 2005, eliminated significant delays from the Port Norfolk neighborhood. Photo Source: VDOT.

multiplied by the number of vehicles on that segment during the peak hour to come up with a total delay value for each roadway segment. The total delay from each roadway segment was then summed up to produce jurisdictional and regional delay values.

To calculate these delay values, a large amount of data was needed. For every roadway segment included in the analysis, the following data was compiled for both 2000 and 2005:

- Segment length
- Segment speed limit – This includes any changes in speed limits that may have occurred from 2000 to 2005.
- Weekday traffic volumes – VDOT collects traffic volume data on most roadway segments once every three years, so data is collected on about a third of the roadways in any given year. Some jurisdictions throughout Hampton Roads also collect traffic volume data on a regular basis. Due to this three-year cycle, traffic volume data specifically collected in 2000 and 2005 was not available for every roadway. For the 2000 travel time data, traffic volumes from 1999 to 2001 were used. For the 2005 travel time data, traffic volumes from 2004 to 2006 were used.





- AM & PM K-factors – The K-factor is the proportion of traffic using each roadway segment during the morning and afternoon peak hours as compared to the total daily traffic volume.
- AM & PM D-factors – The D-factor is the proportion of traffic traveling in the peak direction during the morning and afternoon peak hours.
- AM & PM Average Speed by Direction – This data comes from HRMPO’s 2000 and 2005 travel time collections. The directional average speed that was collected for each roadway was converted to average travel times using the roadway segment’s length.

The methods used to calculate peak hour delay, including an example, are included in **Appendix A**.

**Results**

For this study, an analysis of changes in delay was done on a regional and jurisdictional level. Changes in delay were also analyzed on a regional level by roadway functional class. Due to the limited number of travel time runs on each individual roadway segment, analysis was not done on any level smaller than the jurisdictional level, although the delay data for each roadway segment used in this

analysis is included in **Appendix B**.

It should also be noted that this analysis only included delay during the peak hour of travel during both the morning and afternoon commuting periods. Many facilities, such as the region’s bridges and tunnels, are congested for much longer periods than just an hour in the morning and evening, but this analysis does not include the effects of this additional congestion.

In addition, the results in this section only include recurring delay, which is the delay that occurs due to capacity constraints during normal traffic volumes and conditions. Nonrecurring delay, which is delay due to crashes, incidents, weather, work zones, etc., are not included in these results.

Cumulative travel times (the total amount of peak hour travel time on the travel time network) and vehicle-miles of travel (VMT) are also included with the results for comparison purposes.

*Regional Delay*

**Table 1** shows the changes in morning and afternoon peak hour total delay for Hampton Roads.

In Hampton Roads, there were over 15,700 vehicle-hours of delay during the AM Peak Hour each weekday in 2005. Over the

**TABLE 1 – Regional Peak Hour Total Delay, Cumulative Travel Time, and Vehicle-Miles of Travel Each Weekday, 2000 and 2005**

	2000	2005	Total Change 2000-2005	% Change 2000-2005
<b>AM Peak Hour Total Delay</b> (veh-hours)	13,282.8	15,743.5	+2,460.7	▲ 18.5%
<b>PM Peak Hour Total Delay</b> (veh-hours)	20,101.5	29,201.1	+9,099.5	▲ 45.3%
<b>AM Peak Hour Cumulative Travel Time</b> (veh-hours)	58,708.1	64,282.1	+5,574.0	▲ 9.5%
<b>PM Peak Hour Cumulative Travel Time</b> (veh-hours)	73,107.5	86,188.4	+13,081.0	▲ 17.9%
<b>AM Peak Hour Vehicle-Miles of Travel</b> (thousands)	2,148.0	2,348.4	+200.4	▲ 9.3%
<b>PM Peak Hour Vehicle-Miles of Travel</b> (thousands)	2,475.6	2,701.8	+226.2	▲ 9.1%

Data includes only those roadways included in the travel time analysis, as shown in Maps 1 and 2 on pages 4 and 5. Data source: HRMPO.

course of the entire year this amounted to 4.1 million vehicle-hours of delay during the AM Peak Hour. The amount of delay during the AM peak hour increased 18.5% from 2000 to 2005, meaning there was an additional 600,000 vehicle-hours of delay during the AM peak hour in 2005.

This increase in delay during the AM peak hour was almost double the size in terms of percentage as the increase in cumulative travel time. 25% of the cumulative travel time during the AM peak hour was due to delay in 2005, up slightly from 23% in 2000. In addition, the percentage increase in delay during the AM peak hour was also more than double the percentage increase in vehicle-miles of travel.

Of the 1,247 analyzed segments, 683 (55%) experienced an increase in delay during the AM peak hour from 2000 to 2005. 496 segments (40%) experienced an increase in delay of at least 50% during this time.

During the PM peak hour there were 29,200 vehicle-hours of delay in Hampton Roads each weekday in 2005. Over the course of the entire year this amounted to 7.6 million vehicle-hours of delay during the PM peak hour. This is nearly twice as much delay as was experienced in the region during the AM peak hour. The amount of delay during the PM peak hour increased 45.3% from 2000 to 2005, meaning there was an additional 2.4 million vehicle-hours of delay during the PM peak hour in 2005.

This 45% increase in delay during the PM peak hour was about two and a half times the size of the increase in cumulative travel time. Over a third (34%) of the cumulative travel time during the PM peak hour was due to delay in 2005, up from 27% in 2000. This increase in delay and cumulative travel time during the PM peak hour occurred in spite of the vehicle-miles of travel growing only 9% during this time.

710 segments (57%) experienced an increase in delay during the PM peak hour

from 2000 to 2005, and 500 segments (40%) experienced an increase in delay of at least 50%.

### *Jurisdictional Delay*

**Table 2** on page 8 shows the changes in morning and afternoon peak hour travel delay for each of the 13 jurisdictions in the Hampton Roads MPO.

During the AM peak hour all but three of the thirteen jurisdictions (the exceptions being Newport News, Norfolk, and Portsmouth) experienced an increase in total delay from 2000 to 2005. Four jurisdictions (Gloucester County, Hampton, James City County, and York County) experienced increases in delay of more than 50%. In fact, delay in Hampton and Gloucester nearly doubled over the five-year period.

During the PM peak hour all but two jurisdictions (James City County and Williamsburg) experienced an increase in delay between 2000 and 2005. Five jurisdictions experienced increases in delay of 50% or more. Just as occurred during the AM peak hour, Hampton and Gloucester had the largest increases in delay during the PM peak hour, with delay in both jurisdictions more than doubling between 2000 and 2005.

Much of this increase in delay in Hampton appears to be due to increases in delay in the Coliseum Central area where I-64 was under construction in 2005. Since Gloucester County has few roadways included in the analysis, most of the increase in delay there is due to increases in delay on Route 17.

**Table 3** on page 8 shows the changes from 2000 to 2005 in peak hour delay, cumulative travel time, and vehicle-miles of travel for each jurisdiction in Hampton Roads. This information is also shown graphically on **Figure 1** on page 9.

**TABLE 2 – Peak Hour Total Delay by Jurisdiction Each Weekday, 2000 and 2005**

Jurisdiction	2000 AM Peak Hour Total Delay (veh-hours)	2005 AM Peak Hour Total Delay (veh-hours)	Total Change 2000-2005	% Change 2000-2005	2000 PM Peak Hour Total Delay (veh-hours)	2005 PM Peak Hour Total Delay (veh-hours)	Total Change 2000-2005	% Change 2000-2005
Chesapeake	1,733.6	2,159.6	+426.0	▲ 24.6%	2,286.7	3,518.1	+1231.4	▲ 53.8%
Gloucester (MPO Only)	117.3	232.9	+115.6	▲ 98.5%	200.0	405.6	+205.6	▲ 102.8%
Hampton	913.5	1,735.9	+822.5	▲ 90.0%	1,480.1	3,785.9	+2305.8	▲ 155.8%
Isle of Wight	97.3	113.0	+15.7	▲ 16.1%	128.2	217.1	+88.9	▲ 69.3%
James City County	256.0	419.5	+163.5	▲ 63.8%	465.0	413.7	-51.3	▼ 11.0%
Newport News	1,401.5	1,393.0	-8.5	▼ 0.6%	2,104.4	3,203.6	+1099.2	▲ 52.2%
Norfolk	3,209.5	3,128.5	-81.0	▼ 2.5%	4,907.1	6,135.0	+1227.9	▲ 25.0%
Poquoson	39.0	50.3	+11.3	▲ 28.8%	28.4	37.6	+9.2	▲ 32.4%
Portsmouth	1,161.1	956.0	-205.1	▼ 17.7%	1,179.4	1,307.3	+127.8	▲ 10.8%
Suffolk	359.6	471.3	+111.7	▲ 31.1%	526.4	716.2	+189.8	▲ 36.1%
Virginia Beach	3,434.1	4,186.0	+752.0	▲ 21.9%	5,723.2	8,308.0	+2584.8	▲ 45.2%
Williamsburg	90.8	115.1	+24.3	▲ 26.7%	274.2	226.5	-47.7	▼ 17.4%
York County	469.4	782.4	+312.9	▲ 66.7%	798.3	926.5	+128.2	▲ 16.1%
<b>Total</b>	<b>13,282.8</b>	<b>15,743.5</b>	<b>+2,460.7</b>	<b>▲ 18.5%</b>	<b>20,101.5</b>	<b>29,201.1</b>	<b>+9,099.5</b>	<b>▲ 45.3%</b>

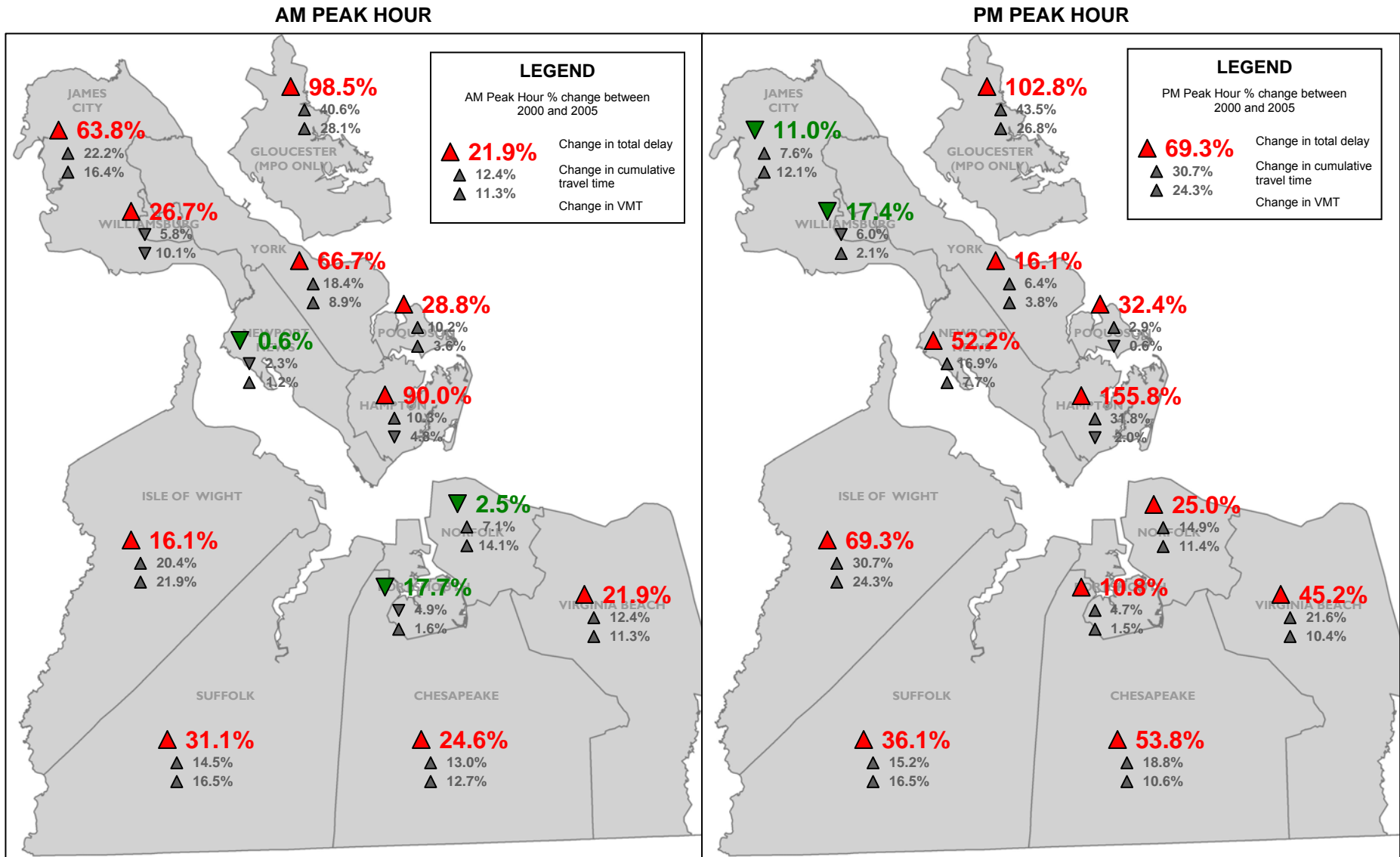
Data includes only those roadways included in the travel time analysis, as shown in Maps 1 and 2 on pages 4 and 5. Data source: HRMPO.

**TABLE 3 – Change in Peak Hour Total Delay, Cumulative Travel Time, and Vehicle-Miles of Travel (VMT) by Jurisdiction Each Weekday, 2000 and 2005**

Roadway Classification	% Change in AM Peak Hour Delay 2000-2005	% Change in AM Cumulative Travel Time 2000-2005	% Change in AM Peak Hour VMT 2000-2005	% Change in PM Peak Hour Delay 2000-2005	% Change in PM Cumulative Travel Time 2000-2005	% Change in PM Peak Hour VMT 2000-2005
Chesapeake	▲ 24.6%	▲ 13.0%	▲ 12.7%	▲ 53.8%	▲ 18.8%	▲ 10.6%
Gloucester (MPO Only)	▲ 98.5%	▲ 40.6%	▲ 28.1%	▲ 102.8%	▲ 43.5%	▲ 26.8%
Hampton	▲ 90.0%	▲ 10.3%	▼ 4.8%	▲ 155.8%	▲ 31.8%	▼ 2.0%
Isle of Wight	▲ 16.1%	▲ 20.4%	▲ 21.9%	▲ 69.3%	▲ 30.7%	▲ 24.3%
James City County	▲ 63.8%	▲ 22.2%	▲ 16.4%	▼ 11.0%	▲ 7.6%	▲ 12.1%
Newport News	▼ 0.6%	▼ 2.3%	▲ 1.2%	▲ 52.2%	▲ 16.9%	▲ 7.7%
Norfolk	▼ 2.5%	▲ 7.1%	▲ 14.1%	▲ 25.0%	▲ 14.9%	▲ 11.4%
Poquoson	▲ 28.8%	▲ 10.2%	▲ 3.6%	▲ 32.4%	▲ 2.9%	▼ 0.6%
Portsmouth	▼ 17.7%	▼ 4.9%	▲ 1.6%	▲ 10.8%	▲ 4.7%	▲ 1.5%
Suffolk	▲ 31.1%	▲ 14.5%	▲ 16.5%	▲ 36.1%	▲ 15.2%	▲ 16.5%
Virginia Beach	▲ 21.9%	▲ 12.4%	▲ 11.3%	▲ 45.2%	▲ 21.6%	▲ 10.4%
Williamsburg	▲ 26.7%	▼ 5.8%	▼ 10.1%	▼ 17.4%	▼ 6.0%	▲ 2.1%
York County	▲ 66.7%	▲ 18.4%	▲ 8.9%	▲ 16.1%	▲ 6.4%	▲ 3.8%
<b>Total</b>	<b>▲ 18.5%</b>	<b>▲ 9.5%</b>	<b>▲ 9.3%</b>	<b>▲ 45.3%</b>	<b>▲ 17.9%</b>	<b>▲ 9.1%</b>

Data includes only those roadways included in the travel time analysis, as shown in Maps 1 and 2 on pages 4 and 5. Data source: HRMPO.

**FIGURE 1 – Percentage Change in Peak Hour Total Delay, Cumulative Travel Time, and Vehicle-Miles of Travel by Jurisdiction, 2000 to 2005**



Data includes only those roadways included in the travel time analysis, as shown in Maps 1 and 2 on pages 4 and 5. Data source: HRMPO.

Functional Class

Tables 4 and 5 show the changes in morning and afternoon peak hour delay in Hampton Roads by roadway functional class.

During the AM peak hour, the freeway system in Hampton Roads saw very little change in delay from 2000 to 2005. Delay on the regional freeway system during the morning peak hour only increased 1% during this time, in spite of vehicle-miles of travel increasing nearly 12%. Other roadway classes, however, experienced much larger increases in delay during the AM peak hour. Principal and minor arterials experienced increases in delay regionally of 23% and 17% respectively between 2000 and 2005.

During the PM peak hour, however, the freeways in the region experienced large increases in travel delay. Delay more than tripled on the regional freeway system during the PM peak hour between 2000 and 2005. This 202% increase in delay on the regional freeway system occurred in spite of freeway vehicle-miles of travel only increasing 10% during this time. Much of this increase can be attributed to the construction that occurred on I-64 in Hampton in 2005.

Other roadway classes also experienced significant increases in delay during the PM peak hour between 2000 and 2005. Delay increased by 27% on principal arterials throughout Hampton Roads and by 34% on minor arterials during the PM peak hour.

**TABLE 4 – Regional Peak Hour Total Delay by Functional Class Each Weekday, 2000 and 2005**

Roadway Classification	2000 AM Peak Hour Total Delay (veh-hours)	2005 AM Peak Hour Total Delay (veh-hours)	Total Change 2000-2005	% Change 2000-2005	2000 PM Peak Hour Total Delay (veh-hours)	2005 PM Peak Hour Total Delay (veh-hours)	Total Change 2000-2005	% Change 2000-2005
Interstate & Other Freeways	1,584.9	1,598.9	+14.0	▲ 0.9%	1,630.2	4,915.8	+3,285.6	▲ 201.6%
Principal Arterials	4,507.2	5,563.2	+1,056.0	▲ 23.4%	7,499.6	9,548.8	+2,049.2	▲ 27.3%
Minor Arterials	6,940.1	8,133.0	+1,192.9	▲ 17.2%	10,660.5	14,227.7	+3,567.2	▲ 33.5%
Select Collectors	250.6	448.4	+197.9	▲ 79.0%	311.2	508.7	+197.5	▲ 63.5%
<b>Total</b>	<b>13,282.8</b>	<b>15,743.5</b>	<b>+2,460.7</b>	<b>▲ 18.5%</b>	<b>20,101.5</b>	<b>29,201.1</b>	<b>+9,099.5</b>	<b>▲ 45.3%</b>

Data includes only those roadways included in the travel time analysis, as shown in Maps 1 and 2 on pages 4 and 5. Data source: HRMPO.

**TABLE 5 – Change in Regional Peak Hour Total Delay, Cumulative Travel Time, and Vehicle-Miles of Travel (VMT) by Functional Class Each Weekday, 2000 and 2005**

Roadway Classification	% Change in AM Peak Hour Delay 2000-2005	% Change in AM Cumulative Travel Time 2000-2005	% Change in AM Peak Hour VMT 2000-2005	% Change in PM Peak Hour Delay 2000-2005	% Change in PM Cumulative Travel Time 2000-2005	% Change in PM Peak Hour VMT 2000-2005
Interstate & Other Freeways	▲ 0.9%	▲ 7.2%	▲ 11.9%	▲ 201.6%	▲ 23.5%	▲ 9.9%
Principal Arterials	▲ 23.4%	▲ 10.1%	▲ 6.1%	▲ 27.3%	▲ 13.4%	▲ 7.1%
Minor Arterials	▲ 17.2%	▲ 9.9%	▲ 7.7%	▲ 33.5%	▲ 17.2%	▲ 9.2%
Select Collectors	▲ 79.0%	▲ 32.5%	▲ 22.7%	▲ 63.5%	▲ 30.0%	▲ 24.0%
<b>Total</b>	<b>▲ 18.5%</b>	<b>▲ 9.5%</b>	<b>▲ 9.3%</b>	<b>▲ 45.3%</b>	<b>▲ 17.9%</b>	<b>▲ 9.1%</b>

Data includes only those roadways included in the travel time analysis, as shown in Maps 1 and 2 on pages 4 and 5. Data source: HRMPO.

## FREEWAY SYSTEM DELAY

Many of the most notorious bottlenecks in Hampton Roads are located on the freeway system. Some of the most notorious examples include the Hampton Roads, Downtown and Midtown tunnels, the High Rise Bridge, the I-64/I-264 interchange, and I-64 north of Jefferson Avenue.

The fact that so much delay occurs on the freeway system is in stark contrast to the fact that the freeways were constructed as uninterrupted facilities, where drivers could avoid the delays on surface streets due to signals, stop signs, etc.

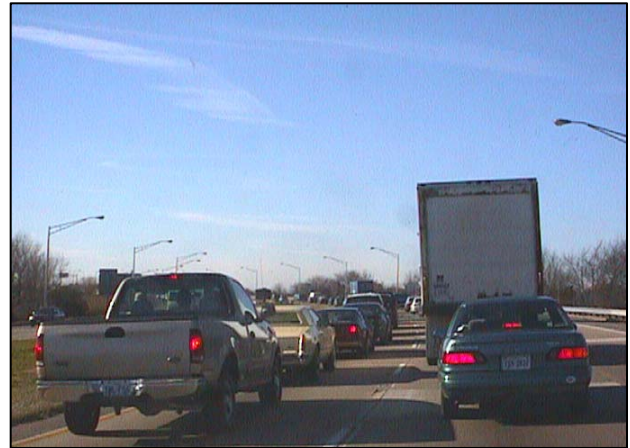
There are many causes for the delays that occur on the freeway system. Much of the delay is due to congestion that occurs every day, such as at the tunnels. Some delay is also due to crashes. Other incidents such as bad weather, disabled vehicles, work zones, etc. also lead to delay throughout the region.

This section further examines the delay that occurs on the regional freeway system. This section is broken down into two sections, recurring delay and non-recurring delay.

### **Recurring Delay on the Freeway System**

Recurring delay is defined as delay that is caused by congestion that occurs due to capacity constraints during normal traffic volumes and conditions. The backup that a commuter might sit through on a typical afternoon at the Hampton Roads Bridge-Tunnel would be an example of recurring delay.

As part of this study, an analysis of recurring delay was done for each segment of the regional freeway system. This analysis was done using travel time and speed data collected by the staff of the Hampton Roads Metropolitan Planning Organization (HRMPO) specifically for this study.



**PICTURE 4** – Backups like this one approaching the Hampton Roads Bridge-Tunnel are common at the region's bridges and tunnels, leading to significant delays.

Similar to the previous section of this report, travel time and speed data was also collected for the freeway system delay analysis using the probe vehicle method (refer to page 2 for a description of this method). For each freeway segment, *three runs* were made in each direction during both the morning (generally between 6 am and 9 am) and afternoon (generally between 3 pm and 6 pm) peak hour. These three runs were then averaged to produce an average travel time and speed for each freeway segment.

Travel time and speed data was collected for this analysis by HRMPO staff between March 2006 and August 2006. Data was collected only on Tuesdays, Wednesdays, and Thursdays since these days reflect typical weekday traffic levels. Data was not collected during abnormal traffic conditions, such as during crashes, inclement weather, special events, etc., so that the data collected would reflect delay attributable to recurring congestion.

As part of this analysis, travel time and speed data was only collected on the mainline freeway segments. Data was not collected on the ramps leading to or from the freeways. In some locations the amount of delay due to congestion on the ramps can be

quite significant, with one example being the I-64/I-264 interchange in Norfolk.

Similar to the previous section, average delay is defined as the difference between the actual travel time as collected by the HRMPO staff and the travel time that would have occurred if each driver could have traveled uninterrupted at the speed limit.

Average delay is calculated for each freeway segment for both the morning and afternoon peak hours using the same methods and equations used in the previous section of this report as well as in **Appendix A**. This average delay is then multiplied by the number of vehicles on each segment during the peak hour to come up with a total peak hour delay for each freeway segment.

### *Regional Delay*

Based on the data collected for this analysis, a total of just over 1,500 vehicle-hours of delay occurs on the freeway system during the morning peak hour each weekday due to recurring congestion. During the afternoon peak hour, just over 3,000 vehicle-hours of delay occurs on the freeway system each weekday due to recurring congestion. Over the course of a year, this adds up to over 1.1 million vehicle-hours of recurring delay on the freeway system during the morning and afternoon peak hours alone.

It should be noted that certain facilities, such as the region's bridges and tunnels, are generally congested for longer than just the peak hour and so the amount of recurring delay that occurs at these facilities are much higher than is indicated in this analysis.

### *Delay by Freeway Segment*

**Maps 3 – 6** on pages 13 - 16 show the total recurring delay on each freeway segment during the morning and afternoon peak hours. In addition, **Tables 6 and 7** on page 17 show the freeway locations throughout

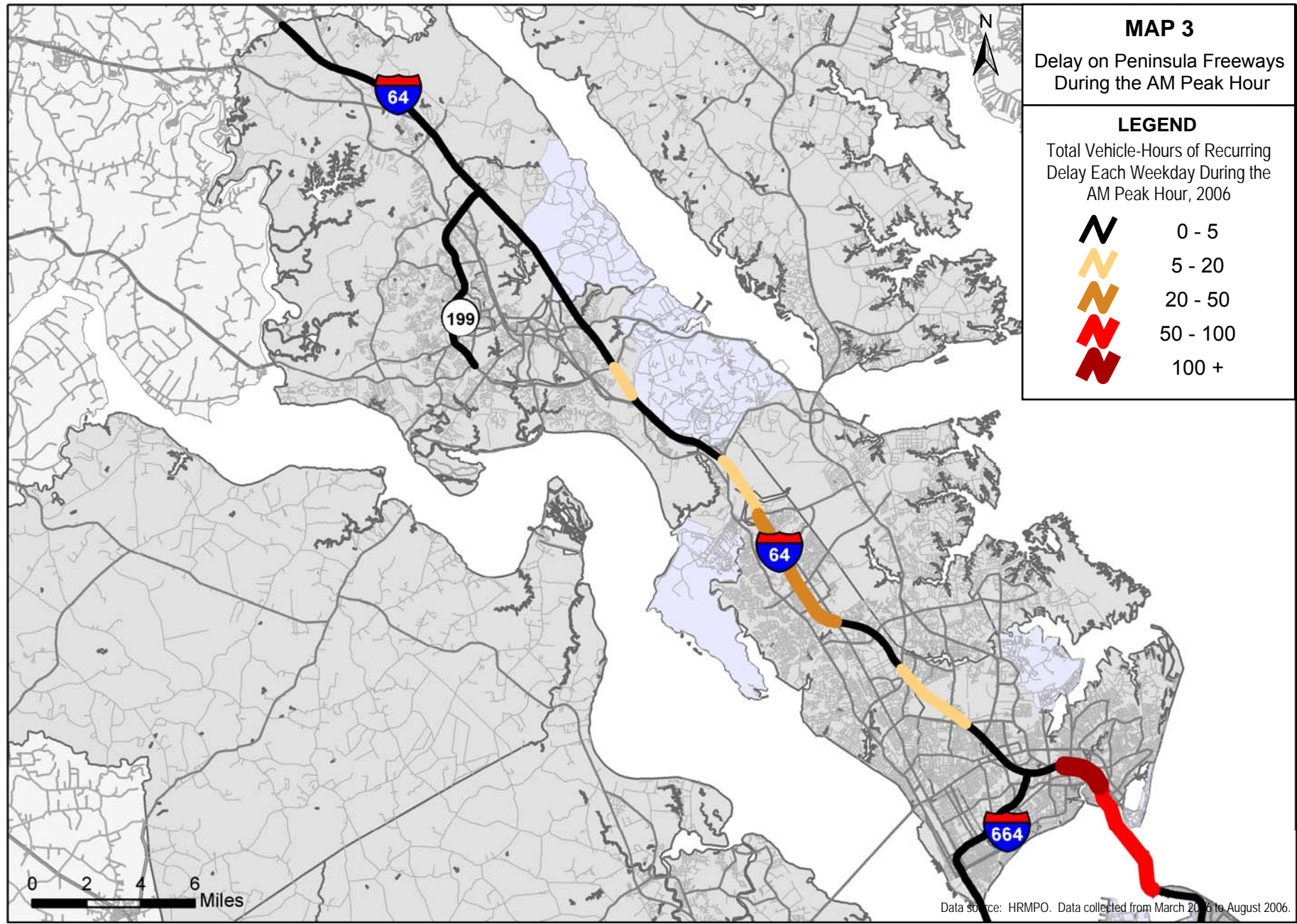
Hampton Roads with the highest amount of recurring delay during the morning and afternoon peak hours.

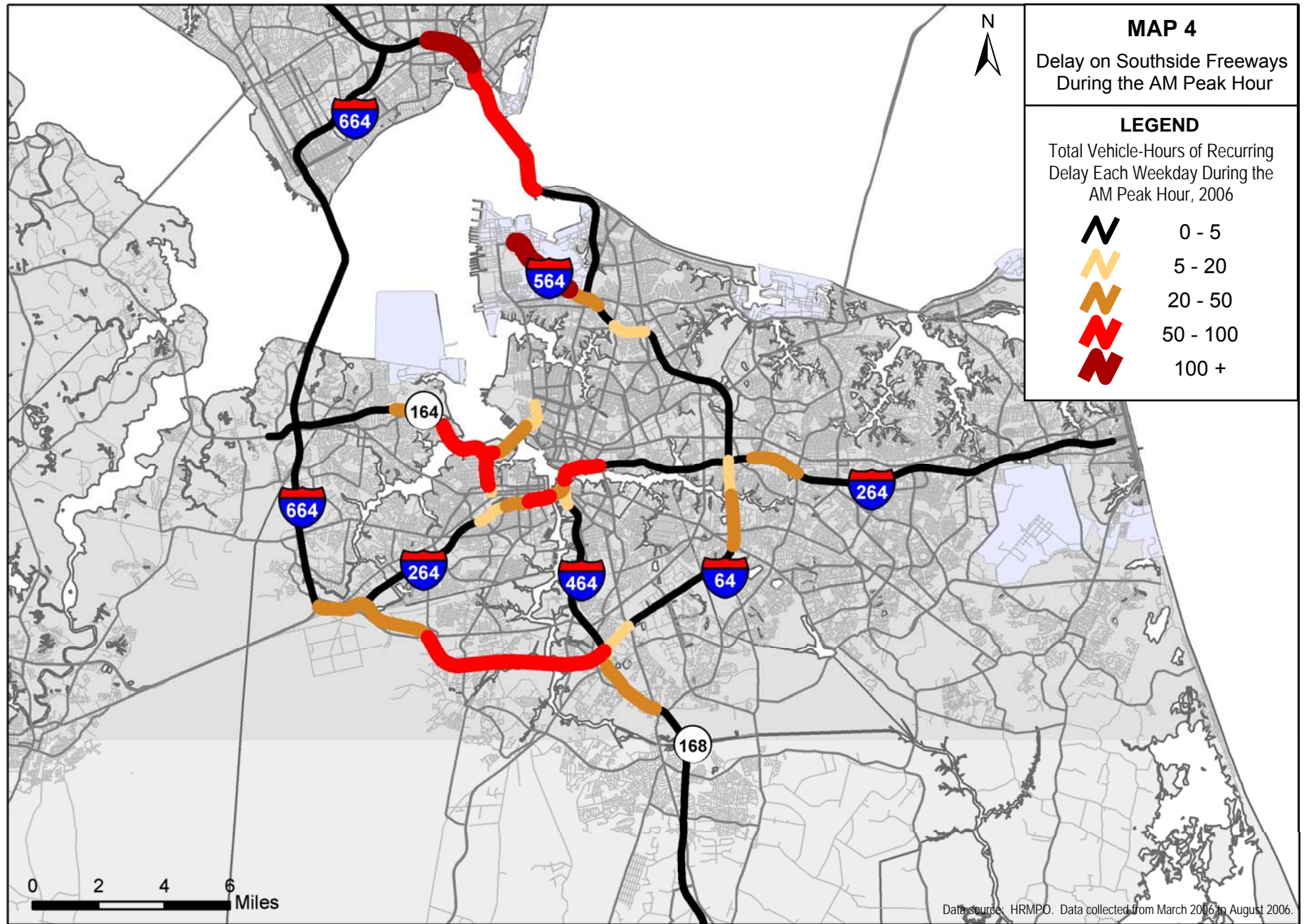
In the AM peak hour, the location on the freeway system with the most recurring delay is I-64 eastbound approaching the Hampton Roads Bridge-Tunnel. This location accounts for 26% of the total recurring delay on the regional freeway system during the AM peak hour. Other freeway locations with the highest amounts of recurring delay during the AM peak hour include I-564 approaching Naval Station Norfolk, I-64 approaching the High Rise Bridge from Bowers Hill, the northbound approach to the Midtown Tunnel, and I-264 eastbound approaching the Downtown Tunnel.

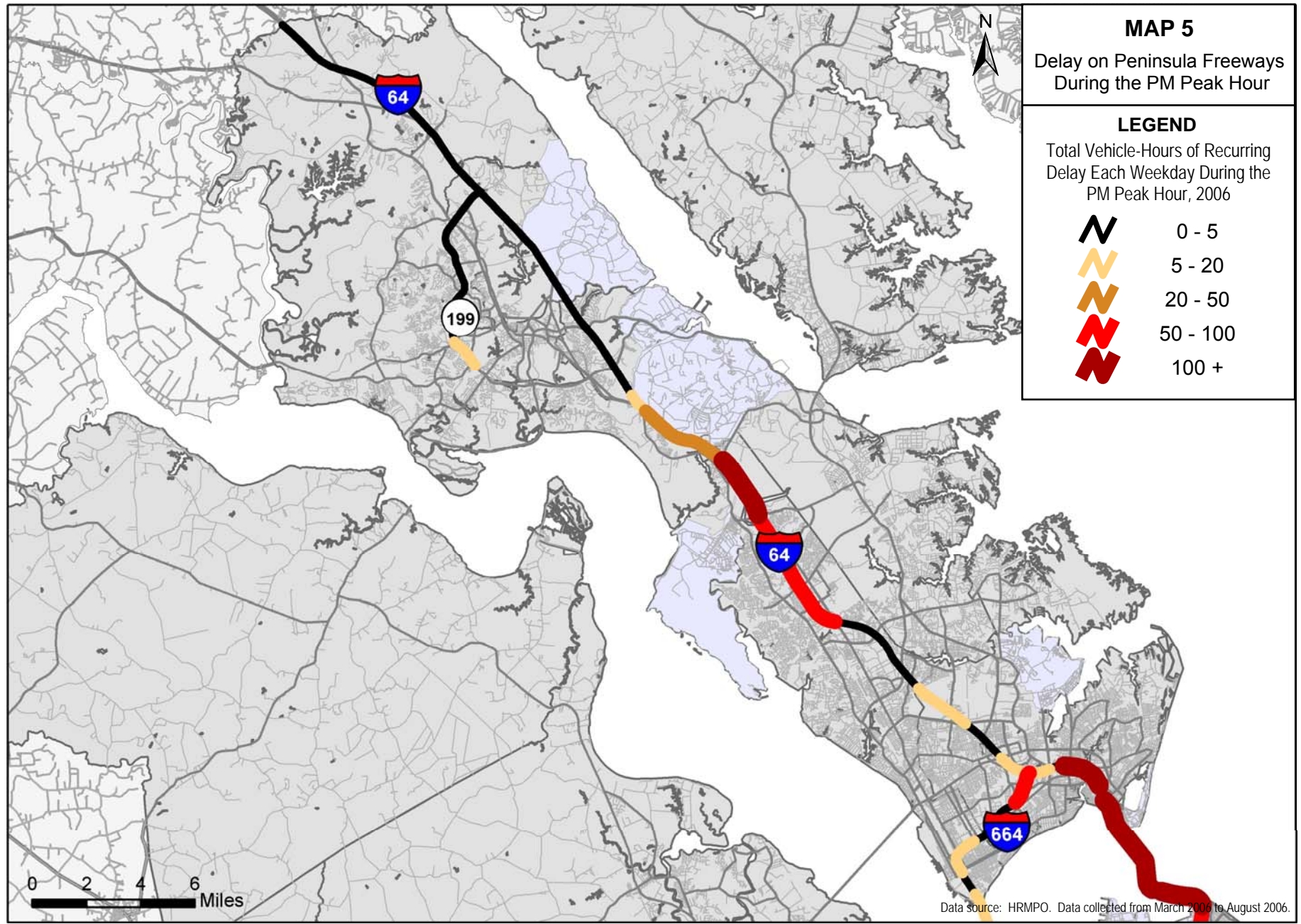
During the PM peak hour, the location on the freeway system with the most recurring delay is I-264 westbound approaching the Downtown Tunnel. This location accounts for over 30% of the total recurring delay on the regional freeway system during the PM peak hour. This delay, however, only accounts for congestion that occurs on the freeway system and does not account for the congestion that spills back onto the ramps and surface streets in Downtown Norfolk.

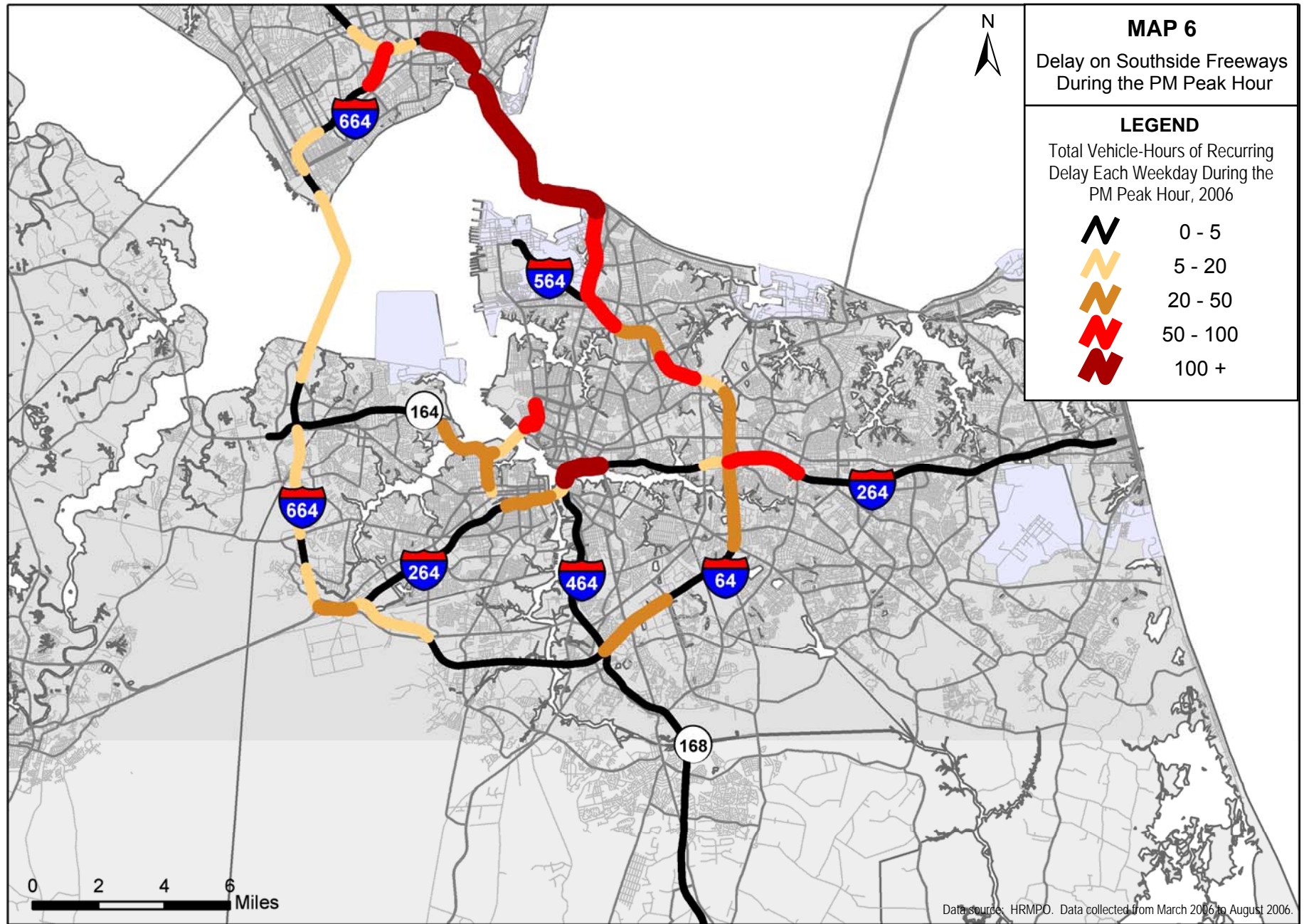
Other freeway locations with the highest amounts of recurring delay during the PM peak hour include both approaches to the Hampton Roads Bridge-Tunnel, both approaches to the Midtown Tunnel, I-64 eastbound between I-564 and I-264, I-64 eastbound in the vicinity of Fort Eustis Boulevard, and I-264 eastbound to the east of I-64.

**Appendix C** contains the average and total recurring delay for each freeway segment during the AM and PM peak hours. Again, it should be noted that certain facilities, such as the region's bridges and tunnels, are generally congested for longer than just the peak hour and so the amount of recurring delay that occurs each day at these facilities are much higher than is indicated in this analysis.









**TABLE 6 – Selected Freeway Segments with Significant Recurring Delay During the AM Peak Hour**

Facility	Facility From/To	Recurring Delay During the AM Peak Hour Each Weekday		Notes
		Total	Average Per Vehicle	
I-64 Eastbound approaching the Hampton Roads Bridge-Tunnel	Rip Rap Road to 15th View St	393 veh-hours	440 sec.	This accounts for 26% of the total recurring delay that occurs during the AM peak hour on the regional freeway system. This facility also had the most delay per vehicle.
I-564 Northwestbound approaching Naval Station Norfolk	I-64 to Admiral Taussig Blvd	150 veh-hours	126 sec.	
I-64 towards Virginia Beach approaching the High Rise Bridge	I-264/I-664 to I-464	145 veh-hours	157 sec.	
Northbound MLK Freeway approaching the Midtown Tunnel	London Blvd to Brambleton Ave	124 veh-hours	367 sec.	An additional 42 hours of delay occurs on the Western Freeway approach.
I-264 Eastbound approaching the Downtown Tunnel	Frederick Blvd to I-464	74 veh-hours	79 sec.	Does not include significant delays on city streets.

Data source: HRMPO.

**TABLE 7 – Selected Freeway Segments with Significant Recurring Delay During the PM Peak Hour**

Facility	Facility From/To	Recurring Delay During the PM Peak Hour Each Weekday		Notes
		Total	Average Per Vehicle	
I-264 Westbound approaching the Downtown Tunnel	Brambleton Ave to Effingham St	923 veh-hours	857 sec	This accounts for 31% of the total recurring delay that occurs during the PM peak hour on the regional freeway system. This facility also had by far the most delay per vehicle. Does not include delays on city streets.
I-64 Eastbound approaching the Hampton Roads Bridge-Tunnel	Rip Rap Road to 15th View St	306 veh-hours	366 sec.	
I-64 Eastbound	I-564 to I-264	268 veh-hours	166 sec.	
I-64 Westbound approaching the Hampton Roads Bridge-Tunnel	I-564 to Mallory St	225 veh-hours	268 sec.	
I-64 Eastbound	Route 143 near the Weapons Station to Jefferson Ave	191 veh-hours	206 sec.	
I-264 Eastbound	I-64 to Witchduck Rd	140 veh-hours	53 sec.	Does not include backups on the ramps from I-64.
Midtown Tunnel Northbound	London Blvd to Brambleton Ave	65 veh-hours	142 sec.	An additional 19 hours of delay occurs on the Western Freeway approach.
Midtown Tunnel Southbound	21st St to Western Freeway	57 veh-hours	139 sec.	Does not include delay on the Brambleton Avenue approach.

Data source: HRMPO.

Speed Profile Graphs

**Appendix D** contains the individual speed profile graphs for freeway facilities throughout Hampton Roads. These speed profiles show graphically where most of the travel delay is occurring on the regional interstate system, as well as several key non-interstate roadways. These non-interstate roadways include the Chesapeake Expressway, Midtown Tunnel/MLK Freeway, Route 199, Western Freeway and the Hampton Boulevard approach to the Midtown Tunnel.

For each facility, speed profiles are drawn for each direction using a measure of time versus speed. An example of these speed profiles is shown in **Figure 2**. Time, rather than distance, was chosen for these graphs since time depicts delay in the same way that the average motorist often describes it. Speed profiles are included for each freeway segment for both the morning (AM) and afternoon (PM) peak hour data. There are a

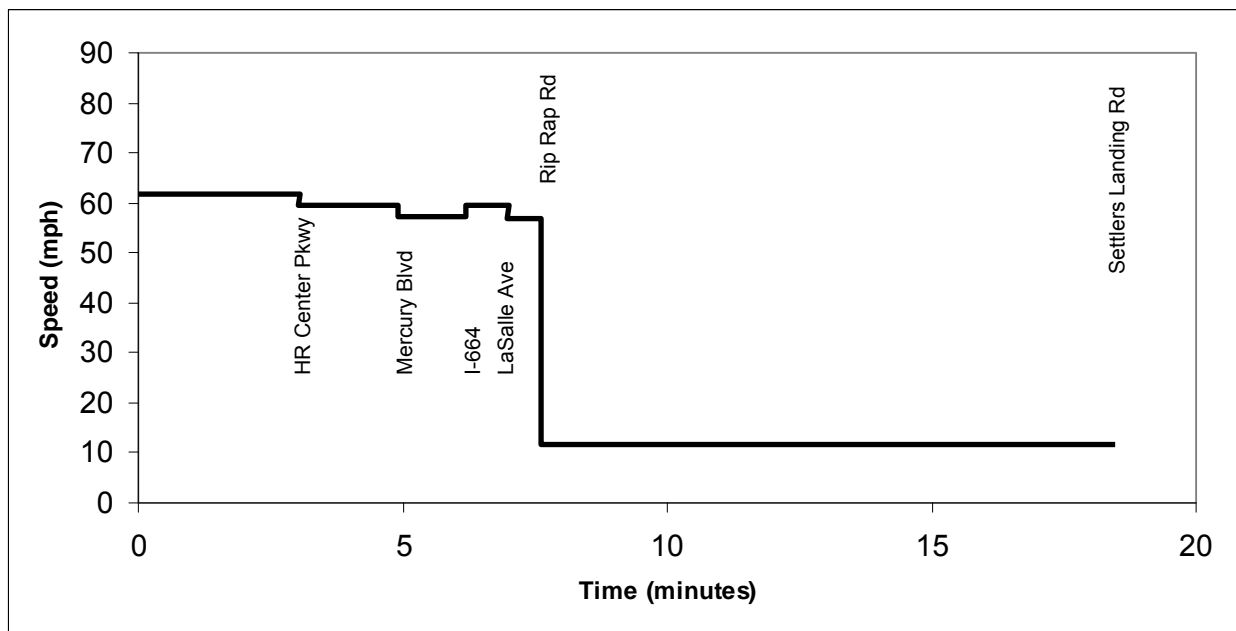
total of 92 speed profiles included in this report.

Whereas many freeway segments have significant travel time delays shown in these speed profiles, the graphs show that some of the largest delays occur at the approaches to the area bridges and tunnels. With the exception of the Monitor-Merrimac Memorial Bridge-Tunnel, which maintained fairly stable speeds during the AM peak hour, the approaches to all of the other regional bridges and tunnels had significant delays in at least one direction, and often both directions, during both peak periods.

Some of the largest delays in the region occur on both approaches to the Hampton Roads Bridge-Tunnel during the afternoon peak hour. The most prominent delay is visible on the graph of eastbound I-64 from J. Clyde Morris Boulevard to Settlers Landing Road (see **Figure 2** below). In this

**FIGURE 2 – Speed Profile Graph Example**

**I-64 Eastbound: J Clyde Morris Blvd to Settlers Landing Rd - PM Peak Hour**



Data Source: HRMPO.

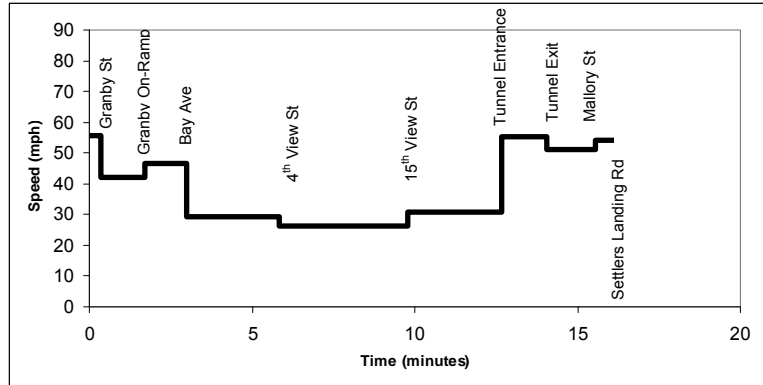
segment, 62% of the 18-minute total travel time was spent at average speeds of just 13 mph. Likewise, the westbound approach begins to slow at Bay Avenue (see **Figure 3** to the right), where average speeds drop from 46 mph to 30 mph and remain at or near 30 mph for nearly 10 of the 16 total minutes it takes to traverse this segment of roadway.

Another highly visible delay is evident on the graph of westbound I-264 during the PM peak hour from Ballentine Boulevard to Frederick Boulevard, which includes the Downtown Tunnel (see speed profile to the right). Although this segment is only 5.25 miles in length, it takes more than 21 minutes to travel it. While the entire freeway segment experienced delay the most noticeable delay occurred between Brambleton Avenue/Campostella Road and I-464. This portion of the freeway segment, while comprising less than 30% of the total segment distance, represented nearly 75% of the total segment travel time.

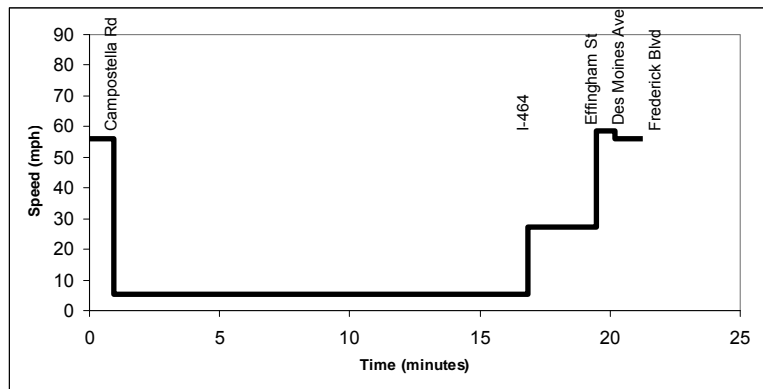
Besides the area bridges and tunnels, other speed profile graphs showing notable delays include I-64 at Bowers Hill, I-64 eastbound from I-564 to I-264, and I-64 eastbound from Route 199 East (exit 242) to Fort Eustis Blvd.

**FIGURE 3 – Notable Speed Profile Graphs**

**I-64 Westbound: I-564 to Settlers Landing Rd - PM Peak Hour**



**I-264 Westbound: Ballentine Blvd to Frederick Blvd - PM Peak Hour**



Data Source: HRMPO.

### Non-recurring Delay on the Freeway System

Non-recurring delay is defined as delay that is caused by congestion that does not occur on a regular basis. National figures have estimated that as much as half of all metropolitan freeway congestion can be due to non-recurring delay. Non-recurring congestion is due to various types of incidents, which include:

- Crashes
- Disabled vehicles
- Debris in the roadway
- Work zones
- Inclement weather
- Special events

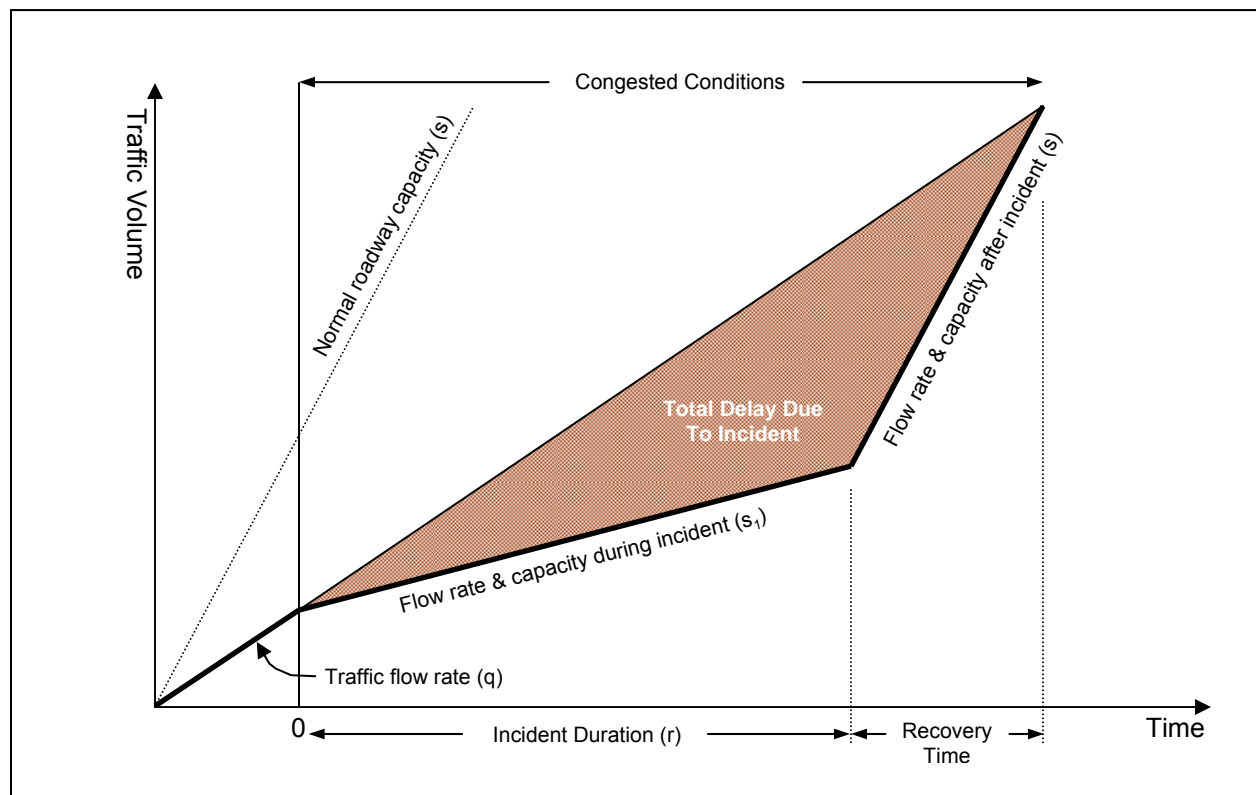
**Figure 3** shows the characteristics of traffic flow during an incident. The total amount of delay resulting from an incident on a particular roadway is included within the red shaded area. The amount of delay due to an incident is dependent on a variety of factors

including the total number of lanes and the number of lanes blocked, the duration of the incident, and the volume of traffic. Additionally, opposing traffic flow is often impacted by rubbernecking, or drivers that slow down to look at traffic incidents.

**Table 8** on page 21 shows the proportion of freeway capacity expected to be available during an incident based on the number of lanes available and number of lanes blocked. By applying these proportions to normal freeway capacities, the reduced freeway capacity can be determined.

Efforts are being conducted throughout both the United States and Hampton Roads to reduce the amount of delay caused by incidents. This is done by using dedicated technologies and manpower to reduce the total duration of each incident and by reducing the amount of time lanes are blocked.

**FIGURE 4 – Traffic Flow During an Incident**



In Hampton Roads incidents on the freeway system are managed by the VDOT Eastern Region Traffic Operations Center (formerly known as the Hampton Roads Smart Traffic Center). The Traffic Operations Center (TOC) owns and maintains infrastructure to help detect and manage incidents including cameras, vehicle detection sensors, and a technologically-advanced control room. The TOC also dispatches the Safety Service Patrol to provide motorist assistance and to respond to incidents. Traffic information from the TOC is disseminated to travelers via many methods including highway advisory radio and the 511 Virginia phone or website service.



PICTURE 5 – The control room at the VDOT Eastern Region Traffic Operations Center. Photo source: VDOT.

The delay caused by some high profile traffic incidents has recently led stakeholders in Hampton Roads to undertake the creation of a Regional Concept of Transportation Operations (RCTO). The purpose of the RCTO is to provide guidance in working towards collaborative solutions that will improve incident management in Hampton Roads. These collaborative solutions are expected to help decrease incident clearance times, decrease the number of crashes caused by backups due to previous incidents, and improve responder safety. Hampton Roads is one of only a handful of regions throughout the country that is currently developing an RCTO.

conditions, calculating non-recurring delay is much more difficult. Crash databases maintained by cities or the state do not include information related to the crash duration, number of lanes blocked, etc. The incident database maintained by the TOC contains much of this information, but only for those incidents responded to by the Safety Service Patrol. In addition, accounting for the changes in traffic patterns and additional delays associated with vehicles that alter their route due to incidents is difficult. Due to this complexity and lack of data, the amount of non-recurring delay occurring on freeways throughout the region is not analyzed in this report.

Whereas calculating recurring delay on the freeway system can be done by collecting travel time and speed data during normal

TABLE 8 – Proportion of Freeway Segment Capacity Available Under Incident Conditions

Number of Freeway Lanes by Direction	Shoulder Disablement	Shoulder Accident	One Lane Blocked	Two Lanes Blocked	Three Lanes Blocked
2	0.95	0.81	0.35	0.00	-
3	0.99	0.83	0.49	0.17	0.00
4	0.99	0.85	0.58	0.25	0.13
5	0.99	0.87	0.65	0.40	0.20
6	0.99	0.89	0.71	0.50	0.26

Source: Highway Capacity Manual 2000 edition.

## CONCLUSIONS

This study looked at the delay that is occurring on roadways throughout Hampton Roads, including measuring the current travel delay throughout the region and also determining how delay has changed throughout Hampton Roads in recent years.

Based on the analysis completed for this report, the following conclusions are made:

- **The amount of delay occurring on roadways throughout Hampton Roads increased substantially between 2000 and 2005.** Based on data collected by HRMPO, travel delay in Hampton Roads increased 19% during the AM peak hour and 45% during the PM peak hour between 2000 and 2005. This compares to a 9% increase in vehicle-miles of travel during both the AM and PM peak hours.
- **10 of the 13 Hampton Roads jurisdictions experienced an increase in total delay during the AM peak hour between 2000 and 2005, and 11 of the 13 experienced an increase during the PM peak hour.** Many jurisdictions experienced increases in delay of more than 50% between 2000 and 2005 and two jurisdictions, Hampton and Gloucester, saw delay more than double during the PM peak hour.
- **Nearly a third of all travel time in Hampton Roads during the PM peak hour is due to delay.** 25% of all travel time during the AM peak hour and 34% of all travel time during the PM peak hour in 2005 was due to delay. This number only includes recurring delay, so these numbers would be much higher if non-recurring delay was also included.



**PICTURE 6** – The westbound approach to the Downtown Tunnel has the longest delays on the regional freeway system during the PM peak hour.

- **Most of the recurring delay on the freeway system occurs at the bridges and tunnels.** The locations with the most recurring delay on the regional freeway system are the eastbound approach to the Hampton Roads Bridge-Tunnel during the AM peak hour and the westbound approach to the Downtown Tunnel during the PM peak hour.

## **APPENDIX A**

### Method Used to Calculate Regional Peak Hour Delay

## **Method Used to Calculate Regional Peak Hour Delay**

### **Travel Time and Traffic Volume Data**

- 2000 and 2005 HRMPO travel time data was used for the analysis.
- For 2000 traffic volumes, average weekday traffic volumes from 2000 were used. If average weekday traffic volumes from 2000 were not available, data from 2001 was used. If 2001 was not available, data from 1999 was used.
- For 2005 traffic volumes, average weekday traffic volumes from 2005 were used. If average weekday traffic volumes from 2005 were not available, data from 2004 was used. If 2004 was not available, data from 2006 was used.

### **Regional Peak Hour Delay Calculation**

- Total regional peak hour delay =  $\sum$  Segment total peak hour delay
- Segment total peak hour delay = Direction 1 total peak hour delay + Direction 2 total peak hour delay
- Segment directional peak hour delay (in hours) = Segment directional peak hour volume x Segment directional peak hour average delay (in seconds/vehicle) / 3600
- Segment directional peak hour volume = Segment weekday volume x Peak hour K-factor x [Peak hour D-factor (in peak direction) or 1 – Peak hour D-factor (in nonpeak direction)]
- Segment directional peak hour average delay (in seconds/vehicle) = Segment directional peak hour travel time (in seconds) - Segment uninterrupted travel time (in seconds) (Note: This value is not allowed to be < 0)
- Segment directional peak hour travel time (in seconds) = 3600 / [Segment directional peak hour travel speed (in mph) / Segment length (in miles)]
- Segment uninterrupted travel time (in seconds) = 3600 / [Segment speed limit (in mph) / Segment length (in miles)]

## Delay Calculation Example

Greenbrier Parkway between Woodlake Drive and Military Highway  
PM Peak Hour

Segment Length = 0.26 miles

Speed Limit = 45 mph

### 2000 Delay

Weekday Volume = 33,222 vehicles

PM K-factor = 0.086

PM D-factor = 0.555 (EB peak direction)

NB/EB PM average speed = 20.7 mph

SB/WB PM average speed = 26.6 mph

$$\begin{aligned} 2000 \text{ PM NB/EB volume} &= (\text{daily volume})(\text{K-factor})(\text{D-factor}) \\ &= (33,222 \text{ veh})(0.086)(0.555) \\ &= 1,595 \text{ vehicles in the peak hour} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM SB/WB volume} &= (\text{daily volume})(\text{K-factor})(1 - \text{D-factor}) \\ &= (33,222)(0.086)(1 - 0.555) \\ &= 1,278 \text{ vehicles in the peak hour} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM NB/EB travel time} &= 3600 \times (\text{seg. length})/(\text{avg. speed}) \\ &= (3600)(0.26 \text{ mi})/(20.7 \text{ mph}) \\ &= 45.2 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM SB/WB travel time} &= 3600 \times (\text{seg. length})/(\text{avg. speed}) \\ &= (3600)(0.26 \text{ mi})/(26.6 \text{ mph}) \\ &= 35.2 \text{ seconds} \end{aligned}$$

$$\begin{aligned} \text{Uninterrupted travel time} &= 3600 \times (\text{seg. length})/(\text{speed limit}) \\ &= (3600)(0.26 \text{ mi})/(45 \text{ mph}) \\ &= 20.8 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM NB/EB average delay} &= 2000 \text{ PM NB/EB travel time} - \\ &\text{uninterrupted travel time} \\ &= 45.2 \text{ sec} - 20.8 \text{ sec} \\ &= 24.4 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM SB/WB average delay} &= 2000 \text{ PM SB/WB travel time} - \\ &\text{uninterrupted travel time} \\ &= 35.2 \text{ sec} - 20.8 \text{ sec} \\ &= 14.4 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM NB/EB Total Daily Delay} &= (\text{PM NB/EB average delay}) \times \\ &(\text{PM NB/EB volume}) \\ &= (24.4 \text{ sec/veh})(1,595 \text{ veh}) \\ &= 38,918 \text{ seconds} \\ &= 10.82 \text{ hours} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM SB/WB Total Daily Delay} &= (\text{PM SB/WB average delay}) \times \\ &(\text{PM SB/WB volume}) \\ &= (14.4 \text{ sec/veh})(1,278 \text{ veh}) \\ &= 18,403 \text{ seconds} \\ &= 5.11 \text{ hours} \end{aligned}$$

$$\begin{aligned} 2000 \text{ PM Total Daily Delay} &= \text{PM NB/EB Total Daily Delay} + \\ &\text{PM SB/WB Total Daily Delay} \\ &= 10.82 \text{ hr} + 5.11 \text{ hr} \\ &= 15.93 \text{ hours} \end{aligned}$$

### 2005 Delay

Weekday Volume = 37,000 vehicles

PM K-factor = 0.086

PM D-factor = 0.555 (EB peak direction)

NB/EB PM average speed = 6.4 mph

SB/WB PM average speed = 22.0 mph

$$\begin{aligned} 2005 \text{ PM NB/EB volume} &= (\text{daily volume})(\text{K-factor})(\text{D-factor}) \\ &= (37,000 \text{ veh})(0.086)(0.555) \\ &= 1,777 \text{ vehicles in the peak hour} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM SB/WB volume} &= (\text{daily volume})(\text{K-factor})(1 - \text{D-factor}) \\ &= (37,000)(0.086)(1 - 0.555) \\ &= 1,423 \text{ vehicles in the peak hour} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM NB/EB travel time} &= 3600 \times (\text{seg. length})/(\text{avg. speed}) \\ &= (3600)(0.26 \text{ mi})/(6.4 \text{ mph}) \\ &= 146.3 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM SB/WB travel time} &= 3600 \times (\text{seg. length})/(\text{avg. speed}) \\ &= (3600)(0.26 \text{ mi})/(22.0 \text{ mph}) \\ &= 42.5 \text{ seconds} \end{aligned}$$

$$\begin{aligned} \text{Uninterrupted travel time} &= 3600 \times (\text{seg. length})/(\text{speed limit}) \\ &= (3600)(0.26 \text{ mi})/(45 \text{ mph}) \\ &= 20.8 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM NB/EB average delay} &= 2005 \text{ PM NB/EB travel time} - \\ &\text{uninterrupted travel time} \\ &= 146.3 \text{ sec} - 20.8 \text{ sec} \\ &= 125.5 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM SB/WB average delay} &= 2005 \text{ PM SB/WB travel time} - \\ &\text{uninterrupted travel time} \\ &= 42.5 \text{ sec} - 20.8 \text{ sec} \\ &= 21.7 \text{ seconds} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM NB/EB Total Daily Delay} &= (\text{PM NB/EB average delay}) \times \\ &(\text{PM NB/EB volume}) \\ &= (125.5 \text{ sec/veh})(1,777 \text{ veh}) \\ &= 223,014 \text{ seconds} \\ &= 61.91 \text{ hours} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM SB/WB Total Daily Delay} &= (\text{PM SB/WB average delay}) \times \\ &(\text{PM SB/WB volume}) \\ &= (21.7 \text{ sec/veh})(1,423 \text{ veh}) \\ &= 30,879 \text{ seconds} \\ &= 8.60 \text{ hours} \end{aligned}$$

$$\begin{aligned} 2005 \text{ PM Total Daily Delay} &= \text{PM NB/EB Total Daily Delay} + \\ &\text{PM SB/WB Total Daily Delay} \\ &= 61.91 \text{ hr} + 8.60 \text{ hr} \\ &= 70.51 \text{ hours} \end{aligned}$$

$$\begin{aligned} \text{Change in Weekday PM Peak Hour Total Delay} &= 2005 \text{ PM Total Delay} - 2000 \text{ PM Total Delay} \\ &= 70.51 \text{ hours} - 15.93 \text{ hours} = 54.58 \text{ hours} \end{aligned}$$

## **APPENDIX B**

Total Delay During the Weekday AM Peak Hour and PM Peak Hour by  
Roadway Segment

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
CHES	22ND ST	LIBERTY ST	BERKLEY AVE/NORFOLK CL	0.31	Y	Y	Y	2.1	0.0	-2.1	4.0	4.1	0.1
CHES	AIRLINE BLVD	I-664	JOLLIFF RD	0.38	Y	Y	Y	2.0	1.5	-0.5	1.4	2.3	0.9
CHES	AIRLINE BLVD	JOLLIFF RD	PORTSMOUTH CL	1.78	Y	Y	Y	10.9	1.7	-9.2	7.8	4.5	-3.2
CHES	ATLANTIC AVE	CAMPOSTELLA RD	PROVIDENCE RD	0.38	Y	Y	Y	4.9	0.0	-4.9	5.7	23.1	17.3
CHES	ATLANTIC AVE	PROVIDENCE RD	OLD ATLANTIC AVE	1.07	Y	Y	Y	1.3	3.5	2.1	4.0	0.7	-3.3
CHES	ATLANTIC AVE	OLD ATLANTIC AVE	CAMPOSTELLA RD	0.57	Y	Y	Y	0.0	0.0	0.0	0.1	0.0	-0.1
CHES	BAINBRIDGE BLVD	DOMINION BLVD	GREAT BRIDGE BLVD	2.05	Y	Y	Y	5.6	9.3	3.7	6.0	13.2	7.2
CHES	BAINBRIDGE BLVD	GREAT BRIDGE BLVD	MILITARY HWY	0.68	Y	Y	Y	1.4	0.1	-1.3	0.1	2.1	2.0
CHES	BAINBRIDGE BLVD	MILITARY HWY	FREEMAN AVE	0.70	Y	Y	Y	1.2	1.9	0.7	3.8	1.2	-2.5
CHES	BAINBRIDGE BLVD	FREEMAN AVE	SWAIN AVE	0.94	Y	Y	Y	6.0	6.5	0.5	4.5	8.0	3.5
CHES	BAINBRIDGE BLVD	SWAIN AVE	CHESAPEAKE DR	0.20	Y	Y	Y	1.2	1.4	0.1	0.8	1.7	0.9
CHES	BAINBRIDGE BLVD	CHESAPEAKE DR	POINDEXTER ST	0.93	Y	Y	Y	6.0	3.9	-2.0	4.3	5.6	1.3
CHES	BAINBRIDGE BLVD	POINDEXTER ST	NORFOLK CL	0.53	Y	Y	Y	0.9	0.8	-0.1	2.2	3.6	1.4
CHES	BATTLEFIELD BLVD	NORTH CAROLINA STATE LINE	BALLAHACK RD	0.50	Y	Y	Y	0.1	1.7	1.6	0.5	4.0	3.6
CHES	BATTLEFIELD BLVD	BALLAHACK RD	GALLBUSH RD	1.00	Y	Y	Y	3.6	24.9	21.2	7.9	10.4	2.5
CHES	BATTLEFIELD BLVD	GALLBUSH RD	INDIAN CREEK RD	2.63	Y	Y	Y	25.9	12.4	-13.5	10.3	8.4	-1.9
CHES	BATTLEFIELD BLVD	INDIAN CREEK RD	CENTERVILLE TNPK	1.54	Y	Y	Y	31.9	0.0	-31.9	0.0	0.0	0.0
CHES	BATTLEFIELD BLVD	CENTERVILLE TNPK	HILLCREST PKWY	2.05	Y	Y	Y	98.1	24.3	-73.8	19.7	35.3	15.6
CHES	BATTLEFIELD BLVD	HILLCREST PKWY	PEACEFUL RD/HILLWELL RD	1.61	Y	Y	Y	34.2	10.3	-23.9	9.9	7.3	-2.7
CHES	BATTLEFIELD BLVD	PEACEFUL RD/HILLWELL RD	HANBURY RD	0.57	Y	Y	Y	0.8	7.4	6.6	1.0	1.5	0.5
CHES	BATTLEFIELD BLVD	HANBURY RD	JOHNSTOWN RD	1.61	Y	Y	Y	4.2	24.3	20.2	6.8	43.8	36.9
CHES	BATTLEFIELD BLVD	JOHNSTOWN RD	CEDAR RD	0.28	Y	Y	Y	2.8	6.6	3.8	13.6	45.5	31.9
CHES	BATTLEFIELD BLVD	CEDAR RD	GREAT BRIDGE BLVD	1.20	Y	Y	Y	31.1	34.9	3.7	40.6	50.3	9.7
CHES	BATTLEFIELD BLVD	GREAT BRIDGE BLVD	GREAT BRIDGE BYPASS	0.19	Y	Y	Y	4.2	4.6	0.4	1.5	16.8	15.3
CHES	BATTLEFIELD BLVD	GREAT BRIDGE BYPASS	VOLVO PKWY	1.97	Y	Y	Y	71.4	59.7	-11.6	22.0	243.6	221.6
CHES	BATTLEFIELD BLVD	VOLVO PKWY	I-64	0.65	Y	Y	Y	35.8	29.8	-6.0	83.8	87.5	3.6
CHES	BATTLEFIELD BLVD	I-64	MILITARY HWY	0.76	Y	Y	Y	0.3	0.0	-0.3	4.5	0.0	-4.5
CHES	BATTLEFIELD BLVD	MILITARY HWY	CAMPOSTELLA RD	0.56	Y	Y	Y	14.7	9.0	-5.8	7.0	16.4	9.5
CHES	BENEFIT RD	JOHNSTOWN RD	SIGN PINE RD	1.80	N	Y	N						
CHES	BLACKWATER RD	VIRGINIA BEACH CL	FENTRESS AIRFIELD RD	2.59	N	Y	N						
CHES	BRIDGE RD	SUFFOLK CL	CHURCHLAND BLVD	0.61	Y	Y	Y	0.9	5.2	4.4	2.0	14.2	12.2
CHES	BRUCE RD	TAYLOR RD	TYRE NECK RD	1.60	N	Y	N						
CHES	BUTTS STATION RD	KEMPSVILLE RD	CENTERVILLE TNPK	2.08	Y	Y	Y	24.0	14.7	-9.3	13.6	12.6	-1.0
CHES	CAMPOSTELLA RD	GREAT BRIDGE BLVD	MILITARY HWY	1.32	Y	Y	Y	8.1	8.2	0.1	4.3	5.3	1.0
CHES	CAMPOSTELLA RD	MILITARY HWY	BATTLEFIELD BLVD	1.06	Y	Y	Y	10.9	12.2	1.3	31.1	34.0	2.8
CHES	CAMPOSTELLA RD	BATTLEFIELD BLVD	PROVIDENCE RD	0.44	Y	Y	Y	9.2	12.9	3.7	15.8	9.5	-6.4
CHES	CAMPOSTELLA RD	PROVIDENCE RD	ATLANTIC AVE	1.47	Y	Y	Y	4.4	2.0	-2.4	25.3	14.8	-10.5
CHES	CAMPOSTELLA RD	ATLANTIC AVE	NORFOLK CL/BERKELY AVE EXT	0.34	Y	Y	Y	0.4	0.0	-0.4	1.1	6.4	5.3
CHES	CANAL DR	MILITARY HWY	GEORGE WASHINGTON HWY	0.97	Y	Y	Y	29.8	12.3	-17.5	58.6	16.4	-42.2
CHES	CAVALIER BLVD	MILITARY HWY	PORTSMOUTH CL	1.24	Y	Y	Y	5.3	7.8	2.5	3.0	5.1	2.0
CHES	CEDAR RD	GEORGE WASHINGTON HWY	SHIPYARD RD/MOSES GRANDY TR	0.32	Y	Y	Y	2.0	22.4	20.4	0.4	2.4	2.0
CHES	CEDAR RD	SHIPYARD RD/MOSES GRANDY TR	WEST RD	1.94	Y	Y	Y	26.2	3.6	-22.6	1.0	5.4	4.3
CHES	CEDAR RD	WEST RD	MOSES GRANDY TRAIL	1.10	Y	Y	Y	18.8	22.0	3.2	5.4	16.6	11.2
CHES	CEDAR RD	DOMINION BLVD	BELLS MILL RD (WEST)	0.65	Y	Y	Y	3.9	73.4	69.5	11.0	99.4	88.4
CHES	CEDAR RD	BELLS MILL RD (WEST)	BELLS MILL RD (EAST)	1.68	Y	Y	Y	10.0	29.6	19.6	28.4	16.4	-12.0
CHES	CEDAR RD	BELLS MILL RD (EAST)	BRIARFIELD DR	0.88	Y	Y	Y	5.9	7.7	1.8	16.8	22.1	5.3
CHES	CEDAR RD	BRIARFIELD DR	BATTLEFIELD BLVD	0.79	Y	Y	Y	5.4	7.8	2.5	11.1	4.0	-7.1
CHES	CENTERVILLE TNPK	BATTLEFIELD BLVD	ETHRIDGE MANOR BLVD	3.75	Y	Y	Y	0.0	0.0	0.0	1.4	2.1	0.8
CHES	CENTERVILLE TNPK	ETHRIDGE MANOR BLVD	MT PLEASANT RD	2.15	Y	Y	Y	5.0	7.9	2.9	3.1	10.7	7.6
CHES	CENTERVILLE TNPK	MT PLEASANT RD	BUTTS STATION RD	1.27	Y	Y	Y	14.4	8.6	-5.8	2.1	15.8	13.7
CHES	CENTERVILLE TNPK	BUTTS STATION RD	ELBOW RD	0.45	Y	Y	Y	6.2	1.0	-5.2	4.6	1.1	-3.5
CHES	CENTERVILLE TNPK	ELBOW RD	S.E. PARKWAY	0.45	Y	Y	Y	0.2	0.8	0.6	0.4	1.3	0.9
CHES	CENTERVILLE TNPK	S.E. PARKWAY	VA BEACH CL	0.95	Y	Y	Y	0.5	1.7	1.2	0.8	2.7	1.9
CHES	CHESAPEAKE EXPWY	GALLBUSH RD	BATTLEFIELD BLVD (NEAR INDIAN CREEK)	2.61	Y	Y	Y	12.3	9.8	-2.4	7.8	17.2	9.4
CHES	CHESAPEAKE EXPWY	BATTLEFIELD BLVD (NEAR INDIAN CREEK)	HILLCREST PKWY	2.63	Y	Y	Y	0.0	0.3	0.3	0.0	0.2	0.2

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
CHES	CHESAPEAKE EXPWY	HILLCREST PKWY	BATTLEFIELD BLVD (S OF GREAT BRIDGE)	2.21	Y	Y	Y	0.0	0.6	0.6	0.0	0.2	0.2
CHES	CHESAPEAKE EXPWY (GBB)	BATTLEFIELD BLVD (S OF GREAT BRIDGE)	HANBURY RD	0.59	Y	Y	Y	0.0	0.1	0.1	0.0	0.1	0.1
CHES	CHESAPEAKE EXPWY (GBB)	HANBURY RD	MT PLEASANT RD	1.31	Y	Y	Y	0.0	0.3	0.3	5.2	0.0	-5.2
CHES	CHESAPEAKE EXPWY (GBB)	MT PLEASANT RD	BATTLEFIELD BLVD (N OF GREAT BRIDGE)	2.31	Y	Y	Y	0.0	0.0	0.0	9.5	4.6	-4.9
CHES	CHESAPEAKE EXPWY (OGC)	BATTLEFIELD BLVD (N OF GREAT BRIDGE)	DOMINION BLVD	1.90	Y	Y	Y	0.0	57.1	57.1	0.0	0.0	0.0
CHES	CHESAPEAKE EXPWY (OGC)	DOMINION BLVD	I-64	0.57	Y	Y	Y	0.0	15.9	15.9	0.0	0.0	0.0
CHES	CHURCHLAND BLVD	WESTERN BRANCH BLVD	TOWN POINT RD	0.59	Y	Y	Y	6.7	3.4	-3.2	1.7	9.1	7.4
CHES	CHURCHLAND BLVD	TOWN POINT RD	PORTSMOUTH CL	0.11	Y	Y	Y	1.3	4.5	3.2	1.4	1.3	0.0
CHES	DOCK LANDING RD	JOLLIFF RD	I-664	0.39	N	Y	N						
CHES	DOCK LANDING RD	I-664	EAGLE HILL DR	0.74	N	Y	N						
CHES	DOCK LANDING RD	EAGLE HILL DR	PORTSMOUTH BLVD	2.44	N	Y	N						
CHES	DOMINION BLVD	GEORGE WASHINGTON HWY	CEDAR RD	4.00	Y	Y	Y	6.0	53.7	47.7	6.3	18.6	12.4
CHES	DOMINION BLVD	CEDAR RD	BAINBRIDGE BLVD	0.93	Y	Y	Y	11.5	53.2	41.7	17.3	30.4	13.1
CHES	DOMINION BLVD	BAINBRIDGE BLVD	GREAT BRIDGE BLVD	1.62	Y	Y	Y	5.2	40.0	34.8	23.4	16.2	-7.2
CHES	EDINBURGH PKWY	SIGN PINE RD	HILLCREST PKWY	0.80	N	N	N						
CHES	ELBOW RD	CENTERVILLE TNPKE	VA BEACH CL	2.85	Y	Y	Y	8.2	17.9	9.7	6.8	12.5	5.7
CHES	ETHRIDGE MANOR RD	HILLWELL RD	CENTERVILLE TPKE	1.99	N	Y	Y		3.8	3.8		7.3	7.3
CHES	FENTRESS AIRFIELD RD	BLACKWATER RD	MOUNT PLEASANT RD	0.16	N	Y	N						
CHES	FREEMAN AVE	I-464	BAINBRIDGE BLVD	0.20	Y	Y	Y	3.7	1.9	-1.8	1.7	1.3	-0.4
CHES	GEORGE WASHINGTON HWY	NORTH CAROLINA STATE LINE	DOMINION BLVD	9.83	Y	Y	Y	2.4	0.0	-2.4	2.9	0.0	-2.9
CHES	GEORGE WASHINGTON HWY	DOMINION BLVD	CEDAR RD @ HINTON AVE	3.38	Y	Y	Y	38.4	21.6	-16.8	8.9	6.3	-2.6
CHES	GEORGE WASHINGTON HWY	CEDAR RD @ HINTON AVE	MILL CREEK PKWY	0.10	Y	Y	Y	9.5	6.4	-3.0	5.5	3.9	-1.7
CHES	GEORGE WASHINGTON HWY	MILL CREEK PKWY	WILLOWOOD DR	0.80	Y	Y	Y	45.8	36.1	-9.7	13.0	82.4	69.5
CHES	GEORGE WASHINGTON HWY	WILLOWOOD DR	I-64	0.38	Y	Y	Y	21.8	17.1	-4.6	6.2	39.2	33.0
CHES	GEORGE WASHINGTON HWY	I-64	MILITARY HWY	0.94	Y	Y	Y	33.8	2.8	-31.0	37.6	26.3	-11.3
CHES	GEORGE WASHINGTON HWY	MILITARY HWY	CANAL DR	0.98	Y	Y	Y	6.6	7.3	0.7	14.2	39.5	25.3
CHES	GEORGE WASHINGTON HWY	CANAL DR	PORTSMOUTH CL	0.61	Y	Y	Y	11.4	16.0	4.5	14.7	52.4	37.7
CHES	GREAT BRIDGE BLVD	BAINBRIDGE BLVD	CAMPOSTELLA RD	0.84	Y	Y	Y	6.1	0.6	-5.4	1.1	0.0	-1.1
CHES	GREAT BRIDGE BLVD	CAMPOSTELLA RD	I-64	0.30	Y	Y	Y	0.0	0.0	0.0	0.0	4.9	4.9
CHES	GREAT BRIDGE BLVD	I-64	DOMINION BLVD	0.26	Y	Y	Y	12.0	13.3	1.3	0.7	10.4	9.7
CHES	GREAT BRIDGE BLVD	DOMINION BLVD	RIVERWALK PKWY WEST	0.50	Y	Y	Y	9.5	8.7	-0.8	2.6	9.6	7.0
CHES	GREAT BRIDGE BLVD	RIVERWALK PKWY WEST	BATTLEFIELD BLVD	1.82	Y	Y	Y	34.7	31.7	-3.0	9.6	35.0	25.3
CHES	GREENBRIER PKWY	KEMPSVILLE RD	VOLVO PKWY	1.86	Y	Y	Y	30.2	26.2	-4.0	39.7	76.0	36.3
CHES	GREENBRIER PKWY	VOLVO PKWY	EDEN WAY	0.41	Y	Y	Y	8.4	33.2	24.8	24.6	117.2	92.6
CHES	GREENBRIER PKWY	EDEN WAY	I-64	0.69	Y	Y	Y	29.4	40.3	10.9	65.9	162.9	97.0
CHES	GREENBRIER PKWY	I-64	WOODLAKE DR	0.50	Y	Y	Y	63.7	37.7	-26.0	48.1	63.6	15.4
CHES	GREENBRIER PKWY	WOODLAKE DR	MILITARY HWY	0.26	Y	Y	Y	21.1	36.4	15.3	15.9	70.5	54.6
CHES	HANBURY RD	JOHNSTOWN RD	BATTLEFIELD BLVD	1.01	N	Y	N						
CHES	HANBURY RD	BATTLEFIELD BLVD	CHESAPEAKE EXPRESSWAY	0.26	N	Y	N						
CHES	HANBURY RD	CHESAPEAKE EXPRESSWAY	HILLWELL RD	0.38	N	Y	N						
CHES	HILLCREST PKWY	EDINBURGH PKWY	CHESAPEAKE EXPRESSWAY	0.36	N	N	N						
CHES	HILLCREST PKWY	CHESAPEAKE EXPRESSWAY	BATTLEFIELD BLVD	0.30	N	N	N						
CHES	INDIAN RIVER RD	NORFOLK CL	TATEMSTOWN RD	0.39	Y	Y	Y	7.3	9.7	2.4	10.2	10.4	0.2
CHES	INDIAN RIVER RD	TATEMSTOWN RD	VA BEACH CL	1.22	Y	Y	Y	17.8	28.2	10.5	73.3	40.9	-32.5
CHES	I-64	VA BEACH CL	GREENBRIER PKWY	1.30	Y	Y	Y	0.0	0.0	0.0	45.2	0.0	-45.2
CHES	I-64	GREENBRIER PKWY	BATTLEFIELD BLVD	1.42	Y	Y	Y	0.0	0.0	0.0	5.9	2.6	-3.3
CHES	I-64	BATTLEFIELD BLVD	I-464	1.08	Y	Y	Y	0.0	7.8	7.8	9.1	1.2	-7.9
CHES	I-64	I-464	GEORGE WASHINGTON HWY	4.38	Y	Y	Y	0.0	36.5	36.5	0.0	27.6	27.6
CHES	I-64	GEORGE WASHINGTON HWY	MILITARY HWY	1.53	Y	Y	Y	0.0	129.6	129.6	2.2	6.8	4.6
CHES	I-64	MILITARY HWY	I-264&664	2.31	Y	Y	Y	0.0	38.4	38.4	0.0	0.0	0.0
CHES	I-264	I-64&664	WCL PORTSMOUTH	1.23	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
CHES	I-464	I-64	MILITARY HWY	1.00	Y	Y	Y	0.0	0.8	0.8	1.2	1.4	0.2
CHES	I-464	MILITARY HWY	FREEMAN AVE	0.97	Y	Y	Y	0.0	0.2	0.2	1.1	0.2	-0.8
CHES	I-464	FREEMAN AVE	POINDEXTER ST	1.90	Y	Y	Y	0.0	0.0	0.0	2.4	0.0	-2.4
CHES	I-464	POINDEXTER ST	NORFOLK CL	0.72	Y	Y	Y	0.0	4.0	4.0	2.3	1.1	-1.2

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
CHES	I-664	I-64 & I-264	ROUTES 13/58/460	1.70	Y	Y	Y	2.5	11.3	8.9	0.0	141.1	141.1
CHES	I-664	ROUTES 13/58/460	DOCK LANDING RD	1.25	Y	Y	Y	1.2	2.1	0.9	0.0	44.4	44.4
CHES	I-664	DOCK LANDING RD	PORTSMOUTH BLVD	1.14	Y	Y	Y	0.0	0.0	0.0	0.0	4.4	4.4
CHES	I-664	PORTSMOUTH BLVD	PUGHSVILLE RD	2.06	Y	Y	Y	0.0	0.2	0.2	0.0	2.3	2.3
CHES	I-664	PUGHSVILLE RD	SUFFOLK CL	0.83	Y	Y	Y	4.6	3.0	-1.6	0.0	0.0	0.0
CHES	JOHNSTOWN RD	BENEFIT RD	STONEGATE PKWY	3.85	N	Y	N						
CHES	JOHNSTOWN RD	STONEGATE PKWY	HANBURY RD	1.27	N	Y	N						
CHES	JOHNSTOWN RD	HANBURY RD	PARKER RD	0.76	N	Y	N						
CHES	JOHNSTOWN RD	PARKER RD	BATTLEFIELD BLVD	0.49	N	Y	N						
CHES	JOLLIFF RD	AIRLINE BLVD	DOCK LANDING RD	2.22	N	Y	N						
CHES	JOLLIFF RD	DOCK LANDING RD	PORTSMOUTH BLVD	0.90	N	Y	N						
CHES	KEMPSVILLE RD	BATTLEFIELD BLVD	GREENBRIER PKWY	1.27	Y	Y	Y	38.3	60.7	22.4	73.0	66.3	-6.7
CHES	KEMPSVILLE RD	GREENBRIER PKWY	VOLVO PKWY	1.89	Y	Y	Y	33.8	29.9	-3.9	55.7	21.1	-34.6
CHES	KEMPSVILLE RD	VOLVO PKWY	VA BEACH CL	0.38	Y	Y	Y	14.3	14.6	0.3	42.5	20.1	-22.4
CHES	LIBERTY ST	SCL NORFOLK	22ND ST	0.36	Y	Y	Y	1.4	0.7	-0.8	1.9	2.6	0.7
CHES	LIBERTY ST	22ND ST	POINDEXTER RD	0.06	Y	Y	Y	2.2	1.2	-1.0	4.8	4.9	0.1
CHES	LIBERTY ST	POINDEXTER RD	OLD ATLANTIC AVE	0.37	Y	Y	Y	1.0	0.0	-1.0	3.1	1.9	-1.2
CHES	LIBERTY ST	OLD ATLANTIC AVE	CAMPOSTELLA RD	0.37	Y	Y	Y	3.8	0.0	-3.8	3.2	0.0	-3.2
CHES	MILITARY HWY	AIRLINE BLVD	I-64	3.28	Y	I-64	Y	14.0	5.2	-8.8	16.5	11.1	-5.5
CHES	MILITARY HWY	I-64	CAVALIER BLVD	0.30	Y	Y	Y	6.1	7.3	1.2	11.4	1.3	-10.1
CHES	MILITARY HWY	CAVALIER BLVD	GEORGE WASHINGTON HWY	0.91	Y	Y	Y	12.9	19.7	6.8	41.2	32.0	-9.2
CHES	MILITARY HWY	GEORGE WASHINGTON HWY	CANAL DR	1.01	Y	Y	Y	18.7	30.3	11.6	42.9	59.1	16.1
CHES	MILITARY HWY	CANAL DR	BAINBRIDGE BLVD	2.18	Y	Y	Y	18.1	17.5	-0.5	24.8	87.5	62.6
CHES	MILITARY HWY	BAINBRIDGE BLVD	I-464	0.46	Y	I-464	Y	11.3	8.8	-2.4	12.9	17.5	4.6
CHES	MILITARY HWY	I-464	CAMPOSTELLA RD	0.64	Y	Y	Y	13.1	42.6	29.5	25.1	252.6	227.5
CHES	MILITARY HWY	CAMPOSTELLA RD	BATTLEFIELD BLVD	0.60	Y	Y	Y	10.8	3.5	-7.2	56.4	35.2	-21.2
CHES	MILITARY HWY	BATTLEFIELD BLVD	ALLISON DR	0.66	Y	Y	Y	12.4	14.0	1.6	48.8	21.6	-27.1
CHES	MILITARY HWY	ALLISON DR	GREENBRIER PKWY	0.50	Y	Y	Y	61.7	106.1	44.4	52.0	12.6	-39.4
CHES	MILITARY HWY	GREENBRIER PKWY	VA BEACH CL	1.68	Y	Y	Y	23.1	57.5	34.5	107.4	78.1	-29.3
CHES	BLVD)	GREAT BRIDGE BLVD	I-464/OAK GROVE CONNECTOR	0.30	Y	Y	Y	57.5	10.2	-47.3	73.4	27.1	-46.3
CHES	MOSES GRANDY TRAIL	SHIPYARD RD	CEDAR RD	1.97	N	Y	Y		1.6	1.6		2.6	2.6
CHES	MOSES GRANDY TRAIL	CEDAR RD	DOMINION BLVD	0.21	Y	Y	Y	3.6	31.9	28.3	1.0	26.2	25.1
CHES	MOUNT PLEASANT RD	BATTLEFIELD BLVD	CHESAPEAKE EXPRESSWAY	0.76	Y	Y	Y	11.9	11.9	0.0	29.1	41.5	12.4
CHES	MOUNT PLEASANT RD	CHESAPEAKE EXPRESSWAY	CENTERVILLE TNPK	2.43	Y	Y	Y	22.1	17.1	-5.0	8.6	24.1	15.6
CHES	MOUNT PLEASANT RD	CENTERVILLE TNPK	FENTRESS AIRFIELD RD	4.53	Y	Y	Y	26.5	17.6	-8.9	16.0	24.9	8.9
CHES	MOUNT PLEASANT RD	FENTRESS AIRFIELD RD	VA BEACH CL	0.91	Y	Y	Y	4.8	3.8	-1.0	4.0	2.6	-1.5
CHES	OLD ATLANTIC AVE	ATLANTIC AVE	LIBERTY ST	0.31	Y	Y	Y	1.0	2.3	1.3	0.2	2.6	2.5
CHES	POINDEXTER ST	PORTSMOUTH CL	I-464	0.85	Y	Y	Y	6.3	20.6	14.3	46.4	59.5	13.2
CHES	POINDEXTER ST	I-464	BAINBRIDGE BLVD	0.20	Y	Y	Y	4.5	7.7	3.2	1.7	7.6	6.0
CHES	POINDEXTER ST	BAINBRIDGE BLVD	LIBERTY ST	0.48	Y	Y	Y	1.5	7.9	6.4	12.4	17.8	5.4
CHES	PORTSMOUTH BLVD	SUFFOLK CL	JOLLIFF RD	0.75	Y	Y	Y	2.2	9.0	6.8	1.4	7.0	5.7
CHES	PORTSMOUTH BLVD	JOLLIFF RD	I-664	0.60	Y	Y	Y	5.2	2.3	-2.9	5.6	4.7	-0.9
CHES	PORTSMOUTH BLVD	I-664	TAYLOR RD	1.34	Y	Y	Y	16.8	4.3	-12.5	17.0	10.4	-6.6
CHES	PORTSMOUTH BLVD	TAYLOR RD	PORTSMOUTH CL	0.70	Y	Y	Y	15.3	10.4	-4.9	38.1	35.1	-3.0
CHES	PROVIDENCE RD	ATLANTIC AVE	CAMPOSTELLA RD	0.20	Y	Y	Y	4.9	1.4	-3.5	11.5	0.7	-10.8
CHES	PROVIDENCE RD	CAMPOSTELLA RD	VA BEACH CL	2.34	Y	Y	Y	34.6	23.1	-11.5	49.5	59.4	9.9
CHES	PUGHSVILLE RD	SUFFOLK CL	I-664	0.63	Y	Y	Y	0.4	3.6	3.3	1.6	4.9	3.3
CHES	PUGHSVILLE RD	I-664	TAYLOR RD	0.37	Y	Y	Y	5.4	10.7	5.3	16.7	23.5	6.9
CHES	ROUTE 13/58/460	SUFFOLK CL	I-664	2.50	Y	Y	Y	0.0	9.6	9.6	0.0	18.5	18.5
CHES	SIGN PINE RD	EDINBURGH PKWY	BENEFIT RD	1.02	N	N	N						
CHES	TAYLOR RD	PORTSMOUTH BLVD	ELIZABETH HARBOR RD	0.77	Y	Y	Y	10.2	2.6	-7.5	16.9	9.8	-7.1
CHES	TAYLOR RD	ELIZABETH HARBOR RD	BRUCE RD	0.99	Y	Y	Y	12.6	3.4	-9.2	26.3	12.6	-13.8
CHES	TAYLOR RD	BRUCE RD	PUGHSVILLE RD	0.31	Y	Y	Y	7.0	15.6	8.6	20.9	11.6	-9.3
CHES	TAYLOR RD	PUGHSVILLE RD	WESTERN BRANCH BLVD	1.70	N	N	N						
CHES	TOWN POINT RD	PORTSMOUTH CL	CHURCHLAND BLVD	0.09	N	Y	N						

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

**Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005**

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
CHES	TYRE NECK RD	BRUCE RD	SILVERWOOD BLVD	1.10	N	Y	N						
CHES	TYRE NECK RD	SILVERWOOD BLVD	PORTSMOUTH CL	0.15	N	Y	N						
CHES	VOLVO PKWY	BATTLEFIELD BLVD	GREENBRIER PKWY	1.40	Y	Y	Y	47.6	51.4	3.8	89.4	90.7	1.3
CHES	VOLVO PKWY	GREENBRIER PKWY	FAIRWAY REACH RD	0.82	Y	Y	Y	36.2	16.1	-20.1	16.4	56.4	40.0
CHES	VOLVO PKWY	FAIRWAY REACH RD	KEMPSVILLE RD	0.60	Y	Y	Y	12.7	10.7	-1.9	67.3	31.6	-35.7
CHES	WESTERN BRANCH BLVD	CHURCHLAND BLVD	TAYLOR RD	0.32	Y	Y	Y	3.4	5.5	2.1	9.1	6.9	-2.2
CHES	WESTERN BRANCH BLVD	TAYLOR RD	PORTSMOUTH CL	0.32	Y	Y	Y	15.1	15.0	-0.1	22.4	9.7	-12.7
GLO	BELROI RD	HICKORY FORK RD	ROUTE 17	3.62	N	Y	N						
GLO	GUINEA RD	ROUTE 17	MARYUS RD	3.66	N	Y	N						
GLO	HICKORY FORK RD	ROUTE 17	BELROI RD	5.33	N	Y	N						
GLO	RTE 17 (COLEMAN BRIDGE)	YORK CL	RTE 216 (GUINEA RD)	2.96	Y	Y	Y	29.3	64.1	34.8	37.1	97.2	60.1
GLO	RTE 17	RTE 216 (GUINEA RD)	RTE 614 E (FEATHERBED LANE)	4.29	Y	Y	Y	26.7	60.2	33.6	60.2	83.2	23.0
GLO	RTE 17	RTE 614 E (FEATHERBED LANE)	RTE 17 BUS S (MAIN ST)	4.76	Y	Y	Y	36.6	38.0	1.4	68.7	75.3	6.6
GLO	RTE 17	RTE 17 BUS S (MAIN ST)	RTE 606 (ARK RD)	4.06	Y	Y	Y	8.8	35.8	27.0	11.4	78.3	66.8
GLO	MAIN ST (BUS RTE 17)	RTE 17 (SOUTH INTERSECTION)	RTE 3/14E	1.20	Y	Y	Y	9.9	28.9	19.0	15.8	63.8	48.0
GLO	RTE 3/14	RTE 17 BUS	COW CREEK	1.70	Y	Y	Y	6.0	5.9	-0.2	6.7	7.9	1.2
HAM	ABERDEEN RD	NEWPORT NEWS CL	PEMBROKE AVE	0.30	Y	Y	Y	5.1	0.5	-4.6	0.7	2.6	1.9
HAM	ABERDEEN RD	PEMBROKE AVE	I-664	0.17	Y	Y	Y	7.2	3.6	-3.7	6.1	12.0	5.9
HAM	ABERDEEN RD	I-664	BRIARFIELD RD	0.99	Y	Y	Y	1.1	5.8	4.6	18.6	23.6	5.0
HAM	ABERDEEN RD	BRIARFIELD RD	MERCURY BLVD	1.29	Y	Y	Y	11.4	16.0	4.6	17.5	8.5	-9.1
HAM	ABERDEEN RD	MERCURY BLVD	TODDS LA	0.20	Y	Y	Y	3.6	10.9	7.4	13.2	18.1	4.9
HAM	ARMISTEAD AVE	COMMANDER SHEPPARD BLVD	HRC PARKWAY	1.52	Y	Y	Y	22.4	58.6	36.2	33.8	79.5	45.7
HAM	ARMISTEAD AVE	HRC PARKWAY	MERCURY BLVD	1.30	Y	Y	Y	25.6	64.0	38.4	49.0	52.8	3.9
HAM	ARMISTEAD AVE	MERCURY BLVD	PINE CHAPEL RD	0.14	Y	Y	Y	1.9	2.8	0.8	21.0	22.3	1.4
HAM	ARMISTEAD AVE	PINE CHAPEL RD	LASALLE AVE	0.95	Y	Y	Y	15.9	6.9	-9.0	17.7	11.9	-5.8
HAM	ARMISTEAD AVE	LA SALLE AVE	RIP RAP RD	0.44	Y	Y	Y	3.5	16.2	12.7	1.5	8.1	6.5
HAM	ARMISTEAD AVE	RIP RAP RD	PEMBROKE AVE	0.37	Y	Y	Y	7.0	10.8	3.8	4.2	5.6	1.3
HAM	ARMISTEAD AVE	PEMBROKE AVE	SETTLERS LANDING RD	0.37	Y	Y	Y	18.5	14.5	-4.0	5.2	26.9	21.7
HAM	BIG BETHEL RD	TODDS LANE	HRC PKWY	1.23	Y	Y	Y	35.9	66.0	30.1	56.7	87.8	31.2
HAM	BIG BETHEL RD	HRC PKWY	THOMAS NELSON DR	0.57	Y	Y	Y	1.5	22.7	21.3	6.8	26.2	19.4
HAM	BIG BETHEL RD	THOMAS NELSON DR	SAUNDERS RD	1.25	Y	Y	Y	2.2	44.7	42.4	13.5	44.0	30.5
HAM	BIG BETHEL RD	SAUNDERS RD	SEMPLER FARM RD	0.15	Y	Y	Y	5.8	0.6	-5.1	11.8	2.7	-9.1
HAM	BIG BETHEL RD	SEMPLER FARM RD	YORK CL	0.28	Y	Y	Y	3.3	1.4	-1.9	0.5	6.0	5.5
HAM	BRIARFIELD RD	NEWPORT NEWS CL	ABERDEEN RD	0.87	Y	Y	Y	7.4	8.9	1.6	8.7	12.7	4.0
HAM	BRIARFIELD RD	ABERDEEN RD	QUEEN ST	1.06	Y	Y	Y	15.1	1.5	-13.6	8.3	11.6	3.3
HAM	CHESTNUT AVE	NEWPORT NEWS CL	MERCURY BLVD	0.20	Y	Y	Y	0.4	0.9	0.5	1.5	2.3	0.8
HAM	COMMANDER SHEPPARD BLVD	MAGRUDER BLVD	ARMISTEAD AVE	0.73	Y	Y	Y	4.9	5.2	0.3	6.6	11.3	4.8
HAM	COMMANDER SHEPPARD BLVD	ARMISTEAD AVE	NASA MAIN GATE	0.32	Y	Y	Y	0.0	1.7	1.7	8.4	6.2	-2.3
HAM	COMMANDER SHEPPARD BLVD	NASA MAIN GATE	WYTHE CREEK RD	0.96	Y	Y	Y	4.7	8.8	4.1	39.7	26.6	-13.1
HAM	COMMANDER SHEPPARD BLVD	WYTHE CREEK RD	MAGRUDER BLVD	0.18	Y	Y	Y	12.3	29.9	17.6	33.6	15.8	-17.8
HAM	COLISEUM DR	MERCURY BLVD	MARCELLA DR	0.66	Y	Y	Y	6.6	14.7	8.1	27.5	45.7	18.2
HAM	COLISEUM DR	MARCELLA DR	HRC PARKWAY	0.74	Y	Y	Y	14.0	24.9	10.9	42.0	68.4	26.4
HAM	COUNTY ST	WOODLAND RD	MALLORY ST	0.41	Y	Y	Y	2.4	3.9	1.5	7.0	6.7	-0.2
HAM	CUNNINGHAM DR	TODDS LA	COLISEUM DR	0.86	Y	Y	Y	14.3	5.2	-9.1	29.0	31.8	2.7
HAM	CUNNINGHAM DR	COLISEUM DR	MERCURY BLVD	0.74	Y	Y	Y	11.4	13.5	2.1	19.8	27.0	7.2
HAM	FOX HILL RD	OLD BUCKROE RD	WOODLAND RD	1.10	Y	Y	Y	3.9	6.6	2.6	7.9	1.1	-6.8
HAM	FOX HILL RD	WOODLAND RD	MERCURY BLVD	1.89	Y	Y	Y	83.8	33.3	-50.5	16.4	43.7	27.3
HAM	HARRIS CREEK RD	FOX HILL RD	LITTLE BACK RIVER RD	0.80	Y	Y	Y	2.1	4.7	2.6	0.0	1.6	1.6
HAM	HRC PARKWAY	NEWPORT NEWS CL	BIG BETHEL RD	1.26	N	Y	Y		18.1	18.1		20.8	20.8
HAM	HRC PARKWAY	BIG BETHEL RD	I-64	0.57	Y	Y	Y	4.6	30.2	25.7	21.8	49.8	27.9
HAM	HRC PARKWAY	I-64	MAGRUDER BLVD	0.87	Y	Y	Y	0.0	3.2	3.2	0.1	4.8	4.7
HAM	HRC PARKWAY	MAGRUDER BLVD	COLISEUM DR	0.45	Y	Y	Y	7.7	2.7	-5.1	4.7	25.1	20.4
HAM	HRC PARKWAY	COLISEUM DR	ARMISTEAD AVE	0.40	Y	Y	Y	7.0	16.2	9.2	5.8	46.6	40.8
HAM	I-64	NEWPORT NEWS CL	HRC PARKWAY	2.24	Y	Y	Y	0.0	0.0	0.0	12.4	18.4	6.0
HAM	I-64	HRC PARKWAY	MAGRUDER BLVD	0.77	Y	Y	Y	0.0	2.8	2.8	0.0	8.1	8.1

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
HAM	I-64	MAGRUDER BLVD	MERCURY BLVD	1.04	Y	Y	Y	0.0	10.5	10.5	0.0	36.8	36.8
HAM	I-64	MERCURY BLVD	I-664	0.96	Y	Y	Y	0.0	10.2	10.2	0.0	131.2	131.2
HAM	I-64	I-664	ARMISTEAD AVE	0.88	Y	Y	Y	0.0	1.8	1.8	0.0	170.5	170.5
HAM	I-64	ARMISTEAD AVE	RIP RAP RD	0.46	Y	Y	Y	0.0	0.0	0.0	0.0	6.5	6.5
HAM	I-64	RIP RAP RD	KING ST	0.33	Y	Y	Y	0.0	27.4	27.4	0.0	158.8	158.8
HAM	I-64	KING ST	SETTLERS LANDING RD	1.22	Y	Y	Y	0.0	101.4	101.4	0.0	587.1	587.1
HAM	I-64	SETTLERS LANDING RD	MALLORY ST	0.54	Y	Y	Y	0.0	11.8	11.8	0.0	3.8	3.8
HAM	I-64/HRBT	MALLORY ST	NORFOLK CL	3.69	Y	Y	Y	20.8	133.9	113.1	8.9	171.6	162.7
HAM	I-664	NEWPORT NEWS CL	ABERDEEN RD	0.44	Y	Y	Y	0.0	0.0	0.0	0.0	0.1	0.1
HAM	I-664	ABERDEEN RD	POWHATAN PKWY	1.29	Y	Y	Y	0.0	0.0	0.0	3.1	0.0	-3.1
HAM	I-664	POWHATAN PKWY	I-64	1.38	Y	Y	Y	0.0	1.8	1.8	0.0	438.1	438.1
HAM	KECOUGHTAN RD	NEWPORT NEWS CL	POWHATAN PKWY	1.19	Y	Y	Y	2.4	4.2	1.8	1.6	3.9	2.3
HAM	KECOUGHTAN RD	POWHATAN PKWY	LA SALLE AVE	1.09	Y	Y	Y	1.4	1.8	0.4	1.9	6.4	4.5
HAM	KECOUGHTAN RD	LA SALLE AVE	VICTORIA BLVD	1.04	Y	Y	Y	2.2	2.0	-0.2	4.6	4.1	-0.5
HAM	KECOUGHTAN RD	VICTORIA BLVD	SETTLERS LANDING RD	0.28	Y	Y	Y	2.7	2.5	-0.2	8.1	7.9	-0.2
HAM	KING ST	PEMBROKE AVE	I-64 OVERPASS	0.29	Y	Y	Y	1.9	1.0	-0.9	0.2	1.0	0.8
HAM	KING ST	I-64 OVERPASS	RIP RAP RD	0.45	Y	Y	Y	4.3	2.8	-1.5	1.8	3.5	1.7
HAM	KING ST	RIP RAP RD	MERCURY BLVD	0.20	Y	Y	Y	5.9	4.9	-1.0	14.2	3.8	-10.4
HAM	KING ST	MERCURY BLVD	OLD FOX HILL RD	0.12	Y	Y	Y	0.6	0.1	-0.5	0.4	23.4	23.0
HAM	KING ST	OLD FOX HILL RD	LITTLE BACK RIVER RD	0.54	Y	Y	Y	13.3	0.4	-12.9	5.4	11.3	5.9
HAM	KING ST	LITTLE BACK RIVER RD	LAMINGTON RD	0.30	Y	Y	Y	0.0	0.6	0.6	0.0	1.7	1.7
HAM	KING ST	LAMINGTON RD	OLD BUCKINGHAM RD	0.49	Y	Y	Y	0.0	1.0	1.0	0.0	2.8	2.8
HAM	KING ST	OLD BUCKINGHAM RD	LANGLEY AFB	0.61	Y	Y	Y	0.0	1.2	1.2	0.0	3.5	3.5
HAM	LA SALLE AVE	KECOUGHTAN RD	VICTORIA BLVD	0.58	Y	Y	Y	0.8	2.8	2.0	2.1	1.7	-0.4
HAM	LA SALLE AVE	VICTORIA BLVD	SETTLERS LANDING RD	0.68	Y	Y	Y	6.8	2.5	-4.2	8.1	2.4	-5.7
HAM	LA SALLE AVE	SETTLERS LANDING RD	PEMBROKE AVE	0.15	Y	Y	Y	4.7	13.4	8.7	0.8	15.8	15.0
HAM	LA SALLE AVE	PEMBROKE AVE	ARMISTEAD AVE	0.51	Y	Y	Y	4.4	5.5	1.1	23.2	30.3	7.1
HAM	LA SALLE AVE	ARMISTEAD AVE	MERCURY BLVD	0.63	Y	Y	Y	20.0	19.4	-0.7	3.9	6.5	2.6
HAM	LA SALLE AVE	MERCURY BLVD	LANGLEY GATE	1.46	Y	Y	Y	6.8	6.9	0.1	6.6	9.4	2.8
HAM	LITTLE BACK RIVER RD	KING ST	ROCKWELL RD	1.33	Y	Y	Y	11.3	15.3	4.0	6.2	11.3	5.1
HAM	LITTLE BACK RIVER RD	ROCKWELL RD	HARRIS CREEK RD	0.67	Y	Y	Y	0.9	2.8	1.9	0.0	1.6	1.5
HAM	MAGRUDER BLVD	YORK CL	SEMPLE FARM RD	0.28	Y	Y	Y	4.1	8.9	4.8	3.1	5.4	2.3
HAM	MAGRUDER BLVD	SEMPLE FARM RD	COMM SHEPPARD BLVD (SOUTH)	0.90	Y	Y	Y	15.9	38.5	22.6	127.0	41.9	-85.1
HAM	MAGRUDER BLVD	COMM SHEPPARD BLVD (SOUTH)	HRC PARKWAY	1.38	Y	Y	Y	5.1	10.2	5.1	7.9	60.1	52.2
HAM	MAGRUDER BLVD	HRC PARKWAY	I-64	0.67	Y	Y	Y	45.0	29.5	-15.5	4.1	27.2	23.1
HAM	MALLORY ST	I-64	COUNTY ST	0.40	Y	Y	Y	9.9	12.3	2.4	7.1	2.1	-5.1
HAM	MALLORY ST	COUNTY ST	MERCURY BLVD	0.23	Y	Y	Y	0.0	0.0	0.0	4.4	1.4	-3.0
HAM	MALLORY ST	MERCURY BLVD	PEMBROKE AVE	1.94	Y	Y	Y	3.1	15.8	12.6	2.6	19.0	16.4
HAM	MELLEN ST	MERCURY BLVD	MALLORY ST	0.70	Y	Y	Y	3.2	1.6	-1.6	5.3	28.0	22.7
HAM	MERCURY BLVD	NEWPORT NEWS CL	BIG BETHEL RD	1.26	Y	Y	Y	3.1	0.9	-2.2	13.4	12.5	-1.0
HAM	MERCURY BLVD	BIG BETHEL RD	ABERDEEN RD	0.78	Y	Y	Y	0.0	0.0	0.0	8.3	6.3	-1.9
HAM	MERCURY BLVD	ABERDEEN RD	POWER PLANT PKWY	0.43	Y	Y	Y	0.0	3.0	3.0	27.1	20.7	-6.4
HAM	MERCURY BLVD	POWER PLANT PKWY	I-64	0.38	Y	Y	Y	31.9	39.0	7.1	12.0	27.9	16.0
HAM	MERCURY BLVD	I-64	COLISEUM DR	0.35	Y	Y	Y	0.5	46.8	46.3	37.7	47.0	9.3
HAM	MERCURY BLVD	COLISEUM DR	CUNNINGHAM DR	0.42	Y	Y	Y	21.2	1.1	-20.1	55.9	4.9	-51.0
HAM	MERCURY BLVD	CUNNINGHAM DR	ARMISTEAD AVE	0.24	Y	Y	Y	0.7	18.8	18.1	1.8	28.8	27.0
HAM	MERCURY BLVD	ARMISTEAD AVE	LA SALLE AVE	0.70	Y	Y	Y	9.7	42.6	32.9	2.7	61.5	58.8
HAM	MERCURY BLVD	LA SALLE AVE	KING ST	0.82	Y	Y	Y	10.7	23.4	12.8	42.6	33.7	-8.9
HAM	MERCURY BLVD	KING ST	FOX HILL RD	0.31	Y	Y	Y	1.0	1.9	0.9	14.7	11.9	-2.8
HAM	MERCURY BLVD	FOX HILL RD	ANDREWS BLVD	0.70	Y	Y	Y	1.8	19.4	17.6	8.2	27.8	19.6
HAM	MERCURY BLVD	ANDREWS BLVD	PEMBROKE AVE	0.55	Y	Y	Y	7.3	15.1	7.8	3.8	14.8	11.1
HAM	MERCURY BLVD	PEMBROKE AVE	WOODLAND RD	0.44	Y	Y	Y	1.7	4.2	2.5	8.5	8.2	-0.3
HAM	MERCURY BLVD	WOODLAND RD	MALLORY ST	0.50	Y	Y	Y	0.0	13.4	13.4	3.6	16.6	13.0
HAM	MERCURY BLVD	MALLORY ST	MELLEN ST/INGALLS RD	0.78	Y	Y	Y	0.2	1.5	1.4	5.5	4.8	-0.6
HAM	OLD BUCKROE RD	PEMBROKE AVE	FOX HILL RD	1.50	Y	Y	Y	7.1	44.2	37.1	5.6	5.9	0.2

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
HAM	PEMBROKE AVE	NEWPORT NEWS CL	ABERDEEN RD	0.33	Y	Y	Y	4.7	2.5	-2.2	6.6	6.8	0.2
HAM	PEMBROKE AVE	ABERDEEN RD	POWHATAN PKWY	1.18	Y	Y	Y	3.1	12.3	9.2	10.6	10.1	-0.5
HAM	PEMBROKE AVE	POWHATAN PKWY	SETTLERS LANDING RD	1.44	Y	Y	Y	5.4	11.7	6.2	3.7	19.4	15.7
HAM	PEMBROKE AVE	SETTLERS LANDING RD	LA SALLE AVE	0.17	Y	Y	Y	0.6	8.9	8.3	1.6	13.3	11.7
HAM	PEMBROKE AVE	LA SALLE AVE	ARMISTEAD AVE	0.71	Y	Y	Y	1.4	2.5	1.0	2.7	10.6	7.9
HAM	PEMBROKE AVE	ARMISTEAD AVE	KING ST	0.27	Y	Y	Y	0.1	24.4	24.3	0.1	2.7	2.5
HAM	PEMBROKE AVE	KING ST	EATON ST	0.14	Y	Y	Y	0.0	1.2	1.2	0.0	1.1	1.1
HAM	PEMBROKE AVE	EATON ST	BARRON ST	0.40	Y	Y	Y	0.0	4.5	4.5	4.1	5.3	1.3
HAM	PEMBROKE AVE	BARRON ST	MERCURY BLVD	0.60	Y	Y	Y	0.0	6.8	6.8	6.1	8.0	1.9
HAM	PEMBROKE AVE	MERCURY BLVD	WOODLAND RD	0.19	Y	Y	Y	6.2	17.8	11.6	8.0	5.7	-2.3
HAM	PEMBROKE AVE	WOODLAND RD	OLD BUCKROE RD	1.10	Y	Y	Y	4.2	4.4	0.1	9.5	11.9	2.4
HAM	PEMBROKE AVE	OLD BUCKROE RD	MALLORY ST	0.60	Y	Y	Y	0.1	1.5	1.4	1.0	3.6	2.6
HAM	POWER PLANT PKWY	I-664	BRIARFIELD RD	0.73	Y	Y	Y	1.5	3.6	2.2	8.9	12.1	3.3
HAM	POWER PLANT PKWY	BRIARFIELD RD	PINE CHAPEL RD	0.46	Y	Y	Y	7.6	15.6	8.0	3.6	10.1	6.5
HAM	POWER PLANT PKWY	PINE CHAPEL RD	MERCURY BLVD	0.71	Y	Y	Y	11.0	10.0	-0.9	5.3	35.3	30.0
HAM	POWHATAN PKWY	KECOUGHTAN RD	PEMBROKE AVE	0.76	Y	Y	Y	6.6	3.5	-3.1	11.3	13.3	2.0
HAM	POWHATAN PKWY	PEMBROKE AVE	I-664	0.19	Y	Y	Y	7.2	15.8	8.6	5.8	7.7	1.9
HAM	QUEEN ST	BRIARFIELD RD	MICHIGAN DR	1.27	Y	Y	Y	0.6	6.3	5.7	1.8	6.3	4.4
HAM	QUEEN ST	MICHIGAN DR	PEMBROKE AVE	0.09	Y	Y	Y	4.5	7.4	2.9	7.2	6.0	-1.2
HAM	RIP RAP RD	ARMISTEAD AVE	I-64	0.20	Y	Y	Y	4.1	2.9	-1.3	5.8	5.8	0.0
HAM	RIP RAP RD	I-64	KING ST	0.46	Y	Y	Y	9.5	7.3	-2.2	13.3	9.1	-4.2
HAM	ROANOKE AVE	NEWPORT NEWS CL	MERCURY BLVD	0.19	N	Y	N						
HAM	SAUNDERS RD	NEWPORT NEWS CL	BIG BETHEL RD	0.72	Y	Y	Y	3.8	4.3	0.6	8.6	7.0	-1.6
HAM	SETTLERS LANDING RD	PEMBROKE AVE	LA SALLE AVE	0.15	Y	Y	Y	1.9	5.6	3.7	10.7	10.1	-0.6
HAM	SETTLERS LANDING RD	LA SALLE AVE	KECOUGHTAN RD	0.60	Y	Y	Y	12.1	3.0	-9.1	18.4	16.3	-2.1
HAM	SETTLERS LANDING RD	KECOUGHTAN RD	ARMISTEAD AVE	0.08	Y	Y	Y	1.1	1.5	0.4	0.4	2.9	2.5
HAM	SETTLERS LANDING RD	ARMISTEAD AVE	EATON ST	0.43	Y	Y	Y	17.9	16.4	-1.5	20.2	32.8	12.6
HAM	SETTLERS LANDING RD	EATON ST	TYLER ST	0.64	Y	Y	Y	12.3	2.3	-10.0	23.5	38.6	15.1
HAM	SETTLERS LANDING RD	TYLER ST	I-64	0.10	Y	Y	Y	1.2	1.0	-0.3	1.9	2.2	0.3
HAM	TODDS LA	NEWPORT NEWS CL	BIG BETHEL RD	1.19	Y	Y	Y	29.0	27.6	-1.3	60.2	51.0	-9.2
HAM	TODDS LA	BIG BETHEL RD	ABERDEEN RD	0.98	Y	Y	Y	33.2	38.5	5.3	25.8	58.1	32.3
HAM	TODDS LA	ABERDEEN RD	CUNNINGHAM DR	0.30	Y	Y	Y	5.3	5.3	0.0	7.6	14.7	7.1
HAM	TODDS LA	CUNNINGHAM DR	MERCURY BLVD	0.18	Y	Y	Y	12.4	0.8	-11.6	28.4	18.6	-9.7
HAM	WOODLAND RD	I-64	COUNTY ST	0.22	Y	Y	Y	0.7	1.4	0.6	13.7	0.4	-13.3
HAM	WOODLAND RD	COUNTY ST	MERCURY BLVD	0.38	Y	Y	Y	2.5	6.7	4.2	18.0	2.0	-16.0
HAM	WOODLAND RD	MERCURY BLVD	PEMBROKE AVE	0.45	Y	Y	Y	13.8	4.7	-9.2	11.0	5.3	-5.7
HAM	WOODLAND RD	PEMBROKE AVE	FOX HILL RD	1.82	Y	Y	Y	12.4	62.8	50.3	16.6	17.1	0.5
HAM	WYTHE CREEK RD	COMMANDER SHEPPARD BLVD	POQUOSON CL	1.00	Y	Y	Y	6.5	18.6	12.1	5.3	5.1	-0.2
IW	BATTERY PARK RD	S CHURCH ST	NIKE PARK RD	1.33	N	Y	N						
IW	BATTERY PARK RD	NIKE PARK RD	COUNTRY WAY	1.17	N	Y	N						
IW	BENNS CHURCH BLVD	SUFFOLK CL	RIDDICK RD	2.07	Y	Y	Y	0.7	2.2	1.5	1.6	6.6	5.0
IW	BENNS CHURCH BLVD	RIDDICK RD	RTE 10 & 32 (BREWERS NECK RD)	2.08	Y	Y	Y	2.6	2.3	-0.3	3.7	6.6	2.9
IW	BENNS CHURCH BLVD	RTE 10 & 32 (BREWERS NECK RD)	ECL SMITHFIELD (RTE 644)	1.00	Y	Y	Y	3.0	2.5	-0.5	11.5	1.4	-10.1
IW	BENNS CHURCH BLVD	ECL SMITHFIELD (RTE 644)	CHURCH ST S	0.96	Y	Y	Y	10.6	14.1	3.4	14.9	30.1	15.2
IW	BREWER'S NECK BLVD	RTE 10 & 32 (BENN'S CHURCH)	RTE 670	1.82	Y	Y	Y	13.5	12.4	-1.1	7.1	5.7	-1.4
IW	BREWER'S NECK BLVD	RTE 670	RTE 17	1.03	Y	Y	Y	1.8	5.1	3.3	5.7	0.0	-5.7
IW	BUS RTE 10	NCL SMITHFIELD	JENKINS LANE	0.87	Y	Y	Y	2.1	1.2	-0.9	2.3	1.0	-1.4
IW	BUS RTE 10	JENKINS LANE	RT 10 BYPASS	2.05	Y	Y	Y	1.7	1.1	-0.5	1.9	1.2	-0.7
IW	BUS RTE 58/BUS RTE 258	FRANKLIN CL	JAMESTOWN LN (RTE 691)	0.33	N	Y	N						
IW	BUS RTE 58/BUS RTE 258	JAMESTOWN LN (RTE 691)	RTE 258	1.19	N	Y	N						
IW	BUS RTE 58	RTE 258	SUFFOLK CL	5.20	N	Y	N						
IW	CARROLLTON BLVD	SUFFOLK CL	WEST END CHUCKATUCK BRIDGE	0.60	Y	Y	Y	1.1	2.9	1.8	2.1	3.9	1.9
IW	CARROLLTON BLVD	WEST END CHUCKATUCK BRIDGE	RTE 258	1.83	Y	Y	Y	3.4	8.9	5.5	6.3	12.0	5.8
IW	RIVER BR	RTE 258	NEWPORT NEWS CL	4.54	Y	Y	Y	17.1	19.4	2.3	22.6	51.0	28.4
IW	CHURCH ST S	RTE 10 BYPASS	BATTERY PARK RD	0.85	Y	Y	Y	4.6	11.7	7.1	12.1	19.9	7.8

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
IW	CHURCH ST S	BATTERY PARK RD	CYPRESS CREEK BRIDGE	1.00	Y	Y	Y	4.4	3.6	-0.9	4.5	21.4	16.9
IW	CHURCH ST S	CYPRESS CREEK BRIDGE	MAIN ST	0.58	Y	Y	Y	0.0	0.0	0.0	0.0	3.7	3.7
IW	CHURCH ST N	MAIN ST	SMITHFIELD CL	1.28	Y	Y	Y	0.1	4.8	4.8	0.0	8.5	8.5
IW	MAIN ST	RTE 10 BYPASS	CHURCH ST	0.64	Y	Y	Y	1.2	4.2	3.0	5.5	5.6	0.1
IW	NIKE PARK RD	BATTERY PARK RD	TITUS CREEK DR	1.55	N	Y	N						
IW	RESCUE RD	NEWPORT ST (RTE 1002)	SMITH'S NECK RD	1.30	N	Y	N						
IW	ROUTE 10 (OLD STAGE HWY)	BUS RTE 10	IW/SURRY CL	4.20	Y	Y	Y	9.4	1.0	-8.4	2.8	1.1	-1.7
IW	ROUTE 10 BYPASS	CHURCH ST S	FAIRWAY DR	1.55	Y	Y	Y	9.9	3.0	-7.0	6.7	8.9	2.2
IW	ROUTE 10 BYPASS	FAIRWAY DR	MAIN ST	0.75	Y	Y	Y	1.5	3.5	2.0	8.7	20.7	12.0
IW	ROUTE 10 BYPASS	MAIN ST	NCL SMITHFIELD	0.78	Y	Y	Y	0.6	0.6	0.0	0.6	1.7	1.1
IW	ROUTE 10 BYPASS	NCL SMITHFIELD	BUS RTE 10	2.96	Y	Y	Y	1.4	2.4	1.0	1.5	6.1	4.6
IW	ROUTE 258	SUFFOLK CL	UNION CAMP DR (RTE 656)	1.54	N	Y	N						
IW	ROUTE 258	UNION CAMP DR (RTE 656)	CARRSVILLE HWY (BUS RTE 58)	1.31	N	Y	N						
IW	ROUTE 258	CARRSVILLE HWY (BUS RTE 58)	BURDETTE RD (W RTE 619)	5.60	N	Y	N						
IW	ROUTE 258	BURDETTE RD (W RTE 619)	RIVER RUN TRAIL (W RTE 614)	1.25	N	Y	N						
IW	ROUTE 258	RIVER RUN TRAIL (W RTE 614)	BLACKWATER RD (RTE 603)	5.77	N	Y	N						
IW	ROUTE 258	BLACKWATER RD (RTE 603)	WCL WINDSOR	0.08	N	Y	N						
IW	ROUTE 258	WCL WINDSOR	RTE 460	0.15	N	Y	N						
IW	ROUTE 258	RTE 460	ECL WINDSOR	0.25	N	Y	N						
IW	ROUTE 258	ECL WINDSOR	COURT ST NORTH (RTE 610)	0.59	N	Y	N						
IW	ROUTE 258	COURT ST NORTH (RTE 610)	IRON MINE SPRINGS RD (RTE 605)	4.27	N	Y	N						
IW	ROUTE 258	IRON MINE SPRINGS RD (RTE 605)	CENTRAL HILL RD (W RTE 637)	2.28	N	Y	N						
IW	ROUTE 258	CENTRAL HILL RD (W RTE 637)	SCOTTS FACTORY RD (RTE 620)	5.20	N	Y	N						
IW	ROUTE 258	RTE 620 (SCOTTS FACTORY RD)	WCL SMITHFIELD	1.04	N	Y	N						
IW	ROUTE 258/MAIN ST	WCL SMITHFIELD	RTE 10 BYPASS	0.76	Y	Y	Y	6.6	6.1	-0.6	6.3	0.1	-6.2
IW	ROUTE 460	SOUTHAMPTON CL	FIRETOWER RD (RTE 644)	0.54	N	Y	N						
IW	ROUTE 460	FIRETOWER RD (RTE 644)	WCL WINDSOR	5.56	N	Y	N						
IW	ROUTE 460	WCL WINDSOR	RTE 258	0.08	N	Y	N						
IW	ROUTE 460	RTE 258	COURT ST (RTE 610)	0.46	N	Y	N						
IW	ROUTE 460	COURT ST (RTE 610)	ECL WINDSOR	0.75	N	Y	N						
IW	ROUTE 460	ECL WINDSOR	SUFFOLK CL	2.35	N	Y	N						
IW	SMITH'S NECK RD	CARROLLTON BLVD	REYNOLDS DR	0.72	N	Y	N						
IW	SMITH'S NECK RD	REYNOLDS DR	TITUS CREEK DR	1.03	N	Y	N						
IW	SMITH'S NECK RD	TITUS CREEK DR	RESCUE RD	2.10	N	Y	N						
IW	TITUS CREEK DR	SMITH'S NECK RD	NIKE PARK RD	0.92	N	Y	N						
IW	TODD AVE/WARWICK ST	COUNTRY WAY	NEWPORT ST (RTE 1002)	0.57	N	Y	N						
JCC	BARHAMSVILLE RD	I-64	RTE 60	1.71	Y	Y	Y	0.0	0.0	0.0	0.0	0.9	0.9
JCC	CENTERVILLE RD	JOHN TYLER HWY	MONTICELLO AVE	0.50	Y	Y	Y	0.9	2.8	1.9	2.3	1.5	-0.8
JCC	CENTERVILLE RD	MONTICELLO AVE	NEWS RD	1.62	Y	Y	Y	0.0	4.3	4.3	0.0	3.2	3.2
JCC	CENTERVILLE RD	NEWS RD	LONGHILL RD	2.85	Y	Y	Y	5.4	0.6	-4.8	0.0	0.0	0.0
JCC	CENTERVILLE RD	LONGHILL RD	RICHMOND RD	3.11	Y	Y	Y	3.9	7.3	3.4	1.6	5.3	3.8
JCC	COLONIAL NATL HIST PKWY	JAMESTOWN/RTE 359	WILLIAMSBURG CL/RTE 199	7.51	Y	Y	Y	1.2	0.0	-1.2	0.7	0.2	-0.4
JCC	CROAKER RD	RTE 60	RTE 760 (MAXTON LN)	0.73	Y	Y	Y	1.5	2.7	1.3	5.8	3.3	-2.5
JCC	CROAKER RD	RTE 760 (MAXTON LN)	I-64	0.45	Y	Y	Y	0.4	2.3	1.9	1.2	1.2	0.0
JCC	CROAKER RD	I-64	FENTON MILL RD	0.41	N	N	N						
JCC	CROAKER RD	FENTON MILL RD	RIVERVIEW RD	0.73	N	N	N						
JCC	I-64	NEW KENT CL	RTE 30	2.69	Y	Y	Y	0.0	0.0	0.0	4.4	1.3	-3.1
JCC	I-64	RTE 30	CROAKER RD (RTE 607)	4.34	Y	Y	Y	0.0	0.0	0.0	2.9	4.3	1.4
JCC	I-64	CROAKER RD (RTE 607)	YORK CL	1.67	Y	Y	Y	0.0	0.2	0.2	0.0	1.8	1.8
JCC	I-64	YORK CL	NEWPORT NEWS CL	2.38	Y	Y	Y	7.0	4.8	-2.2	14.0	0.5	-13.5
JCC	IRONBOUND RD	MONTICELLO AVE	WILLIAMSBURG CL	0.76	Y	Y	Y	1.1	4.2	3.1	1.2	5.4	4.2
JCC	IRONBOUND RD/NEWS RD	JOHN TYLER HWY	MONTICELLO AVE	1.36	Y	Y	Y	7.5	13.8	6.2	9.7	18.1	8.3
JCC	IRONBOUND RD/SANDY BAY RD	JAMESTOWN RD	JOHN TYLER HWY	0.98	N	Y	N						
JCC	JAMESTOWN RD	JAMES RIVER	COLONIAL PARKWAY (RTE 359)	0.37	Y	Y	Y	0.3	0.6	0.3	0.4	1.0	0.6
JCC	JAMESTOWN RD	COLONIAL PARKWAY (RTE 359)	SANDY BAY RD (RTE 681)	1.46	Y	Y	Y	3.3	6.2	2.9	3.9	8.8	4.9

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
JCC	JAMESTOWN RD	SANDY BAY RD (RTE 681)	NECK-O-LAND RD	0.88	Y	Y	Y	2.2	1.8	-0.3	3.0	2.7	-0.4
JCC	JAMESTOWN RD	NECK-O-LAND RD	WILLIAMSBURG CL	1.46	Y	Y	Y	8.4	10.7	2.3	12.2	14.8	2.6
JCC	JOHN TYLER HWY	CHARLES CITY CL	MONTICELLO AVE	1.50	Y	Y	Y	0.0	0.2	0.2	0.0	0.0	0.0
JCC	JOHN TYLER HWY	MONTICELLO AVE	MONTICELLO AVE (RTE 614N)	2.70	Y	Y	Y	0.0	0.4	0.4	0.0	0.0	0.0
JCC	JOHN TYLER HWY	CENTERVILLE RD (RTE 614 N)	IRONBOUND RD (RTE 615)	2.10	Y	Y	Y	6.5	7.9	1.4	8.4	4.0	-4.3
JCC	JOHN TYLER HWY	IRONBOUND RD (RTE 615)	RTE 712 (STANLEY DR)	1.56	Y	Y	Y	19.3	15.6	-3.7	24.2	12.9	-11.3
JCC	JOHN TYLER HWY	RTE 712 (STANLEY DR)	RTE 199	0.23	Y	Y	Y	11.6	7.6	-4.0	19.8	10.0	-9.8
JCC	LONGHILL CONNECTOR RD	LONGHILL RD (RTE 612)	IRONBOUND RD	0.85	Y	Y	Y	0.0	0.1	0.1	0.0	0.7	0.7
JCC	LONGHILL RD	CENTERVILLE RD (RTE 614)	OLDE TOWNE RD (RTE 658)	2.39	Y	Y	Y	7.2	55.5	48.3	2.9	17.1	14.2
JCC	LONGHILL RD	OLDE TOWNE RD (RTE 658)	RTE 199	0.66	Y	Y	Y	12.8	22.5	9.7	11.1	16.7	5.6
JCC	LONGHILL RD	RTE 199	LONGHILL CONNECTOR RD	0.30	Y	Y	Y	1.0	4.3	3.3	5.5	3.3	-2.2
JCC	MERRIMAC TRL	NEWPORT NEWS CL	YORK CL (SOUTH OF GROVE INT)	2.44	Y	Y	Y	0.4	2.9	2.5	2.0	2.7	0.7
JCC	MERRIMAC TRL	YORK CL @ 199	PENNIMAN RD (YORK CL)	1.12	Y	Y	Y	3.6	5.8	2.3	22.8	7.9	-14.8
JCC	MONTICELLO AVE	JOHN TYLER HWY	CENTERVILLE RD (RTE 614)	1.08	N	Y	Y	2.8	2.8	0.0	1.2	1.2	0.0
JCC	MONTICELLO AVE	CENTERVILLE RD (RTE 614)	NEWS RD	2.65	N	Y	Y	6.6	6.6	0.0	4.7	4.7	0.0
JCC	MONTICELLO AVE	NEWS RD	RTE 199	0.57	Y	Y	Y	5.2	34.4	29.2	18.0	15.5	-2.6
JCC	MONTICELLO AVE	RTE 199	IRONBOUND RD (RTE 615)	0.82	Y	Y	Y	18.6	9.1	-9.6	18.6	21.7	3.1
JCC	OLD STAGE RD	NEW KENT CL	RTE 601 S (BARNES RD)	1.29	Y	Y	Y	0.7	0.2	-0.5	0.7	0.0	-0.6
JCC	OLD STAGE RD	RTE 601 S (BARNES RD)	I-64	0.84	Y	Y	Y	0.3	0.1	-0.1	0.2	0.3	0.1
JCC	OLDE TOWNE RD	LONGHILL RD	RICHMOND RD	1.40	N	Y	N						
JCC	POCAHONTAS TRL	ECL WLMBG	YORK CL @ 199	1.38	Y	Y	Y	0.2	0.1	-0.1	1.2	2.8	1.6
JCC	POCAHONTAS TRL	YORK CL	BASF RD/ROUTE 60 RELOCATION	3.10	Y	Y	Y	9.0	9.1	0.1	8.8	8.4	-0.4
JCC	POCAHONTAS TRL	BASF RD/ROUTE 60 RELOCATION	NEWPORT NEWS CL	1.04	Y	Y	Y	1.9	2.5	0.5	3.3	3.8	0.5
JCC	RICHMOND RD	RTE 199	OLDE TOWNE RD (RTE 658)	1.92	Y	Y	Y	3.6	8.4	4.8	39.2	25.3	-13.9
JCC	RICHMOND RD	OLDE TOWNE RD (RTE 658)	NCL WLMBG	0.48	Y	Y	Y	5.0	4.0	-0.9	14.8	10.9	-3.9
JCC	ROCHAMBEAU DR	ROUTE 60	CROAKER RD (RTE 607)	3.03	N	N	N						
JCC	ROUTE 199	JOHN TYLER HWY (RTE 5)	WCL WLMBG	0.23	Y	Y	Y	2.4	6.5	4.1	15.3	7.9	-7.4
JCC	ROUTE 199	ECL WLMBG	HENRY ST/COLONIAL PKWY	1.73	Y	Y	Y	39.4	54.8	15.4	73.0	51.9	-21.1
JCC	ROUTE 199	HENRY ST/COLONIAL PKWY	RTE 60/RTE 143/YORK CL	2.14	Y	Y	Y	18.7	43.8	25.0	48.0	42.4	-5.5
JCC	ROUTE 60	NEW KENT CL	RTE 30	5.05	Y	Y	Y	3.0	3.6	0.6	2.3	5.3	3.0
JCC	ROUTE 60	RTE 30	CROAKER RD (RTE 607)	3.17	Y	Y	Y	0.0	7.8	7.8	3.7	9.1	5.4
JCC	ROUTE 60	CROAKER RD (RTE 607)	CENTERVILLE RD (RTE 614)	2.70	Y	Y	Y	22.0	32.6	10.6	38.4	42.9	4.4
JCC	ROUTE 60	CENTERVILLE RD (RTE 614)	RTE 199	0.28	Y	Y	Y	12.4	8.0	-4.4	14.9	4.8	-10.1
JCC	RTE 199	YORK CL	RICHMOND RD (RTE 60)	0.16	Y	Y	Y	0.1	0.0	-0.1	0.1	0.0	-0.1
JCC	RTE 199	RICHMOND RD (RTE 60)	LONGHILL RD (RTE 612)	2.94	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
JCC	RTE 199	LONGHILL RD (RTE 612)	MONTICELLO AVE (RTE 321)	1.89	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
JCC	RTE 199	MONTICELLO AVE (RTE 321)	JOHN TYLER HWY (RTE 5)	1.30	Y	Y	Y	8.3	0.0	-8.3	4.4	5.0	0.5
NN	23RD/25TH CONNECTOR	HUNTINGTON AVE	JEFFERSON AVE	0.36	Y	Y	Y	0.0	0.0	0.0	0.0	0.2	0.2
NN	25TH ST	JEFFERSON AVE	26TH ST	1.37	Y	Y	Y	1.6	1.5	0.0	0.3	3.4	3.1
NN	25TH ST	26TH ST	HAMPTON CL	0.46	Y	Y	Y	2.9	0.2	-2.7	1.6	3.1	1.5
NN	26TH ST	25TH ST	ROANOKE AVE	0.67	Y	Y	Y	0.7	0.6	-0.1	1.9	1.1	-0.7
NN	26TH ST	ROANOKE AVE	JEFFERSON AVE	0.74	Y	Y	Y	1.1	1.7	0.6	1.0	2.4	1.4
NN	26TH ST	JEFFERSON AVE	WARWICK BLVD	0.34	Y	Y	Y	0.0	3.3	3.3	0.0	1.4	1.4
NN	26TH ST	WARWICK BLVD	HUNTINGTON AVE	0.13	Y	Y	Y	0.0	3.5	3.5	2.1	1.8	-0.4
NN	39TH ST	HUNTINGTON AVE	MADISON AVE	0.63	Y	Y	Y	1.8	4.0	2.2	3.2	0.0	-3.2
NN	39TH ST	MADISON AVE	HAMPTON CL	1.00	Y	Y	Y	3.6	5.2	1.6	13.4	15.9	2.5
NN	BLAND BLVD	WARWICK BLVD	I-64	0.54	Y	Y	Y	35.7	12.3	-23.3	21.2	53.8	32.6
NN	BLAND BLVD	I-64	JEFFERSON AVE	0.40	Y	Y	Y	26.5	9.1	-17.4	15.7	39.9	24.2
NN	BLAND BLVD	JEFFERSON AVE	McMANUS BLVD	0.48	Y	Y	Y	9.1	7.3	-1.8	22.1	15.2	-6.9
NN	BRIARFIELD RD	JEFFERSON AVE	HAMPTON CL	1.17	Y	Y	Y	12.8	7.3	-5.5	9.3	13.6	4.4
NN	BUXTON AVE	HAMPTON CL	25TH ST	0.52	Y	Y	Y	2.8	11.0	8.2	12.4	6.8	-5.5
NN	CENTER AVE	WARWICK BLVD	JEFFERSON AVE	0.35	Y	Y	Y	5.2	3.7	-1.5	9.0	8.3	-0.6
NN	CHESTNUT AVE	39TH ST	44TH ST	0.20	Y	Y	Y	1.9	1.4	-0.5	0.5	1.9	1.4
NN	CHESTNUT AVE	44TH ST	BRIARFIELD RD	0.90	Y	Y	Y	7.4	4.2	-3.2	3.2	7.2	4.0
NN	CHESTNUT AVE	BRIARFIELD RD	HAMPTON CL	1.00	Y	Y	Y	2.0	4.9	2.9	6.6	15.5	8.8

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)			
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05	
NN	DENBIGH BLVD	LUCAS CREEK RD	WARWICK BLVD	0.51	N	N	N							
NN	DENBIGH BLVD	WARWICK BLVD	JEFFERSON AVE	1.15	Y	Y	Y	13.8	43.0	29.2	92.1	63.5	-28.6	
NN	DENBIGH BLVD	JEFFERSON AVE	YORK CL	1.32	Y	Y	Y	8.6	5.2	-3.4	14.6	11.8	-2.8	
NN	FORT EUSTIS BLVD	WARWICK BLVD	I-64	0.82	Y	Y	Y	0.8	4.0	3.2	1.1	2.3	1.2	
NN	FORT EUSTIS BLVD	I-64	JEFFERSON AVE	0.16	Y	Y	Y	12.8	10.1	-2.7	16.2	33.9	17.8	
NN	FORT EUSTIS BLVD	JEFFERSON AVE	.54 MILES EAST OF RTE 143	0.54	Y	Y	Y	1.5	0.5	-0.9	2.8	1.4	-1.4	
NN	FORT EUSTIS BLVD	.54 MILES EAST OF RTE 143	YORK CL	0.74	Y	Y	Y	2.0	0.8	-1.3	3.8	1.9	-1.9	
NN	HRC PARKWAY	HARPERSVILLE RD	HAMPTON CL	0.63	N	Y	Y		4.5	4.5		4.5	4.5	
NN	HARPERSVILLE RD	J CLYDE MORRIS BLVD	SAUNDERS RD	0.54	Y	Y	Y	8.9	4.3	-4.6	13.6	19.6	6.1	
NN	HARPERSVILLE RD	SAUNDERS RD	HRC PARKWAY	2.33	Y	Y	Y	15.9	16.5	0.6	11.7	30.4	18.6	
NN	HARPERSVILLE RD	HRC PARKWAY	JEFFERSON AVE	0.44	Y	Y	Y	7.1	33.4	26.3	10.8	49.7	38.9	
NN	HARPERSVILLE RD	JEFFERSON AVE	WARWICK BLVD	0.89	Y	Y	Y	8.2	19.6	11.4	8.5	36.4	27.8	
NN	HUNTINGTON AVE	71ST ST	39TH ST	1.78	Y	Y	Y	12.4	6.9	-5.5	8.4	11.6	3.2	
NN	HUNTINGTON AVE	39TH ST	23RD ST	0.78	Y	Y	Y	5.4	6.4	1.1	14.3	13.4	-0.9	
NN	I-64	JAMES CITY CL	RTE 143 (NORTH)	0.27	Y	Y	Y	0.8	0.5	-0.3	1.6	0.1	-1.5	
NN	I-64	RTE 143 (NORTH)	YORKTOWN RD	0.88	Y	Y	Y	1.2	2.0	0.7	0.0	2.3	2.3	
NN	I-64	YORKTOWN RD	FORT EUSTIS BLVD	2.45	Y	Y	Y	0.0	11.6	11.6	0.0	83.2	83.2	
NN	I-64	FORT EUSTIS BLVD	JEFFERSON AVE	4.86	Y	Y	Y	55.5	35.1	-20.5	10.5	113.5	103.0	
NN	I-64	JEFFERSON AVE	OYSTER POINT RD	1.60	Y	Y	Y	300.9	3.7	-297.1	0.0	0.0	0.0	
NN	I-64	OYSTER POINT RD	J C MORRIS BLVD	1.64	Y	Y	Y	0.0	5.5	5.5	0.0	0.0	0.0	
NN	I-64	J C MORRIS BLVD	HAMPTON CL	0.90	Y	Y	Y	0.0	0.0	0.0	4.9	7.4	2.5	
NN	I-664/MMMBT	SUFFOLK CL	TERMINAL AVE	2.85	Y	Y	Y	3.1	0.0	-3.1	3.4	66.5	63.1	
NN	I-664	TERMINAL AVE	23RD ST	0.92	Y	Y	Y	1.2	0.0	-1.2	0.9	14.6	13.7	
NN	I-664	23RD ST	CHESTNUT ST	1.69	Y	Y	Y	0.0	0.0	0.0	0.0	41.3	41.3	
NN	I-664	CHESTNUT ST	HAMPTON CL	0.24	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0	
NN	J CLYDE MORRIS BLVD	WARWICK BLVD	JEFFERSON AVE	1.12	Y	Y	Y	47.5	10.7	-36.8	60.0	47.5	-12.5	
NN	J CLYDE MORRIS BLVD	JEFFERSON AVE	I-64	1.53	Y	Y	Y	48.4	48.3	-0.1	88.9	150.8	61.9	
NN	J CLYDE MORRIS BLVD	I-64	HARPERSVILLE RD	0.60	Y	Y	Y	5.1	19.3	14.2	36.5	94.4	57.9	
NN	J CLYDE MORRIS BLVD	HARPERSVILLE RD	YORK CL	0.19	Y	Y	Y	7.2	2.2	-5.0	0.9	13.6	12.7	
NN	JEFFERSON AVE	JAMES CITY CL	YORKTOWN RD	1.14	Y	Y	Y	6.1	10.3	4.2	4.5	17.9	13.5	
NN	JEFFERSON AVE	YORKTOWN RD	FORT EUSTIS BLVD	2.50	Y	Y	Y	10.5	5.7	-4.9	19.2	7.7	-11.5	
NN	JEFFERSON AVE	FORT EUSTIS BLVD	ATKINSON BLVD	1.34	Y	Y	Y	23.0	41.4	18.4	29.7	34.5	4.8	
NN	JEFFERSON AVE	ATKINSON BLVD	DENBIGH BLVD	1.68	Y	Y	Y	24.6	71.4	46.9	39.0	64.4	25.4	
NN	JEFFERSON AVE	DENBIGH BLVD	BLAND BLVD	0.87	Y	Y	Y	38.3	65.2	26.9	27.2	149.1	121.9	
NN	JEFFERSON AVE	BLAND BLVD	I-64	0.92	Y	Y	Y	36.8	21.8	-14.9	113.3	51.4	-62.0	
NN	JEFFERSON AVE	I-64	OYSTER POINT RD	0.95	Y	Y	Y	6.5	38.1	31.6	159.8	52.6	-107.2	
NN	JEFFERSON AVE	OYSTER POINT RD	MUELLER LA	0.83	Y	Y	Y	12.2	13.5	1.2	63.4	47.9	-15.5	
NN	JEFFERSON AVE	MUELLER LA	MIDDLE GROUND BLVD	0.45	Y	Y	Y	6.6	7.3	0.7	34.4	26.0	-8.4	
NN	JEFFERSON AVE	MIDDLE GROUND BLVD	J CLYDE MORRIS BLVD	1.10	Y	Y	Y	5.3	23.1	17.8	74.8	198.7	123.9	
NN	JEFFERSON AVE	J CLYDE MORRIS BLVD	HARPERSVILLE RD	1.12	Y	Y	Y	38.9	21.6	-17.3	55.1	81.4	26.3	
NN	JEFFERSON AVE	HARPERSVILLE RD	MAIN ST	1.67	Y	Y	Y	21.3	42.2	20.9	51.3	94.2	43.0	
NN	JEFFERSON AVE	MAIN ST	CENTER AVE	0.72	Y	Y	Y	8.1	14.2	6.1	16.9	34.0	17.1	
NN	JEFFERSON AVE	CENTER AVE	MERCURY BLVD	0.61	Y	Y	Y	33.7	34.6	0.9	38.7	36.9	-1.9	
NN	JEFFERSON AVE	MERCURY BLVD	BRIARFIELD RD	1.06	Y	Y	Y	25.1	27.3	2.2	33.6	45.2	11.6	
NN	JEFFERSON AVE	BRIARFIELD RD	41ST ST	1.08	Y	Y	Y	7.7	3.4	-4.3	12.0	23.2	11.2	
NN	JEFFERSON AVE	41ST ST	35TH ST	0.25	Y	Y	Y	3.5	5.2	1.8	10.8	6.5	-4.3	
NN	JEFFERSON AVE	35TH ST	25TH ST	0.54	Y	Y	Y	4.7	3.4	-1.3	4.1	11.6	7.5	
NN	MAIN ST	WARWICK BLVD	JEFFERSON AVE	0.42	Y	Y	Y	11.3	7.3	-4.0	6.0	17.0	11.0	
NN	MAIN ST	JEFFERSON AVE	HAMPTON CL	0.56	Y	Y	Y	10.7	7.6	-3.2	17.9	18.8	0.9	
NN	BR	ISLE OF WIGHT CL	RIVER RD	2.18	Y	Y	Y	4.4	9.3	4.9	3.5	24.5	20.9	
NN	MERCURY BLVD	RIVER RD	WARWICK BLVD	0.23	Y	Y	Y	1.4	8.8	7.3	4.0	10.0	6.0	
NN	MERCURY BLVD	WARWICK BLVD	JEFFERSON AVE	0.34	Y	Y	Y	1.3	15.7	14.5	16.9	0.0	-16.9	
NN	MERCURY BLVD	JEFFERSON AVE	HAMPTON CL	0.25	Y	Y	Y	0.9	9.4	8.5	23.7	49.1	25.4	
NN	OYSTER POINT RD	WARWICK BLVD	JEFFERSON AVE	1.04	Y	Y	Y	39.2	39.8	0.5	71.5	82.1	10.6	
NN	OYSTER POINT RD	JEFFERSON AVE	I-64	1.11	Y	Y	Y	30.7	26.7	-4.0	34.4	81.4	47.0	

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
NN	RICHNECK RD	DENBIGH BLVD	JEFFERSON AVE	0.97	N	Y	N						
NN	RICHNECK RD	JEFFERSON AVE	YORK CL	1.53	N	Y	N						
NN	ROANOKE AVE	I-664	43RD ST	0.20	N	Y	N						
NN	ROANOKE AVE	43RD ST	BRIARFIELD RD	1.00	N	Y	N						
NN	ROANOKE AVE	BRIARFIELD RD	HAMPTON CL	0.90	N	Y	N						
NN	SAUNDERS RD	HARPERSVILLE RD	HAMPTON CL	0.84	Y	Y	Y	2.9	3.1	0.1	9.1	5.5	-3.6
NN	VICTORY BLVD	I-64	YORK CL	0.51	Y	Y	Y	15.5	30.3	14.9	63.9	48.1	-15.8
NN	WARWICK BLVD	JAMES CITY CL	YORKTOWN RD	1.69	Y	Y	Y	3.5	6.2	2.7	6.1	8.7	2.6
NN	WARWICK BLVD	YORKTOWN RD	FORT EUSTIS BLVD	1.44	Y	Y	Y	0.0	2.0	2.0	0.0	4.6	4.6
NN	WARWICK BLVD	FORT EUSTIS BLVD	SNIDOW BLVD	1.86	Y	Y	Y	34.8	22.8	-12.0	32.7	36.9	4.1
NN	WARWICK BLVD	SNIDOW BLVD	DENBIGH BLVD	1.66	Y	Y	Y	26.7	67.3	40.6	84.6	64.7	-19.9
NN	WARWICK BLVD	DENBIGH BLVD	BLAND BLVD	0.84	Y	Y	Y	31.0	17.9	-13.0	103.1	85.8	-17.3
NN	WARWICK BLVD	BLAND BLVD	OYSTER POINT RD	1.39	Y	Y	Y	24.4	13.3	-11.0	64.8	34.2	-30.6
NN	WARWICK BLVD	OYSTER POINT RD	MIDDLE GROUND BLVD	1.31	Y	Y	Y	24.7	33.2	8.5	28.8	36.3	7.5
NN	WARWICK BLVD	MIDDLE GROUND BLVD	DEEP CREEK RD	0.55	Y	Y	Y	12.4	11.1	-1.2	32.2	24.1	-8.1
NN	WARWICK BLVD	DEEP CREEK RD	J CLYDE MORRIS BLVD	1.43	Y	Y	Y	50.6	110.1	59.5	78.4	140.5	62.2
NN	WARWICK BLVD	J CLYDE MORRIS BLVD	HARPERSVILLE RD	1.07	Y	Y	Y	18.4	41.2	22.8	6.9	55.6	48.6
NN	WARWICK BLVD	HARPERSVILLE RD	MAIN ST	1.49	Y	Y	Y	32.8	50.1	17.3	54.3	57.0	2.7
NN	WARWICK BLVD	MAIN ST	CENTER AVE	0.69	Y	Y	Y	14.0	5.1	-9.0	20.6	16.0	-4.6
NN	WARWICK BLVD	CENTER AVE	MERCURY BLVD	0.50	Y	Y	Y	2.9	2.8	-0.2	0.0	0.0	0.0
NN	WARWICK BLVD	MERCURY BLVD	HUNTINGTON AVE	0.50	Y	Y	Y	3.3	22.6	19.4	3.4	9.1	5.7
NN	WARWICK BLVD	23RD ST	39TH ST	0.75	Y	Y	Y	0.6	0.3	-0.3	7.0	14.8	7.8
NN	WARWICK BLVD	39TH ST	HUNTINGTON AVE	1.75	Y	Y	Y	0.0	0.0	0.0	0.0	182.8	182.8
NN	YORKTOWN RD	WARWICK BLVD	I-64	0.98	Y	Y	Y	1.1	0.4	-0.7	2.8	0.0	-2.8
NN	YORKTOWN RD	I-64	JEFFERSON AVE	0.15	Y	Y	Y	1.3	2.4	1.0	1.0	0.0	-1.0
NN	YORKTOWN RD	JEFFERSON AVE	CRAWFORD RD	0.61	Y	Y	Y	4.5	0.7	-3.7	10.1	5.6	-4.5
NN	YORKTOWN RD	CRAWFORD RD	YORK CL	0.44	Y	Y	Y	0.3	0.5	0.2	0.1	0.1	0.0
NOR	21ST ST	HAMPTON BLVD	COLLEY AVE	0.35	Y	Y	Y	7.5	1.9	-5.6	14.6	10.3	-4.3
NOR	21ST ST	COLLEY AVE	LLEWELLYN ST	0.45	Y	Y	Y	16.0	10.4	-5.6	24.9	41.4	16.5
NOR	21ST ST	LLEWELLYN ST	MONTICELLO AVE	0.27	Y	Y	Y	15.2	2.0	-13.2	10.5	8.2	-2.3
NOR	26TH ST	HAMPTON BLVD	COLLEY AVE	0.39	Y	Y	Y	0.8	2.9	2.1	7.7	0.8	-6.9
NOR	26TH ST	COLLEY AVE	LLEWELLYN AVE	0.77	Y	Y	Y	7.7	8.6	0.9	16.1	23.4	7.4
NOR	26TH ST	LLEWELLYN AVE	MONTICELLO AVE	0.27	Y	Y	Y	3.1	3.1	0.0	5.7	2.0	-3.7
NOR	26TH ST	MONTICELLO AVE	CHURCH ST	0.15	Y	Y	Y	0.9	0.0	-0.9	0.5	12.9	12.4
NOR	26TH ST	CHURCH ST	27TH ST	0.26	Y	Y	Y	0.5	0.0	-0.5	0.0	1.2	1.2
NOR	27TH ST	HAMPTON BLVD	COLLEY AVE	0.39	Y	Y	Y	0.3	15.4	15.2	2.5	11.6	9.2
NOR	27TH ST	COLLEY AVE	LLEWELLYN AVE	0.47	Y	Y	Y	0.0	14.0	13.9	0.3	10.5	10.2
NOR	27TH ST	LLEWELLYN AVE	MONTICELLO AVE	0.26	Y	Y	Y	3.5	0.0	-3.5	1.2	3.8	2.7
NOR	27TH ST	MONTICELLO AVE	CHURCH ST	0.10	Y	Y	Y	7.5	0.5	-7.1	4.4	0.8	-3.6
NOR	27TH ST	CHURCH ST	26TH ST	0.25	Y	Y	Y	13.6	8.0	-5.5	0.2	2.1	1.9
NOR	38TH ST	HAMPTON BLVD	COLLEY AVE	0.40	Y	Y	Y	5.3	2.3	-3.0	4.9	7.0	2.0
NOR	38TH ST	COLLEY AVE	LLEWELLYN AVE	0.54	Y	Y	Y	10.9	8.9	-2.0	15.7	4.1	-11.6
NOR	38TH ST	LLEWELLYN AVE	GRANBY ST	0.16	Y	Y	Y	7.5	2.7	-4.8	9.2	1.3	-7.9
NOR	4TH VIEW ST	I-64	OCEAN VIEW AVE	0.24	Y	Y	Y	3.1	2.0	-1.0	2.9	3.2	0.3
NOR	ADMIRAL TAUSSIG BLVD	HAMPTON BLVD	I-664	0.74	Y	Y	Y	363.2	45.7	-317.5	19.5	37.7	18.2
NOR	AZALEA GARDEN RD	VA BEACH BLVD	PRINCESS ANNE RD	0.79	Y	Y	Y	16.9	15.9	-1.0	28.3	17.0	-11.2
NOR	AZALEA GARDEN RD	PRINCESS ANNE RD	SEWELLS POINT RD	0.31	Y	Y	Y	10.6	12.3	1.7	5.2	21.7	16.5
NOR	AZALEA GARDEN RD	SEWELLS POINT RD	ROBIN HOOD RD	0.64	Y	Y	Y	4.0	6.1	2.1	11.8	9.8	-2.0
NOR	AZALEA GARDEN RD	ROBIN HOOD RD	I-64	0.43	Y	Y	Y	0.9	2.1	1.2	1.6	1.8	0.2
NOR	AZALEA GARDEN RD	I-64	MILITARY HWY	0.40	Y	Y	Y	3.8	6.3	2.5	3.8	17.0	13.3
NOR	AZALEA GARDEN RD	MILITARY HWY	NORVIEW AVE	0.60	Y	Y	Y	6.3	5.1	-1.2	5.5	6.2	0.7
NOR	AZALEA GARDEN RD	NORVIEW AVE	LITTLE CREEK RD	1.42	Y	Y	Y	14.9	12.1	-2.8	13.0	14.6	1.6
NOR	BAINBRIDGE BLVD	SCL NORFOLK	S MAIN ST	0.50	Y	Y	Y	0.3	0.2	-0.1	0.9	1.3	0.5
NOR	BALLENTINE BLVD	I-264	VA BEACH BLVD	0.70	Y	Y	Y	27.3	48.6	21.3	26.7	20.1	-6.6
NOR	BALLENTINE BLVD	VA BEACH BLVD	PRINCESS ANNE RD	0.50	Y	Y	Y	13.1	6.1	-7.0	21.5	26.9	5.5

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
NOR	BALLENTINE BLVD	PRINCESS ANNE RD	CHESAPEAKE BLVD	0.95	Y	Y	Y	11.1	4.4	-6.7	10.6	6.2	-4.4
NOR	BAY AVE	FIRST VIEW ST	I-64	0.27	Y	Y	Y	0.0	0.0	0.0	0.1	0.0	-0.1
NOR	BAY AVE/OCEAN AVE	I-64	GRANBY ST	0.38	Y	Y	Y	0.3	0.3	0.0	2.9	0.1	-2.8
NOR	BAYVIEW BLVD	GRANBY ST	TIDEWATER DR	0.61	Y	Y	Y	4.8	1.9	-2.9	13.1	4.8	-8.3
NOR	BAYVIEW BLVD	TIDEWATER DR	CHESAPEAKE BLVD	0.51	Y	Y	Y	2.8	16.5	13.7	4.8	25.5	20.8
NOR	BAYVIEW BLVD	CHESAPEAKE BLVD	CAPE VIEW AVE	1.11	N	N	N						
NOR	BERKLEY AVE	I-464	STATE ST	0.10	Y	Y	Y	3.3	7.1	3.9	5.3	3.2	-2.0
NOR	BERKLEY AVE	STATE ST	MAIN ST	0.10	Y	Y	Y	0.3	7.8	7.5	1.0	0.9	-0.1
NOR	BERKLEY AVE	MAIN ST	BERKLEY AVE EXT	0.20	Y	Y	Y	0.8	1.3	0.5	2.9	8.6	5.7
NOR	BERKLEY AVE	BERKLEY AVE EXT	INDIAN RIVER RD	0.54	Y	Y	Y	3.8	0.0	-3.8	0.1	2.1	2.1
NOR	BERKLEY AVE EXT	BERKLEY AVE/FAUQUIER ST	WILSON RD	0.77	Y	Y	Y	0.5	1.8	1.3	1.4	1.8	0.4
NOR	BERKLEY AVE EXT	WILSON RD	CAMPOSTELLA RD	0.48	Y	Y	Y	12.5	0.5	-12.0	17.8	4.2	-13.6
NOR	BOUSH ST/WATERSIDE DR	ST PAULS BLVD	CITY HALL AVE	0.57	Y	Y	Y	7.4	53.0	45.6	22.4	34.0	11.6
NOR	BOUSH ST	CITY HALL AVE	BUTE STREET	0.35	Y	Y	Y	12.1	8.5	-3.5	12.8	10.4	-2.4
NOR	BOUSH ST	BUTE STREET	BRAMBLETON AVE	0.09	Y	Y	Y	2.6	1.6	-1.0	46.4	19.9	-26.5
NOR	BOUSH ST	BRAMBLETON AVE	OLNEY RD	0.14	N	N	N						
NOR	BOUSH ST	OLNEY RD	VA BEACH BLVD	0.07	N	N	N						
NOR	BRAMBLETON AVE	HAMPTON BLVD	COLLEY AVE	0.50	Y	Y	Y	19.8	22.7	2.9	34.1	15.6	-18.5
NOR	BRAMBLETON AVE	COLLEY AVE	BOUSH ST	0.85	Y	Y	Y	47.3	51.1	3.8	78.8	32.4	-46.4
NOR	BRAMBLETON AVE	BOUSH ST	MONTICELLO AVE	0.18	Y	Y	Y	2.7	4.1	1.4	17.3	23.7	6.4
NOR	BRAMBLETON AVE	MONTICELLO AVE	ST PAULS BLVD	0.12	Y	Y	Y	22.1	37.6	15.5	6.5	22.5	16.0
NOR	BRAMBLETON AVE	ST PAULS BLVD	CHURCH ST	0.30	Y	Y	Y	6.8	20.1	13.3	26.1	13.6	-12.4
NOR	BRAMBLETON AVE	CHURCH ST	TIDEWATER DR	0.29	Y	Y	Y	14.1	41.8	27.7	26.8	54.9	28.1
NOR	BRAMBLETON AVE	TIDEWATER DR	PARK AVE	0.42	Y	Y	Y	16.3	52.5	36.2	15.3	30.1	14.9
NOR	BRAMBLETON AVE	PARK AVE	I-264	0.20	Y	Y	Y	12.6	0.0	-12.6	0.0	13.0	13.0
NOR	CAMPOSTELLA RD	SCL NORFOLK/BERKLEY AVE EXT	INDIAN RIVER RD	0.55	Y	Y	Y	40.1	9.6	-30.5	12.2	10.0	-2.1
NOR	CAMPOSTELLA RD	INDIAN RIVER RD	WILSON RD	0.23	Y	Y	Y	6.8	0.0	-6.8	24.7	19.8	-4.9
NOR	CAMPOSTELLA RD	WILSON RD	SE CAMPOSTELLA BR	0.33	Y	Y	Y	6.9	0.0	-6.9	2.0	1.8	-0.2
NOR	CAMPOSTELLA RD	SE CAMPOSTELLA BR	KIMBALL TERR	0.44	Y	Y	Y	9.1	0.0	-9.1	2.7	2.4	-0.3
NOR	CAMPOSTELLA RD	KIMBALL TERR	I-264	0.10	Y	Y	Y	2.1	0.0	-2.1	0.6	0.6	-0.1
NOR	CHESAPEAKE BLVD	LAFAYETTE BLVD	CROMWELL DR	0.13	Y	Y	Y	15.5	1.9	-13.6	4.7	1.2	-3.5
NOR	CHESAPEAKE BLVD	CROMWELL DR	ROBIN HOOD RD	0.21	Y	Y	Y	15.6	7.5	-8.2	0.3	0.3	0.0
NOR	CHESAPEAKE BLVD	ROBIN HOOD RD	HYDE CIR	0.89	Y	Y	Y	2.3	3.3	1.0	17.3	3.7	-13.6
NOR	CHESAPEAKE BLVD	HYDE CIR	NORVIEW AVE	0.13	Y	Y	Y	0.3	0.5	0.2	2.5	0.5	-2.0
NOR	CHESAPEAKE BLVD	NORVIEW AVE	I-64	0.94	Y	Y	Y	10.9	11.0	0.1	8.9	13.5	4.6
NOR	CHESAPEAKE BLVD	I-64	JOHNSTONS RD	0.31	Y	Y	Y	10.8	14.1	3.3	6.1	12.5	6.4
NOR	CHESAPEAKE BLVD	JOHNSTONS RD	LITTLE CREEK RD	0.49	Y	Y	Y	35.9	28.1	-7.9	55.1	42.7	-12.4
NOR	CHESAPEAKE BLVD	LITTLE CREEK RD	SHEPPARD AVE	0.63	Y	Y	Y	15.5	13.9	-1.7	1.6	19.1	17.5
NOR	CHESAPEAKE BLVD	SHEPPARD AVE	BAYVIEW BLVD	0.41	Y	Y	Y	2.3	7.5	5.2	6.1	8.3	2.2
NOR	CHESAPEAKE BLVD	BAYVIEW BLVD	CHESAPEAKE ST	0.61	Y	Y	Y	1.0	7.6	6.6	0.4	5.7	5.3
NOR	CHESAPEAKE BLVD	CHESAPEAKE ST	OCEAN VIEW AVE	0.47	Y	Y	Y	1.6	2.3	0.8	1.8	1.9	0.1
NOR	CHURCH ST	BRAMBLETON AVE	VA BEACH BLVD	0.22	Y	Y	Y	3.1	5.2	2.1	9.6	17.2	7.7
NOR	CHURCH ST	VA BEACH BLVD	PRINCESS ANNE RD	0.12	Y	Y	Y	5.5	9.6	4.1	6.6	1.5	-5.1
NOR	CHURCH ST	PRINCESS ANNE RD	26TH ST	0.83	Y	Y	Y	3.5	8.0	4.5	18.5	0.3	-18.2
NOR	CHURCH ST	26TH ST	27TH ST	0.06	Y	Y	Y	1.4	0.0	-1.4	0.8	0.7	-0.1
NOR	CHURCH ST	27TH ST	MONTICELLO AVE	0.21	Y	Y	Y	4.0	2.7	-1.2	8.4	1.6	-6.8
NOR	CHURCH ST	MONTICELLO AVE	GRANBY ST	0.13	Y	Y	Y	6.2	4.9	-1.4	10.1	4.7	-5.4
NOR	CITY HALL AVE	BOUSH ST	GRANBY ST	0.08	Y	Y	Y	3.0	3.7	0.7	4.9	11.7	6.8
NOR	CITY HALL AVE	GRANBY ST	MONTICELLO AVE	0.06	Y	Y	Y	2.3	2.8	0.5	3.6	8.8	5.1
NOR	CITY HALL AVE	MONTICELLO AVE	ST PAULS BLVD	0.29	Y	Y	Y	1.1	0.6	-0.5	7.6	11.2	3.6
NOR	COLLEY AVE	BRAMBLETON AVE	OLNEY RD	0.21	Y	Y	Y	5.6	19.5	13.9	14.9	26.6	11.6
NOR	COLLEY AVE	OLNEY RD	PRINCESS ANNE RD	0.39	Y	Y	Y	7.4	0.5	-6.9	9.3	6.7	-2.6
NOR	COLLEY AVE	PRINCESS ANNE RD	21ST ST	0.40	Y	Y	Y	8.6	2.5	-6.1	15.2	7.3	-7.9
NOR	COLLEY AVE	21ST ST	26TH ST	0.24	Y	Y	Y	4.9	2.6	-2.4	0.2	10.7	10.5
NOR	COLLEY AVE	26TH ST	27TH ST	0.05	Y	Y	Y	0.2	0.0	-0.2	0.0	0.2	0.2

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
NOR	COLLEY AVE	27TH ST	38TH ST	0.34	Y	Y	Y	6.4	4.8	-1.6	13.4	9.8	-3.6
NOR	COLLEY AVE	38TH ST	53RD ST	0.74	Y	Y	Y	4.4	0.4	-3.9	5.7	8.0	2.3
NOR	CROMWELL DR	TAIT TERRACE DR	CHESAPEAKE BLVD	0.59	Y	Y	Y	5.0	2.8	-2.2	15.6	6.3	-9.2
NOR	CROMWELL DR	CHESAPEAKE BLVD	TIDEWATER DR	0.82	N	N	N						
NOR	DUKE ST/YORK ST	BOUSH ST	BUTE ST	0.21	N	N	Y		0.0	0.0		0.0	0.0
NOR	DUKE ST	BUTE ST	BRAMBLETON AVE	0.21	N	N	Y		0.0	0.0		0.0	0.0
NOR	DUKE ST	OLNEY RD	BRAMBLETON AVE	0.19	N	N	N						
NOR	GRANBY ST	CHURCH ST	38TH ST	0.36	Y	Y	Y	4.3	20.5	16.3	26.6	13.8	-12.8
NOR	GRANBY ST	38TH ST	LLEWELLYN AVE	0.42	Y	Y	Y	4.0	7.0	3.0	3.5	31.0	27.6
NOR	GRANBY ST	LLEWELLYN AVE	WILLOW WOOD DRIVE	0.28	Y	Y	Y	15.6	14.9	-0.7	0.0	0.0	0.0
NOR	GRANBY ST	WILLOW WOOD DRIVE	THOLE ST	1.15	Y	Y	Y	15.2	31.9	16.7	28.8	3.3	-25.5
NOR	GRANBY ST	THOLE ST	LITTLE CREEK RD	0.60	Y	Y	Y	26.4	35.6	9.2	9.1	13.7	4.6
NOR	GRANBY ST	LITTLE CREEK RD	I-564	0.26	Y	Y	Y	21.1	54.4	33.3	35.1	23.5	-11.7
NOR	GRANBY ST	I-64	I-64	0.18	Y	Y	Y	0.0	0.0	0.0	0.0	0.1	0.1
NOR	GRANBY ST	I-64	BAYVIEW BLVD	0.99	Y	Y	Y	0.7	0.0	-0.7	0.5	0.0	-0.5
NOR	GRANBY ST	BAYVIEW BLVD	BAY AVE	0.56	Y	Y	Y	4.8	4.3	-0.5	3.3	3.7	0.4
NOR	GRANBY ST	BAY AVE	TIDEWATER DR	0.38	Y	Y	Y	2.5	5.0	2.5	10.4	6.8	-3.6
NOR	GRANBY ST	TIDEWATER DR	OCEAN VIEW AVE	0.71	Y	Y	Y	2.2	5.5	3.3	4.7	3.8	-0.9
NOR	HAMPTON BLVD	BRAMBLETON AVE	PRINCESS ANNE RD	0.40	Y	Y	Y	4.8	5.8	1.0	17.5	12.8	-4.7
NOR	HAMPTON BLVD	PRINCESS ANNE RD	21ST ST	0.48	Y	Y	Y	11.2	0.0	-11.2	27.8	42.8	15.0
NOR	HAMPTON BLVD	21ST ST	26TH ST	0.21	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
NOR	HAMPTON BLVD	26TH ST	27TH ST	0.05	Y	Y	Y	0.0	0.5	0.4	0.2	0.9	0.7
NOR	HAMPTON BLVD	27TH ST	38TH ST	0.18	Y	Y	Y	0.2	1.2	0.9	0.1	4.3	4.3
NOR	HAMPTON BLVD	38TH ST	JAMESTOWN CRESCENT	1.32	Y	Y	Y	17.9	28.1	10.2	12.1	52.4	40.3
NOR	HAMPTON BLVD	JAMESTOWN CRESCENT	LITTLE CREEK RD	1.28	Y	Y	Y	5.8	3.3	-2.5	30.4	15.7	-14.6
NOR	HAMPTON BLVD	LITTLE CREEK RD	INTERNATIONAL TERMINAL BLVD	0.18	Y	Y	Y	3.4	4.1	0.7	15.2	11.3	-3.9
NOR	HAMPTON BLVD	INTERNATIONAL TERMINAL BLVD	INTERMODAL CONNECTOR	1.00	Y	Y	Y	44.8	16.1	-28.7	29.6	76.2	46.5
NOR	HAMPTON BLVD	INTERMODAL CONNECTOR	ADM TAUSSIG BLVD	0.92	Y	Y	Y	41.2	14.8	-26.4	27.3	70.1	42.8
NOR	INDIAN RIVER RD	MARSH ST	WILSON RD	0.36	Y	Y	Y	5.4	0.0	-5.4	1.8	0.0	-1.8
NOR	INDIAN RIVER RD	WILSON RD	CAMPOSTELLA RD	0.16	Y	Y	Y	0.1	3.7	3.6	1.0	0.0	-1.0
NOR	INDIAN RIVER RD	CAMPOSTELLA RD	CHESAPEAKE CL	0.71	Y	Y	Y	2.1	6.7	4.7	6.7	1.4	-5.3
NOR	INGLESIDE RD	VA BEACH BLVD	PRINCESS ANNE RD	0.66	Y	Y	Y	12.8	14.1	1.3	34.2	23.9	-10.3
NOR	INGLESIDE RD	PRINCESS ANNE RD	TAIT TERRACE DR	0.46	Y	Y	Y	0.4	11.5	11.1	14.0	2.8	-11.1
NOR	BLVD	HAMPTON BLVD	I-564	1.74	Y	Y	Y	29.5	45.3	15.8	74.7	41.9	-32.8
NOR	I-64/HRBT	HAMPTON CL	OCEAN VIEW AVE	0.19	Y	Y	Y	1.0	7.0	6.0	0.4	8.9	8.5
NOR	I-64	OCEAN VIEW AVE	4TH VIEW AVE	1.82	Y	Y	Y	0.0	0.0	0.0	0.0	109.0	109.0
NOR	I-64	4TH VIEW AVE	BAY AVE	1.01	Y	Y	Y	0.0	0.0	0.0	0.0	107.6	107.6
NOR	I-64	BAY AVE	GRANBY ST	1.60	Y	Y	Y	0.0	0.2	0.2	0.0	54.6	54.6
NOR	I-64	GRANBY ST	I-564/LITTLE CREEK RD	0.21	Y	Y	Y	0.0	0.1	0.1	0.0	7.0	7.0
NOR	I-64	I-564/LITTLE CREEK RD	TIDEWATER DR	1.17	Y	Y	Y	0.0	0.0	0.0	249.4	289.3	39.8
NOR	I-64	TIDEWATER DR	CHESAPEAKE BLVD	1.04	Y	Y	Y	1.6	0.0	-1.6	143.8	94.5	-49.2
NOR	I-64	CHESAPEAKE BLVD	NORVIEW AVE	0.97	Y	Y	Y	1.8	0.0	-1.8	156.5	170.0	13.5
NOR	I-64	NORVIEW AVE	MILITARY HWY	1.22	Y	Y	Y	19.0	0.0	-19.0	47.1	137.1	90.0
NOR	I-64	MILITARY HWY	NORTHAMPTON BLVD	1.07	Y	Y	Y	7.9	0.0	-7.9	0.0	12.4	12.4
NOR	I-64	NORTHAMPTON BLVD	I-264	2.12	Y	Y	Y	0.0	0.0	0.0	0.0	134.7	134.7
NOR	I-64	I-264	VA BEACH CL	0.93	Y	Y	Y	12.0	4.3	-7.7	99.5	39.5	-59.9
NOR	I-264/DOWNTOWN TUNNEL	PORTSMOUTH CL	I-464	0.40	Y	Y	Y	111.4	63.9	-47.5	42.4	73.2	30.8
NOR	I-264	I-464	WATERSIDE/CITY HALL/TIDEWATER	0.72	Y	Y	Y	66.3	88.7	22.4	73.5	398.3	324.8
NOR	I-264	WATERSIDE/CITY HALL/TIDEWATER	BRAMBLETON AVE	0.91	Y	Y	Y	106.1	122.4	16.4	61.4	247.0	185.6
NOR	I-264	BRAMBLETON AVE	BALLENTINE BLVD	0.85	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
NOR	I-264	BALLENTINE BLVD	MILITARY HWY	2.43	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
NOR	I-264	MILITARY HWY	I-64	0.78	Y	Y	Y	0.0	0.0	0.0	0.0	0.3	0.3
NOR	I-264	I-64	NEWTOWN RD/WCL VA. BEACH	0.74	Y	Y	Y	0.0	0.0	0.0	0.0	7.3	7.3
NOR	I-464	NORFOLK CL	SOUTH MAIN ST	0.42	Y	Y	Y	0.0	0.3	0.3	1.2	0.0	-1.2
NOR	I-464	SOUTH MAIN ST	I-264	0.61	Y	Y	Y	4.3	0.3	-4.0	2.7	0.7	-2.0

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
NOR	I-564	ADMIRAL TAUSSIG BLVD	FUTURE INTERMODAL CONNECTOR	0.50	Y	Y	Y	36.1	53.0	16.8	6.3	0.0	-6.3
NOR	I-564	FUTURE INTERMODAL CONNECTOR	INTERNATIONAL TERMINAL BLVD	1.37	Y	Y	Y	99.0	145.1	46.1	17.3	0.0	-17.3
NOR	I-564	INTERNATIONAL TERMINAL BLVD	I-64	0.90	Y	Y	Y	6.1	13.3	7.2	7.9	0.0	-7.9
NOR	JAMESTOWN CRESCENT	53RD ST	HAMPTON BLVD	0.73	Y	Y	Y	3.2	5.1	1.9	4.8	4.1	-0.7
NOR	JOHNSTONS RD	SEWELLS POINT RD	CHESAPEAKE BLVD	0.21	Y	Y	Y	2.7	2.5	-0.2	2.2	2.0	-0.1
NOR	JOHNSTONS RD	CHESAPEAKE BLVD	MILITARY HWY	0.36	Y	Y	Y	5.1	0.4	-4.7	11.1	4.4	-6.7
NOR	JOHNSTONS RD/HALPRIN LN	MILITARY HWY	LITTLE CREEK RD	0.94	Y	Y	Y	8.3	3.0	-5.3	15.3	2.3	-13.0
NOR	KEMPSVILLE RD	NEWTOWN RD	VA BEACH BLVD	1.00	Y	Y	Y	15.8	19.2	3.4	74.1	35.7	-38.4
NOR	KEMPSVILLE RD	VA BEACH BLVD	NORTHAMPTON BLVD	1.58	Y	Y	Y	18.9	12.2	-6.8	9.5	23.2	13.7
NOR	LAFAYETTE BLVD	27TH ST	TIDEWATER DR	0.89	Y	Y	Y	7.4	4.6	-2.7	2.5	0.9	-1.6
NOR	LAFAYETTE BLVD	TIDEWATER DR	CHESAPEAKE BLVD	0.56	Y	Y	Y	2.3	7.6	5.3	18.2	16.4	-1.8
NOR	LIBERTY ST	STATE ST	SOUTH MAIN ST	0.11	Y	Y	Y	2.3	2.1	-0.2	2.9	1.5	-1.4
NOR	LIBERTY ST	SOUTH MAIN ST	NCL CHESAPEAKE	0.63	Y	Y	Y	0.6	0.0	-0.6	1.0	1.8	0.8
NOR	LITTLE CREEK RD	HAMPTON BLVD	GRANBY ST	1.98	Y	Y	Y	55.5	45.1	-10.4	75.1	71.0	-4.0
NOR	LITTLE CREEK RD	GRANBY ST	I-64	0.35	Y	Y	Y	95.8	0.0	-95.8	31.2	20.4	-10.8
NOR	LITTLE CREEK RD	I-64	TIDEWATER DR	0.77	Y	Y	Y	18.4	3.3	-15.1	44.1	22.0	-22.2
NOR	LITTLE CREEK RD	TIDEWATER DR	SEWELLS POINT RD	0.18	Y	Y	Y	8.3	1.2	-7.1	4.5	35.5	31.0
NOR	LITTLE CREEK RD	SEWELLS POINT RD	CHESAPEAKE BLVD	0.53	Y	Y	Y	16.9	12.3	-4.6	47.2	56.8	9.6
NOR	LITTLE CREEK RD	CHESAPEAKE BLVD	MILITARY HWY	0.15	Y	Y	Y	47.2	4.4	-42.8	11.1	5.6	-5.5
NOR	LITTLE CREEK RD	MILITARY HWY	AZALEA GARDEN RD	1.54	Y	Y	Y	32.6	17.5	-15.1	9.3	59.0	49.7
NOR	LITTLE CREEK RD	AZALEA GARDEN RD	SHORE DR	1.10	Y	Y	Y	12.5	30.2	17.7	97.9	106.5	8.6
NOR	LLEWELLYN AVE	VA BEACH BLVD	PRINCESS ANNE RD	0.30	Y	Y	Y	12.9	0.6	-12.3	0.9	4.0	3.1
NOR	LLEWELLYN AVE	PRINCESS ANNE RD	21ST ST	0.50	Y	Y	Y	2.1	2.3	0.2	2.1	8.1	6.1
NOR	LLEWELLYN AVE	21ST ST	26TH ST	0.26	Y	Y	Y	1.9	0.7	-1.2	0.7	9.9	9.2
NOR	LLEWELLYN AVE	26TH ST	27TH ST	0.05	Y	Y	Y	0.1	6.3	6.2	0.0	0.5	0.5
NOR	LLEWELLYN AVE	27TH ST	35TH ST	0.41	Y	Y	Y	1.6	0.0	-1.6	0.2	2.9	2.7
NOR	LLEWELLYN AVE	35TH ST	38TH ST	0.15	Y	Y	Y	4.0	0.4	-3.7	4.7	0.0	-4.7
NOR	LLEWELLYN AVE	38TH ST	DELAWARE AVE	0.20	Y	Y	Y	8.9	1.5	-7.4	1.3	1.9	0.6
NOR	LLEWELLYN AVE	DELAWARE AVE	GRANBY ST	0.27	Y	Y	Y	7.0	0.0	-7.0	0.1	0.0	-0.1
NOR	MIDTOWN TUNNEL	PORTSMOUTH CL	BRAMBLETON AVE	0.59	Y	Y	Y	15.9	24.8	8.9	6.7	37.9	31.2
NOR	MILITARY HWY	VA BEACH CL	I-264	0.75	Y	Y	Y	20.3	20.8	0.6	31.4	151.3	120.0
NOR	MILITARY HWY	I-264	VA BEACH BLVD	0.83	Y	Y	Y	0.6	73.0	72.4	35.0	48.3	13.3
NOR	MILITARY HWY	VA BEACH BLVD	LOWERY RD	0.54	Y	Y	Y	10.9	239.6	228.7	9.2	50.5	41.3
NOR	MILITARY HWY	LOWERY RD	PRIN ANNE RD/NORTHAMPTON BLVD	0.81	Y	Y	Y	30.1	1.0	-29.1	61.9	79.5	17.6
NOR	MILITARY HWY	PRIN ANNE RD/NORTHAMPTON BLVD	I-64	0.52	Y	Y	Y	23.8	20.2	-3.6	61.5	119.0	57.5
NOR	MILITARY HWY	I-64	AZALEA GARDEN RD	0.65	Y	Y	Y	20.7	17.2	-3.5	50.0	8.7	-41.3
NOR	MILITARY HWY	AZALEA GARDEN RD	NORVIEW AVE	0.39	Y	Y	Y	7.2	2.8	-4.4	22.4	57.5	35.2
NOR	MILITARY HWY	NORVIEW AVE	JOHNSTONS RD	1.16	Y	Y	Y	18.5	9.0	-9.5	35.4	60.5	25.2
NOR	MILITARY HWY	JOHNSTONS RD	LITTLE CREEK RD	0.48	Y	Y	Y	8.6	3.9	-4.7	11.9	59.4	47.4
NOR	MONTICELLO AVE	CITY HALL AVE	BRAMBLETON AVE	0.47	Y	Y	Y	5.5	8.3	2.8	1.9	2.8	0.9
NOR	MONTICELLO AVE	BRAMBLETON AVE	ST PAULS BLVD	0.19	Y	Y	Y	5.8	5.3	-0.5	9.0	6.1	-2.8
NOR	MONTICELLO AVE	ST PAULS BLVD	VA BEACH BLVD	0.10	Y	Y	Y	7.5	8.3	0.8	1.7	11.1	9.4
NOR	MONTICELLO AVE	VA BEACH BLVD	PRINCESS ANNE RD	0.18	Y	Y	Y	15.0	0.6	-14.4	11.2	0.1	-11.0
NOR	MONTICELLO AVE	PRINCESS ANNE RD	21ST ST	0.48	Y	Y	Y	10.6	6.8	-3.7	10.7	1.2	-9.5
NOR	MONTICELLO AVE	21ST ST	26TH ST	0.27	Y	Y	Y	6.6	6.3	-0.3	16.7	6.4	-10.3
NOR	MONTICELLO AVE	26TH ST	27TH ST	0.05	Y	Y	Y	0.8	0.5	-0.2	0.6	7.1	6.6
NOR	MONTICELLO AVE	27TH ST	CHURCH ST	0.18	Y	Y	Y	12.4	8.7	-3.7	12.4	3.3	-9.1
NOR	NEWTOWN RD	KEMPSVILLE RD	I-264	0.38	Y	Y	Y	33.8	38.8	5.0	19.6	6.4	-13.2
NOR	NEWTOWN RD	I-264	VA BEACH BLVD	0.66	Y	Y	Y	25.4	10.1	-15.3	51.5	142.1	90.7
NOR	NEWTOWN RD	VA BEACH BLVD	VA BEACH CL	0.15	Y	Y	Y	2.6	26.2	23.6	17.7	30.4	12.6
NOR	NORTHAMPTON BLVD	MILITARY HWY	KEMPSVILLE RD	0.24	Y	Y	Y	30.6	10.0	-20.7	20.6	32.8	12.2
NOR	NORTHAMPTON BLVD	KEMPSVILLE RD	I-64	0.49	Y	Y	Y	0.0	20.0	20.0	1.3	6.0	4.7
NOR	NORTHAMPTON BLVD	I-64	WESLEYAN DR/VA BEACH CL	0.34	Y	Y	Y	0.0	59.0	59.0	6.6	19.6	13.0
NOR	NORVIEW AVE	TIDEWATER DR	CHESAPEAKE BLVD	1.14	Y	Y	Y	3.4	7.7	4.4	7.6	16.5	8.9
NOR	NORVIEW AVE	CHESAPEAKE BLVD	I-64	0.41	Y	Y	Y	23.0	5.1	-17.9	50.1	38.3	-11.8

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
NOR	NORVIEW AVE	I-64	MILITARY HWY	0.47	Y	Y	Y	13.3	10.1	-3.3	20.5	35.5	15.0
NOR	NORVIEW AVE	MILITARY HWY	AZALEA GARDEN RD	0.50	Y	Y	Y	1.8	3.8	2.0	17.5	22.5	5.0
NOR	NORVIEW AVE	AZALEA GARDEN RD	NORFOLK INT AIRPORT	0.20	Y	Y	Y	2.9	1.0	-2.0	5.8	6.6	0.9
NOR	OCEAN VIEW AVE	4TH VIEW ST	TIDEWATER DR	0.09	Y	Y	Y	0.9	0.7	-0.2	1.4	0.6	-0.7
NOR	OCEAN VIEW AVE	TIDEWATER DR	GRANBY ST	0.75	Y	Y	Y	9.1	5.6	-3.5	12.3	12.3	0.1
NOR	OCEAN VIEW AVE	GRANBY ST	CHESAPEAKE BLVD	0.44	Y	Y	Y	1.0	4.1	3.1	3.2	6.7	3.5
NOR	OCEAN VIEW AVE	CHESAPEAKE BLVD	21ST BAY ST	3.15	Y	Y	Y	22.6	2.2	-20.4	12.8	10.9	-1.9
NOR	OLNEY RD	COLLEY AVE	DUKE ST/VA BEACH BLVD	0.56	Y	Y	Y	3.6	11.8	8.1	7.7	15.0	7.3
NOR	PARK AVE	BRAMBLETON AVE	VA BEACH BLVD	0.45	Y	Y	Y	15.8	12.3	-3.5	26.0	21.3	-4.7
NOR	PARK AVE	VA BEACH BLVD	PRINCESS ANNE RD	0.14	Y	Y	Y	3.7	15.2	11.4	8.2	5.4	-2.8
NOR	PRINCESS ANNE RD	HAMPTON BLVD	COLLEY AVE	0.08	Y	Y	Y	3.5	4.6	1.1	7.7	5.4	-2.3
NOR	PRINCESS ANNE RD	COLLEY AVE	LLEWELLYN AVE	0.57	Y	Y	Y	17.0	13.0	-4.0	17.1	14.7	-2.4
NOR	PRINCESS ANNE RD	LLEWELLYN AVE	MONTICELLO AVE	0.18	Y	Y	Y	11.3	11.1	-0.2	5.9	9.9	4.0
NOR	PRINCESS ANNE RD	MONTICELLO AVE	CHURCH ST	0.51	Y	Y	Y	0.0	7.5	7.5	7.8	0.7	-7.1
NOR	PRINCESS ANNE RD	CHURCH ST	TIDEWATER DR	0.28	Y	Y	Y	4.1	6.0	1.9	6.9	3.9	-2.9
NOR	PRINCESS ANNE RD	TIDEWATER DR	MAY AVE	0.14	Y	Y	Y	1.7	0.0	-1.7	3.9	4.6	0.6
NOR	PRINCESS ANNE RD	MAY AVE	PARK AVE	0.36	Y	Y	Y	7.2	0.5	-6.6	14.7	14.1	-0.6
NOR	PRINCESS ANNE RD	PARK AVE	BALLENTINE BLVD	0.97	Y	Y	Y	13.7	17.9	4.2	19.6	16.4	-3.2
NOR	PRINCESS ANNE RD	BALLENTINE BLVD	INGLESIDE RD	0.37	Y	Y	Y	15.3	16.2	1.0	23.8	17.9	-5.8
NOR	PRINCESS ANNE RD	INGLESIDE RD	AZALEA GARDEN RD	0.59	Y	Y	Y	11.3	27.9	16.6	10.6	30.7	20.1
NOR	PRINCESS ANNE RD	AZALEA GARDEN RD	SEWELLS POINT RD	0.32	Y	Y	Y	16.8	17.8	1.0	18.5	28.4	9.9
NOR	PRINCESS ANNE RD	SEWELLS POINT RD	MILITARY HWY	1.18	Y	Y	Y	20.0	11.0	-8.9	50.6	123.8	73.2
NOR	ROBIN HOOD RD	CHESAPEAKE BLVD	SEWELLS POINT RD	0.98	Y	Y	Y	7.7	7.8	0.1	4.0	7.0	3.1
NOR	ROBIN HOOD RD	SEWELLS POINT RD	AZALEA GARDEN RD	0.36	Y	Y	Y	4.9	2.4	-2.4	4.6	8.2	3.6
NOR	ROBIN HOOD RD	AZALEA GARDEN RD	ELLSMERE AVE	0.41	Y	Y	Y	13.1	8.8	-4.3	22.3	17.9	-4.4
NOR	ROBIN HOOD RD	ELLSMERE AVE	MILITARY HWY	0.33	Y	Y	Y	12.6	9.0	-3.6	21.0	30.3	9.3
NOR	SEWELLS POINT RD	PRINCESS ANNE RD	AZALEA GARDEN RD	0.26	Y	Y	Y	14.2	15.0	0.8	19.5	20.9	1.5
NOR	SEWELLS POINT RD	AZALEA GARDEN RD	ROBIN HOOD RD	0.50	Y	Y	Y	9.2	7.8	-1.3	1.6	6.4	4.8
NOR	SEWELLS POINT RD	ROBIN HOOD RD	CHESAPEAKE BLVD	0.86	Y	Y	Y	3.0	20.7	17.7	25.9	22.3	-3.6
NOR	SEWELLS POINT RD	CHESAPEAKE BLVD	PARTRIDGE ST	0.12	Y	Y	Y	1.3	0.9	-0.4	3.1	6.5	3.4
NOR	SEWELLS POINT RD	PARTRIDGE ST	PHILPOTTS RD	0.28	Y	Y	Y	3.1	2.1	-1.0	7.2	15.2	8.0
NOR	SEWELLS POINT RD	PHILPOTTS RD	I-64	0.31	Y	Y	Y	0.0	0.7	0.7	1.9	0.8	-1.1
NOR	SEWELLS POINT RD	I-64	LITTLE CREEK RD	1.02	Y	Y	Y	2.3	5.8	3.5	12.4	6.3	-6.1
NOR	SHORE DRIVE	21ST BAY ST	LITTLE CREEK RD	0.88	Y	Y	Y	16.9	13.2	-3.7	19.8	26.3	6.6
NOR	SHORE DRIVE	LITTLE CREEK RD	VA BEACH CL	0.98	Y	Y	Y	16.1	15.9	-0.2	16.5	40.0	23.5
NOR	SOUTH MAIN ST	I-464	BAINBRIDGE BLVD	0.07	N	Y	N						
NOR	SOUTH MAIN ST	BAINBRIDGE BLVD	LIBERTY ST	0.21	Y	Y	Y	0.0	0.2	0.2	0.1	0.2	0.1
NOR	SOUTH MAIN ST	LIBERTY ST	BERKLEY AVE	0.06	Y	Y	Y	0.3	0.8	0.5	1.5	0.8	-0.7
NOR	ST PAULS BLVD	WATERSIDE DR	CITY HALL AVE	0.23	Y	Y	Y	1.9	22.1	20.2	44.5	29.1	-15.4
NOR	ST PAULS BLVD	CITY HALL AVE	I-264 RAMP/MACARTHUR MALL	0.11	Y	Y	Y	30.8	8.6	-22.1	47.3	1.8	-45.5
NOR	ST PAULS BLVD	I-264 RAMP/MACARTHUR MALL	BRAMBLETON AVE	0.39	Y	Y	Y	57.2	47.8	-9.5	86.5	72.3	-14.2
NOR	ST PAULS BLVD	BRAMBLETON AVE	MONTICELLO AVE	0.25	Y	Y	Y	22.8	8.1	-14.8	47.3	20.6	-26.7
NOR	STATE ST	LIBERTY ST	BERKLEY AVE	0.07	Y	Y	Y	0.7	1.3	0.6	1.4	1.0	-0.4
NOR	THOLE ST	GRANBY ST	TIDEWATER DR	1.10	Y	Y	Y	8.8	0.5	-8.3	6.7	7.8	1.2
NOR	TIDEWATER DR	CITY HALL AVE	BRAMBLETON AVE	0.35	N	Y	N						
NOR	TIDEWATER DR	BRAMBLETON AVE	VA BEACH BLVD	0.29	Y	Y	Y	20.6	5.5	-15.2	12.3	64.0	51.7
NOR	TIDEWATER DR	VA BEACH BLVD	PRINCESS ANNE RD	0.14	Y	Y	Y	9.6	14.8	5.1	0.0	0.7	0.7
NOR	TIDEWATER DR	PRINCESS ANNE RD	LAFAYETTE BLVD	1.59	Y	Y	Y	25.1	40.1	15.1	44.4	73.2	28.7
NOR	TIDEWATER DR	LAFAYETTE BLVD	CROMWELL DR	0.62	Y	Y	Y	15.1	27.9	12.8	4.8	13.9	9.1
NOR	TIDEWATER DR	CROMWELL DR	NORVIEW AVE	0.43	Y	Y	Y	54.4	15.0	-39.4	21.5	48.3	26.7
NOR	TIDEWATER DR	NORVIEW AVE	THOLE ST	0.91	Y	Y	Y	0.0	15.7	15.7	0.5	33.7	33.2
NOR	TIDEWATER DR	THOLE ST	I-64	0.15	Y	Y	Y	4.0	14.7	10.7	0.0	0.4	0.4
NOR	TIDEWATER DR	I-64	LITTLE CREEK RD	0.68	Y	Y	Y	12.1	0.0	-12.1	49.2	10.0	-39.2
NOR	TIDEWATER DR	LITTLE CREEK RD	BAYVIEW BLVD	1.18	Y	Y	Y	9.3	2.5	-6.8	21.1	21.6	0.4
NOR	TIDEWATER DR	BAYVIEW BLVD	GRANBY ST	1.01	Y	Y	Y	5.4	1.7	-3.7	5.8	1.6	-4.1

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
NOR	TIDEWATER DR	GRANBY ST	OCEAN VIEW AVE	0.89	Y	Y	Y	2.4	0.5	-1.9	1.5	1.1	-0.4
NOR	VA BEACH BLVD	OLNEY RD	GRANBY ST	0.23	Y	Y	Y	2.5	6.0	3.5	3.3	3.7	0.4
NOR	VA BEACH BLVD	GRANBY ST	MONTICELLO AVE	0.07	Y	Y	Y	2.9	6.9	4.0	4.9	6.8	1.9
NOR	VA BEACH BLVD	MONTICELLO AVE	CHURCH ST	0.45	Y	Y	Y	5.5	16.2	10.7	12.8	3.5	-9.2
NOR	VA BEACH BLVD	CHURCH ST	TIDEWATER DR	0.30	Y	Y	Y	2.4	7.8	5.4	25.1	13.1	-12.0
NOR	VA BEACH BLVD	TIDEWATER DR	PARK AVE	0.53	Y	Y	Y	8.4	0.5	-7.9	93.0	1.0	-92.0
NOR	VA BEACH BLVD	PARK AVE	BALLENTINE BLVD	0.99	Y	Y	Y	2.4	4.3	1.9	234.0	5.0	-229.0
NOR	VA BEACH BLVD	BALLENTINE BLVD	INGLESIDE RD	0.48	Y	Y	Y	1.1	3.1	2.0	9.1	18.3	9.2
NOR	VA BEACH BLVD	INGLESIDE RD	AZALEA GARDEN RD	0.43	Y	Y	Y	11.6	8.4	-3.2	3.9	13.1	9.2
NOR	VA BEACH BLVD	AZALEA GARDEN RD	JETT ST	0.38	Y	Y	Y	0.4	6.5	6.0	6.7	27.8	21.1
NOR	VA BEACH BLVD	JETT ST	MILITARY HWY	0.88	Y	Y	Y	35.9	34.0	-1.9	54.9	55.0	0.1
NOR	VA BEACH BLVD	MILITARY HWY	GLENROCK RD	0.36	Y	Y	Y	12.0	12.4	0.4	55.4	58.1	2.7
NOR	VA BEACH BLVD	GLENROCK RD	KEMPSVILLE RD	0.51	Y	Y	Y	3.5	16.7	13.2	69.3	30.3	-39.1
NOR	VA BEACH BLVD	KEMPSVILLE RD	NEWTOWN RD	0.93	Y	Y	Y	17.1	34.7	17.6	162.0	33.3	-128.7
NOR	WESLEYAN DR	NORTHAMPTON BLVD	NCL VA BEACH	0.38	Y	Y	Y	6.7	12.6	5.9	31.0	15.4	-15.6
NOR	WILLOW WOOD DR	GRANBY ST	TIDEWATER DR	1.10	Y	Y	Y	5.4	12.0	6.6	10.0	48.4	38.5
NOR	WILSON RD	BERKLEY AVE/CHESAPEAKE CL	INDIAN RIVER RD	0.44	Y	Y	Y	6.5	0.8	-5.7	7.6	4.7	-2.9
NOR	WILSON RD	INDIAN RIVER RD	CAMPOSTELLA RD	0.22	Y	Y	Y	4.4	2.1	-2.4	8.5	8.1	-0.5
POQ	EAST YORKTOWN RD	YORK CL	HUNT'S NECK RD	1.14	N	Y	N						
POQ	EAST YORKTOWN RD	HUNT'S NECK RD	POQUOSON AVE	0.18	N	Y	N						
POQ	LITTLE FLORIDA RD	WYTHE CREEK RD	POQUOSON AVE	1.44	Y	Y	Y	19.7	11.9	-7.8	9.0	4.0	-5.0
POQ	POQUOSON AVE	WYTHE CREEK RD	LITTLE FLORIDA RD	1.50	Y	Y	Y	1.7	2.9	1.2	3.7	3.4	-0.3
POQ	VICTORY BLVD	YORK CL	WYTHE CREEK RD	0.79	Y	Y	Y	10.4	14.3	3.8	12.0	9.4	-2.7
POQ	WYTHE CREEK RD	HAMPTON CL	ALPHUS ST	0.96	Y	Y	Y	0.6	8.4	7.8	1.2	3.7	2.5
POQ	WYTHE CREEK RD	ALPHUS ST	LITTLE FLORIDA RD	0.12	Y	Y	Y	0.3	4.4	4.1	0.7	9.5	8.8
POQ	WYTHE CREEK RD	LITTLE FLORIDA RD	HUDGINS RD	0.25	Y	Y	Y	6.3	7.9	1.6	1.2	7.1	5.8
POQ	WYTHE CREEK RD	HUDGINS RD	POQUOSON AVE	0.61	Y	Y	Y	0.0	0.5	0.5	0.5	0.5	0.0
PORT	AIRLINE BLVD	CHESAPEAKE CL	GREENWOOD DR	0.30	Y	Y	Y	0.4	0.0	-0.4	0.2	0.0	-0.2
PORT	AIRLINE BLVD	GREENWOOD DR	ELMHURST LN	0.16	Y	Y	Y	1.4	2.1	0.6	5.2	15.0	9.7
PORT	AIRLINE BLVD	ELMHURST LN	.55 MI E ELMHURST LN	0.55	Y	Y	Y	0.1	2.5	2.4	2.0	4.1	2.1
PORT	AIRLINE BLVD	.55 MI E ELMHURST LN	VICTORY BLVD	0.75	Y	Y	Y	0.2	3.5	3.3	2.7	5.6	2.9
PORT	AIRLINE BLVD	VICTORY BLVD	PORTSMOUTH BLVD	0.29	Y	Y	Y	14.2	2.8	-11.4	8.5	7.6	-0.9
PORT	AIRLINE BLVD	PORTSMOUTH BLVD	FREDERICK BLVD	1.35	Y	Y	Y	28.6	13.5	-15.1	45.2	9.4	-35.8
PORT	AIRLINE BLVD	FREDERICK BLVD	HIGH ST	0.20	Y	Y	Y	2.1	2.5	0.4	2.6	19.1	16.6
PORT	BAYVIEW BLVD	MT VERNON AVE	CHAUTAUQUA AVE	0.21	Y	N	Y	1.8	0.0	-1.8	4.7	0.0	-4.7
PORT	CAVALIER BLVD	CHESAPEAKE CL	GREENWOOD DR	0.81	Y	Y	Y	2.9	4.1	1.2	1.7	2.3	0.5
PORT	CEDAR LN	HIGH ST	W NORFOLK RD	1.18	Y	Y	Y	9.9	15.2	5.3	10.2	22.0	11.8
PORT	CEDAR LN	W NORFOLK RD	WESTERN FREEWAY	0.23	Y	Y	Y	6.3	22.8	16.5	1.4	4.1	2.6
PORT	CHAUTAUQUA AVE	CLEVELAND ST	DETROIT ST	0.12	Y	N	Y	7.1	0.0	-7.1	0.5	0.0	-0.5
PORT	CHAUTAUQUA AVE	DETROIT ST	WESLEY ST	0.13	Y	N	Y	6.8	0.0	-6.8	0.5	0.0	-0.5
PORT	CHAUTAUQUA AVE	WESLEY ST	BAYVIEW BLVD	0.27	Y	N	Y	2.2	0.0	-2.2	0.5	0.0	-0.5
PORT	CHURCHLAND BLVD	CHESAPEAKE CL	W NORFOLK RD	0.08	Y	Y	Y	1.1	3.3	2.2	0.9	0.9	0.1
PORT	CHURCHLAND BLVD	W NORFOLK RD	TYRE NECK RD	0.12	Y	Y	Y	0.5	0.5	0.0	5.8	4.4	-1.4
PORT	CHURCHLAND BLVD	TYRE NECK RD	HIGH ST	0.30	Y	Y	Y	3.2	1.0	-2.2	2.5	9.3	6.8
PORT	CLEVELAND ST	CHAUTAUQUA AVE	M L K FWY	0.18	Y	N	Y	3.7	0.0	-3.7	3.8	0.0	-3.8
PORT	COUNTY ST	CONSTITUTION AVE	PENINSULA AVE	0.40	Y	Y	Y	1.2	1.7	0.5	2.3	3.1	0.8
PORT	COUNTY ST	PENINSULA AVE	ELM AVE	0.31	Y	Y	Y	2.3	0.5	-1.8	1.8	0.0	-1.8
PORT	COUNTY ST	ELM AVE	EFFINGHAM ST	0.33	Y	Y	Y	4.1	1.8	-2.3	2.6	0.7	-1.9
PORT	COURT ST	CRAWFORD ST	COUNTY ST	0.30	Y	Y	Y	0.2	7.4	7.2	8.3	5.9	-2.4
PORT	COURT ST	COUNTY ST	HIGH ST	0.10	Y	Y	Y	1.0	0.5	-0.6	2.2	0.6	-1.7
PORT	COURT ST	HIGH ST	LONDON BLVD	0.10	Y	Y	Y	2.5	0.8	-1.6	4.0	1.7	-2.3
PORT	COURT ST	LONDON BLVD	CRAWFORD PKWY	0.24	Y	Y	Y	0.4	0.4	0.0	0.8	1.4	0.6
PORT	CRAWFORD PKWY	EFFINGHAM ST	CRAWFORD ST	0.43	Y	Y	Y	1.0	3.7	2.7	1.9	2.5	0.6
PORT	CRAWFORD ST	CRAWFORD PKWY	LONDON BLVD	0.22	Y	Y	Y	0.0	0.7	0.7	0.3	0.0	-0.3
PORT	CRAWFORD ST	LONDON BLVD	HIGH ST	0.11	Y	Y	Y	0.2	1.8	1.7	0.7	3.1	2.4

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
PORT	CRAWFORD ST	HIGH ST	COUNTY ST	0.11	Y	Y	Y	1.5	0.5	-1.0	2.2	1.2	-0.9
PORT	CRAWFORD ST	COUNTY ST	COURT ST	0.23	Y	Y	Y	0.4	0.1	-0.3	2.2	0.1	-2.1
PORT	DEEP CREEK BLVD	VICTORY BLVD	GREENWOOD DR	0.83	Y	Y	Y	13.6	5.2	-8.4	3.4	5.0	1.6
PORT	DEEP CREEK BLVD	GREENWOOD DR	PORTSMOUTH BLVD	0.73	Y	Y	Y	6.3	3.9	-2.3	9.8	4.7	-5.1
PORT	DEEP CREEK BLVD	PORTSMOUTH BLVD	FREDERICK BLVD	0.14	Y	Y	Y	4.2	6.4	2.2	1.4	13.1	11.6
PORT	DEEP CREEK BLVD	FREDERICK BLVD	DES MOINES AVE	0.77	Y	Y	Y	1.7	5.9	4.2	4.4	9.0	4.7
PORT	DES MOINES AVE	DEEP CREEK BLVD	I-264	0.10	Y	Y	Y	0.0	0.3	0.3	0.3	0.0	-0.3
PORT	EFFINGHAM ST	FREDERICK BLVD	ELM AVE	0.35	Y	Y	Y	3.5	17.7	14.3	7.2	43.6	36.4
PORT	EFFINGHAM ST	ELM AVE	PORTSMOUTH BLVD	0.70	Y	Y	Y	15.6	20.7	5.0	21.4	65.6	44.2
PORT	EFFINGHAM ST	PORTSMOUTH BLVD	I-264	0.77	Y	Y	Y	3.8	18.6	14.8	22.3	11.4	-10.9
PORT	EFFINGHAM ST	I-264	SOUTH ST	0.14	Y	Y	Y	2.3	4.1	1.8	9.6	0.3	-9.3
PORT	EFFINGHAM ST	SOUTH ST	HIGH ST	0.21	Y	Y	Y	9.1	9.3	0.2	0.6	8.8	8.3
PORT	EFFINGHAM ST	HIGH ST	LONDON BLVD	0.11	Y	Y	Y	0.5	0.0	-0.5	8.0	4.8	-3.2
PORT	EFFINGHAM ST	LONDON BLVD	NORTH ST	0.10	Y	Y	Y	3.2	0.9	-2.3	9.9	1.1	-8.8
PORT	EFFINGHAM ST	NORTH ST	CRAWFORD PKWY	0.19	Y	Y	Y	4.8	1.6	-3.2	13.1	2.0	-11.1
PORT	EFFINGHAM ST	CRAWFORD PKWY	ENT OSN HOSP	0.09	N	N	N						
PORT	ELM AVE	LONDON BLVD	HIGH ST	0.10	Y	Y	Y	1.1	0.9	-0.3	2.5	0.5	-1.9
PORT	ELM AVE	HIGH ST	COUNTY ST	0.10	Y	Y	Y	1.8	4.6	2.8	4.0	4.3	0.3
PORT	ELM AVE	COUNTY ST	SOUTH ST	0.19	Y	Y	Y	0.3	1.9	1.6	5.9	0.0	-5.9
PORT	ELM AVE	SOUTH ST	I-264	0.09	Y	Y	Y	0.2	0.3	0.1	0.4	0.2	-0.2
PORT	ELM AVE	I-264	PORTSMOUTH BLVD	0.70	Y	Y	Y	1.5	1.5	0.0	2.4	1.4	-1.0
PORT	ELM AVE	PORTSMOUTH BLVD	GEORGE WASHINGTON HWY	0.34	Y	Y	Y	2.1	3.1	1.0	6.4	5.4	-0.9
PORT	ELM AVE	GEORGE WASHINGTON HWY	VICTORY BLVD	0.70	Y	Y	Y	9.0	13.5	4.5	14.2	18.7	4.6
PORT	ELM AVE	VICTORY BLVD	BURTONS POINT RD	0.30	Y	Y	Y	3.1	27.1	24.0	15.5	14.7	-0.8
PORT	ELM AVE	BURTONS POINT RD	CHESAPEAKE CL	0.31	Y	Y	Y	2.3	23.8	21.4	16.9	14.0	-2.9
PORT	ELMHURST LN	AIRLINE BLVD	PORTSMOUTH BLVD	1.03	Y	Y	Y	1.9	2.3	0.4	4.2	1.3	-3.0
PORT	FREDERICK BLVD	GEORGE WASHINGTON HWY	PORTSMOUTH BLVD	0.66	Y	Y	Y	3.5	12.8	9.3	0.9	8.2	7.3
PORT	FREDERICK BLVD	PORTSMOUTH BLVD	DEEP CREEK BLVD	0.08	Y	Y	Y	0.5	0.8	0.3	0.5	4.2	3.7
PORT	FREDERICK BLVD	DEEP CREEK BLVD	I-264	0.52	Y	Y	Y	22.4	6.3	-16.1	4.8	30.6	25.8
PORT	FREDERICK BLVD	I-264	TURNPIKE RD	0.36	Y	Y	Y	12.9	0.5	-12.4	16.9	19.5	2.6
PORT	FREDERICK BLVD	TURNPIKE RD	AIRLINE BLVD	0.51	Y	Y	Y	7.3	1.8	-5.5	26.6	9.5	-17.2
PORT	FREDERICK BLVD	AIRLINE BLVD	HIGH ST	0.14	Y	Y	Y	13.6	2.2	-11.4	8.7	7.7	-1.0
PORT	GEORGE WASHINGTON HWY	CHESAPEAKE CL	VICTORY BLVD	0.17	Y	Y	Y	3.2	5.1	2.0	3.9	15.3	11.3
PORT	GEORGE WASHINGTON HWY	VICTORY BLVD	DAVIS ST	0.19	Y	Y	Y	0.9	1.3	0.3	2.0	4.7	2.8
PORT	GEORGE WASHINGTON HWY	DAVIS ST	GREENWOOD DR	0.42	Y	Y	Y	2.1	3.3	1.2	4.6	11.2	6.6
PORT	GEORGE WASHINGTON HWY	GREENWOOD DR	FREDERICK BLVD	0.33	Y	Y	Y	1.4	1.4	0.0	7.0	4.6	-2.4
PORT	GREENWOOD DR	AIRLINE BLVD	I-264	0.50	Y	Y	Y	8.0	3.8	-4.1	12.6	5.6	-7.0
PORT	GREENWOOD DR	I-264	CAVALIER BLVD	0.88	Y	Y	Y	7.4	6.7	-0.7	9.5	17.2	7.7
PORT	GREENWOOD DR	CAVALIER BLVD	VICTORY BLVD	0.63	Y	Y	Y	17.6	3.1	-14.5	22.1	1.3	-20.9
PORT	GREENWOOD DR	VICTORY BLVD	INDEPENDENCE ST	1.05	Y	Y	Y	0.8	0.4	-0.5	2.6	4.4	1.7
PORT	GREENWOOD DR	INDEPENDENCE ST	DEEP CREEK BLVD	0.37	Y	Y	Y	0.3	0.1	-0.2	0.9	1.2	0.3
PORT	GREENWOOD DR	DEEP CREEK BLVD	GEORGE WASHINGTON HWY	0.51	Y	Y	Y	3.7	1.6	-2.2	3.7	1.7	-2.1
PORT	HARBOR ST	TURNPIKE RD	HIGH ST	0.16	Y	Y	Y	1.4	5.4	4.0	3.8	9.7	5.9
PORT	HIGH ST	TYRE NECK RD	CHURCHLAND BLVD	0.22	Y	Y	Y	1.7	9.4	7.8	3.2	15.8	12.7
PORT	HIGH ST	CHURCHLAND BLVD	CEDAR LA	0.89	Y	Y	Y	5.6	19.1	13.5	37.5	6.6	-30.9
PORT	HIGH ST	CEDAR LA	FREDERICK BLVD	2.39	Y	Y	Y	47.5	26.0	-21.5	37.7	49.2	11.5
PORT	HIGH ST	FREDERICK BLVD	AIRLINE BLVD	0.12	Y	Y	Y	12.5	14.1	1.6	15.2	14.7	-0.5
PORT	HIGH ST	AIRLINE BLVD	MT VERNON AVE	0.23	Y	Y	Y	10.5	9.5	-1.1	7.4	13.0	5.6
PORT	HIGH ST	MT VERNON AVE	M L K FWY	0.48	Y	Y	Y	4.5	1.7	-2.8	2.9	10.5	7.6
PORT	HIGH ST	M L K FWY	ELM AVE	0.79	Y	Y	Y	3.0	7.4	4.5	12.6	18.6	6.0
PORT	HIGH ST	ELM AVE	EFFINGHAM ST	0.33	Y	Y	Y	29.0	7.5	-21.5	5.0	16.0	10.9
PORT	HIGH ST	EFFINGHAM ST	CRAWFORD ST	0.51	Y	Y	Y	5.6	3.5	-2.1	18.5	12.5	-6.0
PORT	I-264	WCL PORTSMOUTH	GREENWOOD DR	0.42	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
PORT	I-264	GREENWOOD DR	VICTORY BLVD	1.31	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
PORT	I-264	VICTORY BLVD	PORTSMOUTH BLVD	0.75	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
PORT	I-264	PORTSMOUTH BLVD	FREDERICK BLVD	0.91	Y	Y	Y	0.0	0.5	0.5	0.0	0.0	0.0
PORT	I-264	FREDERICK BLVD	FUTURE MLK FWY	0.45	Y	Y	Y	41.4	1.2	-40.2	0.0	0.8	0.8
PORT	I-264	FUTURE MLK FWY	DES MOINES AVE	0.51	Y	Y	Y	47.0	1.4	-45.5	0.0	0.9	0.9
PORT	I-264	DES MOINES AVE	EFFINGHAM ST	0.72	Y	Y	Y	196.1	6.2	-189.9	1.5	36.9	35.4
PORT	I-264/DOWNTOWN TUNNEL	EFFINGHAM ST	NORFOLK CL	0.72	Y	Y	Y	200.5	115.1	-85.4	76.3	131.8	55.5
PORT	LONDON BLVD	HIGH ST	MT VERNON AVE	0.31	Y	Y	Y	12.7	6.1	-6.7	6.3	25.0	18.7
PORT	LONDON BLVD	MT VERNON AVE	M L K FWY	0.40	Y	Y	Y	5.2	5.3	0.1	15.0	1.8	-13.3
PORT	LONDON BLVD	M L K FWY	ELM AVE	0.86	Y	Y	Y	13.7	14.3	0.6	34.4	23.1	-11.3
PORT	LONDON BLVD	ELM AVE	EFFINGHAM ST	0.32	Y	Y	Y	13.7	12.8	-0.8	18.5	30.6	12.1
PORT	LONDON ST	EFFINGHAM ST	CRAWFORD ST	0.50	Y	Y	Y	4.1	19.9	15.8	9.2	13.8	4.5
PORT	MIDTOWN TUNNEL	MLK FWY/WESTERN FREEWAY	NORFOLK CL	0.95	Y	Y	Y	25.7	40.0	14.3	42.6	61.1	18.5
PORT	M L K FREEWAY	HIGH ST	LONDON BLVD	0.25	Y	Y	Y	9.4	5.8	-3.7	15.1	9.5	-5.6
PORT	M L K FREEWAY	LONDON BLVD	WESTERN FREEWAY/MIDTOWN TUNNEL	0.98	Y	Y	Y	7.6	73.8	66.2	9.4	55.4	46.0
PORT	MT VERNON AVE	HIGH ST	LONDON BLVD	0.14	Y	N	Y	2.1	0.0	-2.1	1.0	0.0	-1.0
PORT	MT VERNON AVE	LONDON BLVD	BAYVIEW BLVD	1.22	Y	N	Y	24.5	0.0	-24.5	25.8	0.0	-25.8
PORT	PORTCENTRE PKWY	PORTSMOUTH BLVD	CRAWFORD ST	0.68	Y	Y	Y	9.0	5.3	-3.7	18.5	7.3	-11.2
PORT	PORTSMOUTH BLVD	CHESAPEAKE CL	ELMHURST LN	1.01	Y	Y	Y	7.6	4.0	-3.6	19.8	28.8	8.9
PORT	PORTSMOUTH BLVD	ELMHURST LN	VICTORY BLVD	1.19	Y	Y	Y	14.9	5.3	-9.6	28.9	10.6	-18.3
PORT	PORTSMOUTH BLVD	VICTORY BLVD	AIRLINE BLVD	0.22	Y	Y	Y	3.9	16.1	12.2	10.7	11.8	1.1
PORT	PORTSMOUTH BLVD	AIRLINE BLVD	TURNPIKE RD	0.10	Y	Y	Y	0.7	0.8	0.1	29.9	1.2	-28.7
PORT	PORTSMOUTH BLVD	TURNPIKE RD	I-264	0.35	Y	Y	Y	0.4	7.3	6.9	17.0	22.0	5.0
PORT	PORTSMOUTH BLVD	I-264	DEEP CREEK BLVD	1.07	Y	Y	Y	2.9	6.4	3.4	11.2	2.8	-8.5
PORT	PORTSMOUTH BLVD	DEEP CREEK BLVD	FREDERICK BLVD	0.17	Y	Y	Y	2.9	7.4	4.5	0.3	0.9	0.6
PORT	PORTSMOUTH BLVD	FREDERICK BLVD	ELM AVE	0.77	Y	Y	Y	6.6	1.8	-4.8	8.7	10.8	2.1
PORT	PORTSMOUTH BLVD	ELM AVE	EFFINGHAM ST	0.34	Y	Y	Y	2.1	3.5	1.4	7.1	5.9	-1.2
PORT	PORTSMOUTH BLVD	EFFINGHAM ST	PORTCENTRE PKWY	0.54	Y	Y	Y	2.2	3.6	1.4	9.8	9.4	-0.4
PORT	TOWN POINT RD	SUFFOLK CL	TWIN PINES RD	0.72	N	Y	N						
PORT	TOWN POINT RD	TWIN PINES RD	WESTERN FREEWAY	0.11	N	Y	N						
PORT	TOWN POINT RD	WESTERN FREEWAY	CHESAPEAKE CL	0.25	N	Y	N						
PORT	TURNPIKE RD	PORTSMOUTH BLVD	FREDERICK BLVD	1.06	Y	Y	Y	6.7	8.3	1.6	5.6	6.1	0.5
PORT	TURNPIKE RD	FREDERICK BLVD	HOWARD ST	0.29	Y	Y	Y	9.6	9.5	0.0	16.0	14.3	-1.7
PORT	TURNPIKE RD	HOWARD ST	HARBOR DR	0.53	Y	Y	Y	4.5	8.3	3.7	3.8	1.6	-2.2
PORT	TURNPIKE RD	HARBOR DR	COUNTY ST	0.10	Y	Y	Y	1.8	5.8	4.0	6.1	0.9	-5.2
PORT	TWIN PINES RD	TOWN POINT RD	HEDGEROW LN	1.38	N	Y	N						
PORT	TYRE NECK RD	CHESAPEAKE CL	HIGH ST	0.24	N	Y	N						
PORT	TYRE NECK RD	HIGH ST	CHURCHLAND BLVD	0.18	N	Y	N						
PORT	TYRE NECK RD	CHURCHLAND BLVD	WEST NORFOLK RD	0.07	N	Y	N						
PORT	VICTORY BLVD	PORTSMOUTH BLVD	AIRLINE BLVD	0.20	Y	Y	Y	1.4	3.6	2.1	5.8	7.3	1.5
PORT	VICTORY BLVD	AIRLINE BLVD	I-264	0.36	Y	Y	Y	3.7	14.0	10.3	18.1	12.9	-5.2
PORT	VICTORY BLVD	I-264	GREENWOOD DR	0.55	Y	Y	Y	4.6	3.5	-1.2	29.9	26.1	-3.9
PORT	VICTORY BLVD	GREENWOOD DR	DEEP CREEK BLVD	1.08	Y	Y	Y	8.5	6.8	-1.7	23.9	0.0	-23.9
PORT	VICTORY BLVD	DEEP CREEK BLVD	GEORGE WASHINGTON HWY	0.44	Y	Y	Y	4.2	10.7	6.5	17.3	10.3	-6.9
PORT	VICTORY BLVD	GEORGE WASHINGTON HWY	AFTON PKWY	1.24	Y	Y	Y	13.3	30.0	16.8	7.7	26.6	18.9
PORT	VICTORY BLVD	AFTON PKWY	ELM AVE	0.57	Y	Y	Y	0.0	5.5	5.5	0.0	4.7	4.7
PORT	W NORFOLK RD	CHURCHLAND BLVD	TYRE NECK RD	0.11	Y	Y	Y	0.4	1.5	1.0	1.1	4.5	3.4
PORT	W NORFOLK RD	TYRE NECK RD	CEDAR LN	1.02	Y	Y	Y	3.4	2.4	-1.1	5.6	1.3	-4.3
PORT	W NORFOLK RD	CEDAR LN	WESTERN FWY	1.58	Y	Y	Y	2.2	0.6	-1.5	4.7	0.0	-4.7
PORT	WESLEY ST	CHAUTAUQUA AVE	MLK FWY	0.22	Y	N	Y	7.3	0.0	-7.3	13.5	0.0	-13.5
PORT	WESTERN BRANCH BLVD	CHESAPEAKE CL	TYRE NECK RD	0.21	Y	Y	Y	6.4	8.1	1.7	19.7	3.6	-16.1
PORT	WESTERN FWY	SUFFOLK CL	TOWN POINT RD	1.01	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
PORT	WESTERN FWY	TOWN POINT RD	CEDAR LN	1.31	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
PORT	WESTERN FWY	CEDAR LN	CRANEY ISLAND CONNECTOR	1.00	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
PORT	WESTERN FWY	CRANEY ISLAND CONNECTOR	WEST NORFOLK RD	0.61	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
PORT	WESTERN FWY	WEST NORFOLK RD	MLK FREEWAY/MIDTOWN TUNNEL	1.78	N	Y	Y		51.9	51.9	17.3	17.3	17.3
SUF	BENNETTS PASTURE RD	KINGS HWY	BRIDGE RD	3.38	Y	Y	Y	3.2	4.0	0.9	2.9	1.5	-1.4

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
SUF	BRIDGE RD	ISLE OF WIGHT CL	E. END CHUCKATUCK BRIDGE	0.60	Y	Y	Y	1.1	2.8	1.7	1.8	3.7	1.9
SUF	BRIDGE RD	E. END CHUCKATUCK BRIDGE	CRITTENDEN RD	0.57	Y	Y	Y	1.0	2.7	1.7	1.7	3.5	1.8
SUF	BRIDGE RD	CRITTENDEN RD	N. END NANSEMOND RIVER	0.79	Y	Y	Y	1.9	3.1	1.2	4.9	6.0	1.1
SUF	BRIDGE RD	N. END NANSEMOND RIVER	S. END NANSEMOND RIVER	0.93	Y	Y	Y	2.2	3.6	1.4	5.8	7.1	1.3
SUF	BRIDGE RD	S. END NANSEMOND RIVER	BENNETTS PASTURE RD	0.75	Y	Y	Y	2.0	2.9	0.9	5.1	5.7	0.6
SUF	BRIDGE RD	BENNETTS PASTURE RD	SHOULDERS HILL RD	1.58	Y	Y	Y	6.6	17.9	11.3	20.2	29.1	8.9
SUF	BRIDGE RD	SHOULDERS HILL RD	HARBOR VIEW BLVD	1.34	Y	Y	Y	4.7	23.2	18.4	12.4	28.6	16.2
SUF	BRIDGE RD	HARBOR VIEW BLVD	WESTERN FWY	0.10	Y	Y	Y	1.2	4.9	3.8	0.8	5.5	4.7
SUF	BRIDGE RD	WESTERN FWY	I-664	0.43	Y	Y	Y	2.3	1.3	-1.0	2.5	2.2	-0.3
SUF	BRIDGE RD	I-664	COLLEGE DR	0.54	Y	Y	Y	2.9	1.8	-1.1	8.6	2.8	-5.8
SUF	BRIDGE RD	COLLEGE DR	CHESAPEAKE CL	0.07	Y	Y	Y	3.0	0.4	-2.6	2.1	0.0	-2.1
SUF	CAROLINA RD	NC STATE LINE	RTE 642	2.89	Y	Y	Y	0.0	0.0	0.0	0.0	0.1	0.1
SUF	CAROLINA RD	RTE 642	RTE 675	2.06	Y	Y	Y	0.0	0.2	0.2	0.0	0.7	0.7
SUF	CAROLINA RD	RTE 675	BABBTOWN RD (RTE 759)	1.40	Y	Y	Y	0.0	0.0	0.0	0.0	3.7	3.7
SUF	CAROLINA RD	BABBTOWN RD (RTE 759)	WHALEYVILLE BLVD	3.08	Y	Y	Y	0.8	1.0	0.2	0.7	1.0	0.3
SUF	CAROLINA RD	WHALEYVILLE BLVD	TURLINGTON RD	0.87	Y	Y	Y	8.9	6.2	-2.7	2.6	4.3	1.7
SUF	CAROLINA RD	TURLINGTON RD	SUFFOLK SW BYPASS	0.61	Y	Y	Y	3.7	4.5	0.8	2.2	4.7	2.5
SUF	CAROLINA RD	SUFFOLK SW BYPASS	FAYETTE ST	1.84	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
SUF	COLLEGE DR	BRIDGE RD	WESTERN FREEWAY	0.14	Y	Y	Y	1.3	1.6	0.3	3.6	4.5	0.9
SUF	COLLEGE DR	WESTERN FREEWAY	TOWN POINT RD	0.74	Y	Y	Y	0.0	6.1	6.1	3.8	17.7	13.9
SUF	COLLEGE DR	TOWN POINT RD	I-664	0.70	Y	Y	Y	0.0	7.2	7.2	0.1	27.7	27.6
SUF	COLLEGE DR	I-664	HARBOR VIEW BLVD	0.60	Y	Y	Y	0.0	0.9	0.9	0.2	0.3	0.0
SUF	CONSTANCE RD	HOLLAND RD	PITCHKETTLE RD	0.28	Y	Y	Y	1.6	4.8	3.2	2.8	6.0	3.2
SUF	CONSTANCE RD	PITCHKETTLE RD	MAIN ST	0.85	Y	Y	Y	5.6	2.1	-3.6	9.4	14.0	4.6
SUF	CONSTANCE RD	MAIN ST	WILROY RD	0.88	Y	Y	Y	5.1	8.4	3.3	10.7	6.9	-3.8
SUF	COPELAND RD	ROUTE 58	WHALEYVILLE BLVD	5.26	N	N	N						
SUF	COPELAND RD	WHALEYVILLE BLVD	CAROLINA RD	1.56	N	N	N						
SUF	CRITTENDEN RD	KINGS HWY	BRIDGE RD (RTE 17)	5.26	Y	Y	Y	1.0	5.0	4.0	3.7	6.5	2.8
SUF	EVERETTS RD	LAKE PRINCE DR (RTE 604)	MOORE FARM LN	1.42	Y	Y	Y	0.8	1.5	0.7	1.2	1.6	0.4
SUF	EVERETTS RD	MOORE FARM LN	GODWIN BLVD	0.93	Y	Y	Y	0.2	0.6	0.4	0.4	0.4	0.0
SUF	FINNEY AVE	N MAIN ST	PINNER ST	0.20	Y	Y	Y	1.4	7.3	5.9	1.4	9.0	7.6
SUF	GODWIN BLVD	PRUDEN BLVD	SUFFOLK BYPASS	0.54	Y	Y	Y	4.5	9.1	4.5	15.6	2.6	-13.0
SUF	GODWIN BLVD	SUFFOLK BYPASS	KINGS FORK RD	1.40	Y	Y	Y	2.4	14.1	11.7	3.2	2.2	-1.0
SUF	GODWIN BLVD	KINGS FORK ROAD	1.36 MI N OF KINGS FORK RD	1.36	Y	Y	Y	2.4	1.6	-0.8	5.7	1.5	-4.2
SUF	GODWIN BLVD	1.36 MILES N OF KINGS FORK RD	EVERETS RD	3.46	Y	Y	Y	6.2	4.2	-2.0	14.4	3.7	-10.7
SUF	GODWIN BLVD	EVERETS RD	KINGS HWY	0.87	Y	Y	Y	4.7	14.5	9.8	6.7	10.0	3.2
SUF	GODWIN BLVD	KINGS HWY	ISLE OF WIGHT CL	1.31	Y	Y	Y	2.9	0.0	-2.9	3.7	1.4	-2.3
SUF	HARBOUR VIEW BLVD	BRIDGE RD	TOWN POINT RD	1.02	Y	Y	Y	0.8	0.7	-0.1	1.1	1.3	0.2
SUF	HOLLAND RD (BUS RTE 58)	SUFFOLK BYPASS	CONSTANCE RD	1.86	Y	Y	Y	7.6	13.1	5.6	20.1	22.8	2.6
SUF	HOLLAND RD (BUS RTE 58)	RURITAN BLVD	HOLLAND RD (RTE 58)	0.70	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
SUF	I-664	CHESAPEAKE CL	BRIDGE RD	0.74	Y	Y	Y	4.1	2.7	-1.4	0.0	0.0	0.0
SUF	I-664	BRIDGE RD	WESTERN FWY	0.15	Y	Y	Y	2.9	0.7	-2.2	0.0	0.3	0.3
SUF	I-664	WESTERN FWY	COLLEGE DR	1.41	Y	Y	Y	0.0	7.1	7.1	0.0	0.6	0.6
SUF	I-664/MMMBT	COLLEGE DR	NEWPORT NEWS CL	3.28	Y	Y	Y	3.5	0.0	-3.5	4.0	76.5	72.6
SUF	KINGS FORK RD	PITCHKETTLE RD	PRUDEN BLVD	0.64	Y	Y	Y	0.2	1.7	1.5	0.5	0.5	0.0
SUF	KINGS FORK RD	PRUDEN BLVD	GODWIN BLVD	2.27	Y	Y	Y	1.8	3.3	1.5	1.8	6.0	4.2
SUF	KINGS HWY	GODWIN BLVD	CRITTENDEN RD	0.69	Y	N	Y	1.9		-1.9	0.5		-0.5
SUF	KINGS HWY	CRITTENDEN RD	BENNETTS PASTURE RD	5.07	Y	N	Y	3.1	0.0	-3.1	3.8	0.0	-3.8
SUF	KINGS HWY	BENNETTS PASTURE RD	NANSEMOND PKWY	0.48	Y	N	Y	1.5		-1.5	0.6		-0.6
SUF	LAKE PRINCE DR (RTE 604)	RTE 460 (PRUDEN BLVD)	RTE 603 (EVERETS RD)	3.93	Y	Y	Y	1.6	1.8	0.2	2.0	1.7	-0.3
SUF	MAIN ST	FAYETTE ST	WASHINGTON ST	0.35	Y	Y	Y	1.8	0.6	-1.2	1.2	8.3	7.0
SUF	MAIN ST	WASHINGTON ST	CONSTANCE RD	0.67	Y	Y	Y	17.6	12.9	-4.7	20.2	64.8	44.6
SUF	MAIN ST	CONSTANCE RD	PRUDEN BLVD/GODWIN BLVD	1.41	Y	Y	Y	4.8	9.5	4.7	40.9	29.7	-11.2
SUF	MARKET ST	WASHINGTON ST	MAIN ST	0.49	Y	Y	Y	2.5	8.7	6.2	6.6	3.8	-2.8
SUF	NANSEMOND PKWY	WILROY RD	BENNETTS PASTURE RD	1.72	Y	Y	Y	3.6	8.6	5.0	1.6	2.0	0.4

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
SUF	NANSEMOND PKWY	BENNETTS PASTURE RD	KINGS HWY	1.33	Y	Y	Y	1.7	0.3	-1.4	0.7	0.0	-0.7
SUF	NANSEMOND PKWY	KINGS HWY	SHOULDERS HILL RD	1.77	Y	Y	Y	4.4	4.5	0.2	1.9	1.4	-0.5
SUF	NANSEMOND PKWY	SHOULDERS HILL RD	CHESAPEAKE CL	0.75	Y	Y	Y	5.9	11.9	6.0	4.6	10.6	6.1
SUF	PINNER ST	WASHINGTON ST	CONSTANCE RD	1.24	Y	Y	Y	9.0	16.2	7.2	20.8	32.5	11.7
SUF	PITCHKETTLE RD	CONSTANCE RD	SUFFOLK BYPASS	1.36	Y	Y	Y	1.1	1.1	0.0	1.5	1.2	-0.3
SUF	PITCHKETTLE RD	SUFFOLK BYPASS	KINGS FORK RD	2.41	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
SUF	PORTSMOUTH BLVD	WILROY RD	WASHINGTON ST	1.59	Y	Y	Y	3.4	8.9	5.5	5.1	10.5	5.4
SUF	PORTSMOUTH BLVD	WASHINGTON ST	SUFFOLK BYPASS	1.04	Y	Y	Y	6.8	4.7	-2.1	8.9	6.4	-2.5
SUF	PROVIDENCE RD (RTE 604)	KINGS FORK RD	RTE 460 (PRUDEN BLVD)	0.50	Y	Y	Y	0.9	1.4	0.5	1.3	1.3	0.1
SUF	PRUDEN BLVD	ISLE OF WIGHT CL	LAKE PRINCE DR	3.08	Y	Y	Y	1.8	11.4	9.6	0.0	11.8	11.8
SUF	PRUDEN BLVD	LAKE PRINCE DR	KINGS FORK RD	0.58	Y	Y	Y	1.2	9.9	8.7	4.0	4.6	0.6
SUF	PRUDEN BLVD	KINGS FORK RD	SUFFOLK BYPASS	1.47	Y	Y	Y	8.8	14.0	5.2	8.2	14.7	6.5
SUF	PRUDEN BLVD	SUFFOLK BYPASS	GODWIN BLVD	1.10	Y	Y	Y	2.6	1.7	-0.9	5.0	14.7	9.7
SUF	PUGHSVILLE RD	SHOULDERS HILL RD	TOWN POINT RD	1.20	Y	Y	Y	1.4	2.7	1.3	2.2	6.2	4.0
SUF	PUGHSVILLE RD	TOWN POINT RD	CHESAPEAKE CL	0.08	Y	Y	Y	0.0	0.5	0.4	0.2	0.6	0.4
SUF	ROUTE 13/58/460	SUFFOLK BYPASS	CHESAPEAKE CL	3.61	Y	Y	Y	24.0	13.9	-10.1	25.5	26.7	1.2
SUF	ROUTE 58	SOUTHAMPTON CL	RTE 189/258	1.34	Y	Y	Y	2.1	1.3	-0.8	2.2	1.3	-1.0
SUF	ROUTE 58	RTE 189/258	RTE 272 (S. QUAY RD)	1.26	Y	Y	Y	1.9	0.9	-1.0	2.2	1.1	-1.1
SUF	ROUTE 58	RTE 272	HOLLAND BYPASS	4.17	Y	Y	Y	7.3	5.5	-1.8	7.3	4.6	-2.7
SUF	ROUTE 58 (HOLLAND BYPASS)	S. QUAY RD (ROUTE 189)	RTE 58 (HOLLAND RD)	1.19	Y	Y	Y	3.0	1.6	-1.4	2.7	2.1	-0.6
SUF	ROUTE 58 (HOLLAND RD)	HOLLAND RD	RTE 649 (LUMMIS RD)	4.01	Y	Y	Y	10.8	7.0	-3.8	9.6	8.9	-0.7
SUF	ROUTE 58 (HOLLAND RD)	RTE 649 (LUMMIS RD)	RTE 643 (MANNING BRIDGE RD)	2.05	Y	Y	Y	5.5	8.8	3.3	5.9	17.4	11.6
SUF	ROUTE 58 (HOLLAND RD)	RTE. 643 (MANNING BRIDGE RD)	COVE POINT DR	1.03	Y	Y	Y	7.6	33.1	25.5	14.0	11.4	-2.7
SUF	ROUTE 58 (HOLLAND RD)	COVE POINT DR	SUFFOLK BYPASS	1.20	Y	Y	Y	6.3	22.0	15.7	11.7	17.4	5.7
SUF	ROUTE 189 (IN HOLLAND)	BUS RTE 58 (RURITAN BLVD)	RTE 58 (SOUTH OF HOLLAND)	0.37	Y	Y	Y	0.2	0.2	0.0	0.1	0.3	0.2
SUF	ROUTE 189	SOUTHAMPTON CL	RTE 272	2.08	Y	Y	Y	0.8	0.5	-0.3	0.7	0.2	-0.5
SUF	ROUTE 189	RTE 272	RTE 58	0.83	Y	Y	Y	0.5	0.0	-0.4	0.5	0.5	0.1
SUF	ROUTE 258	RTE 58	ISLE OF WIGHT CL	0.83	Y	Y	Y	0.5	0.5	0.1	0.5	0.2	-0.3
SUF	ROUTE 272	ROUTE 189	ROUTE 58	1.33	Y	Y	Y	0.3	0.0	-0.3	0.4	0.1	-0.4
SUF	ROUTE 616	ROUTE 58	WHALEYVILLE BLVD	11.50	N	N	N						
SUF	ROUTE 616	WHALEYVILLE BLVD	CAROLINA RD	6.70	N	N	N						
SUF	RURITAN BLVD (BUS RTE 58)	ISLE OF WIGHT CL	RTE 189 (HOLLAND RD BUS)	2.65	Y	Y	Y	1.0	1.7	0.7	1.6	2.3	0.8
SUF	SHOULDERS HILL RD	NANSEMOND PKWY	PUGHSVILLE RD	1.44	Y	Y	Y	1.7	5.0	3.3	2.5	7.5	5.0
SUF	SHOULDERS HILL RD	PUGHSVILLE RD	BRIDGE RD	1.63	Y	Y	Y	0.5	6.7	6.2	0.6	5.4	4.8
SUF	SOUTHWEST SUFFOLK BYPASS	HOLLAND RD	CAROLINA RD	2.55	N	Y	Y			0.0		0.0	0.0
SUF	SUFFOLK BYPASS	HOLLAND RD	PITCHKETTLE RD	1.69	Y	Y	Y	11.1	8.5	-2.5	18.9	7.5	-11.3
SUF	SUFFOLK BYPASS	PITCHKETTLE RD	PRUDEN BLVD	1.63	Y	Y	Y	5.1	0.0	-5.1	5.5	1.1	-4.4
SUF	SUFFOLK BYPASS	PRUDEN BLVD	GODWIN BLVD	1.06	Y	Y	Y	4.6	1.1	-3.5	4.5	1.8	-2.8
SUF	SUFFOLK BYPASS	GODWIN BLVD	WILROY RD	1.85	Y	Y	Y	9.8	0.5	-9.2	10.2	2.5	-7.7
SUF	SUFFOLK BYPASS	WILROY RD	ROUTES 13/58/460	2.02	Y	Y	Y	8.1	5.8	-2.3	8.1	3.4	-4.8
SUF	TOWN POINT RD	PUGHSVILLE RD	BRIDGE RD	1.71	N	N	N						
SUF	TOWN POINT RD	HARBOUR VIEW BLVD	COLLEGE DR	0.80	N	Y	N						
SUF	TOWN POINT RD	COLLEGE DR	PORTSMOUTH CL	0.60	N	Y	N						
SUF	WASHINGTON ST	W CONSTANCE RD	SARATOGA ST	0.84	Y	N	Y	6.7		-6.7	9.3		-9.3
SUF	WASHINGTON ST	SARATOGA ST	MAIN ST	0.08	Y	N	Y	0.6		-0.6	0.9		-0.9
SUF	WASHINGTON ST	MAIN ST	PINNER ST	0.20	Y	N	Y	1.9		-1.9	6.1		-6.1
SUF	WASHINGTON ST	PINNER ST	PORTSMOUTH BLVD	2.84	Y	N	Y	35.7		-35.7	30.3		-30.3
SUF	WESTERN FWY	BRIDGE RD	I-664	0.74	Y	Y	Y	0.5	0.0	-0.5	0.0	0.0	0.0
SUF	WESTERN FWY	I-664	COLLEGE DR	0.57	Y	Y	Y	0.3	0.0	-0.3	0.0	0.0	0.0
SUF	WESTERN FWY	COLLEGE DR	PORTSMOUTH CL	0.20	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
SUF	WHALEYVILLE BLVD	NC STATE LINE	RTE 616 (MINERAL SPRING RD)	5.37	Y	Y	Y	0.8	0.2	-0.6	4.1	3.5	-0.7
SUF	WHALEYVILLE BLVD	RTE 616 (MINERAL SPRING RD)	RTE 677 (GREAT FORK RD)	1.27	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
SUF	WHALEYVILLE BLVD	RTE 677 (GREAT FORK RD)	RTE 675 (CYPRESS CHAPEL RD)	0.83	Y	Y	Y	0.4	0.3	0.0	0.5	1.7	1.3
SUF	WHALEYVILLE BLVD	RTE 675 (CYPRESS CHAPEL RD)	RTE 759 (BABBTOWN RD)	3.28	Y	Y	Y	0.0	0.0	0.0	0.6	0.6	0.0
SUF	WHALEYVILLE BLVD	RTE 759 (BABBTOWN RD)	RTE 32 (CAROLINA RD)	2.56	Y	Y	Y	0.2	0.4	0.2	0.9	2.1	1.2

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
SUF	WILROY RD	CONSTANCE RD	SUFFOLK BYPASS	1.98	Y	Y	Y	4.9	7.2	2.4	5.1	15.5	10.5
SUF	WILROY RD	SUFFOLK BYPASS	NANSEMOND PKWY	1.89	Y	Y	Y	1.1	8.4	7.3	3.6	8.2	4.6
VB	21ST ST	PARKS AVE	PACIFIC AVE	0.53	Y	Y	Y	6.2	2.6	-3.5	25.3	13.9	-11.4
VB	21ST ST	PACIFIC AVE	ATLANTIC AVE	0.06	Y	Y	Y	4.5	0.9	-3.6	2.5	0.9	-1.6
VB	22ND ST	PARKS AVE	PACIFIC AVE	0.53	Y	Y	Y	6.3	8.9	2.7	22.1	8.3	-13.8
VB	22ND ST	PACIFIC AVE	ATLANTIC AVE	0.06	Y	Y	Y	2.9	0.0	-2.9	1.2	2.3	1.1
VB	ATLANTIC AVE	83RD ST	PACIFIC AVE	2.62	Y	Y	Y	7.1	18.1	11.1	17.2	6.1	-11.1
VB	ATLANTIC AVE	PACIFIC AVE	LASKIN RD	0.85	Y	Y	Y	0.5	0.5	0.0	2.4	1.3	-1.1
VB	ATLANTIC AVE	LASKIN RD	25TH ST	0.41	Y	Y	Y	0.2	0.5	0.4	1.8	2.1	0.3
VB	ATLANTIC AVE	25TH ST	22ND AVE	0.24	Y	Y	Y	0.1	0.3	0.2	1.1	1.2	0.2
VB	ATLANTIC AVE	22ND AVE	21ST AVE	0.07	Y	Y	Y	0.2	0.0	-0.1	0.2	2.2	1.9
VB	ATLANTIC AVE	21ST ST	VA BEACH BLVD	0.27	Y	Y	Y	0.2	0.9	0.7	2.7	8.0	5.3
VB	ATLANTIC AVE	VA BEACH BLVD	5TH ST	0.82	Y	Y	Y	0.1	0.0	-0.1	3.4	0.2	-3.2
VB	BAXTER RD	PRINCESS ANNE RD	INDEPENDENCE BLVD	0.96	Y	Y	Y	33.0	35.3	2.2	39.9	46.4	6.5
VB	BIRDNECK RD	GENERAL BOOTH BLVD	NORFOLK AVE	2.29	Y	Y	Y	22.6	25.9	3.3	28.4	26.3	-2.1
VB	BIRDNECK RD	NORFOLK AVE	VA BEACH BLVD	0.31	Y	Y	Y	1.5	4.0	2.5	10.1	2.7	-7.4
VB	BIRDNECK RD	VA BEACH BLVD	I-264	0.33	Y	Y	Y	21.4	6.5	-14.9	21.9	34.6	12.7
VB	BIRDNECK RD	I-264	LASKIN RD	0.58	Y	Y	Y	11.6	3.8	-7.8	14.1	16.9	2.8
VB	BLACKWATER RD	PUNGO FERRY RD	CHESAPEAKE CL	4.47	N	Y	N						
VB	CENTERVILLE TNPK	CHESAPEAKE CL	LYNNHAVEN PKWY	0.38	Y	Y	Y	0.2	0.6	0.4	0.3	1.3	1.0
VB	CENTERVILLE TNPK	LYNNHAVEN PKWY	KEMPSVILLE RD	0.75	Y	Y	Y	18.5	10.3	-8.2	10.9	10.7	-0.2
VB	CENTERVILLE TNPK	KEMPSVILLE RD	JAKE SEARS RD	0.88	Y	Y	Y	6.2	5.7	-0.5	14.0	5.5	-8.5
VB	CENTERVILLE TNPK	JAKE SEARS RD	INDIAN RIVER RD	0.95	Y	Y	Y	2.9	22.1	19.2	1.6	13.0	11.4
VB	TUNNEL	SHORE DR	TOLL PLAZA	0.91	Y	Y	Y	2.7	3.8	1.1	3.5	2.3	-1.2
VB	TUNNEL	TOLL PLAZA	NCL VA BEACH	0.24	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
VB	DAM NECK RD	SALEM RD	PRINCESS ANNE RD	2.96	N	N	N						
VB	DAM NECK RD	PRINCESS ANNE RD	ROSEMONT RD	0.44	Y	Y	Y	18.5	18.7	0.2	26.5	20.7	-5.8
VB	DAM NECK RD	ROSEMONT RD	HOLLAND RD	0.55	Y	Y	Y	6.5	58.2	51.7	5.7	19.4	13.8
VB	DAM NECK RD	HOLLAND RD	DRAKESMILE RD	0.72	Y	Y	Y	28.9	31.2	2.4	64.8	197.0	132.2
VB	DAM NECK RD	DRAKESMILE RD	LONDON BRIDGE RD	0.86	Y	Y	Y	17.5	18.9	1.4	15.4	329.9	314.4
VB	DAM NECK RD	LONDON BRIDGE RD	S.E. PARKWAY	1.95	Y	Y	Y	31.8	52.5	20.6	42.1	42.4	0.3
VB	DAM NECK RD	S.E. PARKWAY	GENERAL BOOTH BLVD	1.02	Y	Y	Y	15.6	27.7	12.1	20.4	19.9	-0.5
VB	DAM NECK RD	GENERAL BOOTH BLVD	UPTON DR	0.40	N	N	N						
VB	DAM NECK RD	UPTON DR	USN TRAINING CENTER	1.70	N	N	N						
VB	DIAMOND SPRINGS RD	NEWTOWN RD	WESLEYAN RD	0.41	Y	Y	Y	4.7	2.1	-2.6	11.8	2.2	-9.6
VB	DIAMOND SPRINGS RD	WESLEYAN RD	NORTHAMPTON BLVD	1.22	Y	Y	Y	15.8	11.5	-4.4	16.0	20.6	4.7
VB	DIAMOND SPRINGS RD	NORTHAMPTON BLVD	SHORE DR	1.32	Y	Y	Y	33.3	55.7	22.4	36.5	59.5	23.0
VB	DRAKESMILE RD	DAM NECK RD	SHIPPS CORNER RD	0.25	Y	Y	Y	3.6	4.5	1.0	7.4	10.6	3.2
VB	ELBOW RD	CHESAPEAKE CL	INDIAN RIVER RD	0.32	Y	Y	Y	0.0	0.4	0.4	0.0	0.1	0.1
VB	ELBOW RD	INDIAN RIVER RD	SALEM RD	1.21	Y	Y	Y	3.3	3.3	0.1	3.6	4.4	0.7
VB	FERRELL PKWY	INDIAN RIVER RD	INDIAN LAKES BLVD	0.45	Y	Y	Y	46.7	9.8	-37.0	29.0	32.8	3.8
VB	FERRELL PKWY	INDIAN LAKES BLVD	PLEASANT VALLEY RD	0.87	Y	Y	Y	21.9	29.7	7.8	31.0	61.8	30.8
VB	FERRELL PKWY	PLEASANT VALLEY RD	PRINCESS ANNE RD	1.42	Y	Y	Y	8.1	27.9	19.8	12.7	15.3	2.7
VB	FIRST COLONIAL RD	VA BEACH BLVD	I-264	0.22	Y	Y	Y	11.0	16.2	5.1	19.9	19.5	-0.4
VB	FIRST COLONIAL RD	I-264	LASKIN RD	0.35	Y	Y	Y	47.0	26.4	-20.6	24.8	101.8	77.0
VB	FIRST COLONIAL RD	LASKIN RD	OLD DONATION PKWY	1.10	Y	Y	Y	59.7	104.4	44.7	65.1	310.8	245.7
VB	FIRST COLONIAL RD	OLD DONATION PKWY	GREAT NECK RD	0.89	Y	Y	Y	20.0	18.1	-1.9	8.7	21.0	12.2
VB	GENERAL BOOTH BLVD	PRINCESS ANNE RD	NIMMO PKWY	0.30	Y	Y	Y	3.1	21.2	18.1	10.2	69.3	59.2
VB	GENERAL BOOTH BLVD	NIMMO PKWY	LONDON BRIDGE RD	0.56	Y	Y	Y	4.4	18.6	14.2	35.8	46.3	10.5
VB	GENERAL BOOTH BLVD	LONDON BRIDGE RD	DAM NECK RD	1.51	Y	Y	Y	24.6	20.3	-4.3	29.2	56.0	26.8
VB	GENERAL BOOTH BLVD	DAM NECK RD	OCEANA BLVD/PROSPERITY RD	0.60	Y	Y	Y	29.4	24.4	-5.0	39.6	90.5	50.9
VB	GENERAL BOOTH BLVD	OCEANA BLVD/PROSPERITY RD	BIRDNECK RD	1.20	Y	Y	Y	14.5	24.0	9.5	9.6	35.1	25.4
VB	GENERAL BOOTH BLVD	BIRDNECK RD	HARBOUR POINT	1.61	Y	Y	Y	9.5	13.1	3.6	21.9	22.2	0.3
VB	GREAT NECK RD	VA BEACH BLVD	FIRST COLONIAL RD	2.36	Y	Y	Y	79.0	86.2	7.2	65.8	135.1	69.2
VB	GREAT NECK RD	FIRST COLONIAL RD	SHOREHAVEN RD	0.98	Y	Y	Y	19.5	21.5	2.0	8.1	13.5	5.4

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
VB	GREAT NECK RD	SHOREHAVEN RD	SHORE DR	2.24	Y	Y	Y	36.5	42.8	6.3	15.6	25.7	10.1
VB	HAYGOOD RD	NEWTOWN RD	WESLEYAN DR	0.25	Y	Y	Y	1.4	0.9	-0.4	1.9	1.8	-0.1
VB	HAYGOOD RD	WESLEYAN DR	INDEPENDENCE BLVD	1.10	Y	Y	Y	18.6	15.4	-3.2	11.4	32.2	20.8
VB	HOLLAND RD	INDEPENDENCE BLVD	SOUTH PLAZA TRAIL	0.33	Y	Y	Y	14.4	20.7	6.3	10.9	66.2	55.3
VB	HOLLAND RD	SOUTH PLAZA TRAIL	ROSEMONT RD	1.32	Y	Y	Y	45.3	49.0	3.7	52.2	113.2	61.0
VB	HOLLAND RD	ROSEMONT RD	LYNNHAVEN PKWY	1.15	Y	Y	Y	22.9	34.9	12.0	71.0	65.0	-5.9
VB	HOLLAND RD	LYNNHAVEN PKWY	DAM NECK RD	1.07	Y	Y	Y	29.6	83.5	53.9	29.7	107.0	77.2
VB	HOLLAND RD	DAM NECK RD	NIMMO PKWY	1.93	Y	Y	Y	14.8	45.6	30.8	14.2	24.6	10.3
VB	HOLLAND RD	NIMMO PKWY	PRINCESS ANNE RD	0.76	Y	Y	Y	0.5	8.7	8.1	0.6	2.7	2.1
VB	INDEPENDENCE BLVD	INDIAN RIVER RD	SALEM RD	1.93	Y	Y	Y	6.8	14.2	7.4	10.1	10.2	0.1
VB	INDEPENDENCE BLVD	SALEM RD	PRINCESS ANNE RD	0.77	Y	Y	Y	1.5	30.2	28.7	24.3	27.3	3.0
VB	INDEPENDENCE BLVD	PRINCESS ANNE RD	LYNNHAVEN PKWY	0.55	Y	Y	Y	9.3	40.3	30.9	22.1	41.8	19.7
VB	INDEPENDENCE BLVD	LYNNHAVEN PKWY	PLAZA TRAIL	1.65	Y	Y	Y	5.0	32.2	27.2	46.1	26.6	-19.5
VB	INDEPENDENCE BLVD	PLAZA TRAIL	HOLLAND RD	0.76	Y	Y	Y	35.4	14.9	-20.5	34.2	37.8	3.7
VB	INDEPENDENCE BLVD	HOLLAND RD	BAXTER RD	0.80	Y	Y	Y	50.3	55.0	4.7	72.3	59.7	-12.6
VB	INDEPENDENCE BLVD	BAXTER RD	I-264	0.23	Y	Y	Y	14.4	14.9	0.4	20.7	62.7	41.9
VB	INDEPENDENCE BLVD	I-264	COLUMBUS ST	0.49	Y	Y	Y	26.3	54.8	28.5	23.5	148.0	124.5
VB	INDEPENDENCE BLVD	COLUMBUS ST	VA BEACH BLVD	0.18	Y	Y	Y	36.7	2.5	-34.2	105.7	83.1	-22.6
VB	INDEPENDENCE BLVD	VA BEACH BLVD	JEANNE ST	0.28	Y	Y	Y	6.8	14.5	7.7	29.6	69.1	39.5
VB	INDEPENDENCE BLVD	JEANNE ST	PEMBROKE BLVD	1.07	Y	Y	Y	12.6	0.5	-12.1	82.4	12.9	-69.5
VB	INDEPENDENCE BLVD	PEMBROKE BLVD	HAYGOOD RD	0.90	Y	Y	Y	88.3	6.9	-81.4	108.7	57.1	-51.5
VB	INDEPENDENCE BLVD	HAYGOOD RD	NORTHAMPTON BLVD	1.77	Y	Y	Y	33.3	30.6	-2.7	50.9	73.0	22.1
VB	INDEPENDENCE BLVD	NORTHAMPTON BLVD	SHORE DR	0.58	Y	Y	Y	6.2	24.8	18.6	12.9	4.5	-8.4
VB	INDIAN LAKES BLVD	FERRELL PKWY	INDIAN RIVER RD	0.45	N	Y	N						
VB	INDIAN RIVER RD	CHESAPEAKE CL	MILITARY HWY	0.52	Y	Y	Y	19.2	11.7	-7.5	47.0	17.8	-29.2
VB	INDIAN RIVER RD	MILITARY HWY	PROVIDENCE RD	0.57	Y	Y	Y	41.6	38.8	-2.8	49.4	23.4	-26.0
VB	INDIAN RIVER RD	PROVIDENCE RD	I-64	0.66	Y	Y	Y	24.9	41.9	17.1	21.9	10.5	-11.4
VB	INDIAN RIVER RD	I-64	CENTERVILLE TNPK	0.57	Y	Y	Y	12.7	109.3	96.6	124.6	188.9	64.3
VB	INDIAN RIVER RD	CENTERVILLE TNPK	KEMPSVILLE RD	0.72	Y	Y	Y	93.1	31.3	-61.8	199.1	201.8	2.7
VB	INDIAN RIVER RD	KEMPSVILLE RD	FERRELL PKWY	0.24	Y	Y	Y	59.6	37.0	-22.6	60.6	29.6	-31.0
VB	INDIAN RIVER RD	FERRELL PKWY	LYNNHAVEN PKWY	0.91	Y	Y	Y	18.3	34.4	16.1	18.7	17.8	-0.9
VB	INDIAN RIVER RD	LYNNHAVEN PKWY	INDEPENDENCE BLVD	1.36	Y	Y	Y	4.4	16.3	12.0	5.4	14.8	9.4
VB	INDIAN RIVER RD	INDEPENDENCE BLVD	ELBOW RD	0.83	Y	Y	Y	1.7	2.7	1.0	2.2	3.2	0.9
VB	INDIAN RIVER RD	ELBOW RD	S.E. PARKWAY	1.12	Y	Y	Y	2.8	2.3	-0.5	2.0	4.7	2.8
VB	INDIAN RIVER RD	S.E. PARKWAY	NORTH LANDING RD	1.70	Y	Y	Y	4.3	3.5	-0.8	3.0	7.2	4.2
VB	INDIAN RIVER RD	NORTH LANDING RD	WEST NECK RD	2.84	Y	Y	Y	1.6	1.1	-0.5	3.0	9.1	6.1
VB	INDIAN RIVER RD	WEST NECK RD	PRINCESS ANNE RD	1.97	Y	Y	Y	1.5	0.8	-0.7	2.9	6.6	3.7
VB	INTERNATIONAL PKWY	LYNNHAVEN PKWY	LONDON BRIDGE RD	1.02	Y	Y	Y	6.2	5.4	-0.8	24.4	46.0	21.6
VB	I-264	NEWTOWN RD/ECL NORFOLK	WITCHDUCK RD	1.47	Y	Y	Y	8.5	0.0	-8.5	23.0	12.8	-10.3
VB	I-264	WITCHDUCK RD	INDEPENDENCE BLVD	1.27	Y	Y	Y	0.0	0.0	0.0	0.0	23.1	23.1
VB	I-264	INDEPENDENCE BLVD	ROSEMONT RD	2.36	Y	Y	Y	0.0	0.0	0.0	0.0	2.5	2.5
VB	I-264	ROSEMONT RD	LYNNHAVEN PKWY	1.72	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	LYNNHAVEN PKWY	LASKIN RD	1.48	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	LASKIN RD	FIRST COLONIAL RD	1.19	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	FIRST COLONIAL RD	S.E. PARKWAY	0.92	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	S.E. PARKWAY	BIRDNECK RD	0.56	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	BIRDNECK RD	PARKS AVE	0.49	Y	Y	Y	1.6	2.0	0.5	4.0	2.3	-1.7
VB	I-64	NORFOLK CL	INDIAN RIVER RD	1.57	Y	Y	Y	20.3	7.2	-13.0	166.3	66.8	-99.5
VB	I-64	INDIAN RIVER RD	CHESAPEAKE CL	1.36	Y	Y	Y	0.0	0.0	0.0	47.3	0.0	-47.3
VB	KEMPSVILLE RD	CHESAPEAKE CL	CENTERVILLE TNPK	1.01	Y	Y	Y	40.8	36.8	-4.1	113.4	54.5	-58.9
VB	KEMPSVILLE RD	CENTERVILLE TNPK	INDIAN RIVER RD	1.54	Y	Y	Y	51.5	92.3	40.8	68.8	86.2	17.4
VB	KEMPSVILLE RD	INDIAN RIVER RD	PROVIDENCE RD	1.29	Y	Y	Y	18.8	20.2	1.4	49.6	142.7	93.1
VB	KEMPSVILLE RD	PROVIDENCE RD	PRINCESS ANNE RD	0.98	Y	Y	Y	24.5	48.2	23.7	70.2	32.0	-38.2
VB	LASKIN RD	VA BEACH BLVD	FIRST COLONIAL RD	1.48	Y	Y	Y	23.5	23.4	-0.1	17.1	69.9	52.9
VB	LASKIN RD	FIRST COLONIAL RD	WINWOOD DR	0.51	Y	Y	Y	20.0	19.0	-1.0	11.8	15.2	3.3

Data source: HRPDC. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
VB	LASKIN RD	WINWOOD DR	BIRDNECK RD	0.98	Y	Y	Y	0.0	0.0	0.0	11.1	14.1	2.9
VB	LASKIN RD	BIRDNECK RD	PACIFIC AVE	0.97	Y	Y	Y	17.3	30.8	13.5	14.0	35.4	21.4
VB	LASKIN RD/31ST ST	PACIFIC AVE	ATLANTIC AVE	0.06	Y	Y	Y	1.2	4.9	3.7	3.0	8.0	5.0
VB	LONDON BRIDGE RD	GENERAL BOOTH BLVD	DAM NECK RD	2.22	Y	Y	Y	61.5	96.9	35.4	44.3	60.6	16.2
VB	LONDON BRIDGE RD	SHIPPS CORNER RD/DRAKESMILE RD	INTERNATIONAL PKWY	1.34	Y	Y	Y	30.7	14.8	-15.9	37.2	115.1	77.9
VB	LONDON BRIDGE RD	INTERNATIONAL PKWY	POTTERS RD	2.08	Y	Y	Y	24.0	25.9	1.9	28.2	46.7	18.6
VB	LONDON BRIDGE RD	POTTERS RD	I-264	0.31	Y	Y	Y	11.7	8.7	-3.0	1.6	35.5	33.9
VB	LONDON BRIDGE RD	I-264	VA BEACH BLVD	0.05	Y	Y	Y	1.9	1.4	-0.5	0.3	5.7	5.5
VB	LYNNHAVEN PKWY	INDIAN RIVER RD	SALEM RD	2.01	Y	Y	Y	6.5	27.1	20.6	8.6	25.7	17.2
VB	LYNNHAVEN PKWY	SALEM RD	PRINCESS ANNE RD	0.48	Y	Y	Y	6.6	27.3	20.7	32.3	35.2	2.9
VB	LYNNHAVEN PKWY	PRINCESS ANNE RD	INDEPENDENCE BLVD	0.67	Y	Y	Y	20.9	33.8	12.9	39.0	106.3	67.2
VB	LYNNHAVEN PKWY	INDEPENDENCE BLVD	ROSEMONT RD	0.56	Y	Y	Y	38.4	55.8	17.4	40.9	84.4	43.4
VB	LYNNHAVEN PKWY	ROSEMONT RD	HOLLAND RD	0.92	Y	Y	Y	43.0	55.0	12.0	55.5	55.2	-0.3
VB	LYNNHAVEN PKWY	HOLLAND RD	S LYNNHAVEN RD	1.06	Y	Y	Y	27.8	20.9	-7.0	138.1	150.1	12.1
VB	LYNNHAVEN PKWY	S LYNNHAVEN RD	INTERNATIONAL PKWY	0.61	Y	Y	Y	5.0	42.6	37.6	24.4	95.9	71.5
VB	LYNNHAVEN PKWY	INTERNATIONAL PKWY	POTTERS RD	1.17	Y	Y	Y	15.6	15.6	-59.5	74.2	127.8	53.6
VB	LYNNHAVEN PKWY	POTTERS RD	I-264	0.20	Y	Y	Y	8.2	37.3	29.1	66.7	58.7	-8.0
VB	LYNNHAVEN PKWY	I-264	VA BEACH BLVD	0.42	Y	Y	Y	17.2	3.6	-13.6	27.6	9.9	-17.7
VB	MILITARY HWY	CHESAPEAKE CL	PROVIDENCE RD	0.16	Y	Y	Y	4.3	5.5	1.1	13.3	7.4	-5.8
VB	MILITARY HWY	PROVIDENCE RD	INDIAN RIVER RD	0.50	Y	Y	Y	1.1	101.7	100.7	41.1	95.1	53.9
VB	MILITARY HWY	INDIAN RIVER RD	NORFOLK CL	0.98	Y	Y	Y	26.3	27.8	1.5	41.8	193.1	151.3
VB	NEWTOWN RD	NORFOLK CL	BAKER RD	0.24	Y	Y	Y	4.2	26.9	22.7	29.4	51.7	22.2
VB	NEWTOWN RD	BAKER RD	DIAMOND SPRINGS RD	0.48	Y	Y	Y	1.3	26.9	25.6	1.0	11.9	10.9
VB	NEWTOWN RD	DIAMOND SPRINGS RD	HAYGOOD RD	0.90	Y	Y	Y	22.0	8.5	-13.5	10.9	23.1	12.2
VB	NIMMO PKWY	WEST NECK RD	PRINCESS ANNE RD	0.85	N	Y	Y		7.2	7.2		9.0	9.0
VB	NIMMO PKWY	GENERAL BOOTH BLVD	UPTON DR	0.69	N	Y	Y		18.1	18.1		12.1	12.1
VB	NORFOLK AVE	BIRDNECK RD	PACIFIC AVE	1.40	Y	N	Y	5.6		-5.6	4.7		-4.7
VB	NORFOLK AVE	PACIFIC AVE	ATLANTIC AVE	0.06	Y	N	Y	1.4		-1.4	2.9		-2.9
VB	NORTHAMPTON BLVD	WESLEYAN DR/NORFOLK CL	DIAMOND SPRINGS RD	0.98	Y	Y	Y	3.7	76.5	72.8	47.6	131.4	83.8
VB	NORTHAMPTON BLVD	DIAMOND SPRINGS RD	INDEPENDENCE BLVD	2.13	Y	Y	Y	26.6	60.3	33.8	75.1	29.6	-45.5
VB	NORTHAMPTON BLVD	INDEPENDENCE BLVD	SHORE DR	1.01	Y	Y	Y	11.0	11.8	0.8	4.5	14.7	10.2
VB	NORTH LANDING RD	CHESAPEAKE CL	INDIAN RIVER RD	1.12	Y	Y	Y	3.7	13.2	9.5	6.0	13.2	7.2
VB	NORTH LANDING RD	INDIAN RIVER RD	SALEM RD	0.36	Y	Y	Y	2.5	1.1	-1.5	2.5	5.7	3.2
VB	NORTH LANDING RD	SALEM RD	WEST NECK RD	2.08	Y	Y	Y	6.2	3.3	-3.0	3.0	7.8	4.7
VB	NORTH LANDING RD	WEST NECK RD	PRINCESS ANNE RD	0.57	Y	Y	Y	5.4	3.9	-1.5	7.0	9.8	2.8
VB	OCEANA BLVD	GENERAL BOOTH BLVD	HARPERS RD/S.E. PARKWAY	0.63	Y	Y	Y	15.3	24.0	8.7	26.6	26.8	0.2
VB	OCEANA BLVD	HARPERS RD/S.E. PARKWAY	TOMCAT BLVD (NAS MAIN ENT)	0.39	Y	Y	Y	1.7	5.2	3.4	2.2	16.3	14.1
VB	RD	TOMCAT BLVD (NAS MAIN ENT)	VA BEACH BLVD	3.11	N	Y	Y		63.9	63.9		161.2	161.2
VB	OCEANA BLVD	TOMCAT BLVD (NAS MAIN ENT)	SOUTHERN BLVD	2.34	Y	N	Y	20.5	0.0	-20.5	25.8	0.0	-25.8
VB	OCEANA BLVD	SOUTHERN BLVD	VA BEACH BLVD	0.49	Y	N	Y	22.9	0.0	-22.9	26.6	0.0	-26.6
VB	PACIFIC AVE	ATLANTIC AVE	LASKIN RD	0.83	Y	Y	Y	12.8	1.9	-10.9	2.8	0.7	-2.0
VB	PACIFIC AVE	LASKIN RD	22ND ST	0.65	Y	Y	Y	9.0	5.5	-3.5	5.1	4.2	-0.9
VB	PACIFIC AVE	22ND ST	21ST ST	0.07	Y	Y	Y	3.9	2.9	-1.0	6.5	0.7	-5.9
VB	PACIFIC AVE	21ST ST	VA BEACH BLVD	0.27	Y	Y	Y	2.7	8.1	5.3	2.7	8.7	6.0
VB	PACIFIC AVE	VA BEACH BLVD	5TH ST	0.82	Y	Y	Y	10.2	5.2	-5.0	5.9	2.6	-3.4
VB	PACIFIC AVE	5TH ST	HARBOUR POINT	0.28	Y	Y	Y	0.0	0.6	0.6	0.9	1.6	0.7
VB	PEMBROKE BLVD	WITCHDUCK RD	INDEPENDENCE BLVD	0.40	Y	Y	Y	10.1	8.2	-2.0	8.8	1.9	-7.0
VB	PLAZA TRAIL	PRINCESS ANNE RD	INDEPENDENCE BLVD	0.76	Y	Y	Y	17.3	21.2	3.9	17.5	14.4	-3.1
VB	PLAZA TRAIL	INDEPENDENCE BLVD	HOLLAND RD	0.49	Y	Y	Y	7.7	14.3	6.6	24.7	14.0	-10.6
VB	PLAZA TRAIL	HOLLAND RD	MARINA LAKES RD	0.24	Y	Y	Y	2.9	2.9	0.0	7.2	5.7	-1.5
VB	PLAZA TRAIL	MARINA LAKES RD	ROSEMONT RD	1.41	Y	Y	Y	6.9	5.6	-1.3	25.6	15.4	-10.2
VB	PLAZA TRAIL	ROSEMONT RD	I-264	0.94	Y	Y	Y	0.8	9.5	8.7	22.2	44.4	22.2
VB	PLAZA TRAIL	I-264	VA BEACH BLVD	0.17	Y	Y	Y	0.2	1.7	1.6	4.0	8.0	4.0
VB	PRINCESS ANNE RD	NEWTOWN RD/NORFOLK CL	KEMPSVILLE RD	1.90	Y	Y	Y	22.2	55.1	32.8	26.6	197.4	170.8
VB	PRINCESS ANNE RD	KEMPSVILLE RD	BAXTER RD	0.58	Y	Y	Y	8.7	22.5	13.8	35.1	25.1	-10.0

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
VB	PRINCESS ANNE RD	BAXTER RD	PROVIDENCE RD	1.65	Y	Y	Y	60.5	40.9	-19.5	56.3	143.4	87.0
VB	PRINCESS ANNE RD	PROVIDENCE RD	FERRELL PKWY	0.76	Y	Y	Y	7.2	9.8	2.6	48.0	23.9	-24.1
VB	PRINCESS ANNE RD	FERRELL PKWY	LYNNHAVEN PKWY	0.48	Y	Y	Y	4.5	31.8	27.3	32.7	44.4	11.7
VB	PRINCESS ANNE RD	LYNNHAVEN PKWY	INDEPENDENCE BLVD	0.44	Y	Y	Y	4.9	5.1	0.3	45.2	17.2	-28.0
VB	PRINCESS ANNE RD	INDEPENDENCE BLVD	DAM NECK RD	1.48	Y	Y	Y	9.6	12.1	2.5	9.0	95.0	86.0
VB	PRINCESS ANNE RD	DAM NECK RD	S.E. PARKWAY	1.09	Y	Y	Y	10.1	23.0	12.9	11.9	21.1	9.3
VB	PRINCESS ANNE RD	S.E. PARKWAY	NIMMO PKWY	1.24	Y	Y	Y	11.5	26.2	14.7	13.5	24.0	10.5
VB	PRINCESS ANNE RD	NIMMO PKWY	NORTH LANDING RD	0.55	Y	Y	Y	20.5	10.8	-9.7	42.8	8.1	-34.8
VB	PRINCESS ANNE RD	NORTH LANDING RD	HOLLAND RD	0.27	Y	Y	Y	17.7	1.4	-16.3	0.3	21.3	21.0
VB	PRINCESS ANNE RD	HOLLAND RD	CROSSROAD RD	1.76	Y	Y	Y	42.5	99.4	56.8	30.2	41.3	11.1
VB	PRINCESS ANNE RD	CROSSROAD RD	GENERAL BOOTH BLVD	0.24	Y	Y	Y	5.8	13.5	7.7	4.1	5.6	1.5
VB	PRINCESS ANNE RD	GENERAL BOOTH BLVD	SANDBRIDGE RD/UPTON DR	0.85	Y	Y	Y	0.1	1.4	1.3	0.6	4.4	3.7
VB	PRINCESS ANNE RD	SANDBRIDGE RD/UPTON DR	SEABOARD RD	1.76	Y	Y	Y	1.0	6.9	5.8	0.2	11.5	11.3
VB	PRINCESS ANNE RD	SEABOARD RD	INDIAN RIVER RD	0.38	Y	Y	Y	0.0	0.0	0.0	0.8	0.0	-0.8
VB	PRINCESS ANNE RD	INDIAN RIVER RD	PUNGO FERRY RD	7.71	N	Y	N						
VB	PRINCESS ANNE RD	PUNGO FERRY RD	NORTH CAROLINA STATE LINE	5.74	N	Y	N						
VB	PROVIDENCE RD	CHESAPEAKE CL	MILITARY HWY	0.08	Y	Y	Y	0.7	0.6	-0.1	0.3	1.4	1.2
VB	PROVIDENCE RD	MILITARY HWY	INDIAN RIVER RD	0.72	Y	Y	Y	4.1	11.5	7.3	15.8	36.9	21.1
VB	PROVIDENCE RD	INDIAN RIVER RD	KEMPSVILLE RD	2.28	Y	Y	Y	67.3	28.8	-38.5	126.0	131.5	5.6
VB	PROVIDENCE RD	KEMPSVILLE RD	PRINCESS ANNE RD	2.02	Y	Y	Y	32.9	27.8	-5.1	44.1	42.7	-1.5
VB	PUNGO FERRY RD	BLACKWATER RD	PRINCESS ANNE RD	2.73	N	Y	N						
VB	ROSEMONT RD	DAM NECK RD	FACULTY DRIVE	0.93	Y	Y	Y	15.0	12.5	-2.5	9.1	14.8	5.7
VB	ROSEMONT RD	FACULTY DRIVE	LYNNHAVEN PKWY	0.58	Y	Y	Y	9.6	6.3	-3.3	4.0	8.3	4.3
VB	ROSEMONT RD	LYNNHAVEN PKWY	HOLLAND RD	1.25	Y	Y	Y	14.4	15.4	1.1	35.0	47.9	12.9
VB	ROSEMONT RD	HOLLAND RD	PLAZA TRAIL	1.16	Y	Y	Y	22.2	14.5	-7.7	7.7	55.8	48.0
VB	ROSEMONT RD	PLAZA TRAIL	I-264	0.61	Y	Y	Y	16.5	26.8	10.3	36.4	103.2	66.8
VB	ROSEMONT RD	I-264	VA BEACH BLVD	0.14	Y	Y	Y	39.1	47.8	8.6	76.1	58.9	-17.2
VB	SALEM RD	NORTH LANDING RD	ELBOW RD	2.60	Y	Y	Y	2.2	7.0	4.7	2.7	8.5	5.8
VB	SALEM RD	ELBOW RD	INDEPENDENCE BLVD	0.90	Y	Y	Y	1.3	2.9	1.6	1.9	5.1	3.3
VB	SALEM RD	INDEPENDENCE BLVD	LYNNHAVEN PKWY	0.60	Y	Y	Y	2.5	3.4	0.9	7.9	14.2	6.3
VB	SALEM RD	LYNNHAVEN PKWY	PRINCESS ANNE RD	0.73	Y	Y	Y	10.5	18.9	8.3	13.7	20.7	6.9
VB	SANDBRIDGE RD	PRINCESS ANNE RD	ATWOODTOWN RD	1.55	N	Y	N						
VB	SANDBRIDGE RD	ATWOODTOWN RD	SANDPIPER DR	3.18	N	Y	N						
VB	SEABOARD RD	PRINCESS ANNE RD (AT PA ELEMENTARY)	PRINCESS ANNE RD (AT PUNGO FIELD)	2.42	N	Y	N						
VB	SHORE DRIVE	NORFOLK CL	DIAMOND SPRINGS RD	0.21	Y	Y	Y	3.7	3.3	-0.4	0.1	9.8	9.7
VB	SHORE DRIVE	DIAMOND SPRINGS RD	INDEPENDENCE BLVD	1.82	Y	Y	Y	5.7	12.7	7.0	11.9	8.2	-3.7
VB	SHORE DRIVE	INDEPENDENCE BLVD	NORTHAMPTON BLVD	1.01	Y	Y	Y	15.6	12.7	-2.9	18.1	63.1	45.1
VB	SHORE DRIVE	NORTHAMPTON BLVD	N GREAT NECK RD	3.47	Y	Y	Y	40.1	46.6	6.5	70.5	64.0	-6.5
VB	SHORE DRIVE	N GREAT NECK RD	ATLANTIC AVE	4.61	Y	Y	Y	12.1	21.3	9.2	17.4	18.6	1.2
VB	SOUTHERN BLVD	FIRST COLONIAL RD	OCEANA BLVD	0.47	Y	N	N						
VB	UPTON DR	NIMMO PKWY	PRINCESS ANNE RD	0.72	N	Y	Y		22.1	22.1		27.3	27.3
VB	VA BEACH BLVD	NEWTOWN RD/NORFOLK CL	WITCHDUCK RD	1.26	Y	Y	Y	42.4	24.3	-18.1	90.3	115.8	25.5
VB	VA BEACH BLVD	WITCHDUCK RD	INDEPENDENCE BLVD	1.12	Y	Y	Y	24.8	21.8	-2.9	81.8	85.2	3.3
VB	VA BEACH BLVD	INDEPENDENCE BLVD	CONSTITUTION DR	0.32	Y	Y	Y	12.7	23.0	10.2	7.6	5.7	-1.9
VB	VA BEACH BLVD	CONSTITUTION DR	ROSEMONT RD	1.90	Y	Y	Y	85.8	31.7	-54.1	129.7	79.3	-50.4
VB	VA BEACH BLVD	ROSEMONT RD	S. PLAZA TRAIL/LITTLE NECK RD	0.39	Y	Y	Y	5.9	4.9	-1.0	12.9	15.6	2.7
VB	VA BEACH BLVD	S. PLAZA TRAIL/LITTLE NECK RD	LYNNHAVEN PKWY	1.61	Y	Y	Y	7.5	23.2	15.7	160.0	59.1	-100.9
VB	VA BEACH BLVD	LYNNHAVEN PKWY	GREAT NECK RD	0.83	Y	Y	Y	32.7	10.7	-21.9	7.6	12.1	4.5
VB	VA BEACH BLVD	GREAT NECK RD	LASKIN RD	0.14	Y	Y	Y	17.0	17.3	0.3	14.6	66.8	52.2
VB	VA BEACH BLVD	LASKIN RD	FIRST COLONIAL RD	1.04	Y	Y	Y	15.0	23.1	8.0	19.7	12.4	-7.3
VB	VA BEACH BLVD	FIRST COLONIAL RD	OLD OCEANA BLVD	0.45	Y	Y	Y	8.1	7.0	-1.1	19.2	22.5	3.3
VB	VA BEACH BLVD	OLD OCEANA BLVD	BIRDNECK RD	0.96	Y	Y	Y	8.3	10.3	2.0	12.3	10.3	-2.0
VB	VA BEACH BLVD	BIRDNECK RD	PACIFIC AVE	1.18	Y	Y	Y	12.5	9.2	-3.4	22.4	17.5	-5.0
VB	VA BEACH BLVD	PACIFIC AVE	ATLANTIC AVE	0.07	Y	Y	Y	2.8	2.1	-0.6	3.9	3.4	-0.4
VB	WESLEYAN DR	NORFOLK CL	BAKER RD	0.43	Y	Y	Y	6.9	14.6	7.7	33.3	17.6	-15.8

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
VB	WESLEYAN DR	BAKER RD	DIAMOND SPRINGS RD	0.54	Y	Y	Y	6.7	9.1	2.4	16.0	6.6	-9.3
VB	WESLEYAN DR	DIAMOND SPRINGS RD	HAYGOOD DR	1.18	Y	Y	Y	6.2	2.4	-3.8	16.7	8.6	-8.1
VB	WEST NECK RD	NIMMO PKWY	NORTH LANDING RD	0.19	N	N	N						
VB	WEST NECK RD	NORTH LANDING RD	INDIAN RIVER RD	2.05	N	N	N						
VB	WITCHDUCK RD	PRINCESS ANNE RD	I-264	0.78	Y	Y	Y	88.3	17.3	-71.0	95.7	46.6	-49.0
VB	WITCHDUCK RD	I-264	VA BEACH BLVD	0.51	Y	Y	Y	72.8	17.9	-54.8	53.2	63.0	9.8
VB	WITCHDUCK RD	VA BEACH BLVD	PEMBROKE BLVD	1.58	Y	Y	Y	23.2	17.4	-5.8	43.8	17.4	-26.5
WMB	BOUNDARY ST	JAMESTOWN RD	FRANCIS ST	0.07	Y	Y	Y	1.6	2.0	0.3	2.1	3.0	0.8
WMB	BYPASS RD	RICHMOND RD	YORK CL	0.11	Y	Y	Y	6.8	1.4	-5.4	7.1	9.6	2.6
WMB	BYPASS RD	ROUTE 132/YORK CL	PAGE ST	0.72	Y	Y	Y	6.1	9.2	3.1	16.4	12.0	-4.4
WMB	CAPITOL LANDING RD	BYPASS RD	MERRIMAC TRAIL	0.61	Y	Y	Y	0.9	0.8	-0.1	2.7	1.4	-1.3
WMB	COLONIAL NATL HIST PKWY	JAMES CITY CL/RTE 199	YORK CL	3.09	Y	Y	Y	0.4	0.0	-0.4	0.0	0.0	0.0
WMB	FRANCIS ST	BOUNDARY ST	HENRY ST	0.09	Y	Y	Y	0.6	2.3	1.7	3.7	2.5	-1.2
WMB	HENRY ST S.	ROUTE 199	FRANCIS ST	1.85	N	N	N						
WMB	HENRY ST	FRANCIS ST	LAFAYETTE ST	0.38	N	N	N						
WMB	HENRY ST N.	LAFAYETTE ST	RTE 132Y	0.44	Y	Y	Y	0.9	6.6	5.7	5.2	7.0	1.9
WMB	IRONBOUND RD	JAMES CITY CL	LONGHILL CONNECTOR RD	0.18	Y	Y	Y	0.3	0.8	0.5	0.6	1.5	0.8
WMB	IRONBOUND RD	LONGHILL CONNECTOR RD	LONGHILL RD	0.57	Y	Y	Y	0.0	0.6	0.6	1.7	0.3	-1.4
WMB	IRONBOUND RD	LONGHILL RD	RICHMOND RD	0.05	Y	Y	Y	3.5	0.6	-2.9	6.9	1.8	-5.1
WMB	JAMESTOWN RD	JAMES CITY CL	RTE 199	0.06	Y	Y	Y	7.9	4.1	-3.8	15.0	8.7	-6.3
WMB	JAMESTOWN RD	RTE 199	JOHN TYLER LN	0.27	Y	Y	Y	1.6	3.4	1.7	3.6	3.2	-0.4
WMB	JAMESTOWN RD	JOHN TYLER LN	COLLEGE CREEK	0.58	Y	Y	Y	4.4	7.3	3.0	8.5	8.0	-0.5
WMB	JAMESTOWN RD	COLLEGE CREEK	BOUNDARY ST	0.92	Y	Y	Y	0.0	1.4	1.4	3.5	1.7	-1.8
WMB	LAFAYETTE ST	RICHMOND RD	HENRY ST	0.95	Y	Y	Y	3.1	8.7	5.5	16.1	22.7	6.6
WMB	LAFAYETTE ST	HENRY ST	CAPITOL LANDING RD	0.85	Y	Y	Y	5.8	0.5	-5.3	0.7	3.2	2.4
WMB	LAFAYETTE ST	CAPITOL LANDING RD	PAGE ST	0.21	Y	Y	Y	2.3	2.5	0.2	21.1	9.1	-12.0
WMB	MERRIMAC TRAIL	YORK CL (SOUTH)	CAPITOL LANDING RD	0.90	Y	Y	Y	3.7	4.6	0.9	5.4	10.2	4.8
WMB	MERRIMAC TRAIL	CAPITOL LANDING RD	YORK CL (NORTH)	0.37	Y	Y	Y	0.0	0.2	0.2	0.9	0.8	-0.1
WMB	MONTICELLO AVE	IRONBOUND RD	RICHMOND RD	1.17	Y	Y	Y	8.1	7.4	-0.8	77.4	31.5	-46.0
WMB	PAGE ST	BYPASS RD	SECOND ST	0.31	Y	Y	Y	0.0	0.0	0.0	0.4	0.0	-0.4
WMB	PAGE ST	SECOND ST	YORK ST	0.25	Y	Y	Y	4.9	15.0	10.1	6.8	23.2	16.5
WMB	QUARTERPATH RD	ROUTE 199	YORK ST	1.44	N	Y	N						
WMB	RICHMOND RD	JAMES CITY CL	IRONBOUND RD	1.34	Y	Y	Y	0.0	0.0	0.0	0.0	0.0	0.0
WMB	RICHMOND RD	IRONBOUND RD	BYPASS RD	0.33	Y	Y	Y	0.0	0.9	0.9	8.2	0.0	-8.2
WMB	RICHMOND RD	BYPASS RD	MONTICELLO AVE	0.37	Y	Y	Y	12.0	8.9	-3.1	24.1	28.8	4.7
WMB	RICHMOND RD	MONTICELLO AVE	BROOKS ST	0.38	Y	Y	Y	0.6	1.7	1.0	2.4	4.0	1.6
WMB	RICHMOND RD	BROOKS ST	BOUNDARY ST	0.67	Y	Y	Y	1.1	2.9	1.8	4.1	7.0	2.9
WMB	ROUTE 132	ROUTE 132Y	YORK CL	0.16	Y	Y	Y	0.1	0.2	0.2	0.1	0.6	0.5
WMB	ROUTE 132Y	ROUTE 132	COLONIAL PKWY	0.30	Y	Y	Y	0.1	0.5	0.4	0.7	0.4	-0.3
WMB	ROUTE 199	JAMES CITY CL (WEST)	JAMESTOWN RD	0.24	Y	Y	Y	2.5	6.7	4.2	16.0	8.2	-7.7
WMB	ROUTE 199	JAMESTOWN RD	JAMES CITY CL (EAST)	0.16	Y	Y	Y	2.5	4.1	1.7	5.7	4.0	-1.7
WMB	SECOND ST	PAGE ST	YORK CL	0.41	Y	Y	Y	8.9	9.9	1.0	7.2	12.3	5.1
WMB	YORK ST	PAGE ST	JAMES CITY CL	0.60	Y	Y	Y	0.1	0.0	-0.1	0.1	0.0	-0.1
YC	BALLARD ST	COLONIAL PKWY	COOK RD	0.11	N	N	N						
YC	BIG BETHEL RD	HAMPTON CL	HAMPTON HWY (RTE 134)	0.96	Y	Y	Y	7.4	13.8	6.4	17.4	29.8	12.4
YC	BIG BETHEL RD	HAMPTON HWY (RTE 134)	VICTORY BLVD (RTE 171)	1.09	Y	Y	Y	3.2	21.6	18.3	11.9	13.4	1.6
YC	BYPASS RD	WILLIAMSBURG CL	WALLER MILL RD	0.19	Y	Y	Y	11.8	2.4	-9.4	12.2	16.6	4.5
YC	BYPASS RD	WALLER MILL RD	ROUTE 132/WILLIAMSBURG CL	0.88	Y	Y	Y	6.8	10.7	3.9	8.1	22.3	14.2
YC	COLONIAL NATL HIST PKWY	WILLIAMSBURG CL	MOORE HOUSE RD	11.21	Y	Y	Y	0.4	0.0	-0.4	0.6	0.0	-0.6
YC	COOK RD	GOOSLEY RD	MOORE HOUSE RD	0.25	Y	Y	Y	1.8	1.2	-0.6	2.4	2.9	0.5
YC	DENBIGH BLVD	NEWPORT NEWS CL	ROUTE 17	2.18	Y	Y	Y	16.0	14.4	-1.6	25.3	25.6	0.3
YC	EAST YORKTOWN RD	VICTORY BLVD	POQUOSON CL	0.29	N	Y	N						
YC	FORT EUSTIS BLVD	NEWPORT NEWS CL	ROUTE 17	2.36	Y	Y	Y	18.0	16.4	-1.6	27.3	21.6	-5.8
YC	GEORGE WASHINGTON HWY	NEWPORT NEWS CL	VICTORY BLVD (RTE 171)	1.20	Y	Y	Y	26.4	14.2	-12.2	31.8	81.0	49.2
YC	GEORGE WASHINGTON HWY	VICTORY BLVD (RTE 171)	HAMPTON HWY (RTE 134)	0.64	Y	Y	Y	26.9	22.5	-4.5	34.4	22.7	-11.7

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

### Total Delay During the Weekday AM Peak Hour and PM Peak Hour by Roadway Segment, 2000 and 2005

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	2000 travel time data collected?	2005 travel time data collected?	Roadway Segment Included in Analysis?	Daily Total Segment Delay During the AM Peak Hour (veh-hours)			Daily Total Segment Delay During the PM Peak Hour (veh-hours)		
								2000	2005	Δ '00 to '05	2000	2005	Δ '00 to '05
YC	GEORGE WASHINGTON HWY	HAMPTON HWY (RTE 134)	DENBIGH BLVD (RTE 173)	3.45	Y	Y	Y	109.3	204.4	95.1	100.5	88.9	-11.7
YC	GEORGE WASHINGTON HWY	DENBIGH BLVD (RTE 173)	FORT EUSTIS BLVD (RTE 105)	1.38	Y	Y	Y	10.4	34.4	24.0	4.3	84.0	79.7
YC	GEORGE WASHINGTON HWY	FORT EUSTIS BLVD (RTE 105)	GOOSLEY RD (RTE 238)	2.97	Y	Y	Y	5.4	68.0	62.6	54.4	39.4	-15.0
YC	GEORGE WASHINGTON HWY	GOOSLEY RD (RTE 238)	GLOUCESTER CL (COLEMAN BRIDGE)	1.06	Y	Y	Y	2.3	21.4	19.2	6.5	20.2	13.7
YC	GOODWIN NECK RD	ROUTE 17	WOLF TRAP RD	1.05	Y	Y	Y	3.7	9.1	5.4	4.1	11.5	7.5
YC	GOOSLEY RD	OLD WILLIAMSBURG RD	CRAWFORD RD	0.89	Y	Y	Y	1.5	1.5	0.0	3.2	2.3	-0.9
YC	GOOSLEY RD	CRAWFORD RD	ROUTE 17	0.30	Y	Y	Y	1.0	3.8	2.8	21.3	13.3	-8.0
YC	GOOSLEY RD	ROUTE 17	COOK RD	0.52	Y	Y	Y	2.6	3.0	0.3	4.5	3.9	-0.6
YC	HAMPTON HWY	ROUTE 17	VICTORY BLVD (RTE 171)	0.72	Y	Y	Y	23.3	47.8	24.5	21.0	26.8	5.8
YC	HAMPTON HWY	VICTORY BLVD (RTE 171)	BIG BETHEL RD (RTE 600)	1.54	Y	Y	Y	38.0	18.0	-20.0	62.6	56.5	-6.1
YC	HAMPTON HWY	BIG BETHEL RD (RTE 600)	NCL HAMPTON	1.77	Y	Y	Y	29.5	41.2	11.8	32.4	51.0	18.6
YC	I-64	JAMES CITY CL	RTE 199/646	1.12	Y	Y	Y	0.0	0.1	0.1	0.0	1.2	1.2
YC	I-64	RTE 199/646	RTE 143	4.29	Y	Y	Y	0.0	2.8	2.8	0.0	7.9	7.9
YC	I-64	RTE 143	RTE 199 (EAST OF WILLIAMSBURG)	3.88	Y	Y	Y	0.0	0.0	0.0	7.9	0.0	-7.9
YC	I-64	RTE 199 (EAST OF WILLIAMSBURG)	GROVE CONNECTOR	1.14	Y	Y	Y	1.2	4.1	2.9	7.4	3.0	-4.4
YC	I-64	GROVE CONNECTOR	JAMES CITY CL	0.85	Y	Y	Y	2.5	1.7	-0.8	5.0	0.2	-4.8
YC	MERRIMAC TRAIL	JAMES CITY CL	GROVE INTERCHANGE	0.66	Y	Y	Y	0.1	0.8	0.7	0.3	0.8	0.4
YC	MERRIMAC TRAIL	GROVE INTERCHANGE	ROUTE 199	1.75	Y	Y	Y	0.0	2.6	2.6	0.0	7.6	7.6
YC	MERRIMAC TRAIL	ROUTE 199	JAMES CITY CL (NORTH OF 199)	0.09	Y	Y	Y	0.1	0.0	-0.1	0.8	0.1	-0.7
YC	MERRIMAC TRAIL	JAMES CITY CL (PENNIMAN RD)	SECOND ST	0.50	Y	Y	Y	6.1	4.6	-1.5	12.2	9.7	-2.5
YC	MERRIMAC TRAIL	SECOND ST	SCL WILLIAMSBURG	0.26	Y	Y	Y	1.4	1.6	0.2	1.9	2.5	0.6
YC	MERRIMAC TRAIL	NCL WILLIAMSBURG	ROUTE 132	0.22	Y	Y	Y	0.5	0.7	0.2	1.2	1.2	0.0
YC	RTE 143	ROUTE 132	I-64	0.60	Y	Y	Y	2.8	3.5	0.7	4.8	7.7	2.9
YC	MOORETOWN RD	WALLER MILL RD	OLD MOORETOWN RD	3.50	N	Y	N						
YC	MOORETOWN RD	OLD MOORETOWN RD	ROUTE 199	0.95	N	Y	N						
YC	NEWMAN RD	I-64	FENTON MILL RD	0.46	N	N	N						
YC	OLD WILLIAMSBURG RD	NECL NEWPORT NEWS	GOOSLEY RD	2.20	Y	Y	Y	3.7	3.5	-0.2	10.0	5.8	-4.2
YC	PENNIMAN RD (RTE 641)	ROUTE 199	COLONIAL PKWY	1.19	Y	Y	Y	0.0	0.1	0.1	0.0	0.0	0.0
YC	POCAHONTAS TRAIL	JCC LINE @ RTE 199	KINGSMILL RD	0.66	Y	Y	Y	3.9	4.2	0.3	12.4	12.6	0.2
YC	POCAHONTAS TRAIL	KINGSMILL RD	GROVE INTERCHANGE	1.16	Y	Y	Y	3.9	4.4	0.5	12.4	11.6	-0.8
YC	POCAHONTAS TRAIL	GROVE INTERCHANGE	JAMES CITY CL	0.71	Y	Y	Y	0.4	2.1	1.6	0.1	1.0	0.9
YC	RICHNECK RD	NEWPORT NEWS CL	FORT EUSTIS BLVD	0.90	N	Y	N						
YC	ROUTE 132	WILLIAMSBURG CL	BYPASS RD	0.10	Y	Y	Y	0.8	0.8	0.0	1.2	1.3	0.1
YC	ROUTE 132	BYPASS RD	ROUTE 143	1.16	Y	Y	Y	5.6	9.5	3.9	4.7	9.6	4.9
YC	ROUTE 199	RTE 60/RTE 143/JCC LINE	I-64	1.00	Y	Y	Y	0.4	0.0	-0.4	0.5	0.1	-0.4
YC	ROUTE 199	I-64	RTE 641 (PENNIMAN RD)	0.90	Y	Y	Y	1.3	1.4	0.0	0.9	2.2	1.3
YC	RTE 199	JCC LINE (WESTSIDE)	MOORETOWN RD	0.57	Y	Y	Y	0.2	0.0	-0.2	0.5	0.0	-0.5
YC	RTE 199	MOORETOWN RD	I-64	0.85	Y	Y	Y	0.5	0.0	-0.5	1.4	0.0	-1.4
YC	SECOND ST	WILLIAMSBURG CL	MERRIMAC TRAIL	0.17	Y	Y	Y	3.7	4.2	0.5	3.0	5.1	2.1
YC	VICTORY BLVD	NEWPORT NEWS CL	ROUTE 17	0.85	Y	Y	Y	25.2	51.0	25.8	87.5	69.0	-18.5
YC	VICTORY BLVD	ROUTE 17	HAMPTON HWY (RTE 134)	0.35	Y	Y	Y	32.5	19.3	-13.2	86.8	45.2	-41.6
YC	VICTORY BLVD	HAMPTON HWY (RTE 134)	BIG BETHEL RD (RTE 600)	1.02	Y	Y	Y	16.3	38.6	22.3	7.0	36.6	29.6
YC	VICTORY BLVD	BIG BETHEL RD (RTE 600)	CARYS CHAPEL RD (RTE 782)	1.25	Y	Y	Y	9.4	45.9	36.5	32.1	47.0	15.0
YC	VICTORY BLVD	CARYS CHAPEL RD (RTE 782)	POQUOSON CL	0.23	Y	Y	Y	1.2	5.1	3.9	10.1	3.9	-6.2
YC	WALLER MILL RD	ROUTE 60	MOORETOWN RD	0.18	N	N	N						

Data source: HRMPO. An example of calculating peak hour delay is included in Appendix A.

## **APPENDIX C**

### Recurring Delay by Freeway Segment

### Average and Total Recurring Delay During the Weekday AM Peak Hour and PM Peak Hour by Freeway Segment, 2007

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	AM					PM				
					Northbound/Eastbound		Southbound/Westbound		SEGMENT TOTAL DELAY (veh-hours)	Northbound/Eastbound		Southbound/Westbound		SEGMENT TOTAL DELAY (veh-hours)
					AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)		AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	
CHES	CHESAPEAKE EXPWY	GALLBUSH RD	BATTLEFIELD BLVD (NEAR INDIAN CREEK)	2.61	40.7	5.2	53.0	3.0	8.2	43.5	4.1	68.0	9.6	13.7
CHES	CHESAPEAKE EXPWY	BATTLEFIELD BLVD (NEAR INDIAN CREEK)	HILLCREST PKWY	2.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHES	CHESAPEAKE EXPWY	HILLCREST PKWY	BATTLEFIELD BLVD (S OF GREAT BRIDGE)	2.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHES	CHESAPEAKE EXPWY	BATTLEFIELD BLVD (S OF GREAT BRIDGE)	HANBURY RD	0.59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHES	CHESAPEAKE EXPWY	HANBURY RD	MT PLEASANT RD	1.31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHES	CHESAPEAKE EXPWY	MT PLEASANT RD	BATTLEFIELD BLVD (N OF GREAT BRIDGE)	2.31	0.5	0.6	0.0	0.0	0.6	1.3	0.7	3.8	4.1	4.9
CHES	CHESAPEAKE EXPWY	BATTLEFIELD BLVD (N OF GREAT BRIDGE)	DOMINION BLVD	1.90	39.8	39.2	0.0	0.0	39.2	0.0	0.0	0.2	0.2	0.2
CHES	CHESAPEAKE EXPWY	DOMINION BLVD	I-64	0.57	11.9	10.9	0.0	0.0	10.9	0.0	0.0	0.1	0.0	0.0
CHES	I-64	VA BEACH CL	GREENBRIER PKWY	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHES	I-64	GREENBRIER PKWY	BATTLEFIELD BLVD	1.42	0.4	0.5	0.0	0.0	0.5	20.5	30.6	0.0	0.0	30.6
CHES	I-64	BATTLEFIELD BLVD	I-464	1.08	0.6	0.6	6.6	8.1	8.7	21.4	29.4	1.6	1.7	31.1
CHES	I-64	I-464	GEORGE WASHINGTON HWY	4.38	0.0	0.0	49.8	50.9	50.9	1.2	1.0	3.6	3.1	4.1
CHES	I-64	GEORGE WASHINGTON HWY	MILITARY HWY	1.53	0.0	0.0	76.1	64.7	64.7	0.0	0.0	0.0	0.0	0.0
CHES	I-64	MILITARY HWY	I-264&664	2.31	0.0	0.0	31.4	29.9	29.9	9.5	9.3	0.0	0.0	9.3
CHES	I-264	I-64&664	WCL PORTSMOUTH	1.23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHES	I-464	I-64	MILITARY HWY	1.00	2.2	2.0	0.8	0.4	2.4	1.5	0.7	1.4	1.2	1.9
CHES	I-464	MILITARY HWY	FREEMAN AVE	0.97	0.0	0.0	0.7	0.3	0.3	1.7	0.6	1.1	0.8	1.3
CHES	I-464	FREEMAN AVE	POINDEXTER ST	1.90	0.0	0.0	0.4	0.1	0.1	1.9	0.7	2.3	1.8	2.5
CHES	I-464	POINDEXTER ST	NORFOLK CL	0.72	1.3	1.2	0.1	0.0	1.2	3.4	1.4	1.1	0.6	2.0
CHES	I-664	I-64 & I-264	ROUTES 13/58/460	1.70	10.3	15.8	6.9	7.2	23.0	0.0	0.0	27.3	36.1	36.1
CHES	I-664	ROUTES 13/58/460	DOCK LANDING RD	1.25	0.0	0.0	3.1	2.7	2.7	0.0	0.0	12.7	13.5	13.5
CHES	I-664	DOCK LANDING RD	PORTSMOUTH BLVD	1.14	0.0	0.0	0.1	0.1	0.1	0.0	0.0	1.1	1.0	1.0
CHES	I-664	PORTSMOUTH BLVD	PUGHSVILLE RD	2.06	0.0	0.0	0.0	0.0	0.0	14.2	14.6	0.0	0.0	14.6
CHES	I-664	PUGHSVILLE RD	SUFFOLK CL	0.83	0.0	0.0	0.0	0.0	0.0	11.9	12.4	0.0	0.0	12.4
HAM	I-64	NEWPORT NEWS CL	HRC PARKWAY	2.24	5.4	7.8	3.6	5.1	12.9	0.0	0.0	4.3	7.6	7.6
HAM	I-64	HRC PARKWAY	MAGRUDER BLVD	0.77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAM	I-64	MAGRUDER BLVD	MERCURY BLVD	1.04	0.0	0.0	0.1	0.2	0.2	0.0	0.0	1.8	3.4	3.4
HAM	I-64	MERCURY BLVD	I-664	0.96	0.0	0.0	0.9	1.1	1.1	0.0	0.0	10.6	14.6	14.6
HAM	I-64	I-664	ARMISTEAD AVE	0.88	1.2	1.3	0.0	0.0	1.3	0.0	0.0	12.7	14.6	14.6
HAM	I-64	ARMISTEAD AVE	RIP RAP RD	0.46	2.7	2.3	0.0	0.0	2.3	0.0	0.0	2.1	2.2	2.2
HAM	I-64	RIP RAP RD	SETTLERS LANDING RD	1.55	300.9	256.0	0.0	0.0	256.0	317.2	261.8	1.5	1.5	263.4
HAM	I-64	SETTLERS LANDING RD	MALLORY ST	0.54	51.5	51.3	0.0	0.0	51.3	2.2	2.0	0.3	0.3	2.2
HAM	I-64/HRBT	MALLORY ST	NORFOLK CL	3.69	81.0	81.6	0.0	0.0	81.6	44.7	39.8	69.5	61.4	101.2
HAM	I-664	NEWPORT NEWS CL	ABERDEEN RD	0.44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAM	I-664	ABERDEEN RD	POWHATAN PKWY	1.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAM	I-664	POWHATAN PKWY	I-64	1.38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.0	73.4	73.4
JCC	I-64	NEW KENT CL	RTE 30	2.69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.4	0.4
JCC	I-64	RTE 30	CROAKER RD (RTE 607)	4.34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	2.1	2.1
JCC	I-64	CROAKER RD (RTE 607)	YORK CL	1.67	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.8	0.5	0.5
JCC	I-64	YORK CL	NEWPORT NEWS CL	2.38	0.0	0.0	5.0	4.8	4.8	35.2	30.7	0.0	0.0	30.7
JCC	ROUTE 199	YORK CL	RICHMOND RD (RTE 60)	0.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JCC	ROUTE 199	RICHMOND RD (RTE 60)	LONGHILL RD (RTE 612)	2.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JCC	ROUTE 199	LONGHILL RD (RTE 612)	MONTICELLO AVE (RTE 321)	1.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JCC	ROUTE 199	MONTICELLO AVE (RTE 321)	JOHN TYLER HWY (RTE 5)	1.30	7.9	2.9	0.0	0.0	2.9	30.6	9.4	0.0	0.0	9.4
NN	I-64	JAMES CITY CL	RTE 143 (NORTH)	0.27	0.0	0.0	0.6	0.5	0.5	4.0	3.5	0.0	0.0	3.5

Data source: HRMPO. Data only includes delay attributable to recurring congestion. An example of calculating peak hour delay is included in Appendix A.

### Average and Total Recurring Delay During the Weekday AM Peak Hour and PM Peak Hour by Freeway Segment, 2007

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	AM					PM				
					Northbound/Eastbound		Southbound/Westbound		SEGMENT TOTAL DELAY (veh-hours)	Northbound/Eastbound		Southbound/Westbound		SEGMENT TOTAL DELAY (veh-hours)
					AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)		AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	
NN	I-64	RTE 143 (NORTH)	YORKTOWN RD	0.88	0.0	0.0	3.4	3.2	3.2	34.6	30.5	1.0	0.8	31.3
NN	I-64	YORKTOWN RD	FORT EUSTIS BLVD	2.45	0.5	0.4	10.5	9.9	10.3	110.9	101.0	2.0	1.9	102.8
NN	I-64	FORT EUSTIS BLVD	JEFFERSON AVE	4.86	15.2	14.7	15.6	16.1	30.8	60.3	59.3	25.1	25.5	84.8
NN	I-64	JEFFERSON AVE	OYSTER POINT RD	1.60	0.0	0.0	0.6	0.7	0.7	1.7	2.0	2.2	2.9	4.9
NN	I-64	OYSTER POINT RD	J C MORRIS BLVD	1.64	1.1	1.8	0.8	0.9	2.7	0.0	0.0	2.0	3.4	3.4
NN	I-64	J C MORRIS BLVD	HAMPTON CL	0.90	2.2	3.5	1.4	2.2	5.8	0.0	0.0	1.7	3.3	3.3
NN	I-664/MMMBT	SUFFOLK CL	TERMINAL AVE	2.85	0.0	0.0	0.0	0.0	0.0	23.6	17.7	0.0	0.0	17.7
NN	I-664	TERMINAL AVE	23RD ST	0.92	0.0	0.0	0.0	0.0	0.0	7.6	4.9	0.0	0.0	4.9
NN	I-664	23RD ST	CHESTNUT ST	1.69	0.0	0.0	0.0	0.0	0.0	21.7	10.8	0.0	0.0	10.8
NN	I-664	CHESTNUT ST	HAMPTON CL	0.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOR	HAMPTON BLVD	BRAMBLETON AVE	PRINCESS ANNE RD	0.40	14.7	5.8	0.0	0.0	5.8	9.7	3.4	20.0	8.1	11.6
NOR	HAMPTON BLVD	PRINCESS ANNE RD	21ST ST	0.48	0.0	0.0	9.6	3.2	3.2	0.0	0.0	114.9	46.6	46.6
NOR	I-64/HRBT	HAMPTON CL	OCEAN VIEW AVE	0.19	4.2	4.2	0.0	0.0	4.2	2.3	2.0	3.6	3.2	5.2
NOR	I-64	OCEAN VIEW AVE	4TH VIEW AVE	1.82	0.0	0.0	0.0	0.0	0.0	18.8	16.7	115.5	102.0	118.7
NOR	I-64	4TH VIEW AVE	BAY AVE	1.01	0.0	0.0	0.0	0.0	0.0	54.3	43.9	54.2	40.9	84.8
NOR	I-64	BAY AVE	GRANBY ST	1.60	0.0	0.0	0.0	0.0	0.0	47.7	45.4	24.7	17.6	63.0
NOR	I-64	GRANBY ST	I-564/LITTLE CREEK RD	0.21	0.0	0.0	0.1	0.1	0.1	6.3	6.0	0.0	0.0	6.0
NOR	I-64	I-564/LITTLE CREEK RD	TIDEWATER DR	1.17	0.0	0.0	1.8	2.8	2.8	51.9	83.3	0.0	0.0	83.3
NOR	I-64	TIDEWATER DR	CHESAPEAKE BLVD	1.04	0.1	0.1	7.6	12.9	13.0	32.8	49.0	0.0	0.0	49.0
NOR	I-64	CHESAPEAKE BLVD	NORVIEW AVE	0.97	0.0	0.0	0.0	0.0	0.0	21.4	33.1	0.0	0.0	33.1
NOR	I-64	NORVIEW AVE	MILITARY HWY	1.22	0.0	0.0	0.7	1.2	1.2	29.9	50.8	0.5	0.7	51.5
NOR	I-64	MILITARY HWY	NORTHAMPTON BLVD	1.07	0.0	0.0	0.0	0.0	0.0	3.3	4.7	0.4	0.6	5.3
NOR	I-64	NORTHAMPTON BLVD	I-264	2.12	0.0	0.0	0.0	0.0	0.0	26.9	47.3	0.1	0.2	47.4
NOR	I-64	I-264	VA BEACH CL	0.93	0.0	0.0	9.9	17.1	17.1	14.9	29.6	0.0	0.0	29.6
NOR	I-64 HOV LANES	I-564/LITTLE CREEK RD	I-264	7.59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOR	I-264/DOWNTOWN TUNNEL	PORTSMOUTH CL	I-464	0.40	15.7	15.1	21.9	18.9	34.0	9.5	8.6	11.3	10.9	19.4
NOR	I-264	I-464	WATERSIDE/CITY HALL/TIDEWATER	0.72	7.2	11.1	51.7	57.6	68.7	5.9	6.6	364.7	559.1	565.7
NOR	I-264	WATERSIDE/CITY HALL/TIDEWATER	BRAMBLETON AVE	0.91	9.1	10.8	65.3	85.2	96.0	7.4	11.3	461.0	333.2	344.5
NOR	I-264	BRAMBLETON AVE	BALLENTINE BLVD	0.85	0.0	0.0	0.0	0.0	0.0	1.2	1.9	0.0	0.0	1.9
NOR	I-264	BALLENTINE BLVD	MILITARY HWY	2.43	0.0	0.0	0.9	1.6	1.6	0.0	0.0	0.0	0.0	0.0
NOR	I-264	MILITARY HWY	I-64	0.78	0.0	0.0	0.0	0.0	0.0	8.7	16.5	0.2	0.2	16.8
NOR	I-264	I-64	NEWTOWN RD/WCL VA. BEACH	0.74	0.0	0.0	0.0	0.0	0.0	17.6	52.0	1.1	2.6	54.6
NOR	I-464	NORFOLK CL	SOUTH MAIN ST	0.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOR	I-464	SOUTH MAIN ST	I-264	0.61	6.8	4.7	2.2	0.6	5.3	1.8	0.6	0.9	0.5	1.1
NOR	I-564	ADMIRAL TAUSSIG BLVD	INTERNATIONAL TERMINAL BLVD	1.87	105.9	120.1	1.6	0.3	120.4	1.2	0.2	0.0	0.0	0.2
NOR	I-564	INTERNATIONAL TERMINAL BLVD	I-64	0.90	20.3	30.7	0.0	0.0	30.7	0.0	0.0	0.0	0.0	0.0
NOR	MIDTOWN TUNNEL	PORTSMOUTH CL	BRAMBLETON AVE	0.59	59.6	26.7	1.5	0.6	27.3	22.3	9.2	1.5	0.6	9.8
PORT	I-264	WCL PORTSMOUTH	GREENWOOD DR	0.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PORT	I-264	GREENWOOD DR	VICTORY BLVD	1.31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PORT	I-264	VICTORY BLVD	PORTSMOUTH BLVD	0.75	0.0	0.0	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0
PORT	I-264	PORTSMOUTH BLVD	FREDERICK BLVD	0.91	0.0	0.0	1.5	0.6	0.6	0.0	0.0	0.1	0.1	0.1
PORT	I-264	FREDERICK BLVD	DES MOINES AVE	0.96	10.0	9.6	0.2	0.1	9.7	1.2	0.8	0.0	0.0	0.8
PORT	I-264	DES MOINES AVE	EFFINGHAM ST	0.72	24.7	21.9	0.3	0.1	22.0	36.2	21.6	0.0	0.0	21.6
PORT	I-264/DOWNTOWN TUNNEL	EFFINGHAM ST	NORFOLK CL	0.72	28.3	27.2	39.5	34.1	61.2	17.0	15.4	20.3	19.6	35.0
PORT	MIDTOWN TUNNEL	MLK FWY/WESTERN FREEWAY	NORFOLK CL	0.95	96.0	43.0	2.4	0.9	43.9	35.9	14.8	2.4	1.0	15.8

Data source: HRMPO. Data only includes delay attributable to recurring congestion. An example of calculating peak hour delay is included in Appendix A.

### Average and Total Recurring Delay During the Weekday AM Peak Hour and PM Peak Hour by Freeway Segment, 2007

JURIS NAME	FACILITY NAME	SEGMENT FROM	SEGMENT TO	SEGMENT LENGTH (miles)	AM					PM				
					Northbound/Eastbound		Southbound/Westbound		SEGMENT TOTAL DELAY (veh-hours)	Northbound/Eastbound		Southbound/Westbound		SEGMENT TOTAL DELAY (veh-hours)
					AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)		AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	AVERAGE DELAY (sec/veh)	TOTAL DELAY (veh-hours)	
PORT	M L K FREEWAY	HIGH ST	LONDON BLVD	0.25	11.9	1.2	34.1	4.8	6.0	11.5	2.2	41.5	6.2	8.4
PORT	M L K FREEWAY	LONDON BLVD	WESTERN FREEWAY/MIDTOWN TUNNEL	0.98	211.2	54.2	22.5	7.5	61.8	83.5	40.6	17.5	6.2	46.7
PORT	WESTERN FWY	SUFFOLK CL	TOWN POINT RD	1.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PORT	WESTERN FWY	TOWN POINT RD	CEDAR LN	1.31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.9	0.9
PORT	WESTERN FWY	CEDAR LN	APM BLVD	1.00	31.3	20.7	4.9	1.6	22.3	3.4	1.2	5.4	3.5	4.6
PORT	WESTERN FWY	APM BLVD	WEST NORFOLK RD	0.61	19.1	12.6	3.0	1.0	13.6	2.1	0.7	3.3	2.1	2.8
PORT	WESTERN FWY	WEST NORFOLK RD	MLK FREEWAY/MIDTOWN TUNNEL	1.78	63.1	41.9	37.9	14.3	56.2	43.4	19.4	36.3	28.7	48.0
SUF	I-664	CHESAPEAKE CL	BRIDGE RD	0.74	0.0	0.0	0.0	0.0	0.0	10.6	11.1	0.0	0.0	11.1
SUF	I-664	BRIDGE RD	WESTERN FWY	0.15	0.0	0.0	0.3	0.2	0.2	1.4	1.2	0.2	0.1	1.4
SUF	I-664	WESTERN FWY	COLLEGE DR	1.41	0.5	0.3	0.6	0.6	0.9	1.2	1.1	0.2	0.1	1.2
SUF	I-664/MMMBT	COLLEGE DR	NEWPORT NEWS CL	3.28	0.0	0.0	0.0	0.0	0.0	27.2	20.0	0.0	0.0	20.0
SUF	WESTERN FWY	BRIDGE RD	I-664	0.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.4	0.4
SUF	WESTERN FWY	I-664	COLLEGE DR	0.57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUF	WESTERN FWY	COLLEGE DR	PORTSMOUTH CL	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	NEWTOWN RD/ECL NORFOLK	WITCHDUCK RD	1.47	0.3	0.6	7.8	21.2	21.8	35.4	88.2	0.0	0.0	88.2
VB	I-264	WITCHDUCK RD	INDEPENDENCE BLVD	1.27	0.0	0.0	0.0	0.0	0.0	0.5	1.3	1.4	2.9	4.2
VB	I-264	INDEPENDENCE BLVD	ROSEMONT RD	2.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	ROSEMONT RD	LYNNHAVEN PKWY	1.72	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	LYNNHAVEN PKWY	LASKIN RD	1.48	1.5	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0
VB	I-264	LASKIN RD	FIRST COLONIAL RD	1.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	FIRST COLONIAL RD	BIRDNECK RD	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VB	I-264	BIRDNECK RD	PARKS AVE	0.49	4.4	0.8	3.9	0.9	1.7	5.6	1.4	3.9	0.8	2.2
VB	I-64	NORFOLK CL	INDIAN RIVER RD	1.57	0.0	0.0	16.7	28.8	28.8	25.2	50.0	0.0	0.0	50.0
VB	I-64	INDIAN RIVER RD	CHESAPEAKE CL	1.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YC	I-64	JAMES CITY CL	RTE 199/646	1.12	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.5	0.3	0.3
YC	I-64	RTE 199/646	RTE 143	4.29	1.7	0.9	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
YC	I-64	RTE 143	RTE 199 (EAST OF WILLIAMSBURG)	3.88	0.4	0.2	0.2	0.1	0.3	0.5	0.3	0.0	0.0	0.3
YC	I-64	RTE 199 (EAST OF WILLIAMSBURG)	GROVE CONNECTOR	1.14	0.0	0.0	6.6	5.4	5.4	2.2	1.8	2.6	2.1	3.9
YC	I-64	GROVE CONNECTOR	JAMES CITY CL	0.85	0.0	0.0	1.8	1.7	1.7	12.6	10.9	0.0	0.0	10.9
YC	ROUTE 199	JCC LINE (WESTSIDE)	MOORETOWN RD	0.57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YC	ROUTE 199	MOORETOWN RD	I-64	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Data source: HRMPO. Data only includes delay attributable to recurring congestion. An example of calculating peak hour delay is included in Appendix A.

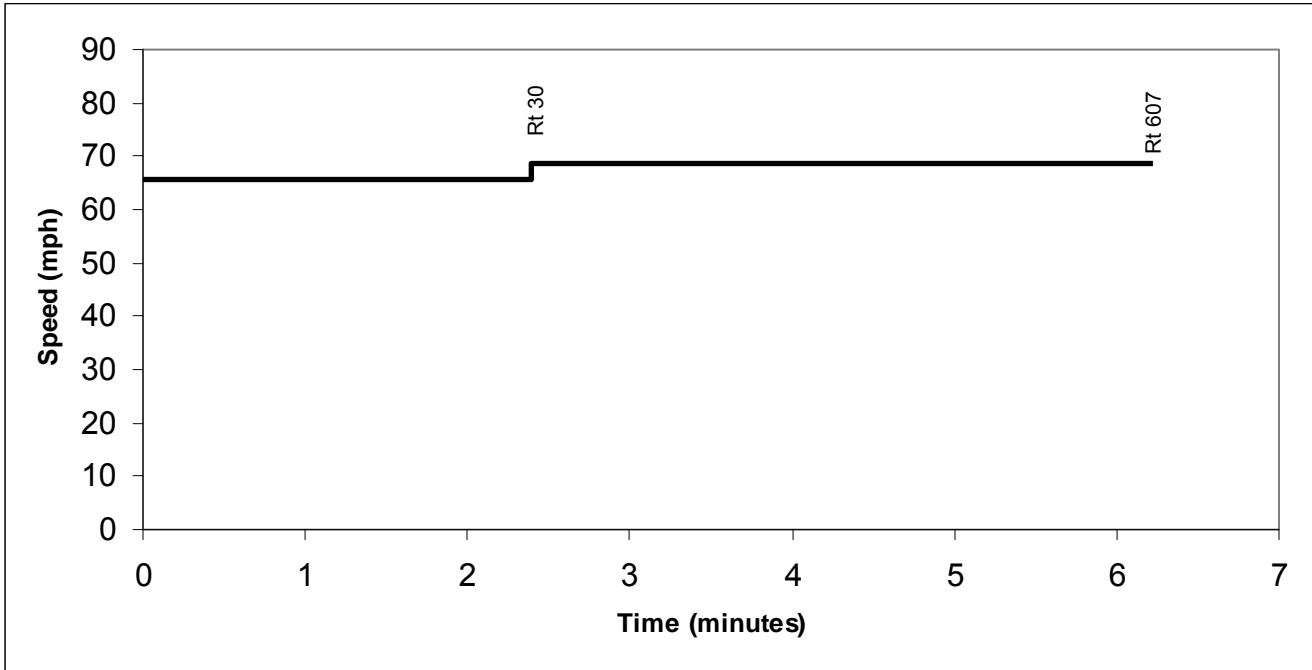
## **APPENDIX D**

### Freeway Speed Profiles

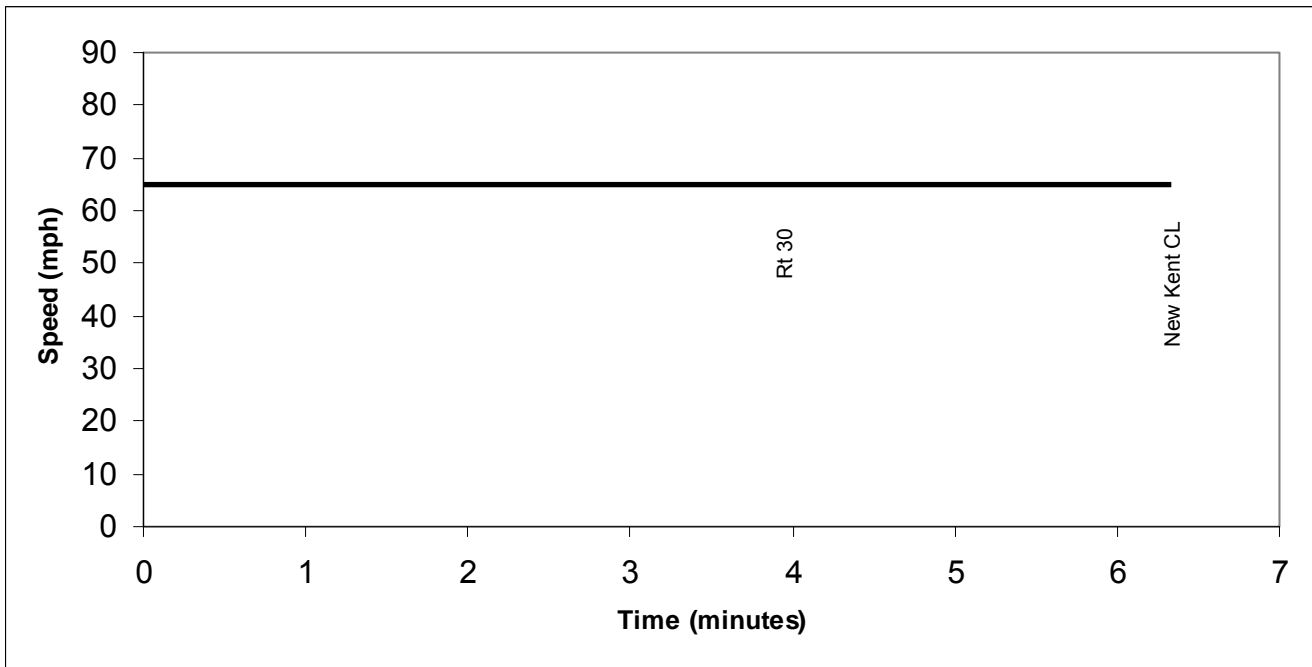
## Freeway Speed Profiles

### AM Peak Hour

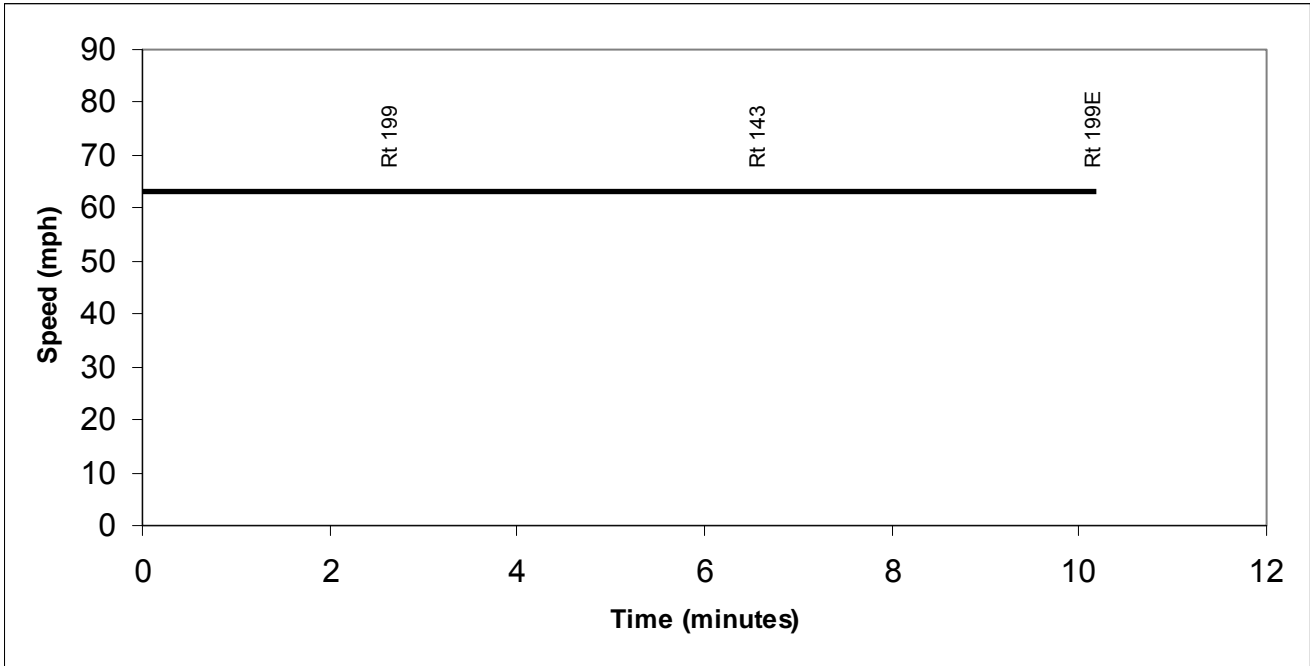
### I-64 EB: New Kent CL to Rt 607 (Croaker Rd) – AM Peak Hour



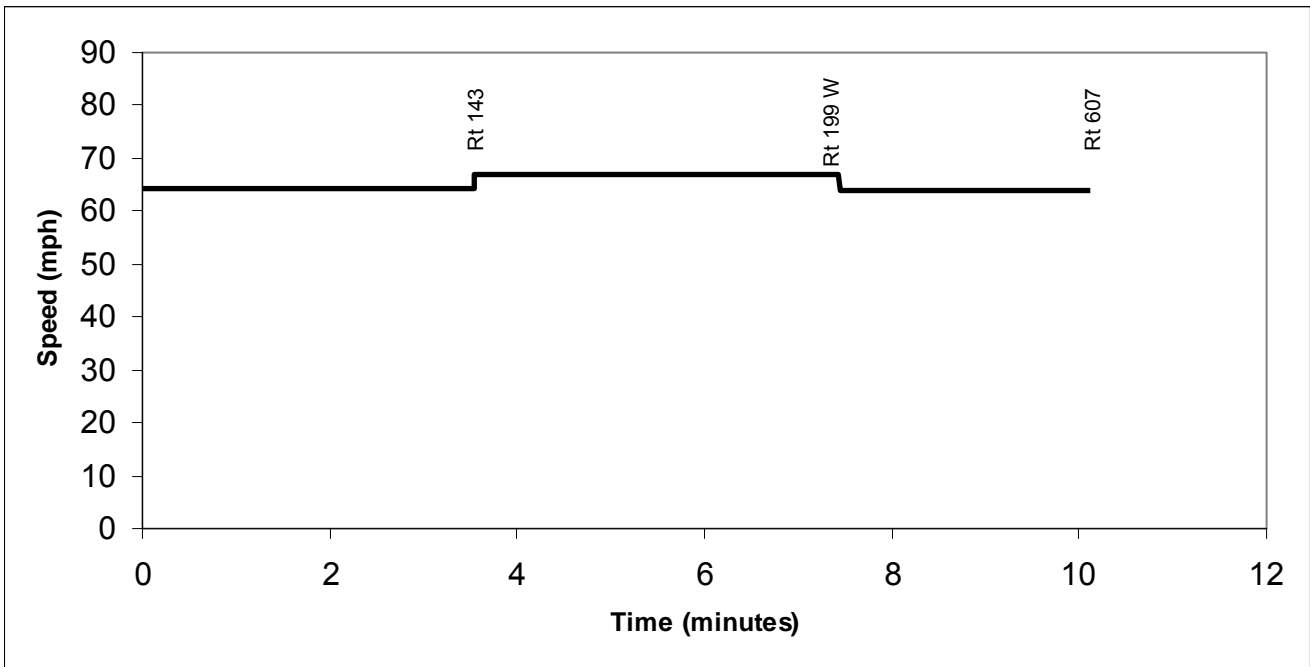
### I-64 WB: Rt 607 (Croaker Rd) to New Kent CL – AM Peak Hour



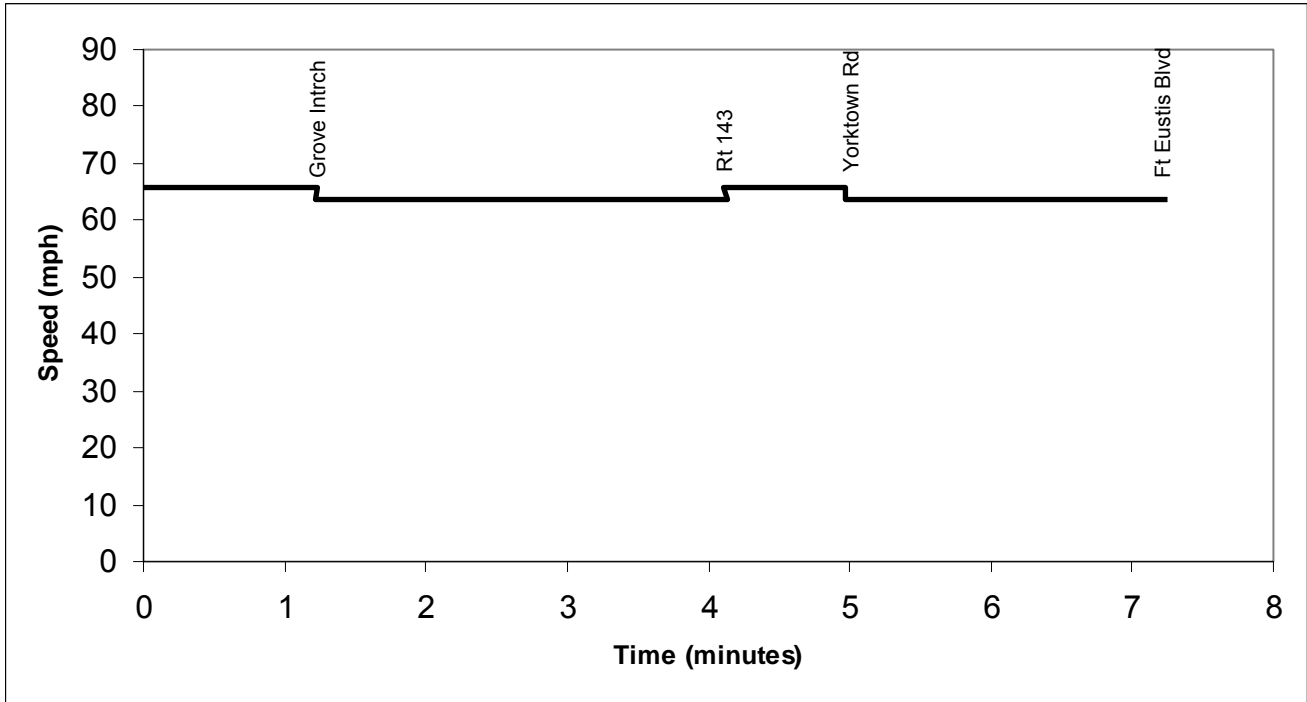
### I-64 EB: Rt 607 (Croaker Rd) to Rt 199 east (exit 242) – AM Peak Hour



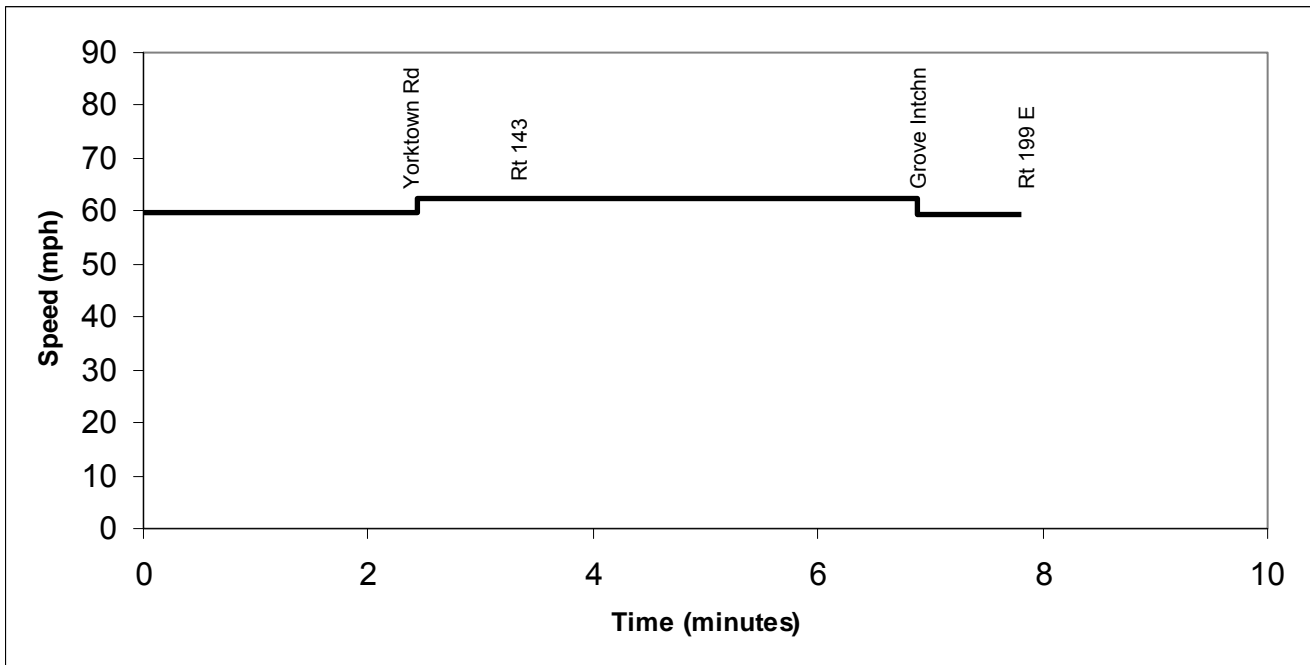
### I-64 WB: Rt 199 east (exit 242) to Rt 607 (Croaker Rd) – AM Peak Hour



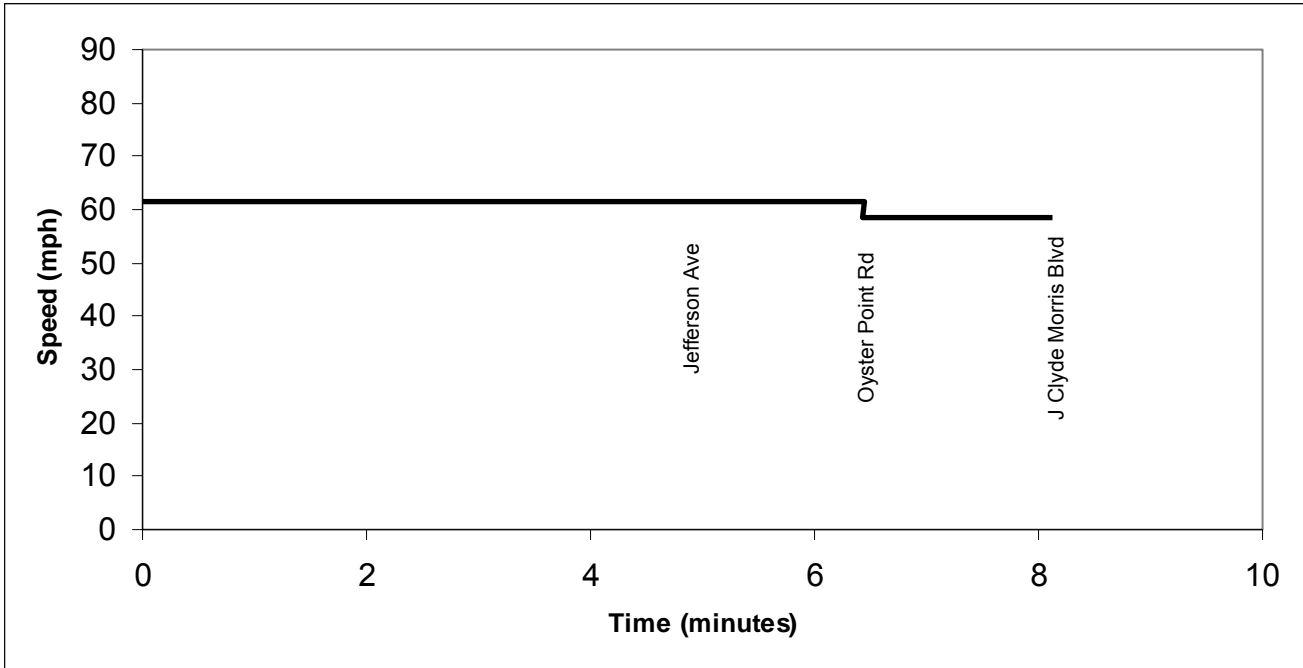
### I-64 EB: Rt 199 East (exit 242) to Fort Eustis Blvd – AM Peak Hour



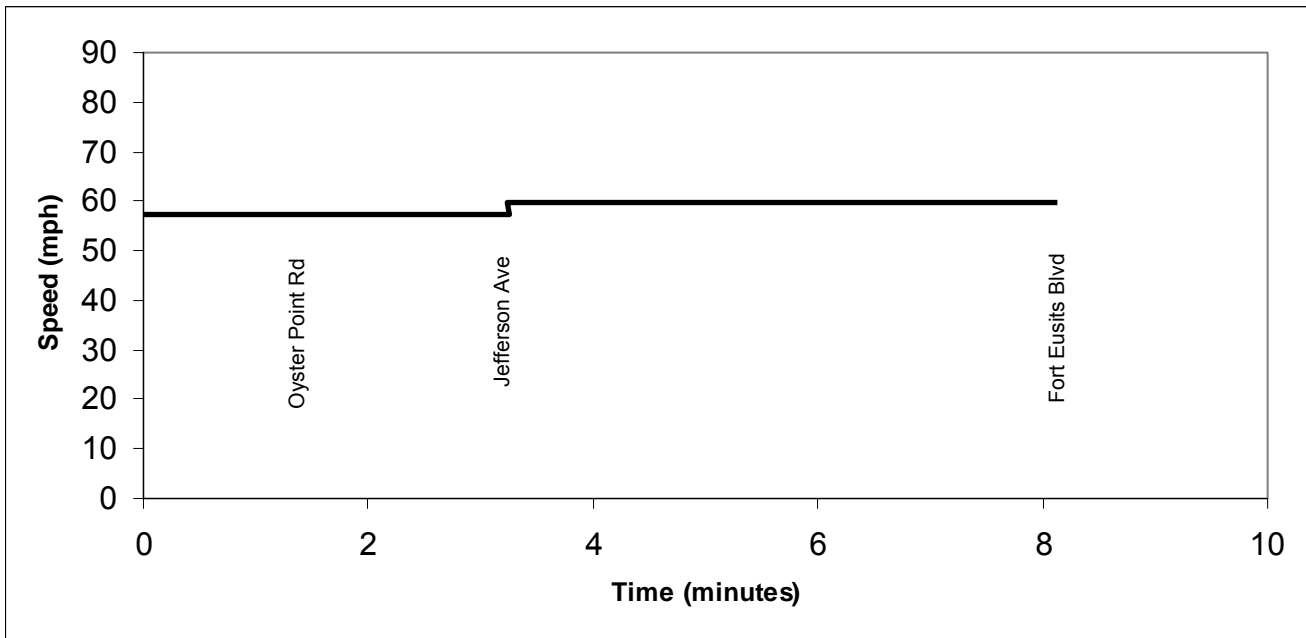
### I-64 WB: Fort Eustis Blvd to Route 199 East (Exit 242) – AM Peak Hour



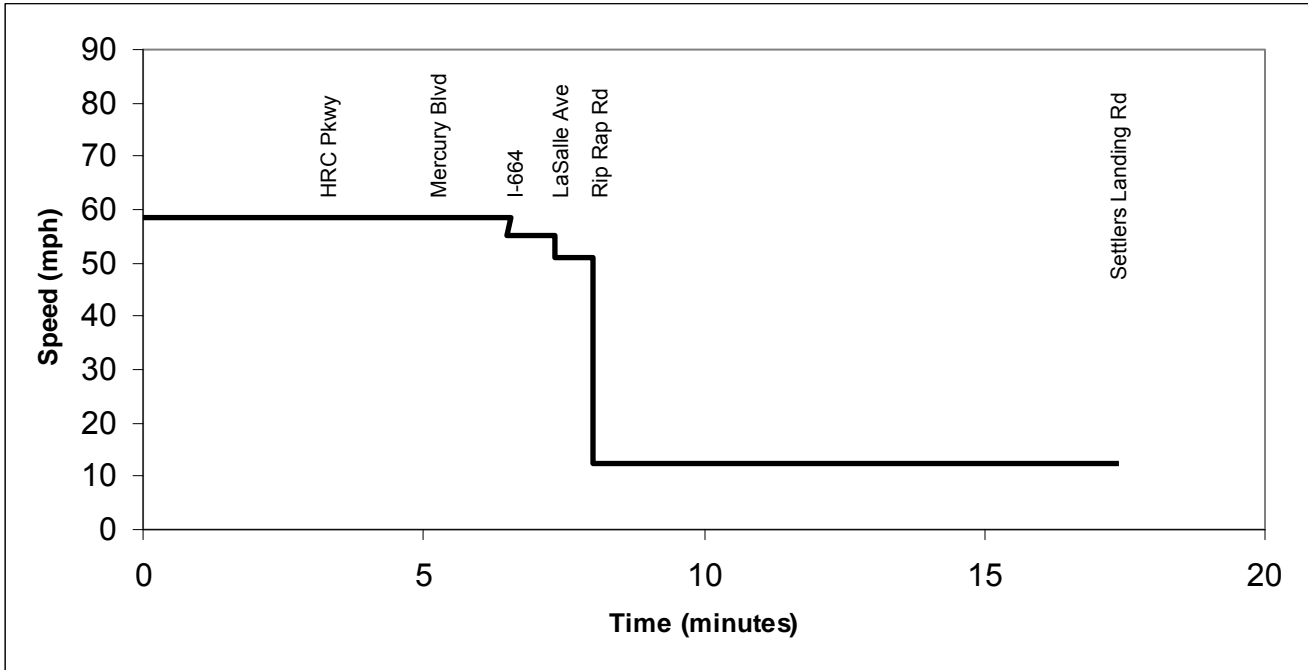
### I-64 EB: Fort Eustis Blvd to J Clyde Morris Blvd – AM Peak Hour



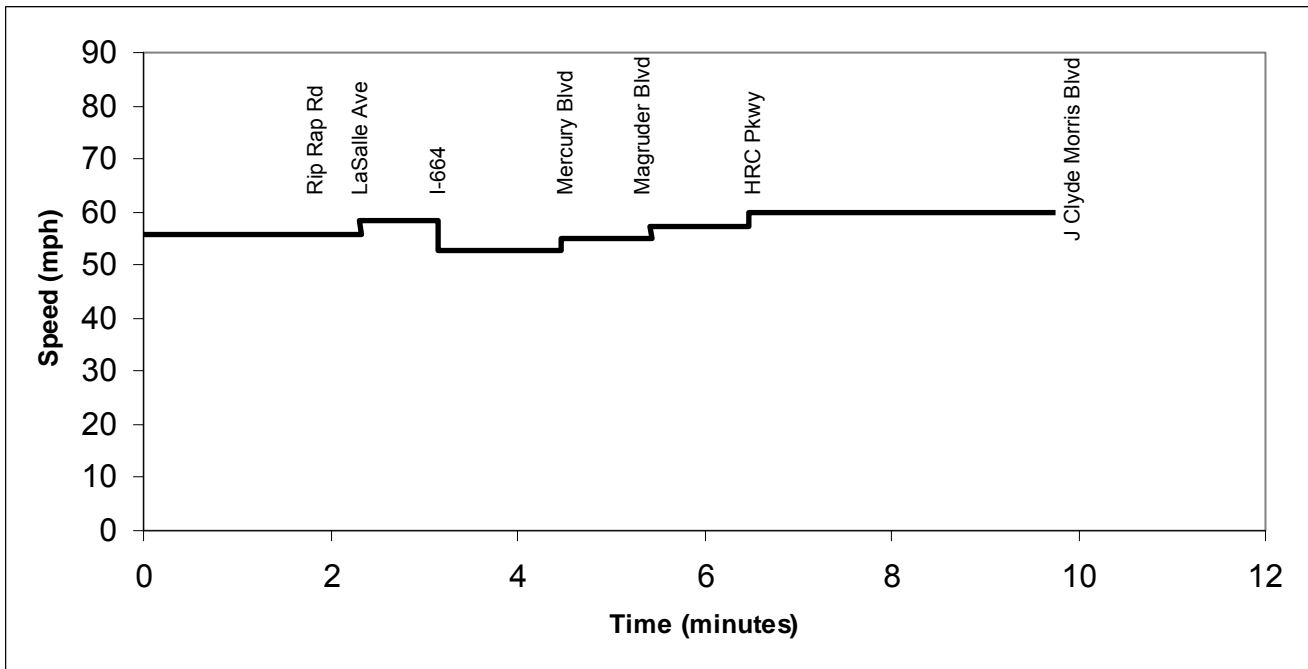
### I-64 WB: J Clyde Morris Blvd to Fort Eustis Blvd – AM Peak Hour



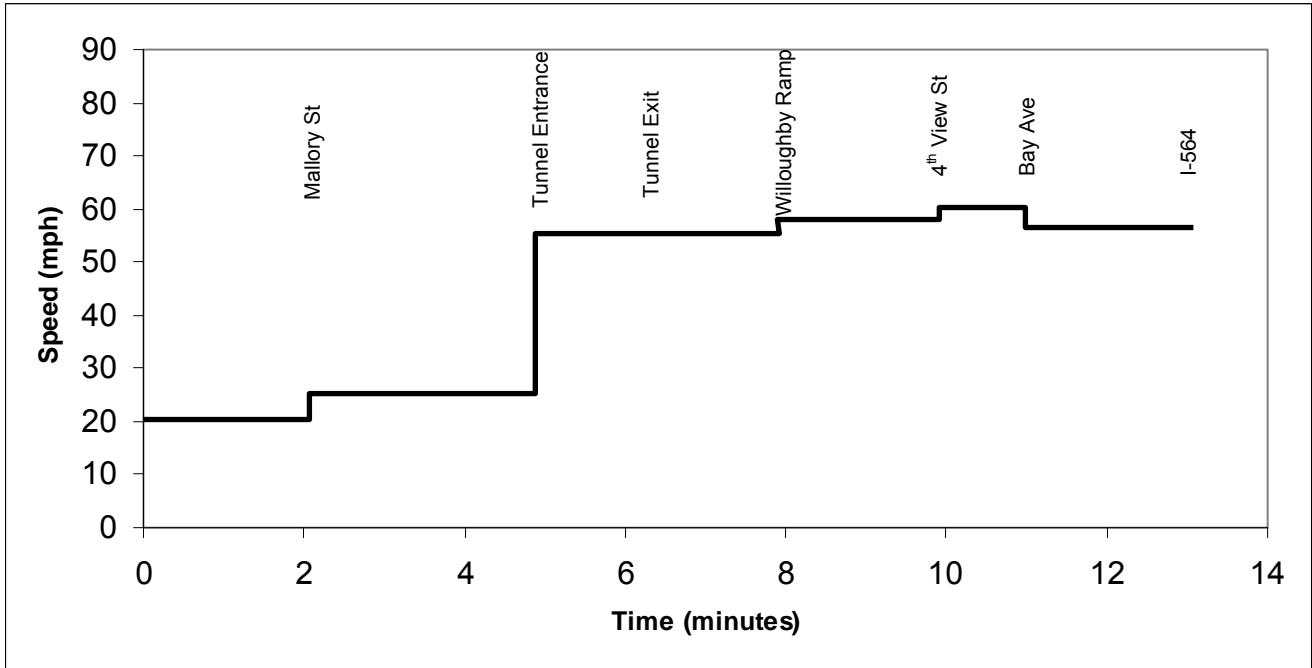
**I-64 EB: J Clyde Morris Blvd to Settlers Landing Rd – AM Peak Hour**



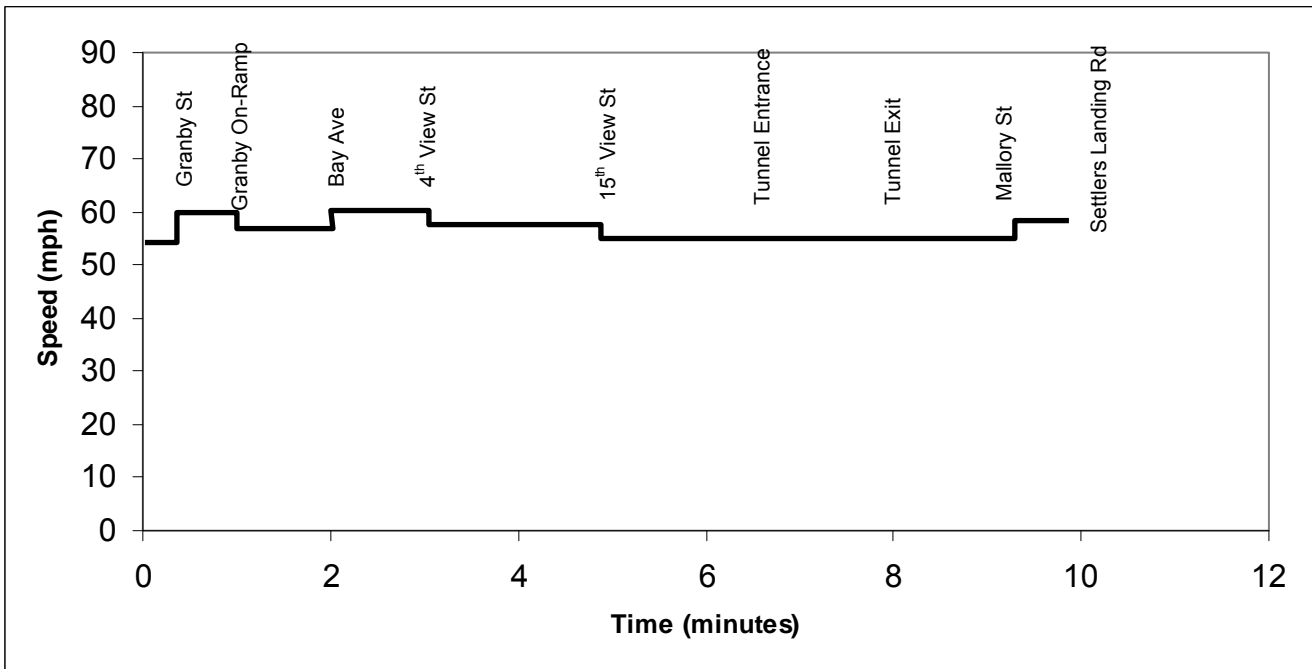
**I-64 WB: Settlers Landing Rd to J Clyde Morris Blvd – AM Peak Hour**



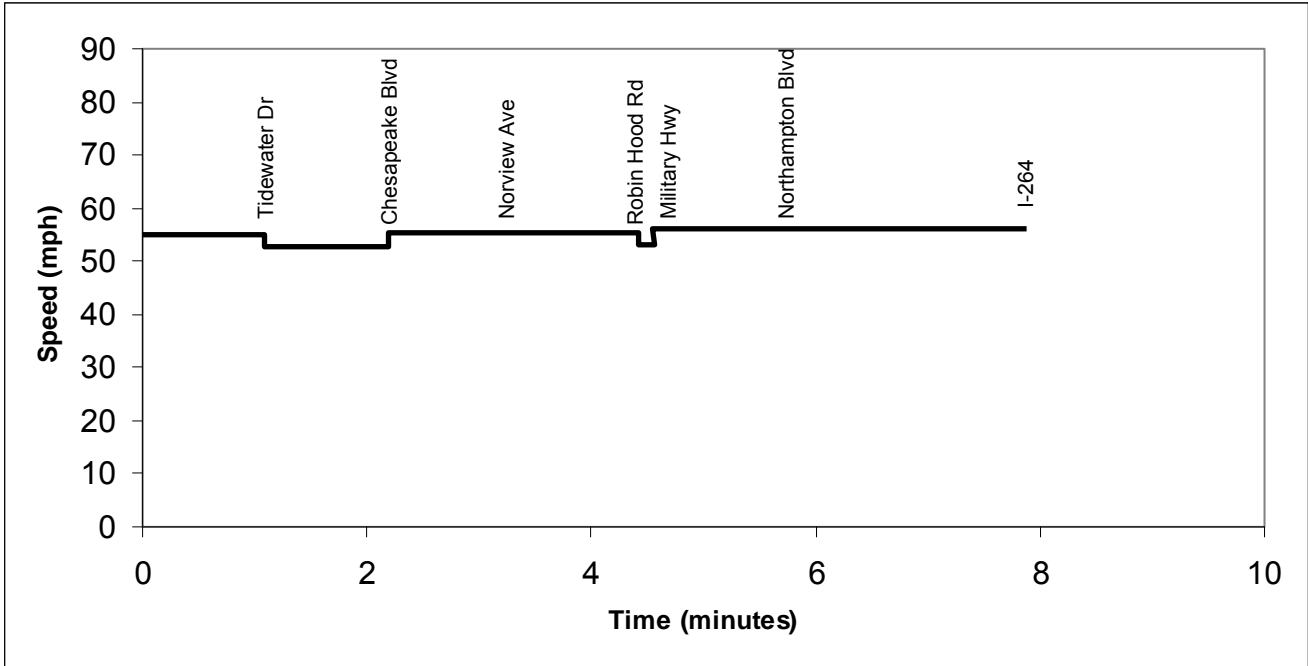
### I-64 EB: Settlers Landing Rd to I-564 – AM Peak Hour



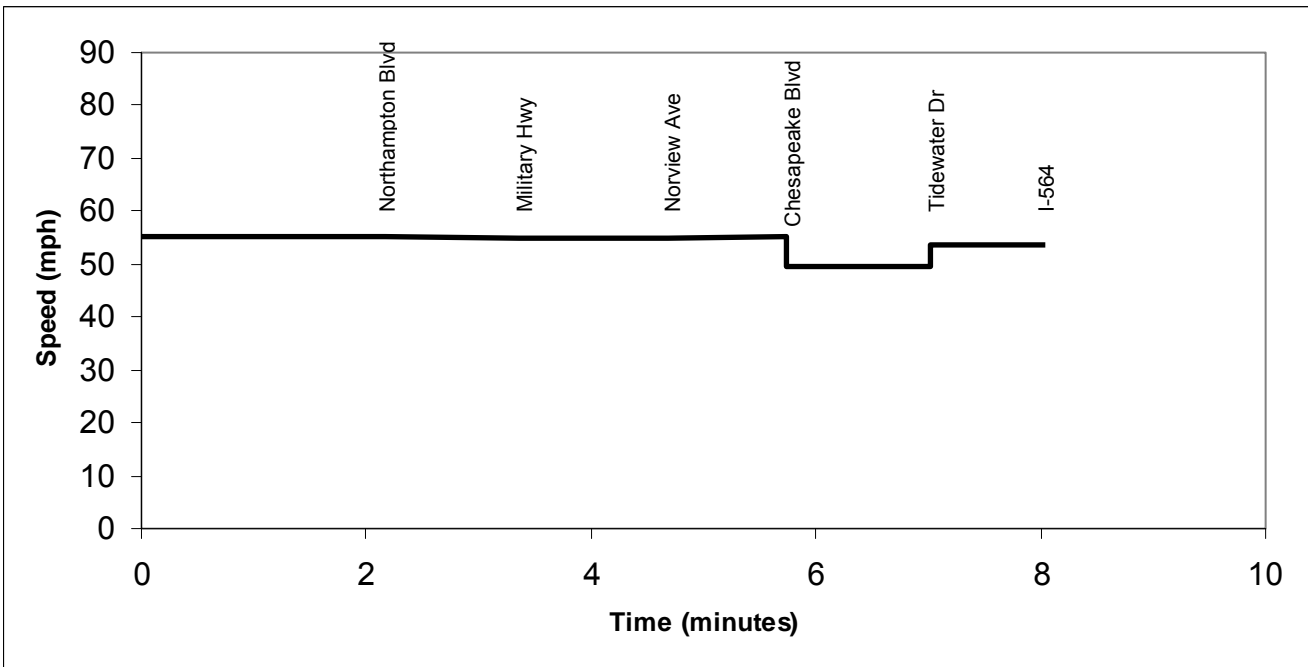
### I-64 WB: I-564 to Settlers Landing Rd – AM Peak Hour



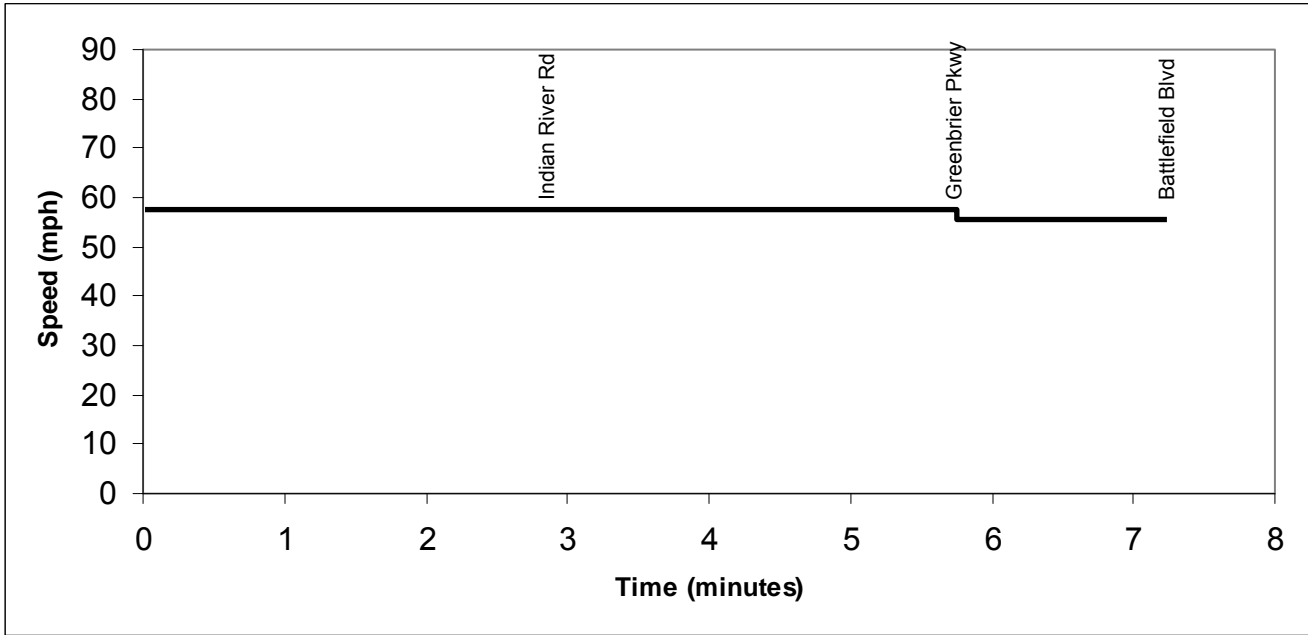
### I-64 EB: I-564 to I-264 – AM Peak Hour



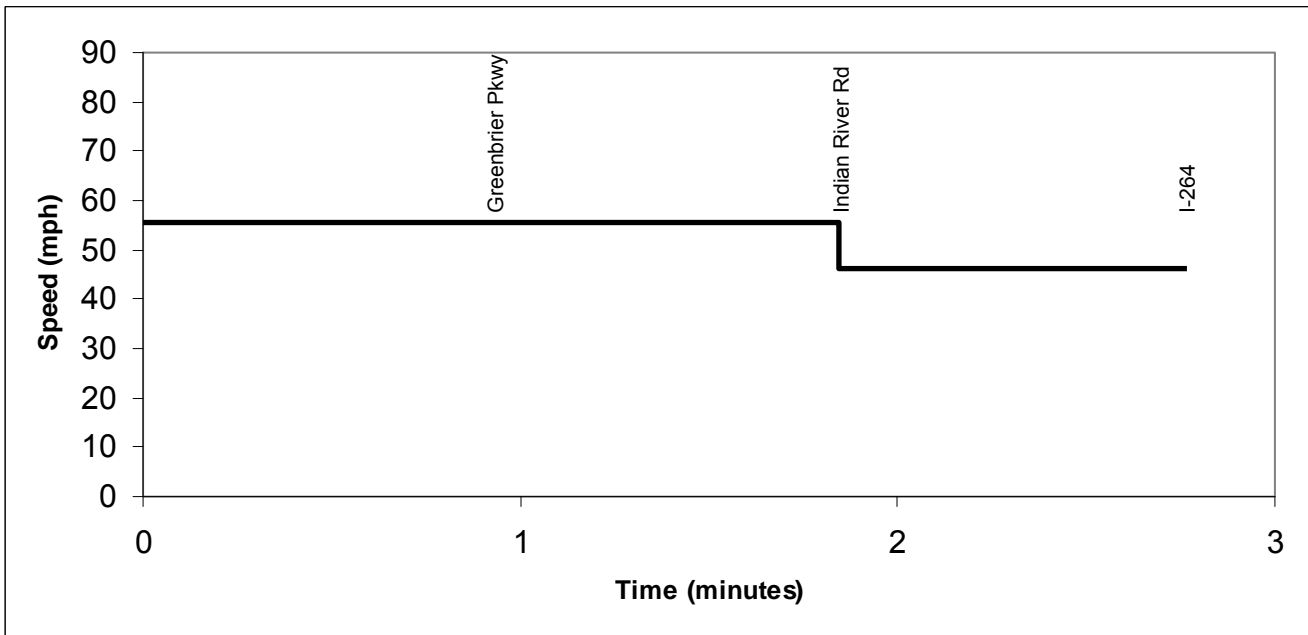
### I-64 WB: I-264 to I-564 – AM Peak Hour



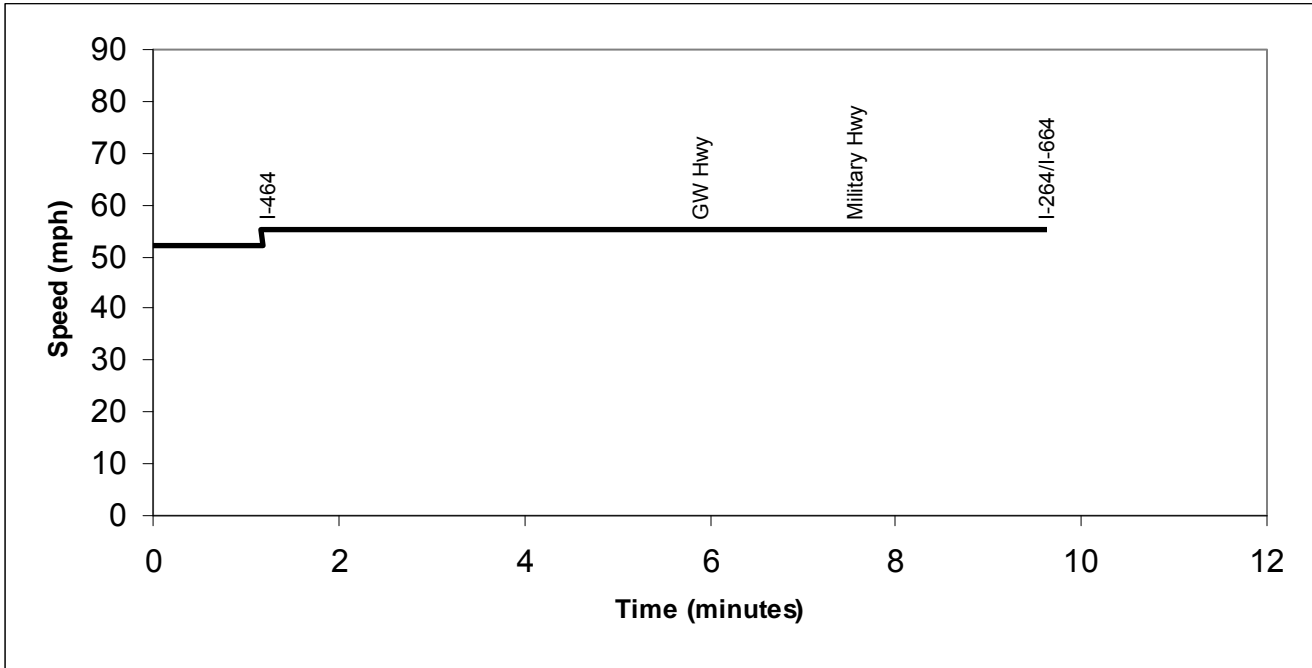
### I-64 EB (Toward Suffolk): I-264 to Battlefield Blvd – AM Peak Hour



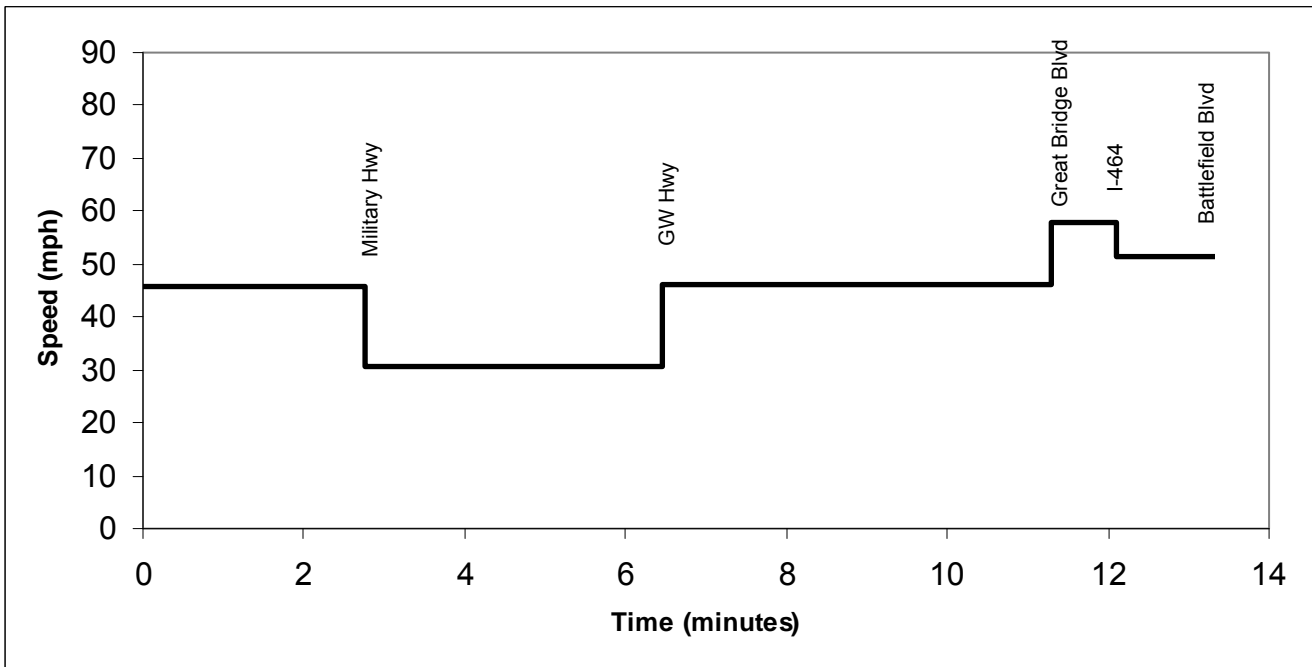
### I-64 WB (Toward Va. Beach): Battlefield Blvd to I-264 – AM Peak Hour



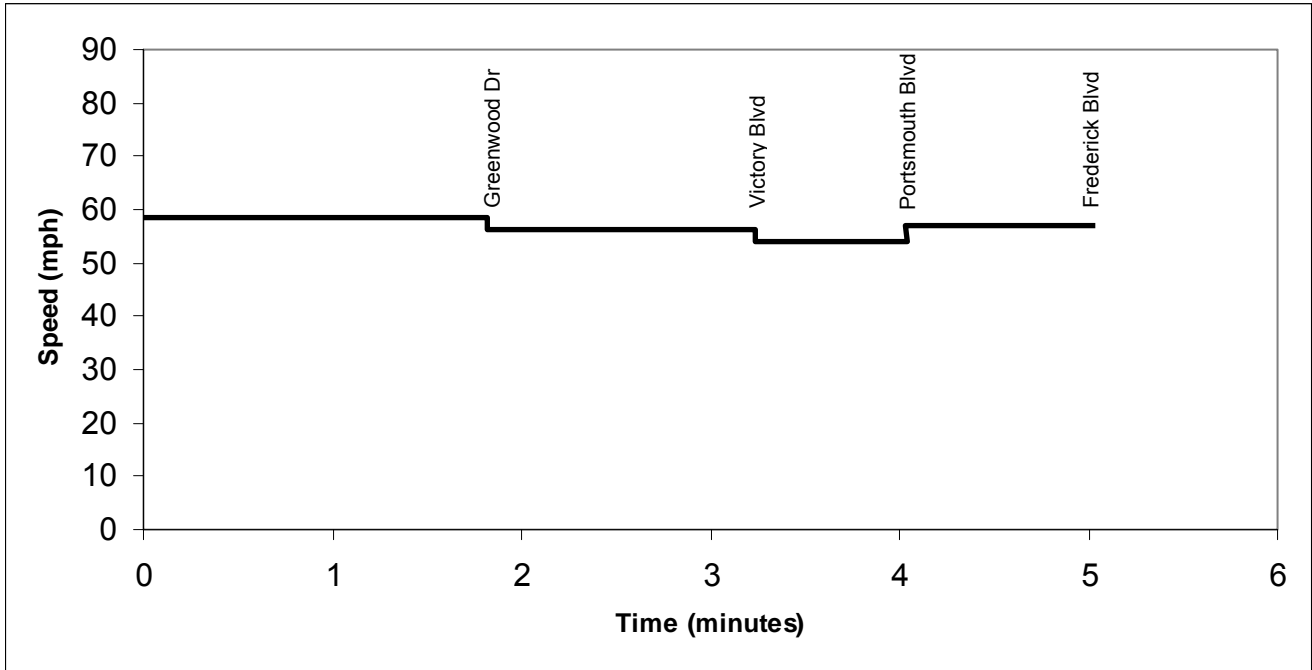
**I-64 EB (Toward Suffolk): Battlefield Blvd to I-264/I-664 – AM Peak Hour**



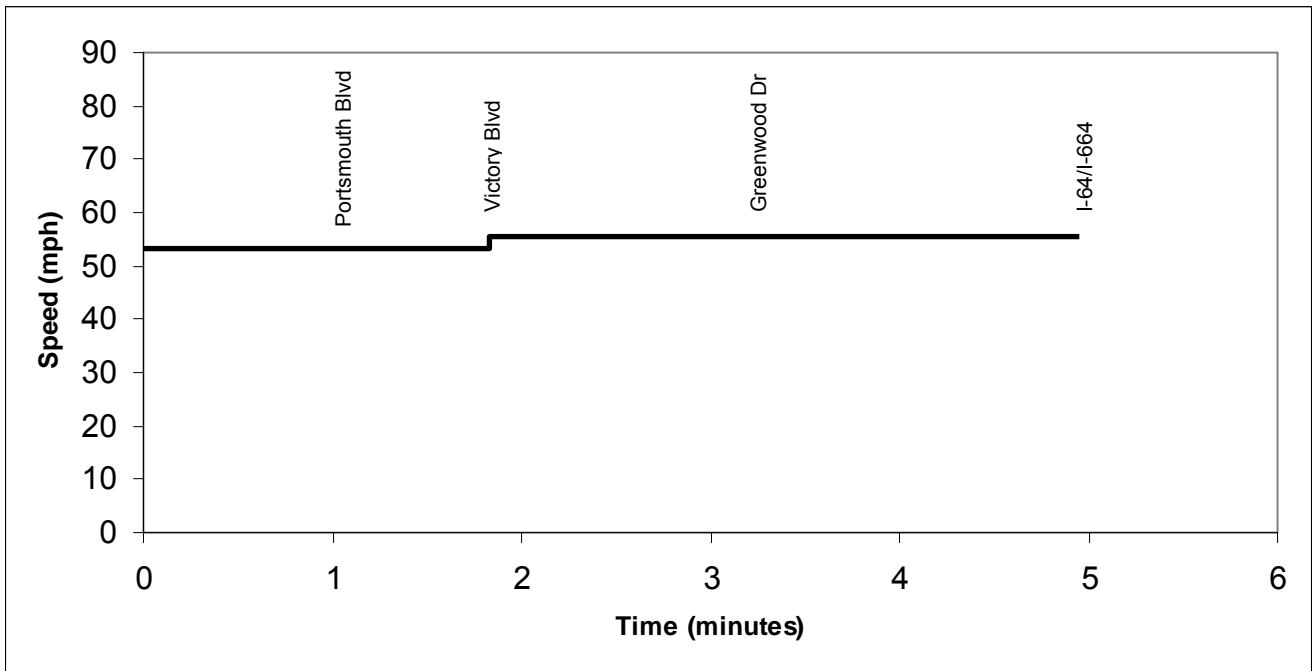
**I-64 WB (Toward Va. Beach): I-264/I-664 to Battlefield Blvd - AM Peak Hour**



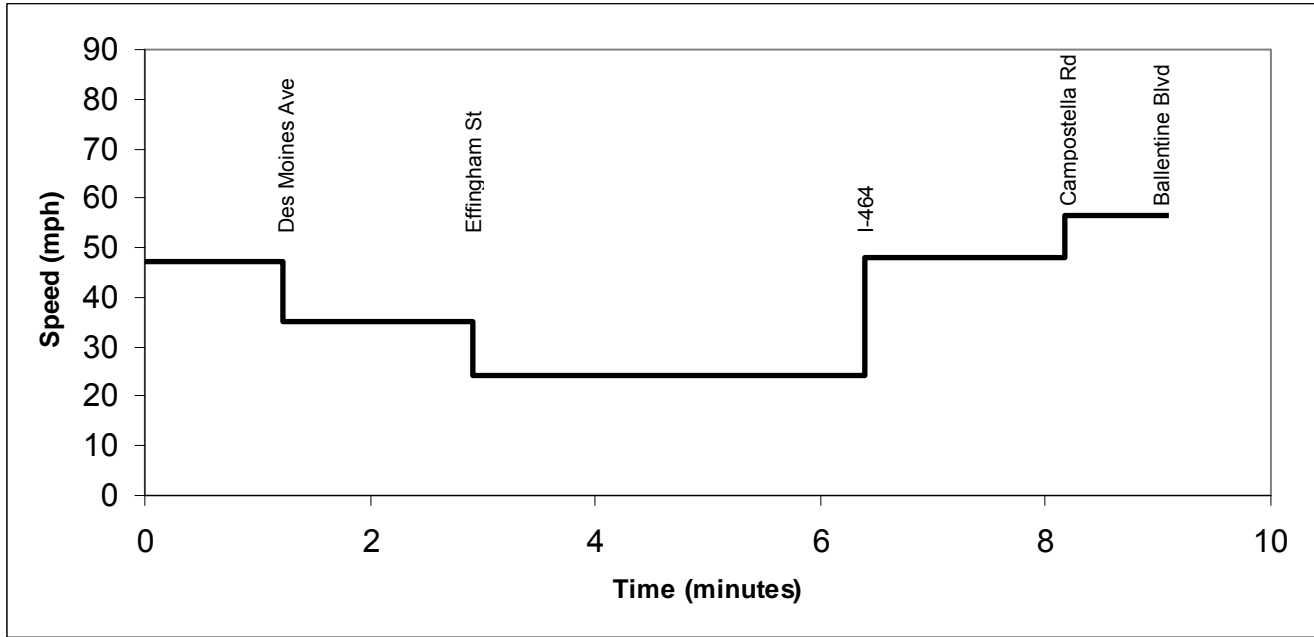
### I-264 EB: I-64/I-664 to Frederick Blvd – AM Peak Hour



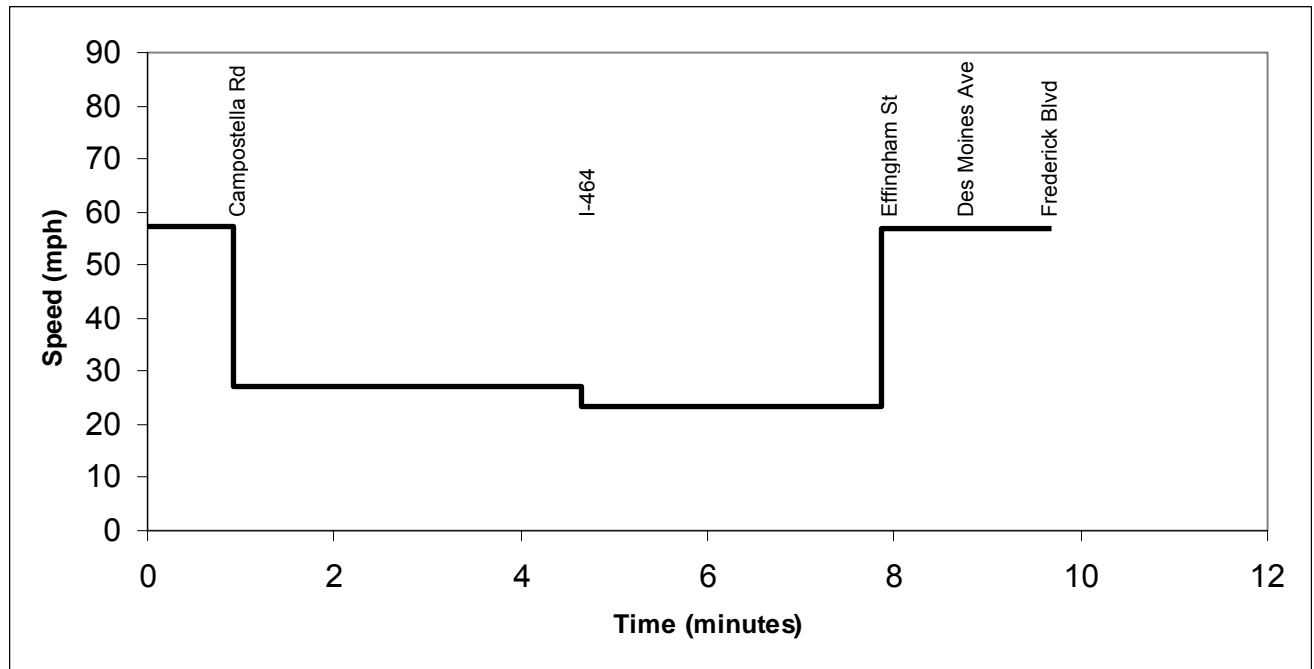
### I-264 WB: Frederick Blvd to I-64/I-664 - AM Peak Hour



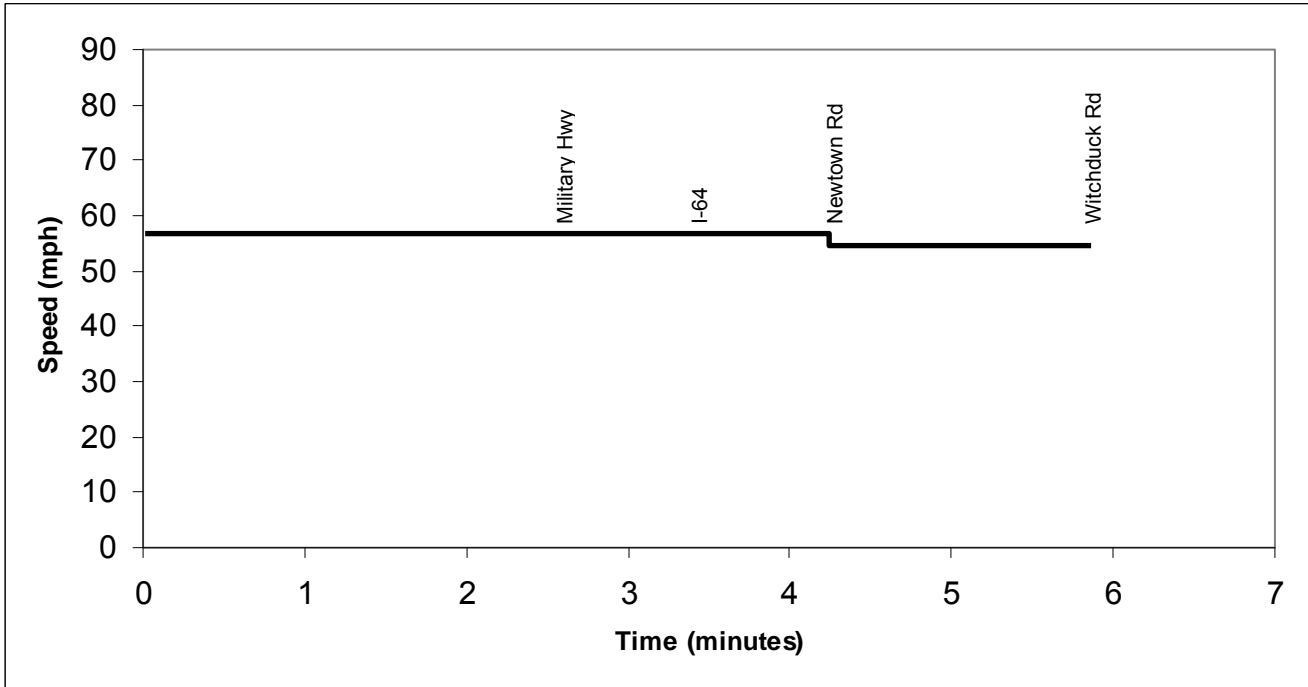
### I-264 EB: Frederick Blvd to Ballentine Blvd – AM Peak Hour



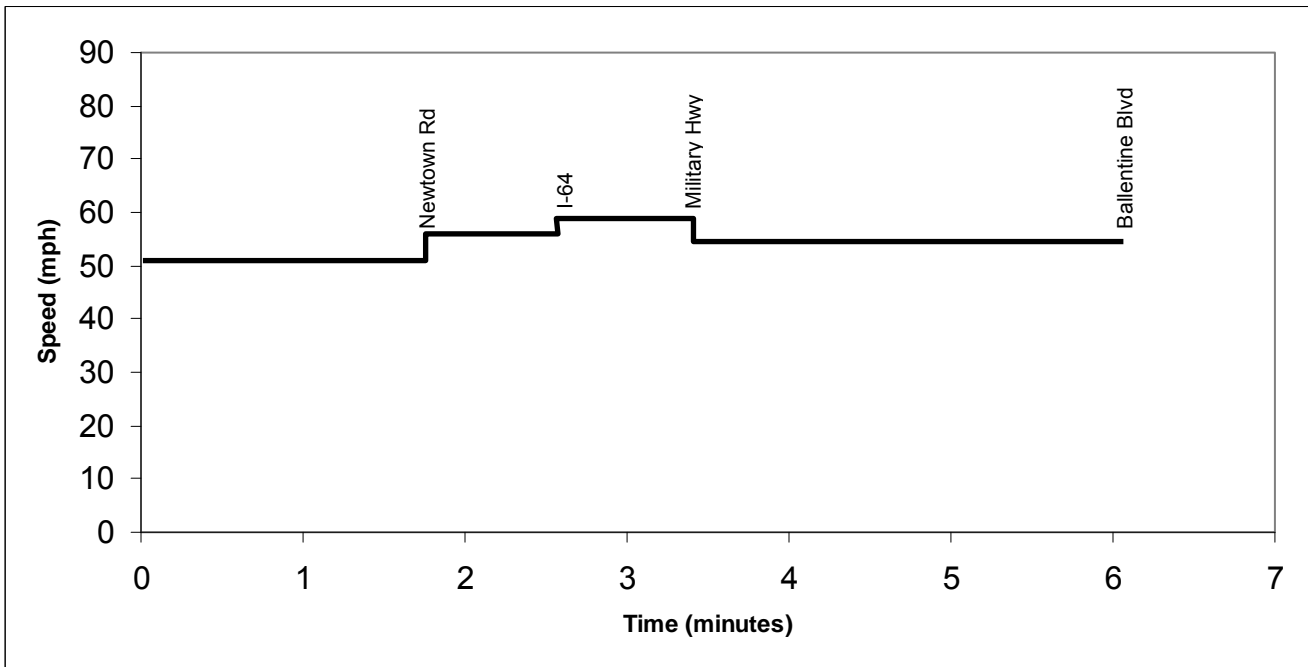
### I-264 WB: Ballentine Blvd to Frederick Blvd - AM Peak Hour



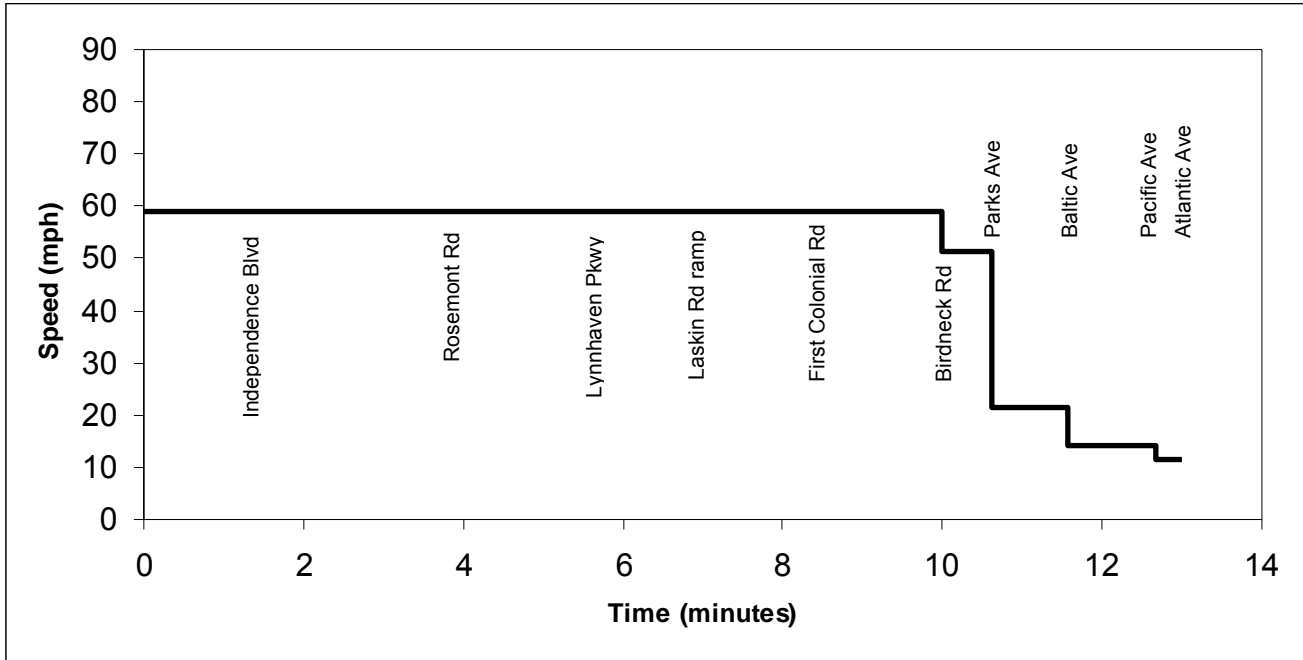
### I-264 EB: Ballentine Blvd to Witchduck Rd – AM Peak Hour



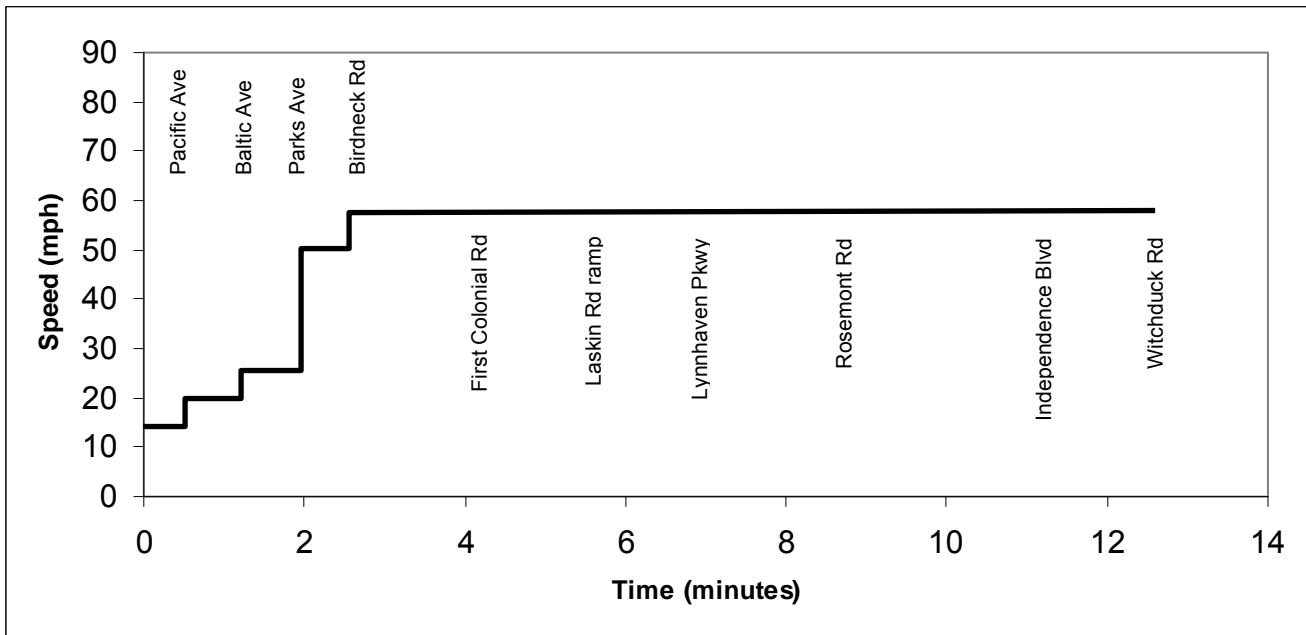
### I-264 WB: Witchduck Rd to Ballentine Blvd - AM Peak Hour



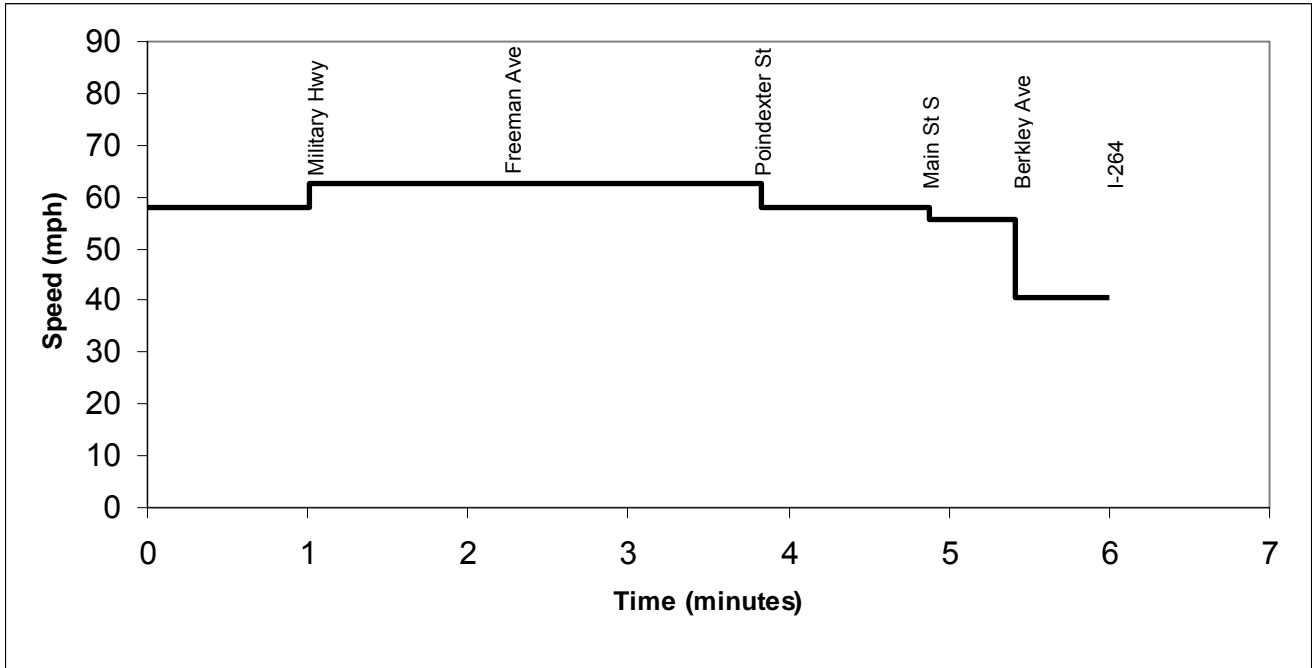
**I-264/21<sup>st</sup> St EB: Witchduck Rd to Atlantic Ave – AM Peak Hour**



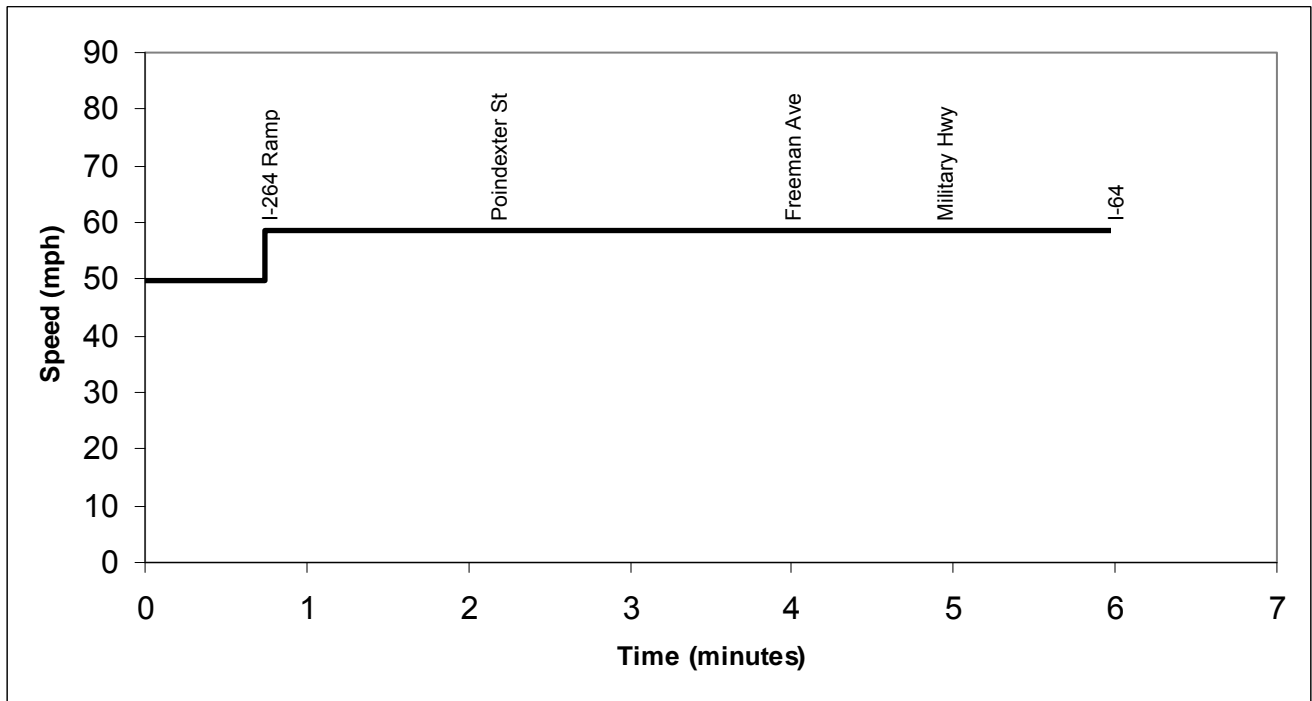
**I-264/22<sup>nd</sup> St WB: Atlantic Ave to Witchduck Rd - AM Peak Hour**



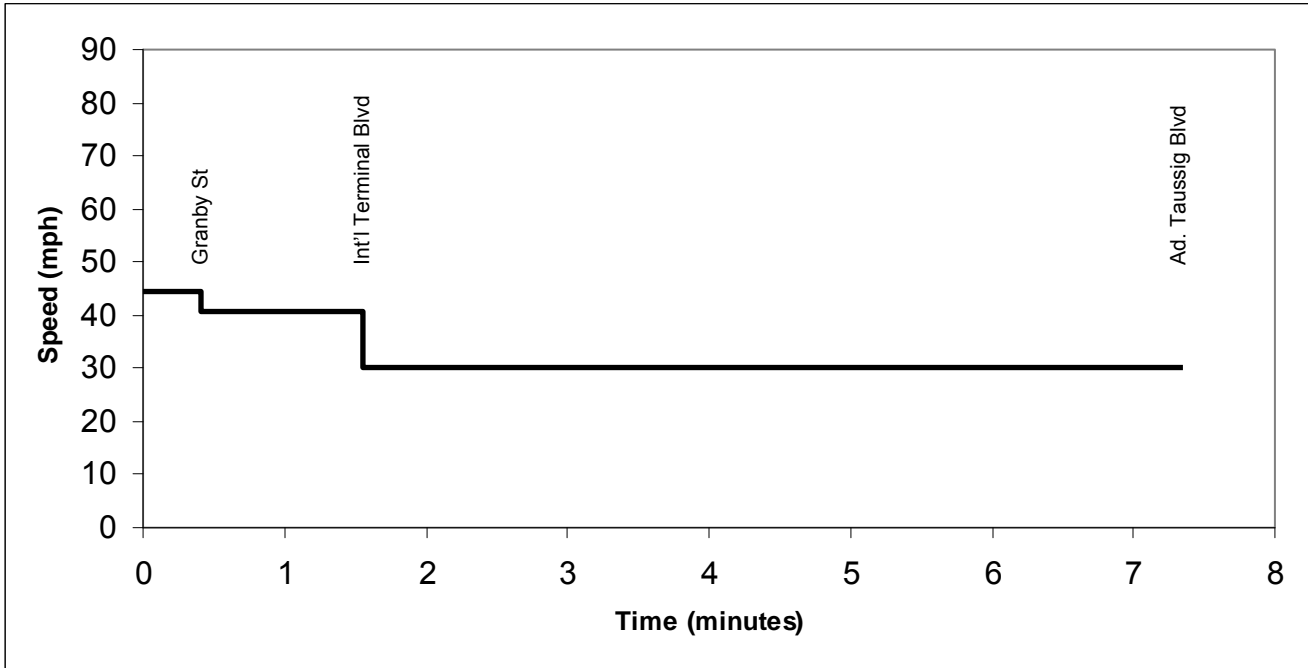
### I-464 Northbound – AM Peak Hour



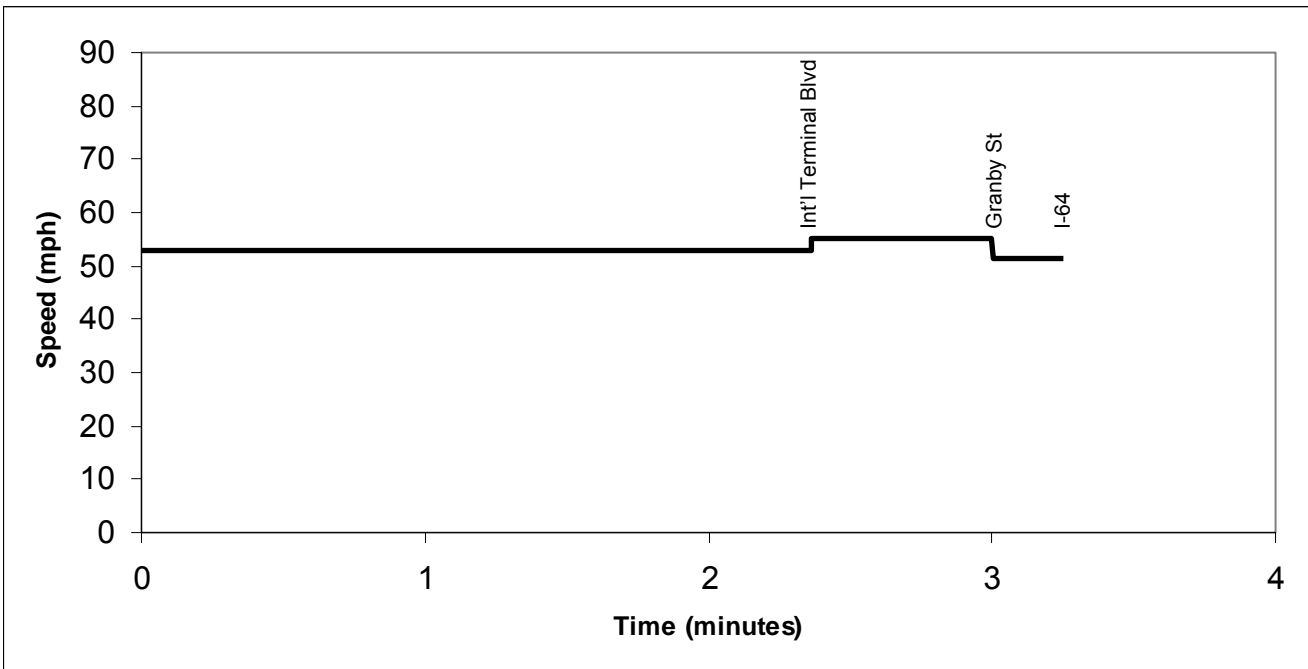
### I-464 Southbound - AM Peak Hour



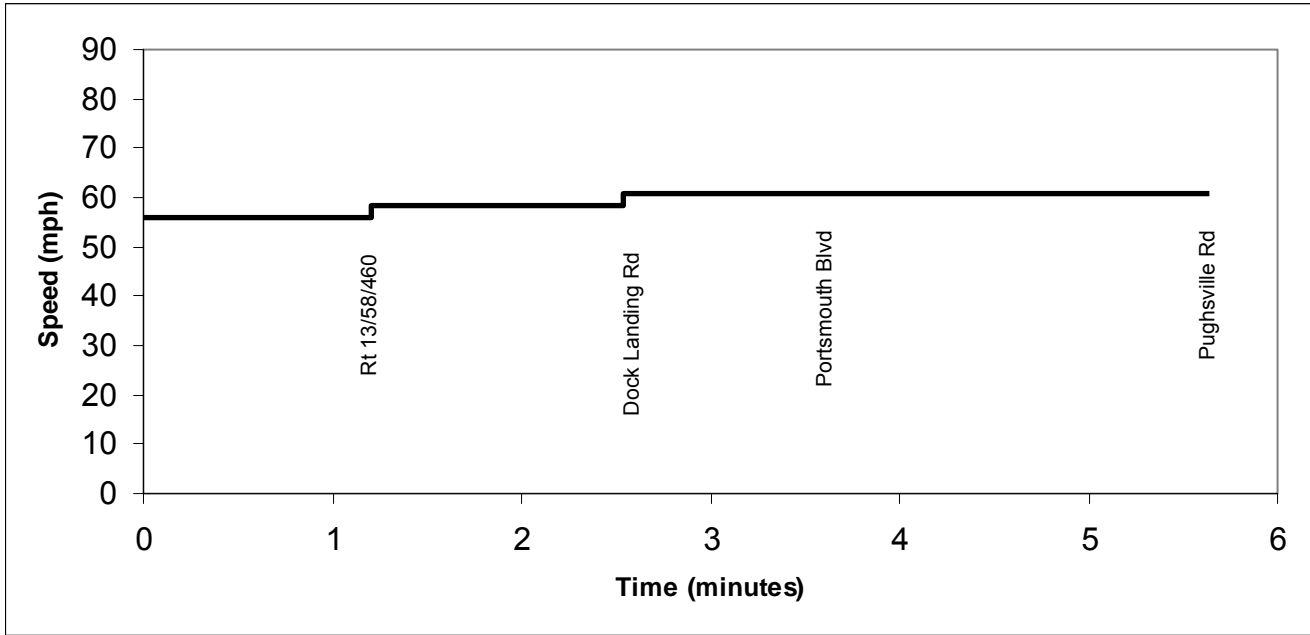
### I-564 Northbound – AM Peak Hour



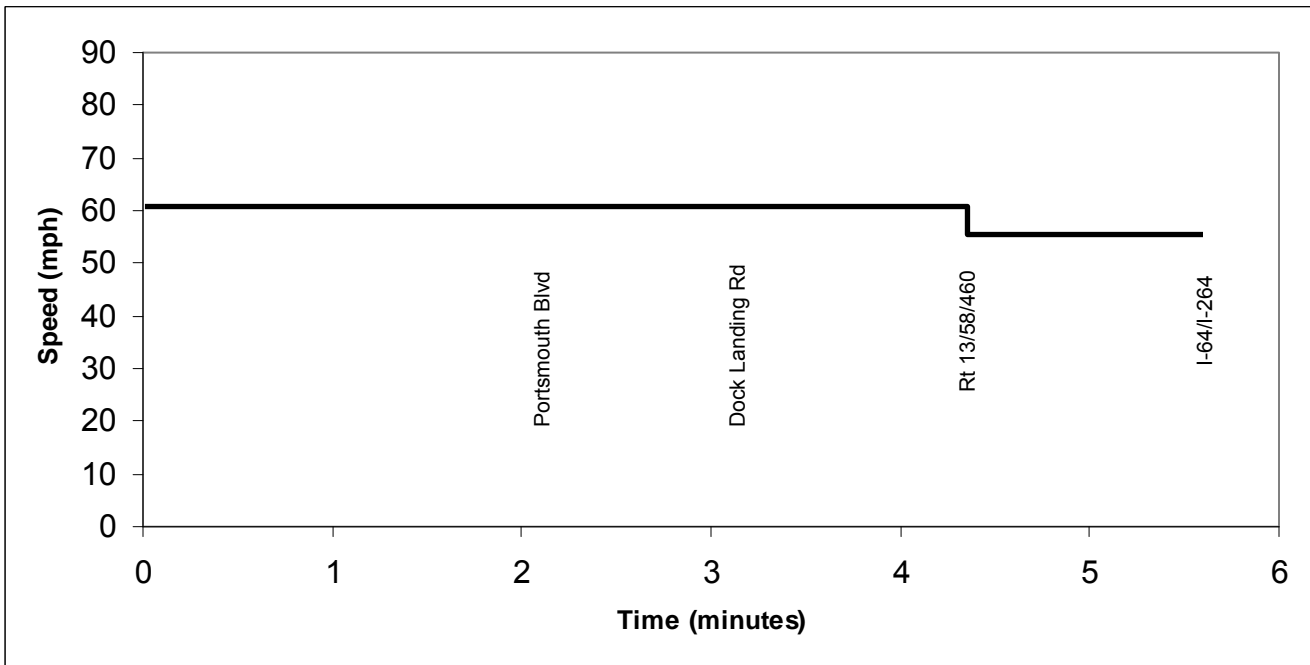
### I-564 Southbound - AM Peak Hour



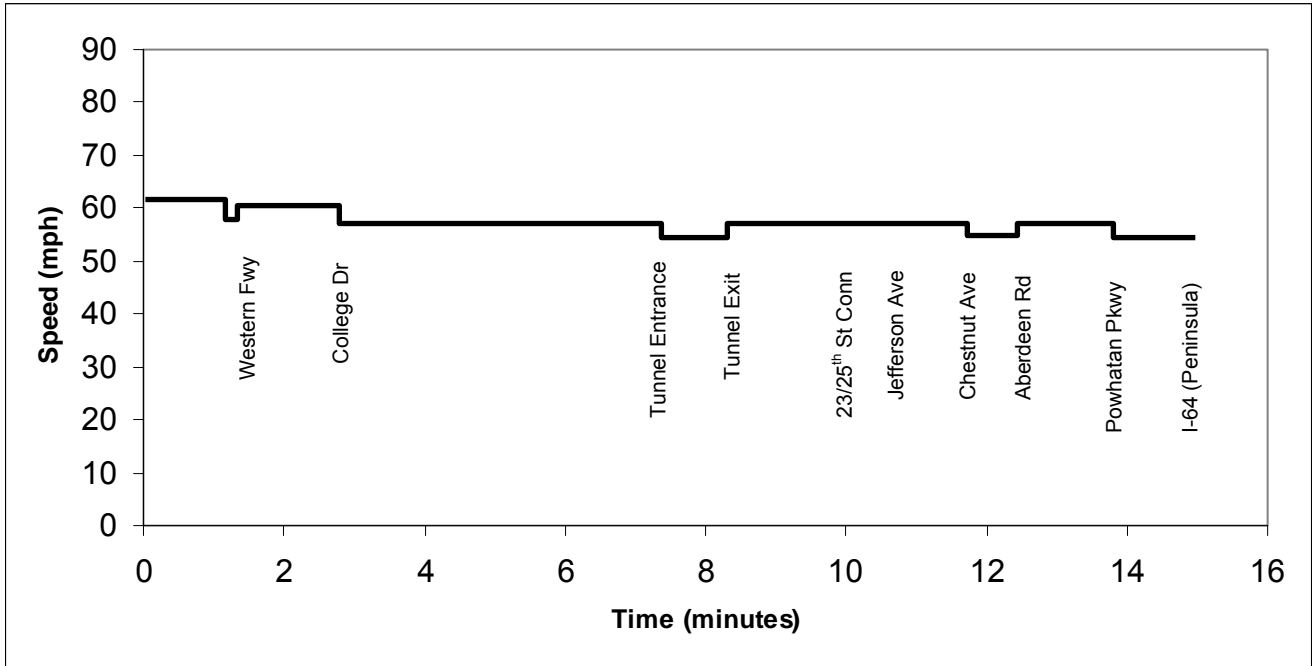
### I-664 NB: I-64/I-264 to Pughsville Rd – AM Peak Hour



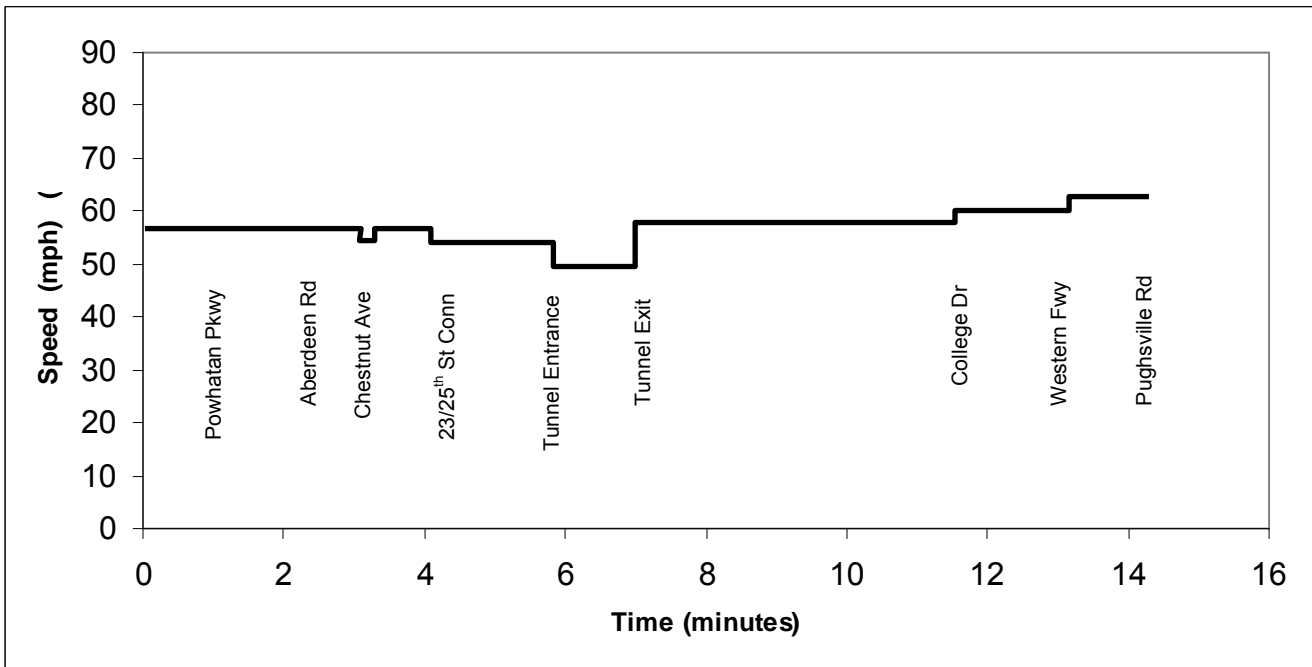
### I-664 SB: Pughsville Rd to I-64/I-264 – AM Peak Hour



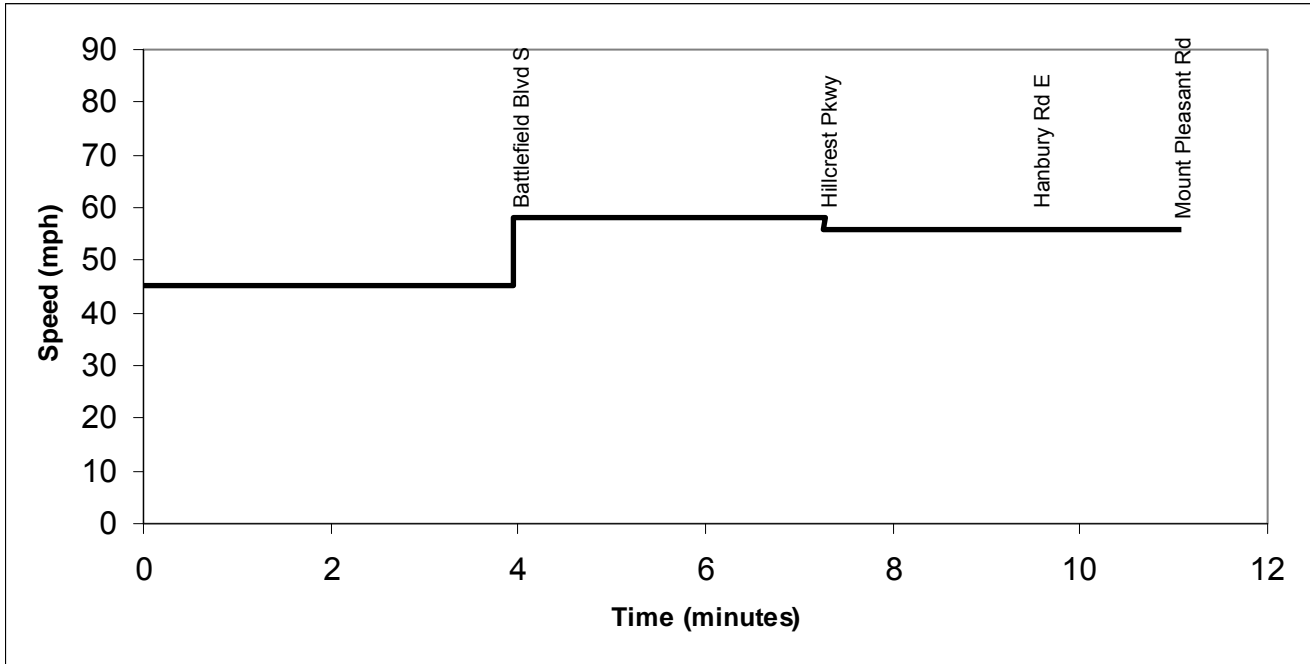
### I-664 NB: Pughsville Rd to I-64 – AM Peak Hour



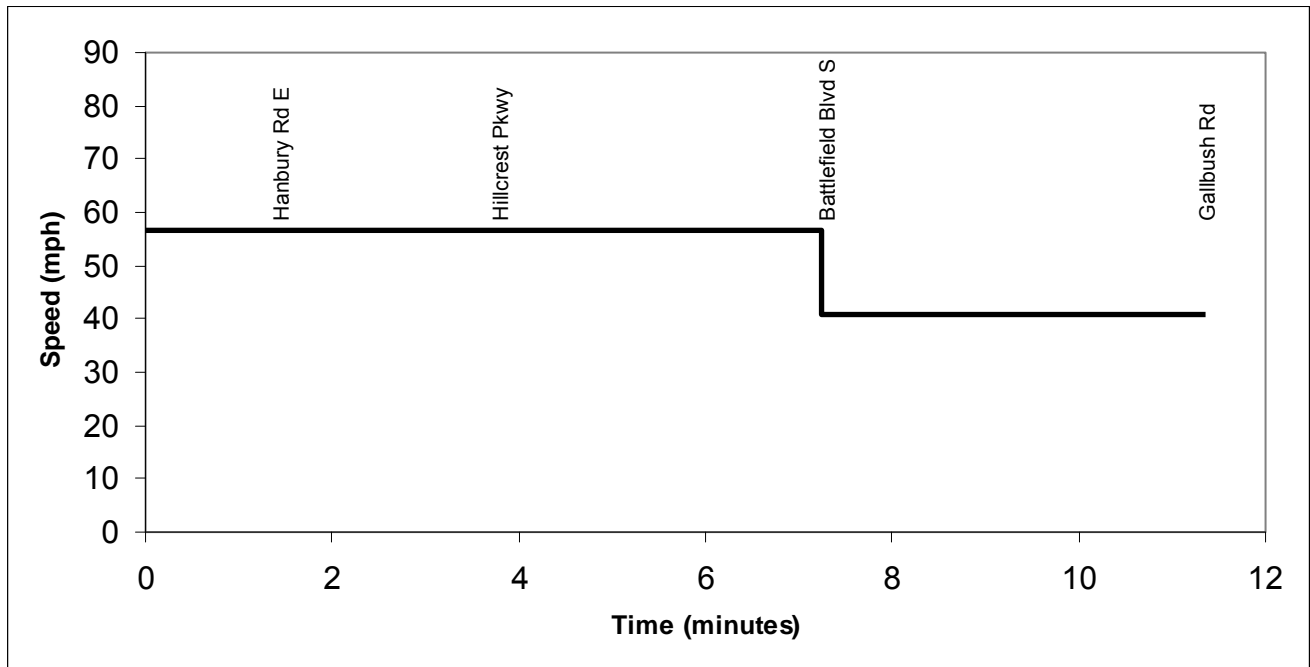
### I-664 SB: I-64 to Pughsville Rd – AM Peak Hour



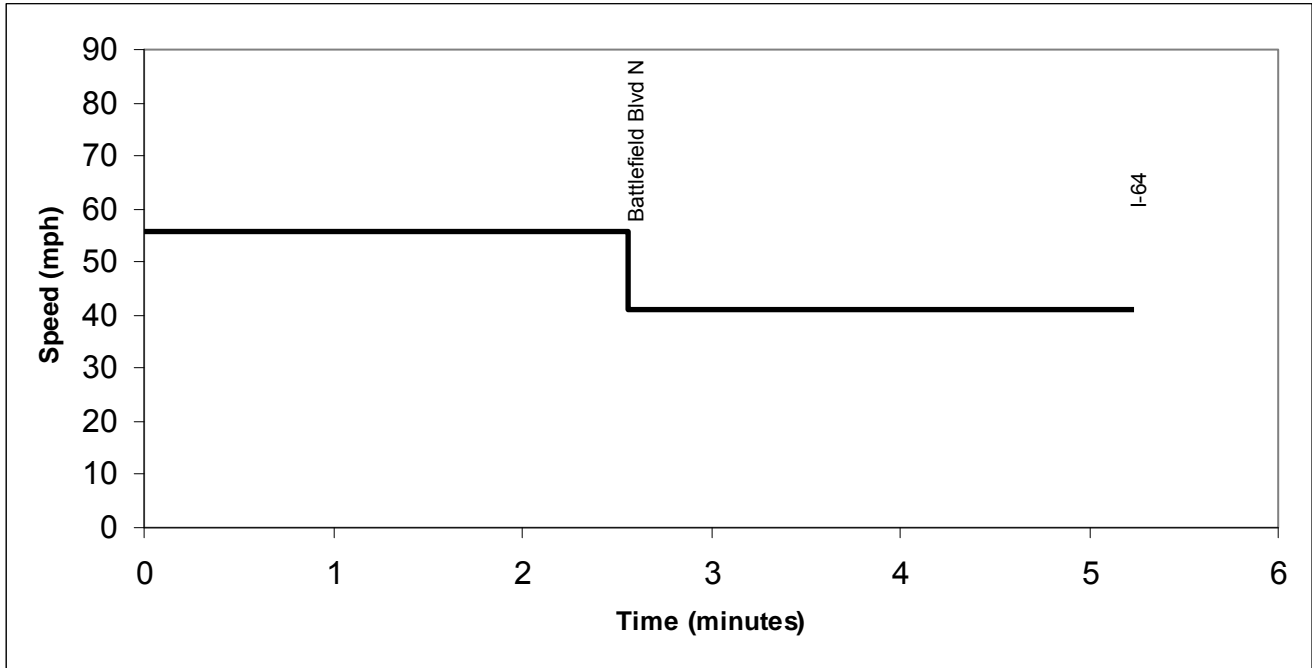
### Chesapeake Exp NB: Gallbush Rd to Mt Pleasant Rd – AM Peak Hour



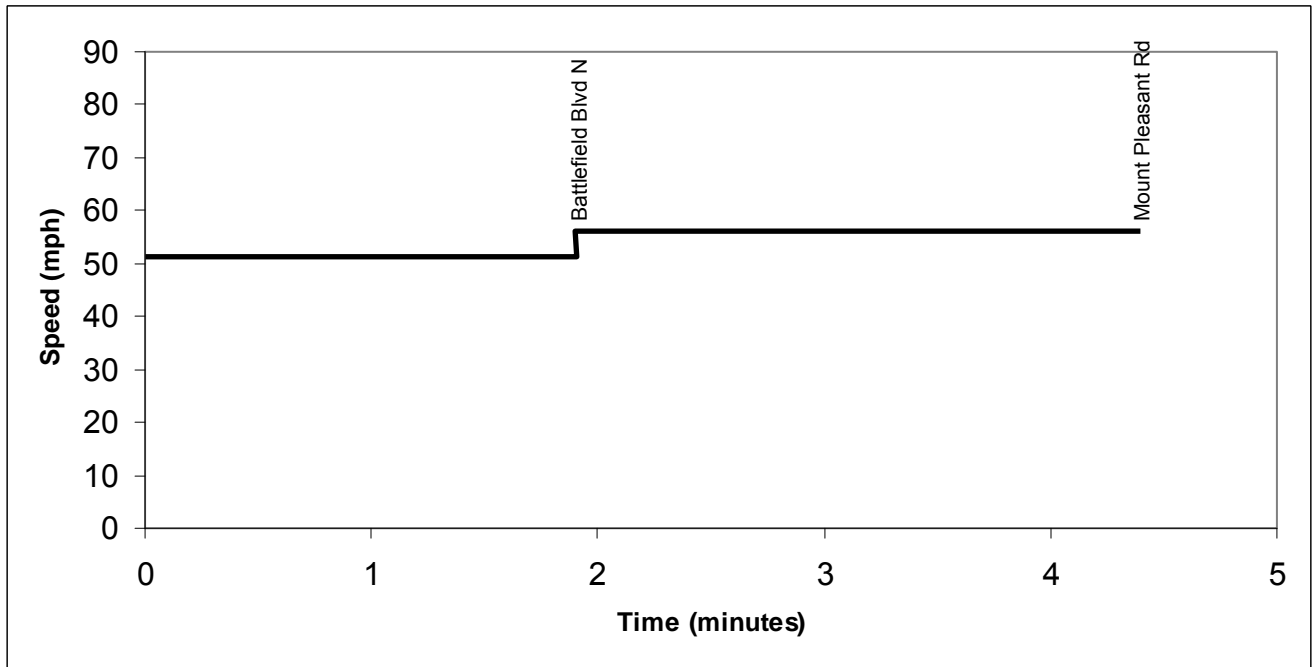
### Chesapeake Exp SB: Mt Pleasant Rd to Gallbush Rd – AM Peak Hour



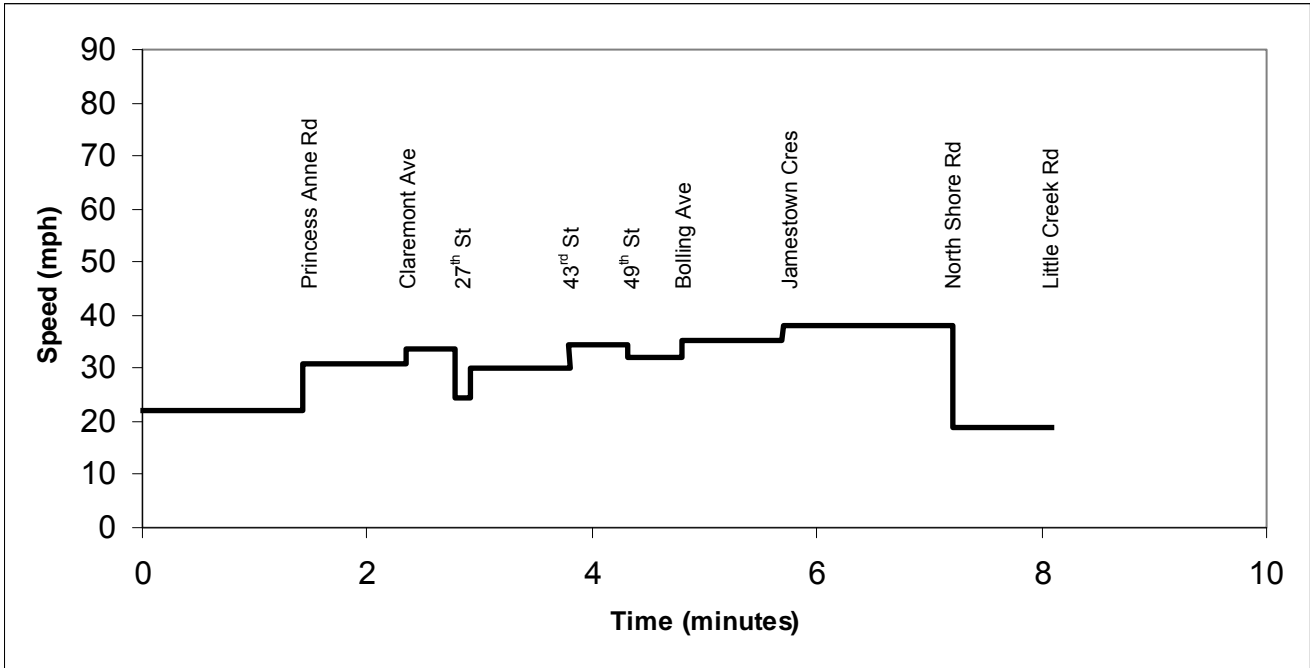
### Chesapeake Exp NB: Mt Pleasant Rd to I-64 – AM Peak Hour



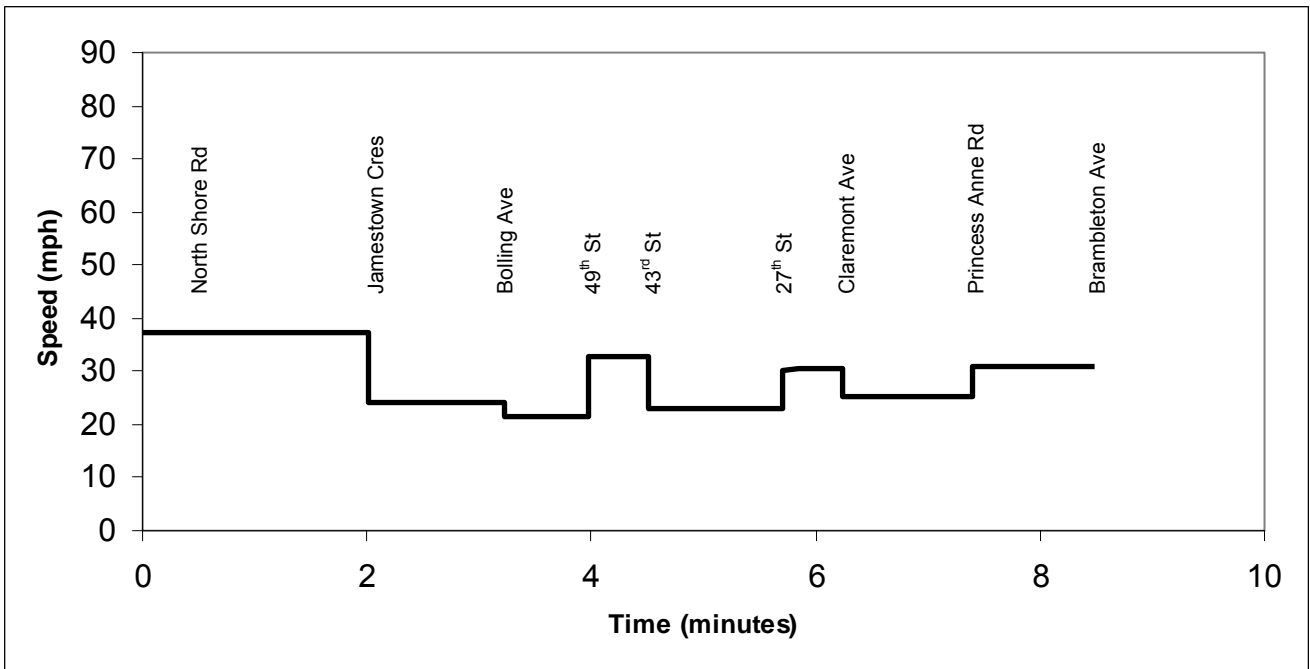
### Chesapeake Exp SB: I-64 to Mt Pleasant Rd – AM Peak Hour



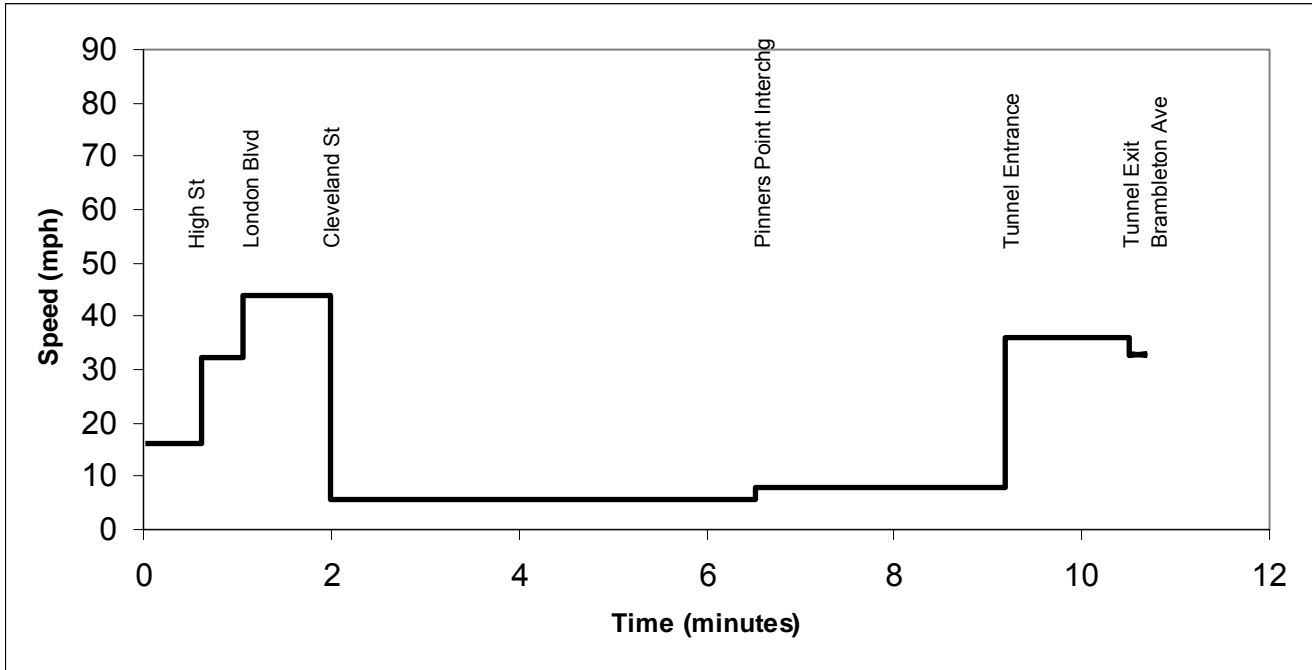
### Hampton Blvd NB: Brambleton Ave to Little Creek Rd – AM Peak Hour



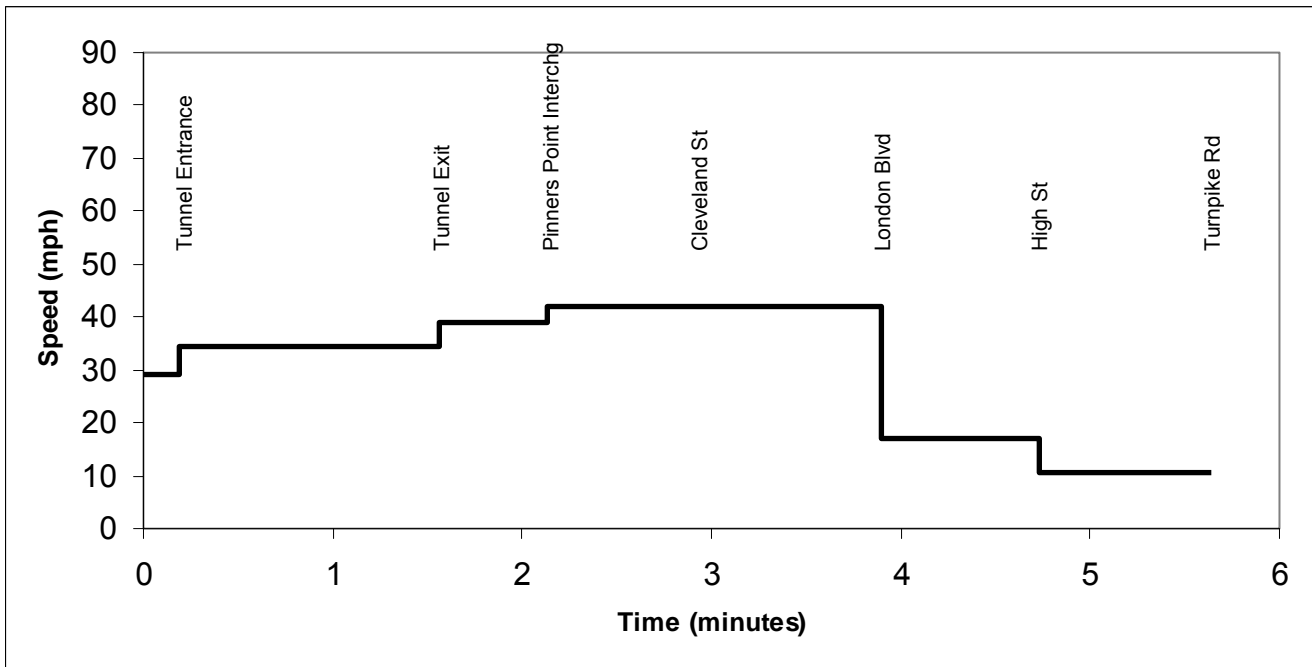
### Hampton Blvd SB: Little Creek Rd to Brambleton Ave – AM Peak Hour



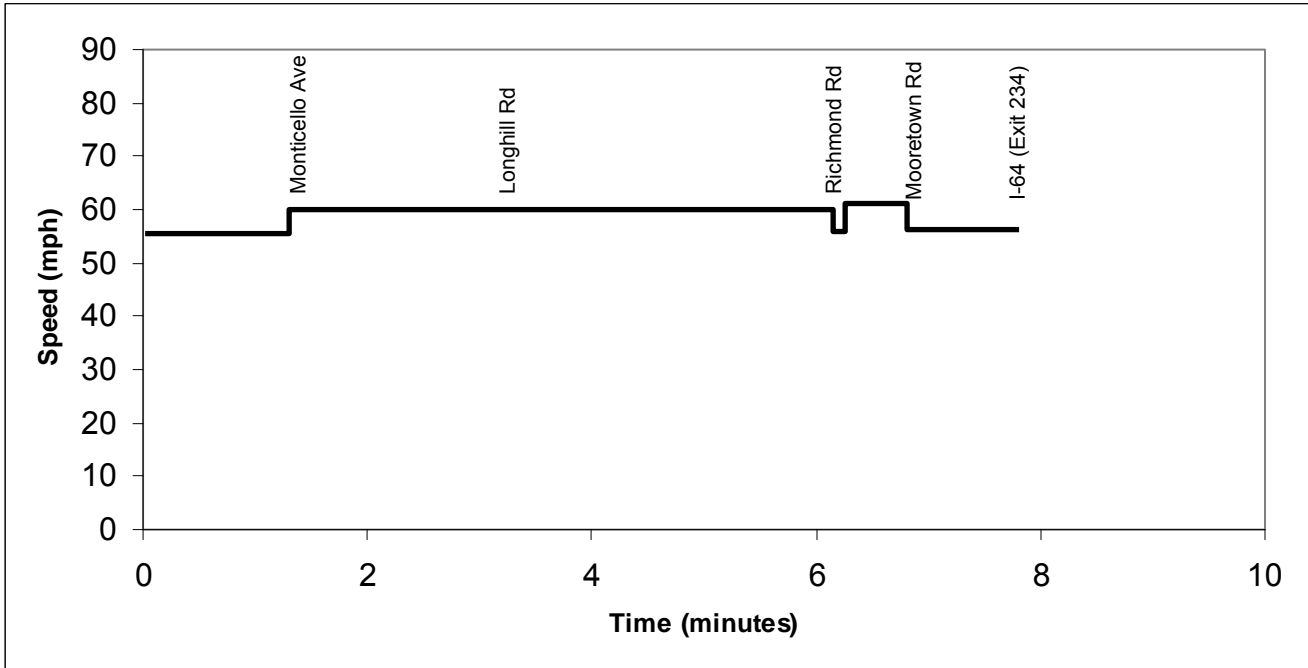
### Midtown Tunnel/MLK Fwy NB: Turnpike Rd to Brambleton Ave – AM Peak Hour



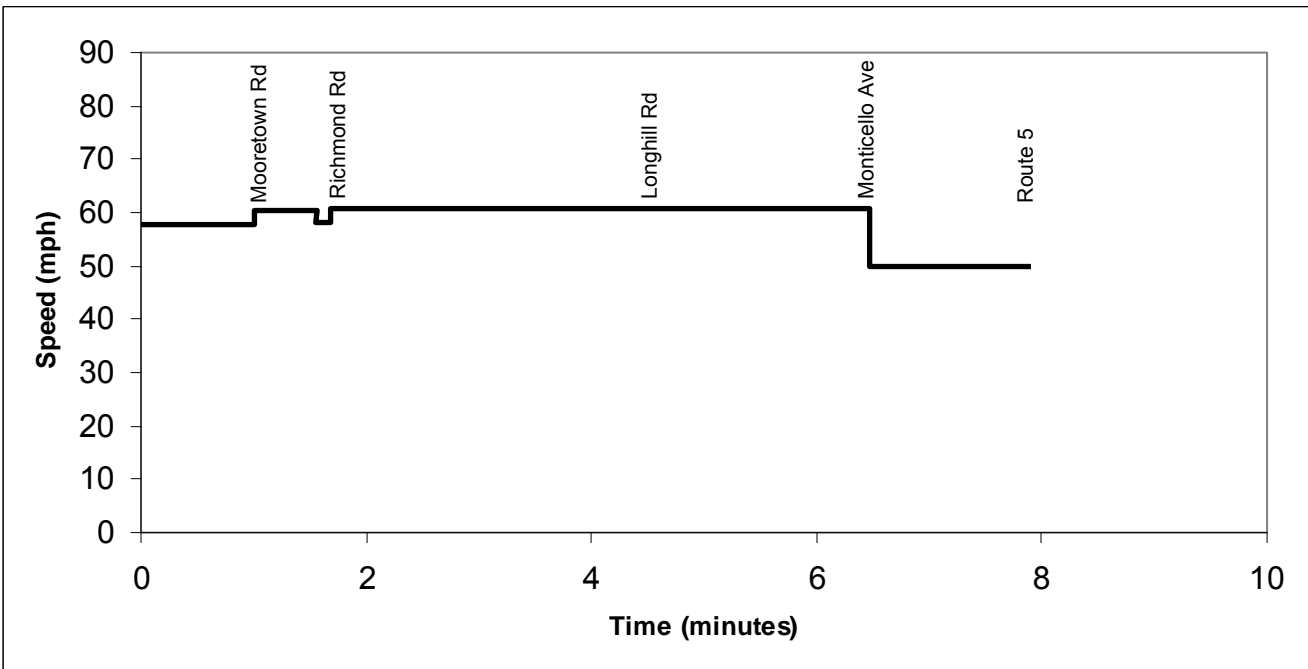
### Midtown Tunnel/MLK Fwy SB: Brambleton Ave to Turnpike Rd – AM Peak Hour



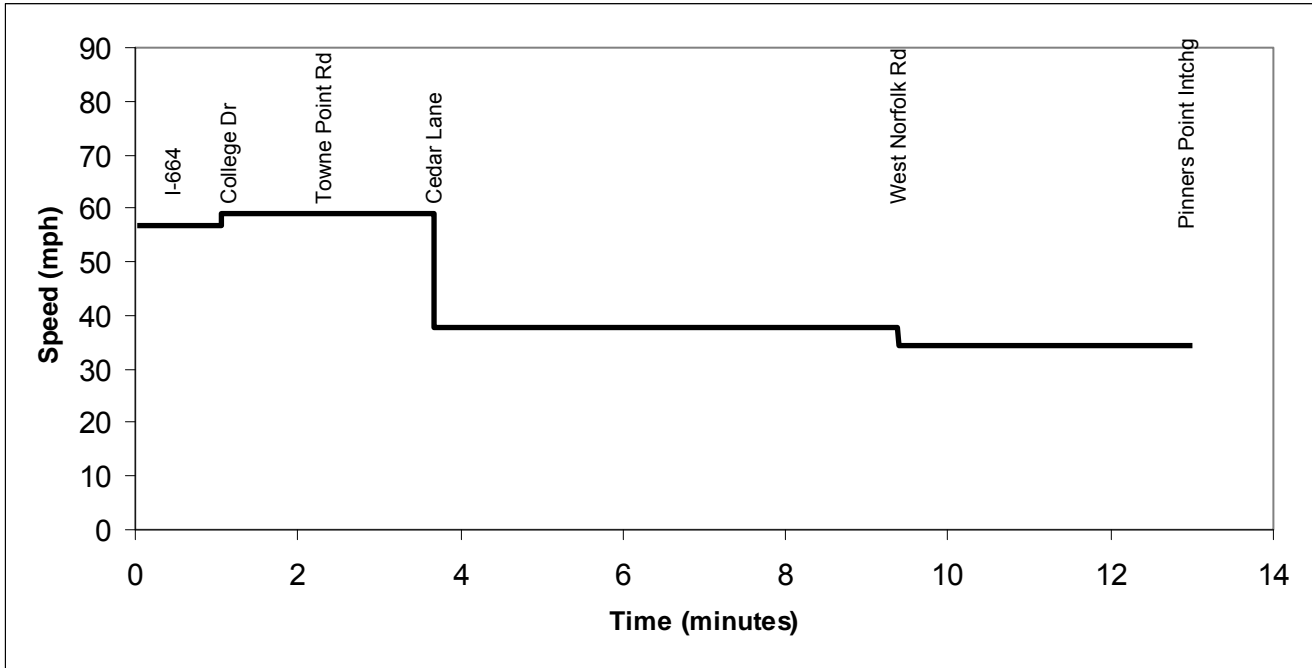
### Route 199 NB: Route 5 to I-64 (exit 234) – AM Peak Hour



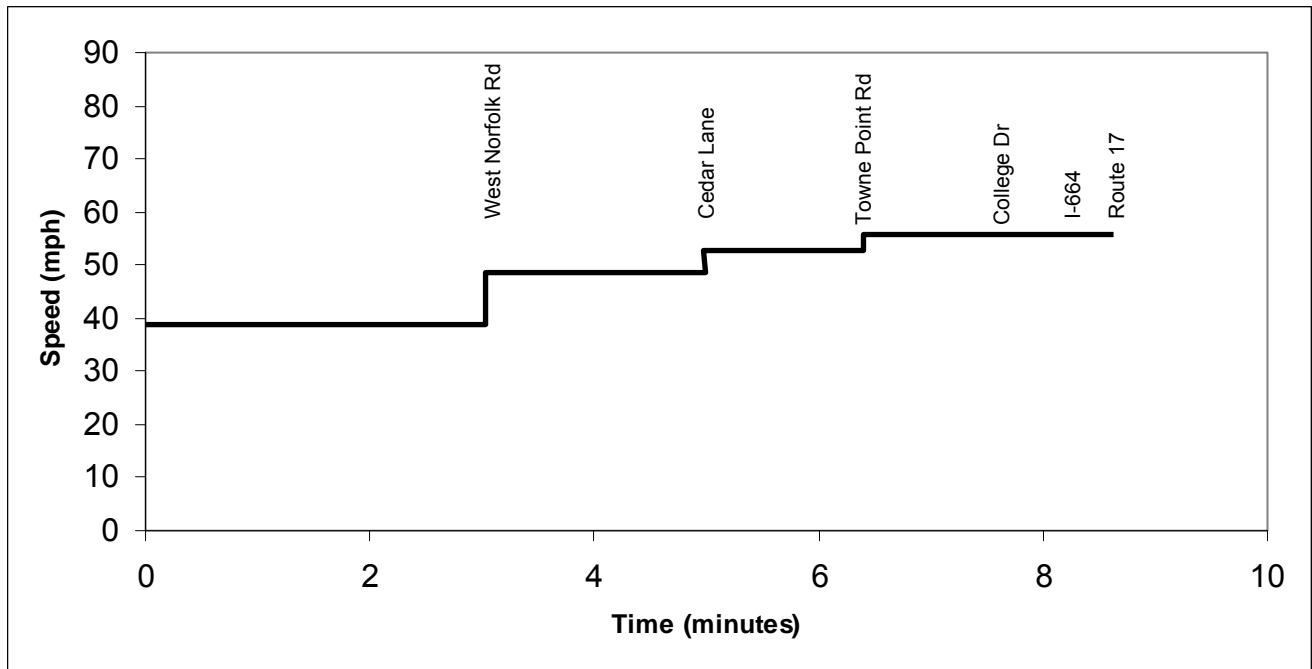
### Route 199 SB: I-64 (exit 234) to Route 5 – AM Peak Hour



### Western Freeway Eastbound - AM Peak Hour



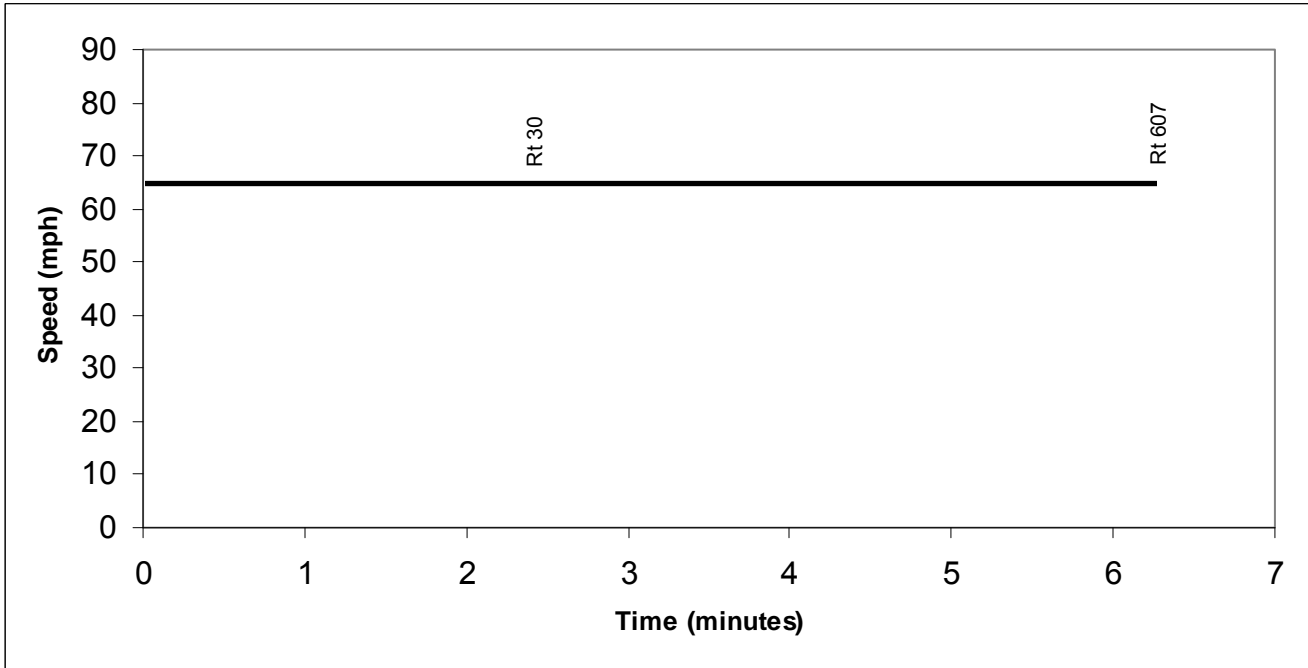
### Western Freeway Westbound - AM Peak Hour



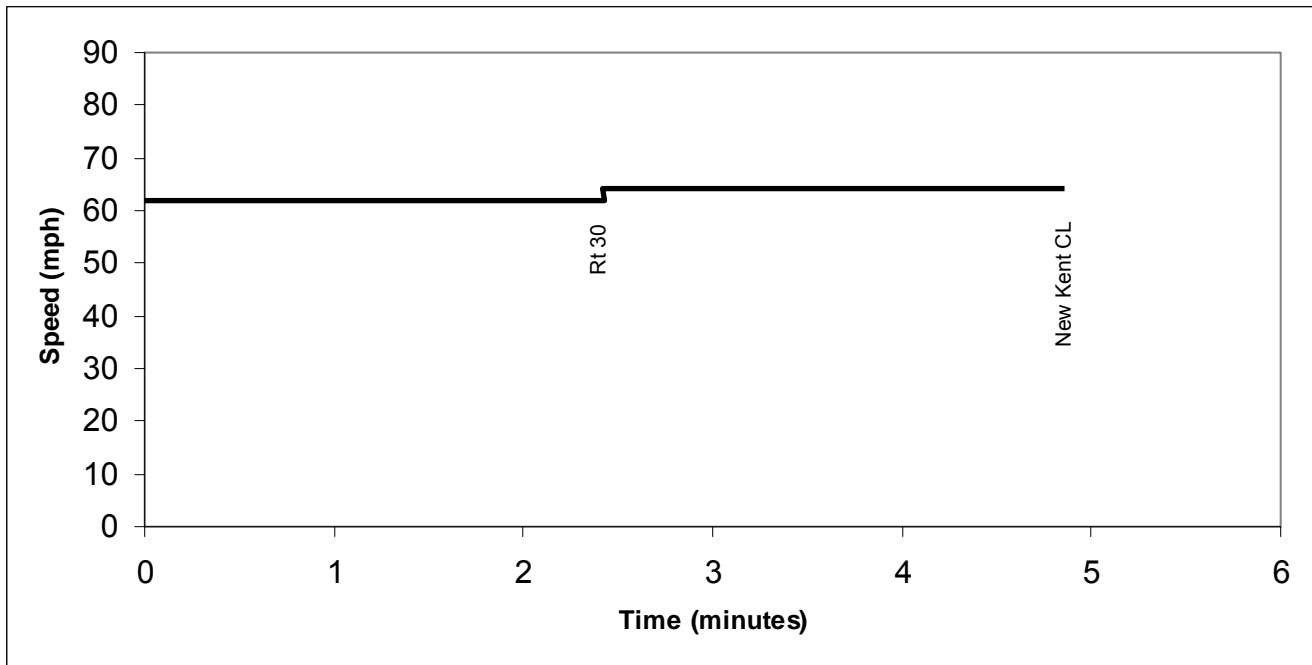
## Freeway Speed Profiles

### PM Peak Hour

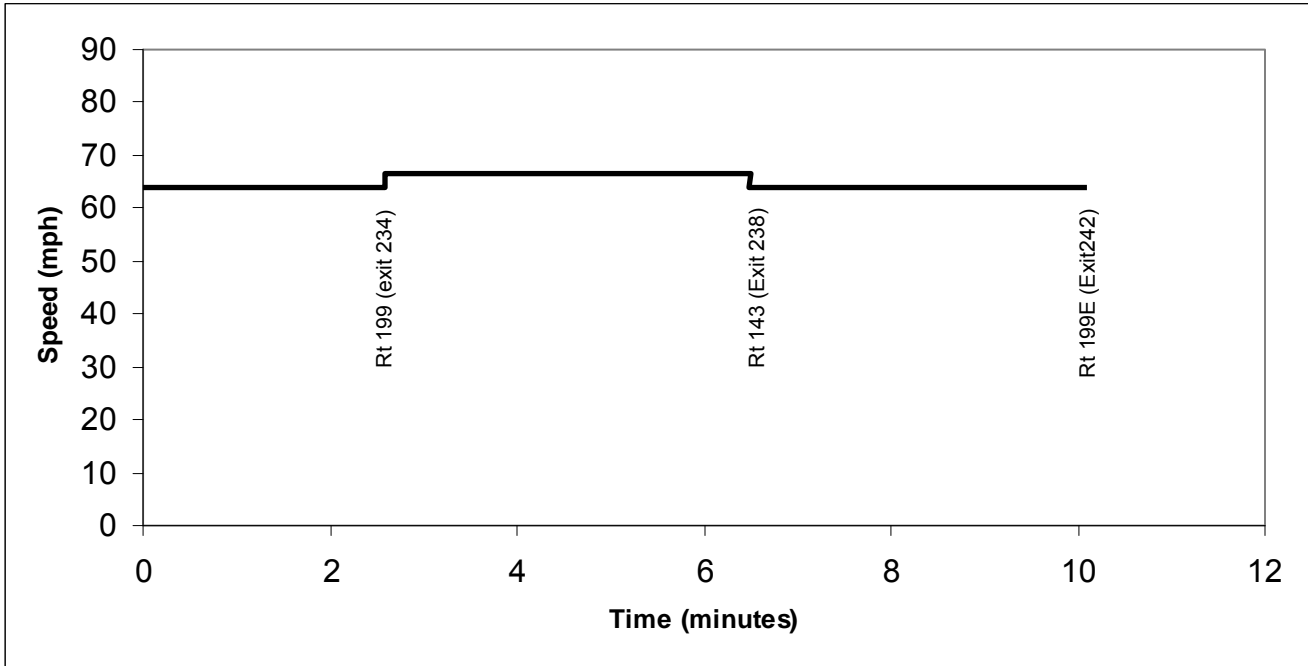
### I-64 EB: New Kent CL to Rt 607 (Croaker Rd) – PM Peak Hour



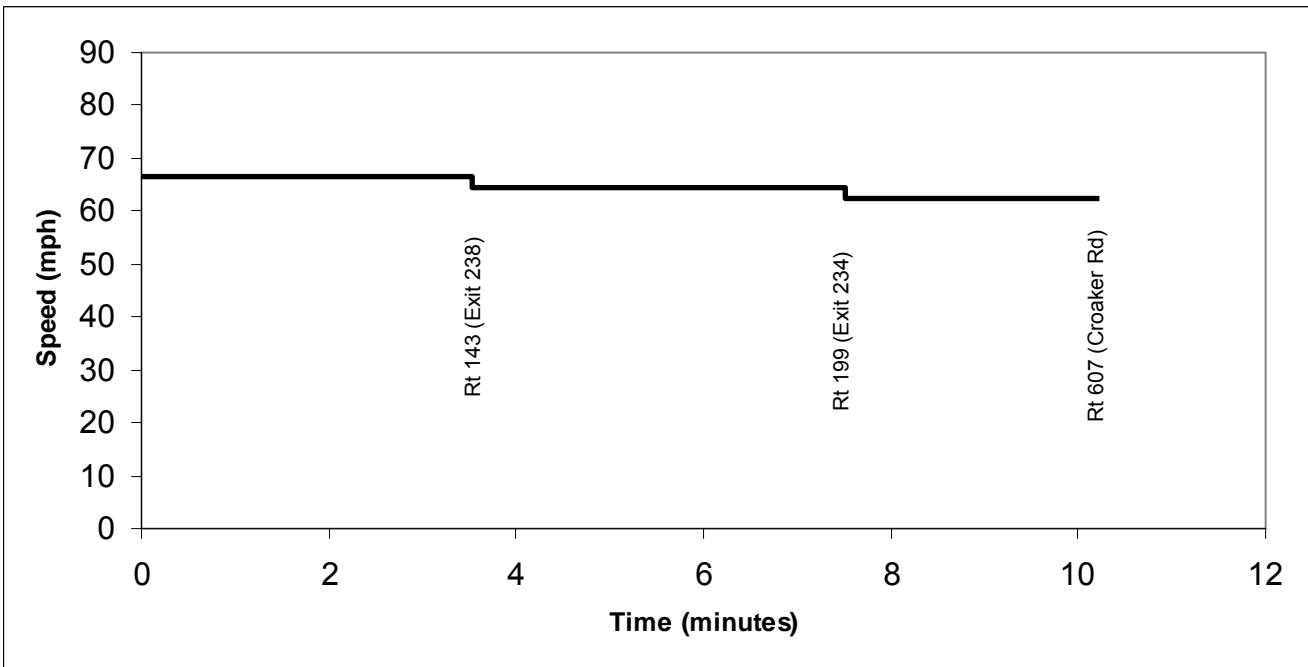
### I-64 WB: Rt 607 (Croaker Rd) to New Kent CL – PM Peak Hour



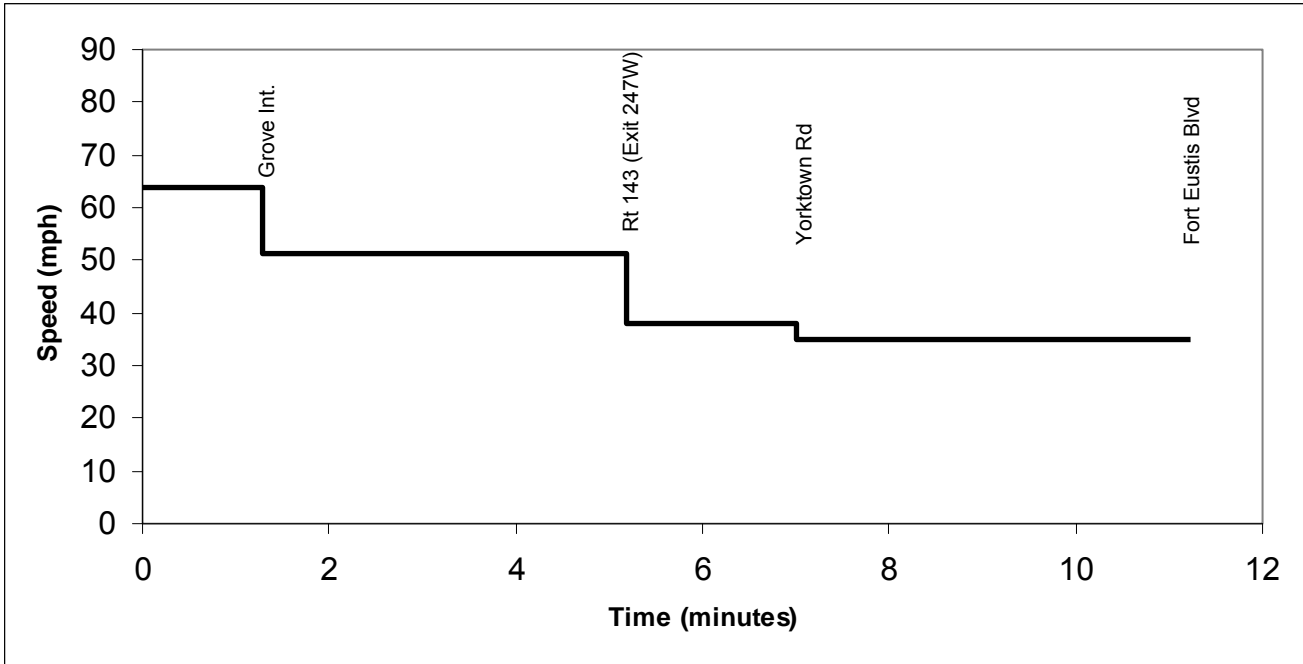
### I-64 EB: Rt 607 (Croaker Rd) to Rt 199 east (exit 242) – PM Peak Hour



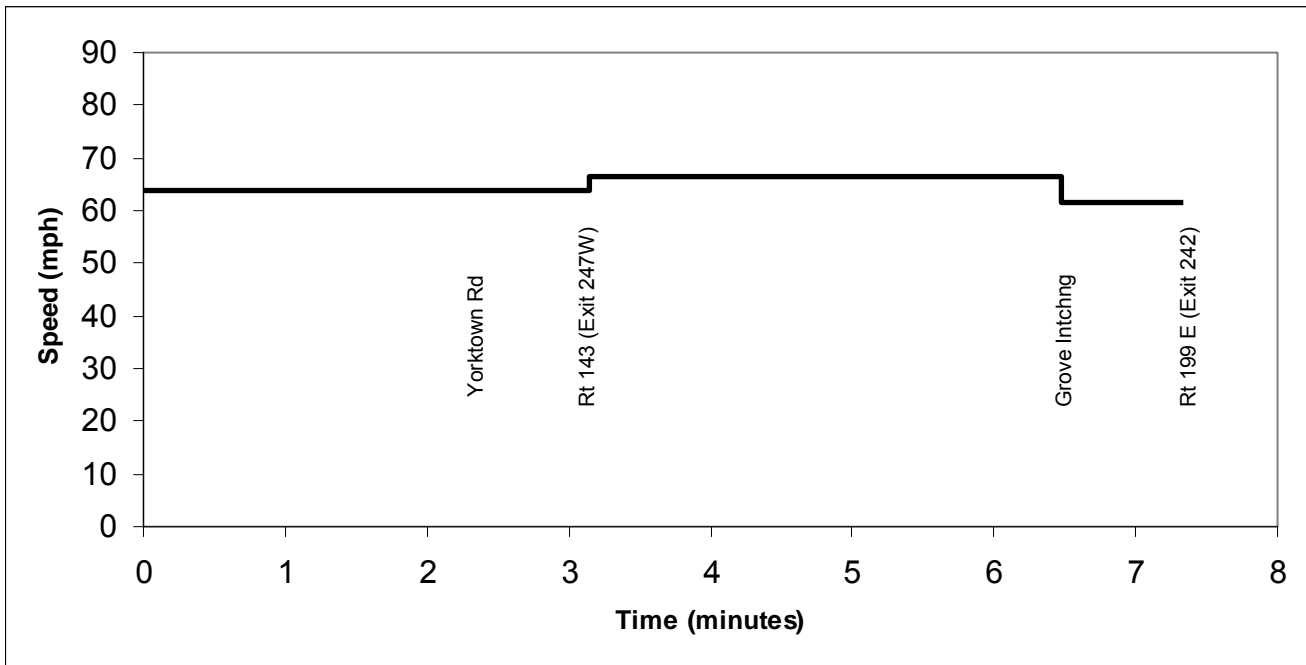
### I-64 WB: Rt 199 east (exit 242) to Rt 607 (Croaker Rd) – PM Peak Hour



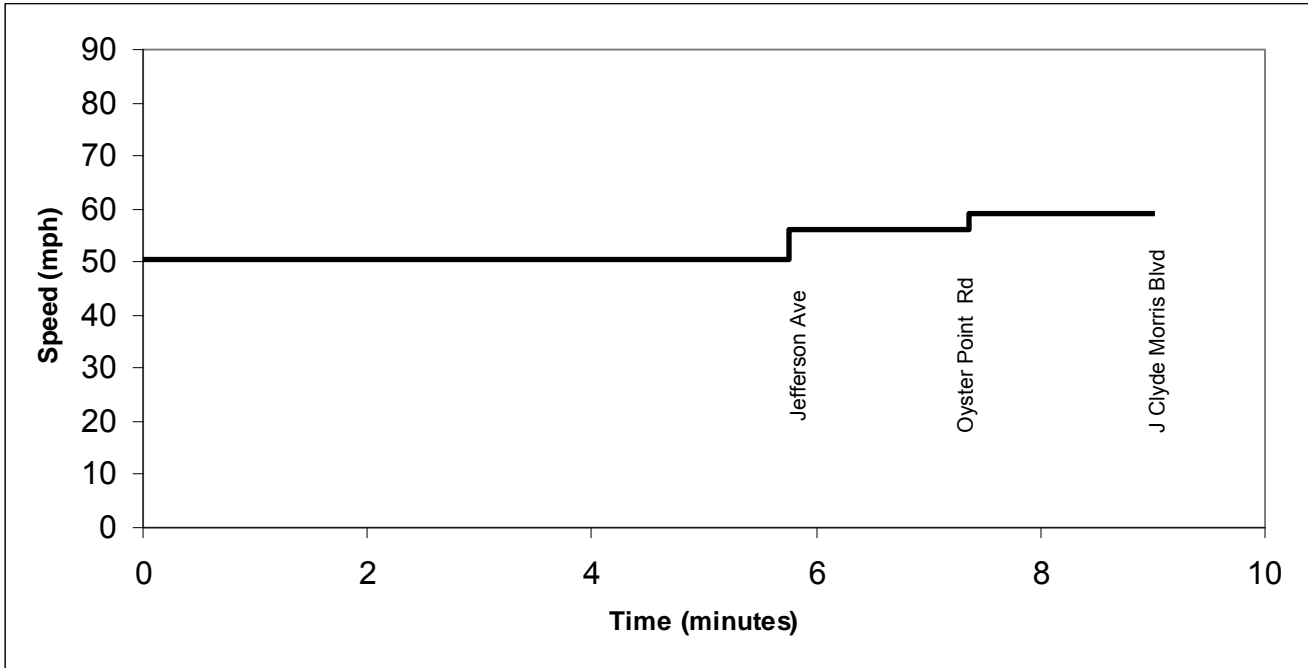
### I-64 EB: Rt 199 East (exit 242) to Fort Eustis Blvd – PM Peak Hour



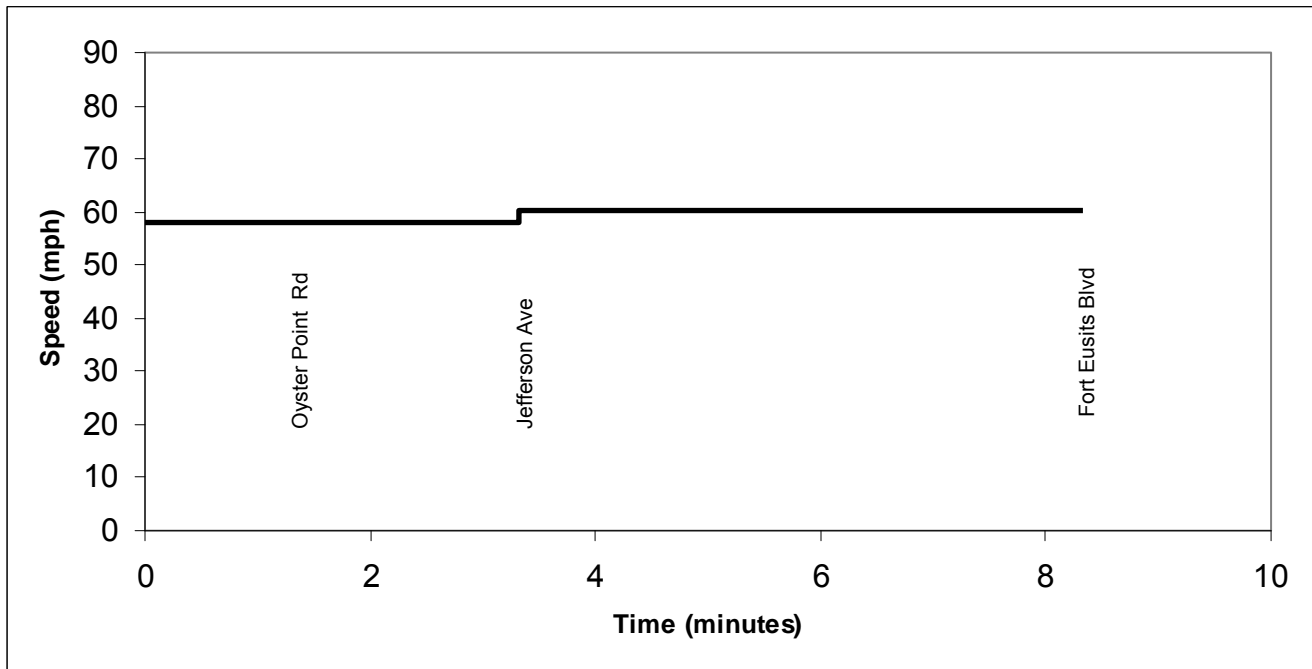
### I-64 WB: Fort Eustis Blvd to Route 199 East (Exit 242) – PM Peak Hour



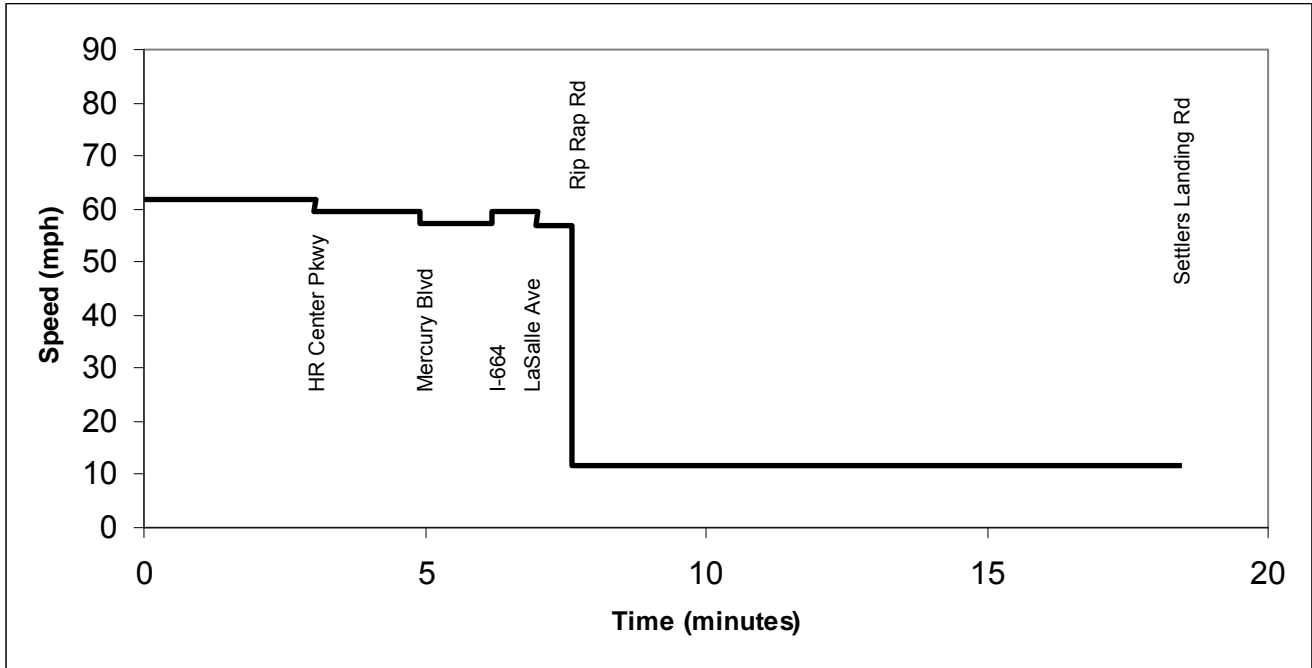
### I-64 EB: Fort Eustis Blvd to J Clyde Morris Blvd – PM Peak Hour



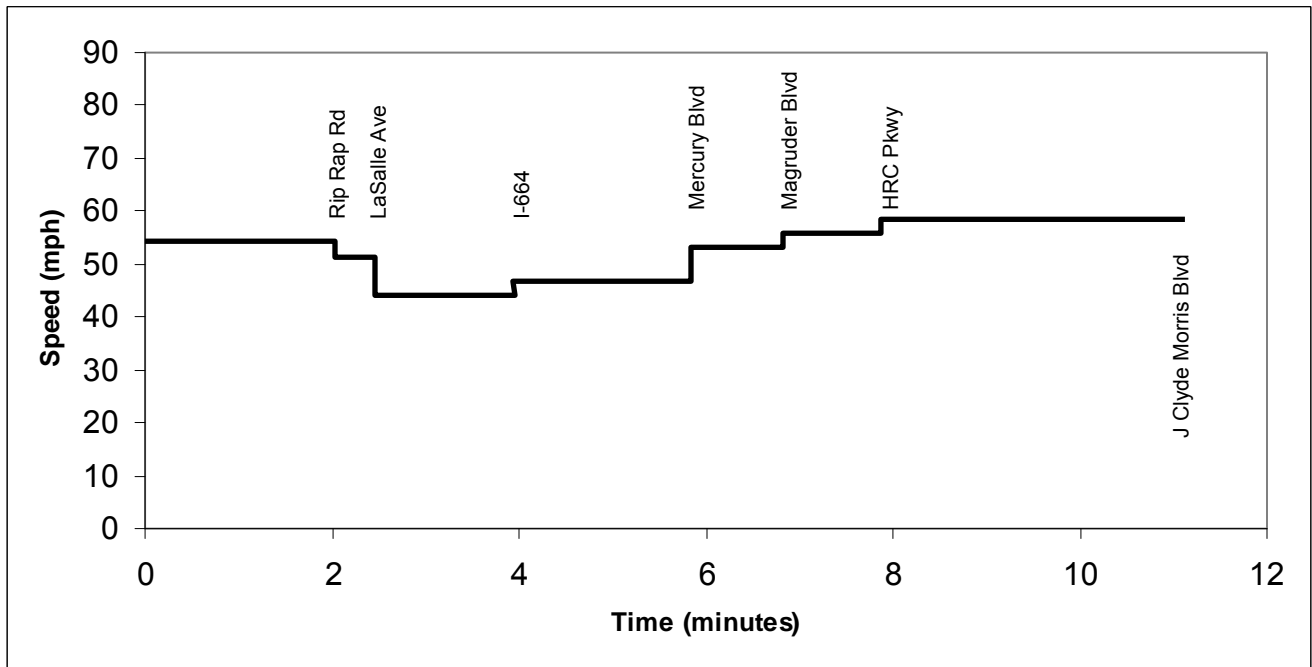
### I-64 WB: J Clyde Morris Blvd to Fort Eustis Blvd – PM Peak Hour



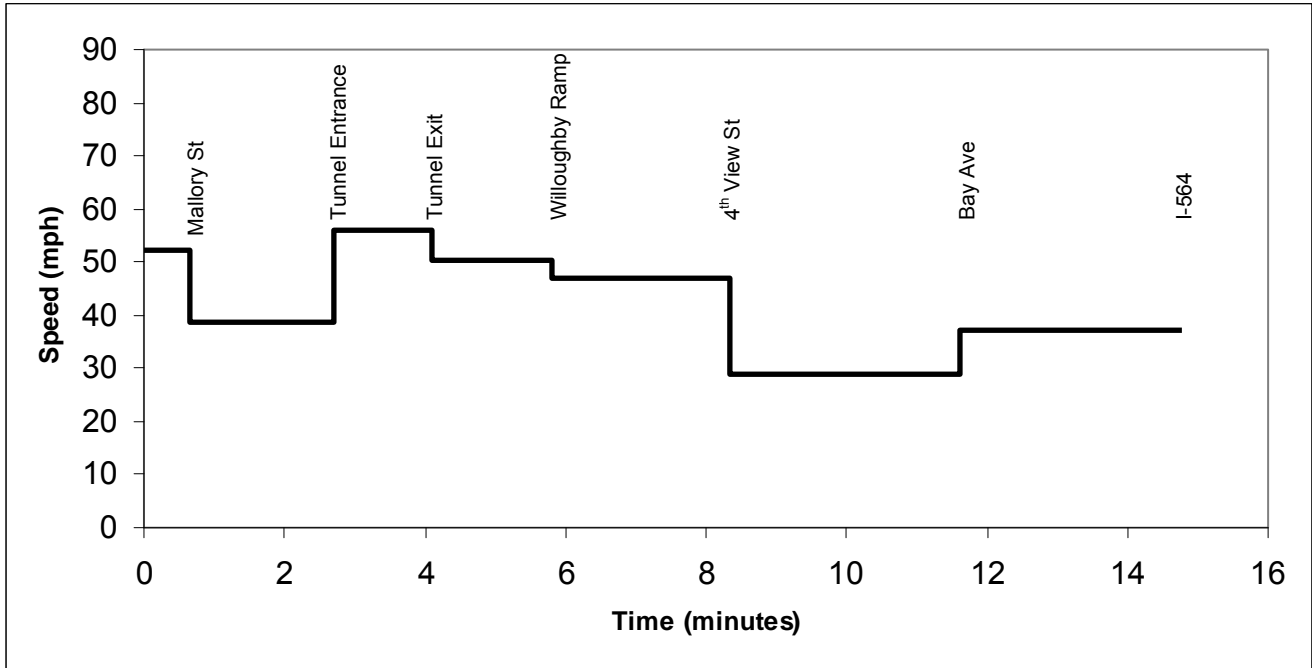
**I-64 EB: J Clyde Morris Blvd to Settlers Landing Rd – PM Peak Hour**



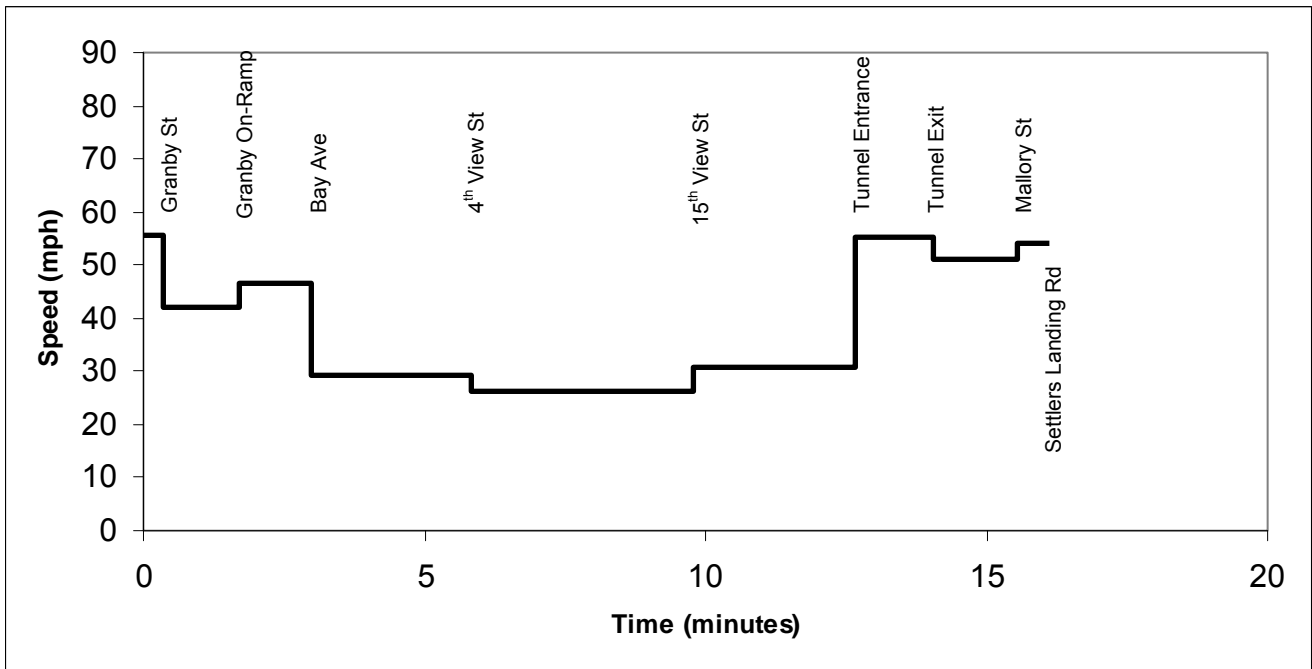
**I-64 WB: Settlers Landing Rd to J Clyde Morris Blvd – PM Peak Hour**



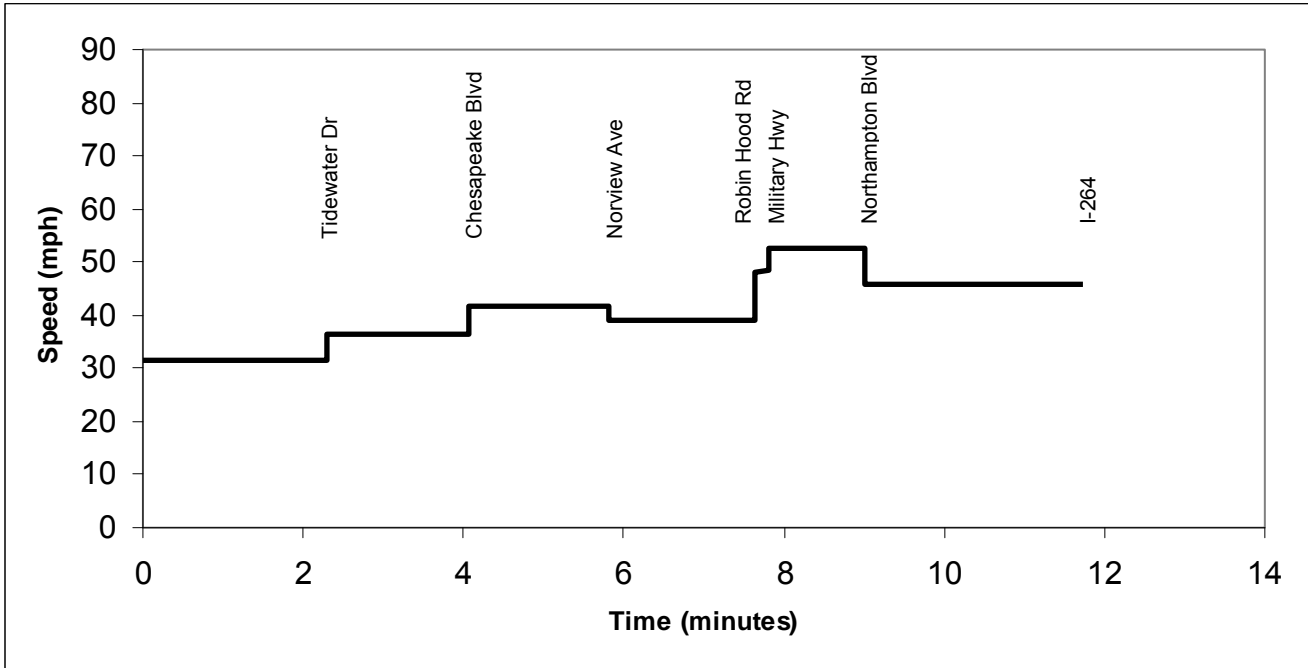
### I-64 EB: Settlers Landing Rd to I-564 – PM Peak Hour



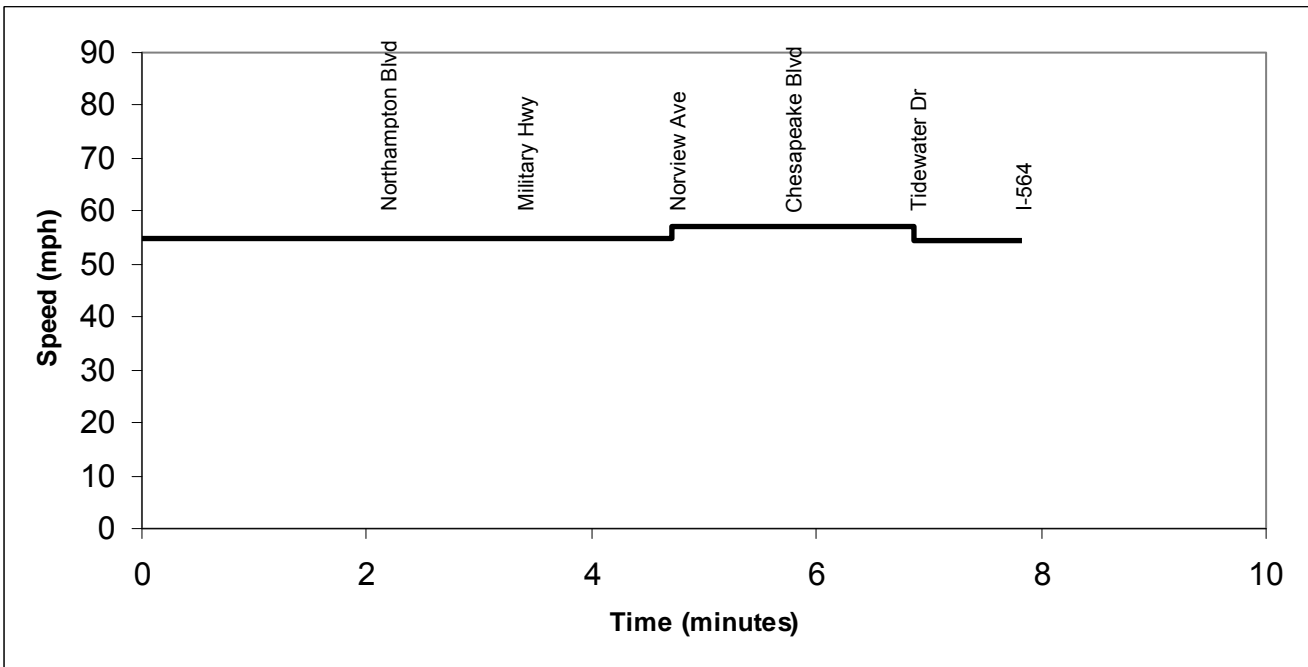
### I-64 WB: I-564 to Settlers Landing Rd – PM Peak Hour



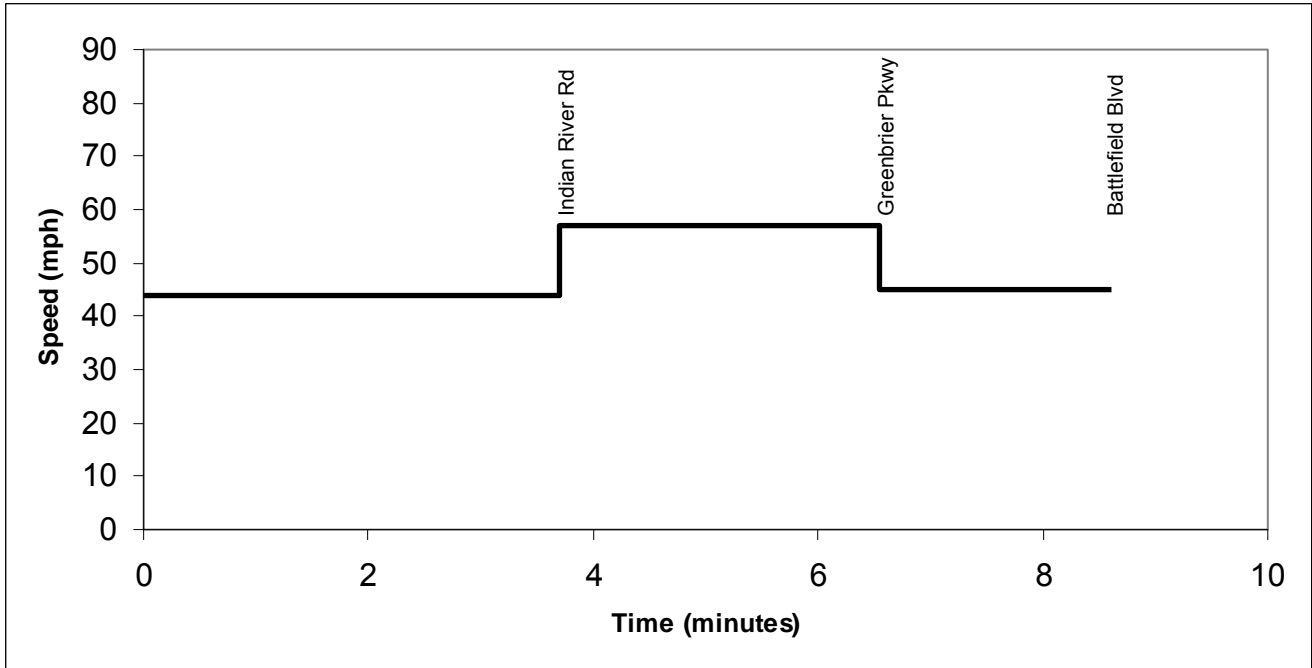
### I-64 EB: I-564 to I-264 – PM Peak Hour



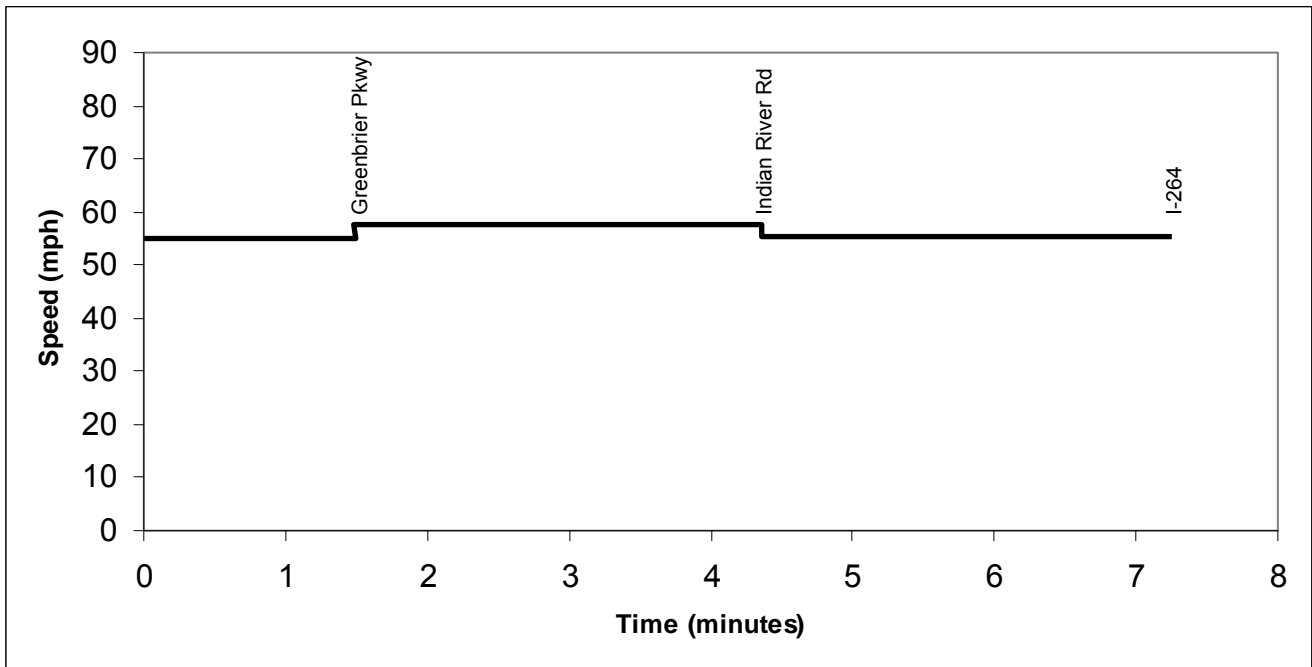
### I-64 WB: I-264 to I-564 – PM Peak Hour



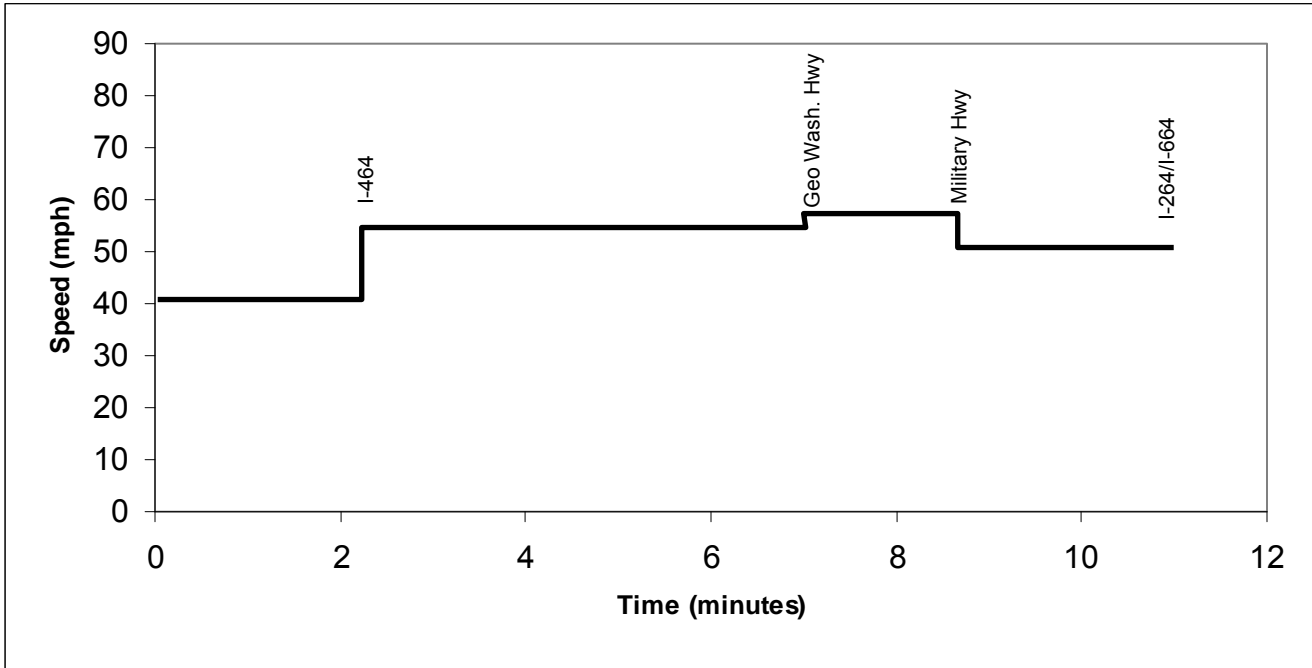
### I-64 EB (Toward Suffolk): I-264 to Battlefield Blvd – PM Peak Hour



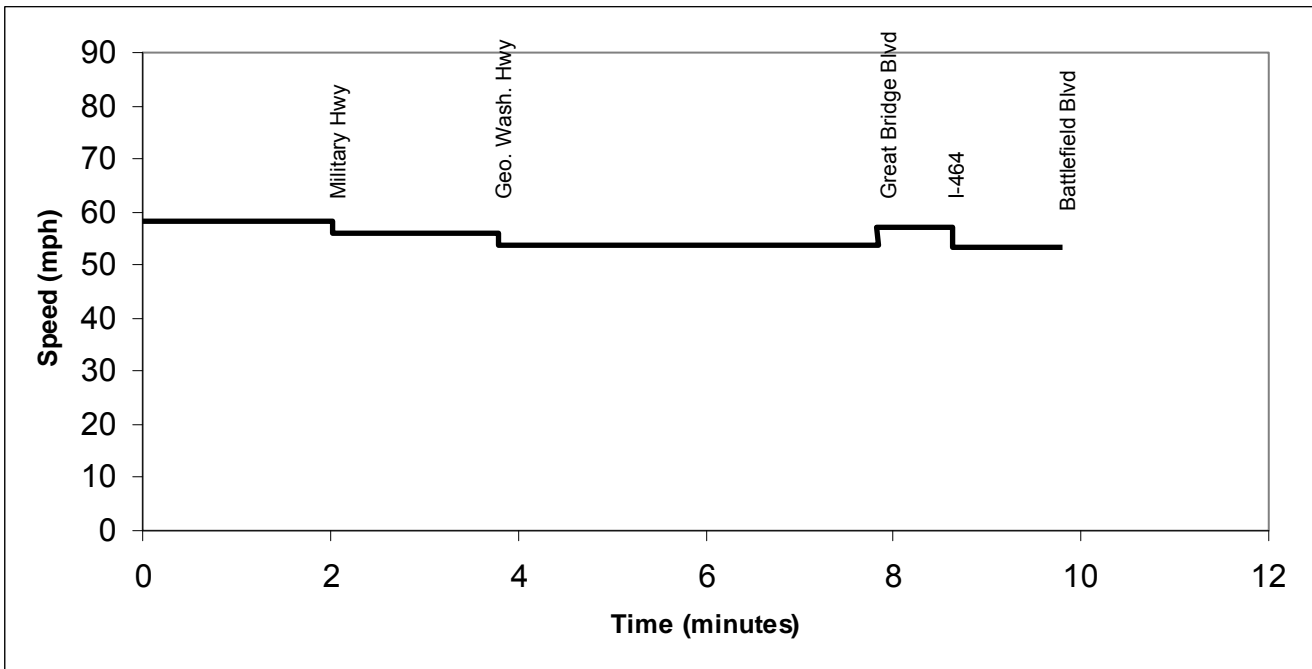
### I-64 WB (Toward Va. Beach): Battlefield Blvd to I-264 – PM Peak Hour



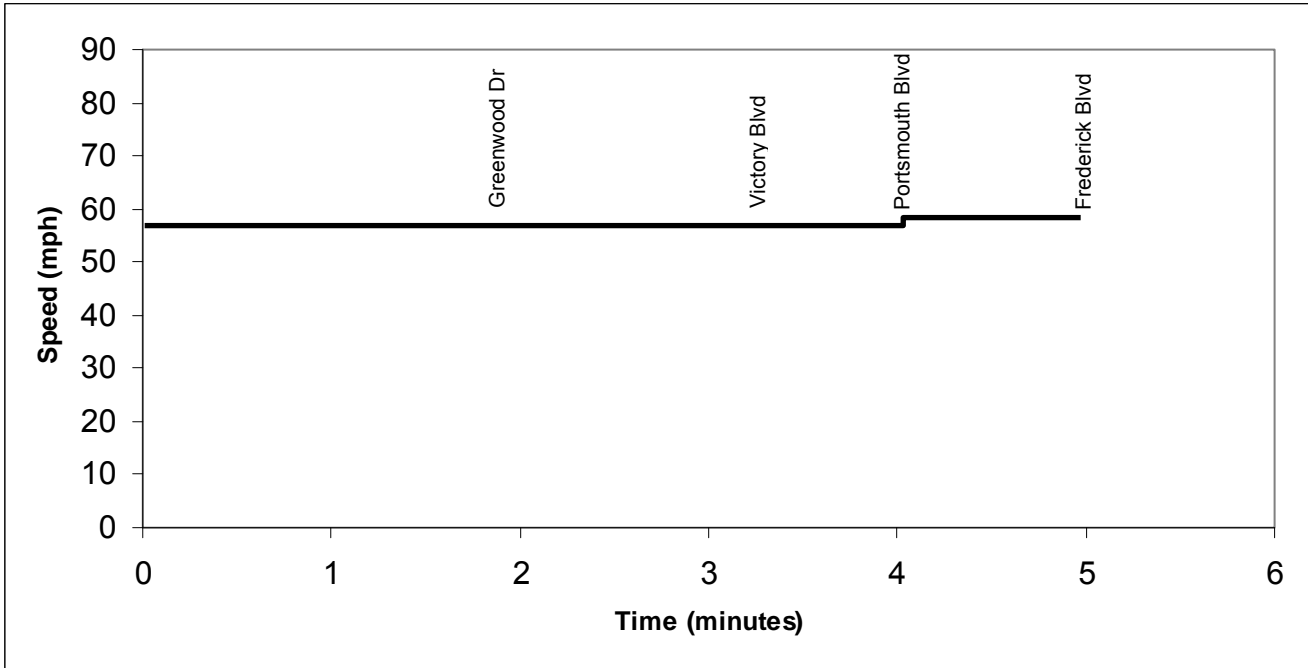
### I-64 EB (Toward Suffolk): Battlefield Blvd to I-264/I-664 – PM Peak Hour



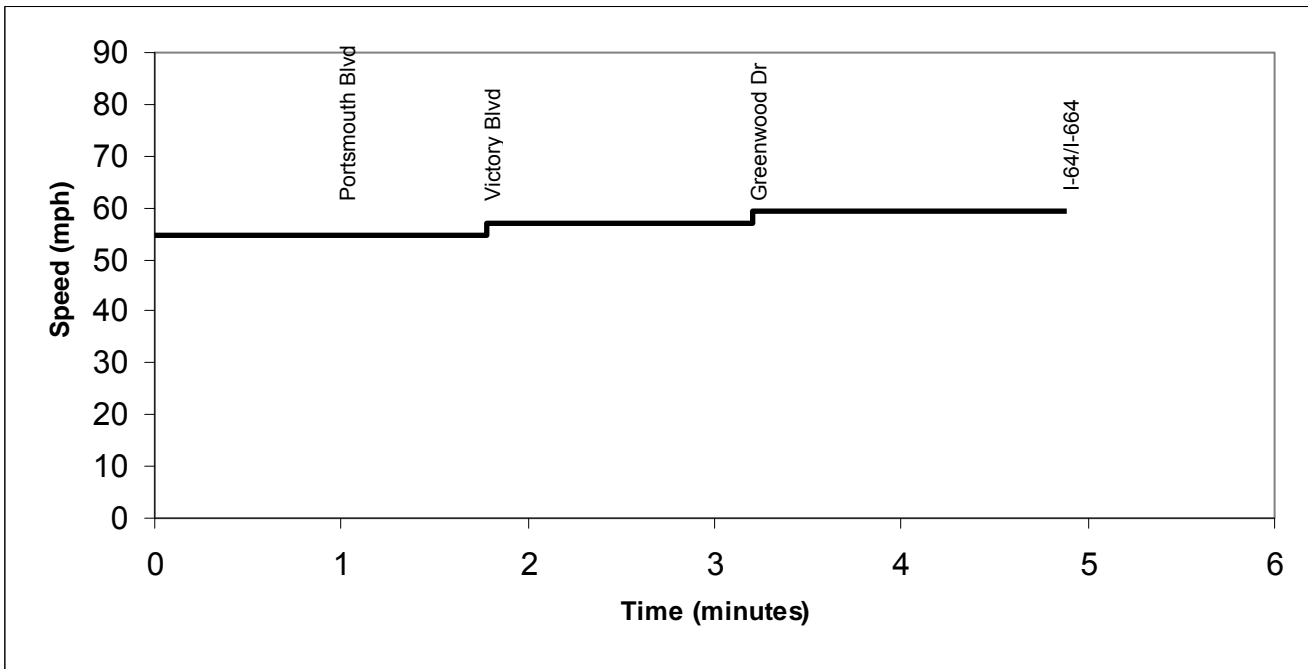
### I-64 WB (Toward Va. Beach): I-264/I-664 to Battlefield Blvd - PM Peak Hour



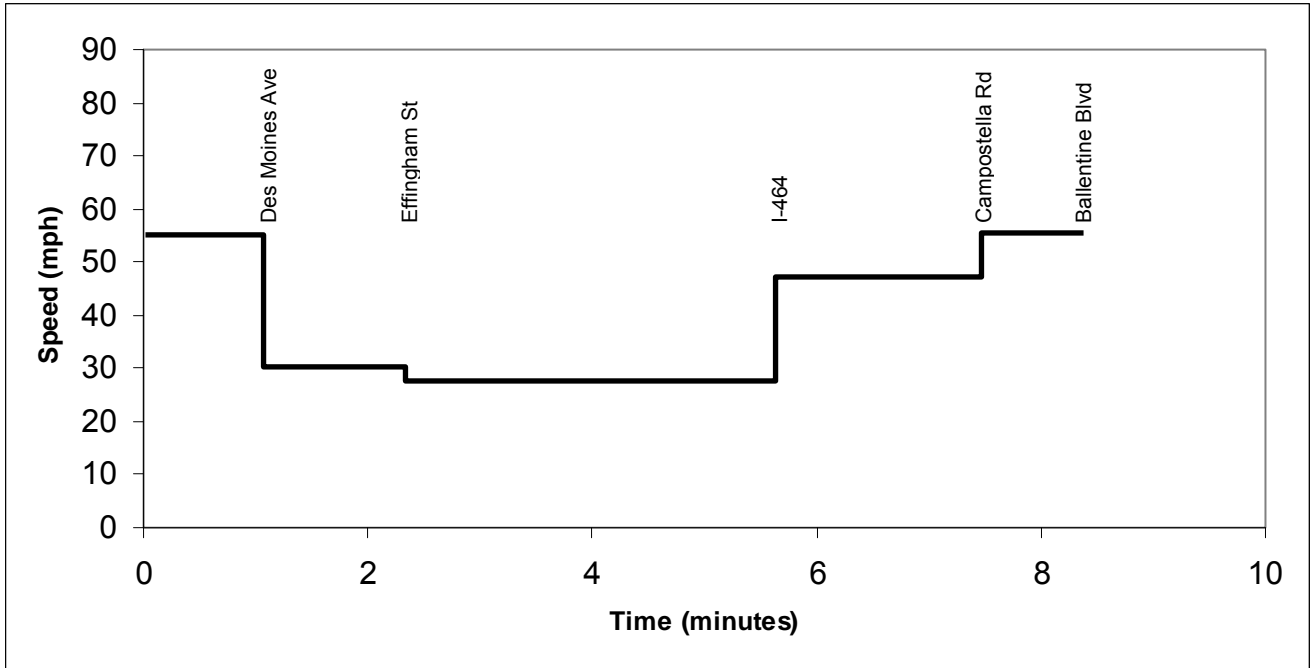
### I-264 EB: I-64/I-664 to Frederick Blvd – PM Peak Hour



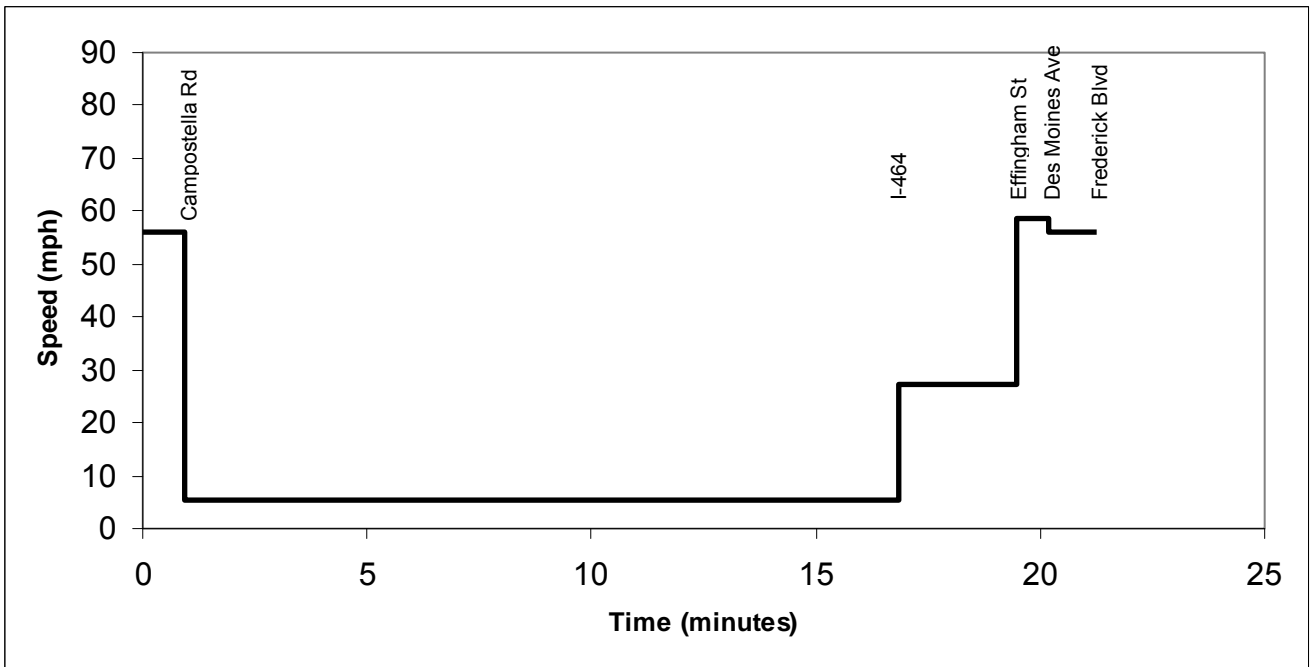
### I-264 WB: Frederick Blvd to I-64/I-664 - PM Peak Hour



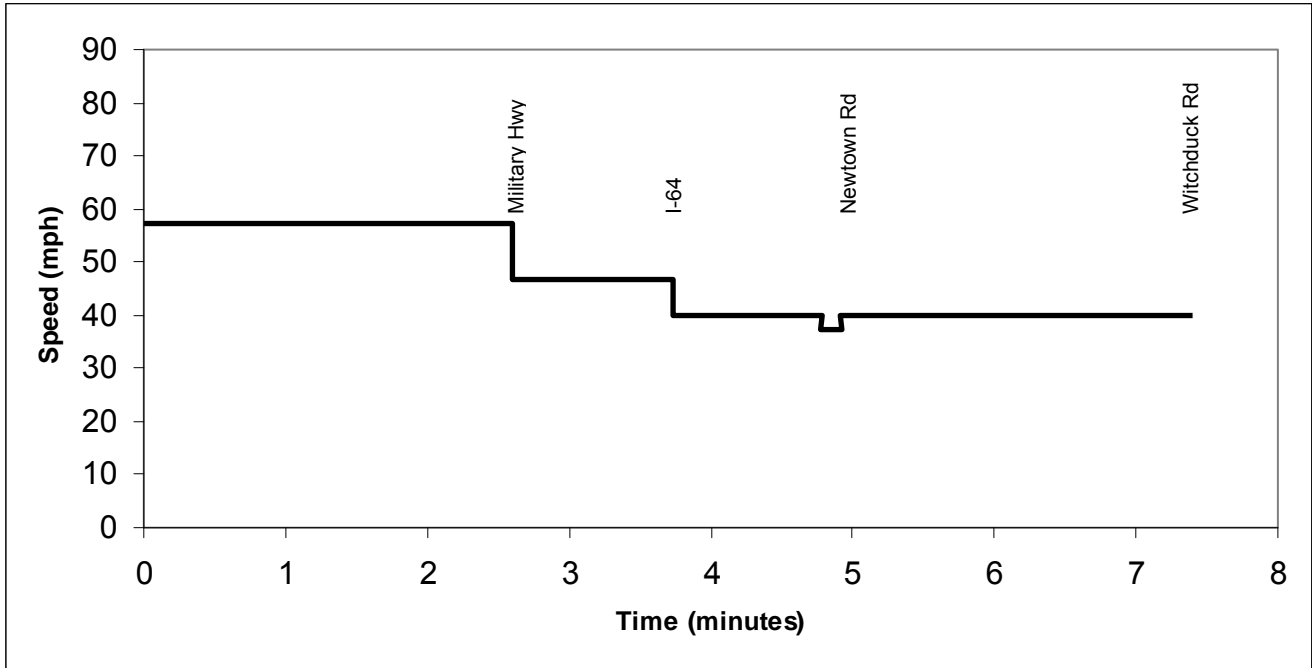
### I-264 EB: Frederick Blvd to Ballentine Blvd – PM Peak Hour



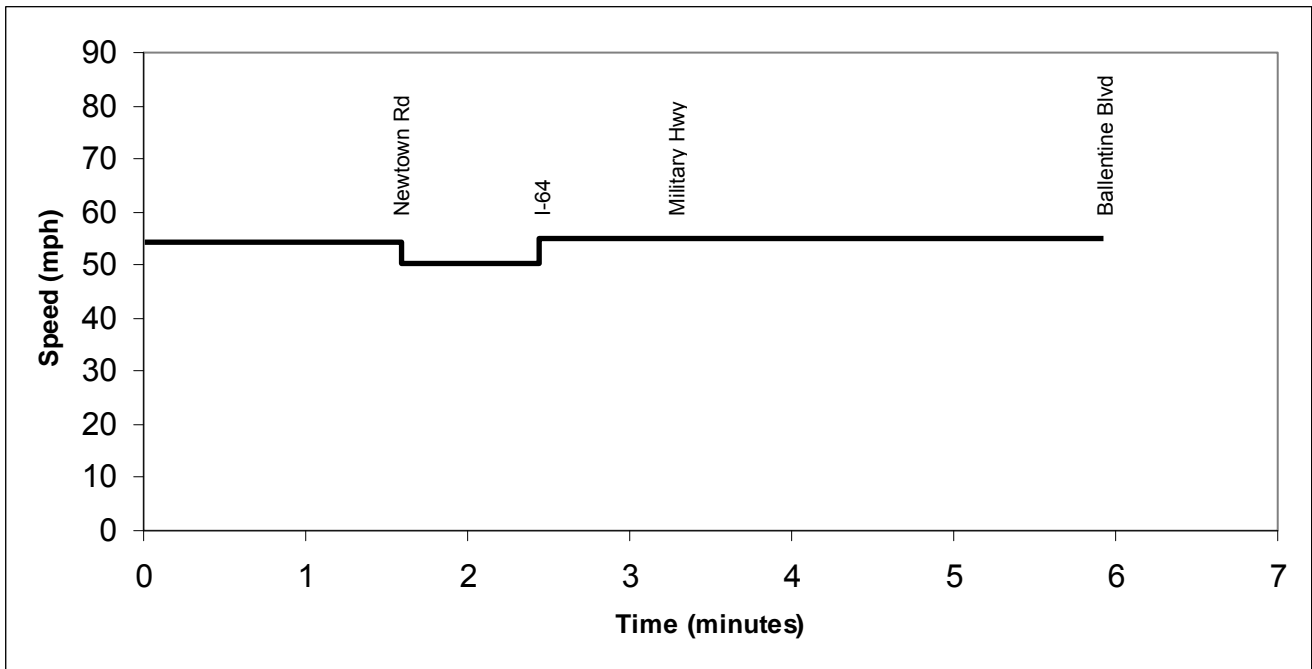
### I-264 WB: Ballentine Blvd to Frederick Blvd - PM Peak Hour



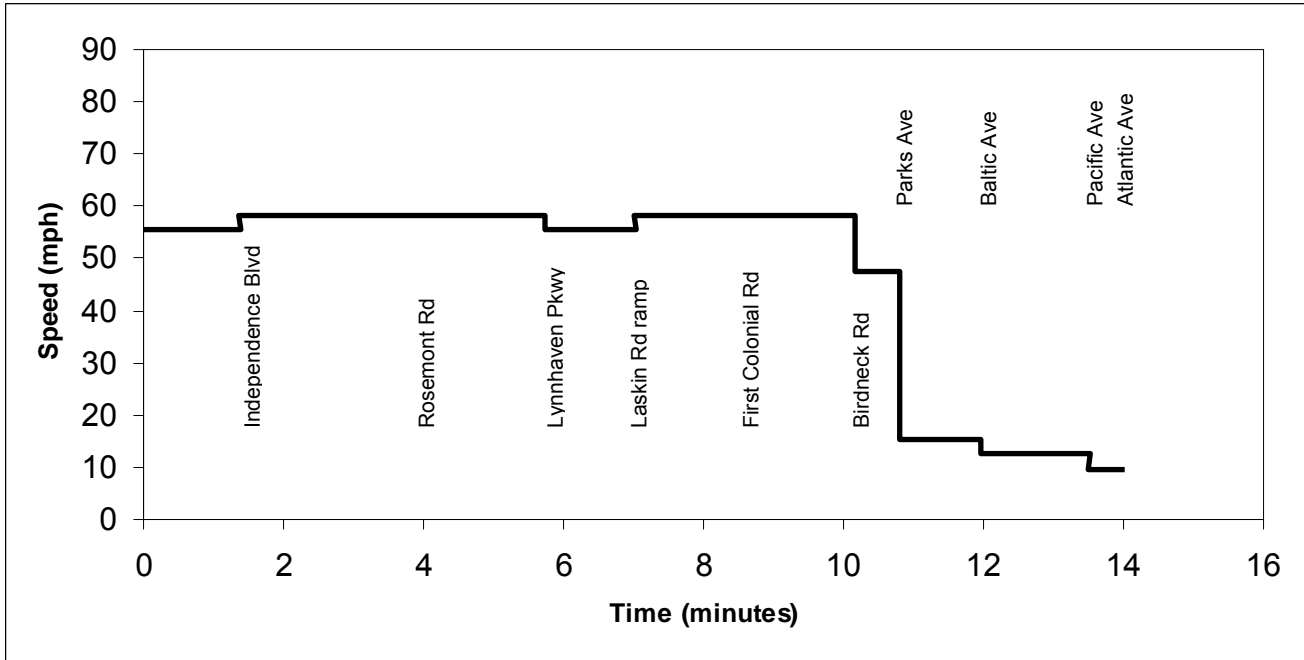
### I-264 EB: Ballentine Blvd to Witchduck Rd – PM Peak Hour



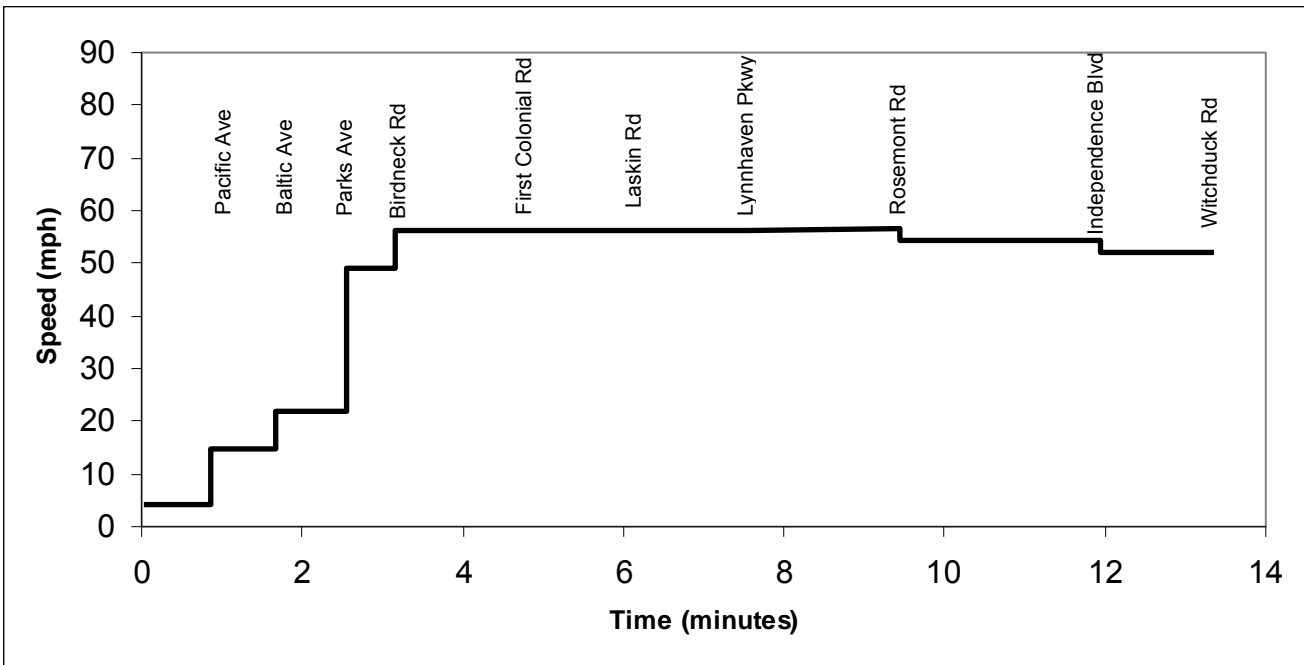
### I-264 WB: Witchduck Rd to Ballentine Blvd - PM Peak Hour



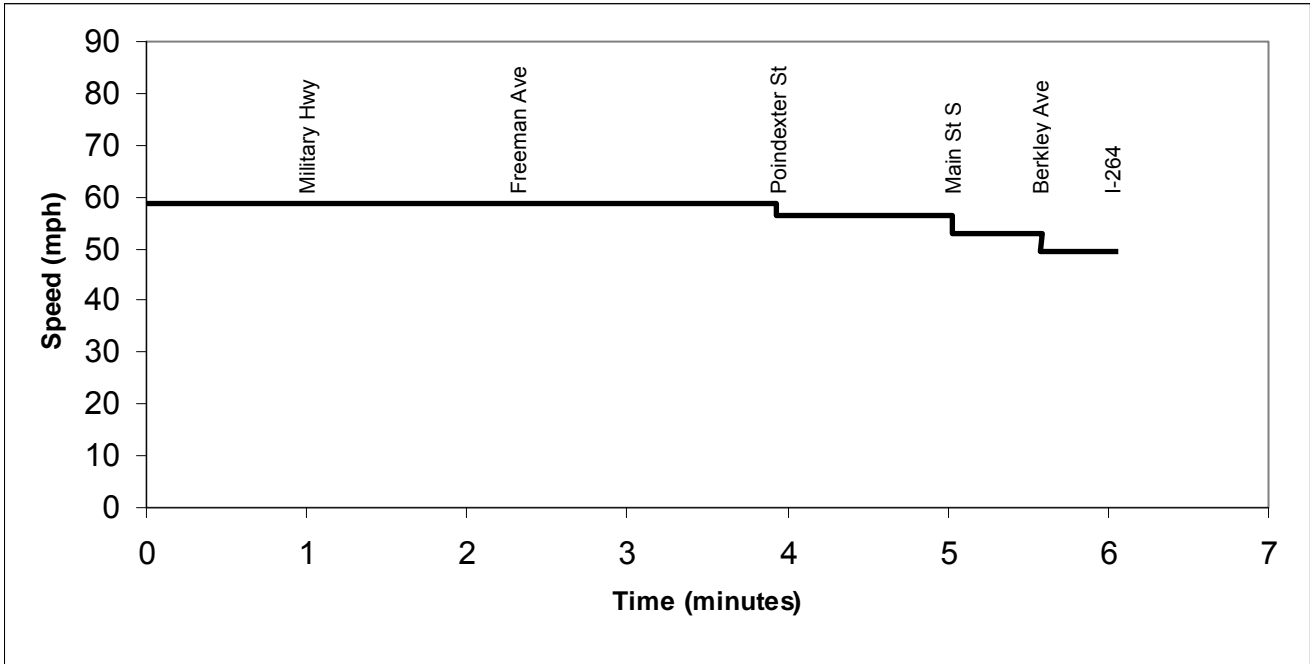
**I-264/21<sup>st</sup> St EB: Witchduck Rd to Atlantic Ave – PM Peak Hour**



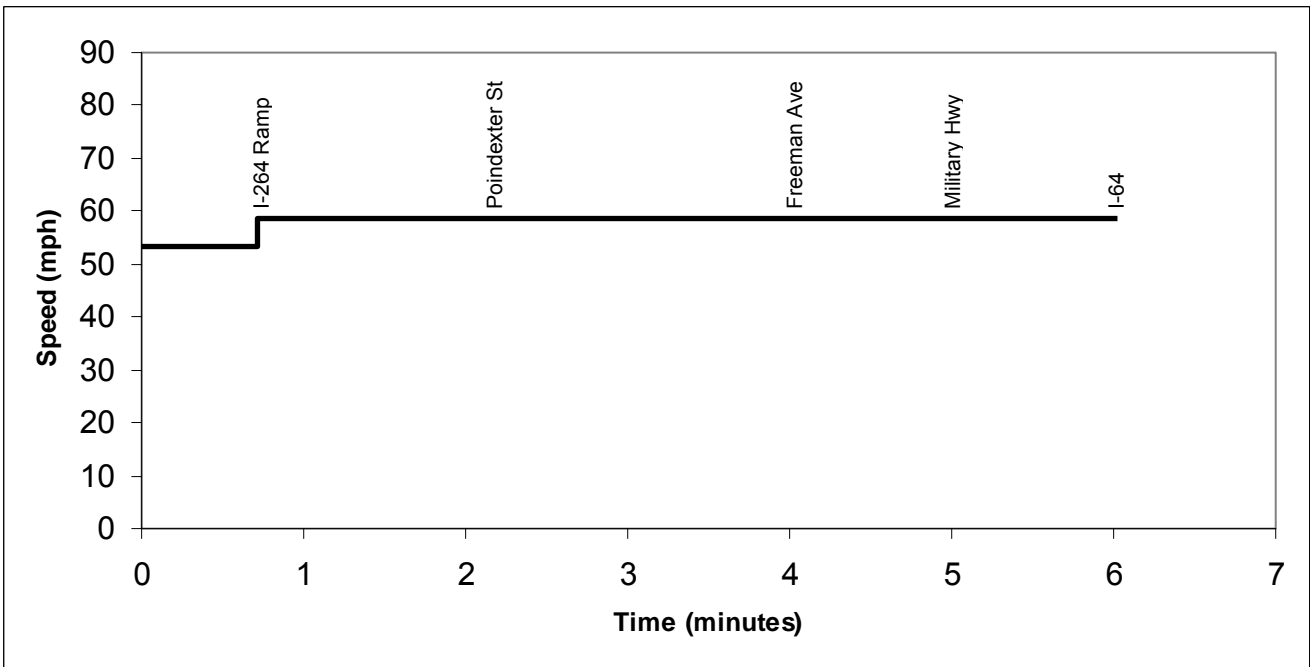
**I-264/22<sup>nd</sup> St WB: Atlantic Ave to Witchduck Rd - PM Peak Hour**



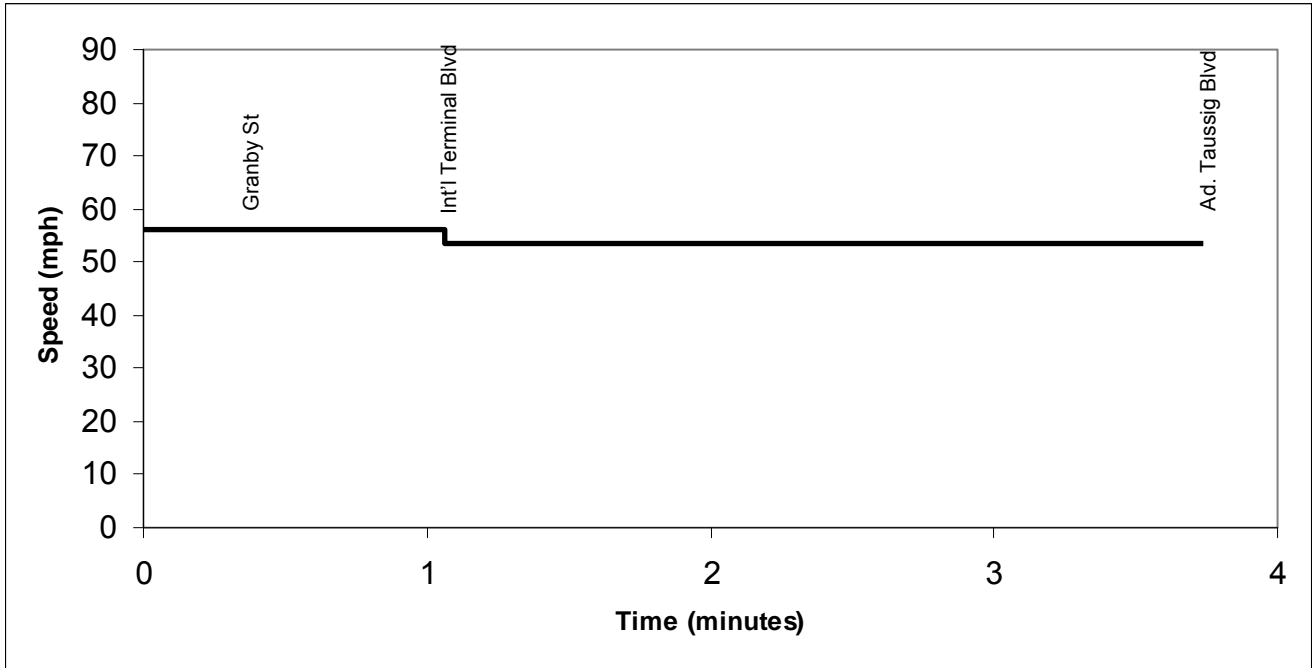
### I-464 Northbound – PM Peak Hour



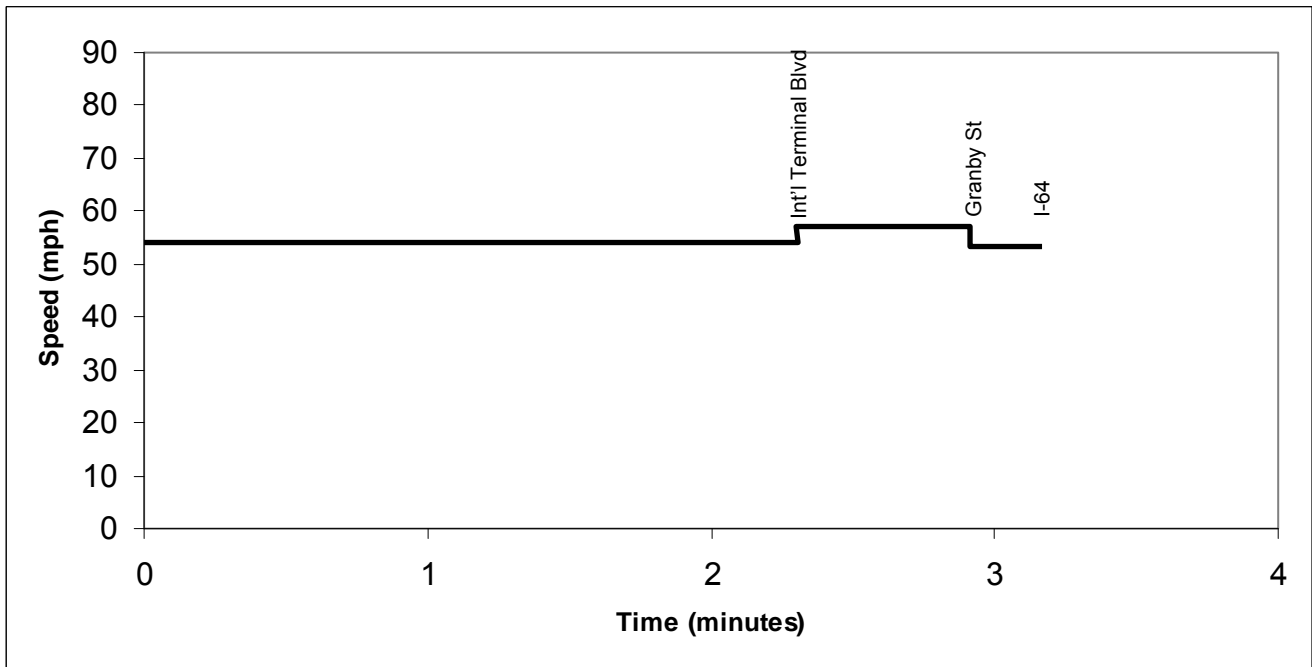
### I-464 Southbound - PM Peak Hour



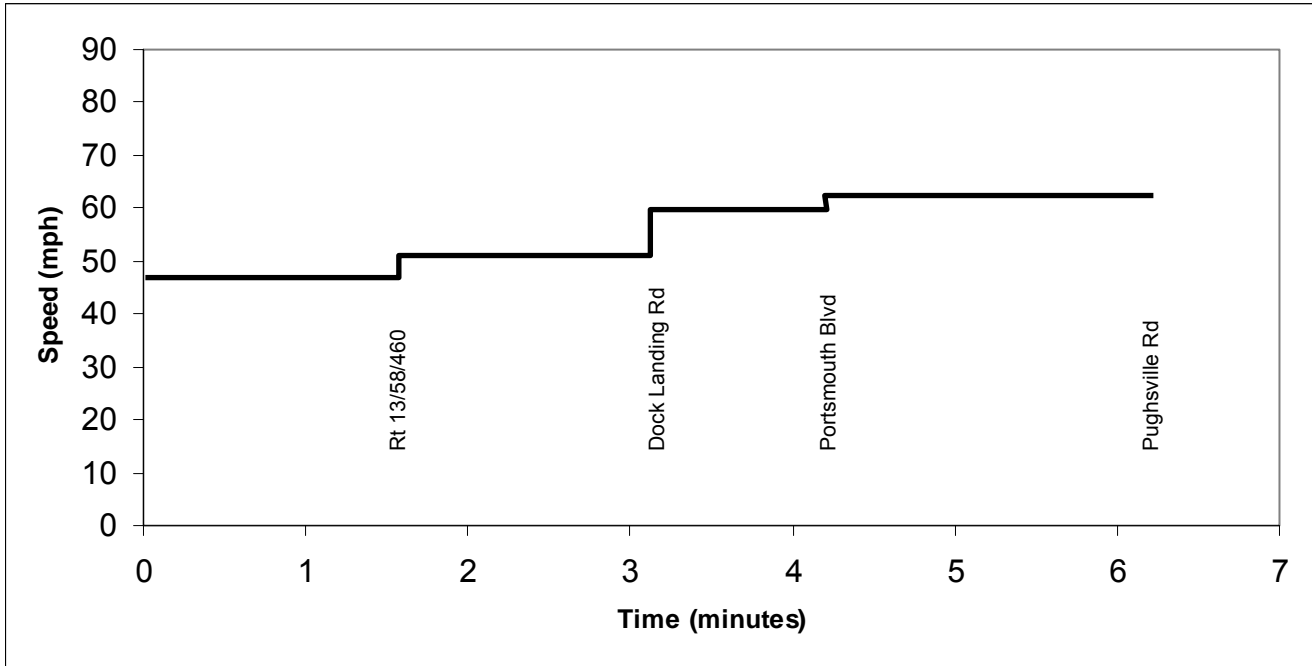
### I-564 Northbound – PM Peak Hour



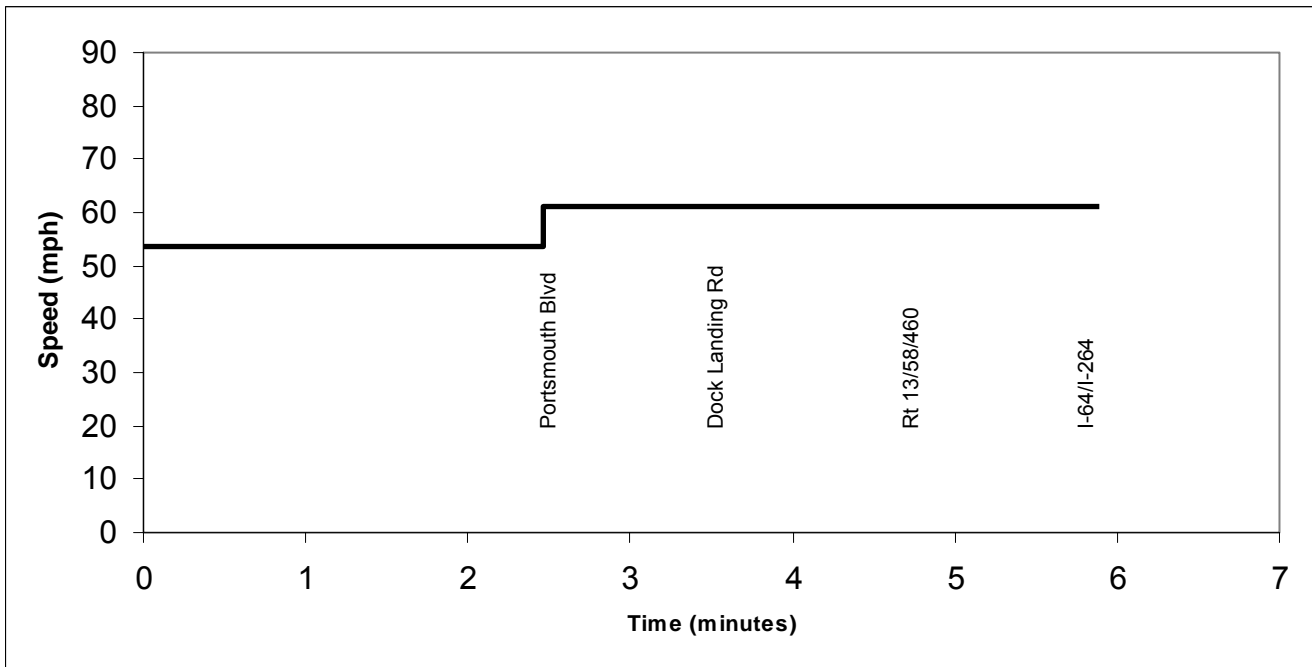
### I-564 Southbound - PM Peak Hour



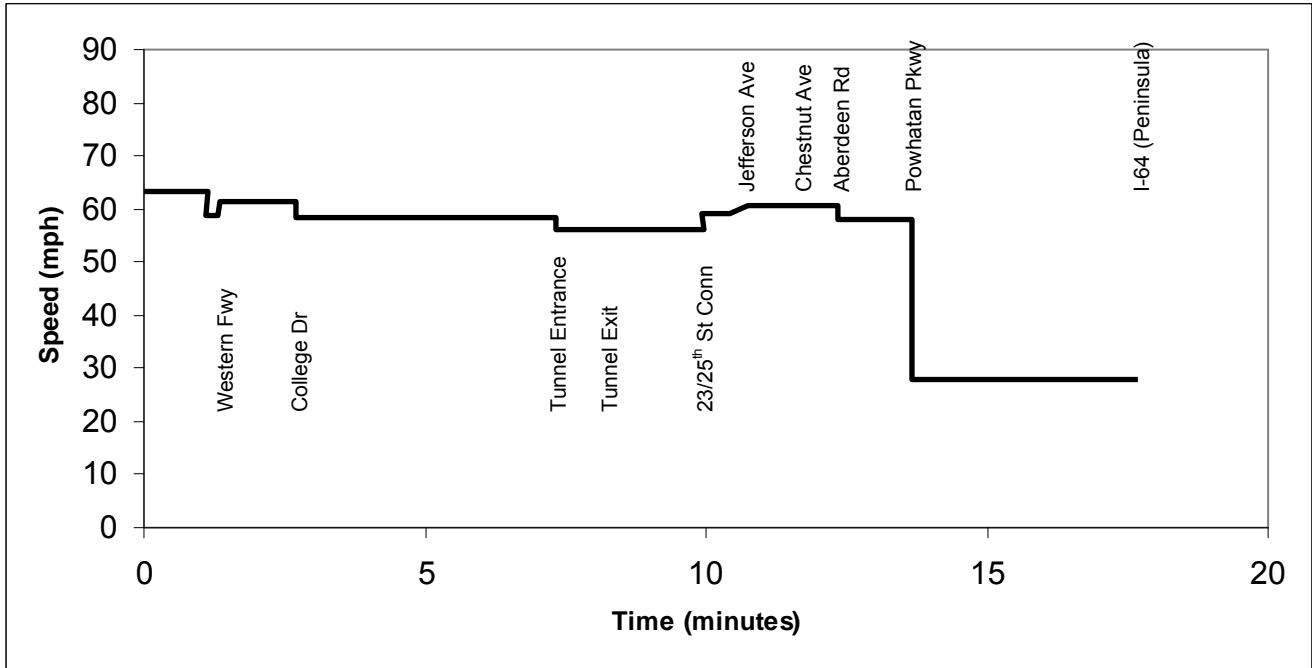
### I-664 NB: I-64/I-264 to Pughsville Rd – PM Peak Hour



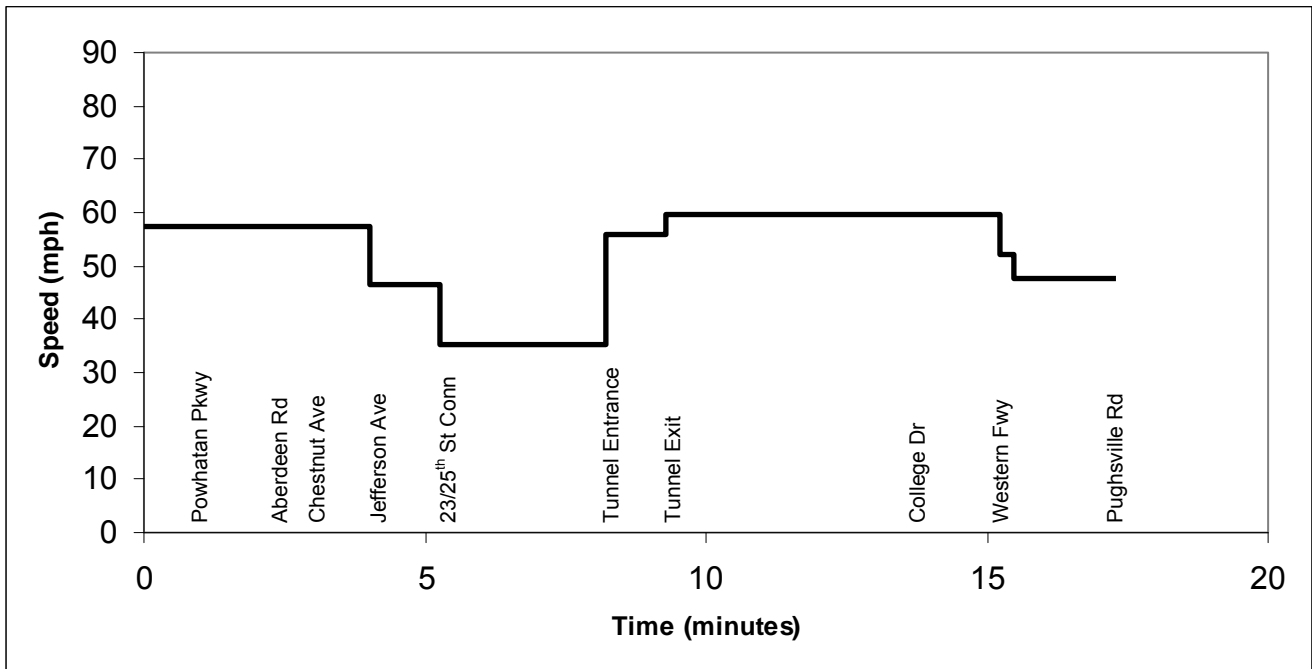
### I-664 SB: Pughsville Rd to I-64/I-264 – PM Peak Hour



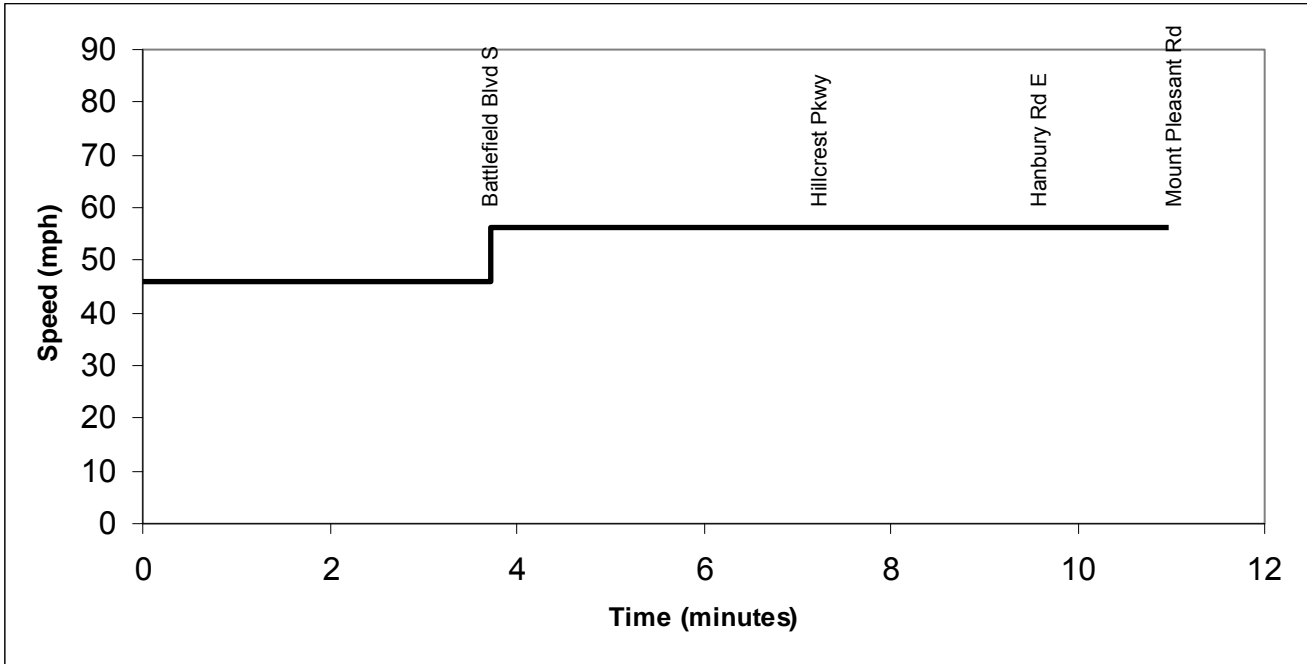
### I-664 NB: Pughsville Rd to I-64 – PM Peak Hour



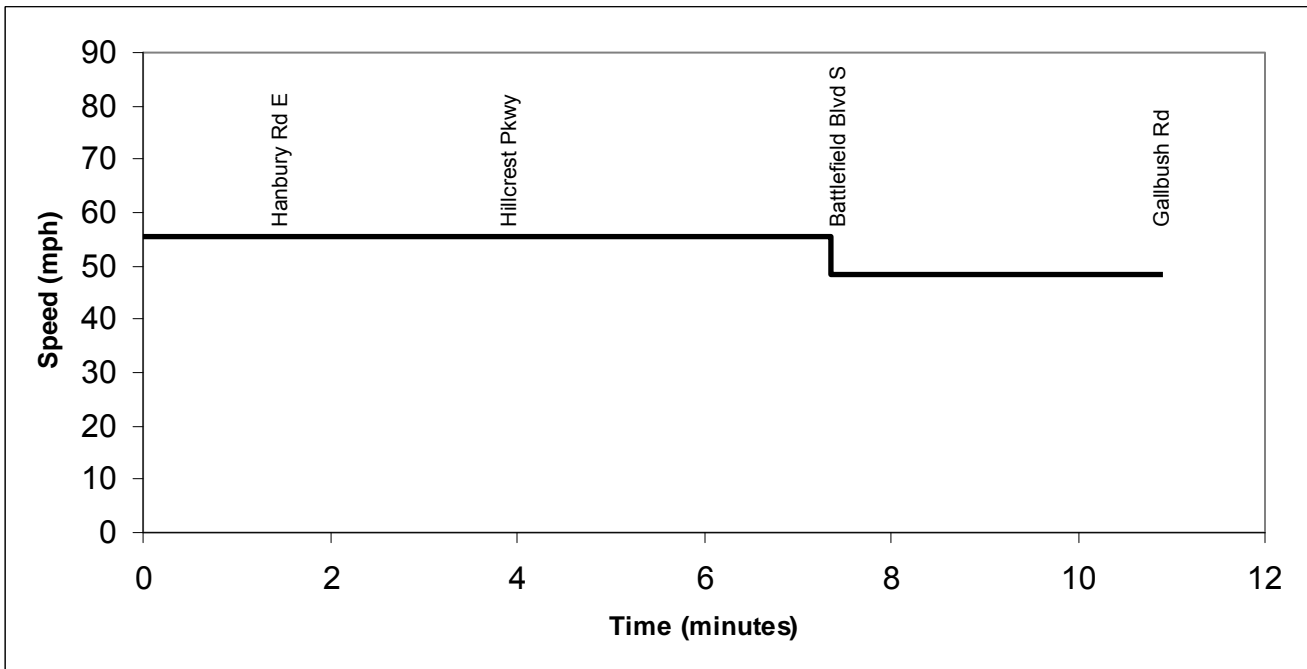
### I-664 SB: I-64 to Pughsville Rd – PM Peak Hour



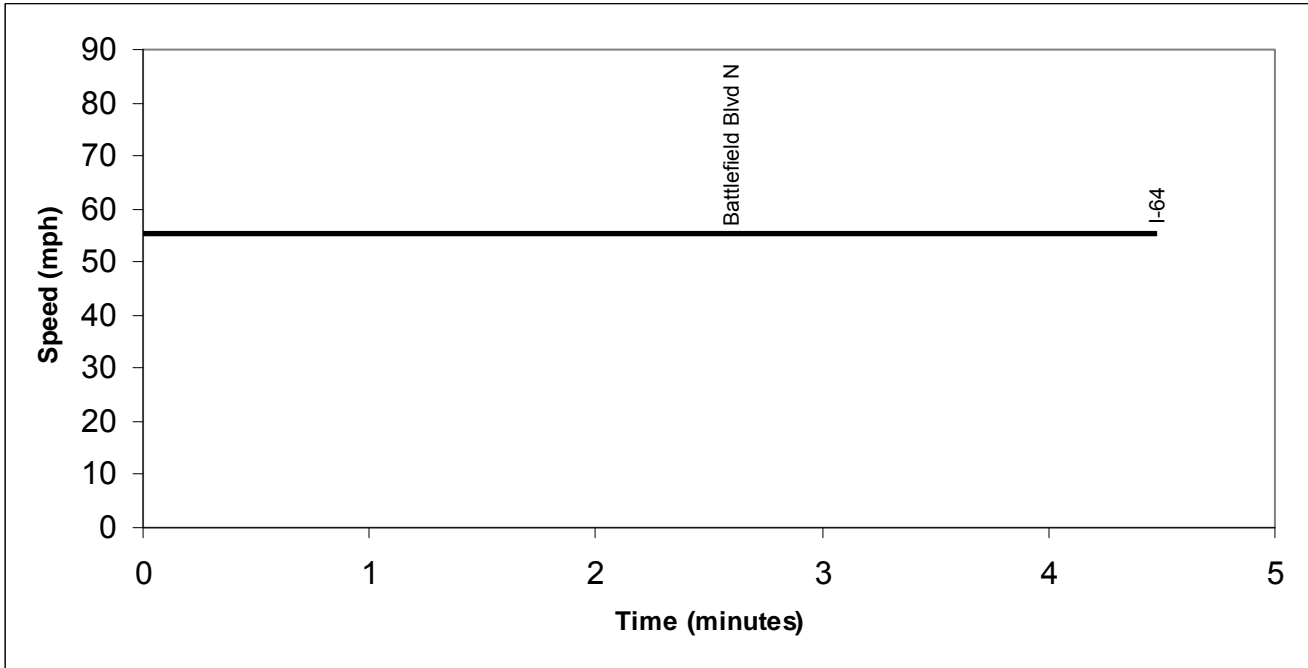
### Chesapeake Exp NB: Gallbush Rd to Mt Pleasant Rd – PM Peak Hour



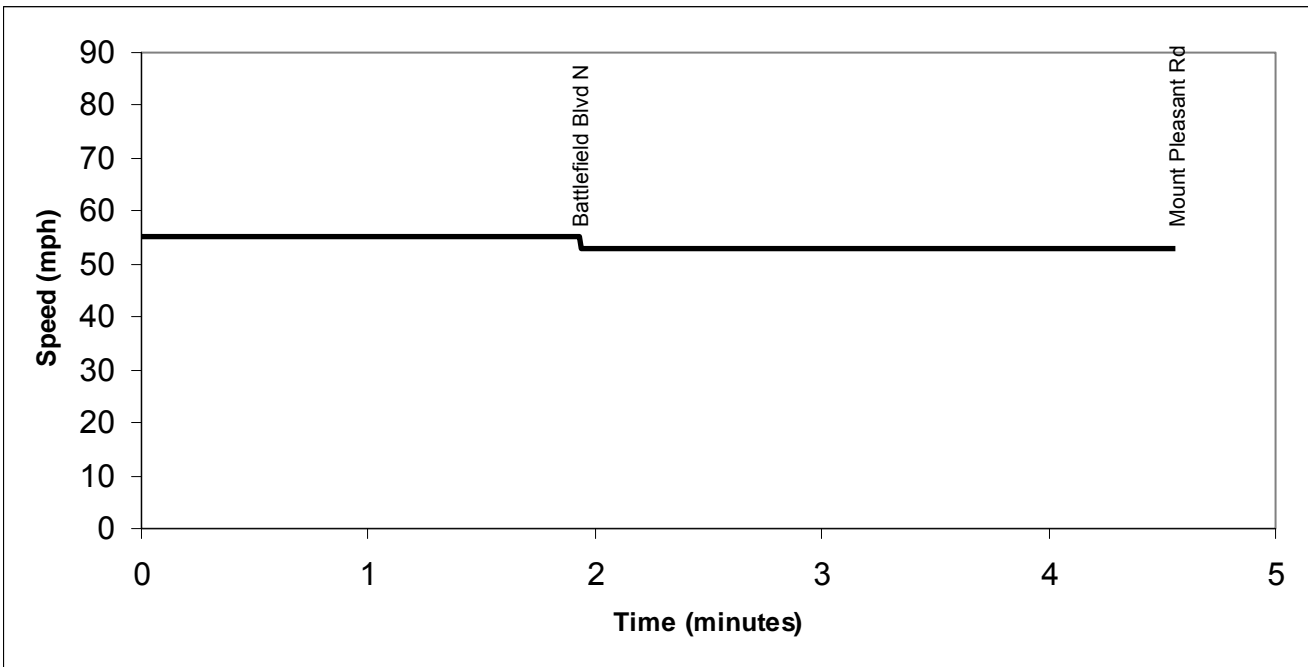
### Chesapeake Exp SB: Mt Pleasant Rd to Gallbush Rd – PM Peak Hour



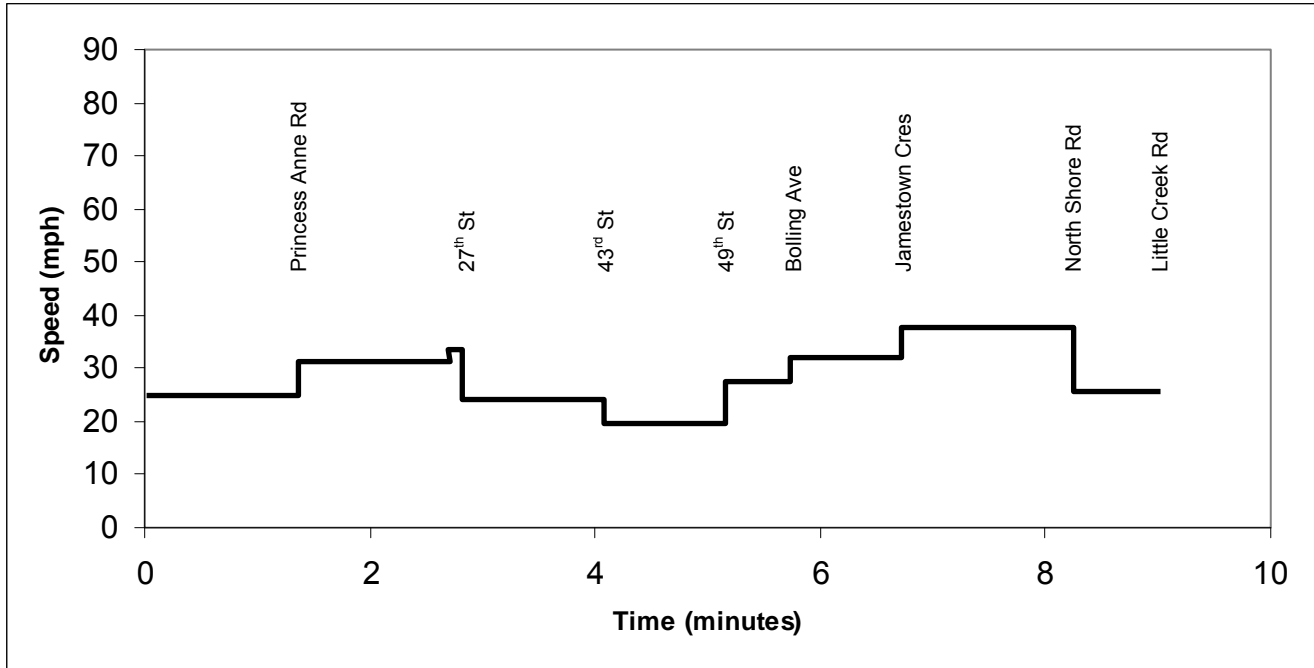
### Chesapeake Exp NB: Mt Pleasant Rd to I-64 – PM Peak Hour



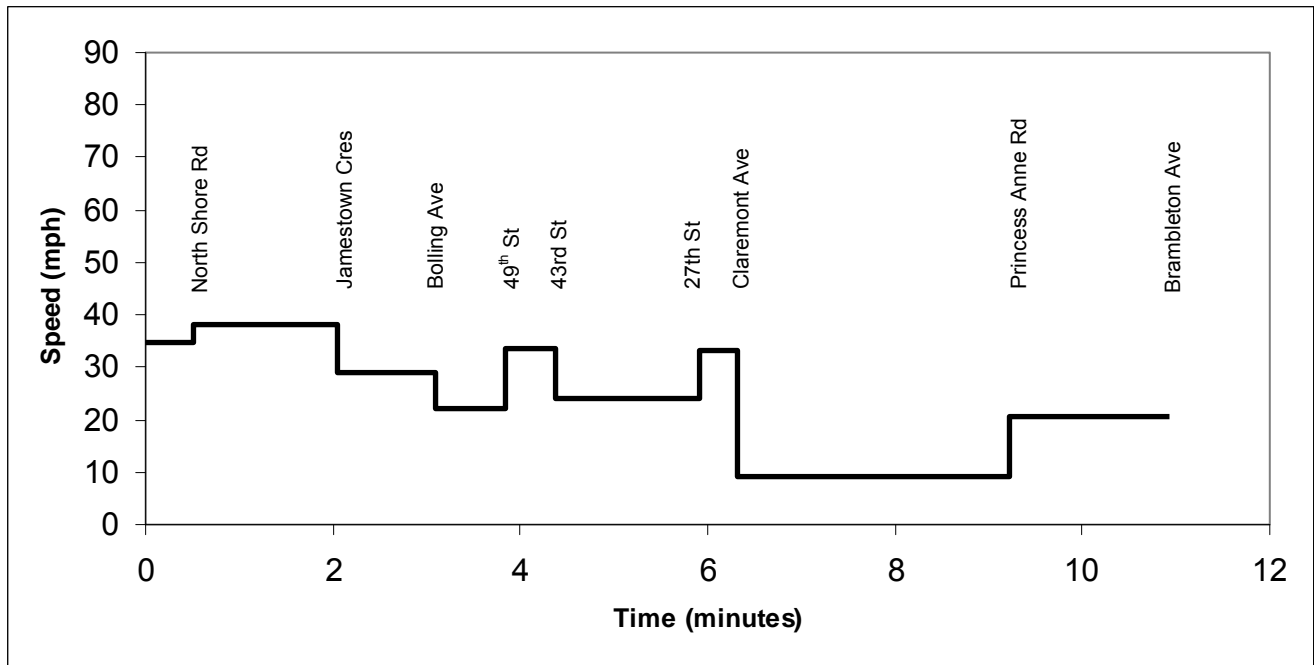
### Chesapeake Exp SB: I-64 to Mt Pleasant Rd – PM Peak Hour



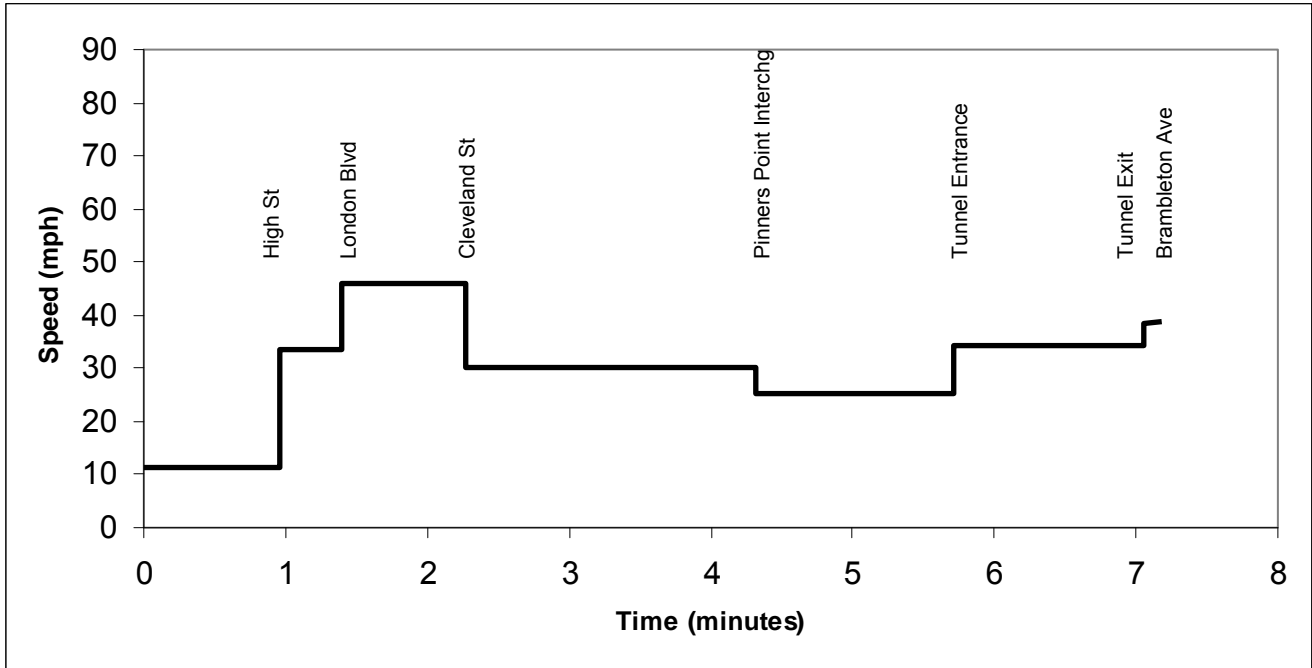
### Hampton Blvd NB: Brambleton Ave to Little Creek Rd – PM Peak Hour



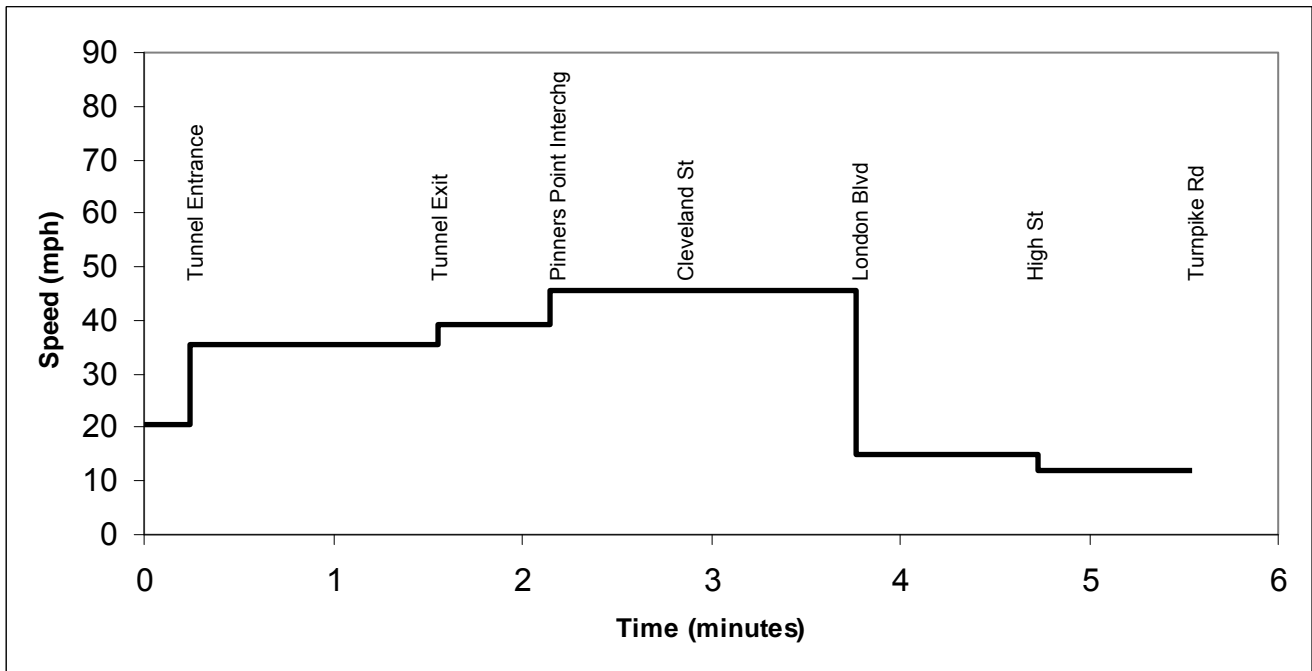
### Hampton Blvd SB: Little Creek Rd to Brambleton Ave – PM Peak Hour



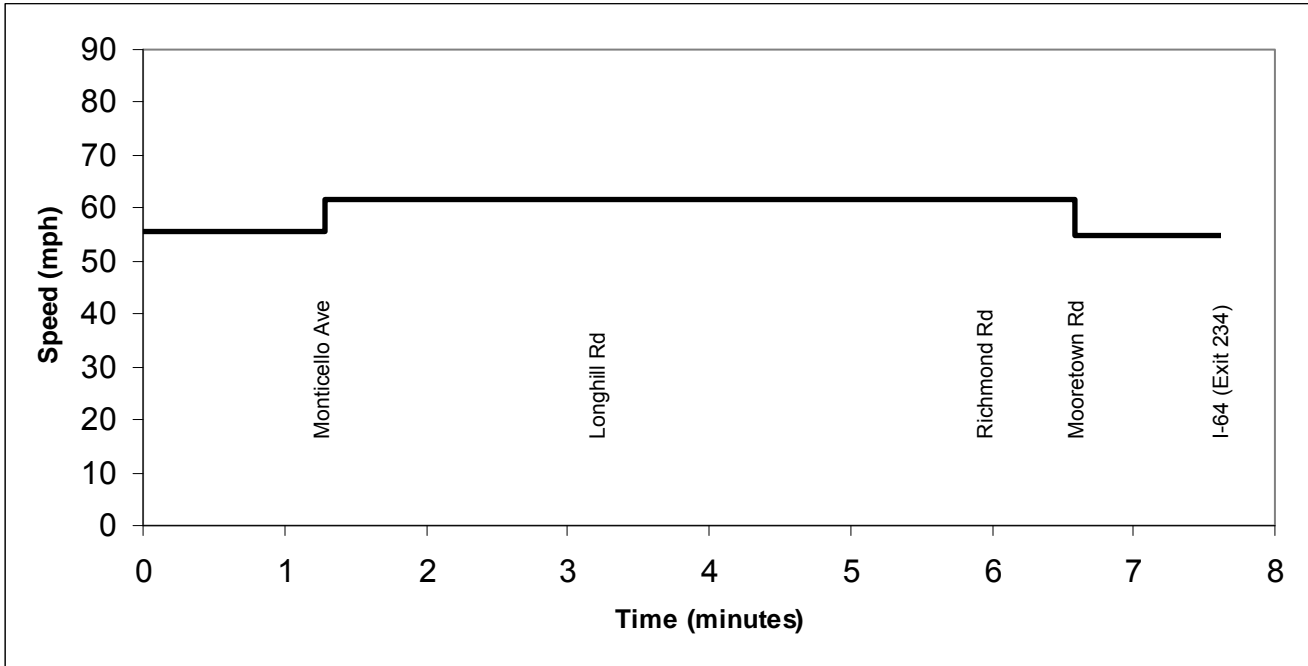
**Midtown Tunnel/MLK Fwy NB: Turnpike Rd to Brambleton Ave – PM Peak Hour**



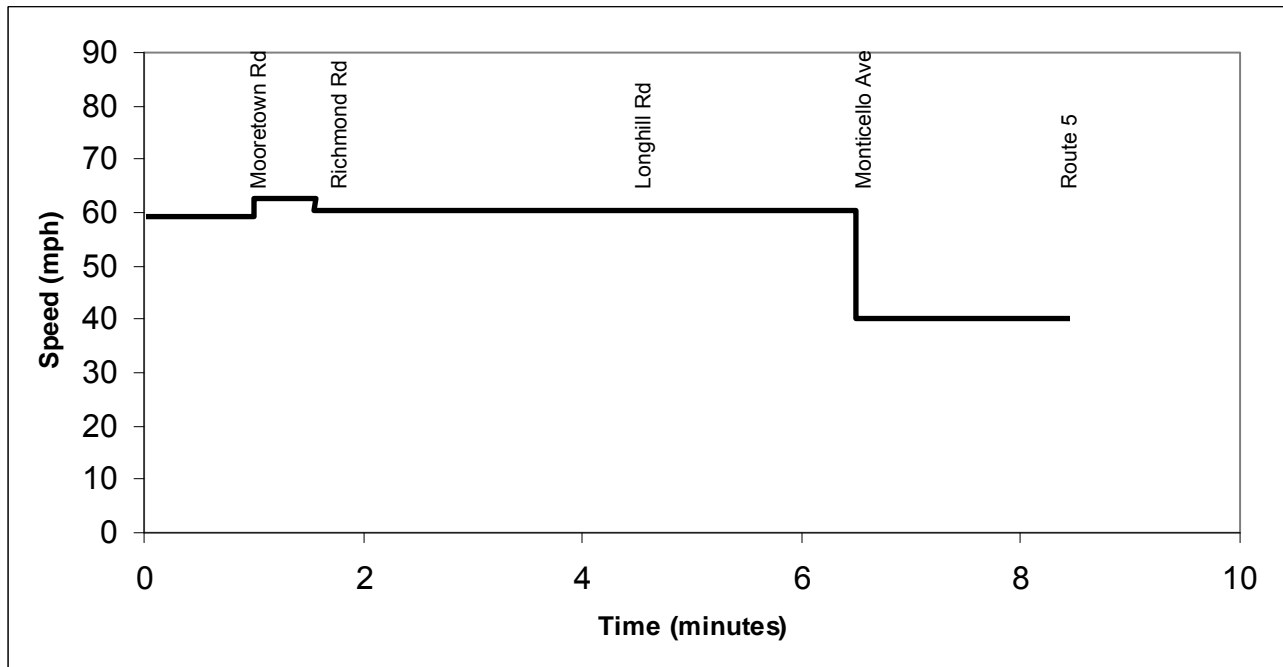
**Midtown Tunnel/MLK Fwy SB: Brambleton Ave to Turnpike Rd – PM Peak Hour**



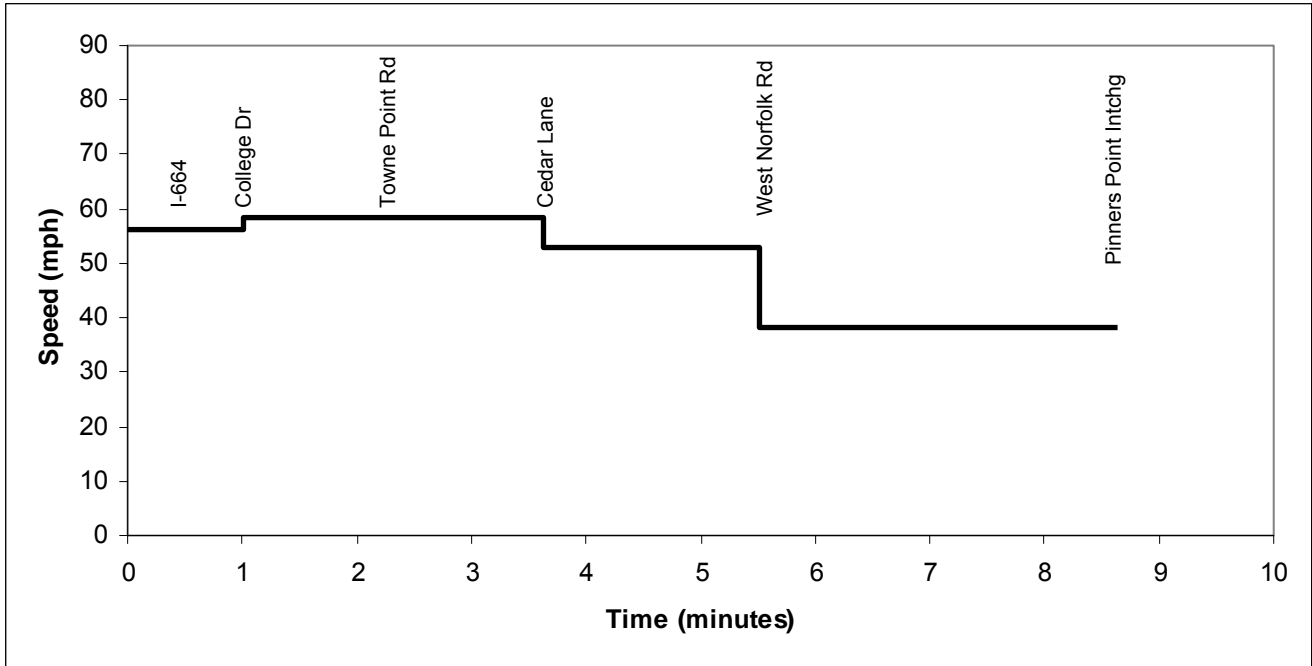
### Route 199 NB: Route 5 to I-64 (exit 234) – PM Peak Hour



### Route 199 SB: I-64 (exit 234) to Route 5 – PM Peak Hour



### Western Freeway Eastbound - PM Peak Hour



### Western Freeway Westbound - PM Peak Hour

