INTERSTATE 64 PENINSULA STUDY

AIR QUALITY TECHNICAL MEMORANDUM

OCTOBER 2012

Virginia Department of Transportation

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ACRONYMS

AADT	Annual Average Daily Traffic
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EAC	Early Action Compact
EB	Eastbound
EBL	Express Bus Lane
EIS	Environmental Impact Statement
EMIT	Easy Mobile Inventory Tool
ETL	Express Toll Lane
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HEI	Health Effects Index
HI	Hazard Index
HCS	Highway Capacity Software
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
I-64	Interstate 64
I-664	Interstate 664
I-95	Interstate 95
IMR	Interchange Modification Report
IRIS	Integrated Risk Information System
LOS	Level of Service
LRTP	Long Range Transportation Plan
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emissions Simulator
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NB	Northbound
NEPA	National Environmental Policy Act
NHS	National Highway System
NOx	Nitrogen Oxide
O3	Ozone
PM	Particulate Matter
ppm	Parts Per Million
RVP	Reid Vapor Pressure
SB	Southbound
SIP	State Implementation Plan
STRAHNET	Strategic Highway Network
SYIP	Six-Year Improvement Program
TIP	Transportation Improvement Program
TPO	Transportation Planning Organization
USDOT	Untied States Department of Transportation
USEPA	United States Environmental Protection Agency
VDEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation

VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WB	Westbound

I. Introduction

The following report describes the air quality conditions which may be impacted by the various Alternatives within the study area of the Interstate 64 (I-64) Peninsula Study. The purpose of this report is to document that the project will comply with all applicable Federal and State air quality regulations, and that the project will not cause or contribute to a violation of any air quality standard.

A. Project Description

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is evaluating options to improve the 75 mile long Interstate 64 (I-64) corridor from the Interstate 95 (I-95) (Exit 190) interchange in the City of Richmond to the Interstate 664 (I-664) (Exit 264) interchange in the City of Hampton. This study is known as the Interstate 64 Peninsula Study (hereinafter referred to as the I-64 Study in this document). As shown in **Figure 1**, the study area is located within seven localities, including the City of Richmond, Henrico County, New Kent County, James City County, York County, the City of Newport News, and the City of Hampton.

The number of lanes on existing I-64 varies through the study area. In the vicinity of the City of Richmond, from Exit 190 to Exit 197, there are generally three travel lanes in each direction. Between Exit 197 and mile marker 254, there are generally two travel lanes in each direction. Beginning at mile marker 254 and continuing east to the City of Hampton area, I-64 widens to four lanes in each direction with three general purpose lanes and one 2+ person High Occupancy Vehicle (HOV 2+) lane during the AM and PM peak periods. There are some additional lanes between closely spaced interchanges at the eastern end of the corridor to provide for easier merging of traffic on and off of the I-64 mainline.

B. Alternatives

There are a number of possible solutions to address the need for improvements along the I-64 corridor, as described in detail in the ***Alternatives Development Technical Memorandum***. The goals are to develop solutions that meet the project purpose and needs while avoiding and/or minimizing impacts to the human and natural environments. The following are the Alternatives being carried forward in this study:

1. No-Build Alternative

The No-Build Alternative serves as a baseline for the comparison of future conditions and impacts. The No-Build Alternative assumes that the projects currently programmed and funded in the VDOT's Fiscal Year 2013 - 2018 Six-Year Improvement Program (SYIP) will be implemented. In addition to the programmed VDOT projects, the Tidewater Super-Regional Travel Model developed by VDOT and used for this study includes other projects within the corridor that are part of the Richmond Area Metropolitan Planning Organization (MPO) or Hampton Roads Transportation Planning Organization's (TPO) *Constrained Long Range Plans*, as well as the *Rural Long Range Transportation Plans* (which are not fiscally constrained) for the Richmond and Hampton Roads Planning District Commissions. Those projects form a part of the Base Conditions and the effects of these projects on I-64 traffic are accounted for in all 2040 No-Build analyses.

2. Alternatives 1A/1B General Purpose Lanes

These Alternatives involve adding additional general purpose travel lanes to the I-64 mainline to achieve a Level of Service (LOS) C or better in the design year 2040. Although there are numerous possible combinations for adding these lanes, the analysis focused on adding all needed lanes within the existing right of way, to the greatest extent practicable, to either the outside of the existing lanes, which is Alternative 1A, or to the inside of the existing lanes within the median, which is Alternative 1B. For Alternative 1B, the lanes are also proposed in the median to the greatest extent practicable. However, not

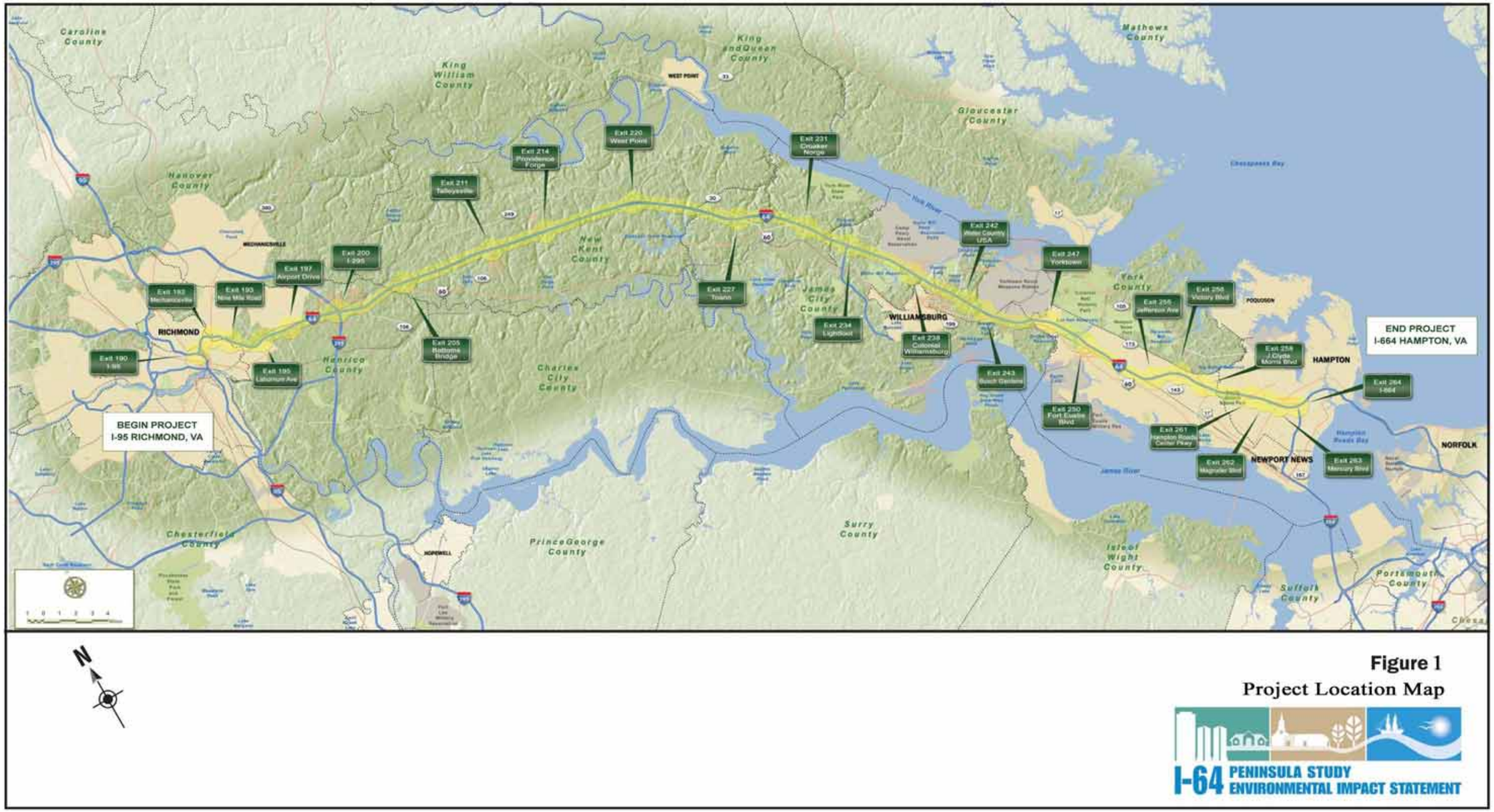


Figure 1
Project Location Map

I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside. For the 25 existing interchanges within the study area corridor, geometric deficiencies were examined along with design year 2040 traffic volumes and resulting LOS at each interchange location. Conceptual designs were investigated that would accommodate the future traffic and assumptions were made and applied to each interchange to establish a study footprint that would allow for enough flexibility during the final design stage to accommodate other concepts not yet examined. Further engineering and traffic analyses would be performed at each interchange as the project progresses. During the *Interchange Modification Report* (IMR) process, which is required by FHWA before any changes can be made to Interstate interchanges, each of these interchange configurations would serve as a starting point to be further studied and refined with a more in-depth examination of the needs at each location, in order to produce a constructible design.

3. Alternatives 2A/2B Full Toll Lanes

These alternatives evaluate the impacts of tolling the entire facility. However, as of the time of this study, there is no federal or state agreement in place that would allow for tolling I-64 from I-95 in the City of Richmond to I-664 in the City of Hampton. Therefore, these alternatives that involve tolling may or may not ultimately be possible. Notwithstanding, because tolling could be an option in the future, alternatives that involve tolling were considered in the range of possible alternatives evaluated. For the purposes of this study, it was assumed that if the facility is tolled, the tolling would be for all vehicles, in both directions, and for the entire length of the corridor from I-95 in the City of Richmond to I-664 in the City of Hampton. It was also assumed that there would be toll collection stations, using overhead gantries and all-electronic tolling, for every interchange to interchange sections of I-64. If Alternative 2A or 2B is selected, subsequent studies would refine the specifics of the tolling, such as whether or not it would encompass the entire length of the I-64 corridor along with the number and placement of the toll collection stations. In order to determine the number of lanes needed for Alternatives 2A/2B, the traffic studies included a toll diversion analysis. As a result of this analysis, the tolling of I-64 is expected to have either a neutral effect or result in a decrease in traffic volumes on the I-64 mainline due to people choosing to avoid a tolled I-64 and using other parallel routes instead. The tolls are not expected to result in increased volumes at any location on the I-64 mainline. This analysis indicated possible reductions to traffic on the I-64 corridor, however these reductions are not projected to change the number of lanes needed to achieve a LOS C or better in the design year 2040 from those indicated for the General Purpose Lanes Alternatives. Therefore, the proposed disturbance limits for Alternatives 2A/2B would be the same as Alternatives 1A/1B, respectively. Although there are numerous possible combinations for adding these lanes, the analysis focused on adding all needed lanes within the existing right of way, to the greatest extent practicable, to either the outside of the existing lanes, which is Alternative 2A, or to the inside of the existing lanes within the median, which is Alternative 2B. For Alternative 2B, the lanes are also proposed in the median to the greatest extent practicable. However, not all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside. In addition to the mainline improvements, due to only modest changes in traffic volumes, as determined in the toll diversion analysis, Alternatives 2A/2B also includes the same improvements to the 25 interchanges as described with Alternatives 1A/1B.

4. Alternative 3 Managed Lanes

This Alternative involves the addition of separated, managed lanes located in the median. These managed lanes were examined for the entire length of the I-64 study area from I-95 in the City of Richmond to I-664 in the City of Hampton. As previously described, not all sections of the I-64 corridor have sufficient median area to accommodate the addition of any lanes. In these areas, the facility is proposed to be widened to the outside of the existing general purpose lanes in order to accommodate the managed lanes between the eastbound and westbound general purpose travel lanes. Managed lanes can refer to many different strategies, including:

- High-Occupancy Vehicle (HOV) lanes.
- High Occupancy/Toll (HOT) lanes.
- Express Toll Lanes (ETL).
- Express Bus Lanes (EBL).

For any of the managed lanes that involve toll collection (HOT or ETL lanes), traditional toll plazas were not included. All toll collections were assumed to be conducted by all-electronic overhead gantries that collect tolls at free-flowing highway speeds. The Environmental Impact Statement (EIS) study does not identify what type of managed lanes would be constructed. The lane configurations developed for Alternative 3 along the I-64 corridor are described in the ***Alternatives Development Technical Memorandum*** *and are based on the results of the capacity analysis*. If Alternative 3 is selected, subsequent studies may be needed to refine the specifics of the managed lanes throughout the I-64 corridor.

C. Introduction to Air Quality Assessment

Air quality became a national concern in the mid-1960s, leading to the passage of the Air Quality Act in 1967. Following the passage of the Federal Clean Air Act Amendments of 1990 (CAAA), states were mandated to implement additional steps to reduce airborne pollutants and improve local and regional conditions. Automobile emissions have been identified as a critical element in attaining the federal National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), ozone (O_3), and fine particulate matter ($PM_{2.5}$).

As a result of federal funding for this project, compliance is required with both the National Environmental Policy Act (NEPA) and the Clean Air Act. Highway agencies are required to consider the impacts of transportation improvement projects on both the local and regional level. Regional air quality, when located in ozone nonattainment and maintenance areas, is assessed by ensuring that region-wide volatile organic compounds (VOC) and nitrogen oxide (NO_x) emissions fall below the established motor vehicle emission budgets identified by the State Implementation Plan (SIP). When applicable, this assessment is performed by the VDOT and/or the applicable metropolitan planning organization and documented in the transportation conformity finding for the region's TIP and/or LRTP.

As shown in **Figure 1**, the study area is located within seven localities; the Cities of Hampton, Newport News, and Richmond, and the Counties of Henrico, New Kent, James City, and York. The City of Richmond and the County of Henrico lie within the boundaries of the Richmond 8-Hour Ozone Maintenance Area, and the Cities of Hampton and Newport News, and the Counties of James City and York lie within the boundaries of the Hampton Roads 8-Hour Ozone Maintenance Area. Therefore, transportation conformity requirements apply. New Kent County is currently designated as attainment with all of the NAAQS.

Generally, local air quality is assessed on a micro-scale by evaluating CO concentrations at the project level. CO is a colorless, odorless, poisonous gas considered to be a serious threat to those who suffer from cardiovascular disease. High concentrations of CO tend to occur in areas of high traffic volumes or areas adjacent to a stationary source of the pollutant. CO emissions are associated with the incomplete combustion of fossil fuels in motor vehicles and are considered to be a good indicator of vehicle-induced air pollution.

Under NEPA, federal agencies must consider environmental factors in the decision making process. Changes in air quality, and the effects of such changes on human health and welfare, are among the factors to be considered. A project-level air quality analysis has been performed to assess the air quality impacts of the project, document the findings of the analysis, and make the findings available for review

by the public and decision makers. The findings of the analysis, as presented in this report, are summarized in the NEPA documentation.

Under provisions of the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) is required to set NAAQS for pollutants considered harmful to public health and welfare. As shown in **Table 1**, USEPA has established Primary Standards, the attainment and maintenance of which, in the judgment of USEPA, and allowing an adequate margin of safety, are requisite to protect the public health. USEPA also established Secondary Standards to protect the public welfare (e.g., to protect against damage to crops, vegetation, buildings, and animals). The pollutants (CO, lead, nitrogen dioxide, particulate matter (PM), fine PM, ozone, and sulfur dioxide) for which NAAQS have been established are called "criteria pollutants." Federal actions must not cause or contribute to any new violation of the NAAQS, increase the frequency or severity of any existing violation, or delay timely attainment of any standard or required interim milestone.

Geographic regions that do not meet NAAQS for one or more criteria pollutants are designated by USEPA as "nonattainment areas." Areas previously designated as nonattainment, but subsequently re-designated attainment because they no longer violate NAAQS, are designated as "maintenance areas" subject to maintenance plans to be developed and included in a state's SIP. The project lies partially within both the Richmond and Hampton Roads 8-hour ozone maintenance areas, therefore transportation conformity requirements apply.

The federal conformity rule (40 CFR Parts 51 and 93) requires air quality conformity determinations for transportation plans, programs, and projects in "nonattainment or maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan" (40 CFR 93.102(b)). Transportation-related criteria pollutants, as specified in the conformity rule, include O_3, CO, nitrogen dioxide (NO_2), and particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively). Regional conformity analysis requirements apply for plans and programs; hot-spot analysis requirements of 40 CFR 93.116 and 93.123 apply for projects.

Table 1: National Ambient Air Quality Standards

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour (1)	None	
	35 ppm (40 mg/m^3)	1-hour (1)		
Lead	0.15 µg/m^3 (2)	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m^3	Quarterly Average		
Nitrogen Dioxide	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM_{10})	150 µg/m^3	24-Hour (3)	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual (4) (Arithmetic Mean)	Same as Primary	
	35 µg/m^3	24-hour (5)		

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Ozone	0.075 ppm (2008 Standard)	8-hour [6]	Same as Primary	
	0.08 ppm (1997 Standard)	8-hour [7]		
	0.12 ppm	1-hour [8]		
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.05 ppm (1300 $\mu g/m^3$)	3-hour [1]
	0.14 ppm	24-hour [1]		

[1] Not to be exceeded more than once per year.
[2] Final rule signed October 15, 2008.
[3] Not to be exceeded more than once per year on average over 3 years.
[4] To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.
[5] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).
[6] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
[7] (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
[8] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.
(b) As of June 15, 2005 EPA has revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas. For one of the 14 EAC areas (Denver, CO), the 1-hour standard was revoked on November 20, 2008. For the other 13 EAC areas, the 1-hour standard was revoked on April 15, 2009.
Source: Table and footnotes above are excerpted from US Environmental Protection Agency Website: http://www.epa.gov/air/criteria.html

Modeling protocols for quantitative hot-spot analyses are to comply with the standards outlined in 40 CFR 51, Appendix W, *Guideline on Air Quality Models*, and guidelines in USEPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersection*" (USEPA-454/R-92-005).

The USEPA and FHWA issued joint guidance for conducting hot-spot analyses for PM: *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (March 2006). While the guidance does not apply to this project because it is located in a $PM_{2.5}$ and PM_{10} attainment area, the project was still subjected to the guidance and was found not to be a "project of air quality concern" for particulate matter. A detailed discussion of this determination is included in **Section IV** of this report.

As indicated in the *Consultant Guide*, on February 27, 2009, FHWA and VDOT completed the updated Memorandum of Understanding (MOU) addressing requirements on when a quantitative or qualitative CO hot-spot analysis is required. Under this revised agreement (original agreement was August 4, 2004) project-level air quality (hot-spot) analyses are conducted for CO for projects that meet traffic and related criteria as specified in the revised agreement or if an EIS is being prepared. As such, since 2040 average annual average daily traffic (AADT) (regardless of Alternative) do exceed the threshold identified by the

MOU and an EIS is being prepared, a quantitative CO analysis was performed for the entire project corridor for inclusion in the air study.

The FHWA issued on September 30, 2009 updated guidance titled *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. The guidance included specific criteria for determining which projects are to be considered exempt from MSAT analysis requirements and which may require a qualitative or quantitative analysis. Projects considered exempt under section 40 CFR 93.126 of the federal conformity rule are also specifically designated as exempt from MSAT analysis requirements. Any project that creates new capacity or adds significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with forecasted design year AADT volumes in the range of 140,000 to 150,000 or greater, and which is also in proximity to populated areas, such as this project, requires a quantitative MSAT analysis. The updated guidance reflects recent regulatory changes, projects national MSAT emission trends out to 2050, and summarizes recent research efforts; however, it does not change any project analysis thresholds, recommendations, or guidelines.

VDOT's May 2009 *Consultant Guide, Air Quality Project-Level Analysis, Revision 18*, provides guidelines and standards for conducting air quality analyses for transportation projects in Virginia. The Guide complies with and supplements FHWA and USEPA regulations and guidelines. The air quality analyses presented in this report are consistent with the requirements contained in the Guide.

In 2009, the USEPA released a new model called the Motor Vehicle Emissions Simulator (MOVES). This model will replace MOBILE6.2 for estimating on-road motor vehicle emissions. In March of 2010 the USEPA published a Federal Register Notice of Availability that approved MOVES2010 as the USEPA's tool for estimating emissions of VOCs, NOx, CO, PM_{10}, $PM_{2.5}$ and other pollutants. On February 27, 2012, USEPA took final action to extend the original two-year grace period to March 2, 2013 before MOVES2010 is required for use in regional transportation conformity analyses. In August of 2010, USEPA approved an updated version of the MOVES model (MOVES2010a) for official use. It incorporated new car and light truck greenhouse gas emission standards that was published May 2, 2010 as well as a number of other minor improvements.

On December 20, 2010, a Federal Register Notice of Availability was published that announced a new USEPA guidance document for completing project-level quantitative CO hot-spot analyses using MOVES. This notice also announced a two-year grace period before MOVES2010a is required to be used in quantitative CO and PM hot-spot analyses for project-level conformity determinations outside California. More recently, the latest version of MOVES, MOVES2010b, was released in April 2012 and provides more flexibility for varying inputs with increased functionality of the software. MOVES2010b does not significantly affect the criteria pollutant emissions results when compared to MOVES2010 or MOVES2010a, and is therefore not considered a new model that would restart a new two-year grace period for either regional or project-level conformity analyses. Since the MOVES2010 grace period ends December 20, 2012, the Mobile6.2 mobile emissions model was used throughout this analysis.

D. Traffic Summary/Supporting Information

Traffic forecasts were developed for Existing (2011), Opening Year (2020) No-Build and Build, and Design Year (2040) No-Build and Build Conditions (including all Alternatives considered) for mainline I-64, including all 25 interchange locations along the project corridor. The traffic volumes used in the CO analysis are based on the AM and PM peak hour traffic volume projections and were supplied by members of the Project Team.

For the MSAT analysis, regional traffic volumes were taken from Tidewater Super-Regional Travel Tidewater Model. The Tidewater model is comprised of roadway links from the Richmond and Tri-Cities MPO areas, the Hampton Roads MPO area, and the region between the two MPOs (including much of

southside Virginia and the area surrounding the I-64 corridor between Richmond and Newport News. The Tidewater model is described in greater detail in the ***Traffic and Transportation Technical Memorandum***. In general, it uses existing and projected population and employment data in different zones throughout the Tidewater region to generate projected future traffic volumes on the region's highways. It can be used to provide estimates for existing conditions, Future No-Build Conditions (conditions without the I-64 Study improvements but with other projects in the LRTPs for the region), and Future Build Conditions under each of the different Alternatives.

The Tidewater model encompasses an enormous area of southeastern Virginia. For the purposes of MSAT analysis, only the "affected network" portion of the Tidewater model area was analyzed. The "affected network" is the geographic area within the Tidewater region that surrounds the study corridor, encompassing each road that might reasonably see differing traffic volumes if improvements to the I-64 Study are constructed. A map depicting the "affected network" can be found in **Appendix C** of this technical memorandum. This affected network has the following approximate boundaries:

- North of I-64 - York River, SR 249, I-295 where it curves around the north side of Richmond.
- West of I-64 - I-95.
- South of I-6 - US 460.
- East of I-64 - Routes 10/32 in Suffolk/Isle of Wight, Hampton Roads Bay (in other words, cities on the south side of the Hampton Roads area such as Norfolk and VA Beach were not included in the MSAT analysis).

The Tidewater model used for this study uses the year 2000 as its base year and the year 2034 as its design year. The I-64 Study is using the year 2011 as its base year, 2020 as the opening year, and 2040 as the design year. Therefore, interpolation/extrapolation was performed to estimate 2011/2020/2040 volumes for the network from the 2000/2034 models. Additional details regarding this process and other technical assumptions used in adapting the Tidewater model for the MSAT analysis are included in **Appendix C**.

For Alternatives 2A/2B and Alternative 3, it is assumed that fully electronic tolling will be utilized, eliminating the need for traditional toll booths. As such, drivers will travel through at free-flow speeds, with no queuing conditions anticipated.

II. Carbon Monoxide Analysis

The purpose of this analysis was to identify "worst-case" or peak CO concentrations that could occur throughout the project corridor for Existing (2011); Opening Year (2020) No-Build and Build; and Design Year (2040) No-Build and Build Conditions for Alternatives 1A/1B, Alternatives 2A/2B and Alternative 3. CO is a stable gas that disperses in predictable ways in the atmosphere; therefore, computer modeling can be used to assess both existing and expected future atmospheric concentrations of CO at selected receptor sites. The modeling inputs and procedures were developed in accordance with USEPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections* and VDOT's May 2009 *Consultant Guide, Air Quality Project-Level Analysis, Revision 18.*

The air quality modeling approach includes the use of two computer programs. Based on traffic and meteorological data, CO emission rates were calculated using the USEPA MOBILE6.2 computer model.

In order to streamline data entry, FHWA's Easy Mobile Inventory Tool (EMIT), which incorporates the MOBILE6.2 model, was used to calculate CO emission rates at varying speeds for each analysis year. The projected worst-case CO emission rates were then applied to the CAL3QHC computer model. This program is used to determine dispersion of CO from highway sources to air quality receptors by

representing the geometric relationship between roadways and receptor sites. Factors taken into account in this model include pollutant source strength, wind speed, wind angle, atmospheric stability, roadway length and width, surface roughness, vehicle volume, emission factors, and background CO concentrations. This program is fully documented in the *User's Guide to CAL3QHC, Version 2.0* (USEPA-454/R-92-006), September 1995.

After modeling Existing (2011), Interim/Opening Year No-Build (2020), Interim/Opening Year Build (2020), Design Year No-Build (2040), and Design Year Build (2040) CO concentrations (for all Alternatives considered), these levels were then compared to the NAAQS for CO. These standards are 35 ppm and 9 ppm for the second highest one-hour and eight-hour periods, respectively (shown in **Table 1**). These standards have been designed and adapted in an effort to protect public health and welfare.

The air quality models were designed to replicate traffic operations associated with the existing and future conditions. All intersection and interchange areas were modeled under existing and future traffic conditions. As stipulated by USEPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections*, each receptor represents an area where the public would have continuous access to the immediate vicinity. The greatest concentrations of CO tend to occur in the winter months, when automobiles experience incomplete combustion of fuel, due to low temperatures. For this reason all modeling was performed to represent wintertime (January) conditions.

As specified in VDOT's *Consultant Guide*, data inputs included the most recent local vehicle registration data (2011), fuel quality (sulfur and Reid Vapor Pressure), and other applicable data. The average January minimum temperature was used as specified in the guidance and varies depending on region. Since the project spans approximately 75 miles, temperature inputs for both the Richmond and Hampton Roads regions were used to predict the CO emissions rates for each analysis year. Other applicable data was kept at USEPA defaults where appropriate and represented worst-case modeling assumptions. The modeling inputs used for MOBILE6.2 and CAL3QHC are summarized in **Table 2** and **Table 3**. Additionally, **Table 4** summarizes the worst-case CO emission rates that were used for each analysis year to predict worst-case peak CO concentrations throughout the project corridor.

Table 2: Inputs to MOBILE6.2

Parameter	Data
Evaluation Month	January
Evaluation Season	2
Min/Max Temperature (Fahrenheit)	28/28 (Richmond)
Min/Max Temperature (Fahrenheit)	32/32 (Hampton Roads)
Absolute Humidity	75
Gasoline Reid Vapor Pressure (RVP) (pounds per square inch)	13.5
Fuel Type	Conventional East

Source: VDOT's *Consultant Guide – Air Quality Project-Level Analysis, Revision 18 (May 2009)*

Table 3: CAL3QHC Worst-Case Inputs

Parameter	Data
Surface Roughness Coefficient	175 cm (urban)
Surface Roughness Coefficient	11 cm (rural)

Parameter		Data
Background CO Concentrations (parts per million) (Richmond Area)	1-hour	3.0 ppm
	8-hour	2.2 ppm
Background CO Concentrations (parts per million) (Hampton Roads Area)	1-hour	3.6 ppm
	8-hour	2.5 ppm
Wind Speed (meters per second)		1 m/s
Stability Class		Urban - D
Stability Class		Rural - E
Mixing Height		1000 meters
Receptor Height		5.9 feet
Persistence Factor		0.7

Source: VDOT's *Consultant Guide – Air Quality Project-Level Analysis, Revision 18 (May 2009)*

Table 4: MOBILE6.2 Outputs – Summary of CO Emission Rates

		Analysis Year		
Location	**Speed (mph)**	**2011**	**2020**	**2040**
City of Richmond	2.5	140.963	102.710	96.003
	25	22.190	16.292	15.270
	30	21.907	16.094	15.088
	35	21.956	16.122	15.113
	40	22.573	16.598	15.563
	45	23.204	17.085	16.023
	50	23.849	17.582	16.493
	55	24.509	18.089	16.973
	60	25.203	18.627	17.481
	65	25.920	19.182	18.007
City of Newport News	2.5	122.426	90.433	84.828
	25	19.568	14.566	13.690
	30	19.344	14.406	13.542
	35	19.398	14.440	13.573
	40	19.945	14.868	13.979
	45	20.500	15.302	14.392
	50	21.064	15.743	14.810
	55	21.636	16.190	15.234
	60	22.243	16.671	15.691
	65	22.863	17.160	16.156
City of Hampton	2.5	138.115	100.900	93.943
	25	21.875	15.990	14.899
	30	21.622	15.812	14.735
	35	21.684	15.850	14.770

		Analysis Year		
Location	**Speed (mph)**	**2011**	**2020**	**2040**
	40	22.301	16.330	15.222
	45	22.927	16.816	15.681
	50	23.561	17.309	16.145
	55	24.203	17.808	16.616
	60	24.822	18.341	17.119
	65	25.574	18.883	17.632
York County	2.5	122.720	91.688	86.403
	25	19.508	14.659	13.825
	30	19.282	14.497	13.675
	35	19.344	14.532	13.706
	40	19.887	14.970	14.125
	45	20.449	15.415	14.459
	50	21.019	15.867	14.980
	55	21.598	16.325	15.416
	60	22.213	16.816	15.886
	65	22.841	17.317	16.364

Notes: Emission rates for speeds 25 to 65 mph are in units of grams per vehicle miles traveled (g/VMT).
Idle emission rates (2.5 mph) are in units of grams per vehicle hour (g/veh-hr).

1. CO Receptor Locations

As stipulated by USEPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections*, selection of potential air quality receptors used the following criteria:

- Select areas of expected 1-hour and 8-hour maximum concentrations.
- Select areas of where the general public has continuous access over specific time periods.
- Reasonable receptor locations.

As referenced in USEPA's guidance, each receptor represents an area where the public would have continuous access to the immediate vicinity. Areas were selected based on generalized assessments of where human activity is likely to coincide with the highest CO concentrations.

The locations selected for analysis include a wide variety of land use types, which range from single family residential areas to open areas near commercial and retail facilities. In general, areas were selected based on generalized assessments of where human activity is likely to coincide with where the highest CO concentrations are likely to occur. If the projected peak CO concentrations at the worst-case locations selected in the analysis are below the CO NAAQS, then it is assumed that all other locations within the project corridor will also remain below the CO NAAQS. **Figure 2** through **Figure 7** show the sensitive receptor locations along the proposed Build Alternatives that were selected for the CO hot-spot analysis.

The I-64 Study area includes a wide variety of land use types, roadway features, and areas where the public has continuous access adjacent to the proposed improvements. The area is comprised primarily of mixed commercial and residential land uses along with vacant/forested areas throughout the project corridor. In terms of roadway features, the project consists of areas between interchanges and the interchange areas. In addition to I-64 mainline lanes, additional local street systems as well as collector-distributor roads parallel to the project corridor were also included in the analysis as appropriate.

Potential traffic queues between interchanges can occur as a result of congestion at interchange locations or heavy traffic volumes. At interchanges, potential traffic queues can develop as a result of the ramps to and from I-64 as well as local arterial roadways and other merge areas. In addition, selected signalized intersections were also included for analysis in the study.

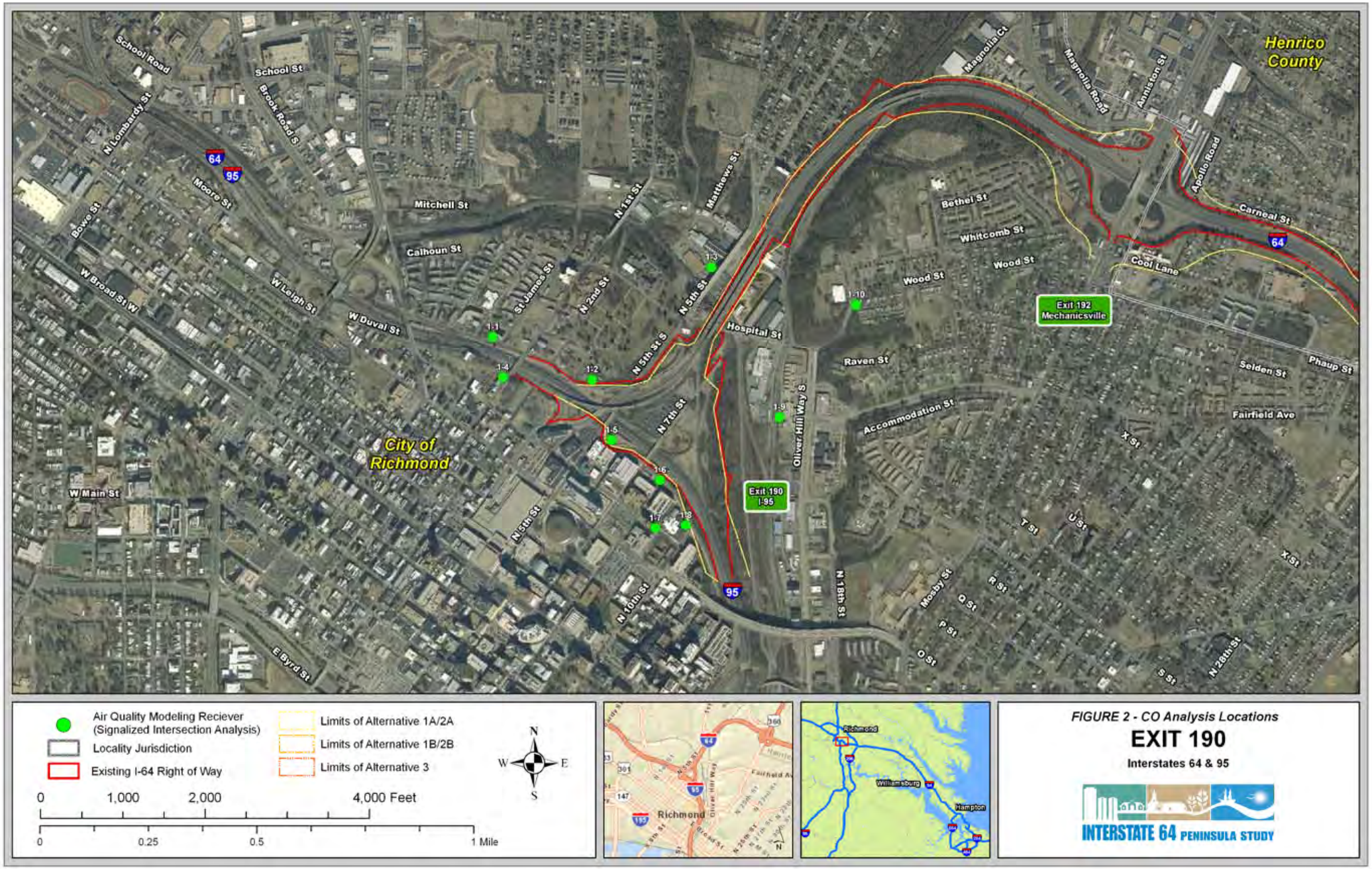
As discussed earlier, all lanes under Alternatives 2A/2B and the designated HOT lanes under Alternative 3 will be tolled for vehicles. Rather than utilizing toll plazas, it was assumed that each fare would be collected via electronic tolling. As a result, no planned toll booth plazas were anticipated and drivers were assumed to travel through at free-flow speeds. The implementation of toll collection utilizing this technology is predicted to have no negative effects on air quality since queuing traffic conditions is not expected.

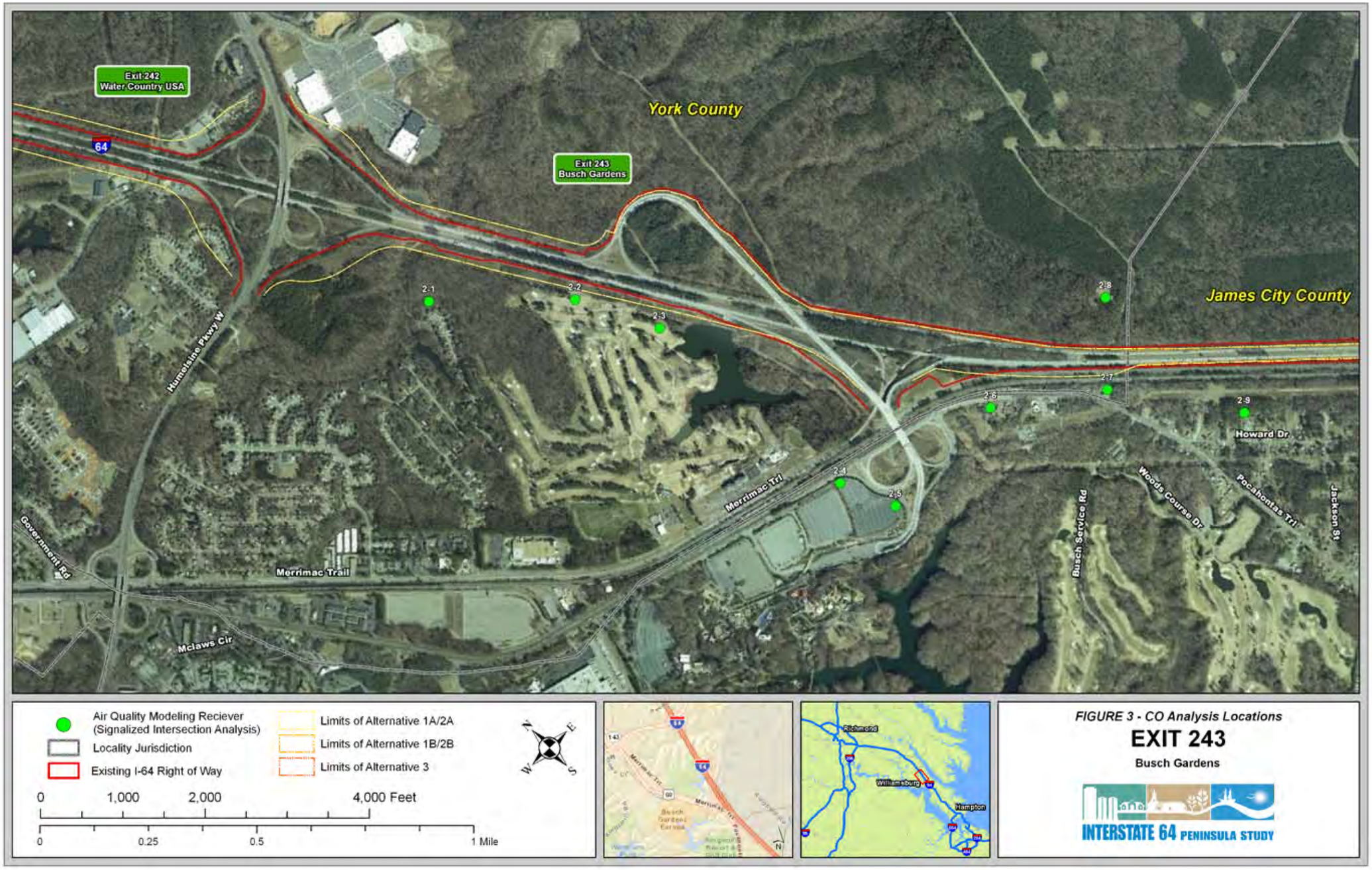
The USEPA guidance for selecting intersection locations for analysis suggests ranking the top intersection locations based on traffic volumes and LOS. Using an analysis area radius of 1000 feet around potential receptors, traffic impacts for most potential receptor locations in the study corridor would include a number of intersections as well as roadway and ramp segments. The intersections along the project corridor, as well as the adjacent roadway features, often carry a range of traffic volumes and operate at various service levels within any given time period.

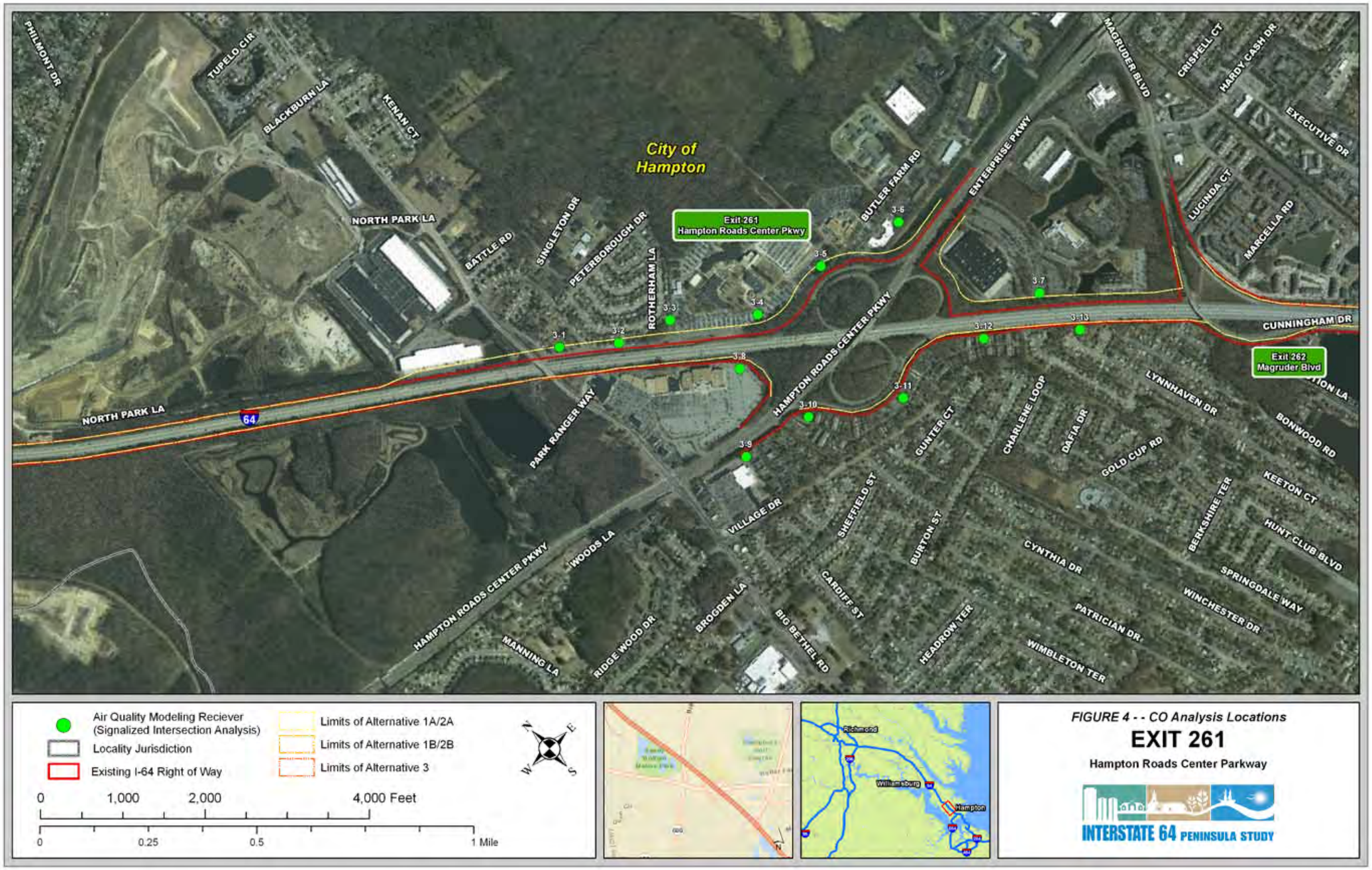
In order to identify worst-case intersections/interchanges for inclusion in the air quality assessment, AADT volumes and percent change in traffic volumes between No-Build and Build Alternatives 1A/1B were analyzed, and are summarized in **Appendix D**. Traffic projections for Build (2040) Alternatives 1A/1B were used as a worst-case condition since the traffic volumes for Build (2040) Alternatives 2A/2B and Build (2040) Alternative 3 are projected to be less than Build (2040) Alternatives 1A/1B in all cases. The specific AM and PM peak hour volumes for all Alternatives considered, including on and off-ramps, cross streets, and mainline I-64, are included in **Appendix D** of this report. As a supplement to the peak hour traffic data, AADT information was also reviewed and analyzed. AADT volumes, which represent the total volume of daily traffic entering each interchange from all directions, are summarized per analysis year and included in the table in **Appendix D**. As discussed in the Alternatives section of this report, the project consists solely to improvements to mainline I-64 and the associated interchange areas and it would not include any improvements to adjacent signalized intersections.

For the purposes of the quantitative CO hot-spot analysis, the four worst-case interchange areas were selected for analysis based on worst-case AADT traffic volumes under Design Year (2040) Build Alternatives 1A/1B. After thoroughly reviewing the peak-hour traffic data, it was determined that the PM peak hour traffic volumes are generally higher than the AM peak throughout the project corridor; therefore, the PM peak hour volumes were used in the analysis to represent worst-case conditions. Additional elements that were also reviewed when selecting interchange areas included the percent change between Design Year No-Build (2040) and Build (2040) Alternatives 1A/1B, geographic locations along the project corridor, and adjacent sensitive receptors. When selecting locations for inclusion in the assessment, additional consideration was given to existing land uses, although not as a final determining factor. The CO hot-spot assessment included two of the top three interchanges (Exit 190 (Rank #1), Exit 243, Exit 261 and Exit 263 (Rank #3)) based on total PM peak hour traffic volumes under Design Year (2040) Build Alternatives 1A/1B, when compared to all other interchanges along the project corridor. The four worst-case interchanges selected for further analysis in the study were:

- I-64 Exit 190 – I-64 and I-95 Interchange (West), Ranked #1.
- I-64 Exit 243 – Busch Gardens Interchange (Central).
- I-64 Exit 261 – I-64 and Hampton Roads Center Parkway Interchange (East).
- I-64 Exit 263 – I-64 and US 258 (Mercury Boulevard) Interchange (East), Ranked #3.


Henrico County
City of Richmond
School Road
School St
Brook Road S
N Lombardy St
Moore St
Mitchell St
Bowe St
Calhoun St
W Broad St W
W Leigh St
W Duval St
St James St
N 2nd St
N 1st St
Matthews St
N 5th St
N 5th St S
N 7th St
Hospital St
Magnolia Ct
Magnolia Road
Anniston St
Apollo Road
Carneal St
Bethel St
Whitcomb St
Wood St
Cool Lane
Exit 192 Mechanicsville
Raven St
Selden St
Phaup St
Oliver Hill Way S
Accommodation St
Fairfield Ave
X St
T St
U St
R St
Q St
P St
O St
S St
Mosby St
N 18th St
N 28th St
Exit 190 I-95
N 10th St
E Byrd St
W Main St
1-1
1-2
1-3
1-4
1-5
1-6
1-7
1-8
1-9
1-10
64
95
Air Quality Modeling Reciever (Signalized Intersection Analysis)
Locality Jurisdiction
Existing I-64 Right of Way
Limits of Alternative 1A/2A
Limits of Alternative 1B/2B
Limits of Alternative 3
N
W
E
S
0
1,000
2,000
4,000 Feet
0
0.25
0.5
1 Mile
Richmond
Williamsburg
Hampton
FIGURE 2 - CO Analysis Locations
EXIT 190
Interstates 64 & 95
INTERSTATE 64 PENINSULA STUDY


Exit 242
Water Country USA
64
York County
Exit 243
Busch Gardens
James City County
Humelsine Pkwy W
Merrimac Trail
Government Rd
Mclaws Cir
Merrimac Trl
Busch Service Rd
Woods Course Dr
Pocahontas Trl
Jackson St
Howard Dr
2-1
2-2
2-3
2-4
2-5
2-6
2-7
2-8
2-9
Air Quality Modeling Reciever
(Signalized Intersection Analysis)
Locality Jurisdiction
Existing I-64 Right of Way
Limits of Alternative 1A/2A
Limits of Alternative 1B/2B
Limits of Alternative 3
0 1,000 2,000 4,000 Feet
0 0.25 0.5 1 Mile
Richmond
Williamsburg
Hampton
FIGURE 3 - CO Analysis Locations
EXIT 243
Busch Gardens
INTERSTATE 64 PENINSULA STUDY


City of Hampton
Exit 261
Hampton Roads Center Pkwy
Exit 262
Magruder Blvd
PHILMONT DR
TUPELO CIR
BLACKBURN LA
KENAN CT
NORTH PARK LA
BATTLE RD
SINGLETON DR
PETERBOROUGH DR
ROTHERHAM LA
BUTLER FARM RD
ENTERPRISE PKWY
MAGRUDER BLVD
CRISPELL CT
HARDY CASH DR
EXECUTIVE DR
LUCINDA CT
MARCELLA RD
CUNNINGHAM DR
HAMPTON ROADS CENTER PKWY
PARK RANGER WAY
64
LYNNHAVEN DR
BONWOOD RD
GOLD CUP RD
KEETON CT
HUNT CLUB BLVD
SPRINGDALE WAY
WINCHESTER DR
PATRICIAN DR
WIMBLETON TER
CYNTHIA DR
BERKSHIRE TER
HEADROW TER
BURTON ST
SHEFFIELD ST
CARDIFF ST
BIG BETHEL RD
BROGDEN LA
RIDGE WOOD DR
MANNING LA
WOODS LA
VILLAGE DR
GUNTER CT
CHARLENE LOOP
DALFIA DR
3-1
3-2
3-3
3-4
3-5
3-6
3-7
3-8
3-9
3-10
3-11
3-12
3-13
Air Quality Modeling Reciever
(Signalized Intersection Analysis)
Locality Jurisdiction
Existing I-64 Right of Way
Limits of Alternative 1A/2A
Limits of Alternative 1B/2B
Limits of Alternative 3
0
1,000
2,000
4,000 Feet
0
0.25
0.5
1 Mile
Richmond
Williamsburg
Hampton
FIGURE 4 - - CO Analysis Locations
EXIT 261
Hampton Roads Center Parkway
INTERSTATE 64 PENINSULA STUDY

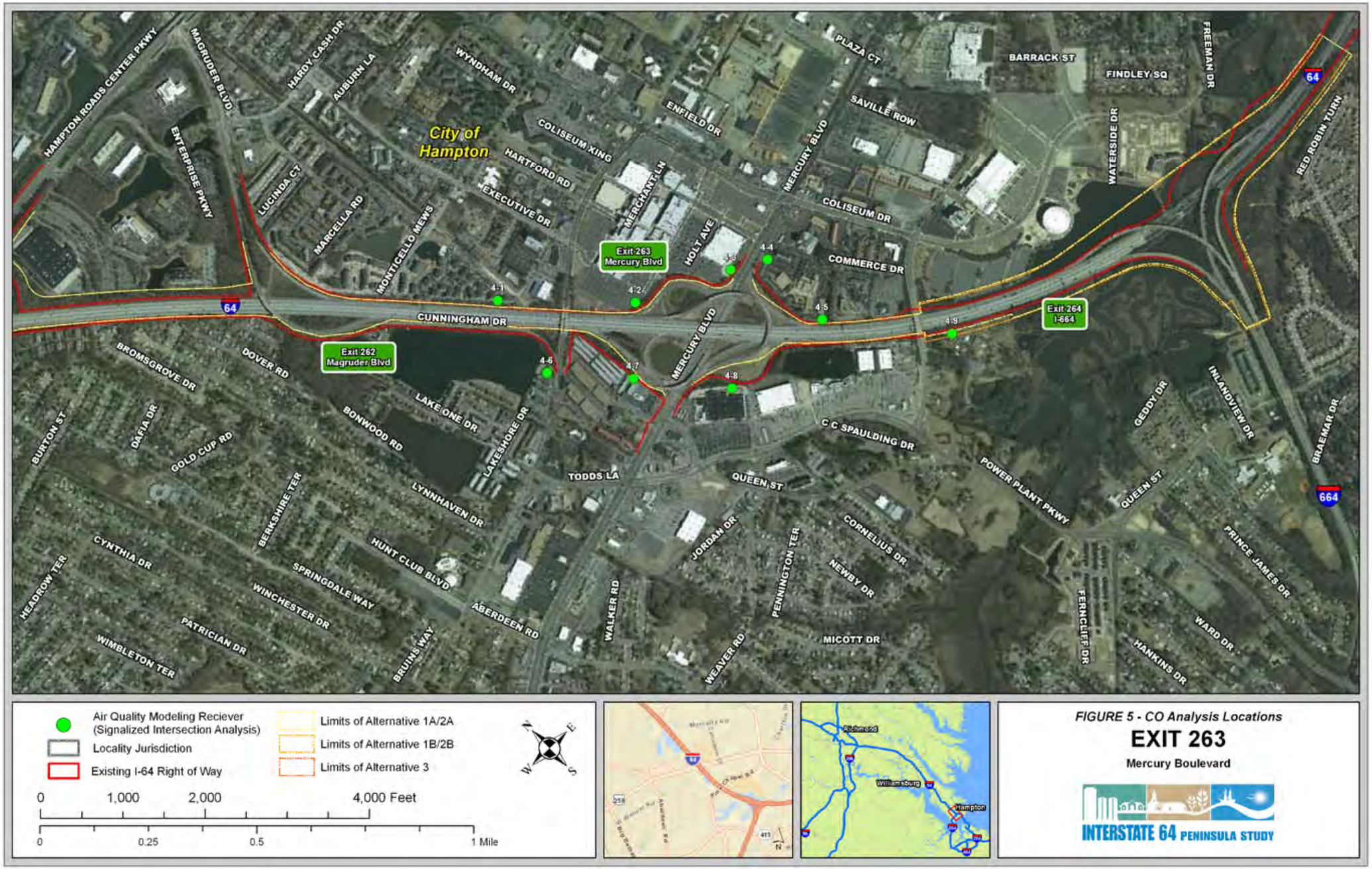
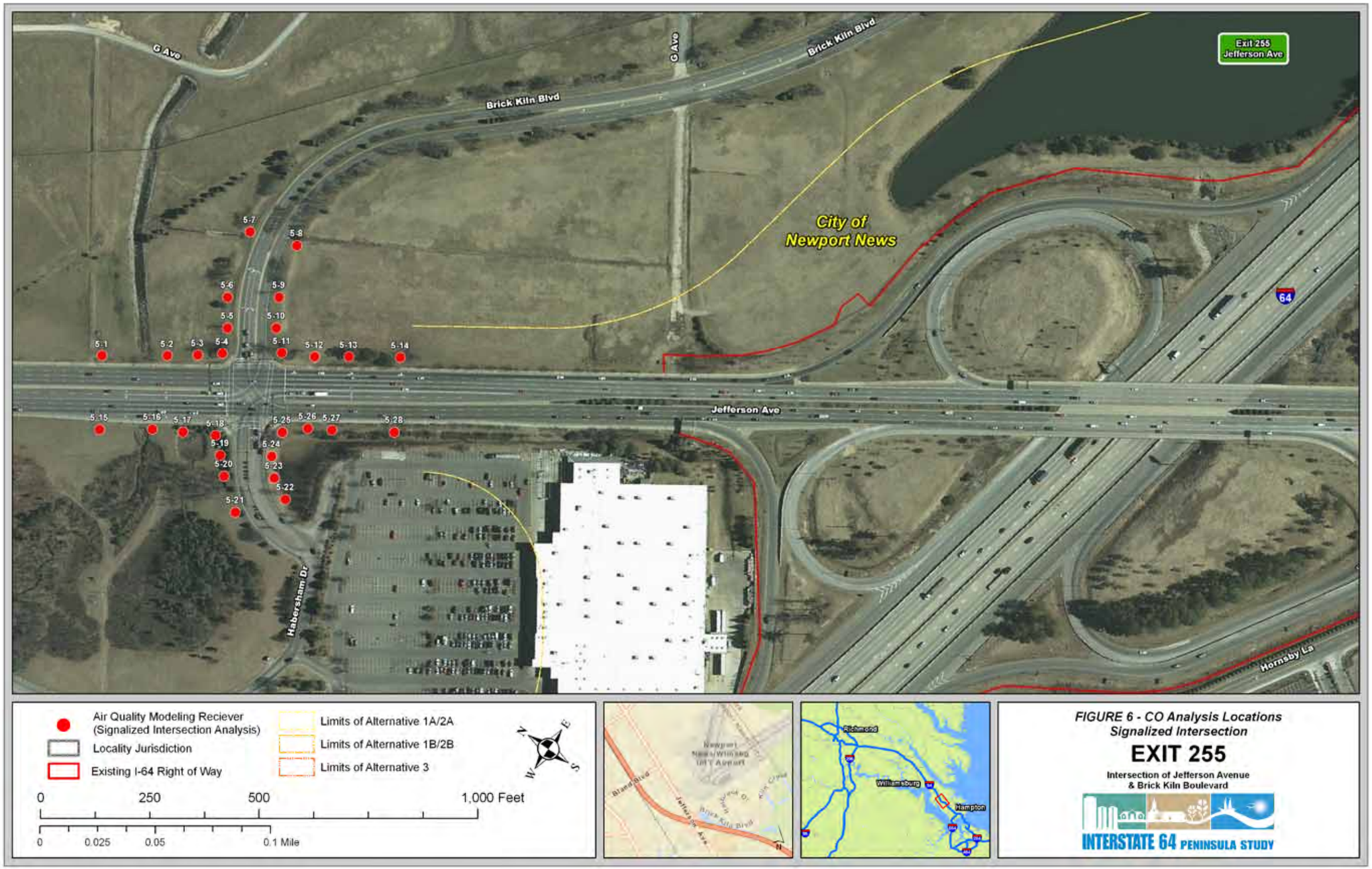


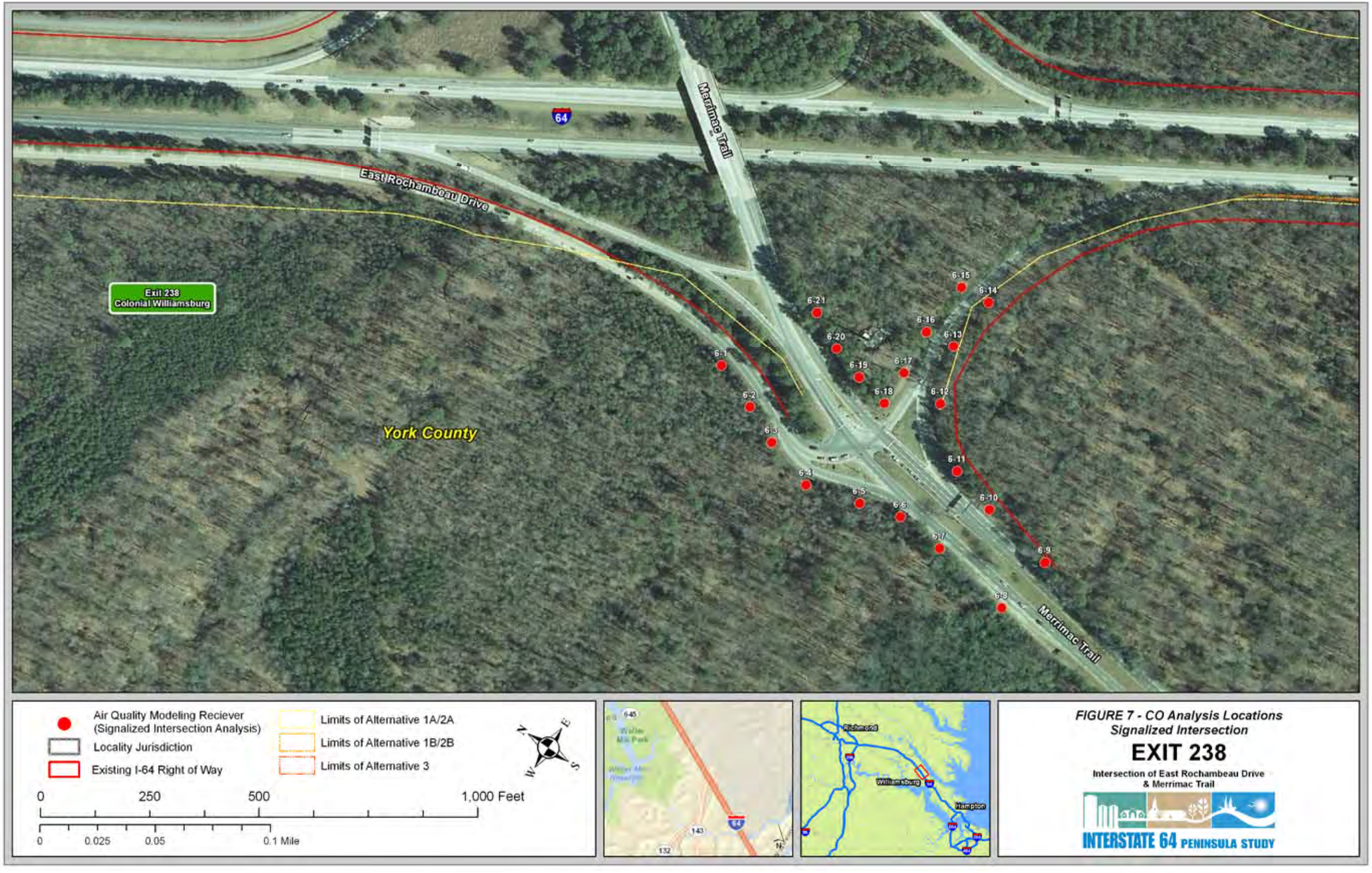
FIGURE 5 - CO Analysis Locations

EXIT 263

Mercury Boulevard

INTERSTATE 64 PENINSULA STUDY


G Ave
Brick Kiln Blvd
G Ave
Brick Kiln Blvd
Exit 255
Jefferson Ave
City of
Newport News
64
5-1
5-2
5-3
5-4
5-5
5-6
5-7
5-8
5-9
5-10
5-11
5-12
5-13
5-14
5-15
5-16
5-17
5-18
5-19
5-20
5-21
5-22
5-23
5-24
5-25
5-26
5-27
5-28
Jefferson Ave
Habersham Dr
Hornsby La
Air Quality Modeling Reciever
(Signalized Intersection Analysis)
Locality Jurisdiction
Existing I-64 Right of Way
Limits of Alternative 1A/2A
Limits of Alternative 1B/2B
Limits of Alternative 3
N
W
E
S
0
250
500
1,000 Feet
0
0.025
0.05
0.1 Mile
Richmond
Williamsburg
Hampton
FIGURE 6 - CO Analysis Locations
Signalized Intersection
EXIT 255
Intersection of Jefferson Avenue
& Brick Kiln Boulevard
INTERSTATE 64 PENINSULA STUDY


Merrimac Trail
East Rochambeau Drive
64
Exit 238
Colonial Williamsburg
York County
6-1
6-2
6-3
6-4
6-5
6-6
6-7
6-8
6-9
6-10
6-11
6-12
6-13
6-14
6-15
6-16
6-17
6-18
6-19
6-20
6-21
Merrimac Trail
Air Quality Modeling Reciever
(Signalized Intersection Analysis)
Locality Jurisdiction
Existing I-64 Right of Way
Limits of Alternative 1A/2A
Limits of Alternative 1B/2B
Limits of Alternative 3
N
W
E
S
0
250
500
1,000 Feet
0
0.025
0.05
0.1 Mile
Richmond
Williamsburg
Hampton
FIGURE 7 - CO Analysis Locations
Signalized Intersection
EXIT 238
Intersection of East Rochambeau Drive
& Merrimac Trail
INTERSTATE 64 PENINSULA STUDY

Due to its extensive length, the project corridor was divided up geographically into western, central and eastern sections in efforts to include all parts of the project corridor in the assessment. Based on the traffic analysis, it was determined that the air study should include one interchange from the western section (near the City of Richmond), one interchange from the central section (area was considered rural with the lightest traffic volumes) and two interchanges for the eastern section. The western termini as well as eastern sections of the project area experience the highest traffic volumes when considering the entire corridor.

As discussed previously, each of the project Alternatives could indirectly affect signalized intersections adjacent to the EIS corridor. In order to capture the potential effects of the project on adjacent intersections in the analysis, the top 15 worst-case signalized intersections in the project corridor were reviewed and analyzed based on PM peak hour traffic volumes and are summarized in **Table 5**. Each of these signalized intersections was evaluated based on total traffic volume, level of service (LOS), delay, percent change from No-Build to Build Conditions, and potential increases in traffic volumes as a result of diversions associated with Alternatives 2A/2B. After analyzing each of the top 15 signalized intersections, detailed Highway Capacity Software (HCS) files were developed specific to the intersections selected for further analysis. Typical information provided by the HCS file outputs include LOS, lane configurations, traffic volumes and signal timing information.

It was determined that for the Design Year (2040) No-Build and Build Alternatives 1A/1B, the signalized intersection identified below would not only contain the highest PM peak hour traffic volumes, but would also experience an "F" LOS, as shown in **Table 5**. As such, for the purposes of the CO hot-spot analysis, the intersection identified below was considered to experience worst-case conditions and was therefore chosen for further analysis:

- I-64 Exit 255 – Route 143 and Brick Kiln Boulevard/Wal-Mart Way intersection.

In addition, a second signalized intersection was selected based on detailed traffic studies for Alternatives 2A/2B. The intersection identified below is located in a part of the corridor that is expected to experience the highest potential traffic volume diversion as a result of tolling. As such, the intersection identified below was also chosen to be included in the CO hot-spot analysis:

- I-64 Exit 238 – I-64 EB On-Ramp/Merrimac Trail and Rochambeau Drive.

The intersection at Route 143 and Brick Kiln Boulevard/Wal-Mart Way (Exit 255) was selected based on having the highest PM peak hour traffic volumes when compared to all other intersections evaluated, as well as having the worst-case intersection LOS and delay. Although other signalized intersections could experience higher changes in traffic from 2040 No-Build to Build (2040) Alternatives 1A/1B, those particular intersections have much lower overall traffic volumes. Since no intersection improvements are proposed, all modeling included the existing footprint for each analysis year.

The intersection at I-64 EB On-Ramp/Merrimac Trail and Rochambeau Drive (Exit 238) was selected because this section of the project corridor is predicted to experience the highest increase in traffic volumes as a result of diversions associated with Alternatives 2A/2B. Since no intersection improvements are proposed, all intersection modeling included the existing footprint for each analysis year. Additionally all modeling and receptor site selection was performed in accordance with USEPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections*.

As stipulated by USEPA guidance, worst-case locations were selected for analysis based on assessments of where human activity is likely to coincide with the highest CO concentrations. If the worst-case

intersections/interchanges selected for analysis do not show an exceedance of the CO NAAQS, then it is assumed that all other locations within the project corridor will also remain below the CO NAAQS. The four interchange areas chosen for analysis, as well as the two selected signalized intersections, were modeled for all the Build and No-Build scenarios for each analysis year, and receptor locations were selected following USEPA guidance. **Figure 2** through **Figure 7** identify the 90 sensitive receptor locations that were selected for evaluation in the CO hot-spot analysis. Each of the receptor locations was chosen based on the proximity to the roadway, with an emphasis on those locations where potential traffic queues could occur and where the public could have continuous access. The land uses in the vicinity of the receptors range from single family residential to high-density residential, as well as open areas adjacent to commercial uses, including typical areas where human activity could occur.

2. Analysis Methodologies and Results

Table 6 shows the peak 1-hour CO concentrations that were predicted to occur at each of the receptor locations surrounding the four worst-case interchanges chosen for analysis for the Existing (2011), Opening Year (2020) No-Build and Build Conditions, and Design Year (2040) No-Build and Build Conditions for the Alternatives 1A/1B and Alternative 3. **Tables 7** and **8** show the peak 1-hour CO concentrations that were predicted to occur at each of the receptor locations surrounding the two worst-case intersections chosen for analysis for the Existing (2011), Opening Year (2020) No-Build and Build Conditions, and Design Year (2040) No-Build and Build Conditions for Alternatives 1A/1B, Alternatives 2A/2B and Alternative 3. The peak 1-hour CO concentrations displayed in Tables 6 through 8 include a CO background concentration of 3.0 ppm for the Richmond and surrounding region while 3.6 ppm was used for the eastern part of the project corridor that lies within the Hampton Roads region. The peak 8-hour CO concentrations in **Tables 6** through **8** were calculated by applying a persistence factor of 0.7 to the 1-hour impact concentration, which is based on guidance provided in the *Guidelines for Modeling Carbon Monoxide from Roadway Intersections*, USEPA, November 1992.

Worst-case traffic operations and atmospheric conditions were incorporated in the modeling to predict peak CO concentrations. Maximum CO concentrations, calculated by adding together the background concentration to the projected peak CO concentration for all locations, scenarios, and years considered in the analysis area, are shown in **Table 6**, **Table 7** and **Table 8**. The 1-hour background concentrations of 3.0 ppm and 3.6 ppm for the Richmond and Hampton Roads regions, respectively, were obtained from VDOT's *Consultant Guide* and are based on recent ambient CO monitoring data. Furthermore, to project worst-case CO concentrations, a surface roughness coefficient of 11 cm was assumed for areas surrounding Exit 238 and Exit 243 due to rural conditions, while 175 cm was assumed for all other analysis areas which represent urban conditions, as documented in VDOT's *Consultant Guide*. Additional assumptions used of the analysis can be found in **Appendix D** of this report.

The following section of the report provides a summary of peak CO concentrations projected for each of the Alternatives evaluated in the study. The CO projections are summarized by Alternative and focus on the four worst-case interchanges and two worst-case intersections that are expected to experience the highest traffic volumes and worst LOS along the entire project corridor.

CO Projections for Alternatives 1A/1B – Interchanges

Table 6 provides a summary of the peak CO concentrations at each of the sensitive receptors evaluated along the proposed project corridor for each analysis year for Alternatives 1A/1B. The highest 1-hour and 8-hour CO concentrations under Existing (2011) Conditions were projected at 8.2 and 5.7 ppm, respectively, including the CO background concentration of 3.6 ppm for the 1-hour standard since this interchange is located in the Hampton Roads area. Under Interim/Opening Year No-Build (2020) Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 7.4 and 5.2 ppm, respectively. Under Interim/Opening Year Build (2020) Alternatives 1A/1B, the highest 1-hour and 8-

Table 5: PM Peak Hour Volumes - Signalized Intersections

Exit	Interchange	Locality	Intersection	2040 No-Build PM Peak Hour					Intersection LOS (Delay)	2040 Build Alternatives 1A/1B PM Peak Hour					Intersection LOS (Delay)	% Volume Change
				EB	WB	NB	SB	Total		EB	WB	NB	SB	Total		
192	US 360 Mechanicsville Turnpike	Richmond	I-64 WB Off-Ramp/Magnolia St & US 360	510	325	2,800	1,550	**5,185**	D (41.9)	510	375	2,800	1,665	**5,350**	D (50.4)	3.2%
193	Nine Mile Road	Henrico	Route 33 & Gordon's Lane	1,470	1,260	0	250	**2,980**	B (18.3)	1,745	1,385	0	250	**3,380**	B (18.3)	13.4%
195	Laburnum Avenue	Henrico	I-64 EB Ramps & Laburnum Ave	1,200	0	2,200	1,205	**4,605**	F (243.8)	1,760	0	2,255	1,205	**5,220**	F (306.7)	13.4%
195	Laburnum Avenue	Henrico	I-64 WB Ramps & Laburnum Ave	0	230	1,110	1,135	**2,475**	A (9.1)	0	315	1,425	1,435	**3,175**	B (11.7)	28.3%
205	Bottoms Bridge	New Kent	I-64 EB Ramps & Route 33	1,595	0	1,035	650	**3,280**	C (21.8)	1,835	0	1,220	725	**3,780**	C (20.7)	15.2%
231	Croaker/Norge	James City	Croaker Road & Rochambeau Dr	480	430	1,025	1,245	**3,180**	F (294.6)	460	450	1,025	1,265	**3,200**	F (303.1)	0.6%
238	Colonial Williamsburg	York	I-64 EB On-Ramp/Merrimac Trail & Rochambeau Dr	725	0	1,455	1,365	**3,545**	F (203.6)	695	0	1,610	1,595	**3,900**	F (158.9)	10.0%
238	Colonial Williamsburg	York	I-64 WB Off-Ramp & Merrimac Trail	0	835	5	80	**920**	N/A *	0	900	5	80	**985**	N/A *	7.1%
243	Busch Gardens	York/ James City	Busch Gardens Blvd NB Ramps & US 60	1,290	740	20	0	**2,050**	B (11.7)	1,060	655	20	0	**1,735**	B (12.3)	-15.4%
243	Busch Gardens	York/ James City	Busch Gardens Blvd SB Ramps & US 60	880	505	610	0	**1,995**	B (10.8)	845	505	355	0	**1,705**	A (9.2)	-14.5%
247	Yorktown	Newport News	Route 143 (Jefferson Ave) & Route 238 (Yorktown Road)	1,050	785	1,030	800	**3,665**	F (308.8)	1,050	785	1,075	800	**3,710**	F (358.0)	1.2%
250	Fort Eustis Blvd	Newport News	I-64 WB Off-Ramp & Route 143	1,630	1,190	830	0	**3,650**	E (69.2)	1,630	1,145	935	0	**3,710**	F (103.6)	1.6%
250	Fort Eustis Blvd	Newport News	Route 143 (Jefferson Ave) & Route 105 (Fort Eustis Blvd)	1,130	1,710	1,790	805	**5,435**	F (281.0)	1,130	1,710	1,750	805	**5,395**	F (282.7)	-0.7%

Table 5: PM Peak Hour Volumes - Signalized Intersections (continued)

Exit	Interchange	Locality	Intersection	2040 No-Build PM Peak Hour					Intersection LOS (Delay)	2040 Build Alternatives 1A/1B PM Peak Hour					Intersection LOS (Delay)	% Volume Change
				EB	WB	NB	SB	Total		EB	WB	NB	SB	Total		
255	Jefferson Avenue	Newport News	Route 143 & Freedom Way/Clair Lane	470	705	3,280	3,605	**8,060**	F (246.5)	470	705	3,280	3,740	**8,195**	F (266.7)	**1.7%**
255	Jefferson Avenue	Newport News	Route 143 & Brick Kiln Blvd/ Wal-Mart Way	710	1,115	4,455	3,995	**10,275**	F (472.0)	680	1,115	4,445	4,095	**10,335**	F (481.9)	**0.6%**

Table 6: Carbon Monoxide Analysis Interchange Summary, 1-Hour and 8 Hour CO Level Summary (ppm)

		Existing (2011)		2020 Interim/Opening Year No-Build		2020 Interim/Opening Year Build Alternative 1A		2020 Interim/Opening Year Build Alternative 1B		2020 Interim/Opening Year Build Alternative 3		2040 Design Year No-Build		2040 Interim/Opening Year Build Alternative 1A		2040 Interim/Opening Year Build Alternative 1B		2040 Interim/Opening Year Build Alternative 3	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
I-64 Exit 190 - Interstates 64 & 95	1-1	7.1	5.0	6.2	4.3	6.3	4.4	6.3	4.4	6.3	4.4	6.6	4.6	7.0	4.9	7.0	4.9	6.7	4.7
	1-2	6.1	4.3	5.7	4.0	5.6	3.9	5.6	3.9	5.6	3.9	5.8	4.1	6.3	4.4	6.3	4.4	5.9	4.1
	1-3	5.0	3.5	4.6	3.2	4.8	3.4	4.8	3.4	4.6	3.2	4.8	3.4	5.4	3.8	5.4	3.8	4.9	3.4
	1-4	5.9	4.1	5.5	3.9	5.6	3.9	5.6	3.9	5.5	3.9	5.6	3.9	6.1	4.3	6.1	4.3	5.9	4.1
	1-5	6.3	4.4	5.9	4.1	5.7	4.0	5.7	4.0	5.5	3.9	6.3	4.4	6.5	4.6	6.5	4.6	6.2	4.3
	1-6	5.7	4.0	5.2	3.6	5.5	3.9	5.5	3.9	5.4	3.8	5.5	3.9	6.2	4.3	6.2	4.3	6.1	4.3
	1-7	4.4	3.1	4.0	2.8	4.2	2.9	4.2	2.9	4.2	2.9	4.2	2.9	4.7	3.3	4.7	3.3	4.5	3.2
	1-8	5.5	3.9	5.0	3.5	5.5	3.9	5.5	3.9	5.4	3.8	5.3	3.7	5.9	4.1	5.9	4.1	5.7	4.0
	1-9	3.7	2.6	3.7	2.6	3.8	2.7	3.8	2.7	3.8	2.7	3.7	2.6	3.8	2.7	3.8	2.7	3.8	2.7
	1-10	3.5	2.5	3.5	2.5	3.5	2.5	3.5	2.5	3.4	2.4	3.5	2.5	3.6	2.5	3.6	2.5	3.6	2.5
I-64 Exit 243 - Busch Gardens	2-1	4.4	3.1	4.1	2.9	4.1	2.9	4.1	2.9	3.9	2.7	4.3	3.0	4.4	3.1	4.4	3.1	4.4	3.1
	2-2	5.6	3.9	5.0	3.5	5.1	3.6	5.1	3.6	5.0	3.5	5.4	3.8	5.6	3.9	5.6	3.9	5.3	3.7
	2-3	5.6	3.9	5.0	3.5	5.1	3.6	5.1	3.6	5.0	3.5	5.4	3.8	5.6	3.9	5.6	3.9	5.3	3.7
	2-4	4.8	3.4	4.4	3.1	4.5	3.2	4.5	3.2	4.3	3.0	4.7	3.3	4.7	3.3	4.7	3.3	4.6	3.2
	2-5	3.9	2.7	3.8	2.7	3.8	2.7	3.8	2.7	3.8	2.7	3.9	2.7	3.9	2.7	3.9	2.7	3.9	2.7
	2-6	5.2	3.6	4.7	3.3	4.7	3.3	4.7	3.3	4.8	3.4	4.9	3.4	5.1	3.6	5.1	3.6	5.1	3.6
	2-7	6.0	4.2	5.3	3.7	5.4	3.8	5.3	3.7	5.1	3.6	5.4	3.8	5.9	4.1	5.8	4.1	5.8	4.1
	2-8	4.4	3.1	4.1	2.9	4.1	2.9	4.1	2.9	4.1	2.9	4.3	3.0	4.4	3.1	4.4	3.1	4.3	3.0
	2-9	5.2	3.6	4.7	3.3	4.7	3.3	4.7	3.3	4.7	3.3	4.9	3.4	5.1	3.6	5.0	3.5	4.9	3.4

		Existing (2011)		2020 Interim/Opening Year No-Build		2020 Interim/Opening Year Build Alternative 1A		2020 Interim/Opening Year Build Alternative 1B		2020 Interim/Opening Year Build Alternative 3		2040 Design Year No-Build		2040 Interim/Opening Year Build Alternative 1A		2040 Interim/Opening Year Build Alternative 1B		2040 Interim/Opening Year Build Alternative 3	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
I-64 Exit 261 - Hampton Roads Center Parkway	3-1	7.0	4.9	6.3	4.4	6.6	4.6	6.6	4.6	6.2	4.3	6.5	4.6	7.2	5.0	7.2	5.0	6.8	4.8
	3-2	7.4	5.2	6.6	4.6	7.0	4.9	7.0	4.9	6.7	4.7	6.9	4.8	7.8	5.5	7.8	5.5	6.9	4.8
	3-3	5.9	4.1	5.5	3.9	5.6	3.9	5.6	3.9	5.5	3.9	5.6	3.9	6.1	4.3	6.1	4.3	5.7	4.0
	3-4	6.2	4.3	5.9	4.1	6.0	4.2	6.0	4.2	5.8	4.1	5.9	4.1	6.5	4.6	6.5	4.6	6.2	4.3
	3-5	5.5	3.9	5.1	3.6	5.4	3.8	5.4	3.8	5.4	3.8	5.3	3.7	6.0	4.2	6.0	4.2	6.1	4.3
	3-6	5.4	3.8	4.7	3.3	5.2	3.6	5.2	3.6	5.4	3.8	4.8	3.4	6.0	4.2	6.0	4.2	6.1	4.3
	3-7	6.7	4.7	5.9	4.1	6.5	4.6	6.5	4.6	6.2	4.3	6.2	4.3	7.0	4.9	7.0	4.9	6.4	4.5
	3-8	6.9	4.8	6.1	4.3	6.4	4.5	6.4	4.5	6.4	4.5	6.3	4.4	7.0	4.9	7.0	4.9	7.3	5.1
	3-9	6.7	4.7	5.6	3.9	6.7	4.7	6.7	4.7	6.8	4.8	5.6	3.9	8.2	5.7	8.2	5.7	7.2	5.0
	3-10	6.2	4.3	5.3	3.7	6.0	4.2	6.0	4.2	5.9	4.1	5.3	3.7	7.1	5.0	7.1	5.0	7.1	5.0
	3-11	5.6	3.9	5.0	3.5	5.3	3.7	5.3	3.7	5.1	3.6	5.0	3.5	5.9	4.1	5.9	4.1	5.5	3.9
	3-12	7.3	5.1	6.4	4.5	6.8	4.8	6.8	4.8	6.7	4.7	6.6	4.6	7.5	5.3	7.5	5.3	7.0	4.9
	3-13	7.4	5.2	6.4	4.5	6.9	4.8	6.9	4.8	6.5	4.6	6.6	4.6	7.2	5.0	7.2	5.0	7.0	4.9
I-64 Exit 263 – Mercury Boulevard Interchange	4-1	8.2 **	5.7 **	7.4 **	5.2 **	8.2 **	5.7 **	8.2 **	5.7 **	7.3 **	5.1 **	7.5 **	5.3 **	8.4 **	5.9 **	8.4 **	5.9 **	7.6 **	5.3 **
	4-2	7.3	5.1	6.5	4.6	6.9	4.8	6.9	4.8	6.4	4.5	6.6	4.6	7.3	5.1	7.3	5.1	6.7	4.7
	4-3	6.1	4.3	5.8	4.1	5.8	4.1	5.8	4.1	5.6	3.9	5.8	4.1	5.9	4.1	5.9	4.1	6.1	4.3
	4-4	6.0	4.2	5.8	4.1	5.9	4.1	5.9	4.1	5.5	3.9	5.8	4.1	5.9	4.1	5.9	4.1	5.8	4.1
	4-5	7.9	5.5	6.9	4.8	7.5	5.3	7.5	5.3	7.0	4.9	7.2	5.0	8.0	5.6	8.0	5.6	7.5	5.3
	4-6	5.7	4.0	5.3	3.7	5.5	3.9	5.5	3.9	5.2	3.6	5.5	3.9	5.6	3.9	5.6	3.9	5.4	3.8
	4-7	6.1	4.3	5.5	3.9	5.8	4.1	5.8	4.1	5.4	3.8	5.7	4.0	6.0	4.2	6.0	4.2	6.0	4.2
	4-8	5.5	3.9	5.3	3.7	5.4	3.8	5.4	3.8	5.0	3.5	5.2	3.6	5.5	3.9	5.5	3.9	5.3	3.7
	4-9	7.4	5.2	7.0	4.9	7.1	5.0	7.1	5.0	6.7	4.7	7.0	4.9	7.2	5.0	7.2	5.0	7.0	4.9

Notes: 1-Hour and 8-Hour concentrations shown above are in parts per million (ppm).
1-Hour concentrations predicted using CAL3QHC computer dispersion model and assumes a background concentration of 3.0ppm or 3.6ppm depending on location.
8-Hour concentrations were calculated by applying a persistence factor of 0.7 to the 1-Hour concentration, as per the VDOT Consultant Guide,
Air Quality Project Level Analysis, Revision 18, May 2009. The persistence factor of 0.7 is based on the guidance in the *Guideline for Modeling Carbon Monoxide from Roadway Intersections*, EPA, November 1992.
** represent highest CO concentrations per Alternative.

Table 7: Carbon Monoxide Analysis- Signalized Intersection, Exit 255- 1-Hour and 8-Hour CO Level Summary (ppm)

		Existing (2011)		2020 Interim/Opening Year No-Build		2020 Interim/Opening Year Build Alternative 1A/1B		2020 Interim/Opening Year Build Alternative 2A/2B		2020 Interim/Opening Year Build Alternative 3		2040 Interim/Opening Year No-Build		2040 Interim/Opening Year Build Alternative 1A/1B		2040 Interim/Opening Year Build Alternative 2A/2B		2040 Interim/Opening Year Build Alternative 3	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
I-64 Exit 255 - Jefferson Avenue & Brick Kiln Boulevard / WalMart Way	5-1	8.2	5.7	7.5	5.3	8.0	5.6	7.9	5.5	7.8	5.5	8.0	5.6	8.0	5.6	8.3	5.8	8.2	5.7
	5-2	8.3	5.8	7.3	5.1	8.9	6.2	7.6	5.3	7.9	5.5	7.9	5.5	7.9	5.5	8.3	5.8	8.2	5.7
	5-3	8.3	5.8	7.4	5.2	7.7	5.4	7.7	5.4	7.7	5.4	7.7	5.4	7.7	5.4	8.0	5.6	7.9	5.5
	5-4	8.7	6.1	7.6	5.3	8.0	5.6	8.2	5.7	8.1	5.7	8.0	5.6	8.0	5.6	8.5	6.0	8.5	6.0
	5-5	8.2	5.7	6.7	4.7	7.6	5.3	7.8	5.5	7.8	5.5	7.6	5.3	7.6	5.3	7.8	5.5	7.8	5.5
	5-6	6.9	4.8	5.8	4.1	6.8	4.8	7.1	5.0	7.1	5.0	6.9	4.8	6.9	4.8	7.1	5.0	7.0	4.9
	5-7	6.1	4.3	5.4	3.8	8.2 **	5.7 **	9.8 **	6.9 **	7.6	5.3	9.4 **	6.6 **	9.4 **	6.6 **	9.6 **	6.7 **	9.6 **	6.7 **
	5-8	5.8	4.1	5.5	3.9	6.5	4.6	6.7	4.7	6.3	4.4	6.5	4.6	6.5	4.6	6.6	4.6	6.6	4.6
	5-9	6.3	4.4	5.9	4.1	6.9	4.8	6.8	4.8	7.0	4.9	6.9	4.8	6.9	4.8	7.0	4.9	7.0	4.9
	5-10	7.4	5.2	6.6	4.6	7.5	5.3	7.4	5.2	7.6	5.3	7.5	5.3	7.5	5.3	7.7	5.4	7.7	5.4
	5-11	8.5	6.0	7.4	5.2	8.4	5.9	8.0	5.6	8.2	5.7	8.4	5.9	8.4	5.9	8.7	6.1	8.6	6.0
	5-12	8.9	6.2	7.7	5.4	8.1	5.7	8.0	5.6	8.1	5.7	8.1	5.7	8.1	5.7	8.5	6.0	8.5	6.0
	5-13	8.9	6.2	7.8	5.5	8.2 **	5.7 **	8.2	5.7	8.3	5.8	8.2	5.7	8.2	5.7	8.8	6.2	8.7	6.1
	5-14	9.2 **	6.4 **	7.7	5.4	8.1	5.7	8.3	5.8	8.4 **	5.9 **	8.1	5.7	8.1	5.7	8.6	6.0	8.6	6.0
	5-15	8.0	5.6	7.6	5.3	8.1	5.7	8.3	5.8	8.3	5.8	8.1	5.7	8.1	5.7	8.5	6.0	8.5	6.0
	5-16	8.4	5.9	7.9 **	5.5 **	8.1	5.7	8.4	5.9	8.4 **	5.9 **	8.1	5.7	8.1	5.7	8.5	6.0	8.5	6.0
	5-17	8.1	5.7	7.2	5.0	7.7	5.4	7.8	5.5	7.7	5.4	7.7	5.4	7.7	5.4	8.1	5.7	8.1	5.7
	5-18	7.9	5.5	7.1	5.0	7.5	5.3	7.6	5.3	7.6	5.3	7.5	5.3	7.5	5.3	7.8	5.5	7.8	5.5
	5-19	7.3	5.1	6.3	4.4	6.7	4.7	6.8	4.8	6.8	4.8	6.7	4.7	6.7	4.7	7.0	4.9	7.0	4.9
	5-20	6.9	4.8	5.9	4.1	6.4	4.5	6.5	4.6	6.5	4.6	6.4	4.5	6.4	4.5	6.7	4.7	6.7	4.7

	Existing (2011)		2020 Interim/Opening Year No-Build		2020 Interim/Opening Year Build Alternative 1A/1B		2020 Interim/Opening Year Build Alternative 2A/2B		2020 Interim/Opening Year Build Alternative 3		2040 Interim/Opening Year No-Build		2040 Interim/Opening Year Build Alternative 1A/1B		2040 Interim/Opening Year Build Alternative 2A/2B		2040 Interim/Opening Year Build Alternative 3	
Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
5-21	6.3	4.4	5.4	3.8	6.0	4.2	6.3	4.4	6.0	4.2	6.0	4.2	6.0	4.2	6.4	4.5	6.3	4.4
5-22	5.9	4.1	5.5	3.9	6.2	4.3	5.9	4.1	6.1	4.3	6.2	4.3	6.2	4.3	6.7	4.7	6.7	4.7
5-23	6.7	4.7	6.0	4.2	7.2	5.0	6.7	4.7	7.1	5.0	7.3	5.1	7.2	5.0	7.3	5.1	7.3	5.1
5-24	7.5	5.3	6.6	4.6	7.7	5.4	7.6	5.3	7.7	5.4	7.7	5.4	7.7	5.4	7.9	5.5	7.9	5.5
5-25	7.8	5.5	7.5	5.3	8.1	5.7	8.0	5.6	8.2	5.7	8.1	5.7	8.1	5.7	8.4	5.9	8.4	5.9
5-26	8.2	5.7	7.4	5.2	8.2 **	5.7 **	7.9	5.5	8.1	5.7	8.2	5.7	8.2	5.7	8.4	5.9	8.4	5.9
5-27	8.4	5.9	7.2	5.0	7.8	5.5	7.9	5.5	7.7	5.4	7.8	5.5	7.8	5.5	8.0	5.6	8.0	5.6
5-28	8.5	6.0	7.2	5.0	7.9	5.5	7.8	5.5	7.7	5.4	7.9	5.5	7.9	5.5	8.1	5.7	8.1	5.7

Notes: 1-Hour and 8-Hour concentrations shown above are in parts per million (ppm).
1-Hour concentrations predicted using CAL3QHC computer dispersion model and assumes a background concentration of 3.0 ppm or 3.6 ppm depending on location.
8-Hour concentrations were calculated by applying a persistence factor of 0.7 to the 1-Hour concentration, as per the VDOT Consultant Guide,
Air Quality Project Level Analysis, Revision 18, May 2009. The persistence factor of 0.7 is based on the guidance in the Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA, November 1992.
** Highest CO concentrations per Alternative.

Table 8: Carbon Monoxide Analysis- Signalized Intersection Summary- 1-Hour and 8-Hour CO Level Summary (ppm)

		Existing (2011)		2020 Interim/ Opening Year No-Build		2020 Interim/ Opening Year Build Alternative 1A		2020 Interim/ Opening Year Build Alternative 1B		2020 Interim/ Opening Year Build Alternative 2A		2020 Interim/ Opening Year Build Alternative 2B		2020 Interim/ Opening Year Build Alternative 3		2040 No-Build		2040 Interim/ Opening Year Build Alternative 1A		2040 Interim/ Opening Year Build Alternative 1B		2040 Interim/ Opening Year Build Alternative 2A		2040 Interim/ Opening Year Build Alternative 2B		2040 Interim/ Opening Year Build Alternative 3	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
I-64 Exit 238 - Rochambeau Drive / Route 143 & I-64 EB off-ramp	6-1	5.4	3.8	5.6	3.9	5.7	4.0	5.7	4.0	5.6	3.9	5.6	3.9	5.7	4.0	6.2	4.3	6.2	4.3	6.3	4.4	6.1	4.3	6.2	4.3	6.0	4.2
	6-2	5.3	3.7	5.6	3.9	5.6	3.9	5.6	3.9	5.4	3.8	5.4	3.8	5.6	3.9	5.9	4.1	6.2	4.3	6.2	4.3	6.1	4.3	6.1	4.3	6.0	4.2
	6-3	5.3	3.7	5.4	3.8	5.3	3.7	5.3	3.7	5.1	3.6	5.1	3.6	5.3	3.7	6.0	4.2	6.0	4.2	6.0	4.2	5.9	4.1	5.9	4.1	5.9	4.1
	6-4	5.3	3.7	5.3	3.7	5.2	3.6	5.2	3.6	5.1	3.6	5.1	3.6	5.2	3.6	6.0	4.2	6.1	4.3	6.1	4.3	5.9	4.1	5.9	4.1	5.9	4.1
	6-5	5.4	3.8	5.3	3.7	5.4	3.8	5.4	3.8	5.3	3.7	5.3	3.7	5.5	3.9	6.5*	4.6*	6.6	4.6	6.6	4.6	6.4	4.5	6.4	4.5	6.5	4.6
	6-6	5.5	3.9	5.5	3.9	5.4	3.8	5.4	3.8	5.5	3.9	5.5	3.9	5.5	3.9	6.3	4.4	6.8	4.8	6.8	4.8	6.5	4.6	6.5	4.6	6.7	4.7
	6-7	5.2	3.6	5.3	3.7	5.4	3.8	5.4	3.8	5.4	3.8	5.4	3.8	5.4	3.8	6.3	4.4	6.9*	4.8*	7.0*	4.9*	6.8	4.8	6.8	4.8	6.9	4.8
	6-8	5.2	3.6	5.4	3.8	5.6	3.9	5.6	3.9	5.6	3.9	5.6	3.9	5.6	3.9	6.3	4.4	6.8	4.8	6.8	4.8	6.9*	4.8*	6.9*	4.8*	7.2*	5.0*
	6-9	5.3	3.7	5.6*	3.9*	5.8*	4.1*	5.8*	4.1*	5.8*	4.1*	5.9*	4.1*	5.9*	4.1*	6.1	4.3	6.2	4.3	6.2	4.3	6.6	4.6	6.6	4.6	6.6	4.6
	6-10	5.2	3.6	5.3	3.7	5.4	3.8	5.4	3.8	5.4	3.8	5.4	3.8	5.4	3.8	6.1	4.3	6.4	4.5	6.5	4.6	6.6	4.6	6.6	4.6	6.6	4.6
	6-11	4.9	3.4	5.0	3.5	5.2	3.6	5.2	3.6	5.1	3.6	5.1	3.6	5.2	3.6	5.9	4.1	6.0	4.2	6.0	4.2	6.2	4.3	6.2	4.3	6.2	4.3
	6-12	4.8	3.4	4.7	3.3	4.8	3.4	4.8	3.4	4.7	3.3	4.6	3.2	4.7	3.3	5.4	3.8	5.5	3.9	5.5	3.9	5.4	3.8	5.5	3.9	5.4	3.8
	6-13	4.8	3.4	4.8	3.4	4.8	3.4	4.8	3.4	4.8	3.4	4.8	3.4	4.7	3.3	5.2	3.6	5.4	3.8	5.5	3.9	5.3	3.7	5.3	3.7	5.4	3.8
	6-14	5.1	3.6	4.8	3.4	4.9	3.4	4.9	3.4	4.9	3.4	4.9	3.4	4.8	3.4	5.2	3.6	5.5	3.9	5.6	3.9	5.4	3.8	5.5	3.9	5.3	3.7
	6-15	5.6*	3.9*	5.2	3.6	5.2	3.6	5.1	3.6	5.1	3.6	5.1	3.6	5.1	3.6	5.7	4.0	5.8	4.1	5.8	4.1	5.7	4.0	5.7	4.0	5.6	3.9
	6-16	5.2	3.6	4.9	3.4	4.9	3.4	5.0	3.5	4.9	3.4	4.9	3.4	4.9	3.4	5.3	3.7	5.4	3.8	5.3	3.7	5.2	3.6	5.2	3.6	5.2	3.6

		Existing (2011)		2020 Interim/ Opening Year No-Build		2020 Interim/ Opening Year Build Alternative 1A		2020 Interim/ Opening Year Build Alternative 1B		2020 Interim/ Opening Year Build Alternative 2A		2020 Interim/ Opening Year Build Alternative 2B		2020 Interim/ Opening Year Build Alternative 3		2040 No-Build		2040 Interim/ Opening Year Build Alternative 1A		2040 Interim/ Opening Year Build Alternative 1B		2040 Interim/ Opening Year Build Alternative 2A		2040 Interim/ Opening Year Build Alternative 2B		2040 Interim/ Opening Year Build Alternative 3	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
	6-17	5.0	3.5	4.7	3.3	4.7	3.3	4.7	3.3	4.7	3.3	4.7	3.3	4.7	3.3	5.3	3.7	5.4	3.8	5.4	3.8	5.4	3.8	5.3	3.7	5.3	3.7
	6-18	5.0	3.5	5.2	3.6	5.3	3.7	5.3	3.7	5.3	3.7	5.3	3.7	5.3	3.7	5.7	4.0	5.9	4.1	5.9	4.1	6.1	4.3	6.1	4.3	6.2	4.3
	6-19	5.0	3.5	5.1	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	6.0	4.2	6.1	4.3	6.2	4.3	6.0	4.2	6.0	4.2	6.0	4.2
	6-20	4.9	3.4	4.9	3.4	5.0	3.5	5.1	3.6	5.0	3.5	5.0	3.5	5.0	3.5	5.8	4.1	6.2	4.3	6.2	4.3	6.0	4.2	6.0	4.2	5.9	4.1
	6-21	5.0	3.5	4.9	3.4	4.9	3.4	4.9	3.4	4.9	3.4	4.9	3.4	4.9	3.4	5.8	4.1	6.1	4.3	6.1	4.3	5.9	4.1	6.0	4.2	6.0	4.2

Notes: 1-Hour and 8-Hour concentrations shown above are in parts per million (ppm).
1-Hour concentrations predicted using CAL3QHC computer dispersion model and assumes a background concentration of 3.0 ppm or 3.6 ppm.
8-Hour concentrations were calculated by applying a persistence factor of 0.7 to the 1-Hour concentration, as per the VDOT Consultant Guide, Air Quality Project Level Analysis, Revision 18, May 2009.
The persistence factor of 0.7 is based on the guidance in the Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA, November 1992.
** Highest CO concentrations per Alternative.

hour CO concentrations were projected to be 8.2 and 5.7 ppm, respectively. Under Design Year No-Build (2040) Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 7.5 and 5.3 ppm, respectively. Under Design Year Build (2040) Alternatives 1A/1B, the highest 1-hour and 8-hour CO concentrations were projected to be 8.4 and 5.9 ppm, respectively.

All of the peak CO concentrations for Alternatives 1A/1B were projected to occur at receptor site 4-1, which is located along Monticello Mews just west of Exit 263. Peak CO concentrations for Alternatives 1A/1B are expected to be higher than those for all other Alternatives since Alternatives 1A/1B will experience the highest traffic volumes and is therefore considered worst-case. The results of the analysis for Alternatives 1A/1B show that the highest 1-hour and 8-hour CO concentrations are projected to be well below the CO NAAQS of 35 ppm and 9 ppm, respectively, in all locations. Since the projected 1-hour and 8-hour CO concentrations do not exceed the CO NAAQS at each of the worst-case locations chosen for analysis, it is assumed that all other locations within the project corridor will also remain below the CO NAAQS for Alternatives 1A/1B.

CO Projections for Alternatives 2A/2B - Interchanges

As discussed previously, Alternatives 2A/2B also widens the general purpose lanes to the outside and median, respectively; however the entire facility will be tolled as part of this Alternative. For the purposes of this study, it was assumed that the tolling would be for all vehicles, for both directions, and for the entire length of the corridor from I-95 in Richmond to I-664 in Hampton. It was also assumed that there will be toll collection stations, using overhead gantries and all-electronic tolling, for every single interchange-to-interchange segment of I-64. Therefore, the implementation of tolling was not expected to have any negative effects on air quality.

In addition, the tolling of I-64 is expected to have either no effect or result in a decrease in traffic volumes on the I-64 mainline due to people choosing to avoid a tolled I-64 and using other parallel routes instead. The tolls are not expected to result in increased volumes at any locations on the I-64 mainline. As such, a Memorandum titled ***Air Quality and Noise Methodology for Build Alternatives 2A/2B – Full Toll Lanes***, dated May 21, 2012 was prepared by the Study Team to propose a streamlined approach to qualitatively discuss Alternatives 2A/2B in the air study. A copy of the memorandum is included in the appendix of this report. Since the tolling is expected to have either no effect or result in a decrease in traffic volumes in all locations within the project corridor, it was concluded that Alternatives 1A/1B will experience equal or higher traffic volumes when compared to Alternatives 2A/2B. As such, since traffic volumes are projected to be neutral or lower than Alternatives 1A/1B, it can be assumed that any CO concentrations predicted using traffic projections for Alternatives 2A/2B would be equal to or lower than presented above. Therefore, any CO projections for Alternatives 2A/2B would be equal to or less than the highest 1-hour and 8-hour CO concentrations projected for Alternatives 1A/1B. Since the projected 1-hour and 8-hour CO concentrations do not exceed the CO NAAQS at each of the worst-case locations chosen for analysis for Alternatives 1A/1B, it is assumed that all other locations within the project corridor will also remain below the CO NAAQS for Alternatives 2A/2B.

CO Projections for Alternative 3 - Interchanges

Table 6 also provides a summary of the peak CO concentrations at each of the sensitive receptors selected along the proposed project corridor for each analysis year for Alternative 3. The highest 1-hour and 8-hour CO concentrations under Existing (2011) Conditions were projected at 8.2 and 5.7 ppm, respectively, including the CO background concentration of 3.6 ppm for the 1-hour standard since this interchange is located in the Hampton Roads area. Under Interim/Opening Year No-Build (2020) Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 7.4 and 5.2 ppm, respectively. Under Interim/Opening Year Build (2020) Alternative 3, the highest 1-hour and 8-hour CO concentrations were projected to be 7.3 and 5.1 ppm, respectively. Under Design Year No-Build (2040)

Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 7.5 and 5.3 ppm, respectively. Under Design Year Build (2040) Alternative 3, the highest 1-hour and 8-hour CO concentrations were projected to be 7.6 and 5.3 ppm, respectively.

All of the peak CO concentrations for Alternative 3 were projected to occur at receptor site 4-1, which is located along Monticello Mews just west of Exit 263. CO concentrations for Alternative 3 are predicted to be generally less than those under Alternatives 1A/1B since traffic volumes are generally less throughout the project corridor. The results of the analysis for Alternative 3 conclude that the highest 1-hour and 8-hour CO concentrations are projected to be well below the CO NAAQS of 35 ppm and 9 ppm, respectively. Since the projected 1-hour and 8-hour CO concentrations do not exceed the CO NAAQS at each of the worst-case locations chosen for analysis, it is assumed that all other locations within the project corridor will also remain below the CO NAAQS for Alternative 3.

In addition to the selected receptors that were placed at the four worst-case interchanges, additional CO hot-spot modeling was performed at the two worst-case signalized intersections along the project corridor. The results of the CO hot-spot modeling are summarized in the following paragraphs and compare the results of each of the Alternatives at the selected signalized intersection.

CO Projections for Jefferson Avenue and Brick Kiln Boulevard/Wal-Mart Way (Exit 255) Intersection
The first signalized intersection evaluated in the CO hot-spot analysis is located at Jefferson Avenue and Brick Kiln Boulevard/Wal-Mart Way (**Figure 6**). A summary of the peak CO concentrations that were predicted at this intersection are shown in **Table 7**. Including the appropriate CO background concentration of 3.6 ppm for the 1-hour standard, the highest 1-hour and 8-hour CO concentrations under Existing (2011) Conditions were projected at 9.2 and 6.4 ppm, respectively. Under Interim/Opening Year No-Build (2020) Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 7.9 and 5.5 ppm, respectively. Under Interim/Opening Year Build (2020) Alternatives 1A/1B, the highest 1-hour and 8-hour CO concentrations were projected to be 8.2 and 5.7 ppm, respectively. Under Interim/Opening Year Build (2020) Alternatives 2A/2B, the highest 1-hour and 8-hour CO concentrations were projected to be 9.8 and 6.9 ppm, respectively. Under Interim/Opening Year Build (2020) Alternative 3, the highest 1-hour and 8-hour CO concentrations were projected to be 8.4 and 5.9 ppm, respectively. Under Design Year No-Build (2040) Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 9.4 and 6.6 ppm, respectively. Under Interim/Opening Year Build (2040) Alternatives 1A/1B, the highest 1-hour and 8-hour CO concentrations were projected to be 9.4 and 6.6 ppm, respectively. Under Interim/Opening Year Build (2040) Alternatives 2A/2B, the highest 1-hour and 8-hour CO concentrations were projected to be 9.6 and 6.7 ppm, respectively. Under Interim/Opening Year Build (2040) Alternative 3, the highest 1-hour and 8-hour CO concentrations were projected to be 9.6 and 6.7 ppm, respectively.

The highest CO concentration for Existing (2011) was projected at receptor site 5-14. The highest CO concentrations for Interim/Opening Year No-Build (2020) were projected at receptor site 5-16. The highest CO concentrations for Interim/Opening Year Build (2020) Alternatives 1A/1B, is projected at sites 5-7, 5-13 and 5-26. The highest CO concentrations for Interim/Opening Year Build (2020) Alternatives 2A/2B, is projected at site 5-7. The highest CO concentrations for Interim/Opening Year Build (2020) Alternative 3, is projected at sites 5-14 and 5-16. The highest CO concentrations for the Design Year (2040) No-Build and Design Year Build (2040) Alternatives 1A/1B, Alternatives 2A/2B and Alternation 3 is projected at site 5-7. Each of these receptor locations represents an open area adjacent to the intersection.

CO Projections for Rochambeau Drive/Route 143 and I-64 Eastbound Off-ramp (Exit 238) Intersection

The second signalized intersection evaluated in the CO hot-spot analysis is located at Rochambeau Drive/Route 143 and I-64 eastbound off-ramp (**Figure 7**). A summary of the peak CO concentrations that were predicted at this intersection are shown in **Table 8**. Including the appropriate CO background concentration of 3.6 ppm for the 1-hour standard, the highest 1-hour and 8-hour CO concentrations under Existing (2011) Conditions were projected at 5.6 and 3.9 ppm, respectively. Under Interim/Opening Year No-Build (2020) Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 5.6 and 3.9 ppm, respectively. Under Interim/Opening Year Build (2020) Alternatives 1A/1B, the highest 1-hour and 8-hour CO concentrations were projected to be 5.8 and 4.1 ppm, respectively. Under Interim/Opening Year Build (2020) Alternatives 2A/2B, the highest 1-hour and 8-hour CO concentrations were projected to be 5.9 and 4.1 ppm, respectively. Under Interim/Opening Year Build (2020) Alternative 3, the highest 1-hour and 8-hour CO concentrations were projected to be 5.9 and 4.1 ppm, respectively. Under Design Year No-Build (2040) Conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.5 and 4.6 ppm, respectively. Under Interim/Opening Year Build (2040) Alternatives 1A/1B, the highest 1-hour and 8-hour CO concentrations were projected to be 7.0 and 4.9 ppm, respectively. Under Interim/Opening Year Build (2040) Alternatives 2A/2B, the highest 1-hour and 8-hour CO concentrations were projected to be 6.9 and 4.8 ppm, respectively. Under Interim/Opening Year Build (2040) Alternative 3, the highest 1-hour and 8-hour CO concentrations were projected to be 7.2 and 5.0 ppm, respectively.

The highest CO concentration for Existing (2011) was projected at receptor site 6-15. The highest CO concentrations for Interim/Opening Year No-Build (2020), Alternatives 1A/1B, Alternatives 2A/2B and Alternative 3 were projected at receptor site 6-9. The highest CO concentration for Design Year No-Build (2040) was projected at receptor site 6-5. The highest CO concentration for Design Year Build (2040) Alternatives 1A/1B was projected at receptor site 6-7. The highest CO concentration for Design Year Build (2040) Alternatives 2A/2B and Alternative 3 was projected at receptor site 6-8. Each of these receptor locations represents an open/wooded area adjacent to the intersection.

Under all Alternatives for each receptor location, the highest 1-hour and 8-hour CO concentrations are projected to be below the standards of 35 ppm and 9 ppm, respectively, regardless of Alternative selected. Since the projected 1-hour and 8-hour CO concentrations do not exceed the NAAQS at each of the worst-case locations chosen for analysis throughout the project corridor, it is assumed that all other locations within the project corridor will also remain below the CO NAAQS.

III. Fine Particulate Matter Analysis

Particle pollution is comprised of a mixture of solid particles and liquid droplets found in the atmosphere. The particles are a combination of several items including dust, dirt, soot, and smoke, and they can vary in size. The PM created by human activity includes, but is not limited to, the following sources: wood stoves, industry and power plants, and emissions from motor vehicles. It can also be formed in the atmosphere from gases, including sulfur dioxide, nitrogen dioxide, and VOC.

Particle pollution includes "inhalable coarse particles" with diameters larger than 2.5 microns and smaller than 10 microns and "fine particles" with diameters 2.5 microns and smaller. The average human hair is about 70 microns in diameter – making it 30 times larger than the largest fine particle.

This project is located in the Cities of Richmond, Newport News and Hampton and the Counties of Henrico, New Kent, James City, and York. Although the project is designated as attainment for $PM_{2.5}$ for regional conformity purposes, the project was still evaluated to determine whether it is a project of air

quality concern. As per 40 CFR 93.123(b)(1) of the federal conformity rule, PM_{10} and $PM_{2.5}$ hotspot analyses are generally required for the following types of projects:

- (*i) New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.*
- *(ii) Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles or those that will change to Level of Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.*
- *(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.*
- *(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.*
- *(v) Projects in or affecting locations, areas, or categories of sites which are identified in the* PM_{10} *or* $PM_{2.5}$ *applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.*

In addition, USEPA guidance indicates that a project of air quality concern that would be covered by 40 CFR 93.123(b)(i) and (ii) would be a project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than 125,000 AADT and 8% or more or more of such AADT is diesel truck traffic, which corresponds to a total daily diesel truck volume of 10,000 or more.

The project does not propose to build a new highway or expressway; instead the project proposes to expand an existing highway that primarily serves gasoline vehicle traffic, and it is also not expected to result in a significant increase in the number of diesel vehicles. As shown in **Table 9**, Alternatives 1A/1B are projected to have the highest traffic volumes as compared to Alternatives 2A/2B and Alternative 3, and was therefore assumed to be the worst-case scenario for $PM_{2.5}$. The percentage of diesel vehicles is expected to remain constant between each of the No- Build and Build scenarios, between each of the Build Alternatives, and in all future analysis years. Based on the data contained in **Table 9**, the highest percentage of diesel trucks along the study corridor is 8% which occurs between Interchanges 200 and 214 on I-64. Under the 2040 Build scenario for Alternatives 1A/1B, the highest daily volume of trucks in this vicinity is 9,056 which is about 10% less than the 10,000 diesel truck threshold inferred from EPA guidance as a project of air quality concern for a new highway. In addition, the highest 2040 AADT volumes for Alternatives 1A/1B are projected to be between Exit 263 and Exit 264 on the eastern end of the project corridor. As shown in **Table 9**, this section of I-64 is projected to carry approximately 212,100 AADT with 4% diesel trucks, corresponding to daily volume of about 8,484 diesel trucks which also falls well short of the 10,000 diesel truck threshold.

As this project proposes to expand an existing highway, the largest increase in diesel vehicles was also examined and is projected to occur in the vicinity of Exit 211. As shown in **Table 9**, diesel trucks are projected to represent 8% of the AADT, or 6,856 total diesel vehicles under the 2040 No-Build scenario. Under the 2040 Build scenario under Alternatives 1A/1B, the total volume of diesel trucks is projected to reach 8,560 vehicles for a potential maximum increase in diesel trucks of about 1700 vehicles per day, which is not considered to be a significant especially when considering that the total volume of diesel trucks in this area falls well short of the 10,000 diesel truck threshold.

Furthermore, the project is also designed to improve traffic flow and vehicle speeds and will not involve any increases in idling. In addition, the project does not affect intersections that are at LOS D, E or F with a significant number of diesel vehicles, or those that will change to LOS D, E or F because of

increased traffic volumes from a significant number of diesel vehicles related to the project. Last, criteria (iii), (iv), and (v) noted above are not applicable to this project.

Based on the above analysis, it was determined that the project is not considered to be a project of "air quality concern" with respect to PM. The project is located in a geographic area that is in attainment for particulate matter and was found to be in compliance with all applicable state and federal air quality requirements. As such, the project will not cause or contribute to a new violation of the PM NAAQS, increase the frequency or severity of a violation, or delay timely attainment of the PM NAAQS.

IV. Mobile Source Air Toxics (MSAT)

In addition to the criteria air pollutants for which there are NAAQS, USEPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources, and stationary sources (e.g., factories or refineries). MSAT are a subset of the 188 air toxics defined by the CAA. USEPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (*Federal Register*, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS). In addition, USEPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 national Air Toxics Assessment. These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future USEPA rules.

The 2007 USEPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using USEPA's MOBILE6.2 model, even if vehicle activity (vehicle miles traveled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rates for the priority MSAT is projected from 1999 to 2050, as shown in **Figure 8**.

1. Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

USEPA is responsible for protecting public health and welfare from known or anticipated effects of an air pollutant. As the lead authority for administering the CAA and its amendments, USEPA has specific statutory obligations regarding hazardous air pollutants and MSAT. USEPA continually assesses human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effect" (USEPA, http://www.USEPA.gov/ncea/iris/index.html).

Each report contains assessments of non-cancerous and cancerous effects for individual compounds. In addition, they contain quantitative estimates of risk levels from lifetime oral and inhalation exposures, with uncertainty spanning perhaps an order of magnitude.

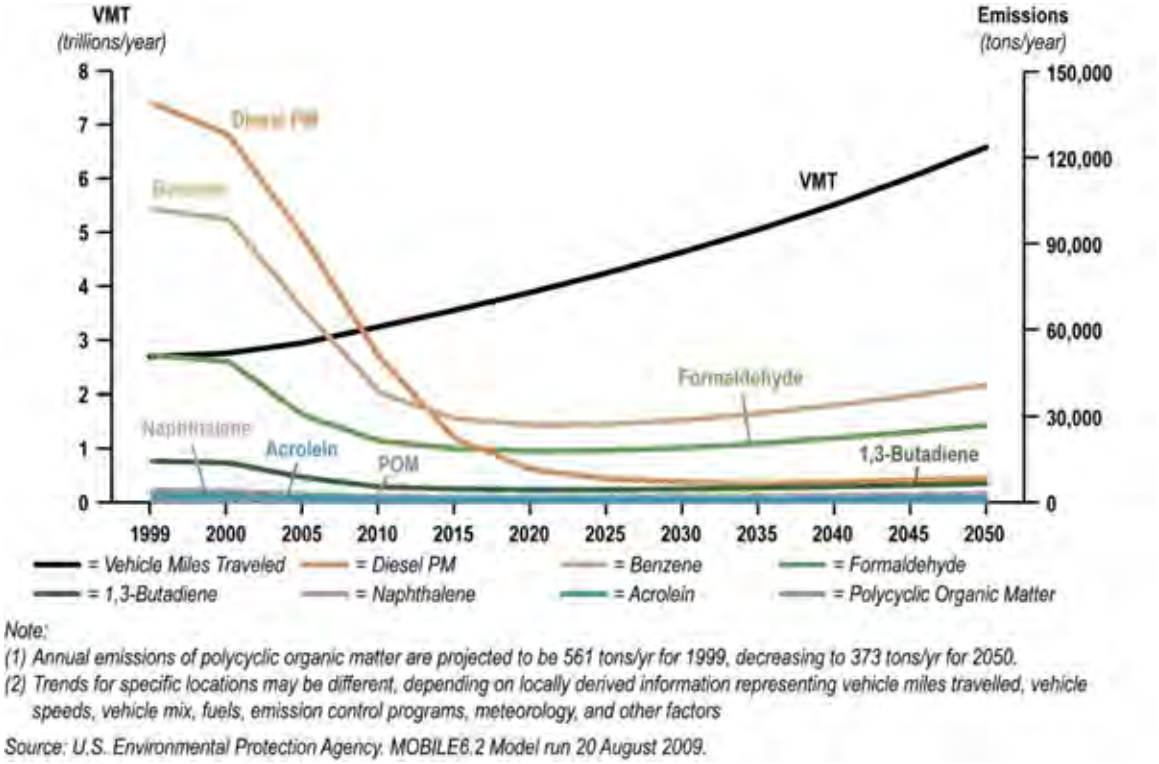
Other organizations are also active in research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's

Table 9: Annual Average Daily Traffic and Daily Truck Percentage Summary - Mainline I-64

Locality	Exit #	Interchange	% Trucks	2020 AADT Volume				2040 AADT Volume			
				No-Build	Alt 1A/1B	Alt 2A/2B	Alt 3	No-Build	Alt 1A/1B	Alt 2A/2B	Alt 3
Richmond	190	I-95	3%	114,400	116,300	115,000	111,800	140,800	164,100	160,000	149,500
Richmond/Henrico	192	US 360 - Mechanicsville Turnpike	3%	86,100	91,500	90,300	87,600	111,400	129,300	125,000	116,000
Richmond/Henrico	193	VA 33 - Nine Mile Road	4%	68,700	72,800	71,500	69,200	89,200	103,300	98,900	90,700
Henrico	195	Laburnum Avenue	3%	55,300	57,100	55,600	53,100	73,500	78,600	74,200	66,700
Henrico	197	VA 156 - Airport Drive	4%	43,600	48,300	47,500	45,700	55,300	70,400	67,700	61,900
Henrico	200	I-295	8%	77,400	81,000	79,000	76,400	102,200	113,200	106,600	97,700
New Kent	205	VA 249 - Bottoms Bridge	8%	37,800	73,700	71,700	68,500	84,300	102,500	96,200	85,800
New Kent	211	VA 106 - Talleysville	8%	69,600	76,000	74,000	70,700	85,700	107,000	100,400	90,400
New Kent	214	VA 155 - Providence Forge	8%	68,700	74,100	71,900	68,600	86,900	104,600	97,200	87,000
New Kent	220	VA 33 - West Point	7%	60,400	62,100	60,100	58,000	76,100	81,700	75,000	68,300
James City	227	VA 30 - Toano	7%	69,900	71,000	66,800	65,200	95,400	98,600	85,000	80,300
James City	231	Route 607 - Croaker/Norge	7%	75,900	76,800	72,300	70,600	99,900	102,500	88,000	82,600
York	234	VA 199 - Lightfoot	7%	39,400	75,900	73,900	72,500	94,800	107,900	102,000	96,600
York	238	VA 143 - Camp Peary	7%	74,900	77,300	75,300	74,200	99,500	107,200	100,500	96,700
York	242	VA 199 - Water Country USA/Humelsine Parkway	6%	87,500	90,100	88,600	87,300	103,100	111,500	106,800	102,100
York	243	Busch Gardens	4%	92,000	94,500	92,600	91,300	111,300	119,500	113,300	108,600
Newport News	247	VA 143/VA 238 - Lee Hall	4%	98,000	101,500	99,800	98,400	121,200	132,400	127,000	122,400
Newport News	250	VA 105 - Fort Eustis Boulevard	4%	106,500	109,900	108,700	106,300	131,200	142,800	138,700	130,800
Newport News	255	VA 143 - Jefferson Avenue	4%	126,100	129,300	127,300	125,500	145,100	155,900	149,500	143,500
Newport News	256	VA 171 - Victory Boulevard	4%	142,800	145,400	142,800	141,300	167,100	175,500	167,100	162,900
Newport News	258	US 17 - J. Clyde Morris Boulevard	4%	149,500	155,700	153,800	152,100	174,600	194,100	188,000	182,900
Hampton	261	Hampton Roads Center Parkway	4%	135,500	138,700	135,100	133,200	156,900	167,100	154,900	149,300
Hampton	262	Magruder Boulevard	4%	169,300	173,300	169,200	167,600	199,200	212,100	198,600	193,600
Hampton	263	US 258 - Mercury Boulevard	4%	165,400	169,300	165,300	161,900	195,800	208,300	195,000	184,200
Hampton	264	I-664	-	-	-	-	-	-	-	-	-

Notes: Truck % values were taken from the VDOT traffic data, Special Locality Reports for 2010.
Heavy trucks include vehicles with 3+axles, 1 trailer, and 2 trailers.
The Truck % is a volume weighted average of the eastbound and westbound directions.
Values listed in rows are for the I-64 mainline and represent the areas between the two Interchanges listed in column 2.

Figure 8: National MSAT Emission Trends 1999-2050 for Vehicles Operating on Roadways Using USEPA's MOBILE6.2 Model



Note:
(1) Annual emissions of polycyclic organic matter are projected to be 561 tons/yr for 1999, decreasing to 373 tons/yr for 2050.
(2) Trends for specific locations may be different, depending on locally derived information representing vehicle miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Source: U.S. Environmental Protection Agency. MOBILE6.2 Model run 20 August 2009.

Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affect emissions rates) over that time frame, since such information is unavailable. The results produced by USEPA's MOBILE6.2 model, the California USEPA's EMFAC2007 model, and USEPA's Draft MOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of USEPA's CAL3QHC model was conducted in an National Cooperative Highway Research Program study

(http://www.USEPA.gov/scram001/dispersion_alt.htm#hyroad), which documents poor model performance at ten sites across the country – three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this bias is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. USEPA (http://www.USEPA.gov/risk/basicinformation.htm#g) and HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the USEPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires USEPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld USEPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between Alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits.

2. Quantitative Analysis

Because of the uncertainties outlined above, a credible quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. However, available tools do allow us to reasonably predict relative emissions changes between Alternatives for large projects such as this one, where projected traffic volumes are high (Design Year 2040 AADT is projected to be in excess of 140,000 to 150,000 vehicles per day on some sections). Accordingly, a quantitative MSAT analysis has been conducted to compare anticipated MSAT emissions under existing conditions and for the No-Build Conditions for interim and design years. In addition, MSAT emissions were generated for the Opening/Interim as well as the design years for each of the Alternatives. The MSAT emissions analysis

performed for this study reflects methodologies developed by FHWA and recommended in the *Interim Guidance Update* mentioned earlier and also as outlined in the *FHWA Web Conference on Project-Level Mobile Source Air Toxics (MSAT) Analysis*. The following describes the general approach used for the MSAT analysis.

As discussed in the Traffic Summary section of this document, the Tidewater model is comprised of roadway links from the Richmond and Tri-Cities MPO areas, the Hampton Roads MPO area, and the region between the two MPOs (including much of Southside Virginia and the area surrounding the I-64 corridor between Richmond and Newport News). The Tidewater model encompasses an enormous area of southeastern Virginia. For the purposes of MSAT analysis, only the "affected network" portion of the Tidewater model area was analyzed. The "affected network" is the geographic area within the Tidewater region that surrounds the study corridor, encompassing each road that might reasonably see differing traffic volumes if improvements to the I-64 Study are constructed. A map depicting the "affected network" can be found in **Appendix C** of this technical memorandum. This affected network has the following approximate boundaries:

- North of I-64 - York River, SR 249, I-295 where it curves around the north side of Richmond.
- West of I-64 - I-95.
- South of I-64 - US 460.
- East of I-64 - Routes 10/32 in Suffolk/Isle of Wight, Hampton Roads Bay (in other words, cities on the south side of the Hampton Roads area such as Norfolk and VA Beach were not included in the MSAT analysis).

As discussed above, the affected network travelshed was identified using a combined regional network consisting of the Tidewater model that was developed for the detailed traffic analysis. The affected network travelshed was then assumed to be all roadway links within the boundaries identified above. The affected network varies along the project corridor and extends out approximately two to thirty miles, primarily on the south and east sides of I-64.

The following data sets were used from the Tidewater travel demand model:

- 24-hour travel volumes for each roadway link within the affected network.
- Functional classification of the roads.
- Estimated travel speeds for each link of roadway.

The Tidewater model uses a base year of 2000 and a forecast year of 2034. As such, interpolation/extrapolation between 2000 and 2034 was used to match the analysis years of this air study which include 2011, 2020 and 2040 conditions.

Projection and use of emission rates using FHWA's EMIT runs with appropriate modifications in order to obtain air toxics emission rates. In addition to using EMIT, naphthalene and polycyclic matter emission rates were calculated using MOBILE6.2, since these rates are currently not projected within the EMIT software platform. The following parameters were used for this portion of the analysis:

- Winter temperatures, average between September and February.
- Summer temperatures, average between March and August.
- Gasoline parameters obtained from USEPA's website at the following location http://www.USEPA.gov/otaq/regs/fuels/rfg/properf/norf-va.htm. The gasoline parameters are summarized in **Table 10**.

Table 10: MOBILE6.2 MSAT Gasoline Parameters[1]

Parameter	Summertime Value	Wintertime Value
Gas Aromatic %	19.1 % (average)	20.6 % (average)
Gas Olefin %	9.75 % (average)	9.70 % (average)
Gas Benzene %	0.59 % (average)	0.63 % (average)
E200	47.9 % (average)	56.4 % (average)
E300	84.0 % (average)	84.6 % (average)
MTBE % Volume	0.07 % (average)	5.12 % (average)
TAME % Volume	0.01 % (average)	0.24 % (average)
ETBE % Volume	0.0 % (average)	0.0 % (average)
Average min/max temperature, Fahrenheit[2]	62.3/78.9	42.7/58.3

[1]The gasoline parameters were obtained from EPA's website: http://www.epa.gov/otaq/regs/fuels/rfg/properf/norf-va.htm and are averages for the Norfolk-Virginia Beach area.
[2] The temperature values were obtained from the National Climatic Data Center 30 year period from 1981-2010. The station used for information was Newport News International Airport (USW00093741) http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html.

The following steps were used to quantify the potential MSAT emissions for each of the Alternatives related to the implementation of the project.

- Develop EMIT runs to calculate emission rates for acrolein, benzene, 1,3-butadiene, diesel PM, and formaldehyde for speeds ranging from 5 to 65 mph in 5 mph increments with changes across summer to winter conditions. The winter and summer emission rates were averaged together for the purposes of this assessment.
- Develop MOBILE6.2 runs to calculate emission rates for naphthalene and polycyclic matter for speeds ranging from 5 to 65 mph in 5 mph increments with changes across summer to winter conditions. The winter and summer emission rates were averaged together for the purposes of this assessment.
- In the "affected network", include roadway links that would experience a five percent increase or decrease between No-Build and Build Conditions, as well as additional roads that may or may not experience this difference.
- For each roadway link in the "affected network", indentify the appropriate emission rate for each of the seven MSAT pollutants based on the predicted link speed rounded to the nearest 5 mph for the 24-hour period.
- Calculate the MSAT emissions for each roadway link in the "affected network" by multiplying the appropriate emission rate by the total traffic in the 24-hour period by the total length of the link.
- Sum the predicted emissions for each day and for each link in the "affected network".
- Calculate the annual predicted emissions by multiplying the daily estimates by 365 days per year.

The results of the quantitative MSAT analysis are summarized in **Table 11**. In general, the results show that MSAT emissions are expected to decline substantially from Existing Year (2011) Conditions to both

the project Opening Year (2020) and Design Year (2040) Build Conditions for each of the Alternatives considered (1A/1B, 2A/2B and 3). More specifically, the results show that MSATs will decline about 19% to 76% between 2011 and 2020 for each of the Alternatives considered. In addition, MSATs will decline about 6% to 86% between 2011 and 2040 for each of the Alternatives considered. These reductions in MSATs are projected to occur even though the vehicle miles traveled (VMT) are projected to increase about 10% to 15% for each of the Alternatives considered between 2011 and 2020, and from about 41% to 46% for each of the Alternatives considered between 2011 and 2040. The largest reductions between 2011 and 2040 are expected to occur in Diesel Particulate Matter where emissions are expected to decrease over 86% for each of the Alternatives considered.

The results also indicate that the emissions of each of the MSATs are expected to decline about 2%-4% when comparing the Opening Year (2020) Condition for Alternatives 2A/2B and 3 to the 2020 No-Build Condition. Similarly, the emissions of each of the MSATs are expected to decline 2%-3% when comparing the Design Year (2040) Condition for Alternatives 2A/2B and 3 to the 2040 No-Build Condition. The results do indicate that emissions from the Opening Year (2020) Alternatives 1A/1B are projected to increase from 0.3% to 0.4% when compared to the 2020 No-Build Condition for each respective MSAT, although this increase is not considered to be significant, especially when compared to regional emission levels and considering the projected decline in MSATs between 2011 and 2020. A similar increase in MSAT emissions of 0.1% to 0.2% is projected to occur in the Design Year (2040) Alternative 1A/1B Condition when compared to the 2040 No-Build Condition, although again this increase is considered to be insignificant.

The results of the analysis are consistent with the national MSAT emission trends as predicted by MOBILE6.2 from 1999-2050 as shown in **Figure 8**. The results of the analysis indicate that no meaningful increases in MSAT have been identified and are not expected to cause an adverse effect on the human environment as a result of the proposed improvements.

Although it is not possible under currently available methodologies to quantify public health effects potentially attributable to changes in MSAT emissions arising out of implementation of this project, it seems reasonable to assume that reductions in emissions over time would result in corollary reductions in health risks to exposed populations. For example, in its discussion of the new gasoline and vehicle standards issued in 2007 (referenced at the beginning of this section of this report), USEPA estimates that implementation of the new standards will reduce both the number of people above the 1-in-100,000 cancer risk level, and the average population cancer risk, by reducing exposures to mobile source air toxics. USEPA further concludes that the standards also will reduce the number of people with a respiratory hazard index (HI) greater than one by about 10 million in 2020, and 17 million in 2030 (a value of the HI greater than 1.0 can be best described as indicating that a potential may exist for adverse health effects, according to USEPA).

MSAT analysis is a continuing area of research. While much work has been done to assess the overall health risks of MSAT, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA. Although it can be acknowledged that human populations could be exposed to MSAT under the Build Condition, with possible health-related consequences, those same populations would also be exposed to MSAT under Existing Conditions and under the No-Build Condition.

This analysis has considered current available information on MSAT, including regulatory requirements, modeling applications, and associated health effects. Based on the supplied information, the predicted reductions in MSAT emissions for Design Year (2040) Build Alternatives 1A/1B, Alternatives 2A/2B

Table 11: Project Annual Production of MSAT Pollutants on "Affected Network" (Short Tons per Year)

		Million Vehicle Miles Traveled (VMT)	Acrolein	Benzene	1,3-Butadiene	Diesel PM	Formaldehyde	Napthalene	Polycyclic Organic Matter
2011	Existing	35.28	8.14	503.48	64.53	57.47	154.10	12.20	13.08
2020	No-Build	40.57	5.79	346.55	45.13	13.92	113.18	9.67	10.55
	Alt 1A/1B	40.72	5.81	347.87	45.30	13.97	113.62	9.70	10.59
	Alt 2A/2B	39.39	5.61	336.09	43.77	13.52	109.76	9.38	10.24
	Alt 3	38.78	5.62	335.53	43.68	13.31	109.75	9.30	10.16
	(Alt 1 vs. No-Build)	0.4%	0.3%	0.4%	0.4%	0.4%	0.4%	0.3%	0.4%
	(Alt 2 vs. No-Build)	-2.9%	-3.1%	-3.0%	-3.0%	-2.9%	-3.0%	-3.0%	-2.9%
	(Alt 3 vs. No-Build)	-4.4%	-2.9%	-3.2%	-3.2%	-4.4%	-3.0%	-3.8%	-3.7%
	(Alt 1 vs. Existing)	15.4%	-28.6%	-30.9%	-29.8%	-75.7%	-26.3%	-20.5%	-19.0%
	(Alt 2 vs. Existing)	11.6%	-31.1%	-33.2%	-32.2%	-76.5%	-28.8%	-23.1%	-21.7%
	(Alt 3 vs. Existing)	9.9%	-31.0%	-33.4%	-32.3%	-76.8%	-28.8%	-23.8%	-22.3%
2040	No-Build	51.59	6.39	378.24	49.42	7.85	126.22	11.46	12.55
	Alt 1A/1B	51.59	6.40	378.60	49.46	7.85	126.34	11.47	12.56
	Alt 2A/2B	50.52	6.25	369.60	48.30	7.68	123.32	11.21	12.28
	Alt 3	49.90	6.28	370.89	48.43	7.59	123.89	11.17	12.23
	(Alt 1 vs. No-Build)	0.0%	0.2%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%
	(Alt 2 vs. No-Build)	-2.1%	-2.2%	-2.3%	-2.3%	-2.2%	-2.3%	-2.2%	-2.2%
	(Alt 3 vs. No-Build)	-3.3%	-1.7%	-1.9%	-2.0%	-3.3%	-1.8%	-2.5%	-2.5%
	(Alt 1 vs. Existing)	46.2%	-21.4%	-24.8%	-23.4%	-86.3%	-18.0%	-6.0%	-4.0%
	(Alt 2 vs. Existing)	43.2%	-23.2%	-26.6%	-25.2%	-86.6%	-20.0%	-8.1%	-6.1%
	(Alt 3 vs. Existing)	41.4%	-22.9%	-26.3%	-24.9%	-86.8%	-19.6%	-8.4%	-6.5%

and Alternative 3 when compared to Existing Year (2011) Conditions, the uncertainty regarding emissions estimates, and the difficulty of assessing exposure at the project level and associated health impacts, there does not appear to be significant adverse impacts on air quality or human health from MSAT that could be attributed to the proposed project.

V. Potential Construction Impacts

The temporary air quality impacts from construction are not expected to be significant. Emissions will be produced during the construction of this project by heavy equipment and vehicle travel to and from the site. Earthmoving and ground-disturbing operations will generate airborne dust. Construction emissions are short-term or temporary in nature. In order to mitigate these emissions, construction activities are to be performed in accordance with VDOT's *Road and Bridge Specifications*.

The project lies in an area designated by the Virginia Department of Environmental Quality (VDEQ) as an emissions control area for VOC and NOx (9 VAC 5-20-206), and as such, all reasonable precautions should be taken to limit the emissions of these pollutants. In addition, for work in this area, the following VDEQ air pollution regulations must be adhered to during the construction of this project: 9 VAC 5-45-760, Cutback Asphalt restrictions; 9 VAC 5-130, Open Burning restrictions; and 9 VAC 5-40-90, Fugitive Dust precautions.

VI. Conformity Status of the Project

As part of the regional air quality conformity determination, coordination with the Richmond Area MPO, Tri-Cities MPO and the Hampton Roads TPO will be performed as necessary to verify and document the project's regional ozone conformance. The portions of the project located in Henrico, James City and York Counties and the Cities of Richmond, Newport News and Hampton lies in an area that is currently designated as being in "maintenance" with the 8-hour ozone standard. Based on the "maintenance" designation, the proposed project is subject to regional transportation conformity requirements for ozone.

The I-64 Study is included in the Hampton Roads Transportation Planning Organization (HRTPO) FY 2012-2015 Transportation Improvement Program (TIP) and *2034 Long Range Transportation Plan* (LRTP) for Preliminary Engineering (PE) only. Similarly, the project is included in both the Richmond and Tri-Cities Area Metropolitan Planning Organization's FY 2012-2015 TIP and 2035 LRTP for PE only. Therefore, the project was not included in the regional conformity determination. Once funding is identified through the Construction (CN) Phase, the preferred Alternative can be added to the LRTP to meet the fiscal constraint requirements and can then be included in a regional transportation conformity analysis, if required.

VII. Conclusion

The CO hot-spot analysis demonstrated that peak CO concentrations for all Build Alternatives are predicted to be well below the CO NAAQS in both the Opening Year (2020) and Design Year (2040). Therefore, since projected CO concentrations are below the CO NAAQS under all of the Build Alternatives, no exceedances are anticipated as a result of the proposed project and no mitigation measures are required.

Additionally, the proposed project lies in an area of the Commonwealth that has been designated as attainment with the fine particulate matter ($PM_{2.5}$) NAAQS, and therefore $PM_{2.5}$ transportation conformity requirements do not apply. The project was still evaluated for $PM_{2.5}$ impacts and was found not to be a project of air quality concern. Similarly, MSAT emissions were evaluated and are expected to decrease significantly from current conditions to the project Opening Year (2020) and project Design Year (2040)

Conditions for all Alternatives considered, even when considering the significant increase in vehicle miles traveled projected over those time periods. The Opening Year (2020) and Design Year (2040) analyses for Alternatives 2A/2B and Alternative 3 also showed that the project is expected to reduce MSAT emissions when compared to the respective No-Build Condition. The Opening Year (2020) and Design Year (2040) analyses for Alternatives 1A/1B showed that the project is expected to experience slight increases in MSAT emissions when compared to the respective No-Build condition, although these increases are not considered to be meaningful, especially when compared to regional emission levels and considering the projected emission reductions from existing levels. The results of the analysis indicate that no meaningful increases in MSAT have been identified and are not expected to cause an adverse effect on the human environment as a result of the proposed improvements.

The temporary air quality impacts from construction are not expected to be significant. Construction activities are to be performed in accordance with VDOT's current *Road and Bridge Specifications.*

The project is located in two areas designated as "maintenance" in regard to the 8-hour ozone standard and as such, regional conformity requirements apply. Both the Richmond/Tri-Cities and Hampton Roads MPOs have included the I-64 Study in their respective TIPs and LRTPs for PE only. Therefore, funding through construction will need to be identified so the project can be included in a fiscally-constrained transportation conformity analysis, if required.

In conclusion, the project has been assessed for potential air quality impacts with all applicable air quality regulations and requirements. The assessment indicates that the project would meet all applicable air quality analysis and transportation conformity requirements. As such, it has been demonstrated that the project will not cause or contribute to any new violation of any standard in any area, increase the frequency or severity of any existing violation of any standard, or delay timely attainment of any standard.

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INTERSTATE 64 PENINSULA STUDY

APPENDIX A

Sample MOBILE Inputs/Outputs

```
*EMIT Data File
*I-64 EIS
*Existing 2011 Conditions
*Hampton
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Month - January; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Month - January; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Month - January; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
```

```
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 NON-RAMP
FUEL RVP            : 13.5
```

```
END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 55.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 2.5 mph, ARTERIAL
```

```
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Month - January; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Month - January; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Month - January; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 35.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
```

0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR : HVMT.DEF
STARTS PER DAY : STPERDAY.D
START DIST : SDIST.D
FUEL PROGRAM : 1

SCENARIO RECORD : EMIT | Calendar Year - 2011; Month - January; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR : 2011
EVALUATION MONTH : 1
ALTITUDE : 1
MIN/MAX TEMP : 32 32
ABSOLUTE HUMIDITY : 75.0
AVERAGE SPEED : 40.0 ARTERIAL
FUEL RVP : 13.5

END OF RUN :

NO REFUELING :
94+ LDG IMP : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST :
REG DIST : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR : HVMT.DEF
STARTS PER DAY : STPERDAY.D
START DIST : SDIST.D
FUEL PROGRAM : 1

SCENARIO RECORD : EMIT | Calendar Year - 2011; Month - January; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR : 2011
EVALUATION MONTH : 1
ALTITUDE : 1
MIN/MAX TEMP : 32 32
ABSOLUTE HUMIDITY : 75.0
AVERAGE SPEED : 45.0 ARTERIAL
FUEL RVP : 13.5

END OF RUN :

NO REFUELING :
94+ LDG IMP : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST :
REG DIST : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR : HVMT.DEF
STARTS PER DAY : STPERDAY.D
START DIST : SDIST.D
FUEL PROGRAM : 1

SCENARIO RECORD : EMIT | Calendar Year - 2011; Month - January; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR : 2011
EVALUATION MONTH : 1
ALTITUDE : 1
MIN/MAX TEMP : 32 32
ABSOLUTE HUMIDITY : 75.0
AVERAGE SPEED : 50.0 ARTERIAL
FUEL RVP : 13.5

END OF RUN :

NO REFUELING :
94+ LDG IMP : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST :
REG DIST : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR : HVMT.DEF
STARTS PER DAY : STPERDAY.D
START DIST : SDIST.D
FUEL PROGRAM : 1

SCENARIO RECORD : EMIT | Calendar Year - 2011; Month - January; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR : 2011
EVALUATION MONTH : 1
ALTITUDE : 1
MIN/MAX TEMP : 32 32
ABSOLUTE HUMIDITY : 75.0
AVERAGE SPEED : 55.0 ARTERIAL
FUEL RVP : 13.5

```
END OF RUN          :

NO REFUELING        :

EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Month - January; Speed - 12.9 mph, LOCAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 32 32
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : LocalFVMT.d
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
94+ LDG IMP         : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1
```

```
SCENARIO RECORD    : EMIT | Calendar Year - 2011; Month - January; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5

END OF RUN         :
```

```
*EMIT Data File
*I-64 EIS
*Design Year 2040 Conditions
*Hampton
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 2.5 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 25.0 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 30.0 mph,
NON-RAMP
```

```
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 35.0 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 35.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 40.0 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 45.0 mph,
```

```
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 50.0 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 50.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 55.0 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1
```

```
SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 60.0 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 65.0 mph,
NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 65.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 2.5 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1
```

```
SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 25.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 30.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 35.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 35.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
```

```
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 40.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 45.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 50.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 50.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
```

```
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 55.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 60.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 65.0 mph,
ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 65.0 ARTERIAL
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
```

```
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 12.9 mph,
LOCAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : LocalFVMT.d
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
94+ LDG IMP        : C:\MEZ62\NLEVNE.D
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile
Data\hampt11.d
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 34.6 mph,
RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 32 32
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5

END OF RUN         :
```

```
************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                           *
* Input file: MOBILE6.IN (file 1, run 1).                              *
************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 2.5 mph, NON-RAMP
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of  2.5
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2011
                             Month:  Jan.
                          Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                 Fuel Sulfur Content:   30. ppm

                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                   Reformulated Gas:  No

       Vehicle Type:      LDGV    LDGT12     LDGT34      LDGT       HDGV       LDDV       LDDT       HDDV         MC   All Veh
              GVWR:                <6000      >6000     (All)
                         ------    ------     ------    ------     ------     ------     ------     ------     ------   ------
   VMT Distribution:     0.4088    0.4083     0.1376                0.0117     0.0004     0.0020     0.0276     0.0036   1.0000
  ---------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite CO  :      51.34     61.07      58.10     60.32      54.93      3.046      2.184      8.810     120.79   55.246
  ---------------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):
```

CO Start:	10.32	14.98	10.90	13.95		0.415	0.253		6.369	
CO Running:	41.02	46.09	47.20	46.37		2.631	1.931		114.418	
CO Total Exhaust:	51.34	61.07	58.10	60.32	54.93	3.046	2.184	8.810	120.79	55.246

```
*******************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                  *
* Input file: MOBILE6.IN (file 1, run 2).                                     *
*******************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 25.0 mph, NON-RAMP
* File 1, Run 2, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
             The user supplied freeway average speed of 25.0
             will be used for all hours of the day. 100% of VMT
             has been assigned to the freeway roadway type for
             all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2011
                             Month:  Jan.
                          Altitude:  Low
                Minimum Temperature:  32.0 (F)
                Maximum Temperature:  32.0 (F)
                  Absolute Humidity:   75. grains/lb
                   Nominal Fuel RVP:  13.5 psi
                      Weathered RVP:  13.5 psi
                Fuel Sulfur Content:   30. ppm

                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1376		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000

```
 ---------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite CO  :     19.61     25.81     22.18     24.90     11.96     1.053     0.721     2.136     18.69     21.875
 ---------------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

          CO Start:     10.32     14.98     10.90     13.95               0.415     0.253                6.369
        CO Running:      9.29     10.83     11.29     10.94               0.638     0.468               12.326
   CO Total Exhaust:     19.61     25.81     22.18     24.90     11.96     1.053     0.721     2.136     18.69     21.875
 ---------------------------------------------------------------------------------------------------------------------------
*******************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                  *
* Input file: MOBILE6.IN (file 1, run 3).                                     *
*******************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
                User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 30.0 mph, NON-RAMP
* File 1, Run 3, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
             The user supplied freeway average speed of 30.0
             will be used for all hours of the day. 100% of VMT
             has been assigned to the freeway roadway type for
             all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2011
                             Month:  Jan.
                          Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                 Fuel Sulfur Content:   30. ppm

                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                    Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1376		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	19.41	25.58	21.94	24.66	9.92	0.943	0.640	1.767	16.43	21.622
Exhaust emissions (g/mi):										
CO Start:	10.32	14.98	10.90	13.95		0.415	0.253		6.369	
CO Running:	9.09	10.60	11.04	10.71		0.528	0.387		10.060	
CO Total Exhaust:	19.41	25.58	21.94	24.66	9.92	0.943	0.640	1.767	16.43	21.622

```
**************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                             *
* Input file: MOBILE6.IN (file 1, run 4).                                *
**************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 35.0 mph, NON-RAMP
* File 1, Run 4, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 35.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2011
                             Month:  Jan.
                          Altitude:  Low
                Minimum Temperature:  32.0 (F)
                Maximum Temperature:  32.0 (F)
                  Absolute Humidity:   75. grains/lb
                   Nominal Fuel RVP:  13.5 psi
                      Weathered RVP:  13.5 psi
                Fuel Sulfur Content:   30. ppm
```

```
            Exhaust I/M Program:  No
               Evap I/M Program:  No
                    ATP Program:  No
              Reformulated Gas:  No

      Vehicle Type:      LDGV     LDGT12     LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC    All Veh
             GVWR:                <6000      >6000      (All)
                       ------     ------     ------     ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.4088     0.4083     0.1376                0.0117    0.0004    0.0020    0.0276    0.0036    1.0000
 ---------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite CO  :     19.48      25.68      22.07      24.77      8.69      0.872     0.588     1.530     14.75    21.684
 ---------------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

         CO Start:      10.32      14.98      10.90      13.95                0.415     0.253                 6.369
       CO Running:       9.16      10.70      11.17      10.82                0.457     0.335                 8.381
  CO Total Exhaust:      19.48      25.68      22.07      24.77      8.69      0.872     0.588     1.530     14.75    21.684
 ---------------------------------------------------------------------------------------------------------------------------
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: MOBILE6.IN (file 1, run 5).                                   *
*****************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 40.0 mph, NON-RAMP
* File 1, Run 5, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
             The user supplied freeway average speed of 40.0
             will be used for all hours of the day. 100% of VMT
             has been assigned to the freeway roadway type for
             all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2011
                             Month:  Jan.
                          Altitude:  Low
               Minimum Temperature:  32.0 (F)
```

```
            Maximum Temperature:  32.0 (F)
              Absolute Humidity:   75. grains/lb
               Nominal Fuel RVP:  13.5 psi
                  Weathered RVP:  13.5 psi
            Fuel Sulfur Content:   30. ppm

            Exhaust I/M Program:  No
               Evap I/M Program:  No
                    ATP Program:  No
              Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1376		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	20.08	26.39	22.81	25.49	8.04	0.829	0.556	1.386	13.58	22.301
Exhaust emissions (g/mi):										
CO Start:	10.32	14.98	10.90	13.95		0.415	0.253		6.369	
CO Running:	9.76	11.40	11.92	11.53		0.414	0.304		7.214	
CO Total Exhaust:	20.08	26.39	22.81	25.49	8.04	0.829	0.556	1.386	13.58	22.301

```
**************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                             *
* Input file: MOBILE6.IN (file 1, run 6).                                *
**************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 45.0 mph, NON-RAMP
* File 1, Run 6, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
             The user supplied freeway average speed of 45.0
             will be used for all hours of the day. 100% of VMT
             has been assigned to the freeway roadway type for
             all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
```

LEV phase-in data read from file C:\MEZ62\NLEVNE.D
Calendar Year: 2011
Month: Jan.
Altitude: Low
Minimum Temperature: 32.0 (F)
Maximum Temperature: 32.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 13.5 psi
Weathered RVP: 13.5 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1376		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	20.67	27.09	23.56	26.20	7.86	0.808	0.541	1.314	12.85	22.927
Exhaust emissions (g/mi):										
CO Start:	10.32	14.98	10.90	13.95		0.415	0.253		6.369	
CO Running:	10.35	12.11	12.66	12.25		0.392	0.288		6.478	
CO Total Exhaust:	20.67	27.09	23.56	26.20	7.86	0.808	0.541	1.314	12.85	22.927

```
************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                           *
* Input file: MOBILE6.IN (file 1, run 7).                              *
************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 50.0 mph, NON-RAMP
* File 1, Run 7, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
             The user supplied freeway average speed of 50.0
             will be used for all hours of the day. 100% of VMT
```

```
          has been assigned to the freeway roadway type for
          all hours of the day and all vehicle types.
 M 48 Warning:
          there are no sales for vehicle class HDGV8b

LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                Calendar Year:  2011
                        Month:  Jan.
                     Altitude:  Low
           Minimum Temperature:  32.0 (F)
           Maximum Temperature:  32.0 (F)
             Absolute Humidity:   75. grains/lb
              Nominal Fuel RVP:  13.5 psi
                 Weathered RVP:  13.5 psi
           Fuel Sulfur Content:   30. ppm

           Exhaust I/M Program:  No
              Evap I/M Program:  No
                   ATP Program:  No
             Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1376		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	21.26	27.80	24.30	26.92	8.12	0.804	0.539	1.304	12.55	23.561
Exhaust emissions (g/mi):										
CO Start:	10.32	14.98	10.90	13.95		0.415	0.253		6.369	
CO Running:	10.94	12.82	13.40	12.96		0.389	0.286		6.177	
CO Total Exhaust:	21.26	27.80	24.30	26.92	8.12	0.804	0.539	1.304	12.55	23.561

```
************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                           *
* Input file: MOBILE6.IN (file 1, run 8).                              *
************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 55.0 mph, NON-RAMP
```

```
* File 1, Run 8, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 55.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                    Calendar Year:  2011
                            Month:  Jan.
                         Altitude:  Low
                Minimum Temperature:  32.0 (F)
                Maximum Temperature:  32.0 (F)
                  Absolute Humidity:   75. grains/lb
                   Nominal Fuel RVP:  13.5 psi
                      Weathered RVP:  13.5 psi
                Fuel Sulfur Content:   30. ppm

                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                        ATP Program:  No
                   Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12     LDGT34      LDGT       HDGV       LDDV       LDDT       HDDV         MC   All Veh
             GVWR:                <6000      >6000     (All)
                        ------    ------     ------    ------     ------     ------     ------     ------     ------   ------
   VMT Distribution:    0.4088    0.4083     0.1376                0.0117     0.0004     0.0020     0.0276     0.0036   1.0000
  ---------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite CO  :      21.85     28.51      25.04     27.63       8.86      0.819      0.549      1.354      12.55   24.203
  ---------------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

          CO Start:      10.32     14.98      10.90     13.95                  0.415      0.253                 6.369
        CO Running:      11.53     13.52      14.15     13.68                  0.404      0.297                 6.177
   CO Total Exhaust:     21.85     28.51      25.04     27.63       8.86       0.819      0.549      1.354      12.55   24.203
  ---------------------------------------------------------------------------------------------------------------------------
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: MOBILE6.IN (file 1, run 9).                                   *
*****************************************************************************
  M603 Comment:
              User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
              User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
```

```
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 60.0 mph, NON-RAMP
* File 1, Run 9, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 60.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2011
                             Month:  Jan.
                          Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                 Fuel Sulfur Content:   30. ppm

                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                   Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1376		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	22.44	29.21	25.79	28.35	10.22	0.855	0.575	1.471	19.98	24.882
Exhaust emissions (g/mi):										
CO Start:	10.32	14.98	10.90	13.95		0.415	0.253		6.369	
CO Running:	12.12	14.23	14.89	14.40		0.439	0.323		13.614	
CO Total Exhaust:	22.44	29.21	25.79	28.35	10.22	0.855	0.575	1.471	19.98	24.882

```
**************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                             *
* Input file: MOBILE6.IN (file 1, run 10).                               *
**************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF
```

```
* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2011; Month - January; Speed - 65.0 mph, NON-RAMP
* File 1, Run 10, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 65.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                      Calendar Year:  2011
                              Month:  Jan.
                           Altitude:  Low
                  Minimum Temperature:  32.0 (F)
                  Maximum Temperature:  32.0 (F)
                    Absolute Humidity:   75. grains/lb
                     Nominal Fuel RVP:  13.5 psi
                        Weathered RVP:  13.5 psi
                  Fuel Sulfur Content:   30. ppm

                  Exhaust I/M Program:  No
                     Evap I/M Program:  No
                          ATP Program:  No
                     Reformulated Gas:  No

       Vehicle Type:      LDGV     LDGT12     LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                 <6000      >6000     (All)
                       ------    ------     ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.4088    0.4083     0.1376              0.0117    0.0004    0.0020    0.0276    0.0036    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite CO  :     23.03     29.92      26.53     29.07     12.45     0.915     0.620     1.674     27.42    25.574
  ---------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

          CO Start:     10.32     14.98      10.90     13.95               0.415     0.253                6.369
        CO Running:     12.71     14.94      15.63     15.11               0.500     0.367               21.052
   CO Total Exhaust:    23.03     29.92      26.53     29.07     12.45     0.915     0.620     1.674     27.42    25.574
  ---------------------------------------------------------------------------------------------------------------------
*************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                            *
* Input file: MOBILE6.IN (file 1, run 11).                              *
*************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
```

User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
M616 Comment:
User has supplied post-1999 sulfur levels.

```
*****************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                *
* Input file: MOBILE6.IN (file 1, run 1).                                   *
*****************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 2.5 mph, NON-RAMP
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of  2.5
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                      Calendar Year:  2040
                              Month:  Jan.
                           Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                 Fuel Sulfur Content:   30. ppm

                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                   Reformulated Gas:  No

       Vehicle Type:      LDGV    LDGT12     LDGT34      LDGT       HDGV       LDDV       LDDT       HDDV         MC   All Veh
              GVWR:                <6000      >6000     (All)
                       ------     ------     ------     ------     ------     ------     ------     ------     ------     ------
   VMT Distribution:    0.4088     0.4083     0.1375                0.0117     0.0004     0.0020     0.0276     0.0036     1.0000
  ---------------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite CO  :     37.84      38.51      39.08      38.65      44.60      1.973      1.161      0.957     120.79     37.557
```

Exhaust emissions (g/mi):

CO Start:	8.63	8.57	7.41	8.28		0.252	0.114		6.369	
CO Running:	29.22	29.94	31.67	30.38		1.721	1.047		114.418	
CO Total Exhaust:	37.84	38.51	39.08	38.65	44.60	1.973	1.161	0.957	120.79	37.557

```
**************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                             *
* Input file: MOBILE6.IN (file 1, run 2).                                *
**************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 25.0 mph, NON-RAMP
* File 1, Run 2, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 25.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2040
                             Month:  Jan.
                          Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                 Fuel Sulfur Content:   30. ppm

                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                    Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1375		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	15.23	15.73	14.99	15.54	9.71	0.669	0.368	0.232	18.69	14.899
Exhaust emissions (g/mi):										
CO Start:	8.63	8.57	7.41	8.28		0.252	0.114		6.369	
CO Running:	6.60	7.16	7.58	7.27		0.417	0.254		12.326	
CO Total Exhaust:	15.23	15.73	14.99	15.54	9.71	0.669	0.368	0.232	18.69	14.899

```
************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                           *
* Input file: MOBILE6.IN (file 1, run 3).                              *
************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 30.0 mph, NON-RAMP
* File 1, Run 3, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 30.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2040
                             Month:  Jan.
                          Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
```

```
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                Reformulated Gas:  No

      Vehicle Type:      LDGV     LDGT12     LDGT34      LDGT       HDGV       LDDV       LDDT       HDDV         MC    All Veh
             GVWR:                <6000      >6000      (All)
                       ------     ------     ------     ------     ------     ------     ------     ------     ------     ------
  VMT Distribution:    0.4088     0.4083     0.1375                0.0117     0.0004     0.0020     0.0276     0.0036     1.0000
 ---------------------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
    Composite CO  :     15.09      15.59      14.84      15.40       8.05      0.597      0.324      0.192      16.43     14.735
 ---------------------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

         CO Start:       8.63       8.57       7.41       8.28                  0.252      0.114                 6.369
       CO Running:       6.47       7.02       7.43       7.12                  0.345      0.210                10.060
  CO Total Exhaust:      15.09      15.59      14.84      15.40       8.05      0.597      0.324      0.192      16.43     14.735
 ---------------------------------------------------------------------------------------------------------------------------------
*******************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                  *
* Input file: MOBILE6.IN (file 1, run 4).                                     *
*******************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 35.0 mph, NON-RAMP
* File 1, Run 4, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 35.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                    Calendar Year:  2040
```

```
                    Month:  Jan.
                 Altitude:  Low
Minimum Temperature:  32.0 (F)
Maximum Temperature:  32.0 (F)
  Absolute Humidity:   75. grains/lb
   Nominal Fuel RVP:  13.5 psi
      Weathered RVP:  13.5 psi
Fuel Sulfur Content:   30. ppm

Exhaust I/M Program:  No
   Evap I/M Program:  No
        ATP Program:  No
  Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1375		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	15.14	15.65	14.91	15.46	7.05	0.551	0.295	0.166	14.75	14.770
Exhaust emissions (g/mi):										
CO Start:	8.63	8.57	7.41	8.28		0.252	0.114		6.369	
CO Running:	6.51	7.08	7.50	7.19		0.299	0.182		8.381	
CO Total Exhaust:	15.14	15.65	14.91	15.46	7.05	0.551	0.295	0.166	14.75	14.770

```
*******************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                                  *
* Input file: MOBILE6.IN (file 1, run 5).                                     *
*******************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 40.0 mph, NON-RAMP
* File 1, Run 5, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 40.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
```

```
 M 48 Warning:
             there are no sales for vehicle class HDGV8b
 M 48 Warning:
             there are no sales for vehicle class LDDT12

LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                   Calendar Year:  2040
                           Month:  Jan.
                        Altitude:  Low
               Minimum Temperature:  32.0 (F)
               Maximum Temperature:  32.0 (F)
                 Absolute Humidity:   75. grains/lb
                  Nominal Fuel RVP:  13.5 psi
                     Weathered RVP:  13.5 psi
               Fuel Sulfur Content:   30. ppm

               Exhaust I/M Program:  No
                  Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.4088    0.4083    0.1375              0.0117    0.0004    0.0020    0.0276    0.0036    1.0000
  ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
    Composite CO  :     15.58     16.16     15.44     15.98      6.53     0.522     0.278     0.150     13.58    15.222
  ---------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

         CO Start:      8.63      8.57      7.41      8.28                0.252     0.114                6.369
       CO Running:      6.95      7.59      8.04      7.70                0.271     0.165                7.214
  CO Total Exhaust:     15.58     16.16     15.44     15.98      6.53     0.522     0.278     0.150     13.58    15.222
  ---------------------------------------------------------------------------------------------------------------------
*************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                            *
* Input file: MOBILE6.IN (file 1, run 6).                               *
*************************************************************************
  M603 Comment:
             User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
             User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
             User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 45.0 mph, NON-RAMP
```

```
* File 1, Run 6, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 45.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
  M 48 Warning:
              there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                      Calendar Year:  2040
                              Month:  Jan.
                           Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                 Fuel Sulfur Content:   30. ppm

                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                   Reformulated Gas:  No

       Vehicle Type:      LDGV    LDGT12     LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000      >6000     (All)
                      ------    ------     ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.4088    0.4083     0.1375              0.0117    0.0004    0.0020    0.0276    0.0036    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite CO  :     16.03     16.67      15.98     16.49      6.38     0.508     0.270     0.143     12.85    15.681
  ---------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

          CO Start:      8.63      8.57       7.41      8.28                0.252     0.114                 6.369
        CO Running:      7.40      8.10       8.57      8.22                0.257     0.156                 6.478
   CO Total Exhaust:     16.03     16.67      15.98     16.49      6.38     0.508     0.270     0.143     12.85    15.681
  ---------------------------------------------------------------------------------------------------------------------
*************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                            *
* Input file: MOBILE6.IN (file 1, run 7).                               *
*************************************************************************
  M603 Comment:
              User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
              User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D
```

```
* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 50.0 mph, NON-RAMP
* File 1, Run 7, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 50.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2040
                             Month:  Jan.
                          Altitude:  Low
                Minimum Temperature:  32.0 (F)
                Maximum Temperature:  32.0 (F)
                  Absolute Humidity:   75. grains/lb
                   Nominal Fuel RVP:  13.5 psi
                      Weathered RVP:  13.5 psi
                Fuel Sulfur Content:   30. ppm

                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12     LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000      >6000     (All)
                      ------    ------     ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:   0.4088    0.4083     0.1375              0.0117    0.0004    0.0020    0.0276    0.0036    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite CO  :     16.47     17.17      16.52     17.01      6.59     0.506     0.269     0.142     12.55    16.145
  ---------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

          CO Start:      8.63      8.57       7.41      8.28                0.252     0.114                 6.369
        CO Running:      7.85      8.61       9.11      8.73                0.255     0.155                 6.177
   CO Total Exhaust:     16.47     17.17      16.52     17.01      6.59     0.506     0.269     0.142     12.55    16.145
  ---------------------------------------------------------------------------------------------------------------------
**********************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                         *
* Input file: MOBILE6.IN (file 1, run 8).                            *
**********************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.
```

```
* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 55.0 mph, NON-RAMP
* File 1, Run 8, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 55.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2040
                             Month:  Jan.
                          Altitude:  Low
                 Minimum Temperature:  32.0 (F)
                 Maximum Temperature:  32.0 (F)
                   Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                 Fuel Sulfur Content:   30. ppm

                 Exhaust I/M Program:  No
                    Evap I/M Program:  No
                         ATP Program:  No
                   Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                <6000     >6000     (All)
                    ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:  0.4088    0.4083    0.1375              0.0117    0.0004    0.0020    0.0276    0.0036    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite CO  :    16.92     17.68     17.05     17.52      7.20     0.516     0.275     0.147     12.55    16.616
  ---------------------------------------------------------------------------------------------------------------------
Exhaust emissions (g/mi):

         CO Start:     8.63      8.57      7.41      8.28                0.252     0.114                6.369
       CO Running:     8.29      9.11      9.65      9.25                0.264     0.161                6.177
  CO Total Exhaust:    16.92     17.68     17.05     17.52      7.20     0.516     0.275     0.147     12.55    16.616
  ---------------------------------------------------------------------------------------------------------------------
**************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                             *
* Input file: MOBILE6.IN (file 1, run 9).                                *
**************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.
```

```
* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 60.0 mph, NON-RAMP
* File 1, Run 9, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 60.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2040
                             Month:  Jan.
                          Altitude:  Low
                Minimum Temperature:  32.0 (F)
                Maximum Temperature:  32.0 (F)
                  Absolute Humidity:   75. grains/lb
                    Nominal Fuel RVP:  13.5 psi
                       Weathered RVP:  13.5 psi
                Fuel Sulfur Content:   30. ppm

                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                       ATP Program:  No
                  Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1375		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	17.37	18.19	17.59	18.04	8.30	0.539	0.289	0.160	19.98	17.119
Exhaust emissions (g/mi):										
CO Start:	8.63	8.57	7.41	8.28		0.252	0.114		6.369	
CO Running:	8.74	9.62	10.18	9.76		0.287	0.175		13.614	
CO Total Exhaust:	17.37	18.19	17.59	18.04	8.30	0.539	0.289	0.160	19.98	17.119

```
*******************************************************************************
```

```
* MOBILE6.2.03 (24-Sep-2003)                                                  *
* Input file: MOBILE6.IN (file 1, run 10).                                    *
*******************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.

* # # # # # # # # # # # # # # # # # # # # # # # # #
* EMIT | Calendar Year - 2040; Month - January; Speed - 65.0 mph, NON-RAMP
* File 1, Run 10, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 65.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.
  M 48 Warning:
               there are no sales for vehicle class HDGV8b
  M 48 Warning:
               there are no sales for vehicle class LDDT12

 LEV phase-in data read from file C:\MEZ62\NLEVNE.D
                     Calendar Year:  2040
                             Month:  Jan.
                          Altitude:  Low
                Minimum Temperature:  32.0 (F)
                Maximum Temperature:  32.0 (F)
                  Absolute Humidity:   75. grains/lb
                   Nominal Fuel RVP:  13.5 psi
                      Weathered RVP:  13.5 psi
                Fuel Sulfur Content:   30. ppm

                Exhaust I/M Program:  No
                   Evap I/M Program:  No
                        ATP Program:  No
                  Reformulated Gas:  No
```

Vehicle Type: / GVWR:	LDGV	LDGT12 <6000	LDGT34 >6000	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4088	0.4083	0.1375		0.0117	0.0004	0.0020	0.0276	0.0036	1.0000
Composite Emission Factors (g/mi):										
Composite CO :	17.81	18.70	18.13	18.55	10.11	0.579	0.313	0.182	27.42	17.632

Exhaust emissions (g/mi):

CO Start:	8.63	8.57	7.41	8.28		0.252	0.114		6.369	
CO Running:	9.19	10.13	10.72	10.28		0.327	0.199		21.052	
CO Total Exhaust:	17.81	18.70	18.13	18.55	10.11	0.579	0.313	0.182	27.42	17.632

```
************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                           *
* Input file: MOBILE6.IN (file 1, run 11).                             *
************************************************************************
  M603 Comment:
               User has disabled the calculation of REFUELING emissions.


* Reading 94+ LEV IMPLEMENTATION SCHEDULE from the following external
* data file: C:\MEZ62\NLEVNE.D

* Reading Registration Distributions from the following external
* data file: C:\EMIT - EASY MOBILE INVENTORY TOOL\I-64 EIS\VDOT MOBILE DATA\HAMPT11.D
  M615 Comment:
               User supplied VMT mix.

* Reading Hourly VMT distribution from the following external
* data file: HVMT.DEF

* Reading start Starts/day distribution from the following external
* data file: STPERDAY.D

* Reading hourly start distribution from the following external
* data file: SDIST.D
  M616 Comment:
               User has supplied post-1999 sulfur levels.
```

INTERSTATE 64 PENINSULA STUDY

APPENDIX B

Sample CAL3QHC Inputs/Outputs

1 CAL3QHC - (DATED 95221)

CAL3QHC PC (32 BIT) VERSION 3.0.0
(C) COPYRIGHT 1993-2000, TRINITY CONSULTANTS

Run Began on 6/13/2012 at 15:25:32

JOB: I-64 EIS AIR QUALITY RUN: EXISTING 2011 CONDITIONS - EXIT 261

DATE : 06/13/ 0
TIME : 15:25:32

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.6 PPM

LINK VARIABLES

	LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1.	I-64 EB OFF RAMP TO	*	-442.8	139.5	-373.3	83.1	*	90.	129.	AG	576.	21.7	0.0	9.8		
2.	I-64 EB OFF RAMP TO	*	-373.3	83.1	-356.3	65.6	*	24.	136.	AG	576.	21.7	0.0	9.8		
3.	I-64 EB OFF RAMP TO	*	-356.3	65.6	-325.1	15.2	*	59.	148.	AG	576.	21.7	0.0	9.8		
4.	I-64 EB OFF RAMP TO	*	-325.1	15.2	-310.9	-29.7	*	47.	162.	AG	576.	21.7	0.0	9.8		
5.	I-64 EB OFF RAMP TO	*	-310.9	-29.7	-309.2	-56.5	*	27.	176.	AG	576.	21.7	0.0	9.8		
6.	I-64 EB OFF RAMP TO	*	-309.2	-56.5	-314.2	-90.5	*	34.	188.	AG	576.	21.7	0.0	9.8		
7.	I-64 EB OFF RAMP TO	*	-314.2	-90.5	-328.4	-122.2	*	35.	204.	AG	576.	21.7	0.0	9.8		
8.	I-64 EB OFF RAMP TO	*	-328.4	-122.2	-371.1	-154.5	*	54.	233.	AG	576.	21.7	0.0	9.8		
9.	I-64 EB OFF RAMP TO	*	-371.1	-154.5	-412.7	-168.2	*	44.	252.	AG	576.	21.7	0.0	9.8		
10.	I-64 EB OFF RAMP TO	*	-412.7	-168.2	-452.1	-174.3	*	40.	261.	AG	576.	21.7	0.0	9.8		
11.	I-64 EB OFF RAMP TO	*	-452.1	-174.3	-506.3	-170.4	*	54.	274.	AG	576.	21.7	0.0	9.8		
12.	64 EB ON RAMP	*	-498.3	-206.8	-420.5	-215.0	*	78.	96.	AG	638.	21.7	0.0	9.8		
13.	64 EB ON RAMP	*	-420.5	-215.0	-371.6	-223.1	*	50.	99.	AG	638.	21.7	0.0	9.8		
14.	64 EB ON RAMP	*	-371.6	-223.1	-324.6	-238.5	*	49.	108.	AG	638.	21.7	0.0	9.8		
15.	64 EB ON RAMP	*	-324.6	-238.5	-289.3	-258.4	*	41.	119.	AG	638.	21.7	0.0	9.8		
16.	64 EB ON RAMP	*	-289.3	-258.4	-256.7	-289.2	*	45.	133.	AG	638.	21.7	0.0	9.8		
17.	64 EB ON RAMP	*	-256.7	-289.2	-228.6	-327.2	*	47.	144.	AG	638.	21.7	0.0	9.8		
18.	64 EB ON RAMP	*	-228.6	-327.2	-203.3	-372.5	*	52.	151.	AG	638.	21.7	0.0	9.8		
19.	64 EB ON RAMP	*	-203.3	-372.5	-175.2	-399.6	*	39.	134.	AG	638.	21.7	0.0	9.8		
20.	64 EB ON RAMP	*	-175.2	-399.6	-139.9	-420.4	*	41.	121.	AG	638.	21.7	0.0	9.8		
21.	64 EB ON RAMP	*	-139.9	-420.4	-102.8	-434.0	*	40.	110.	AG	638.	21.7	0.0	9.8		
22.	64 EB ON RAMP	*	-102.8	-434.0	-63.0	-440.3	*	40.	99.	AG	638.	21.7	0.0	9.8		
23.	64 EB ON RAMP	*	-63.0	-440.3	-12.3	-434.9	*	51.	84.	AG	638.	21.7	0.0	9.8		
24.	64 EB ON RAMP	*	-12.3	-434.9	30.2	-418.6	*	46.	69.	AG	638.	21.7	0.0	9.8		
25.	64 EB ON RAMP	*	30.2	-418.6	59.2	-402.3	*	33.	61.	AG	638.	21.7	0.0	9.8		
26.	64 EB ON RAMP	*	59.2	-402.3	93.6	-393.3	*	36.	75.	AG	638.	21.7	0.0	9.8		
27.	64 EB ON RAMP	*	93.6	-393.3	131.6	-388.7	*	38.	83.	AG	638.	21.7	0.0	9.8		
28.	64 EB ON RAMP	*	131.6	-388.7	171.4	-390.6	*	40.	93.	AG	638.	21.7	0.0	9.8		
29.	64 EB ON RAMP	*	171.4	-390.6	222.1	-403.2	*	52.	104.	AG	638.	21.7	0.0	9.8		
30.	64 EB ON RAMP	*	222.1	-403.2	247.4	-414.1	*	28.	113.	AG	638.	21.7	0.0	9.8		
31.	64 EB ON RAMP	*	247.4	-414.1	316.2	-464.8	*	85.	126.	AG	638.	21.7	0.0	9.8		
32.	64 EB ON RAMP	*	316.2	-464.8	398.6	-529.9	*	105.	128.	AG	638.	21.7	0.0	9.8		
33.	64 EB OFF RAMP E	*	-89.2	-141.0	34.3	-241.8	*	159.	129.	AG	425.	21.7	0.0	9.8		
34.	64 EB OFF RAMP E	*	34.3	-241.8	65.1	-287.6	*	55.	146.	AG	425.	21.7	0.0	9.8		
35.	64 EB OFF RAMP E	*	65.1	-287.6	66.2	-334.9	*	47.	179.	AG	425.	21.7	0.0	9.8		
36.	64 EB OFF RAMP E	*	66.2	-334.9	49.2	-367.9	*	37.	207.	AG	425.	21.7	0.0	9.8		
37.	64 EB OFF RAMP E	*	49.2	-367.9	-6.4	-405.9	*	67.	236.	AG	425.	21.7	0.0	9.8		

38. 64 EB OFF RAMP E	*	-6.4	-405.9	-41.9	-411.6	*	36.	261.	AG	425.	21.7	0.0	9.8
39. 64 EB OFF RAMP E	*	-41.9	-411.6	-118.0	-402.8	*	77.	277.	AG	425.	21.7	0.0	9.8
40. 64 EB OFF RAMP E	*	-118.0	-402.8	-167.4	-371.0	*	59.	303.	AG	425.	21.7	0.0	9.8
41. 64 EB OFF RAMP E	*	-167.4	-371.0	-187.4	-306.7	*	67.	343.	AG	425.	21.7	0.0	9.8
42. 64 EB OFF RAMP E	*	-187.4	-306.7	-171.5	-259.8	*	50.	19.	AG	425.	21.7	0.0	9.8
43. 64 EB OFF RAMP E	*	-171.5	-259.8	-149.9	-244.4	*	27.	55.	AG	425.	21.7	0.0	9.8
44. 64 EB OFF RAMP E	*	-149.9	-244.4	-111.3	-229.0	*	42.	68.	AG	425.	21.7	0.0	9.8

JOB: I-64 EIS AIR QUALITY

RUN: EXISTING 2011 CONDITIONS - EXIT 261

DATE : 06/13/ 0
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LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
45. 64 EB OFF RAMP E	*	-111.3	-229.0	-89.7	-225.9	*	22.	82.	AG	425.	21.7	0.0	9.8	
46. 64 EB OFF RAMP E	*	-89.7	-225.9	-41.9	-223.8	*	48.	87.	AG	425.	21.7	0.0	9.8	
47. 64 WB ON RAMP	*	230.8	-189.9	254.5	-187.3	*	24.	84.	AG	366.	21.7	0.0	9.8	
48. 64 WB ON RAMP	*	254.5	-187.3	339.3	-211.0	*	88.	106.	AG	366.	21.7	0.0	9.8	
49. 64 WB ON RAMP	*	339.3	-211.0	359.4	-295.8	*	87.	167.	AG	366.	21.7	0.0	9.8	
50. 64 WB ON RAMP	*	359.4	-295.8	337.3	-332.9	*	43.	211.	AG	366.	21.7	0.0	9.8	
51. 64 WB ON RAMP	*	337.3	-332.9	228.2	-340.6	*	109.	266.	AG	366.	21.7	0.0	9.8	
52. 64 WB ON RAMP	*	228.2	-340.6	170.1	-297.4	*	72.	307.	AG	366.	21.7	0.0	9.8	
53. 64 WB OFF RAMP TO W	*	10.6	-168.8	-13.0	-144.1	*	34.	316.	AG	662.	21.7	0.0	9.8	
54. 64 WB OFF RAMP TO W	*	-13.0	-144.1	-31.6	-93.7	*	54.	340.	AG	662.	21.7	0.0	9.8	
55. 64 WB OFF RAMP TO W	*	-31.6	-93.7	-8.9	-26.8	*	71.	19.	AG	662.	21.7	0.0	9.8	
56. 64 WB OFF RAMP TO W	*	-8.9	-26.8	35.3	-6.7	*	49.	66.	AG	662.	21.7	0.0	9.8	
57. 64 WB OFF RAMP TO W	*	35.3	-6.7	99.1	-6.2	*	64.	90.	AG	662.	21.7	0.0	9.8	
58. 64 WB OFF RAMP TO W	*	99.1	-6.2	157.7	-28.9	*	63.	111.	AG	662.	21.7	0.0	9.8	
59. 64 WB OFF RAMP TO W	*	157.7	-28.9	176.8	-44.3	*	25.	129.	AG	662.	21.7	0.0	9.8	
60. 64 WB OFF RAMP TO W	*	176.8	-44.3	195.3	-75.7	*	36.	149.	AG	662.	21.7	0.0	9.8	
61. 64 WB OFF RAMP TO W	*	195.3	-75.7	194.3	-118.4	*	43.	181.	AG	662.	21.7	0.0	9.8	
62. 64 WB OFF RAMP TO W	*	194.3	-118.4	175.2	-148.7	*	36.	212.	AG	662.	21.7	0.0	9.8	
63. 64 WB OFF RAMP TO W	*	175.2	-148.7	123.8	-173.9	*	57.	244.	AG	662.	21.7	0.0	9.8	
64. 64 WB OFF RAMP TO W	*	123.8	-173.9	73.4	-179.1	*	51.	264.	AG	662.	21.7	0.0	9.8	
65. 64 WB ON RAMP	*	583.7	-96.4	447.2	-121.2	*	139.	260.	AG	1238.	21.7	0.0	9.8	
66. 64 WB ON RAMP	*	447.2	-121.2	388.6	-118.9	*	59.	272.	AG	1238.	21.7	0.0	9.8	
67. 64 WB ON RAMP	*	388.6	-118.9	299.5	-104.3	*	90.	279.	AG	1238.	21.7	0.0	9.8	
68. 64 WB ON RAMP	*	299.5	-104.3	210.3	-45.6	*	107.	303.	AG	1238.	21.7	0.0	9.8	
69. 64 WB ON RAMP	*	210.3	-45.6	177.6	-9.5	*	49.	318.	AG	1238.	21.7	0.0	9.8	
70. 64 WB ON RAMP	*	177.6	-9.5	142.7	7.4	*	39.	296.	AG	1238.	21.7	0.0	9.8	
71. 64 WB ON RAMP	*	142.7	7.4	80.6	18.7	*	63.	280.	AG	1238.	21.7	0.0	9.8	
72. 64 WB ON RAMP	*	80.6	18.7	-26.6	5.2	*	108.	263.	AG	1238.	21.7	0.0	9.8	
73. 64 WB ON RAMP	*	-26.6	5.2	-98.8	-11.8	*	74.	257.	AG	1238.	21.7	0.0	9.8	
74. 64 WB ON RAMP	*	-98.8	-11.8	-138.2	-8.4	*	40.	275.	AG	1238.	21.7	0.0	9.8	
75. 64 WB ON RAMP	*	-138.2	-8.4	-230.7	22.1	*	97.	288.	AG	1238.	21.7	0.0	9.8	
76. 64 WB ON RAMP	*	-230.7	22.1	-313.1	83.0	*	102.	306.	AG	1238.	21.7	0.0	9.8	
77. EB CENT PRKW APP RAM	*	-834.8	-132.4	-755.5	-149.5	*	81.	102.	AG	3070.	22.9	0.0	13.4	
78. EB CENT PRKW APP RAM	*	-755.5	-149.5	-589.7	-187.8	*	170.	103.	AG	3070.	22.9	0.0	13.4	
79. EB CENT PRKW APP RAM	*	-589.7	-187.8	-498.0	-201.5	*	93.	98.	AG	3070.	22.9	0.0	13.4	
80. EB CENT PRKW	*	-497.7	-200.8	-447.4	-208.4	*	51.	99.	AG	2432.	22.9	0.0	13.4	
81. EB CENT PRKW	*	-447.4	-208.4	-352.0	-217.5	*	96.	95.	AG	2432.	22.9	0.0	13.4	
82. EB CENT PRKW	*	-352.0	-217.5	-93.5	-221.1	*	259.	91.	AG	2432.	22.9	0.0	13.4	
83. EB CENT PRKW	*	-93.5	-221.1	-42.2	-218.0	*	51.	87.	AG	2432.	22.9	0.0	13.4	
84. EB CENT PRKW	*	-41.7	-219.6	117.7	-203.3	*	160.	84.	BR	2857.	22.9	5.5	13.4	
85. EB CENT PRKW CONT	*	118.7	-203.8	166.9	-198.2	*	49.	83.	AG	2857.	22.9	0.0	13.4	
86. EB CENT PRKW CONT	*	166.9	-198.2	232.4	-186.0	*	67.	79.	AG	2857.	22.9	0.0	13.4	
87. EB CENT PRKWY CONTIN	*	231.6	-186.0	777.5	-102.7	*	552.	81.	AG	3017.	22.9	0.0	13.4	

88. WB CENT PRKW APP ON	774.5	-77.3	583.7	-104.5	193.	262.	AG	5521.	22.9	0.0	13.4
89. EB CENT PRKWY CONT	584.3	-105.0	309.6	-150.5	278.	261.	AG	4283.	22.9	0.0	13.4
90. EB CENT PRKWY CONT	309.6	-150.5	73.3	-183.0	239.	262.	AG	4283.	22.9	0.0	13.4
91. WB CENT PRKW OVERPAS	72.7	-183.6	-47.2	-193.1	120.	265.	BR	4945.	22.9	5.5	13.4
92. WB CENT PRKW CONT	-47.2	-193.7	-141.7	-196.6	95.	268.	AG	4945.	22.9	0.0	13.4
93. WB CENT PRKW CONT	-141.7	-196.6	-317.2	-196.0	176.	270.	AG	4945.	22.9	0.0	13.4
94. WB CENT PRKW CONT	-317.2	-196.0	-498.5	-176.5	182.	276.	AG	4945.	22.9	0.0	13.4
95. WB CENT PRKW CONT	-498.5	-176.5	-513.9	-174.8	15.	276.	AG	4945.	22.9	0.0	13.4

JOB: I-64 EIS AIR QUALITY RUN: EXISTING 2011 CONDITIONS - EXIT 261

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LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
96. WB CENT PRKW CONTINU	-513.9	-174.2	-830.5	-109.2	323.	282.	AG	5740.	22.9	0.0	13.4		
97. EB 64 APPROACH EXIT	-1383.0	845.1	-1108.8	653.6	334.	125.	AG	4684.	25.6	0.0	20.7		
98. EB 64 APPROACH EXIT	-1108.8	653.6	-709.7	362.3	494.	126.	AG	4684.	25.6	0.0	20.7		
99. EB 64 APPROACH EXIT	-709.7	362.3	-438.5	148.6	345.	128.	AG	4684.	25.6	0.0	20.7		
100. 64 EB	-438.9	148.7	-288.9	29.6	192.	128.	AG	4108.	25.6	0.0	20.7		
101. 64 EB	-288.9	29.6	-84.9	-133.0	261.	129.	AG	4108.	25.6	0.0	20.7		
102. 64 EB CONTINUED	-84.3	-133.0	192.1	-351.7	352.	128.	AG	3683.	25.6	0.0	20.7		
103. 64 EB CONTINUED	192.1	-351.7	404.0	-526.9	275.	130.	AG	3683.	25.6	0.0	20.7		
104. 64 EB CONTINUED	404.5	-527.5	551.6	-653.4	194.	131.	AG	4322.	25.6	0.0	20.7		
105. 64 EB CONTINUED	551.6	-653.4	710.8	-788.3	209.	130.	AG	4322.	25.6	0.0	20.7		
106. 64 EB CONTINUED	710.8	-788.3	817.2	-886.6	145.	133.	AG	4322.	25.6	0.0	20.7		
107. 64 EB CONTINUED	817.2	-886.6	1014.7	-1077.5	275.	134.	AG	4322.	25.6	0.0	20.7		
108. 64 WB APP EXIT	1038.9	-1062.6	909.9	-935.6	181.	315.	AG	6332.	25.6	0.0	20.7		
109. 64 WB APP EXIT	909.9	-935.6	747.9	-781.6	224.	314.	AG	6332.	25.6	0.0	20.7		
110. 64 WB APP EXIT	747.9	-781.6	593.0	-647.6	205.	311.	AG	6332.	25.6	0.0	20.7		
111. 64 WB APP EXIT	593.0	-647.6	421.0	-506.6	222.	309.	AG	6332.	25.6	0.0	20.7		
112. 64 WB APP EXIT	421.0	-506.6	161.0	-300.7	332.	308.	AG	6332.	25.6	0.0	20.7		
113. 64 WB CONTINUED	160.0	-300.7	4.0	-175.7	200.	309.	AG	6698.	25.6	0.0	20.7		
114. 64 WB CONTINUED	2.0	-174.7	-320.9	82.3	413.	309.	AG	6036.	25.6	0.0	20.7		
115. 64 WB CONTINUED	-321.4	84.9	-1367.6	866.2	1306.	307.	AG	7274.	25.6	0.0	20.7		
116. BIG BETHEL ROAD	-834.8	87.1	-831.7	169.5	82.	2.	AG	2249.	22.9	0.0	26.8		
117. BIG BETHEL ROAD	-831.7	169.5	-892.7	369.4	209.	343.	AG	2249.	22.9	0.0	26.8		
118. BIG BETHEL ROAD	-892.7	369.4	-906.5	753.9	385.	358.	AG	2249.	22.9	0.0	26.8		
119. BIG BETHEL ROAD	-906.5	753.9	-897.3	879.0	125.	4.	AG	2249.	22.9	0.0	26.8		

JOB: I-64 EIS AIR QUALITY RUN: EXISTING 2011 CONDITIONS - EXIT 261

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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z

1.	3-1	*	-801.1	540.1	1.8 *
2.	3-2	*	-635.4	398.8	1.8 *
3.	3-3	*	-441.5	328.1	1.8 *
4.	3-4	*	-192.5	110.8	1.8 *
5.	3-5	*	100.1	70.9	1.8 *
6.	3-6	*	419.8	-10.6	1.8 *
7.	3-7	*	607.3	-564.9	1.8 *
8.	3-8	*	-381.8	12.9	1.8 *
9.	3-9	*	-596.4	-233.4	1.8 *
10.	3-10	*	-322.0	-293.2	1.8 *
11.	3-11	*	-26.7	-488.0	1.8 *
12.	3-12	*	342.8	-539.6	1.8 *
13.	3-13	*	619.1	-765.1	1.8 *

JOB: I-64 EIS AIR QUALITY RUN: EXISTING 2011 CONDITIONS - EXIT 261

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13
0.	* 3.6	3.6	3.6	3.6	3.6	3.6	4.1	6.1	6.1	5.8	5.1	6.7	6.9
10.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.9	6.0	6.1	5.6	5.1	6.6	6.6
20.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.8	5.8	6.0	5.7	5.0	6.5	6.4
30.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.8	6.0	5.6	5.0	6.6	6.4
40.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.9	6.1	5.7	5.1	6.5	6.4
50.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.8	6.0	5.9	5.2	6.4	6.4
60.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.6	6.0	6.1	5.8	4.8	6.2	6.3
70.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.9	6.3	6.2	4.7	6.2	6.4
80.	* 3.6	3.6	3.6	3.6	3.6	3.6	3.6	6.1	6.7	5.9	4.5	6.3	6.5
90.	* 3.6	3.6	3.6	3.6	3.6	3.8	3.6	6.6	6.1	5.2	4.6	6.6	6.8
100.	* 3.6	3.6	3.6	3.9	3.9	4.1	3.6	6.8	4.6	4.6	4.5	6.7	6.8
110.	* 3.6	3.8	3.9	4.3	4.2	4.5	3.6	6.9	4.2	4.5	4.6	6.7	7.0
120.	* 4.1	4.6	3.9	4.3	4.2	4.8	3.6	6.8	3.6	4.4	4.2	6.4	6.5
130.	* 5.7	6.2	4.8	5.4	4.4	4.7	4.3	5.7	3.6	3.6	3.6	5.2	5.3
140.	* 6.9	7.4	5.9	6.2	5.3	4.5	5.5	4.3	3.6	3.6	3.6	4.0	4.1
150.	* 6.7	7.4	5.8	6.2	5.5	4.9	6.2	4.3	3.6	3.6	3.6	3.6	3.6
160.	* 6.7	7.1	5.7	6.1	5.5	5.3	6.2	4.3	3.6	3.6	3.6	3.6	3.6
170.	* 6.6	7.0	5.8	5.9	5.4	5.3	6.1	4.2	3.6	3.6	3.6	3.6	3.6
180.	* 6.4	6.9	5.7	6.0	5.3	5.1	5.8	4.1	3.6	3.6	3.6	3.6	3.6
190.	* 6.4	6.7	5.8	5.8	5.4	5.3	5.7	4.1	3.6	3.6	3.6	3.6	3.6
200.	* 6.3	6.4	5.6	5.8	5.2	5.2	5.7	4.3	3.6	3.6	3.6	3.6	3.6
210.	* 6.4	6.5	5.6	5.8	5.4	5.4	5.7	4.2	3.6	3.6	3.6	3.6	3.6
220.	* 6.4	6.6	5.6	5.7	5.2	5.4	5.7	4.2	3.6	3.6	3.6	3.6	3.6
230.	* 6.4	6.5	5.4	5.9	5.2	5.3	5.7	4.3	3.6	3.6	3.6	3.6	3.6
240.	* 6.5	6.6	5.5	5.9	5.3	5.2	5.7	4.3	3.6	3.6	3.6	3.6	3.6
250.	* 6.5	6.6	5.5	5.7	5.0	5.2	5.7	4.2	3.6	3.6	3.6	3.6	3.6
260.	* 6.7	6.8	5.6	5.7	4.8	5.1	5.8	3.8	3.6	3.6	3.6	3.6	3.6
270.	* 6.8	7.0	5.8	5.8	4.7	4.5	6.0	3.6	3.6	3.6	3.6	3.6	3.6
280.	* 7.0	7.2	5.8	5.9	4.8	4.5	6.2	3.6	3.9	4.0	3.6	3.7	3.6
290.	* 6.8	7.4	5.9	6.2	4.9	4.3	6.7	3.7	4.4	5.0	3.8	4.0	3.7
300.	* 5.8	6.5	5.1	5.8	4.4	3.9	6.7	4.3	5.2	5.3	4.1	4.7	4.6
310.	* 4.5	4.9	4.2	4.5	3.7	3.6	5.4	5.6	5.6	5.5	4.7	6.6	6.5
320.	* 4.1	3.9	3.6	3.7	3.6	3.6	4.1	6.8	5.8	6.1	5.4	7.3	7.4
330.	* 4.0	3.8	3.6	3.6	3.6	3.6	4.0	6.6	6.5	6.0	5.6	7.2	7.4

340.	*	3.9	3.6	3.6	3.6	3.6	3.6	4.0	6.5	6.4	5.9	5.3	7.1	7.2
350.	*	3.7	3.6	3.6	3.6	3.6	3.6	4.1	6.3	6.2	5.7	5.2	6.8	6.9
MAX	*	7.0	7.4	5.9	6.2	5.5	5.4	6.7	6.9	6.7	6.2	5.6	7.3	7.4
DEGR.	*	280	140	140	290	150	210	300	110	80	70	330	320	320

THE HIGHEST CONCENTRATION OF 7.40 PPM OCCURRED AT RECEPTOR REC2 .

JOB: I-64 EIS AIR QUALITY RUN: EXISTING 2011 CONDITIONS - EXIT 261

DATE : 06/13/ 0
TIME : 15:25:32

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	CO/LINK (PPM) ANGLE (DEGREES)												
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13
LINK #	*	280	140	140	290	150	210	300	110	80	70	330	320	320
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
24	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
32	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: I-64 EIS AIR QUALITY RUN: EXISTING 2011 CONDITIONS - EXIT 261

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	*	REC1 280	REC2 140	REC3 140	REC4 290	REC5 150	REC6 210	REC7 300	REC8 110	REC9 80	REC10 70	REC11 330	REC12 320	REC13 320
46	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
61	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
63	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
66	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
68	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
69	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71	*	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
80	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
81	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
82	*	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0
83	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
84	*	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0
85	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	*	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0
88	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	*	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.1	0.1	0.1	0.0	0.0	0.0
90	*	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.1
91	*	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.0
92	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.0	0.0
93	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.2	0.3	0.0	0.0
94	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
95	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97	*	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98	*	0.9	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0

JOB: I-64 EIS AIR QUALITY RUN: EXISTING 2011 CONDITIONS - EXIT 261

	*	CO/LINK (PPM) ANGLE (DEGREES)												
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13
LINK #	*	280	140	140	290	150	210	300	110	80	70	330	320	320
99	*	0.0	0.6	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0
100	*	0.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
101	*	0.0	0.2	0.3	0.0	0.0	0.0	0.1	0.9	0.1	0.0	0.2	0.1	0.1
102	*	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.2	0.1	0.3	0.0	0.5	0.1
103	*	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.7	0.3
104	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
105	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
106	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
109	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
111	*	0.0	0.0	0.1	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.8
112	*	0.0	0.1	0.2	0.0	0.3	0.4	0.9	0.1	0.0	0.0	0.0	0.8	0.6
113	*	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.2	0.1	0.3	0.0	0.5	0.2
114	*	0.0	0.4	0.7	0.0	0.0	0.0	0.2	1.1	0.3	0.3	0.3	0.3	0.1
115	*	1.9	1.8	0.1	1.7	0.0	0.0	0.3	0.0	0.0	0.0	0.4	0.3	0.2
116	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
118	*	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
119	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

CAL3QHC PC (32 BIT) VERSION 3.0.0
(C) COPYRIGHT 1993-2000, TRINITY CONSULTANTS

Run Began on 9/07/2012 at 10:05:55

JOB: I-64 EIS AIR QUALITY RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

DATE : 09/07/ 0
TIME : 10:05:55

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.6 PPM

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE	VPH	EF	H	W	V/C	QUEUE
	*	X1	Y1	X2	Y2	*	(M)	(DEG)			(G/MI)	(M)	(M)		(VEH)
1. I-64 EB OFF RAMP TO	*	-442.8	139.5	-373.3	83.1	*	90.	129.	AG	1195.	14.8	0.0	9.8		
2. I-64 EB OFF RAMP TO	*	-373.3	83.1	-356.3	65.6	*	24.	136.	AG	1195.	14.8	0.0	9.8		
3. I-64 EB OFF RAMP TO	*	-356.3	65.6	-325.1	15.2	*	59.	148.	AG	1195.	14.8	0.0	9.8		
4. I-64 EB OFF RAMP TO	*	-325.1	15.2	-309.2	-56.5	*	73.	167.	AG	1195.	14.8	0.0	9.8		
5. I-64 EB OFF RAMP TO	*	-309.2	-56.5	-328.4	-122.2	*	68.	196.	AG	1195.	14.8	0.0	9.8		
6. I-64 EB OFF RAMP TO	*	-328.4	-122.2	-371.1	-154.5	*	54.	233.	AG	1195.	14.8	0.0	9.8		
7. I-64 EB OFF RAMP TO	*	-371.1	-154.5	-412.7	-168.2	*	44.	252.	AG	1195.	14.8	0.0	9.8		
8. I-64 EB OFF RAMP TO	*	-412.7	-168.2	-452.1	-174.3	*	40.	261.	AG	1195.	14.8	0.0	9.8		
9. I-64 EB OFF RAMP TO	*	-452.1	-174.3	-506.3	-170.4	*	54.	274.	AG	1195.	14.8	0.0	9.8		
10. 64 EB ON RAMP	*	-498.3	-206.8	-420.5	-215.0	*	78.	96.	AG	1070.	14.8	0.0	9.8		
11. 64 EB ON RAMP	*	-420.5	-215.0	-371.6	-223.1	*	50.	99.	AG	1070.	14.8	0.0	9.8		
12. 64 EB ON RAMP	*	-371.6	-223.1	-324.6	-238.5	*	49.	108.	AG	1070.	14.8	0.0	9.8		
13. 64 EB ON RAMP	*	-324.6	-238.5	-289.3	-258.4	*	41.	119.	AG	1070.	14.8	0.0	9.8		
14. 64 EB ON RAMP	*	-289.3	-258.4	-256.7	-289.2	*	45.	133.	AG	1070.	14.8	0.0	9.8		
15. 64 EB ON RAMP	*	-256.7	-289.2	-203.3	-372.5	*	99.	147.	AG	1070.	14.8	0.0	9.8		
16. 64 EB ON RAMP	*	-203.3	-372.5	-175.2	-399.6	*	39.	134.	AG	1070.	14.8	0.0	9.8		
17. 64 EB ON RAMP	*	-175.2	-399.6	-139.9	-420.4	*	41.	121.	AG	1070.	14.8	0.0	9.8		
18. 64 EB ON RAMP	*	-139.9	-420.4	-102.8	-434.0	*	40.	110.	AG	1070.	14.8	0.0	9.8		
19. 64 EB ON RAMP	*	-102.8	-434.0	-12.3	-434.9	*	91.	91.	AG	1070.	14.8	0.0	9.8		
20. 64 EB ON RAMP	*	-12.3	-434.9	30.2	-418.6	*	46.	69.	AG	1070.	14.8	0.0	9.8		
21. 64 EB ON RAMP	*	30.2	-418.6	59.2	-402.3	*	33.	61.	AG	1070.	14.8	0.0	9.8		
22. 64 EB ON RAMP	*	59.2	-402.3	93.6	-393.3	*	36.	75.	AG	1070.	14.8	0.0	9.8		
23. 64 EB ON RAMP	*	93.6	-393.3	131.6	-388.7	*	38.	83.	AG	1070.	14.8	0.0	9.8		
24. 64 EB ON RAMP	*	131.6	-388.7	171.4	-390.6	*	40.	93.	AG	1070.	14.8	0.0	9.8		
25. 64 EB ON RAMP	*	171.4	-390.6	222.1	-403.2	*	52.	104.	AG	1070.	14.8	0.0	9.8		
26. 64 EB ON RAMP	*	222.1	-403.2	247.4	-414.1	*	28.	113.	AG	1070.	14.8	0.0	9.8		
27. 64 EB ON RAMP	*	247.4	-414.1	316.2	-464.8	*	85.	126.	AG	1070.	14.8	0.0	9.8		
28. 64 EB ON RAMP	*	316.2	-464.8	398.6	-529.9	*	105.	128.	AG	1070.	14.8	0.0	9.8		
29. 64 EB OFF RAMP E	*	-89.2	-141.0	34.3	-241.8	*	159.	129.	AG	925.	14.8	0.0	9.8		
30. 64 EB OFF RAMP E	*	34.3	-241.8	65.1	-287.6	*	55.	146.	AG	925.	14.8	0.0	9.8		
31. 64 EB OFF RAMP E	*	65.1	-287.6	49.2	-367.9	*	82.	191.	AG	925.	14.8	0.0	9.8		
32. 64 EB OFF RAMP E	*	49.2	-367.9	-41.9	-411.6	*	101.	244.	AG	925.	14.8	0.0	9.8		
33. 64 EB OFF RAMP E	*	-41.9	-411.6	-118.0	-402.8	*	77.	277.	AG	925.	14.8	0.0	9.8		
34. 64 EB OFF RAMP E	*	-118.0	-402.8	-167.4	-371.0	*	59.	303.	AG	925.	14.8	0.0	9.8		
35. 64 EB OFF RAMP E	*	-167.4	-371.0	-187.4	-306.7	*	67.	343.	AG	925.	14.8	0.0	9.8		
36. 64 EB OFF RAMP E	*	-187.4	-306.7	-171.5	-259.8	*	50.	19.	AG	925.	14.8	0.0	9.8		
37. 64 EB OFF RAMP E	*	-171.5	-259.8	-149.9	-244.4	*	27.	55.	AG	925.	14.8	0.0	9.8		

38. 64 EB OFF RAMP E	*	-149.9	-244.4	-111.3	-229.0	*	42.	68. AG	925.	14.8	0.0	9.8
39. 64 EB OFF RAMP E	*	-111.3	-229.0	-89.7	-225.9	*	22.	82. AG	925.	14.8	0.0	9.8
40. 64 EB OFF RAMP E	*	-89.7	-225.9	-41.9	-223.8	*	48.	87. AG	925.	14.8	0.0	9.8
41. EB CENT PRKW APP RAM	*	-834.8	-132.4	-755.5	-149.5	*	81.	102. AG	9240.	15.7	0.0	13.4
42. EB CENT PRKW APP RAM	*	-755.5	-149.5	-589.7	-187.8	*	170.	103. AG	9240.	15.7	0.0	13.4
43. EB CENT PRKW APP RAM	*	-589.7	-187.8	-498.0	-201.5	*	93.	98. AG	9240.	15.7	0.0	13.4
44. EB CENT PRKW	*	-497.7	-200.8	-447.4	-208.4	*	51.	99. AG	8170.	15.7	0.0	13.4

JOB: I-64 EIS AIR QUALITY

RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

DATE : 09/07/ 0
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LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C QUEUE (VEH)
45. EB CENT PRKW	*	-447.4	-208.4	-352.0	-217.5	*	96.	95.	AG	8170.	15.7	0.0	13.4	
46. EB CENT PRKW	*	-352.0	-217.5	-93.5	-221.1	*	259.	91.	AG	8170.	15.7	0.0	13.4	
47. EB CENT PRKW	*	-93.5	-221.1	-42.2	-218.0	*	51.	87.	AG	8170.	15.7	0.0	13.4	
48. EB CENT PRKW	*	-41.7	-219.6	117.7	-203.3	*	160.	84.	BR	9095.	15.7	5.5	13.4	
49. EB CENT PRKW CONT	*	118.7	-203.8	166.9	-198.2	*	49.	83.	AG	9095.	15.7	0.0	13.4	
50. EB CENT PRKW CONT	*	166.9	-198.2	232.4	-186.0	*	67.	79.	AG	9095.	15.7	0.0	13.4	
51. EB CENT PRKWY CONTIN	*	231.6	-186.0	777.5	-102.7	*	552.	81.	AG	6237.	15.7	0.0	13.4	
52. WB CENT PRKW APP ON	*	774.5	-77.3	583.7	-104.5	*	193.	262.	AG	13188.	15.7	0.0	13.4	
53. EB CENT PRKWY CONT	*	584.3	-105.0	309.6	-150.5	*	278.	261.	AG	10593.	15.7	0.0	13.4	
54. EB CENT PRKWY CONT	*	309.6	-150.5	73.3	-183.0	*	239.	262.	AG	10593.	15.7	0.0	13.4	
55. WB CENT PRKW OVERPAS	*	72.7	-183.6	-47.2	-193.1	*	120.	265.	BR	11668.	15.7	5.5	13.4	
56. WB CENT PRKW CONT	*	-47.2	-193.7	-141.7	-196.6	*	95.	268.	AG	1668.	15.7	0.0	13.4	
57. WB CENT PRKW CONT	*	-141.7	-196.6	-317.2	-196.0	*	176.	270.	AG	1668.	15.7	0.0	13.4	
58. WB CENT PRKW CONT	*	-317.2	-196.0	-498.5	-176.5	*	182.	276.	AG	1668.	15.7	0.0	13.4	
59. WB CENT PRKW CONT	*	-498.5	-176.5	-513.9	-174.8	*	15.	276.	AG	1668.	15.7	0.0	13.4	
60. WB CENT PRKW CONTINU	*	-513.9	-174.2	-830.5	-109.2	*	323.	282.	AG	2863.	15.7	0.0	13.4	
61. EB 64 APPROACH EXIT	*	-1385.5	841.2	-1111.3	649.7	*	334.	125.	AG	6085.	17.6	0.0	17.1	
62. EB 64 APPROACH EXIT	*	-1111.3	649.7	-712.2	358.4	*	494.	126.	AG	6085.	17.6	0.0	17.1	
63. EB 64 APPROACH EXIT	*	-712.2	358.4	-441.0	144.7	*	345.	128.	AG	6085.	17.6	0.0	17.1	
64. 64 EB	*	-441.5	145.2	-291.5	26.1	*	192.	128.	AG	4890.	17.6	0.0	17.1	
65. 64 EB	*	-291.5	26.1	-87.5	-136.5	*	261.	129.	AG	4890.	17.6	0.0	17.1	
66. 64 EB CONTINUED	*	-86.4	-135.8	190.0	-354.5	*	352.	128.	AG	3965.	17.6	0.0	17.1	
67. 64 EB CONTINUED	*	190.0	-354.5	401.9	-529.7	*	275.	130.	AG	3965.	17.6	0.0	17.1	
68. 64 EB CONTINUED	*	402.7	-529.3	549.8	-655.2	*	194.	131.	AG	5080.	17.6	0.0	17.1	
69. 64 EB CONTINUED	*	549.8	-655.2	709.0	-790.1	*	209.	130.	AG	5080.	17.6	0.0	17.1	
70. 64 EB CONTINUED	*	709.0	-790.1	815.4	-888.4	*	145.	133.	AG	5080.	17.6	0.0	17.1	
71. 64 EB CONTINUED	*	815.4	-888.4	1012.9	-1079.3	*	275.	134.	AG	5080.	17.6	0.0	17.1	
72. 64 WB APP EXIT	*	1041.6	-1059.9	912.6	-932.9	*	181.	315.	AG	5905.	17.6	0.0	20.7	
73. 64 WB APP EXIT	*	912.6	-932.9	750.6	-778.9	*	224.	314.	AG	5905.	17.6	0.0	20.7	
74. 64 WB APP EXIT	*	750.6	-778.9	595.7	-644.9	*	205.	311.	AG	5905.	17.6	0.0	20.7	
75. 64 WB APP EXIT	*	595.7	-644.9	423.7	-503.9	*	222.	309.	AG	5905.	17.6	0.0	20.7	
76. 64 WB APP EXIT	*	423.7	-503.9	163.7	-298.0	*	332.	308.	AG	5905.	17.6	0.0	20.7	
77. 64 WB CONTINUED	*	162.9	-297.4	6.9	-172.4	*	200.	309.	AG	6610.	17.6	0.0	20.7	
78. 64 WB CONTINUED	*	4.9	-171.6	-318.0	85.4	*	413.	309.	AG	5535.	17.6	0.0	20.7	
79. 64 WB CONTINUED	*	-318.8	87.4	-1365.0	868.7	*	1306.	307.	AG	8130.	17.6	0.0	20.7	
80. BIG BETHEL ROAD	*	-834.8	87.1	-831.7	169.5	*	82.	2.	AG	3942.	15.7	0.0	26.8	
81. BIG BETHEL ROAD	*	-831.7	169.5	-892.7	369.4	*	209.	343.	AG	3942.	15.7	0.0	26.8	
82. BIG BETHEL ROAD	*	-892.7	369.4	-906.5	753.9	*	385.	358.	AG	3942.	15.7	0.0	26.8	
83. BIG BETHEL ROAD	*	-906.5	753.9	-897.3	879.0	*	125.	4.	AG	3942.	15.7	0.0	26.8	
84. NEW ON RAMP	*	580.7	-91.9	445.6	-114.6	*	137.	260.	AG	2595.	14.8	0.0	9.8	
85. NEW ON RAMP	*	445.6	-114.6	309.6	-97.8	*	137.	277.	AG	2595.	14.8	0.0	9.8	
86. NEW ON RAMP	*	309.6	-97.8	223.8	-40.6	*	103.	304.	AG	2595.	14.8	0.0	9.8	
87. NEW ON RAMP	*	223.8	-40.6	193.3	-3.2	*	48.	321.	AG	2595.	14.8	0.0	9.8	

88. NEW ON RAMP	*	193.3	-3.2	152.9	14.6	*	44.	294.	AG	2595.	14.8	0.0	9.8
89. NEW ON RAMP	*	152.9	14.6	91.7	27.4	*	63.	282.	AG	2595.	14.8	0.0	9.8
90. NEW ON RAMP	*	91.7	27.4	-30.5	14.6	*	123.	264.	AG	2595.	14.8	0.0	9.8
91. NEW ON RAMP	*	-30.5	14.6	-111.3	12.6	*	81.	269.	AG	2595.	14.8	0.0	9.8
92. NEW ON RAMP	*	-111.3	12.6	-215.8	33.3	*	107.	281.	AG	2595.	14.8	0.0	9.8
93. NEW ON RAMP	*	-215.8	33.3	-304.5	95.4	*	108.	305.	AG	2595.	14.8	0.0	9.8
94. NEW OFF RAMP	*	10.1	-158.6	-30.4	-123.8	*	53.	311.	AG	1075.	14.8	0.0	9.8
95. NEW OFF RAMP	*	-30.4	-123.8	-34.5	-42.4	*	82.	357.	AG	1075.	14.8	0.0	9.8

JOB: I-64 EIS AIR QUALITY RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

DATE : 09/07/ 0
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LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE	VPH	EF	H	W	V/C	QUEUE
	*	X1	Y1	X2	Y2	*	(M)	(DEG)			(G/MI)	(M)	(M)		(VEH)
96. NEW OFF RAMP	*	-34.5	-42.4	-7.9	-1.1	*	49.	33.	AG	1075.	14.8	0.0	9.8		
97. NEW OFF RAMP	*	-7.9	-1.1	46.9	13.2	*	57.	75.	AG	1075.	14.8	0.0	9.8		
98. NEW OFF RAMP	*	46.9	13.2	127.9	8.3	*	81.	93.	AG	1075.	14.8	0.0	9.8		
99. NEW OFF RAMP	*	127.9	8.3	182.3	-22.8	*	63.	120.	AG	1075.	14.8	0.0	9.8		
100. NEW OFF RAMP	*	182.3	-22.8	210.1	-77.2	*	61.	153.	AG	1075.	14.8	0.0	9.8		
101. NEW OFF RAMP	*	210.1	-77.2	211.3	-122.6	*	45.	178.	AG	1075.	14.8	0.0	9.8		
102. NEW OFF RAMP	*	211.3	-122.6	181.5	-156.9	*	45.	221.	AG	1075.	14.8	0.0	9.8		
103. NEW OFF RAMP	*	181.5	-156.9	127.9	-177.4	*	57.	249.	AG	1075.	14.8	0.0	9.8		
104. NEW OFF RAMP	*	127.9	-177.4	91.9	-180.3	*	36.	265.	AG	1075.	14.8	0.0	9.8		
105. NEW ON RAMP	*	232.6	-196.5	288.6	-185.7	*	57.	79.	AG	705.	14.8	0.0	9.8		
106. NEW ON RAMP	*	288.6	-185.7	340.1	-200.9	*	54.	106.	AG	705.	14.8	0.0	9.8		
107. NEW ON RAMP	*	340.1	-200.9	362.3	-227.6	*	35.	140.	AG	705.	14.8	0.0	9.8		
108. NEW ON RAMP	*	362.3	-227.6	362.3	-322.4	*	95.	180.	AG	705.	14.8	0.0	9.8		
109. NEW ON RAMP	*	362.3	-322.4	325.5	-352.3	*	47.	231.	AG	705.	14.8	0.0	9.8		
110. NEW ON RAMP	*	325.5	-352.3	293.7	-361.2	*	33.	254.	AG	705.	14.8	0.0	9.8		
111. NEW ON RAMP	*	293.7	-361.2	256.2	-356.7	*	38.	277.	AG	705.	14.8	0.0	9.8		
112. NEW ON RAMP	*	256.2	-356.7	182.4	-296.3	*	95.	309.	AG	705.	14.8	0.0	9.8		
113. EB HOV	*	-1381.5	849.3	-5.6	-185.6	*	1722.	127.	AG	320.	17.6	0.0	13.4		
114. EB HOV	*	-5.6	-187.1	546.5	-638.1	*	713.	129.	AG	270.	17.6	0.0	13.4		
115. EB HOV	*	546.5	-638.1	736.6	-796.5	*	247.	130.	AG	270.	17.6	0.0	13.4		
116. EB HOV	*	736.6	-796.5	1018.7	-1074.1	*	396.	135.	AG	270.	17.6	0.0	13.4		
117. WB HOV	*	1030.8	-1065.1	790.9	-829.7	*	336.	314.	AG	1970.	17.6	0.0	13.4		
118. WB HOV	*	790.9	-829.7	566.1	-630.6	*	300.	312.	AG	1970.	17.6	0.0	13.4		
119. WB HOV	*	566.1	-630.6	33.6	-197.6	*	686.	309.	AG	1970.	17.6	0.0	13.4		
120. WB HOV	*	-8.6	-176.5	-1373.9	859.9	*	1714.	307.	AG	2020.	17.6	0.0	13.4		

JOB: I-64 EIS AIR QUALITY RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

DATE : 09/07/ 0
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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*

1.	3-1	*	-801.1	540.1	1.8 *
2.	3-2	*	-635.4	398.8	1.8 *
3.	3-3	*	-441.5	328.1	1.8 *
4.	3-4	*	-192.5	110.8	1.8 *
5.	3-5	*	100.1	70.9	1.8 *
6.	3-6	*	419.8	-10.6	1.8 *
7.	3-7	*	607.3	-564.9	1.8 *
8.	3-8	*	-381.8	12.9	1.8 *
9.	3-9	*	-596.4	-233.4	1.8 *
10.	3-10	*	-322.0	-293.2	1.8 *
11.	3-11	*	-26.7	-488.0	1.8 *
12.	3-12	*	342.8	-539.6	1.8 *
13.	3-13	*	619.1	-765.1	1.8 *

JOB: I-64 EIS AIR QUALITY RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	*	CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13
0.	*	3.6	3.6	3.6	3.6	3.6	3.6	4.2	5.8	6.1	5.7	5.2	6.5	6.6
10.	*	3.6	3.6	3.6	3.6	3.6	3.6	4.1	5.9	6.1	5.7	5.4	6.4	6.3
20.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.9	5.7	6.1	5.6	5.4	6.3	6.0
30.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.7	5.7	6.2	5.7	5.5	6.3	5.9
40.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.7	6.1	5.7	5.4	6.3	5.9
50.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.6	6.2	5.7	5.3	6.0	5.9
60.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.8	6.2	6.1	4.9	5.9	5.8
70.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.7	6.3	7.1	4.6	5.6	5.9
80.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.9	7.2	6.5	4.2	5.9	6.1
90.	*	3.6	3.6	3.6	3.7	3.7	3.8	3.6	6.6	6.6	5.5	4.3	5.9	6.1
100.	*	3.6	3.6	3.6	4.0	4.0	4.5	3.6	6.7	4.9	4.4	4.5	6.2	6.3
110.	*	3.9	3.9	3.9	4.4	4.5	5.2	3.6	7.3	3.9	4.4	4.3	6.3	6.2
120.	*	4.2	4.2	4.0	4.6	4.9	5.3	3.6	6.3	3.6	3.7	4.0	6.1	6.0
130.	*	5.9	5.9	4.9	5.7	5.2	5.3	4.2	5.3	3.6	3.7	3.6	5.1	4.9
140.	*	6.4	6.9	5.5	6.1	6.0	5.2	5.3	4.3	3.6	3.6	3.6	3.9	4.0
150.	*	6.3	6.8	5.6	6.2	5.9	5.6	5.8	4.2	3.6	3.6	3.6	3.6	3.6
160.	*	6.4	6.7	5.5	5.9	6.1	5.7	5.7	4.3	3.6	3.6	3.6	3.6	3.6
170.	*	6.3	6.7	5.4	5.7	5.7	5.8	5.7	4.2	3.6	3.6	3.6	3.6	3.6
180.	*	6.3	6.7	5.5	5.6	5.9	5.8	5.5	4.1	3.6	3.6	3.6	3.6	3.6
190.	*	6.1	6.4	5.6	5.7	5.8	5.6	5.4	4.1	3.6	3.6	3.6	3.6	3.6
200.	*	6.1	6.3	5.5	5.7	5.6	5.8	5.4	4.2	3.6	3.6	3.6	3.6	3.6
210.	*	6.2	6.2	5.6	5.6	5.5	5.8	5.2	4.3	3.6	3.6	3.6	3.6	3.6
220.	*	6.2	6.3	5.5	5.7	5.3	5.8	5.4	4.2	3.6	3.6	3.6	3.6	3.6
230.	*	6.2	6.3	5.2	5.6	5.3	6.1	5.2	4.3	3.6	3.6	3.6	3.6	3.6
240.	*	6.2	6.4	5.4	5.9	5.4	6.0	5.4	4.4	3.6	3.6	3.6	3.6	3.6
250.	*	6.3	6.4	5.5	5.6	5.1	5.1	5.5	4.0	3.6	3.6	3.6	3.6	3.6
260.	*	6.5	6.5	5.4	5.4	4.9	4.7	5.5	3.8	3.6	3.6	3.6	3.6	3.6
270.	*	6.6	6.8	5.6	5.5	4.7	4.4	5.6	3.6	3.6	3.7	3.6	3.6	3.6
280.	*	6.8	6.8	5.7	5.7	4.7	4.5	5.7	3.7	3.9	4.3	3.6	3.6	3.6
290.	*	6.8	6.9	5.7	6.2	4.7	4.3	6.0	3.7	4.7	5.0	3.9	3.9	3.6
300.	*	5.8	6.4	4.9	5.6	4.5	3.9	6.4	4.2	5.5	5.4	4.4	4.5	4.1
310.	*	4.7	4.8	4.1	4.5	3.7	3.6	5.6	5.6	5.8	5.4	4.5	6.3	6.2
320.	*	4.1	4.0	3.6	3.7	3.6	3.6	4.3	6.7	6.1	6.2	5.2	7.0	6.9

330.	*	4.1	3.8	3.6	3.6	3.6	3.6	4.2	6.6	6.7	5.9	5.2	7.0	7.0
340.	*	4.0	3.6	3.6	3.6	3.6	3.6	4.1	6.3	6.6	5.7	5.0	6.9	6.8
350.	*	3.7	3.6	3.6	3.6	3.6	3.6	4.2	6.1	6.3	5.7	5.0	6.6	6.8
MAX	*	6.8	6.9	5.7	6.2	6.1	6.1	6.4	7.3	7.2	7.1	5.5	7.0	7.0
DEGR.	*	280	140	290	290	160	230	300	110	80	70	30	320	330

THE HIGHEST CONCENTRATION OF 7.30 PPM OCCURRED AT RECEPTOR REC8 .

JOB: I-64 EIS AIR QUALITY RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

DATE : 09/07/ 0
TIME : 10:05:55

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	CO/LINK (PPM)												
	*	ANGLE (DEGREES)												
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13
LINK #	*	280	140	290	290	160	230	300	110	80	70	30	320	330
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
33	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
44	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
45	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0

JOB: I-64 EIS AIR QUALITY

RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	*	REC1 280	REC2 140	REC3 290	REC4 290	REC5 160	REC6 230	REC7 300	REC8 110	REC9 80	REC10 70	REC11 30	REC12 320	REC13 330
46	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.8	0.0	0.0	0.0
47	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
48	*	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.3	0.2	0.2	0.0
49	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0
50	*	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.0	0.1	0.1	0.0	0.0
51	*	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.1
52	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
53	*	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.2	0.0	0.0	0.1
54	*	0.0	0.0	0.0	0.0	0.5	0.8	0.1	0.3	0.2	0.3	0.4	0.2	0.2
55	*	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.4	0.1	0.2	0.0
56	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
57	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
58	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
59	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
61	*	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62	*	0.8	0.0	0.5	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
63	*	0.0	0.5	0.1	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
64	*	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.8	0.1	0.0	0.0	0.1	0.0
66	*	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.0
67	*	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.6	0.1
68	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
69	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
70	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
75	*	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.8
76	*	0.0	0.0	0.0	0.0	0.3	0.1	0.6	0.1	0.0	0.0	0.0	0.5	0.2
77	*	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.4	0.3	0.0
78	*	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.7	0.2	0.2	0.0	0.2	0.0
79	*	1.5	1.5	1.1	1.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0
80	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	*	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	*	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

98	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: I-64 EIS AIR QUALITY RUN: BUILD 2040 ALT3 CONDITIONS - EXIT 261

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	*	REC1 280	REC2 140	REC3 290	REC4 290	REC5 160	REC6 230	REC7 300	REC8 110	REC9 80	REC10 70	REC11 30	REC12 320	REC13 330
99	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
103	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
104	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
109	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
111	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
112	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
113	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
114	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
118	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
119	*	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.0	0.0	0.1	0.2	0.3
120	*	0.3	0.3	0.2	0.3	0.0	0.0	0.1	0.3	0.1	0.1	0.0	0.1	0.0

1 CAL3QHC - (DATED 95221)

CAL3QHC PC (32 BIT) VERSION 3.0.0
(C) COPYRIGHT 1993-2000, TRINITY CONSULTANTS

Run Began on 8/20/2012 at 14:08:49

JOB: EXISTING 2011 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 14:08:49

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.6 PPM

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE	VPH	EF	H	W	V/C	QUEUE
	*	X1	Y1	X2	Y2	*	(M)	(DEG)			(G/MI)	(M)	(M)		(VEH)
1. WALMART APPR	*	12.7	-52.5	13.2	-29.4	*	23.	1.	AG	497.	19.6	0.0	17.1		
2. WALMART APPR	*	13.2	-29.4	19.1	-9.9	*	20.	17.	AG	497.	19.6	0.0	17.1		
3. WALMART APPR	*	19.1	-9.9	43.6	9.1	*	31.	52.	AG	497.	19.6	0.0	17.1		
4. WALMART APPR	*	43.6	9.1	77.8	30.5	*	40.	58.	AG	497.	19.6	0.0	17.1		
5. WMART DEC	*	77.6	30.5	131.8	65.5	*	65.	57.	AG	644.	19.4	0.0	13.4		
6. WMART DEC	*	131.8	65.5	150.1	72.4	*	20.	69.	AG	644.	19.4	0.0	13.4		
7. WMART DEC	*	150.1	72.4	173.0	78.5	*	24.	75.	AG	644.	19.4	0.0	13.4		
8. WMART DEC	*	173.0	78.5	203.9	80.5	*	31.	86.	AG	644.	19.4	0.0	13.4		
9. WMART DEC	*	203.9	80.5	218.6	78.8	*	15.	97.	AG	644.	19.4	0.0	13.4		
10. WMART DEC	*	218.6	78.8	239.1	74.0	*	21.	103.	AG	644.	19.4	0.0	13.4		
11. WMART DEC	*	239.1	74.0	252.1	68.3	*	14.	114.	AG	644.	19.4	0.0	13.4		
12. WMART DEC	*	252.1	68.3	276.2	49.8	*	30.	128.	AG	644.	19.4	0.0	13.4		
13. BRICK APPROACH	*	282.6	59.8	253.3	80.7	*	36.	306.	AG	811.	19.4	0.0	13.4		
14. BRICK APPROACH	*	253.3	80.7	228.8	88.8	*	26.	288.	AG	811.	19.4	0.0	13.4		
15. BRICK APPROACH	*	228.8	88.8	199.8	92.6	*	29.	277.	AG	811.	19.4	0.0	13.4		
16. BRICK APPROACH	*	199.8	92.6	165.8	90.7	*	34.	267.	AG	811.	19.4	0.0	13.4		
17. BRICK APPROACH	*	165.8	90.7	137.5	78.3	*	31.	246.	AG	811.	19.4	0.0	13.4		
18. BRICK APPROACH	*	137.5	78.3	73.6	40.0	*	74.	239.	AG	811.	19.4	0.0	13.4		
19. BRICK DEC	*	73.3	39.8	40.5	20.8	*	38.	240.	AG	449.	19.6	0.0	13.4		
20. BRICK DEC	*	40.5	20.8	19.8	5.8	*	26.	234.	AG	449.	19.6	0.0	13.4		
21. BRICK DEC	*	19.8	5.8	9.8	-5.2	*	15.	222.	AG	449.	19.6	0.0	13.4		
22. BRICK DEC	*	9.8	-5.2	0.8	-31.1	*	27.	199.	AG	449.	19.6	0.0	13.4		
23. BRICK DEC	*	0.8	-31.1	1.3	-56.3	*	25.	179.	AG	449.	19.6	0.0	13.4		
24. JEFFERSON APP	*	214.0	-161.7	81.1	40.2	*	242.	327.	AG	3534.	20.5	0.0	28.0		
25. JEFF WB DEC	*	81.4	40.6	-46.0	241.6	*	238.	328.	AG	3833.	20.5	0.0	20.7		
26. EB JEFF APP	*	-62.0	232.1	68.8	35.3	*	236.	146.	AG	3275.	20.5	0.0	28.0		
27. EB JEFF DEC	*	68.8	35.3	197.3	-172.8	*	245.	148.	AG	3191.	20.5	0.0	17.1		
28. NB LLEFT QUE	*	86.9	17.4	99.9	-2.0	*	23.	146.	AG	571.	100.0	0.0	7.3	0.71	3.9
29. NB JEFF THRU RIGHT	*	97.1	21.7	156.4	-67.0	*	107.	146.	AG	788.	100.0	0.0	14.6	0.60	17.8
30. WB LLEFT QUE	*	95.0	51.0	108.8	59.9	*	16.	57.	AG	561.	100.0	0.0	7.3	0.43	2.7
31. WB LLEFT QUE	*	134.7	76.6	149.7	83.5	*	16.	65.	AG	561.	100.0	0.0	7.3	0.43	2.7
32. SB LLEFT QUE	*	63.8	49.2	55.5	62.0	*	15.	327.	AG	192.	100.0	0.0	7.3	0.22	2.5

33. SB THRU QUE	*	58.6	46.1	27.1	93.9	*	57.	327.	AG	288.	100.0	0.0	11.0	0.79
9.5														
34. EB LEFT QUE	*	57.3	19.3	42.4	8.9	*	18.	235.	AG	581.	100.0	0.0	7.3	0.60
3.0														
35. NB RIGHT TURN	*	24.7	-9.8	49.7	8.6	*	31.	54.	AG	307.	19.6	0.0	9.8	
36. NB RIGHT TURN	*	49.7	8.6	63.3	12.3	*	14.	75.	AG	307.	19.6	0.0	9.8	
37. NB RIGHT TURN	*	63.3	12.3	81.2	7.7	*	18.	104.	AG	307.	19.6	0.0	9.8	
38. EB RIGHT TURN	*	29.2	77.2	42.2	59.3	*	22.	144.	AG	81.	19.6	0.0	9.8	
39. EB RIGHT TURN	*	42.2	59.3	46.3	49.7	*	10.	157.	AG	81.	19.6	0.0	9.8	
40. EB RIGHT TURN	*	46.3	49.7	47.3	38.1	*	12.	175.	AG	81.	19.6	0.0	9.8	
41. EB RIGHT TURN	*	47.3	38.1	42.8	27.2	*	12.	202.	AG	81.	19.6	0.0	9.8	
42. WB RIGHT	*	131.4	80.9	111.8	69.1	*	23.	239.	AG	520.	21.9	0.0	10.0	
43. WB RIGHT	*	111.8	69.1	89.8	56.0	*	26.	239.	AG	520.	21.9	0.0	10.0	

JOB: EXISTING 2011 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 14:08:49

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
28. NB LLEFT QUE	*	130	113	2.0	249	1740	122.43	2	3
29. NB JEFF THRU RIGHT	*	130	78	2.0	3285	3719	122.43	2	3
30. WB LLEFT QUE	*	130	111	2.0	179	1792	122.43	2	3
31. WB LLEFT QUE	*	130	111	2.0	179	1792	122.43	2	3
32. SB LLEFT QUE	*	130	38	2.0	482	1600	122.43	2	3
33. SB THRU QUE	*	130	38	2.0	2712	1691	122.43	2	3
34. EB LEFT QUE	*	130	115	2.0	190	1881	122.43	2	3

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. 5-1	*	39.4	136.9	1.8	*
2. 5-2	*	64.1	99.6	1.8	*
3. 5-3	*	77.5	81.6	1.8	*
4. 5-4	*	88.0	69.1	1.8	*
5. 5-5	*	104.6	76.0	1.8	*
6. 5-6	*	121.0	88.0	1.8	*
7. 5-7	*	167.7	104.0	1.8	*
8. 5-8	*	179.2	68.0	1.8	*
9. 5-9	*	142.0	57.7	1.8	*
10. 5-10	*	123.3	47.4	1.8	*
11. 5-11	*	111.1	34.9	1.8	*
12. 5-12	*	121.6	14.1	1.8	*
13. 5-13	*	135.3	-5.6	1.8	*
14. 5-14	*	155.5	-35.1	1.8	*
15. 5-15	*	-5.2	109.7	1.8	*
16. 5-16	*	16.9	79.2	1.8	*
17. 5-17	*	26.2	60.5	1.8	*
18. 5-18	*	37.1	40.7	1.8	*
19. 5-19	*	27.5	29.8	1.8	*
20. 5-20	*	16.6	19.0	1.8	*
21. 5-21	*	0.3	-0.6	1.8	*
22. 5-22	*	27.6	-25.2	1.8	*
23. 5-23	*	36.2	-10.7	1.8	*
24. 5-24	*	49.0	-2.4	1.8	*
25. 5-25	*	65.6	2.6	1.8	*
26. 5-26	*	78.1	-9.9	1.8	*

27. 5-27	*	86.7	-23.9	1.8	*
28. 5-28	*	109.8	-60.7	1.8	*

JOB: EXISTING 2011 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	*	CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.2	4.9	4.4	4.7	4.1	3.8	3.7	6.6	6.8	7.0	7.1	5.9	5.4
10.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.2	4.8	4.6	4.4	4.0	3.8	3.6	6.5	6.7	6.8	6.9	6.0	5.5
20.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.1	4.7	4.7	4.3	4.0	3.7	3.6	6.3	6.6	6.7	6.7	5.8	5.4
30.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.5	4.5	4.5	3.9	3.6	3.6	6.2	6.5	6.6	6.7	5.8	5.4
40.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.4	4.8	4.3	3.7	3.6	3.6	6.1	6.7	6.6	6.6	5.8	5.4
50.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.2	4.3	4.2	3.6	3.6	3.6	6.2	6.8	6.6	6.7	6.0	5.5
60.	*	3.6	3.6	3.6	3.9	3.9	3.6	3.6	4.3	4.1	4.1	3.8	3.6	3.6	3.6	6.2	6.9	6.6	7.0	6.1	5.6
70.	*	3.6	3.6	3.6	4.2	4.2	3.8	3.6	4.2	4.0	3.8	3.6	3.6	3.6	3.6	6.1	6.9	6.6	7.0	6.1	5.9
80.	*	3.6	3.6	3.9	4.5	4.8	4.0	3.6	4.2	3.7	3.6	3.6	3.6	3.6	3.6	6.1	6.9	7.0	7.1	6.1	6.2
90.	*	3.6	3.7	4.2	4.8	5.1	4.7	3.8	3.8	3.6	3.6	3.6	3.6	3.6	3.6	6.3	7.3	7.4	6.8	6.3	6.5
100.	*	3.6	3.9	4.3	4.7	4.8	4.9	4.0	3.8	3.6	3.6	3.6	3.6	3.6	3.6	6.6	7.5	7.5	7.0	6.7	6.9
110.	*	3.7	3.9	4.3	4.8	4.6	5.0	4.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.1	8.0	7.8	7.5	7.3	6.7
120.	*	3.7	4.0	4.2	5.0	4.6	4.9	4.3	3.6	3.6	3.6	3.6	3.7	3.6	3.6	7.7	8.3	8.1	7.9	7.3	6.3
130.	*	4.1	4.4	4.6	5.3	4.4	4.7	4.1	3.6	3.6	3.6	3.8	3.9	3.8	3.7	8.0	8.4	8.0	7.8	6.9	5.7
140.	*	5.3	5.5	5.7	6.2	4.8	4.6	4.2	3.6	3.6	3.7	4.5	4.8	4.5	4.1	7.2	7.5	6.9	6.8	5.8	4.8
150.	*	7.2	7.1	7.3	7.7	5.7	4.9	4.2	3.6	3.9	4.5	6.2	6.6	5.9	5.1	5.5	5.7	5.3	5.4	4.7	4.3
160.	*	8.2	8.2	8.3	8.7	7.0	5.6	4.3	3.7	4.4	5.5	7.9	8.3	7.6	6.3	4.1	4.1	4.3	4.6	4.2	3.9
170.	*	8.1	8.3	8.2	8.4	8.0	6.3	4.8	4.1	5.1	6.4	8.5	8.9	8.5	7.2	3.6	3.8	3.9	4.5	4.1	4.0
180.	*	7.7	8.1	7.6	7.9	8.2	6.8	5.1	4.5	5.6	6.7	8.4	8.8	8.5	7.8	3.6	3.6	3.8	4.2	4.0	4.2
190.	*	7.2	7.6	7.4	7.3	7.9	6.9	5.5	4.9	5.7	6.7	8.2	8.4	8.4	7.9	3.6	3.6	3.6	3.9	4.1	4.0
200.	*	6.9	7.3	7.3	7.2	7.3	6.8	5.7	5.0	5.7	6.6	8.0	8.2	8.0	7.9	3.6	3.6	3.6	3.8	4.1	3.8

210.	*	6.8	6.9	6.9	6.9	7.0	6.7	5.9	5.1	5.7	6.6	7.8	7.9	7.8	7.8	3.6	3.6	3.6	3.8	3.9
3.8																				
220.	*	6.5	6.8	6.8	6.9	6.4	6.1	6.1	5.1	5.7	6.2	7.5	7.9	7.7	7.6	3.6	3.6	3.6	3.6	3.6
3.6																				
230.	*	6.6	6.8	6.8	6.7	6.1	5.8	6.0	5.0	5.6	6.1	7.2	8.1	7.8	7.7	3.6	3.6	3.6	3.6	3.6
3.6																				
240.	*	6.6	6.8	6.7	6.5	5.7	5.2	5.7	5.2	5.8	6.1	6.7	8.4	7.8	7.8	3.6	3.6	3.6	3.6	3.6
3.6																				
250.	*	6.5	6.8	6.7	6.7	5.8	5.2	5.0	5.1	5.9	6.1	6.8	8.5	7.7	7.7	3.6	3.6	3.6	3.6	3.6
3.6																				
260.	*	6.5	6.7	6.7	6.7	5.7	5.2	4.6	5.4	6.2	6.4	6.8	8.6	7.9	7.7	3.6	3.6	3.6	3.6	3.6
3.6																				
270.	*	6.8	6.8	6.8	6.7	5.7	5.1	4.6	5.8	6.2	6.5	7.0	8.7	8.3	7.9	3.6	3.6	3.6	3.6	3.6
3.6																				
280.	*	6.9	6.8	6.9	6.9	5.7	5.3	4.5	5.7	6.2	7.2	7.1	8.6	8.7	8.2	3.6	3.6	3.6	3.6	3.6
3.6																				
290.	*	7.2	7.1	7.1	6.9	5.8	5.2	4.5	5.7	6.3	7.4	7.3	8.4	8.9	8.6	3.6	3.6	3.6	3.6	3.6
3.6																				
300.	*	7.3	7.3	7.1	6.9	5.7	5.1	4.3	5.3	5.8	7.2	7.9	8.1	8.9	9.2	3.6	3.7	3.6	3.6	3.6
3.6																				
310.	*	7.1	7.3	7.1	6.8	5.4	4.6	3.9	4.8	5.4	6.7	8.1	8.1	8.6	9.0	3.7	3.8	3.7	3.7	3.6
3.6																				
320.	*	6.1	6.3	6.1	5.9	4.6	4.0	3.6	4.3	5.1	5.8	7.4	7.4	7.4	7.9	4.2	4.4	4.2	4.2	3.8
3.7																				
330.	*	4.8	5.0	4.9	4.8	4.0	3.7	3.6	4.2	4.6	4.9	6.1	6.0	5.7	5.8	5.0	5.5	5.2	5.3	4.3
3.9																				
340.	*	3.9	4.1	4.0	3.8	3.6	3.6	3.6	4.2	4.7	4.5	5.2	4.8	4.4	4.5	6.1	6.6	6.4	6.5	5.1
4.6																				
350.	*	3.7	3.7	3.7	3.6	3.6	3.6	3.6	4.1	4.8	4.3	4.8	4.2	4.0	3.8	6.6	7.0	6.9	6.9	5.7
5.1																				
------	*	----------																		
-																				
MAX	*	8.2	8.3	8.3	8.7	8.2	6.9	6.1	5.8	6.3	7.4	8.5	8.9	8.9	9.2	8.0	8.4	8.1	7.9	7.3
6.9																				
DEGR.	*	160	170	160	160	180	190	220	270	290	290	170	170	300	300	130	130	120	120	110
100																				

JOB: EXISTING 2011 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	*	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
0.	*	4.8	5.6	6.3	7.5	7.5	7.8	7.9	8.4
10.	*	4.9	5.7	6.5	7.5	7.3	7.8	8.2	8.0
20.	*	4.9	5.9	6.4	6.9	7.1	8.0	8.4	7.6
30.	*	5.0	5.8	6.7	6.6	7.1	7.8	8.2	7.4
40.	*	4.9	5.8	6.4	6.3	7.3	8.2	7.5	7.3
50.	*	5.4	5.6	6.2	6.5	7.3	8.0	7.4	7.3
60.	*	5.6	5.4	6.0	6.3	7.2	8.0	7.4	7.3
70.	*	6.3	5.5	5.7	6.3	7.6	7.8	7.4	7.3
80.	*	6.0	5.4	5.8	6.5	7.7	7.7	7.4	7.2

90.	*	5.9	5.3	5.7	6.5	7.7	7.7	7.6	7.3
100.	*	6.0	5.4	5.7	6.3	7.8	7.8	7.8	7.1
110.	*	5.6	5.2	5.7	6.3	7.7	8.0	7.8	7.0
120.	*	5.2	4.8	5.4	6.1	7.6	8.0	7.8	7.1
130.	*	4.7	4.3	4.8	5.6	7.2	7.7	7.3	6.7
140.	*	4.3	3.9	4.1	4.7	6.0	6.4	6.3	5.7
150.	*	4.0	3.6	3.7	4.0	4.6	5.0	4.9	4.7
160.	*	4.0	3.6	3.6	3.6	3.9	4.0	4.0	3.9
170.	*	4.1	3.6	3.6	3.6	3.6	3.7	3.7	3.7
180.	*	4.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6
190.	*	3.8	3.7	3.6	3.6	3.6	3.6	3.6	3.6
200.	*	3.7	3.7	3.7	3.6	3.6	3.6	3.6	3.6
210.	*	3.6	3.8	3.7	3.6	3.6	3.6	3.6	3.6
220.	*	3.6	3.9	3.9	3.7	3.6	3.6	3.6	3.6
230.	*	3.6	4.0	3.9	3.8	3.6	3.6	3.6	3.6
240.	*	3.6	4.0	4.1	4.0	3.8	3.6	3.6	3.6
250.	*	3.6	4.0	4.1	4.1	3.9	3.6	3.6	3.6
260.	*	3.6	4.1	4.1	4.2	3.9	3.6	3.6	3.6
270.	*	3.6	3.9	4.1	4.2	4.2	3.7	3.6	3.6
280.	*	3.6	3.9	4.2	4.3	4.5	3.9	3.6	3.6
290.	*	3.6	4.0	4.0	4.2	4.7	4.1	3.8	3.6
300.	*	3.6	3.9	4.2	4.1	4.8	4.2	3.8	3.6
310.	*	3.6	3.9	4.3	4.2	5.0	4.3	4.1	3.9
320.	*	3.6	4.1	4.4	4.7	5.6	5.3	5.2	4.9
330.	*	3.7	4.3	4.7	5.7	6.7	6.7	6.6	6.6
340.	*	4.1	4.6	5.2	6.8	7.6	7.7	7.7	7.8
350.	*	4.5	5.6	6.0	7.5	7.7	7.8	8.0	8.5
MAX	*	6.3	5.9	6.7	7.5	7.8	8.2	8.4	8.5
DEGR.	*	70	20	30	0	100	40	20	350

THE HIGHEST CONCENTRATION OF 9.20 PPM OCCURRED AT RECEPTOR REC14.

JOB: EXISTING 2011 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 14:08:49

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

		CO/LINK (PPM) ANGLE (DEGREES)																		
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
LINK #	*	160	170	160	160	180	190	220	270	290	290	170	170	300	300	130	130	120	120	110	100
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1
5	*	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0	8	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	18	*	0.1	0.1	0.2	0.3	0.4	0.4	0.1	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
0.0	19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2
0.1	20	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	21	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	24	*	0.6	0.7	1.6	1.8	1.2	0.8	0.4	0.1	0.0	0.0	2.1	2.3	1.8	2.0	0.6	1.0	0.9	1.3	1.0
0.8	25	*	2.1	1.9	0.6	0.1	0.0	0.0	0.1	0.5	0.9	1.2	0.0	0.0	0.4	0.2	0.7	0.4	0.4	0.0	0.0
0.0	26	*	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.9	0.0	0.0	0.5	0.3	1.7	1.5	1.2	0.4	0.1
0.0	27	*	0.6	0.8	1.0	0.9	0.8	0.6	0.3	0.0	0.0	0.0	1.0	1.0	0.6	0.8	0.4	0.8	0.7	1.2	0.9
0.7	28	*	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.1	0.1	0.2	0.2
0.2	29	*	0.3	0.3	0.8	1.1	0.8	0.6	0.3	0.0	0.0	0.0	1.8	2.0	1.5	1.9	0.4	0.5	0.5	0.8	0.7
0.6	30	*	0.0	0.0	0.1	0.4	0.7	0.2	0.1	0.1	0.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	31	*	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	32	*	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
0.0	33	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.4	0.4	0.2	0.0	0.0
0.0	34	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.4
0.5	35	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	36	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	37	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0																				
	40 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				
	41 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				
	42 *	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				
	43 *	0.0	0.0	0.1	0.2	0.3	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				

JOB: EXISTING 2011 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 14:08:49

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

	*	CO/LINK (PPM)							
	*	ANGLE (DEGREES)							
	*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	70	20	30	0	100	40	20	350
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0
4	*	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0
5	*	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1
6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1
19	*	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
20	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
21	*	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	*	0.4	0.0	0.1	0.0	1.3	1.2	1.3	1.1
25	*	0.2	0.6	0.6	1.0	0.0	0.0	0.1	0.5
26	*	0.2	0.6	0.5	1.1	0.0	0.0	0.0	0.3
27	*	0.4	0.1	0.3	0.0	1.4	1.5	1.6	1.9
28	*	0.1	0.0	0.0	0.0	0.4	0.7	0.6	0.2
29	*	0.2	0.0	0.0	0.0	1.1	0.8	0.8	0.6
30	*	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1
31	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
32	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	*	0.0	0.1	0.1	0.3	0.0	0.0	0.0	0.0
34	*	0.3	0.3	0.6	1.0	0.0	0.0	0.0	0.0
35	*	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0
36	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
37	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
41  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
42  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
43  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
```

1 CAL3QHC - (DATED 95221)

CAL3QHC PC (32 BIT) VERSION 3.0.0
(C) COPYRIGHT 1993-2000, TRINITY CONSULTANTS

Run Began on 8/20/2012 at 13:20:10

JOB: BUILD ALT 3 - 2040 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 13:20:10

The MODE flag has been set to C for calculating CO averages.

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.6 PPM

LINK VARIABLES

	LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1.	WALMART APPR	*	12.7	-52.5	13.2	-29.4	*	23.	1.	AG	680.	13.7	0.0	17.1		
2.	WALMART APPR	*	13.2	-29.4	19.1	-9.9	*	20.	17.	AG	680.	13.7	0.0	17.1		
3.	WALMART APPR	*	19.1	-9.9	43.6	9.1	*	31.	52.	AG	680.	13.7	0.0	17.1		
4.	WALMART APPR	*	43.6	9.1	77.8	30.5	*	40.	58.	AG	680.	13.7	0.0	17.1		
5.	WMART DEC	*	77.6	30.5	131.8	65.5	*	65.	57.	AG	880.	13.6	0.0	13.4		
6.	WMART DEC	*	131.8	65.5	150.1	72.4	*	20.	69.	AG	880.	13.6	0.0	13.4		
7.	WMART DEC	*	150.1	72.4	173.0	78.5	*	24.	75.	AG	880.	13.6	0.0	13.4		
8.	WMART DEC	*	173.0	78.5	203.9	80.5	*	31.	86.	AG	880.	13.6	0.0	13.4		
9.	WMART DEC	*	203.9	80.5	218.6	78.8	*	15.	97.	AG	880.	13.6	0.0	13.4		
10.	WMART DEC	*	218.6	78.8	239.1	74.0	*	21.	103.	AG	880.	13.6	0.0	13.4		
11.	WMART DEC	*	239.1	74.0	252.1	68.3	*	14.	114.	AG	880.	13.6	0.0	13.4		
12.	WMART DEC	*	252.1	68.3	276.2	49.8	*	30.	128.	AG	880.	13.6	0.0	13.4		
13.	BRICK APPROACH	*	282.6	59.8	253.3	80.7	*	36.	306.	AG	1115.	13.6	0.0	13.4		
14.	BRICK APPROACH	*	253.3	80.7	228.8	88.8	*	26.	288.	AG	1115.	13.6	0.0	13.4		
15.	BRICK APPROACH	*	228.8	88.8	199.8	92.6	*	29.	277.	AG	1115.	13.6	0.0	13.4		
16.	BRICK APPROACH	*	199.8	92.6	165.8	90.7	*	34.	267.	AG	1115.	13.6	0.0	13.4		
17.	BRICK APPROACH	*	165.8	90.7	137.5	78.3	*	31.	246.	AG	1115.	13.6	0.0	13.4		
18.	BRICK APPROACH	*	137.5	78.3	73.6	40.0	*	74.	239.	AG	1115.	13.6	0.0	13.4		
19.	BRICK DEC	*	73.3	39.8	40.5	20.8	*	38.	240.	AG	615.	13.7	0.0	13.4		
20.	BRICK DEC	*	40.5	20.8	19.8	5.8	*	26.	234.	AG	615.	13.7	0.0	13.4		
21.	BRICK DEC	*	19.8	5.8	9.8	-5.2	*	15.	222.	AG	615.	13.7	0.0	13.4		
22.	BRICK DEC	*	9.8	-5.2	0.8	-31.1	*	27.	199.	AG	615.	13.7	0.0	13.4		
23.	BRICK DEC	*	0.8	-31.1	1.3	-56.3	*	25.	179.	AG	615.	13.7	0.0	13.4		
24.	JEFFERSON APP	*	214.0	-161.7	81.1	40.2	*	242.	327.	AG	4445.	14.4	0.0	28.0		
25.	JEFF WB DEC	*	81.4	40.6	-46.0	241.6	*	238.	328.	AG	4860.	14.4	0.0	20.7		
26.	EB JEFF APP	*	-62.0	232.1	68.8	35.3	*	236.	146.	AG	4100.	14.4	0.0	28.0		
27.	EB JEFF DEC	*	68.8	35.3	197.3	-172.8	*	245.	148.	AG	3985.	14.4	0.0	17.1		
28.	NB LLEFT QUE	*	86.9	17.4	108.5	-14.9	*	39.	146.	AG	389.	100.0	0.0	7.3	0.92	6.5
29.	WB JEFF THRU RIGHT	*	97.1	21.7	964.7	-1275.7	*	1561.	146.	AG	560.	100.0	0.0	14.6	1.81	260.1
30.	WB LLEFT QUE	*	95.0	51.0	275.7	167.5	*	215.	57.	AG	399.	100.0	0.0	7.3	1.36	35.8
31.	WB LLEFT QUE	*	134.7	76.6	330.0	166.4	*	215.	65.	AG	399.	100.0	0.0	7.3	1.36	35.8
32.	SB LLEFT QUE	*	63.8	49.2	-180.4	423.9	*	447.	327.	AG	382.	100.0	0.0	7.3	1.58	74.5

33. SB THRU QUE	*	58.6	46.1	-946.0	1572.8	*	1828.	327.	AG	420.	100.0	0.0	11.0	1.96
304.6														
34. EB LEFT QUE	*	57.3	19.3	-54.5	-58.5	*	136.	235.	AG	413.	100.0	0.0	7.3	1.33
22.7														
35. NB RIGHT TURN	*	24.7	-9.8	49.7	8.6	*	31.	54.	AG	420.	13.7	0.0	9.8	
36. NB RIGHT TURN	*	49.7	8.6	63.3	12.3	*	14.	75.	AG	420.	13.7	0.0	9.8	
37. NB RIGHT TURN	*	63.3	12.3	81.2	7.7	*	18.	104.	AG	420.	13.7	0.0	9.8	
38. EB RIGHT TURN	*	29.2	77.2	42.2	59.3	*	22.	144.	AG	110.	13.7	0.0	9.8	
39. EB RIGHT TURN	*	42.2	59.3	46.3	49.7	*	10.	157.	AG	110.	13.7	0.0	9.8	
40. EB RIGHT TURN	*	46.3	49.7	47.3	38.1	*	12.	175.	AG	110.	13.7	0.0	9.8	
41. EB RIGHT TURN	*	47.3	38.1	42.8	27.2	*	12.	202.	AG	110.	13.7	0.0	9.8	
42. WB RIGHT	*	131.4	80.9	111.8	69.1	*	23.	239.	AG	715.	13.7	0.0	10.0	
43. WB RIGHT	*	111.8	69.1	89.8	56.0	*	26.	239.	AG	715.	13.7	0.0	10.0	

JOB: BUILD ALT 3 - 2040 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 13:20:10

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	*	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
28. NB LLEFT QUE	*	130	111	2.0	340	1600	84.83	2	3
29. WB JEFF THRU RIGHT	*	130	80	2.0	4105	1600	84.83	2	3
30. WB LLEFT QUE	*	130	114	2.0	400	1600	84.83	2	3
31. WB LLEFT QUE	*	130	114	2.0	400	1600	84.83	2	3
32. SB LLEFT QUE	*	130	109	2.0	660	1600	84.83	2	3
33. SB THRU QUE	*	130	80	2.0	3330	1600	84.83	2	3
34. EB LEFT QUE	*	130	118	2.0	260	1600	84.83	2	3

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. 5-1	*	39.4	136.9	1.8	*
2. 5-2	*	64.1	99.6	1.8	*
3. 5-3	*	77.5	81.6	1.8	*
4. 5-4	*	88.0	69.1	1.8	*
5. 5-5	*	104.6	76.0	1.8	*
6. 5-6	*	121.0	88.0	1.8	*
7. 5-7	*	168.9	101.1	1.8	*
8. 5-8	*	179.2	68.0	1.8	*
9. 5-9	*	142.0	57.7	1.8	*
10. 5-10	*	123.3	47.4	1.8	*
11. 5-11	*	111.1	34.9	1.8	*
12. 5-12	*	121.6	14.1	1.8	*
13. 5-13	*	135.3	-5.6	1.8	*
14. 5-14	*	155.5	-35.1	1.8	*
15. 5-15	*	-5.2	109.7	1.8	*
16. 5-16	*	16.9	79.2	1.8	*
17. 5-17	*	26.2	60.5	1.8	*
18. 5-18	*	37.1	40.7	1.8	*
19. 5-19	*	27.5	29.8	1.8	*
20. 5-20	*	16.6	19.0	1.8	*
21. 5-21	*	0.3	-0.6	1.8	*
22. 5-22	*	27.6	-25.2	1.8	*
23. 5-23	*	36.2	-10.7	1.8	*
24. 5-24	*	49.0	-2.4	1.8	*
25. 5-25	*	65.6	2.6	1.8	*
26. 5-26	*	78.1	-9.9	1.8	*

27. 5-27 * 86.7 -23.9 1.8 *
28. 5-28 * 109.8 -60.7 1.8 *

JOB: BUILD ALT 3 - 2040 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	*	CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.9	5.1	5.4	5.0	4.9	4.3	4.1	4.0	7.8	8.1	7.8	7.7	6.5	6.0
10.	*	3.6	3.6	3.6	3.6	3.6	3.6	4.0	5.1	5.4	5.2	4.9	4.4	4.2	4.0	7.7	7.8	7.5	7.4	6.5	5.8
20.	*	3.6	3.6	3.6	3.6	3.6	3.6	4.1	5.2	5.6	5.4	5.0	4.6	4.2	4.0	7.3	7.7	7.3	7.1	6.2	5.7
30.	*	3.6	3.6	3.6	3.6	3.6	3.6	4.5	5.3	5.7	5.4	5.2	4.5	4.2	3.9	7.2	7.3	7.2	7.0	6.2	5.7
40.	*	3.6	3.6	3.6	3.6	3.7	3.6	5.2	5.1	5.7	5.8	5.2	4.4	4.1	3.8	7.1	7.2	7.1	7.0	6.1	5.6
50.	*	3.6	3.6	3.7	3.9	4.0	3.9	6.4	4.9	5.4	5.4	5.1	4.1	3.9	3.7	7.2	7.3	7.1	7.2	6.4	5.8
60.	*	3.6	3.7	3.9	4.7	4.9	4.4	7.4	4.7	4.9	4.8	4.4	3.9	3.7	3.6	7.2	7.5	7.4	7.6	6.6	6.1
70.	*	3.6	4.0	4.4	5.4	5.7	5.3	7.8	4.3	4.3	4.1	3.9	3.6	3.6	3.6	7.3	7.6	7.7	7.6	6.5	6.2
80.	*	3.8	4.2	4.8	5.6	6.1	5.7	7.8	4.2	3.8	3.7	3.6	3.6	3.6	3.6	7.6	7.8	7.8	7.2	6.2	5.9
90.	*	4.0	4.3	4.8	5.5	6.0	5.9	7.4	3.8	3.6	3.6	3.6	3.6	3.6	3.6	7.7	7.9	7.9	6.7	6.2	6.0
100.	*	4.0	4.4	4.7	5.2	5.6	5.9	7.1	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.9	8.3	7.7	6.6	6.3	6.5
110.	*	4.0	4.2	4.6	5.0	5.2	5.7	7.3	3.6	3.6	3.6	3.6	3.6	3.6	3.6	8.3	8.3	7.6	6.9	6.6	6.6
120.	*	3.9	4.2	4.4	4.9	5.2	5.5	6.8	3.6	3.6	3.6	3.6	3.6	3.6	3.6	8.4	8.5	7.7	7.4	7.0	6.7
130.	*	4.3	4.5	4.8	5.2	5.1	5.1	6.7	3.6	3.6	3.7	3.9	4.0	3.9	3.9	8.5	8.4	7.9	7.7	7.0	6.3
140.	*	5.5	5.7	5.8	6.2	5.7	5.3	6.6	3.7	3.8	4.1	5.0	5.2	5.1	4.8	7.6	7.8	7.1	6.9	6.2	5.8
150.	*	7.6	7.2	7.4	7.7	6.6	6.0	6.7	4.0	4.4	5.0	6.4	6.9	6.7	6.4	5.7	6.1	5.5	5.6	5.1	5.2
160.	*	8.2	7.9	7.9	8.5	7.4	6.4	7.0	4.2	4.9	5.8	7.6	8.1	7.9	7.3	4.2	4.3	4.4	4.7	4.6	4.5
170.	*	8.1	7.8	7.5	8.0	7.8	6.9	7.5	4.5	5.4	6.1	7.9	8.1	8.0	7.7	3.8	3.9	4.1	4.6	4.5	4.6
180.	*	8.2	7.7	7.2	7.3	7.5	7.0	7.9	4.7	5.4	6.4	7.7	7.8	7.8	7.5	3.8	3.9	4.2	4.4	4.5	4.8
190.	*	8.0	7.8	7.2	6.8	7.3	6.7	8.1	4.9	5.4	6.3	7.6	7.7	7.5	7.3	3.8	3.9	4.0	4.3	4.7	4.5
200.	*	7.6	7.6	7.2	6.7	6.8	6.8	8.6	4.9	5.4	6.0	7.3	7.5	7.2	7.1	3.7	3.8	4.0	4.4	4.7	4.5

210.	*	7.4	7.5	7.3	6.8	6.5	6.4	8.8	4.9	5.5	6.0	7.1	7.4	7.0	7.0	3.6	3.7	3.9	4.3	4.5
4.4																				
220.	*	7.2	7.3	7.1	6.8	6.4	6.0	9.6	4.9	5.4	5.9	6.9	7.4	7.0	6.8	3.6	3.6	3.7	4.0	4.1
4.1																				
230.	*	7.2	7.3	7.1	6.9	6.1	5.8	9.6	4.9	5.5	5.9	6.7	7.5	7.0	7.0	3.6	3.6	3.6	3.8	3.8
3.9																				
240.	*	7.3	7.2	7.0	6.7	5.8	5.7	9.0	5.1	5.7	6.1	6.7	7.8	7.1	7.0	3.6	3.6	3.6	3.7	3.7
3.7																				
250.	*	7.2	7.2	7.0	6.7	5.9	5.3	7.3	5.2	5.7	6.0	6.6	7.8	7.3	6.9	3.6	3.6	3.6	3.6	3.6
3.6																				
260.	*	7.2	7.2	7.1	6.9	6.0	5.4	6.4	5.6	6.1	6.4	6.4	7.8	7.6	7.1	3.6	3.6	3.6	3.6	3.6
3.6																				
270.	*	7.4	7.3	7.2	7.0	6.0	5.5	5.6	6.1	6.4	6.6	6.6	7.8	7.8	7.3	3.6	3.6	3.6	3.6	3.6
3.6																				
280.	*	7.7	7.6	7.5	7.2	6.1	5.6	5.3	6.3	6.9	7.1	7.0	7.9	8.1	7.6	3.6	3.6	3.6	3.6	3.6
3.6																				
290.	*	7.9	7.9	7.6	7.5	6.3	5.6	5.3	6.6	7.0	7.3	7.4	7.9	8.1	8.0	3.6	3.6	3.6	3.6	3.6
3.6																				
300.	*	8.2	8.2	7.9	7.7	6.4	5.6	4.9	6.4	7.0	7.7	8.0	8.0	8.4	8.3	3.6	3.7	3.6	3.6	3.6
3.6																				
310.	*	8.0	8.1	7.9	7.7	6.1	5.2	4.6	6.1	6.6	7.5	8.6	8.5	8.7	8.6	3.8	3.9	3.8	3.8	3.6
3.6																				
320.	*	7.0	7.2	7.1	6.8	5.3	4.6	4.1	5.6	6.1	6.8	8.0	7.8	7.8	8.1	4.7	5.1	4.8	4.8	4.1
3.8																				
330.	*	5.3	5.5	5.5	5.2	4.3	4.0	3.9	5.1	5.4	5.8	6.5	6.3	6.0	6.2	6.3	6.9	6.6	6.4	5.1
4.6																				
340.	*	4.1	4.1	4.1	4.0	3.6	3.6	3.8	5.1	5.2	4.9	5.3	5.0	4.6	4.7	7.5	8.1	7.8	7.5	6.0
5.3																				
350.	*	3.7	3.7	3.7	3.6	3.6	3.6	3.8	5.1	5.2	4.9	4.9	4.2	4.2	3.9	8.0	8.4	8.1	7.8	6.6
5.8																				
------	*	----------																		
-																				
MAX	*	8.2	8.2	7.9	8.5	7.8	7.0	9.6	6.6	7.0	7.7	8.6	8.5	8.7	8.6	8.5	8.5	8.1	7.8	7.0
6.7																				
DEGR.	*	300	300	160	160	170	180	220	290	290	300	310	310	310	310	130	120	350	350	120
120																				

JOB: BUILD ALT 3 - 2040 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

MODEL RESULTS

REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	*	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
0.	*	5.4	6.7	7.1	7.6	7.3	7.5	7.7	8.0
10.	*	5.4	6.5	7.3	7.1	7.0	7.1	7.7	7.7
20.	*	5.1	6.3	6.7	6.8	6.9	7.5	8.0	7.3
30.	*	5.1	5.9	6.6	6.7	6.9	7.6	8.0	7.2
40.	*	5.1	5.8	6.5	6.4	7.3	8.0	7.8	7.0
50.	*	5.7	5.7	6.4	6.6	7.3	7.8	7.5	6.8
60.	*	6.1	5.4	6.0	6.4	7.1	7.5	7.3	6.7
70.	*	6.3	5.2	5.5	6.1	6.9	7.3	6.9	6.7
80.	*	6.3	5.1	5.4	6.0	7.1	7.3	6.8	6.7

90.	*	6.3	5.2	5.5	6.1	7.1	7.4	6.9	6.9
100.	*	6.3	5.1	5.5	6.0	7.2	7.4	7.1	7.1
110.	*	6.1	5.3	5.5	6.1	7.2	7.6	7.4	7.3
120.	*	6.2	5.1	5.5	6.1	7.3	7.7	7.5	7.4
130.	*	5.7	4.8	5.2	5.9	7.3	7.7	7.7	7.3
140.	*	5.2	4.4	4.7	5.3	6.4	6.9	6.9	6.6
150.	*	4.9	3.8	3.9	4.2	5.1	5.4	5.2	5.0
160.	*	4.7	3.6	3.6	3.7	4.0	4.1	4.1	4.0
170.	*	4.8	3.6	3.6	3.6	3.6	3.7	3.7	3.7
180.	*	4.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6
190.	*	4.6	3.7	3.6	3.6	3.6	3.6	3.6	3.6
200.	*	4.5	3.7	3.7	3.6	3.6	3.6	3.6	3.6
210.	*	4.4	3.8	3.7	3.6	3.6	3.6	3.6	3.6
220.	*	4.2	3.9	4.0	3.8	3.6	3.6	3.6	3.6
230.	*	4.0	4.1	4.2	4.1	3.8	3.6	3.6	3.6
240.	*	3.7	4.3	4.7	4.7	4.2	3.7	3.6	3.6
250.	*	3.6	4.5	5.0	5.1	4.6	3.9	3.7	3.6
260.	*	3.6	4.8	5.1	5.2	4.6	4.1	3.9	3.6
270.	*	3.6	4.6	5.1	5.2	4.8	4.2	4.0	3.7
280.	*	3.6	4.6	5.1	5.2	4.8	4.3	4.0	3.8
290.	*	3.6	4.6	4.9	5.0	4.8	4.3	4.0	3.8
300.	*	3.6	4.5	4.9	4.9	4.7	4.3	4.0	3.8
310.	*	3.6	4.5	5.1	4.9	4.8	4.5	4.3	4.1
320.	*	3.7	4.8	5.5	5.6	6.0	5.9	5.5	5.4
330.	*	4.1	5.3	6.1	6.7	7.7	7.6	7.3	7.1
340.	*	4.5	6.0	6.8	7.6	8.4	8.4	8.0	7.9
350.	*	5.1	6.6	7.3	7.9	7.9	7.9	7.9	8.1
MAX	*	6.3	6.7	7.3	7.9	8.4	8.4	8.0	8.1
DEGR.	*	100	0	10	350	340	340	20	350

THE HIGHEST CONCENTRATION OF 9.60 PPM OCCURRED AT RECEPTOR REC7 .

JOB: BUILD ALT 3 - 2040 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 13:20:10

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	* CO/LINK (PPM) ANGLE (DEGREES)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	*	300	300	160	160	170	180	220	290	290	300	310	310	310	310	130	120	350	350	120	120
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
5	*	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.2	0.3	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

8	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.2	0.3	0.3	0.3	0.1	0.1	0.3	0.3	0.3	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
20	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
21	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	*	0.0	0.0	1.4	1.6	1.1	0.8	0.4	0.0	0.0	0.0	0.2	1.0	1.3	1.6	0.6	0.5	0.0	0.0	0.9
25	*	2.2	2.1	0.5	0.1	0.0	0.0	0.0	0.5	0.8	1.1	1.7	1.2	0.8	0.5	0.6	0.7	1.1	1.1	0.0
26	*	1.1	1.2	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.8	1.0	1.0	0.8	0.5	1.5	1.5	1.7	1.6	0.0
27	*	0.0	0.0	0.9	0.8	0.7	0.5	0.3	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.4	0.3	0.0	0.0	0.9
28	*	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.2
29	*	0.0	0.0	0.9	1.2	0.8	0.6	0.2	0.0	0.0	0.0	0.0	0.2	0.7	1.1	0.5	0.3	0.0	0.0	0.7
30	*	0.0	0.0	0.1	0.3	0.7	0.7	2.8	0.5	0.6	0.6	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
31	*	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	*	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.6	0.5	0.4	0.2	0.4	0.4	0.7	0.6	0.0
33	*	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.5	0.7	0.6	0.5	0.4	0.7	0.8	1.0	0.9	0.0
34	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
35	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0																				
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				
42	*	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				
43	*	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																				

JOB: BUILD ALT 3 - 2040 RUN: JEFFERSON AVENUE & BRICK KILN BLVD.

DATE : 08/20/ 0
TIME : 13:20:10

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING
THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

		CO/LINK (PPM)							
		ANGLE (DEGREES)							
		REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	100	0	10	350	340	340	20	350
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0
4	*	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
19	*	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0
20	*	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
21	*	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	*	0.5	0.0	0.0	0.0	0.0	0.1	1.2	1.0
25	*	0.0	0.6	0.7	0.9	1.1	1.2	0.1	0.4
26	*	0.0	0.6	0.7	1.0	1.4	1.2	0.0	0.2
27	*	0.5	0.0	0.0	0.0	0.1	0.7	1.4	1.7
28	*	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.3
29	*	0.4	0.0	0.0	0.0	0.0	0.0	0.6	0.4
30	*	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
31	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
32	*	0.0	0.3	0.3	0.5	0.6	0.5	0.0	0.1
33	*	0.0	0.4	0.4	0.6	0.9	0.7	0.0	0.1
34	*	0.8	0.7	0.9	0.8	0.2	0.1	0.0	0.0
35	*	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0
36	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
37	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INTERSTATE 64 PENINSULA STUDY

APPENDIX C

MSAT Information, Data and Assumptions

2011 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
ACET	2011	Idle*	32.03202	32.0328
ACET	2011	5	8.647633	8.647959
ACET	2011	10	5.58989	5.989636
ACET	2011	15	4.352038	4.831872
ACET	2011	20	4.005201	4.224116
ACET	2011	25	3.784444	3.846828
ACET	2011	30	3.631933	3.641062
ACET	2011	35	3.459682	3.459682
ACET	2011	40	3.381417	3.381417
ACET	2011	45	3.312979	3.312979
ACET	2011	50	3.252488	3.252488
ACET	2011	55	3.198057	3.198057
ACET	2011	60	3.161747	3.161747
ACET	2011	65	3.129818	3.129818
ACET	2011	12.9	Local	4.855832
ACET	2011	34.6	Ramp	3.960024

* Idle emission factors in units of (mg/veh-hr)

2020 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
ACET	2020	Idle*	19.42269	19.42334
ACET	2020	5	5.305291	5.305599
ACET	2020	10	3.423639	3.700078
ACET	2020	15	2.660376	2.993785
ACET	2020	20	2.467614	2.62337
ACET	2020	25	2.343903	2.393113
ACET	2020	30	2.25763	2.267101
ACET	2020	35	2.166249	2.166249
ACET	2020	40	2.128817	2.128817
ACET	2020	45	2.097814	2.097814
ACET	2020	50	2.072273	2.072273
ACET	2020	55	2.050703	2.050703
ACET	2020	60	2.04527	2.04527
ACET	2020	65	2.042438	2.042438
ACET	2020	12.9	Local	3.063426
ACET	2020	34.6	Ramp	2.402275

* Idle emission factors in units of (mg/veh-hr)

2040 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
ACET	2040	Idle*	16.91643	16.91702
ACET	2040	5	4.606785	4.607074
ACET	2040	10	2.94922	3.196546
ACET	2040	15	2.278094	2.576591
ACET	2040	20	2.111923	2.251825
ACET	2040	25	2.005119	2.049887
ACET	2040	30	1.930456	1.93932
ACET	2040	35	1.852227	1.852227
ACET	2040	40	1.820749	1.820749
ACET	2040	45	1.795027	1.795027
ACET	2040	50	1.774219	1.774219
ACET	2040	55	1.756969	1.756969
ACET	2040	60	1.755462	1.755462
ACET	2040	65	1.756175	1.756175
ACET	2040	12.9	Local	2.653395
ACET	2040	34.6	Ramp	2.049257

* Idle emission factors in units of (mg/veh-hr)

2011 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
ACRO	2011	Idle*	4.490524	4.490581
ACRO	2011	5	1.196917	1.19693
ACRO	2011	10	0.769389	0.820672
ACRO	2011	15	0.597159	0.658667
ACRO	2011	20	0.545828	0.573919
ACRO	2011	25	0.513399	0.521387
ACRO	2011	30	0.491171	0.492313
ACRO	2011	35	0.465871	0.465871
ACRO	2011	40	0.45477	0.45477
ACRO	2011	45	0.444892	0.444892
ACRO	2011	50	0.435952	0.435952
ACRO	2011	55	0.427811	0.427811
ACRO	2011	60	0.421612	0.421612
ACRO	2011	65	0.415927	0.415927
ACRO	2011	12.9	Local	0.665246
ACRO	2011	34.6	Ramp	0.5324

* Idle emission factors in units of (mg/veh-hr)

2020 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
ACRO	2020	Idle*	2.653652	2.65371
ACRO	2020	5	0.715035	0.715077
ACRO	2020	10	0.457451	0.493327
ACRO	2020	15	0.353501	0.39665
ACRO	2020	20	0.326036	0.346154
ACRO	2020	25	0.308617	0.314931
ACRO	2020	30	0.296551	0.297799
ACRO	2020	35	0.283405	0.283405
ACRO	2020	40	0.278155	0.278155
ACRO	2020	45	0.273662	0.273662
ACRO	2020	50	0.26979	0.26979
ACRO	2020	55	0.266362	0.266362
ACRO	2020	60	0.264628	0.264628
ACRO	2020	65	0.263236	0.263236
ACRO	2020	12.9	Local	0.408035
ACRO	2020	34.6	Ramp	0.315472

* Idle emission factors in units of (mg/veh-hr)

2040 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
ACRO	2040	Idle*	2.281902	2.28196
ACRO	2040	5	0.613397	0.61344
ACRO	2040	10	0.38918	0.421249
ACRO	2040	15	0.298796	0.337371
ACRO	2040	20	0.275574	0.29361
ACRO	2040	25	0.260807	0.266538
ACRO	2040	30	0.250586	0.251725
ACRO	2040	35	0.239487	0.239487
ACRO	2040	40	0.235116	0.235116
ACRO	2040	45	0.231459	0.231459
ACRO	2040	50	0.228308	0.228308
ACRO	2040	55	0.225563	0.225563
ACRO	2040	60	0.224457	0.224457
ACRO	2040	65	0.223646	0.223646
ACRO	2040	12.9	Local	0.349461
ACRO	2040	34.6	Ramp	0.26615

* Idle emission factors in units of (mg/veh-hr)

2011 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
BENZ	2011	Idle*	338.1215	338.127
BENZ	2011	5	75.78479	75.78703
BENZ	2011	10	46.66574	49.87091
BENZ	2011	15	36.41533	40.26127
BENZ	2011	20	33.53065	35.28205
BENZ	2011	25	31.96535	32.46002
BENZ	2011	30	30.91051	30.98144
BENZ	2011	35	29.63886	29.63886
BENZ	2011	40	29.08653	29.08653
BENZ	2011	45	28.57044	28.57044
BENZ	2011	50	28.06804	28.06804
BENZ	2011	55	27.58119	27.58119
BENZ	2011	60	27.16053	27.16053
BENZ	2011	65	26.7609	26.7609
BENZ	2011	12.9	Local	40.46944
BENZ	2011	34.6	Ramp	33.72213

* Idle emission factors in units of (mg/veh-hr)

2020 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
BENZ	2020	Idle*	188.315	188.3193
BENZ	2020	5	43.69789	43.69961
BENZ	2020	10	26.97238	29.1486
BENZ	2020	15	20.90967	23.53373
BENZ	2020	20	19.35986	20.58457
BENZ	2020	25	18.57236	18.95749
BENZ	2020	30	18.0362	18.10956
BENZ	2020	35	17.4165	17.4165
BENZ	2020	40	17.18633	17.18633
BENZ	2020	45	16.97578	16.97578
BENZ	2020	50	16.77891	16.77891
BENZ	2020	55	16.59673	16.59673
BENZ	2020	60	16.46583	16.46583
BENZ	2020	65	16.34508	16.34508
BENZ	2020	12.9	Local	24.07885
BENZ	2020	34.6	Ramp	19.28791

* Idle emission factors in units of (mg/veh-hr)

2040 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
BENZ	2040	Idle*	165.7832	165.7871
BENZ	2040	5	37.66324	37.66478
BENZ	2040	10	22.85131	24.77746
BENZ	2040	15	17.52391	19.84803
BENZ	2040	20	16.16045	17.24878
BENZ	2040	25	15.48038	15.82726
BENZ	2040	30	15.01587	15.08391
BENZ	2040	35	14.4887	14.4887
BENZ	2040	40	14.29505	14.29505
BENZ	2040	45	14.1196	14.1196
BENZ	2040	50	13.95696	13.95696
BENZ	2040	55	13.80808	13.80808
BENZ	2040	60	13.70955	13.70955
BENZ	2040	65	13.62045	13.62045
BENZ	2040	12.9	Local	20.47804
BENZ	2040	34.6	Ramp	16.02658

* Idle emission factors in units of (mg/veh-hr)

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
BUTA	2011	Idle*	35.28143	35.28217
BUTA	2011	5	9.338577	9.338943
BUTA	2011	10	5.956937	6.402155
BUTA	2011	15	4.645584	5.179526
BUTA	2011	20	4.320044	4.562768
BUTA	2011	25	4.121763	4.189591
BUTA	2011	30	3.98764	3.997013
BUTA	2011	35	3.817122	3.817122
BUTA	2011	40	3.748004	3.748004
BUTA	2011	45	3.683511	3.683511
BUTA	2011	50	3.62298	3.62298
BUTA	2011	55	3.564929	3.564929
BUTA	2011	60	3.528092	3.528092
BUTA	2011	65	3.492485	3.492485
BUTA	2011	12.9	Local	5.164613
BUTA	2011	34.6	Ramp	4.392634

* Idle emission factors in units of (mg/veh-hr)

2011 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
BUTA	2020	Idle*	20.46981	20.47027
BUTA	2020	5	5.493353	5.493599
BUTA	2020	10	3.487298	3.788647
BUTA	2020	15	2.706133	3.069422
BUTA	2020	20	2.537964	2.707312
BUTA	2020	25	2.435042	2.487895
BUTA	2020	30	2.364574	2.374481
BUTA	2020	35	2.281113	2.281113
BUTA	2020	40	2.252064	2.252064
BUTA	2020	45	2.226704	2.226704
BUTA	2020	50	2.20454	2.20454
BUTA	2020	55	2.184394	2.184394
BUTA	2020	60	2.184713	2.184713
BUTA	2020	65	2.185763	2.185763
BUTA	2020	12.9	Local	3.120911
BUTA	2020	34.6	Ramp	2.540589

* Idle emission factors in units of (mg/veh-hr)

2020 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
BUTA	2040	Idle*	17.56043	17.56087
BUTA	2040	5	4.696297	4.696529
BUTA	2040	10	2.952287	3.217607
BUTA	2040	15	2.2743	2.594387
BUTA	2040	20	2.131182	2.280923
BUTA	2040	25	2.043514	2.090907
BUTA	2040	30	1.983247	1.992405
BUTA	2040	35	1.913123	1.913123
BUTA	2040	40	1.889281	1.889281
BUTA	2040	45	1.868957	1.868957
BUTA	2040	50	1.851669	1.851669
BUTA	2040	55	1.836248	1.836248
BUTA	2040	60	1.841203	1.841203
BUTA	2040	65	1.846804	1.846804
BUTA	2040	12.9	Local	2.658941
BUTA	2040	34.6	Ramp	2.124138

* Idle emission factors in units of (mg/veh-hr)

2040 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
DPM	2011	Idle*	10.1217	10.1217
DPM	2011	5	4.04868	4.04868
DPM	2011	10	4.04868	4.04868
DPM	2011	15	4.04868	4.04868
DPM	2011	20	4.04868	4.04868
DPM	2011	25	4.04868	4.04868
DPM	2011	30	4.04868	4.04868
DPM	2011	35	4.04868	4.04868
DPM	2011	40	4.04868	4.04868
DPM	2011	45	4.04868	4.04868
DPM	2011	50	4.04868	4.04868
DPM	2011	55	4.04868	4.04868
DPM	2011	60	4.04868	4.04868
DPM	2011	65	4.04868	4.04868
DPM	2011	12.9	Local	4.04868
DPM	2011	34.6	Ramp	4.04868

* Idle emission factors in units of (mg/veh-hr)

2011 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
DPM	2020	Idle*	2.132331	2.132331
DPM	2020	5	0.852932	0.852932
DPM	2020	10	0.852932	0.852932
DPM	2020	15	0.852932	0.852932
DPM	2020	20	0.852932	0.852932
DPM	2020	25	0.852932	0.852932
DPM	2020	30	0.852932	0.852932
DPM	2020	35	0.852932	0.852932
DPM	2020	40	0.852932	0.852932
DPM	2020	45	0.852932	0.852932
DPM	2020	50	0.852932	0.852932
DPM	2020	55	0.852932	0.852932
DPM	2020	60	0.852932	0.852932
DPM	2020	65	0.852932	0.852932
DPM	2020	12.9	Local	0.852932
DPM	2020	34.6	Ramp	0.852932

* Idle emission factors in units of (mg/veh-hr)

2020 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
DPM	2040	Idle*	0.944961	0.944961
DPM	2040	5	0.377984	0.377984
DPM	2040	10	0.377984	0.377984
DPM	2040	15	0.377984	0.377984
DPM	2040	20	0.377984	0.377984
DPM	2040	25	0.377984	0.377984
DPM	2040	30	0.377984	0.377984
DPM	2040	35	0.377984	0.377984
DPM	2040	40	0.377984	0.377984
DPM	2040	45	0.377984	0.377984
DPM	2040	50	0.377984	0.377984
DPM	2040	55	0.377984	0.377984
DPM	2040	60	0.377984	0.377984
DPM	2040	65	0.377984	0.377984
DPM	2040	12.9	Local	0.377984
DPM	2040	34.6	Ramp	0.377984

* Idle emission factors in units of (mg/veh-hr)

2040 Conditions
MSAT Analysis
I-64 EIS Peninsula Study

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
FORM	2011	Idle*	82.65923	82.66107
FORM	2011	5	22.38145	22.38219
FORM	2011	10	14.46805	15.48358
FORM	2011	15	11.24869	12.46766
FORM	2011	20	10.32308	10.87946
FORM	2011	25	9.732382	9.891169
FORM	2011	30	9.323264	9.346786
FORM	2011	35	8.871587	8.871587
FORM	2011	40	8.661698	8.661698
FORM	2011	45	8.481245	8.481245
FORM	2011	50	8.324779	8.324779
FORM	2011	55	8.186459	8.186459
FORM	2011	60	8.112416	8.112416
FORM	2011	65	8.051167	8.051167
FORM	2011	12.9	Local	12.5546
FORM	2011	34.6	Ramp	10.14786

* Idle emission factors in units of (mg/veh-hr)

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
FORM	2020	Idle*	50.3684	50.36986
FORM	2020	5	13.78401	13.78452
FORM	2020	10	8.897235	9.591938
FORM	2020	15	6.911159	7.749029
FORM	2020	20	6.389392	6.780974
FORM	2020	25	6.053966	6.177776
FORM	2020	30	5.819255	5.843098
FORM	2020	35	5.576551	5.576551
FORM	2020	40	5.472889	5.472889
FORM	2020	45	5.389254	5.389254
FORM	2020	50	5.322278	5.322278
FORM	2020	55	5.267171	5.267171
FORM	2020	60	5.270867	5.270867
FORM	2020	65	5.282035	5.282035
FORM	2020	12.9	Local	7.945812
FORM	2020	34.6	Ramp	6.173588

* Idle emission factors in units of (mg/veh-hr)

Pollutant	Calendar Year	Speed (mph)	Emission F (mg/VMT) Freeway	Arterial
FORM	2040	Idle*	43.83622	43.83753
FORM	2040	5	11.95829	11.95874
FORM	2040	10	7.657107	8.276186
FORM	2040	15	5.913767	6.660935
FORM	2040	20	5.463538	5.813754
FORM	2040	25	5.173701	5.285793
FORM	2040	30	4.970295	4.992426
FORM	2040	35	4.762277	4.762277
FORM	2040	40	4.674492	4.674492
FORM	2040	45	4.604793	4.604793
FORM	2040	50	4.550147	4.550147
FORM	2040	55	4.506101	4.506101
FORM	2040	60	4.51974	4.51974
FORM	2040	65	4.539804	4.539804
FORM	2040	12.9	Local	6.873801
FORM	2040	34.6	Ramp	5.258961

* Idle emission factors in units of (mg/veh-hr)

Polycyclic Organic Matter 2011

Pollutant	Calendar Year	Season	Speed (mph)	Emission Factor Freeway (I	Arterial
POM	2011	Average	2.5	4.09357	4.09357
		Average	5	1.65102	0.858815
		Average	10	1.09362	1.09362
		Average	15	0.97092	0.97092
		Average	20	0.895386	0.895386
		Average	25	0.862753	0.862753
		Average	30	0.839088	0.839088
		Average	35	0.820795	0.820795
		Average	40	0.808455	0.808455
		Average	45	0.79829	0.79829
		Average	50	0.788425	0.788425
		Average	55	0.779345	0.779345
		Average	60	0.772435	0.772435
		Average	65	0.76705	0.76705

Napthalene 2011

Pollutant	Calendar Year	Season	Speed (mph)	Emission Factor Freeway (I	Arterial
Napthalene	2011	Average	2.5	4.031508	4.031508
		Average	5	1.588958	0.720673
		Average	10	1.037693	1.031558
		Average	15	0.908858	0.908858
		Average	20	0.833358	0.833358
		Average	25	0.801083	0.801083
		Average	30	0.777783	0.777783
		Average	35	0.759838	0.759838
		Average	40	0.747498	0.747498
		Average	45	0.737333	0.737333
		Average	50	0.727468	0.727468
		Average	55	0.718388	0.718388
		Average	60	0.711478	0.711478
		Average	65	0.706093	0.706093

Polycyclic Organic Matter 2020

Pollutant	Calendar Year	Season	Speed (mph)	Emission Factor Freeway (I	Arterial
POM	2020	Average	2.5	2.225715	2.225715
		Average	5	1.024815	1.024815
		Average	10	0.741061	0.739865
		Average	15	0.669665	0.669665
		Average	20	0.622651	0.622651
		Average	25	0.607012	0.607012
		Average	30	0.595606	0.595606
		Average	35	0.586621	0.586621
		Average	40	0.579831	0.579831
		Average	45	0.574051	0.574051
		Average	50	0.568821	0.568821
		Average	55	0.564521	0.564521
		Average	60	0.561241	0.561241
		Average	65	0.558691	0.558691

Napthalene 2020

Pollutant	Calendar Year	Season	Speed (mph)	Emission Factor Freeway (I	Arterial
Napthalene	2020	Average	2.5	2.171686	2.171686
		Average	5	0.970786	0.970786
		Average	10	0.50313	0.50313
		Average	15	0.615636	0.615636
		Average	20	0.568631	0.568631
		Average	25	0.553076	0.553076
		Average	30	0.541756	0.541756
		Average	35	0.532851	0.532851
		Average	40	0.526061	0.526061
		Average	45	0.520281	0.520281
		Average	50	0.515051	0.515051
		Average	55	0.510751	0.510751
		Average	60	0.507471	0.507471
		Average	65	0.504921	0.504921

Polycyclic Organic Matter 2040

Pollutant	Calendar Year	Season	Speed (mph)	Emission Factor Freeway (I	Arterial
POM	2040	Average	2.5	2.124697	2.124697
		Average	5	0.964297	0.964297
		Average	10	0.688897	0.688897
		Average	15	0.621007	0.621007
		Average	20	0.575575	0.575575
		Average	25	0.560893	0.560893
		Average	30	0.550304	0.550304
		Average	35	0.542053	0.542053
		Average	40	0.535488	0.535488
		Average	45	0.529898	0.529898
		Average	50	0.524838	0.524838
		Average	55	0.520683	0.520683
		Average	60	0.517518	0.517518
		Average	65	0.515053	0.515053

Napthalene 2040

Pollutant	Calendar Year	Season	Speed (mph)	Emission Factor Freeway (I	Arterial
Napthalene	2040	Average	2.5	2.072028	2.072028
		Average	5	0.911628	0.911628
		Average	10	0.641458	0.641458
		Average	15	0.568338	0.568338
		Average	20	0.522908	0.522908
		Average	25	0.508248	0.508248
		Average	30	0.497683	0.497683
		Average	35	0.489458	0.489458
		Average	40	0.482893	0.482893
		Average	45	0.477303	0.477303
		Average	50	0.472243	0.472243
		Average	55	0.468088	0.468088
		Average	60	0.464923	0.464923
		Average	65	0.462458	0.462458

Normal Daily Maximum Temperature, Deg F

NORMALS 1981-2010	YRS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	Winter	Summer
Newport News International Airport (USW00093741)	30	49.5	52.9	60.7	71.1	78.5	86.2	89.6	87.4	82.2	72.5	63.3	53.4		**62.3**	**78.9**

Normal Daily Minimum Temperature, Deg F

	YRS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN		
Newport News International Airport (USW00093741)	30	31.8	32.6	39.5	47.8	57	66.3	70.3	68.8	62.7	51.7	43	34.6		**42.7**	**58.3**

Source: http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html - National Climatic Data Center

Note: "Summer" averages March through August and "Winter" averages September through February.

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*EMIT Data File
*2011 Conditions
*MSAT Analysis
*I-64 EIS Peninsula Study
*
MOBILE6 INPUT FILE :
AIR TOXICS          : BENZ BUTA FORM ACET ACRO
PARTICULATES        : ECARBON OCARBON SO4
RUN DATA            :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 NON-RAMP
FUEL RVP            : 13.5
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PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 5.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 20.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 35.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 50.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 65.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 10.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 15.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 15.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 55.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Summer; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2011; Season - Winter; Speed - 12.9 mph, LOCAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : LocalFVMT.d
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 12.9 mph, LOCAL
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : LocalFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Winter; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2011; Season - Summer; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :
```

```
*EMIT Data File
*2020 Conditions
*MSAT Analysis
*I-64 EIS Peninsula Study
*
MOBILE6 INPUT FILE :
AIR TOXICS          : BENZ BUTA FORM ACET ACRO
PARTICULATES        : ECARBON OCARBON SO4
RUN DATA            :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 5.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 20.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 35.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 50.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 65.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 10.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 15.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 15.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 55.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Summer; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Season - Winter; Speed - 12.9 mph, LOCAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : LocalFVMT.d
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 12.9 mph, LOCAL
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : LocalFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Winter; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Season - Summer; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :
```

```
*EMIT Data File
*2040 Conditions
*MSAT Analysis
*I-64 EIS Peninsula Study
*
MOBILE6 INPUT FILE :
AIR TOXICS          : BENZ BUTA FORM ACET ACRO
PARTICULATES        : ECARBON OCARBON SO4
RUN DATA            :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 5.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 20.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 35.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 50.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 NON-RAMP
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 65.0 NON-RAMP
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 10.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 15.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 15.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 25.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 30.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 ARTERIAL
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 40.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 45.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

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E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
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0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMP        : 62.3 78.9
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 55.0 ARTERIAL
FUEL RVP            : 13.5
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PARTICLE SIZE      : 10.0
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GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 55.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
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GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
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                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
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GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 60.0 ARTERIAL
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
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GAS BENZENE%       : 0.59
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```
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5
PARTICLE SIZE       : 10.0
PARTICULATE EF      : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR       : 59
GAS AROMATIC%       : 20.6
GAS OLEFIN%         : 9.70
GAS BENZENE%        : 0.63
E200                : 56.4
E300                : 84.6
OXYGENATE           : MTBE 5.12  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.24  .063
RVP OXY WAIVER      : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Summer; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 7
ALTITUDE            : 1
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AVERAGE SPEED       : 65.0 ARTERIAL
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DIESEL SULFUR       : 66
GAS AROMATIC%       : 19.1
GAS OLEFIN%         : 9.75
GAS BENZENE%        : 0.59
E200                : 47.9
E300                : 84.0
OXYGENATE           : MTBE 0.07  .937
                    : ETBE 0.00  0
                    : ETOH 0.00  0
                    : TAME 0.01  .063
RVP OXY WAIVER      : 1

END OF RUN          :

NO REFUELING        :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS       :
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0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Season - Winter; Speed - 12.9 mph, LOCAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 42.7 58.3
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : LocalFVMT.d
FUEL RVP            : 13.5
```

```
PARTICLE SIZE      : 10.0
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DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 12.9 mph, LOCAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : LocalFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :

NO REFUELING       :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\I-64 EIS\VDOT Mobile Data\hampt11.d
VMT FRACTIONS      :
0.41215 0.09500 0.31625 0.09630 0.04428 0.01000 0.00098 0.00081
0.00060 0.00223 0.00263 0.00286 0.01021 0.00051 0.00023 0.00496
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Winter; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 42.7 58.3
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 59
GAS AROMATIC%      : 20.6
GAS OLEFIN%        : 9.70
GAS BENZENE%       : 0.63
E200               : 56.4
E300               : 84.6
OXYGENATE          : MTBE 5.12  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.24  .063
RVP OXY WAIVER     : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Season - Summer; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMP       : 62.3 78.9
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5
PARTICLE SIZE      : 10.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 66
GAS AROMATIC%      : 19.1
GAS OLEFIN%        : 9.75
GAS BENZENE%       : 0.59
```

```
E200               : 47.9
E300               : 84.0
OXYGENATE          : MTBE 0.07  .937
                   : ETBE 0.00  0
                   : ETOH 0.00  0
                   : TAME 0.01  .063
RVP OXY WAIVER     : 1

END OF RUN         :
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ASSUMPTIONS USED FOR I-64 MSAT ANALYSIS

General Assumptions

- Year 2000 and Year 2034 Superregional Tidewater Model (SRTW) used, to be consistent with the travel forecasting for this project
- The SRTW model is comprised of links from the Richmond/Tri-Cities MPO area, the Hampton Roads MPO area, and the InterMPO area. Each link is coded a little differently.
- The SRTW model is a 24-hour model only, so all MSAT calculations are for a 24-hour day.
- An "assumed" functional class was calculated for each link (see tables below), either:
    - Freeway (which also includes expressways)
    - Arterial (which includes both principal arterials and minor arterials)
    - Local (which also included collector roads)
    - Null Road (centroid connectors and toll plazas) which are excluded entirely from the MSAT analysis
- The biggest complication is that the I-64 EIS is using 2011, 2020, and 2040 forecasts. In general, interpolation between 2000 and 2034 was used to estimate 2011 and 2020 volumes.
- The SRTW models encompass an enormous area of southeastern Virginia. For the purposes of MSAT analysis, the SRTW models were "trimmed" to only focus in on an area bounded by (see figure at the end of this document):
    - North of I-64: York River, SR 249, I-295 where it curves around the north side of Richmond
    - West of I-64: I-95
    - South of I-64: US 460
    - East of I-64: Routes 10/32 in Suffolk/Isle of Wight, Hampton Roads Bay (in other words, cities on the south side of the Hampton Roads area like Norfolk and VA Beach were not included in the MSAT analysis)
- For all links that have model speeds < 2.5 mph (idling), these links were instead assumed to have speeds of 0 mph for six hours of the day and 10 mph for the other 18 hours of the day. This was done because MSAT emissions rise dramatically for idling vehicles as compared to vehicles moving, even moving as slow as 5-10 mph. Moreover, it is extremely unrealistic to expect a road, even a badly overcongested road, to have traffic at a complete standstill for a full 24-hour day. This calculation was done to the final calculated speeds after the interpolation calculations done below were derived.

2011 and 2020 No-Build volumes

- Scenario 1 - a link exists in both the 2000 and the 2034 model. In this case, simple interpolation is used to estimate the 2011 and 2034 volumes. Example: if Link ABCDEFG has a 33,333 volume in 2000 and a 44,444 volume in 2034, then the 2011 volume is $\left(\frac{2011-2000}{2034-2000}\right)*44{,}444 \quad + \quad \left(\frac{2034-2011}{2034-2000}\right)*33{,}333 \quad = \quad 36{,}928$
    - A similar interpolation is used to calculate speed for link ABCDEFG.
- Scenario 2 – a link does exist in the 2000 model but does not exist in the 2034 model.

    - For scenario 2 link volumes, we assumed that year 2034 volume is zero, and then interpolated in a manner similar to Scenarios 1 and 3
    - For scenario 2 link speeds, we assumed that year 2011 and 2020 speeds were equal to the 2000 model speeds
- Scenario 3 – a link does not exist in the 2000 model but does exist in the 2034 model.
    - The most significant examples are roads that were not yet built in 2000 but do exist as of 2011 (VA 895 Pocahontas Parkway, SR 288 freeway) and roads that are not yet built but are programmed on the Long Range Plans as they existed back in the late '90's (for example, the US 460 freeway).
    - For scenario 3 link volumes, we assumed that year 2000 volume is zero, and interpolated in order to estimate 2011 and 2020 volumes
    - For scenario 3 link speeds, we assumed that year 2000 speed is equal to free-flow speed, and interpolated between FF speed in 2000 and model speed in 2034 to estimate speed in 2011 and 2020.

2040 No-Build volumes

- In an 11/11/11 technical memo prepared by RKK, they developed a methodology for projecting beyond the 2034 model year to the 2040 design year. That memo established growth rates of:
    - Richmond urban area – 0.7%/year
    - Peninsula rural area – 1.5%/year
    - Hampton Roads urban area – 1.1%/year
- It should be noted that their analysis focused just on the I-64 corridor, whereas the MSAT analysis encompasses a much larger area (for example, the MSAT analysis extends all the way to the US 460 corridor to the south, and includes the entire Peninsula). Nevertheless, it was estimated that the percent growth developed for the Richmond urban area would apply to any link in the Richmond MPO model, that the percent growth developed for the HR urban area would apply to any link in the HRMPO model, and the "peninsula rural area" growth rate would apply to any link in the interMPO model.
- These growth rates were applied (compounded per year) to the 2034 model volumes to estimate 2040 no-build link volumes.
- 2040 no-build speeds were assumed to be identical to 2034 no-build speeds.

2020 and 2040 Build volumes

- The ratio between 2034 no-build:: 2034 build model volumes was used to estimate 2020 and 2040 build volumes. For example, if a certain segment of I-64 sees a 33% increase when comparing the 2034 no-build link to the 2034 build link, then that 33% increase is applied to the 2020 no-build and 2040 no-build volumes to estimate the 2020 build and 2040 build link volumes.
    - Similarly, if a section of US 60 paralleling I-64 sees a 44% decrease in traffic when comparing the 2034 no-build link to the 2034 build link, then that 44% decrease is applied to the 2020 no-build and 2040 no-build volumes to estimate the 2020 build and 2040 build link volumes.
- The ratio between 2034 no-build :: 2034 build model speeds was also applied in a similar fashion.

- An additional check was made to make sure this calculation does not result in speeds greater than the free-flow-speed for that link

2020 and 2040 Alternative 3 Links

- There were 201 links in the Alternative 3 data labeled "i64ML" for I-64 Managed Lanes. The typical process of using ratios for 2034 Alternative 3 and 2034 No Build did not apply because these links did not have No-Build links. All of the links were listed as Hampton Roads, so a growth rate of 1.1% was applied to calculate the volumes.
- In order to calculate speeds, the equation for congested travel time on freeways used in the travel demand model was applied:

$$TC[7] = T_o * (1 + 0.15)\left(\frac{V}{C}\right)^6 + (li.toll * ivot)$$

  - Where: TC[7] is congested travel time for freeways, V is volume, C is capacity, "li.toll" is the toll, and "ivot" is a time value of 5 minutes per dollar. The length of the link was divided by the congested travel time to calculate average speed.

Calculating pollutant levels

- Due to the massive size of the spreadsheets (200 MB +), multiple spreadsheets were used. After using one spreadsheet to determine link volumes and speeds for a particular scenario, those volumes were then copy-pasted into the MSAT pollutant calculation spreadsheet.
- EMIT factors were applied to convert VMT into mg/day of pollutant. The EMIT factor is based on the link's classification and speed.
  - Special calculations are used for links with speeds < 2.5 mph (idling speeds).
- The mg/day of pollutant are then summed up and converted into tons / year.
  - Note that "short tons" are used, not to be confused with "long tons" or "tonnes". In the US, the word "ton" in typical everyday conversation/usage generally refers to short tons, whereas the other measurements are mostly used in the UK and Europe.

Rich_TriC model table

LinkClass	Func Class	Assumed Func Class
1	Freeway/Tollway	freeway
2	Freeway ramps/urban arterials	arterial
3	urban arterials, rural collectors	arterial
4	urban collectors, other rural	local
5	toll plaza	null road
6	centroid connector	null road

source: email from Marcel Klik dated 5/30/12

HamptonRds model table

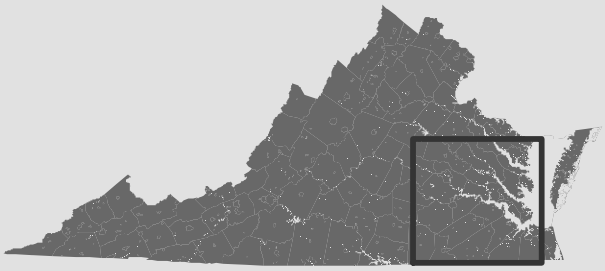
LinkClass	Func Class	Assumed Func Class
1	centroid connector	null road
2	freeway	freeway
3	principal arterial	arterial
4	minor arterial	arterial
5	collector	local

source: email from Marcel Klik dated 5/30/12

InterMPO model table

LinkClass	Func Class	Assumed Func Class
6	Centroid connector	null road
7	freeway	freeway
8	divided arterial	arterial
9	undivided arterial	arterial
10	collector	local

source: Tidewater Model Userguide 6/6/11



APPENDIX C

Mobile Source Air Toxics (MSAT) Affected Network

Interstate 64 Study Area

MSAT Region

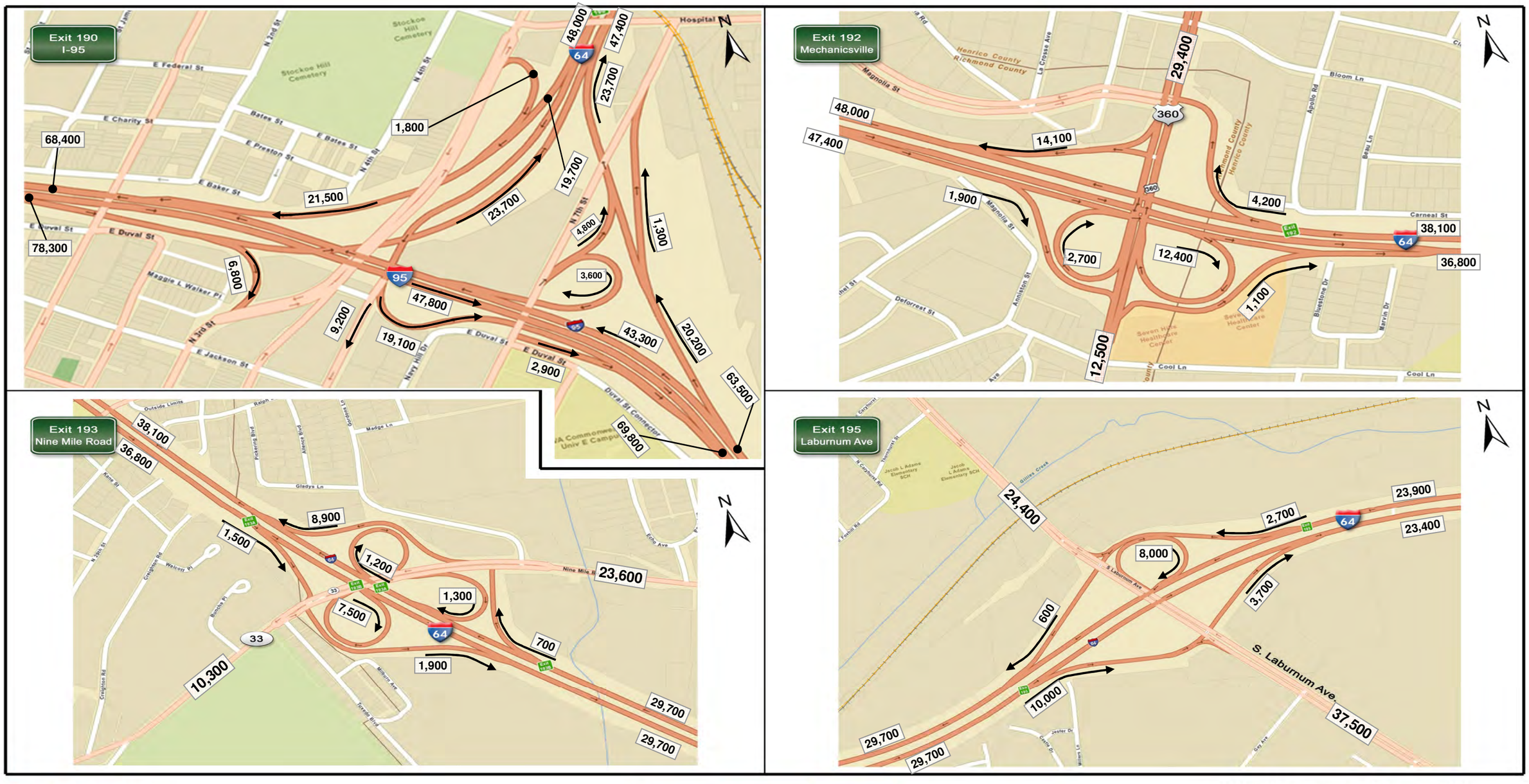
INTERSTATE 64 PENINSULA STUDY

APPENDIX D

Traffic Summary Data

FINAL

Updated 10/27/11



VDOT Virginia Department of Transportation
McCormick Taylor Engineers & Planners Since 1946

I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes

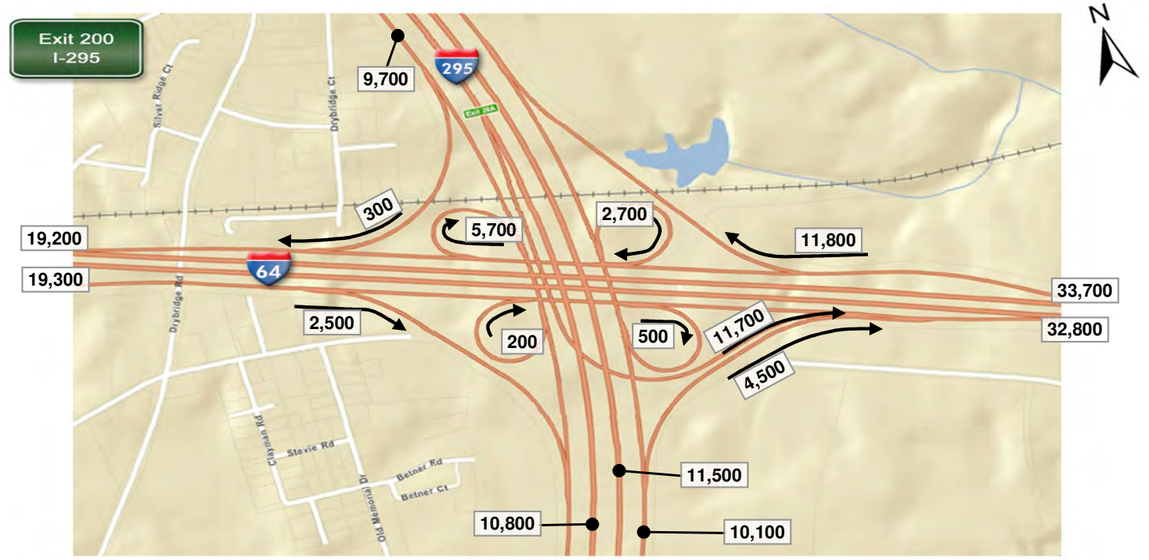
Base Year (2011) Balanced Volumes

Sheet 1 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 10/27/11



VDOT Virginia Department of Transportation

McCormick Taylor Engineers & Planners Since 1946

I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes

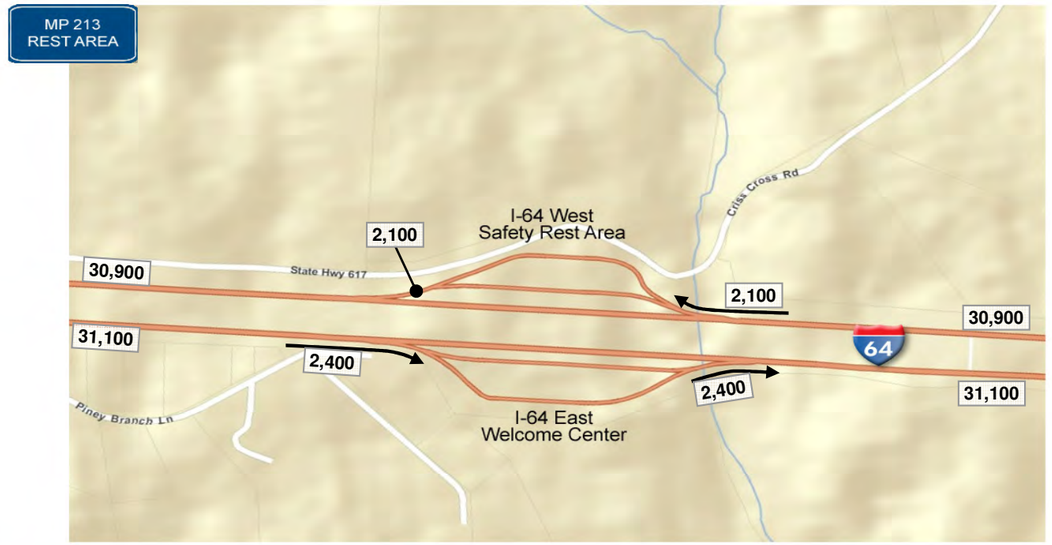
Base Year (2011) Balanced Volumes

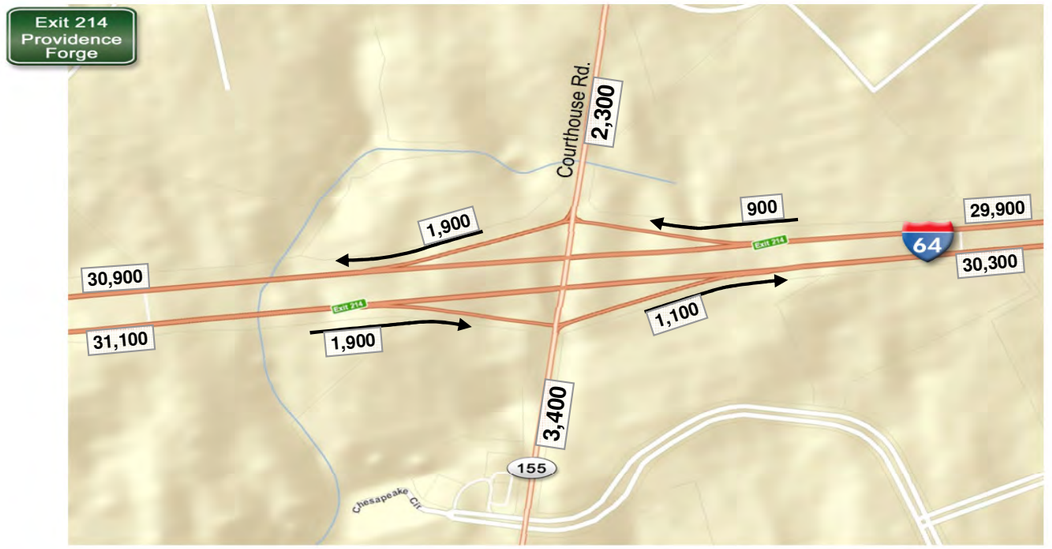
Sheet 2 of 7

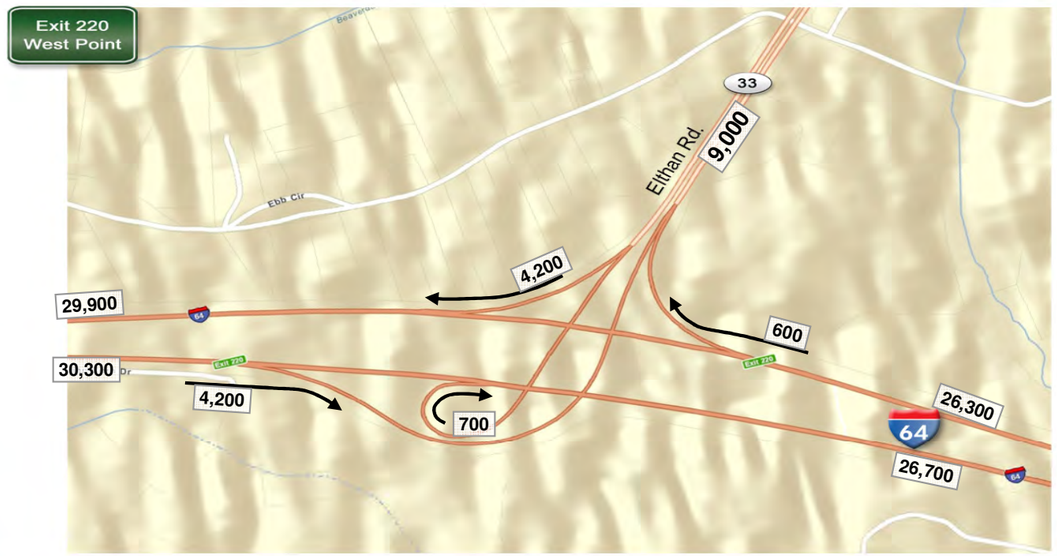
Note: Due to rounding, some volumes do not balance exactly.

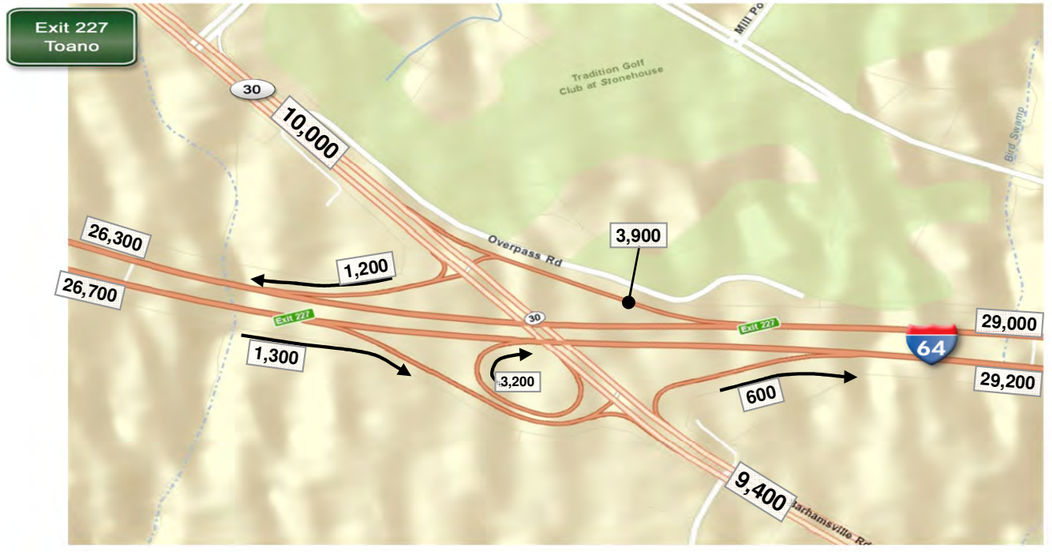
FINAL

Updated 10/27/11









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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes

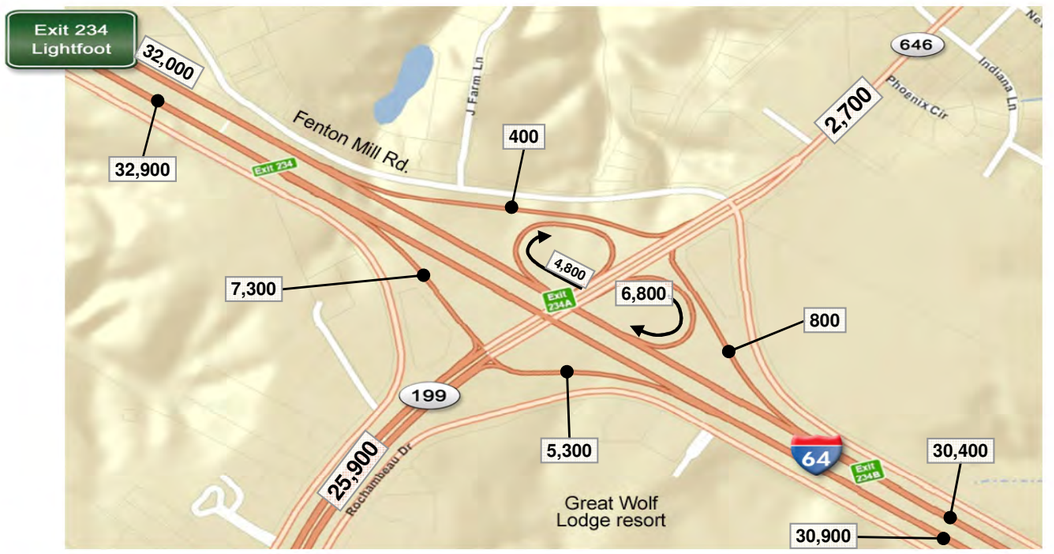
Base Year (2011) Balanced Volumes

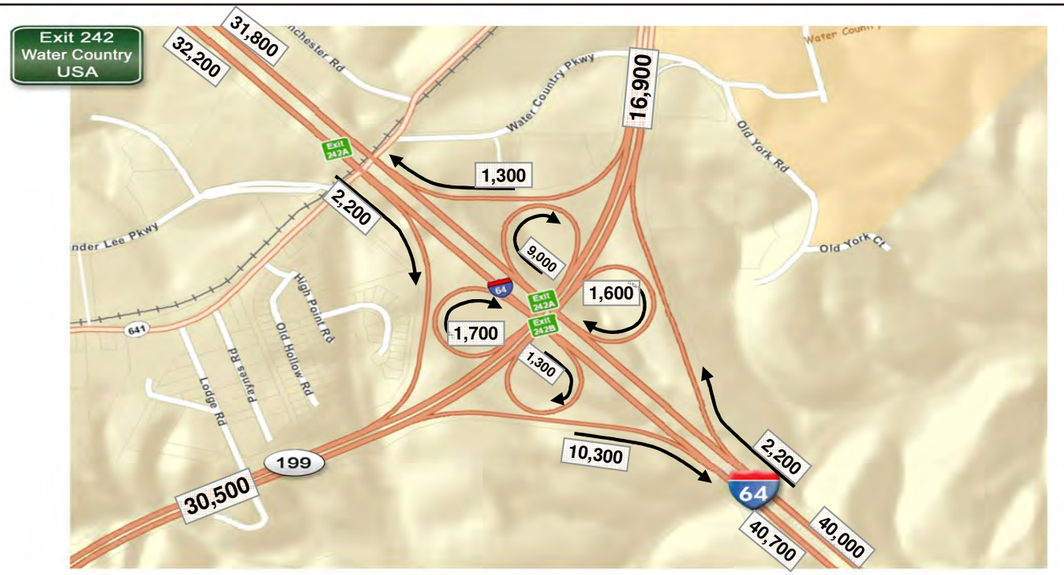
Sheet 3 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 10/27/11





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes

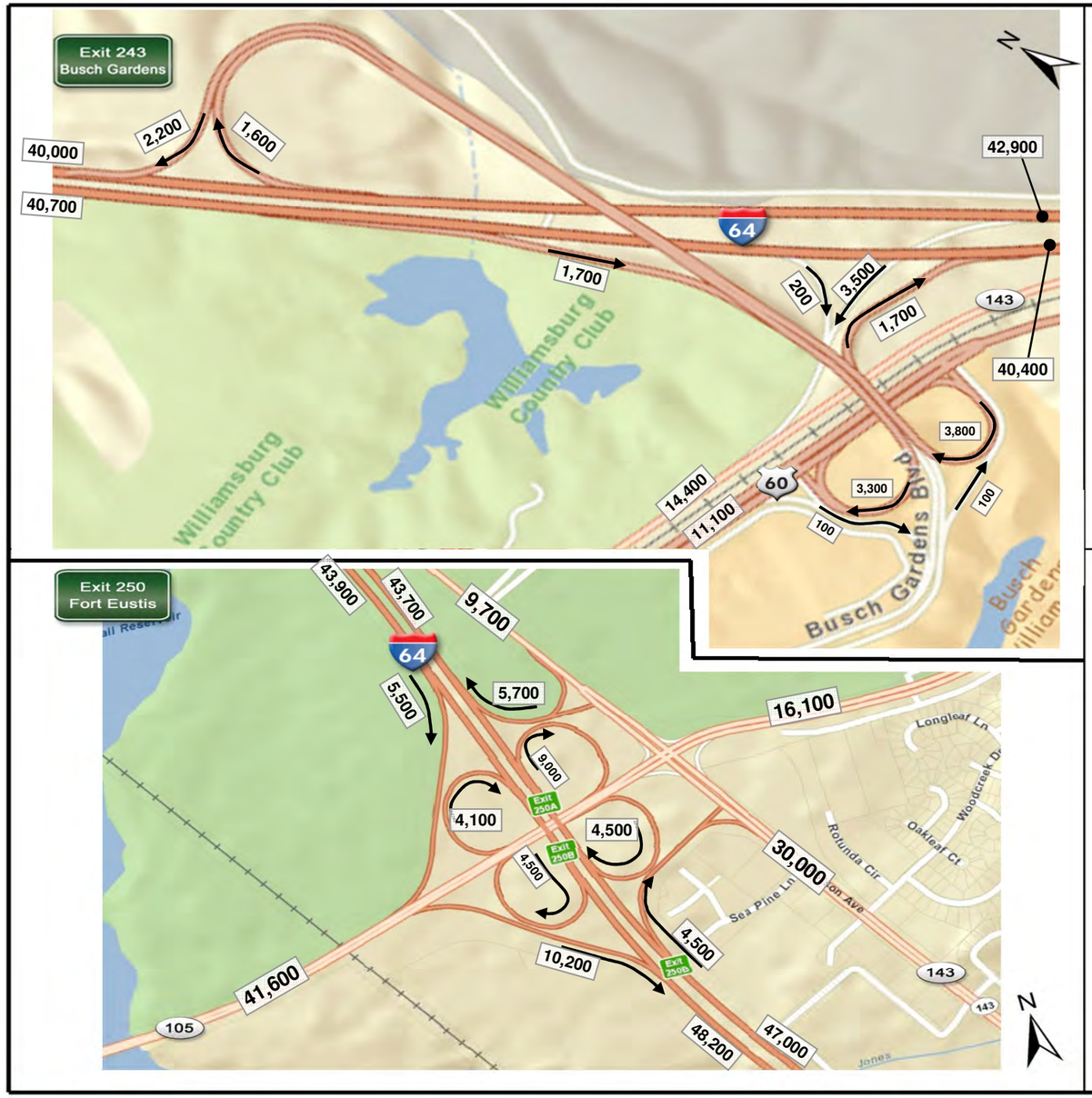
Base Year (2011) Balanced Volumes

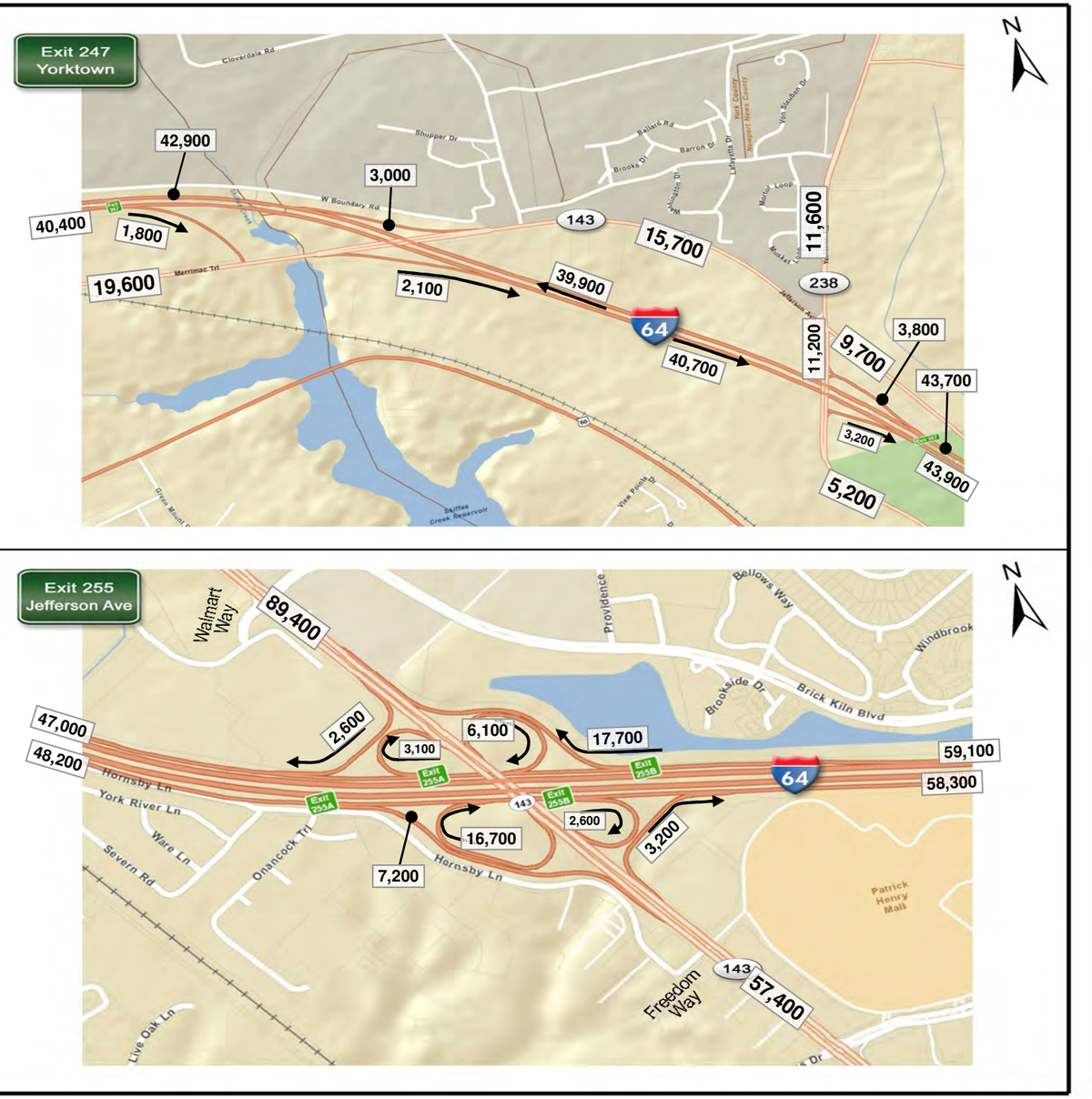
Sheet 4 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 10/27/11





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes

Base Year (2011) Balanced Volumes

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Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 10/27/11

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes

Base Year (2011) Balanced Volumes

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Note: Due to rounding, some volumes do not balance exactly.

FINAL

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes

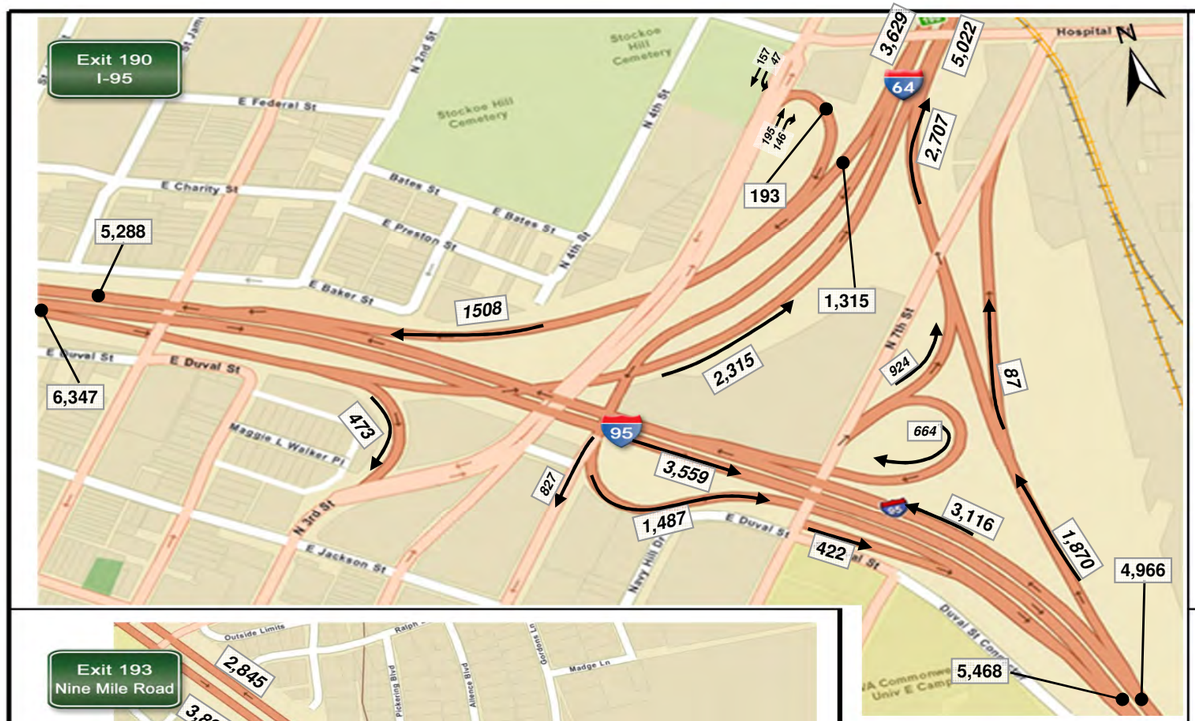
Base Year (2011) Balanced Volumes

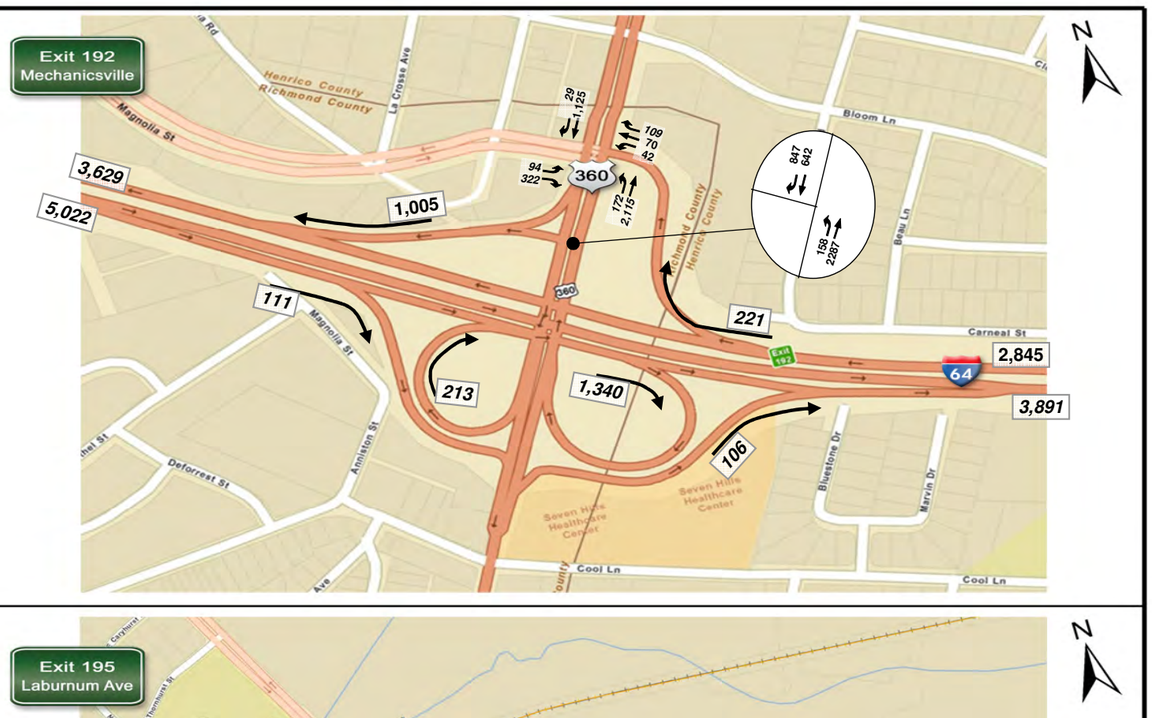
Sheet 7 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 12/9/11





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
Base Year (2011) Balanced Volumes
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Note: Due to rounding, some volumes do not balance exactly.

FINAL

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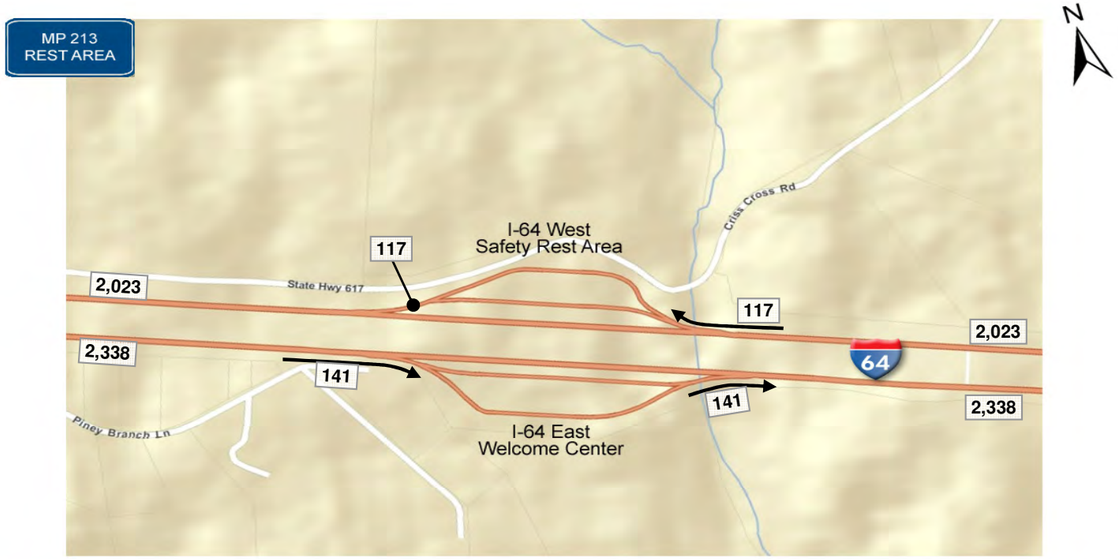
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

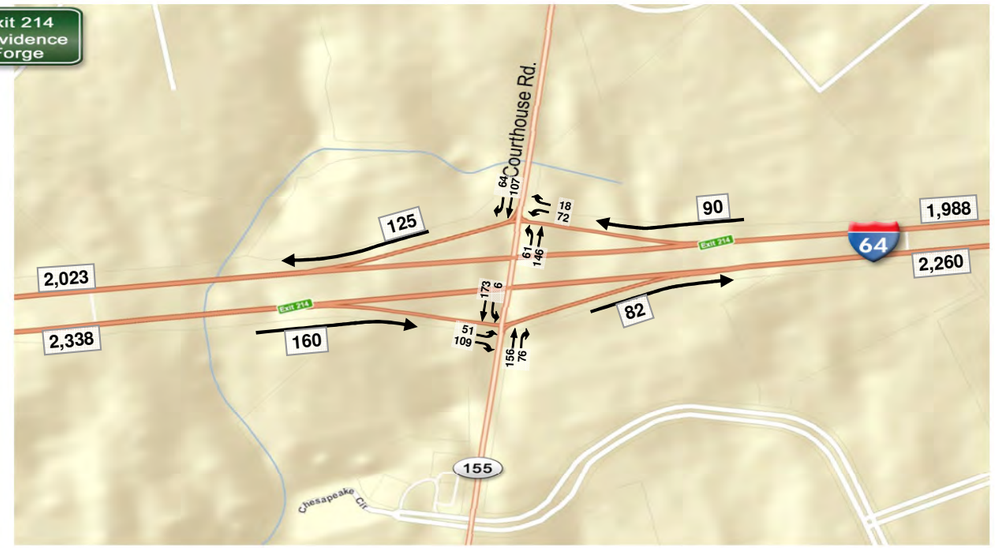
FIGURE 2: PM Peak Hour Volumes
Base Year (2011) Balanced Volumes
Sheet 2 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 12/9/11





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McCormick Taylor Engineers & Planners Since 1946

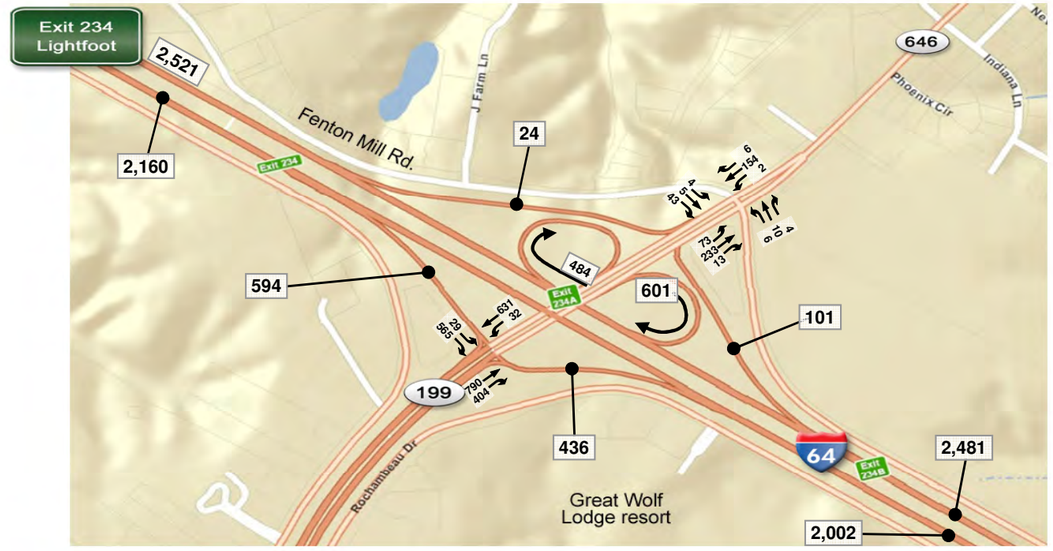
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

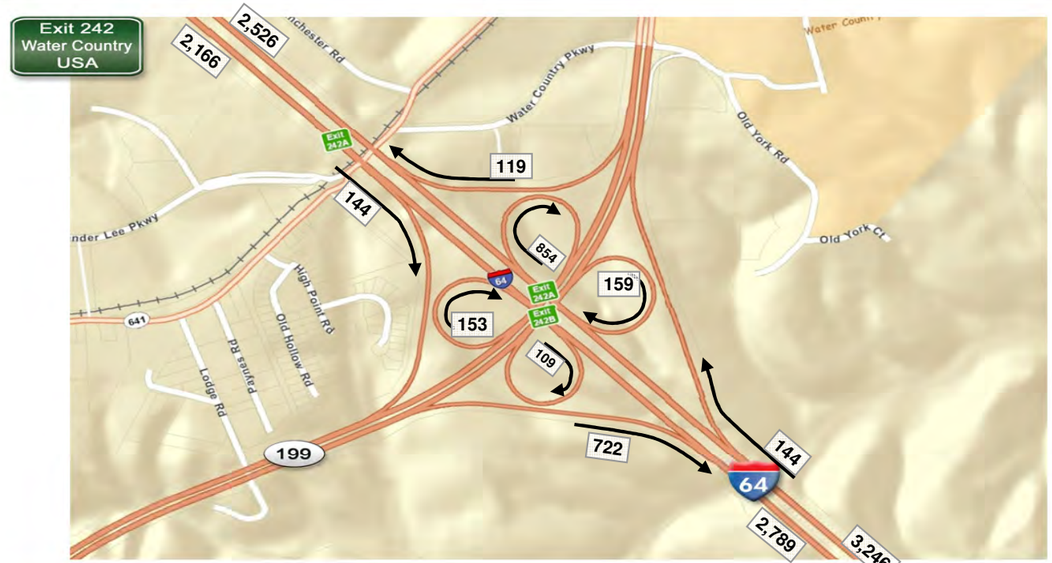
FIGURE 2: PM Peak Hour Volumes
Base Year (2011) Balanced Volumes
Sheet 3 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 12/9/11





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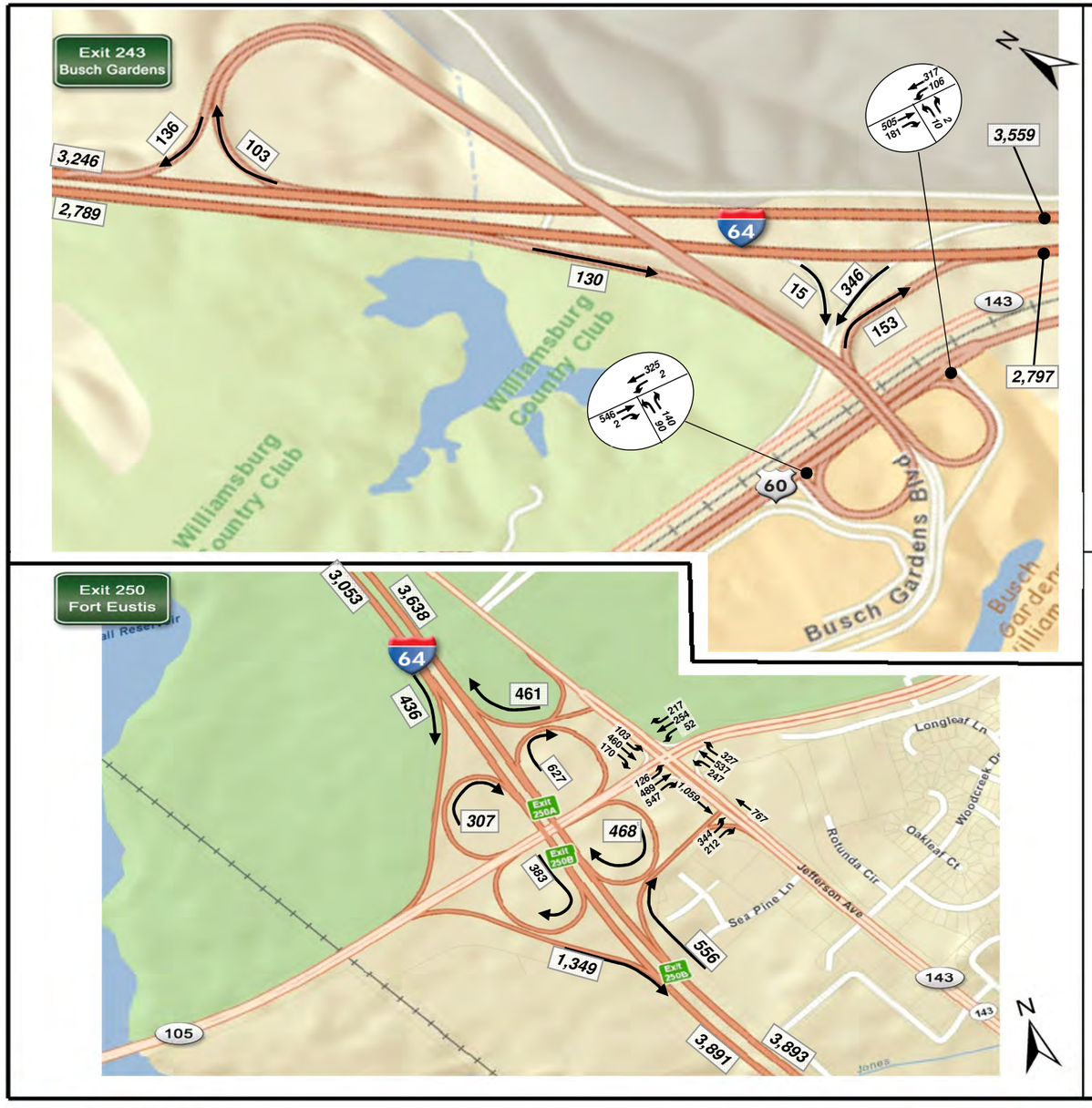
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
Base Year (2011) Balanced Volumes
Sheet 4 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 12/9/11



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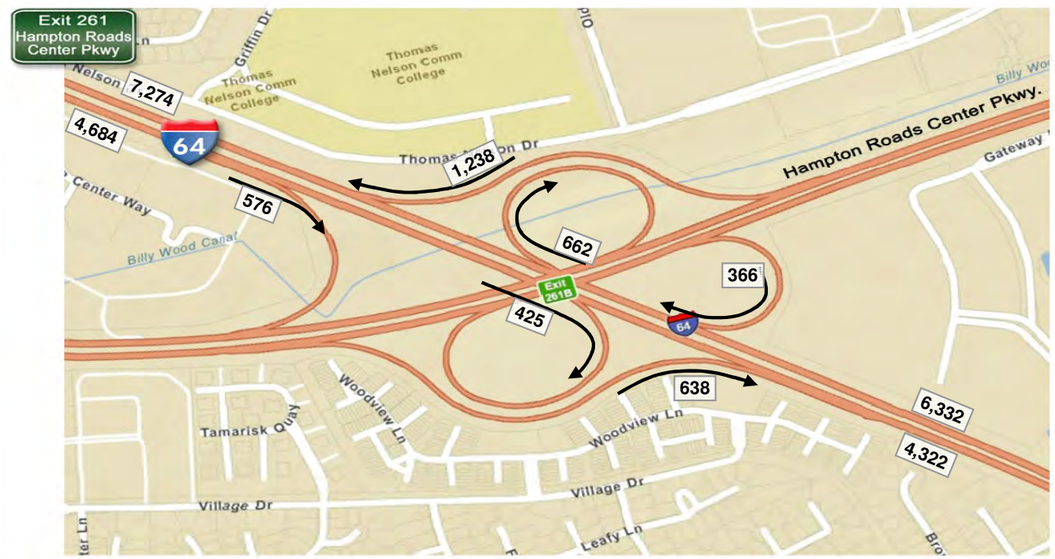
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
Base Year (2011) Balanced Volumes
Sheet 5 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 12/9/11



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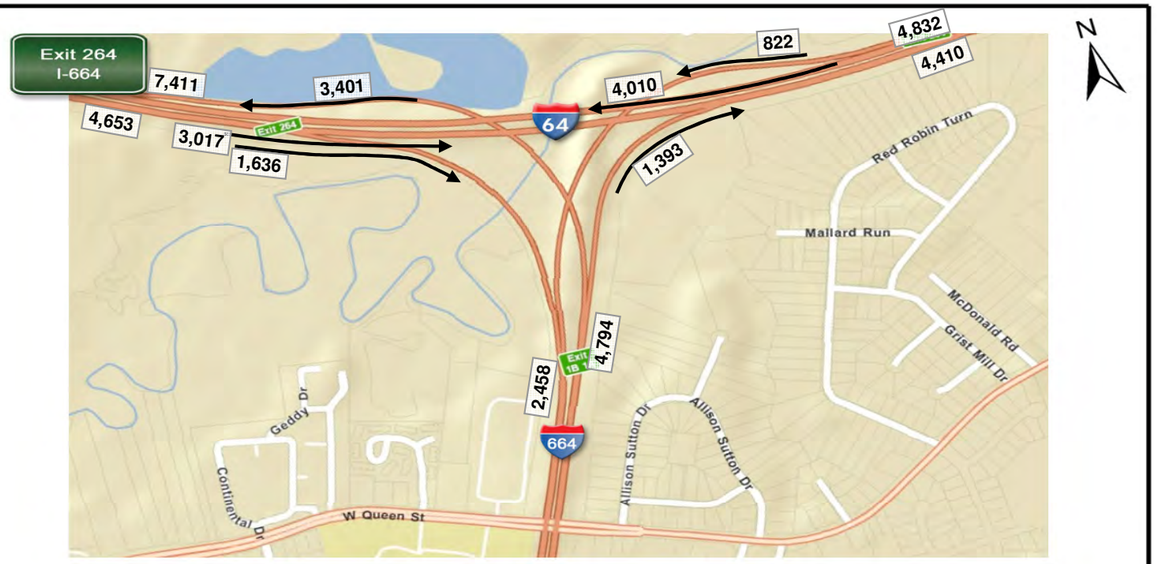
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
Base Year (2011) Balanced Volumes
Sheet 6 of 7

Note: Due to rounding, some volumes do not balance exactly.

FINAL

Updated 12/9/11



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes

Base Year (2011) Balanced Volumes

Sheet 7 of 7

Note: Due to rounding, some volumes do not balance exactly.

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Updated 4/24/12

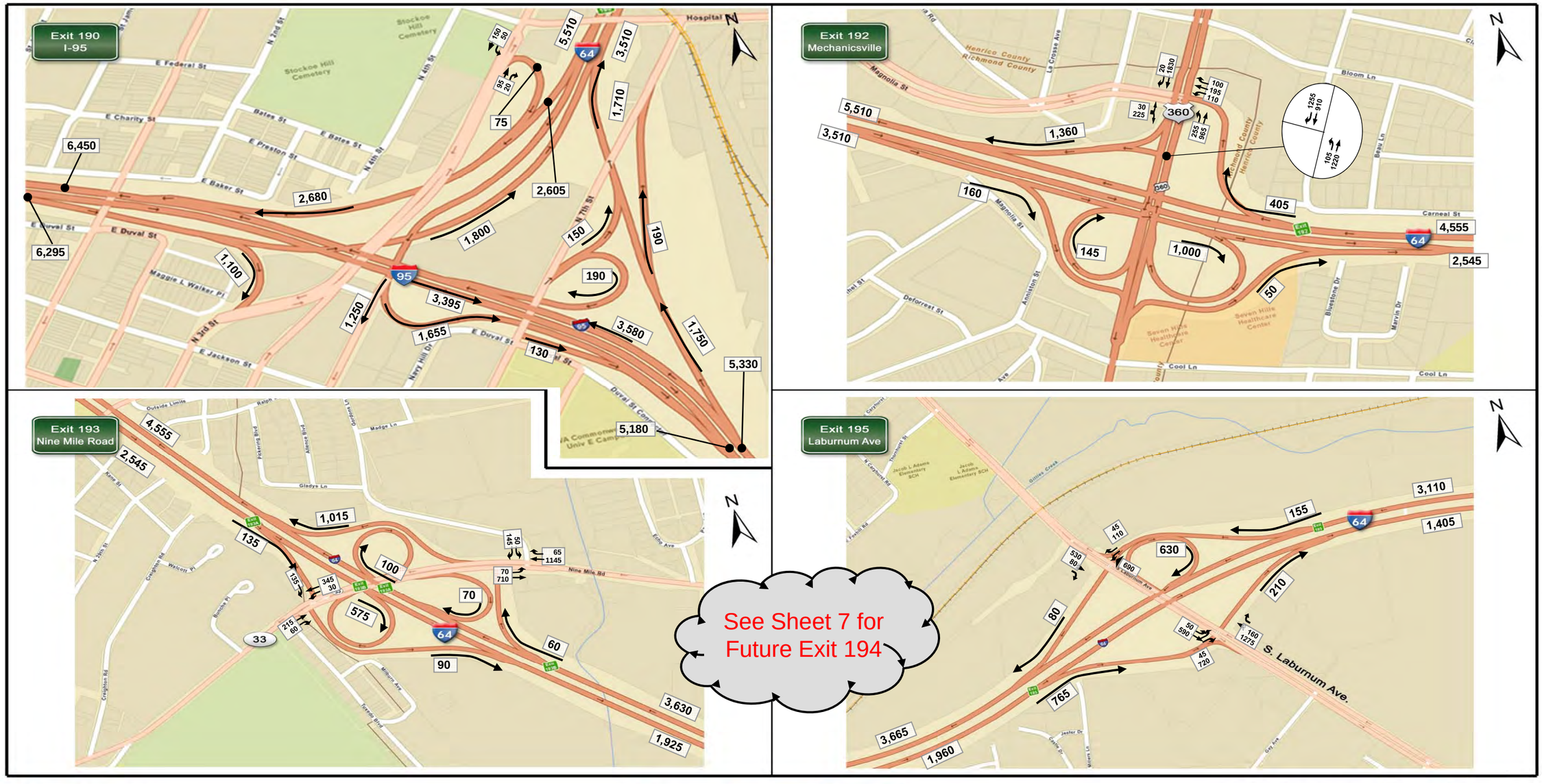

FIGURE X: AM Peak Hour Volumes
2020 No Build Volumes
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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE X: AM Peak Hour Volumes
2020 No Build Volumes
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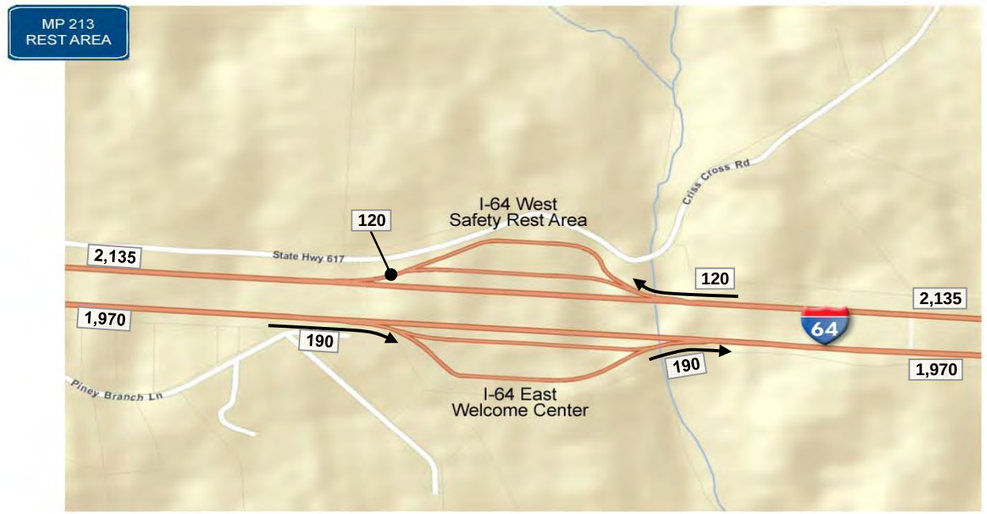
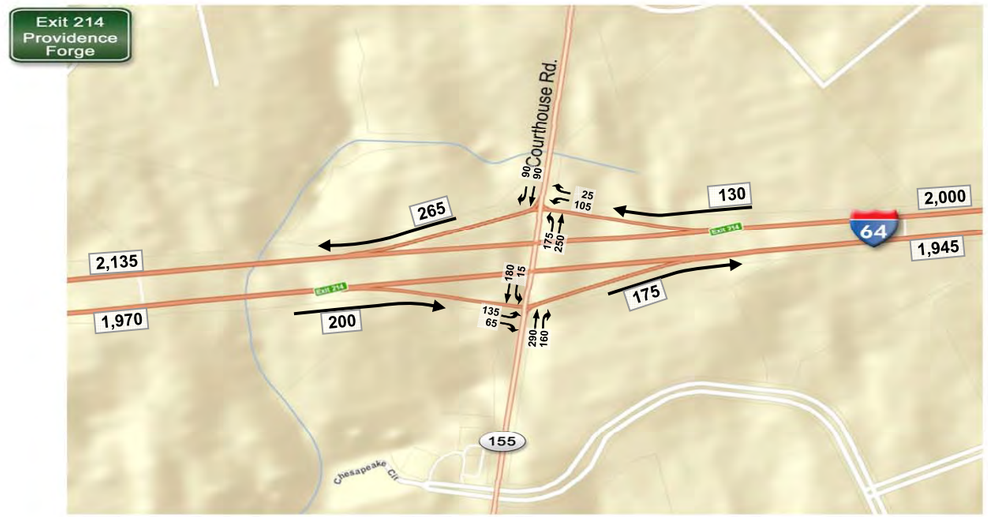
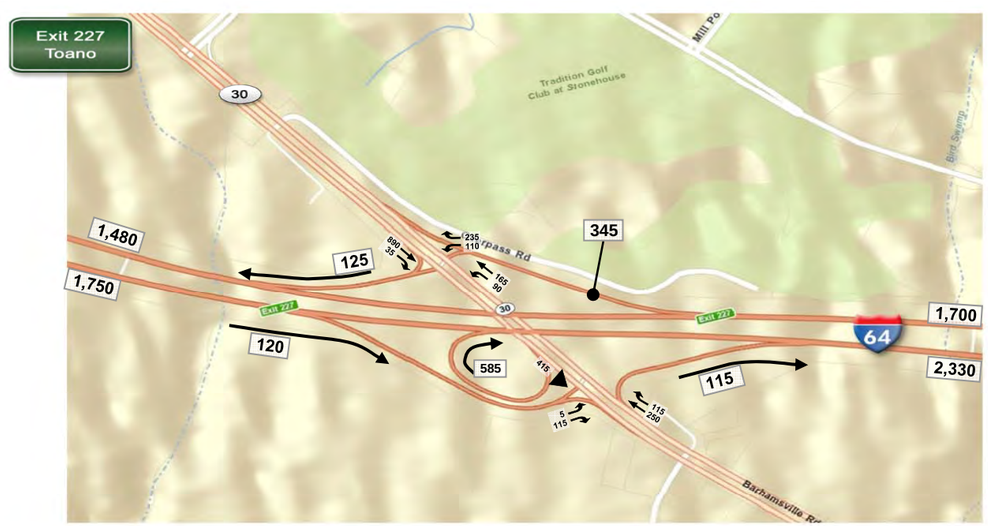
DRAFT

Updated 4/24/12







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I-64 PENINSULA STUDY
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FIGURE X: AM Peak Hour Volumes
2020 No Build Volumes
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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE X: AM Peak Hour Volumes
2020 No Build Volumes
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DRAFT

Updated 4/24/12

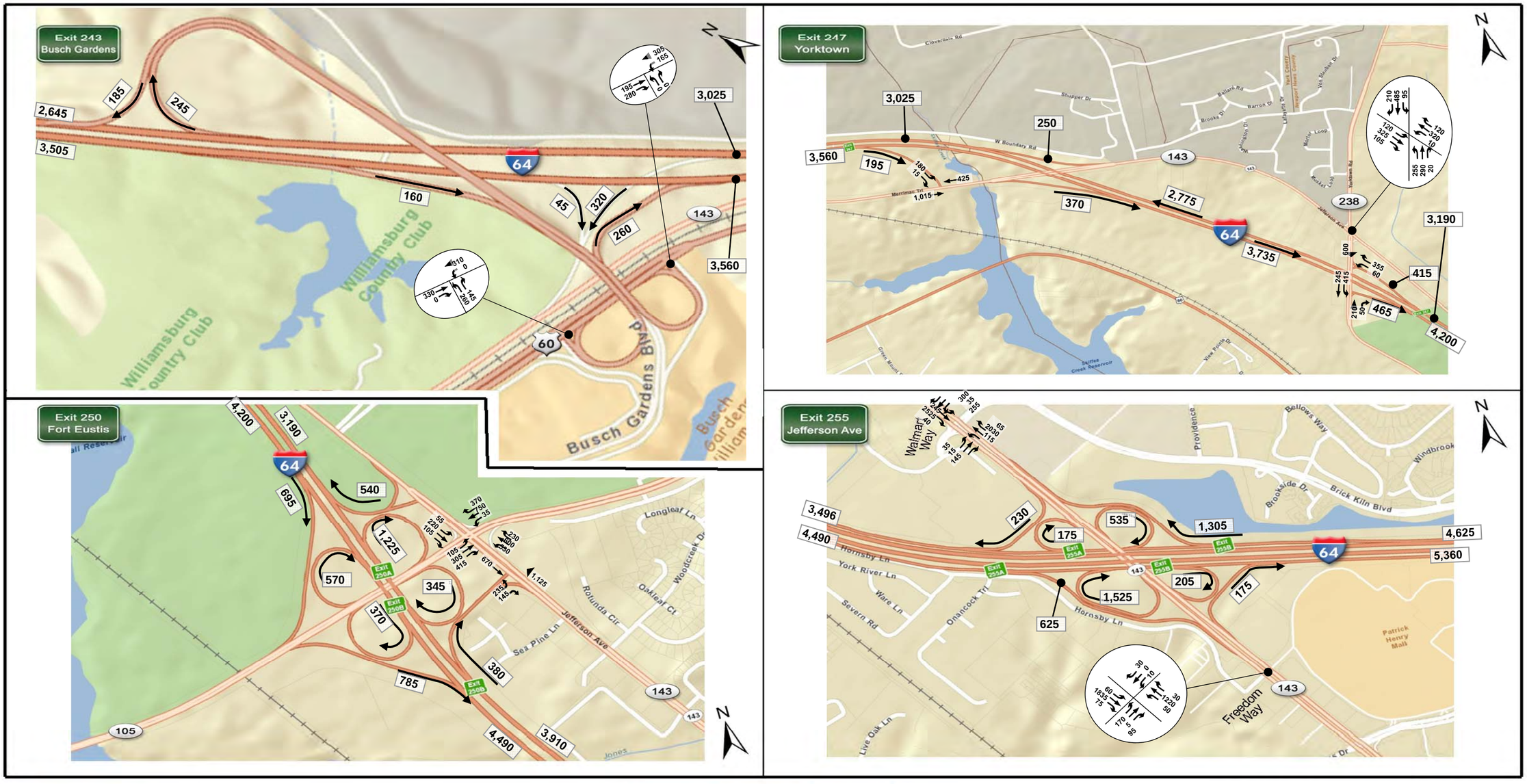
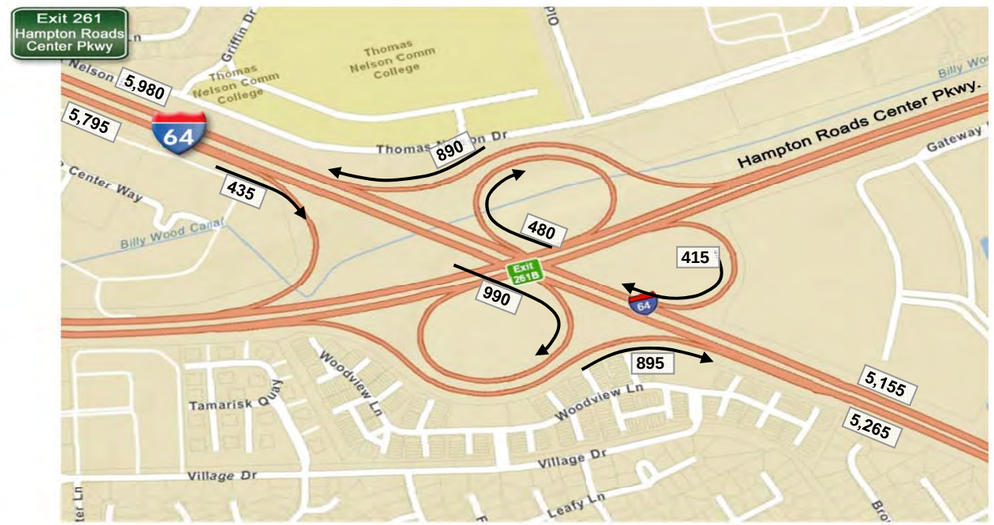


FIGURE X: AM Peak Hour Volumes
2020 No Build Volumes
Sheet 5 of 7

DRAFT

Updated 4/24/12



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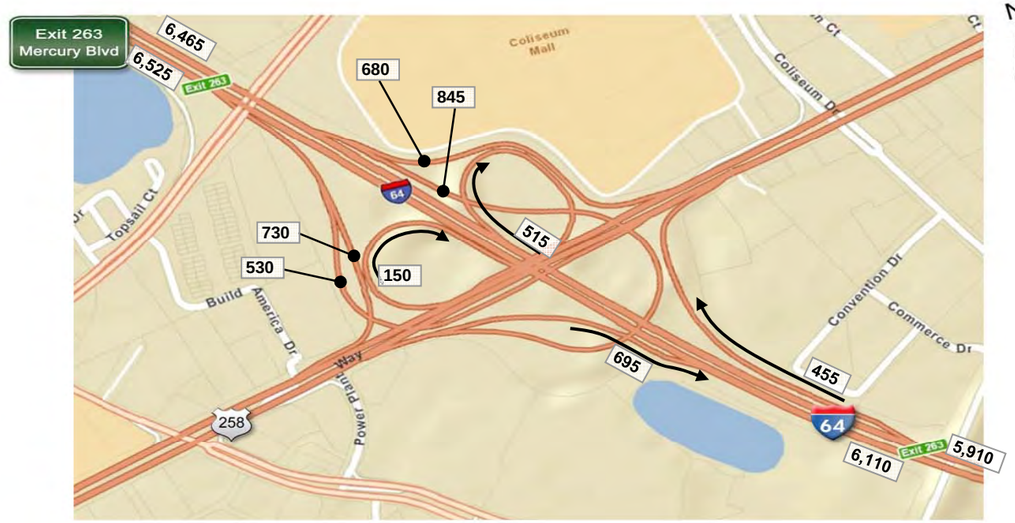
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE X: AM Peak Hour Volumes
2020 No Build Volumes
Sheet 6 of 7

DRAFT

Updated 4/24/12



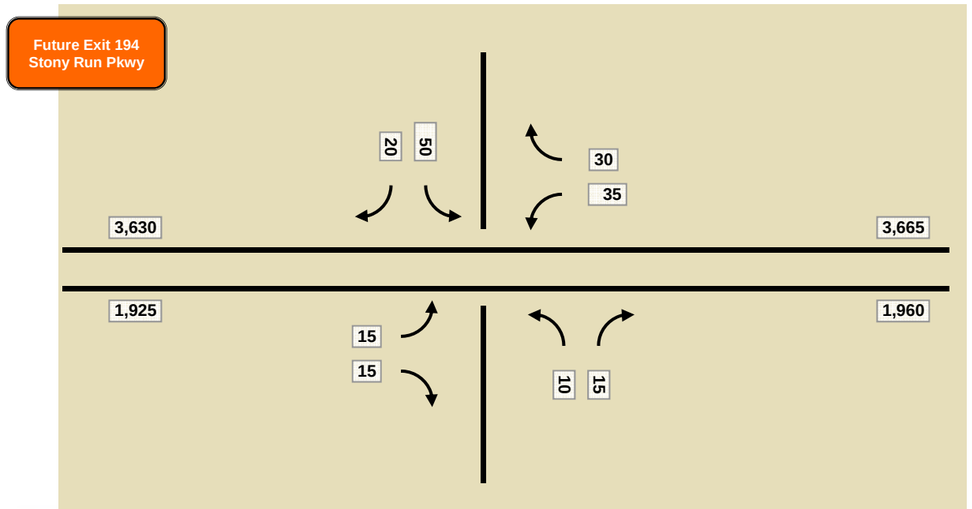


FIGURE X: AM Peak Hour Volumes
2020 No Build Volumes
Sheet 7 of 7

DRAFT

Updated 4/24/12

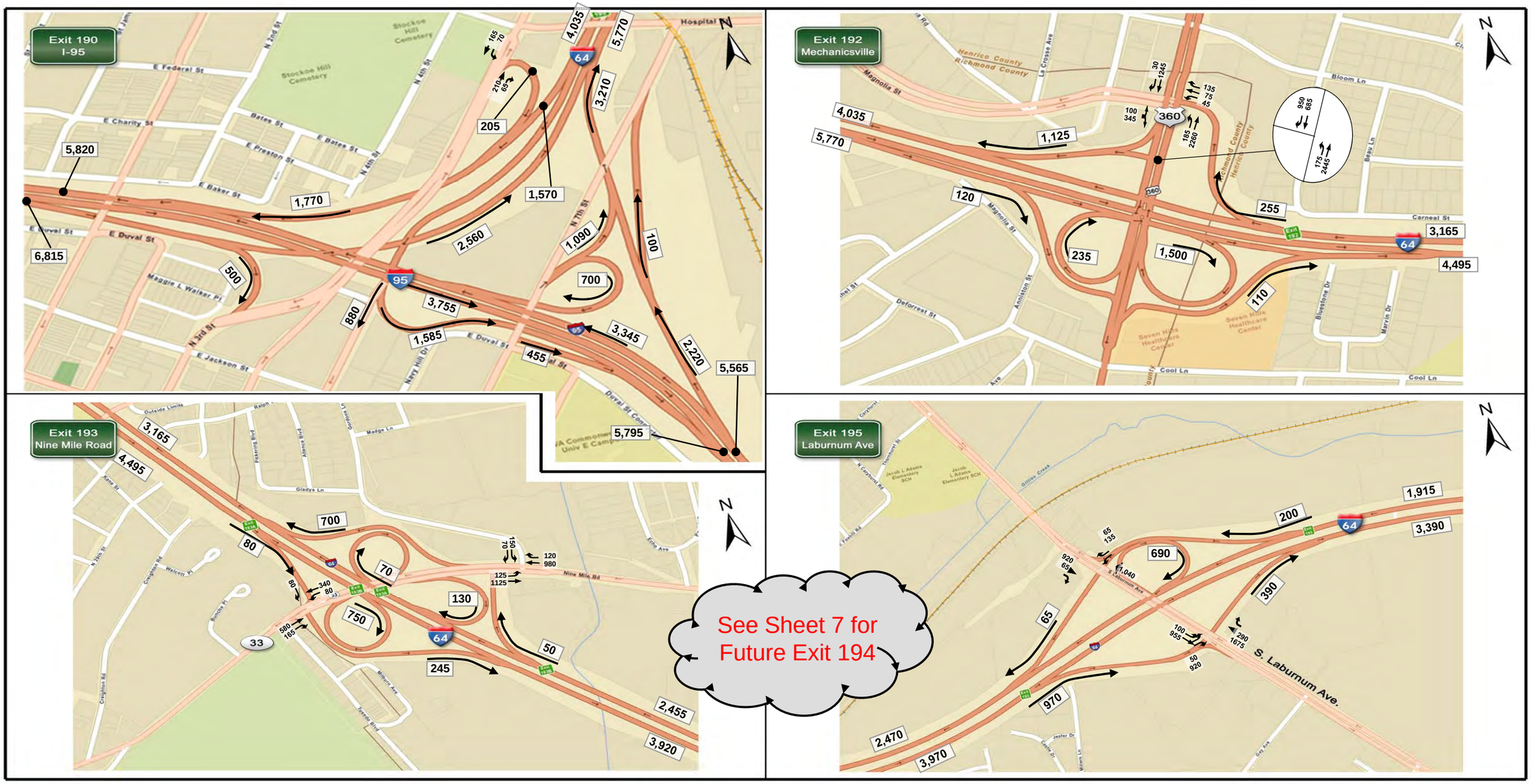
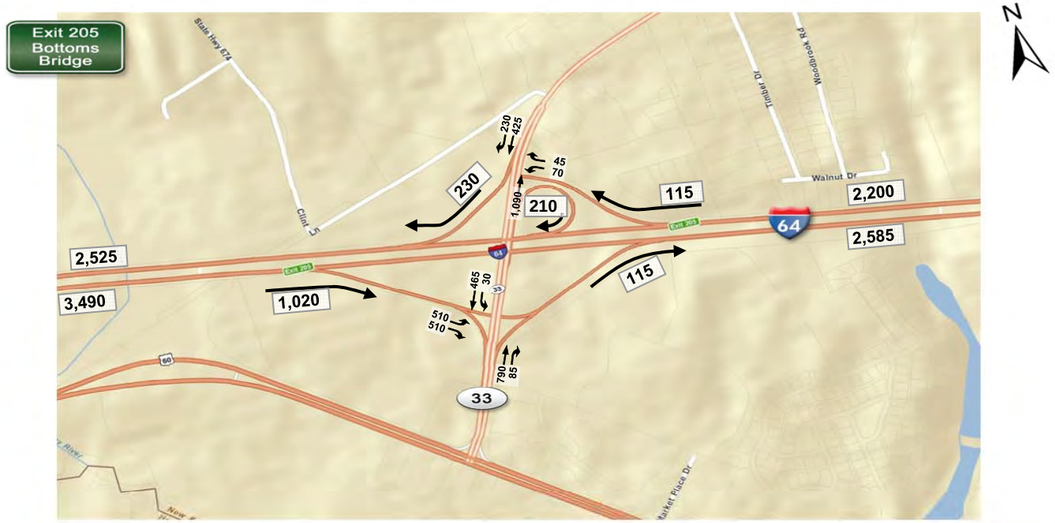


FIGURE Y: PM Peak Hour Volumes
2020 No Build Volumes
Sheet 1 of 7

DRAFT

Updated 4/24/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE Y: PM Peak Hour Volumes
2020 No Build Volumes
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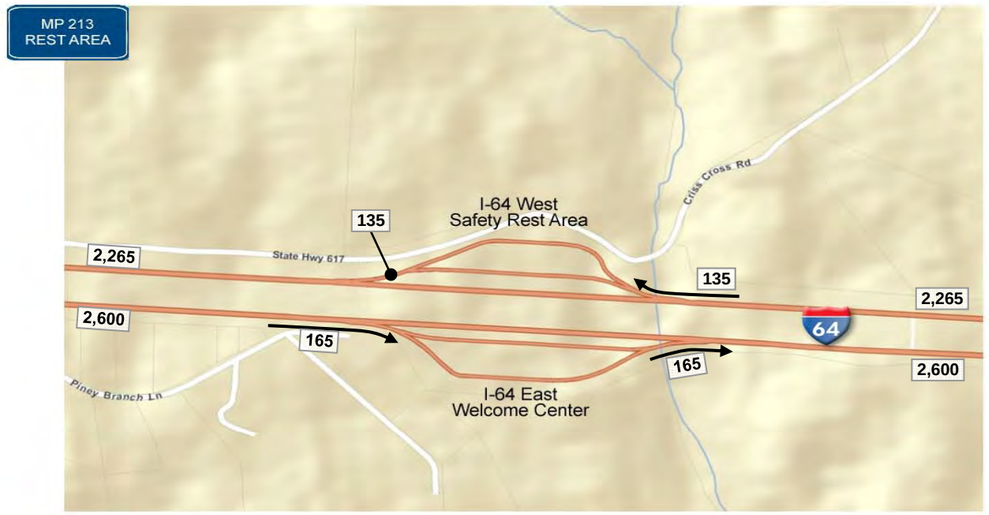
DRAFT

Updated 4/24/12



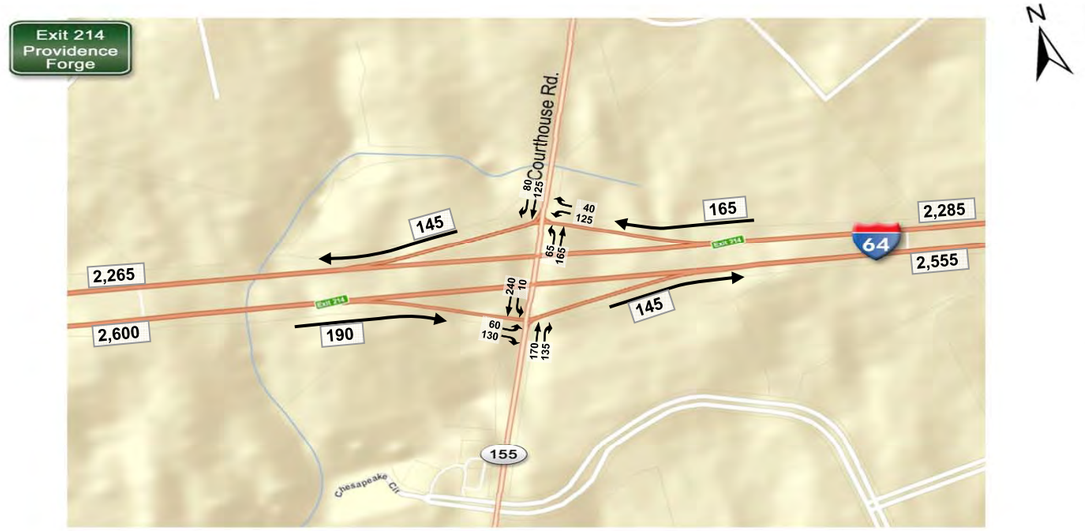
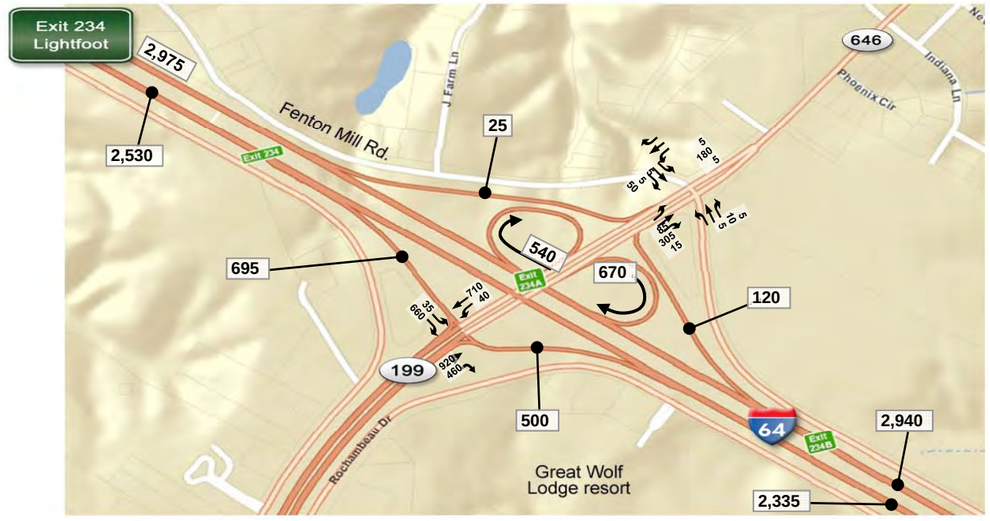


FIGURE Y: PM Peak Hour Volumes
2020 No Build Volumes
Sheet 3 of 7

DRAFT

Updated 4/24/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE Y: PM Peak Hour Volumes
2020 No Build Volumes
Sheet 4 of 7

DRAFT

Updated 4/24/12

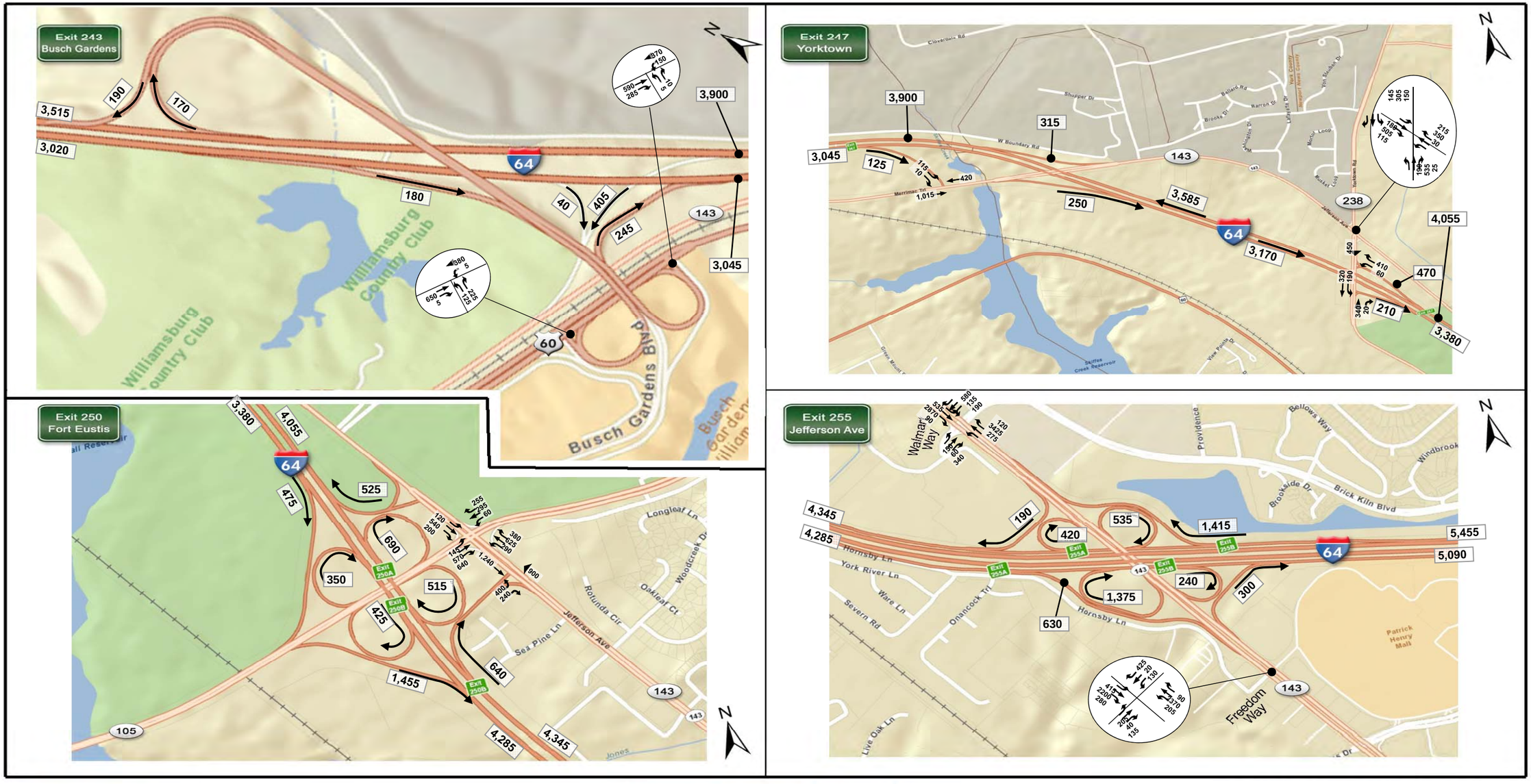
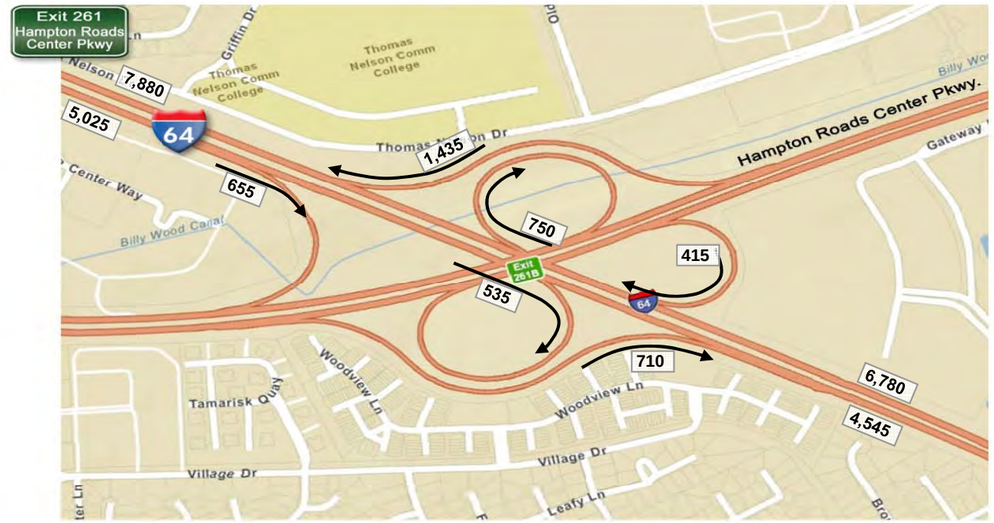


FIGURE Y: PM Peak Hour Volumes
2020 No Build Volumes
Sheet 5 of 7

DRAFT

Updated 4/24/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE Y: PM Peak Hour Volumes
2020 No Build Volumes
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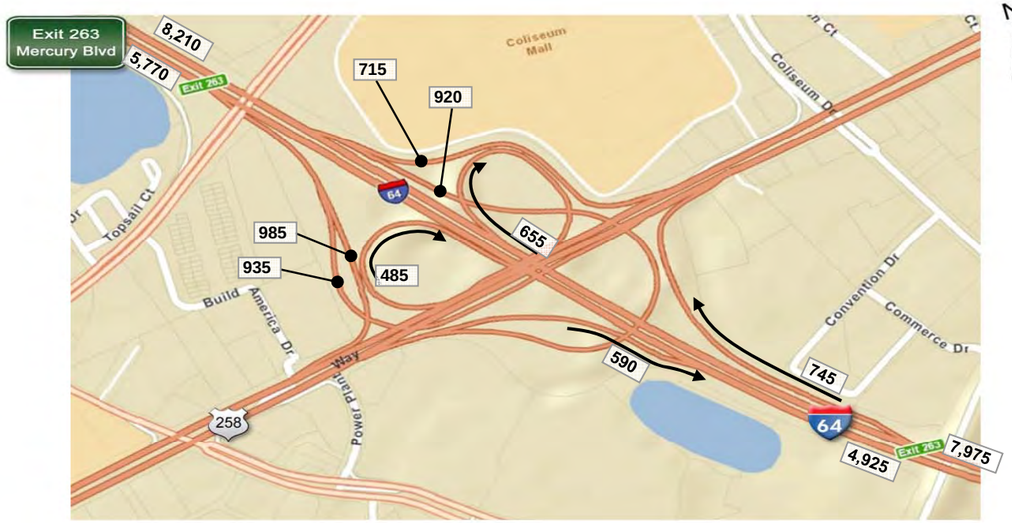
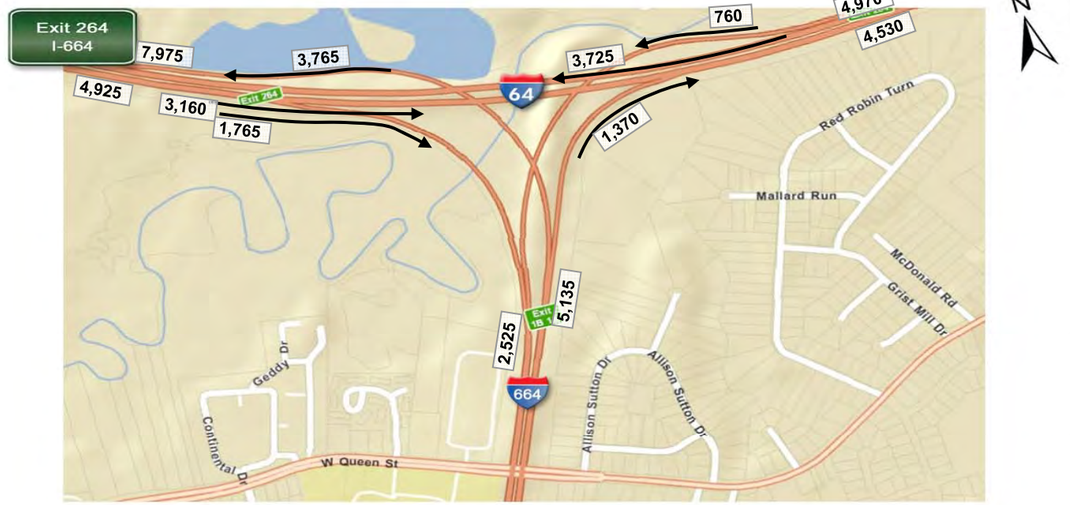
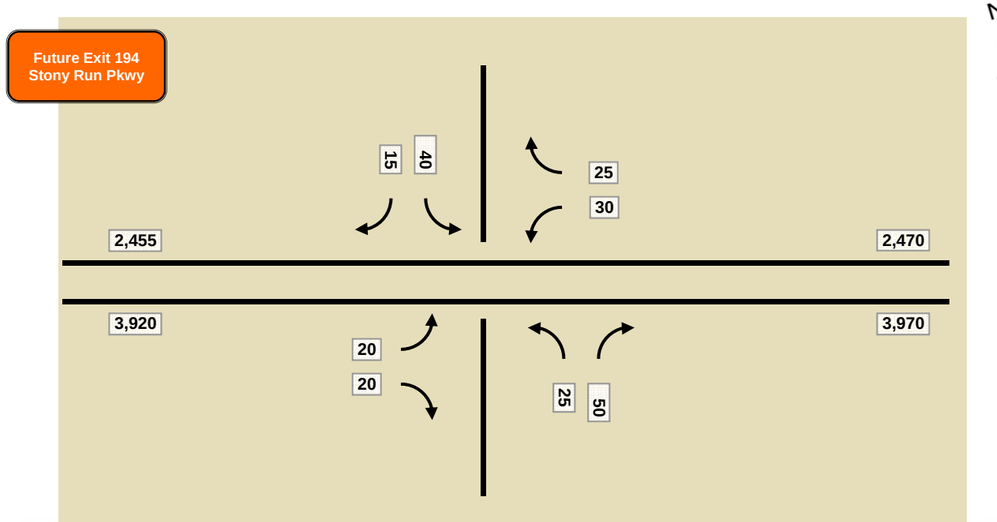
Updated 11/29/11







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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE Y: PM Peak Hour Volumes
2020 No Build Balanced Volumes
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Updated 4/24/12

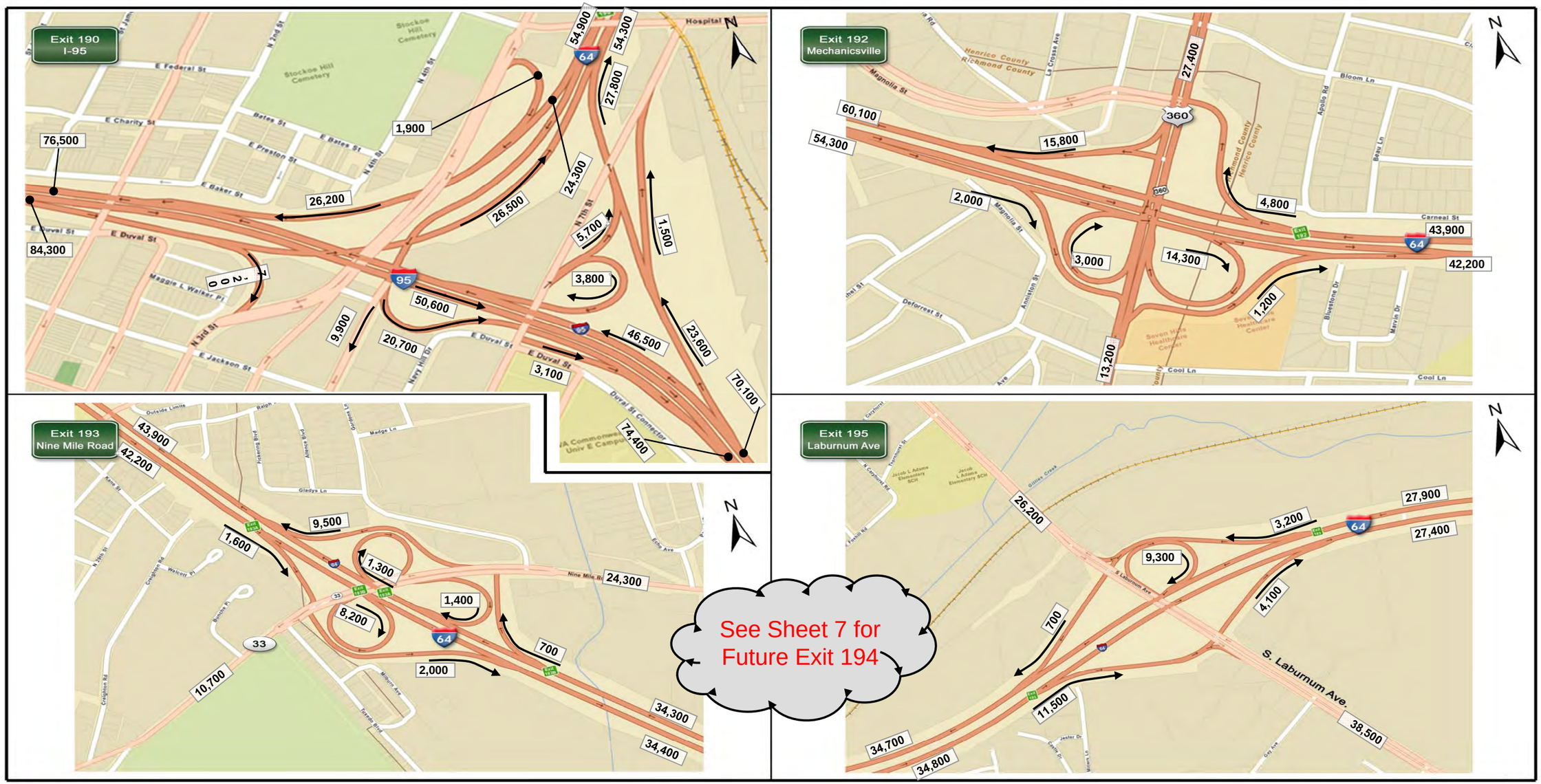

FIGURE Z: ADT Volumes
No Build 2020 Balanced Volumes
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DRAFT

Updated 4/24/12

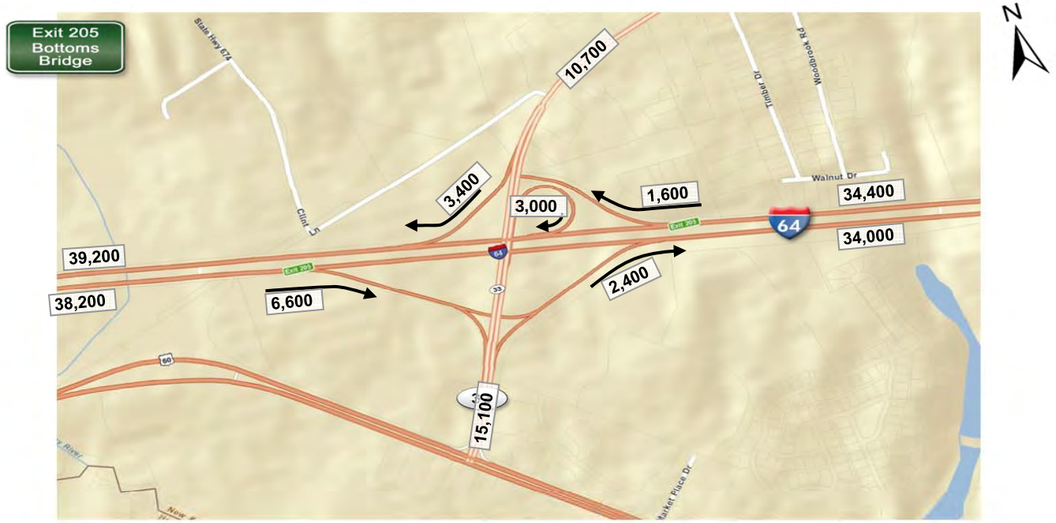
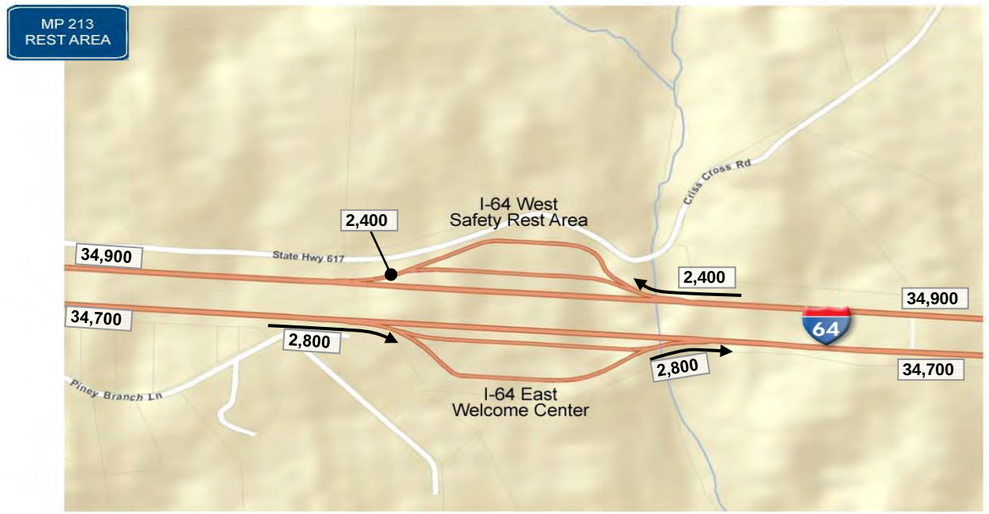
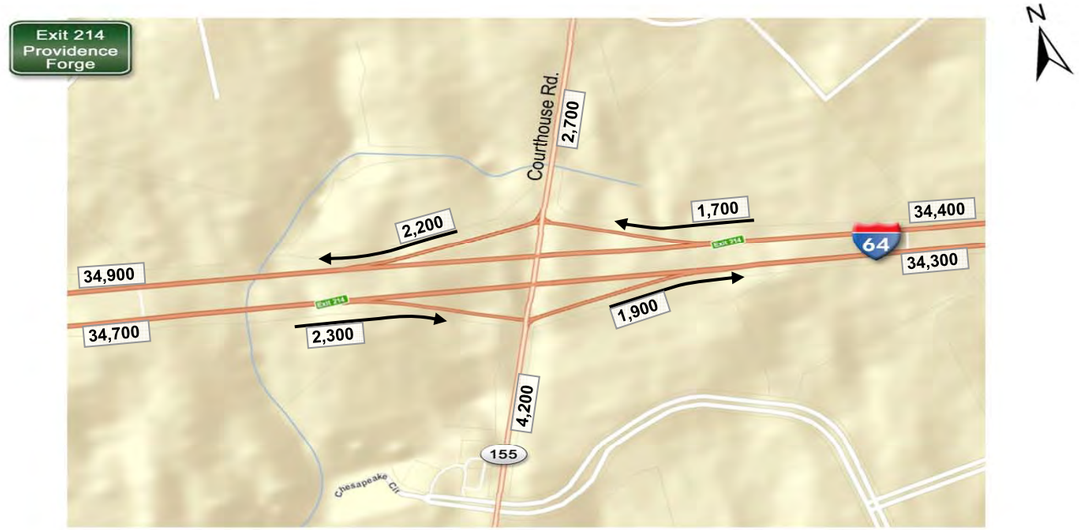


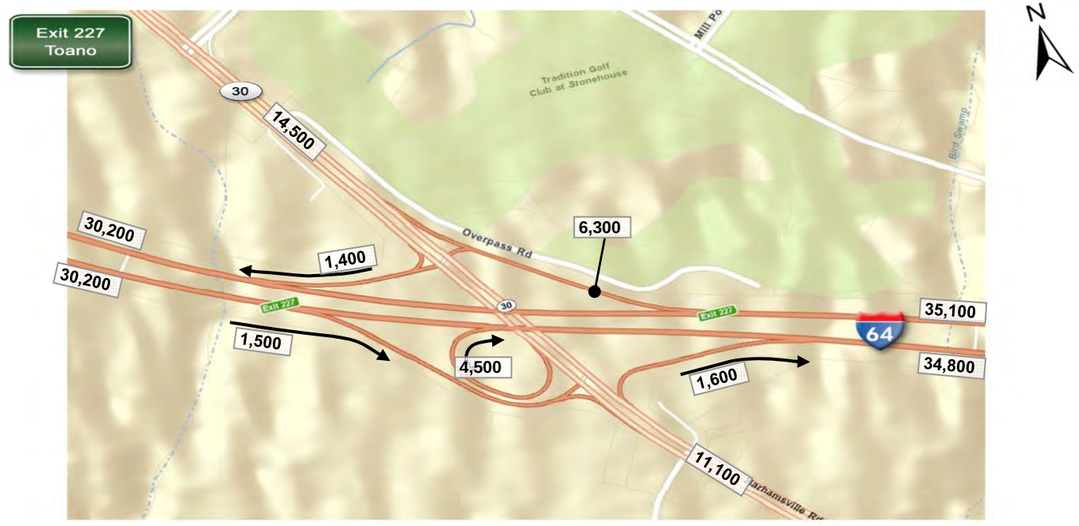
FIGURE Z: ADT Volumes
No Build 2020 Balanced Volumes
Sheet 2 of 7

DRAFT

Updated 4/24/12







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ENVIRONMENTAL IMPACT STATEMENT

FIGURE Z: ADT Volumes
No Build 2020 Balanced Volumes
Sheet 3 of 7

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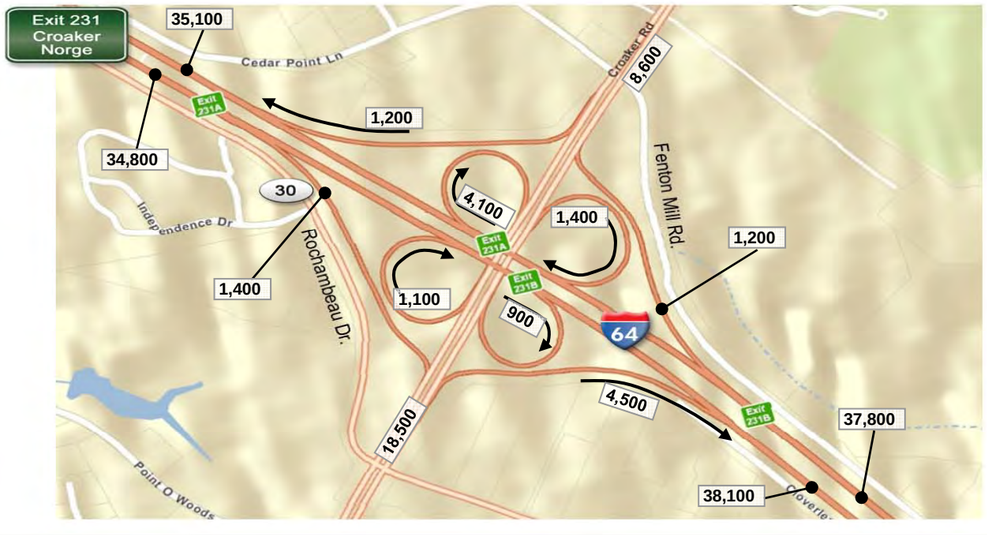

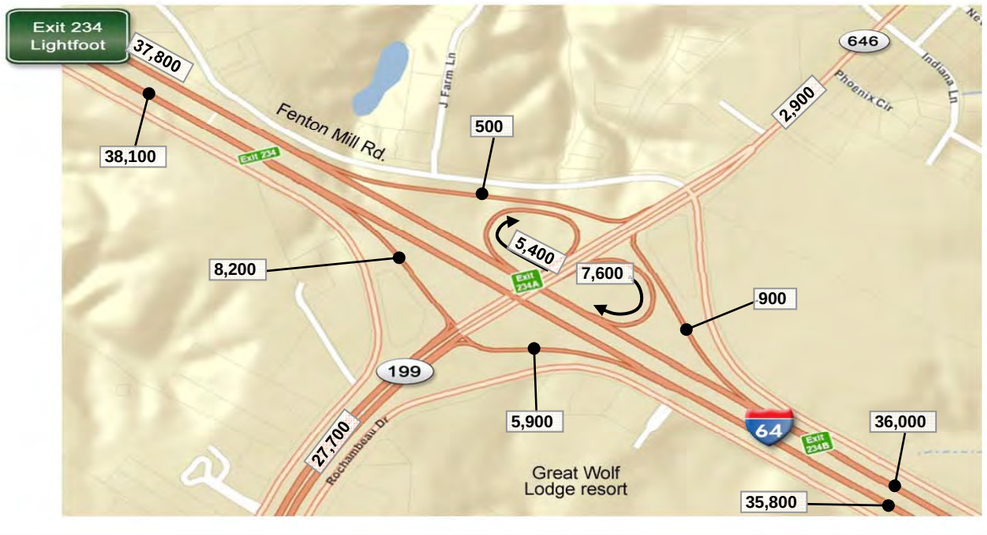

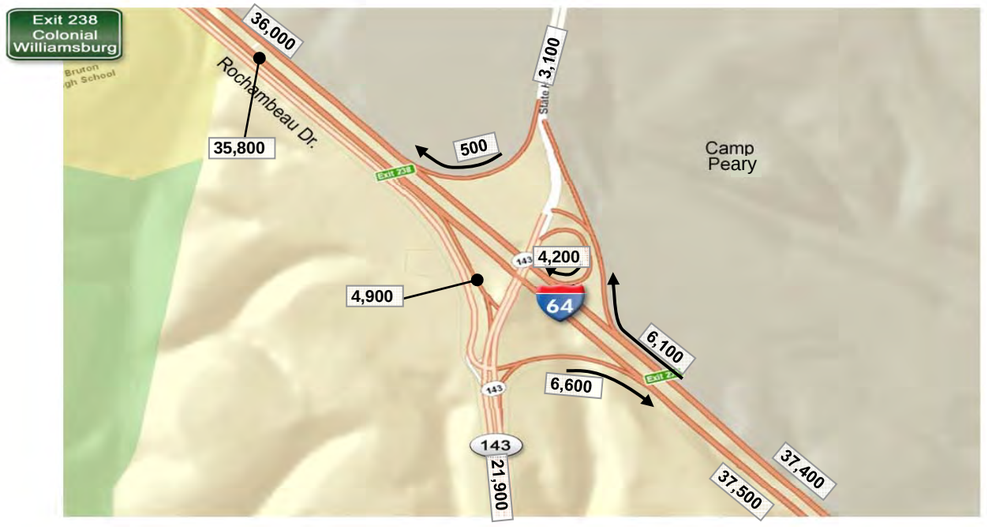

FIGURE Z: ADT Volumes
No Build 2020 Balanced Volumes
Sheet 4 of 7

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Updated 4/24/12

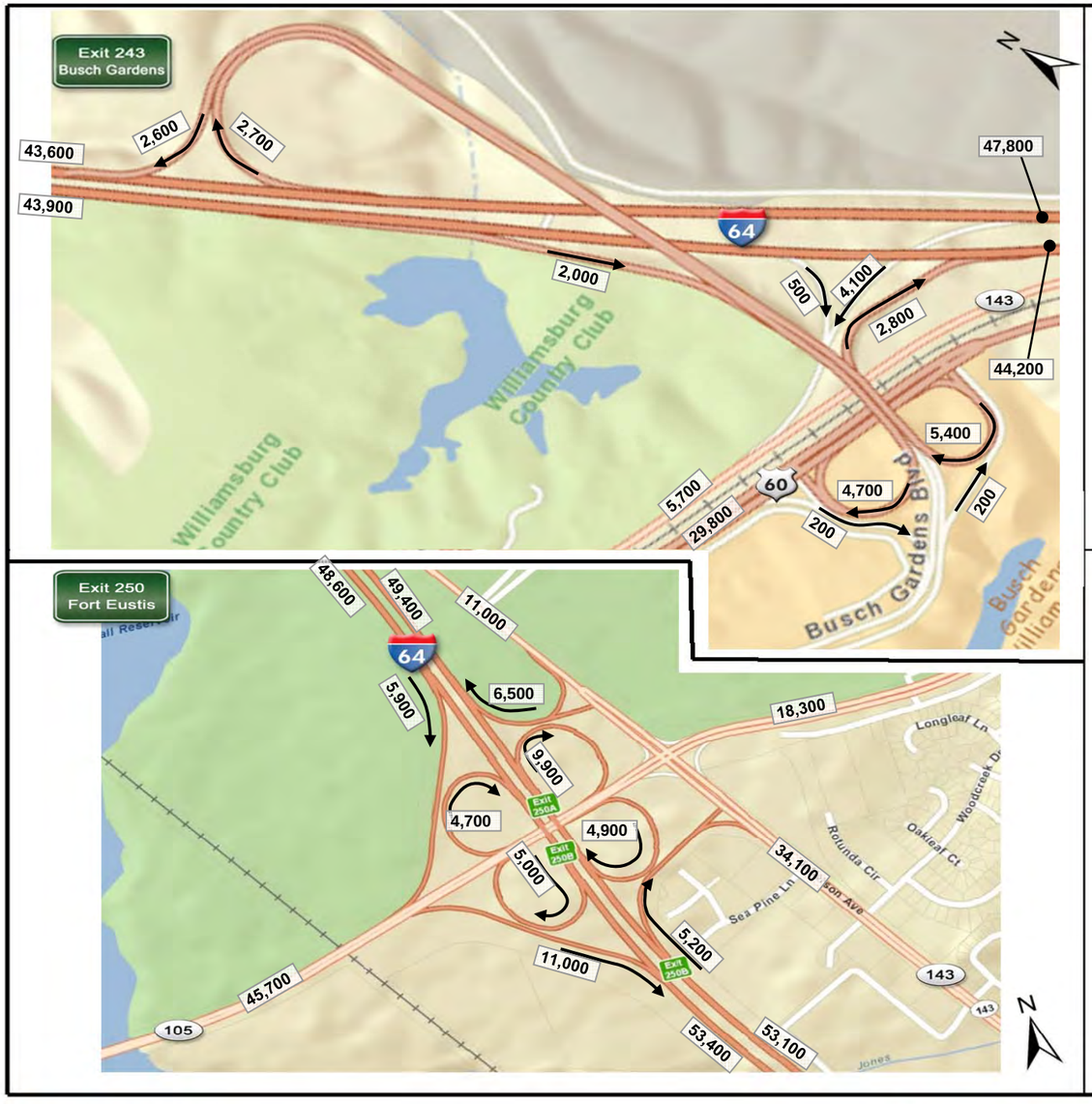

FIGURE Z: ADT Volumes
No Build 2020 Balanced Volumes
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DRAFT

Updated 4/24/12

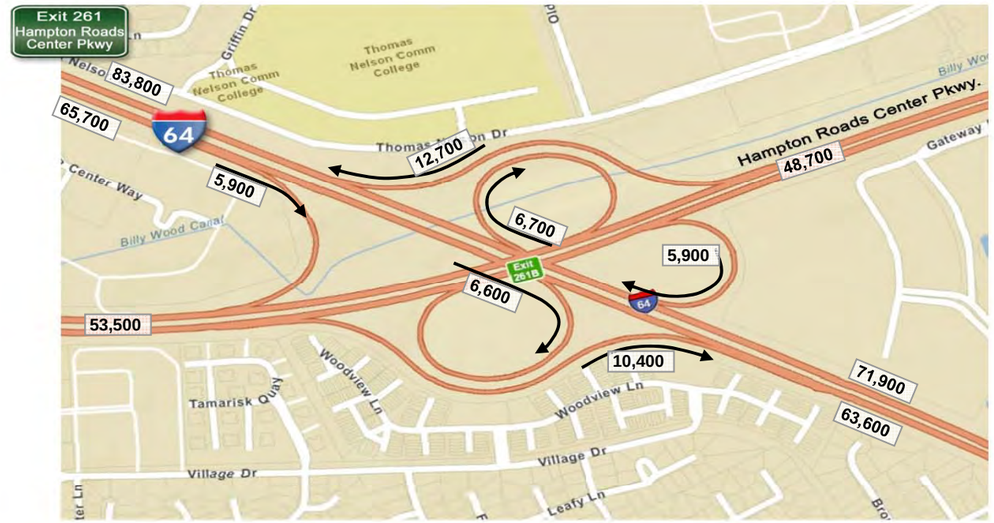

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FIGURE Z: ADT Volumes
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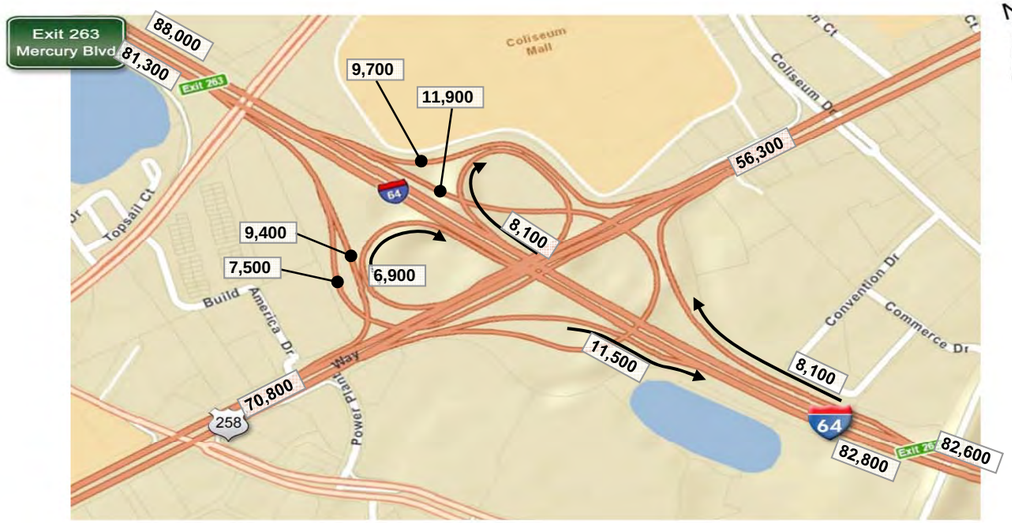

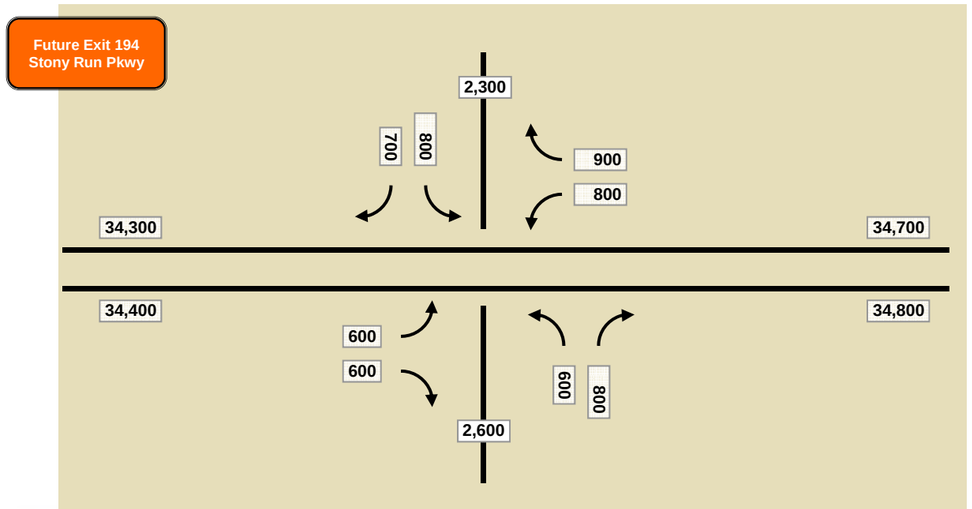

FIGURE Z: ADT Volumes

No Build 2020 Balanced Volumes

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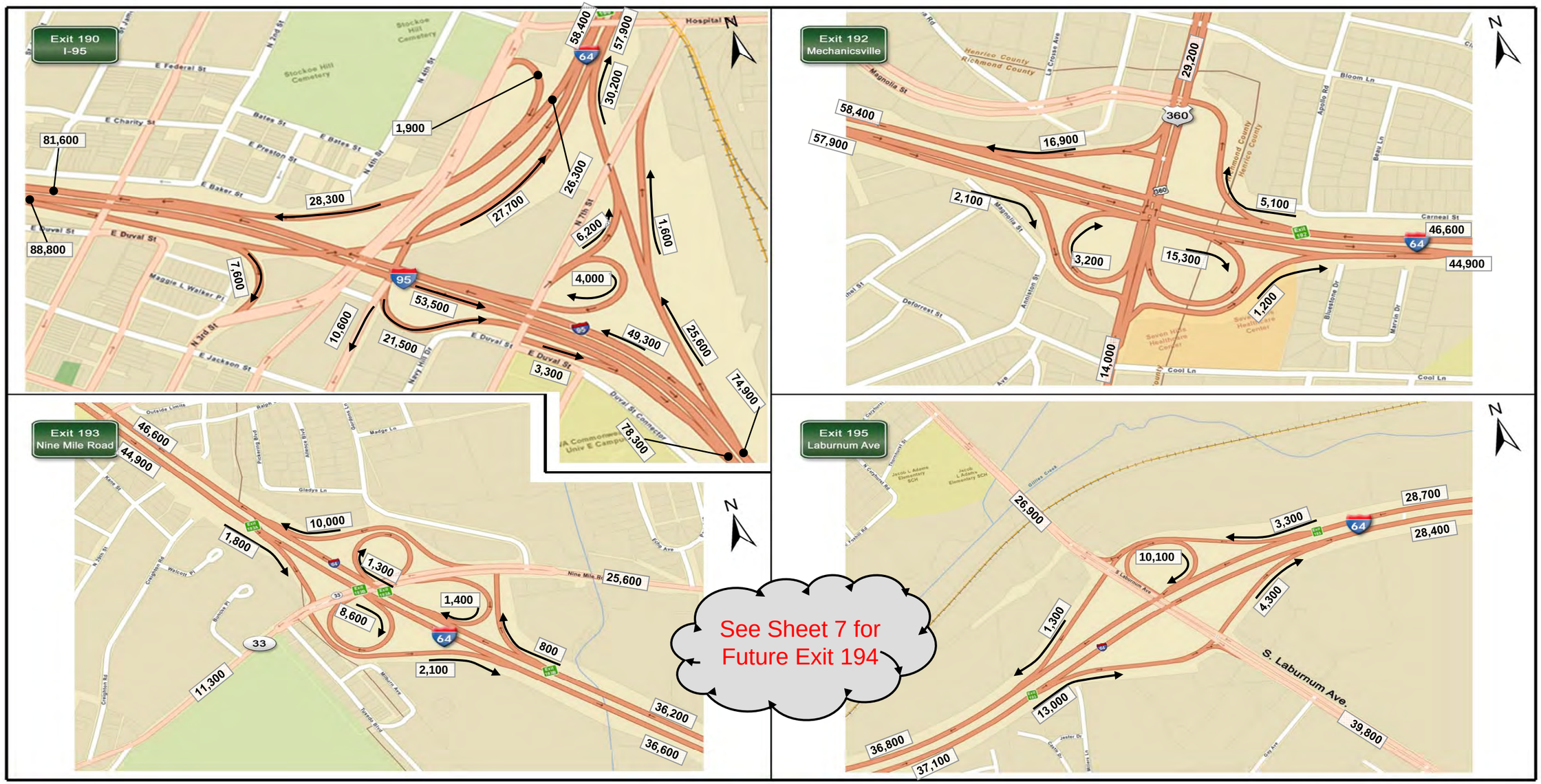

FIGURE 3: ADT Volumes

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FIGURE 3: ADT Volumes
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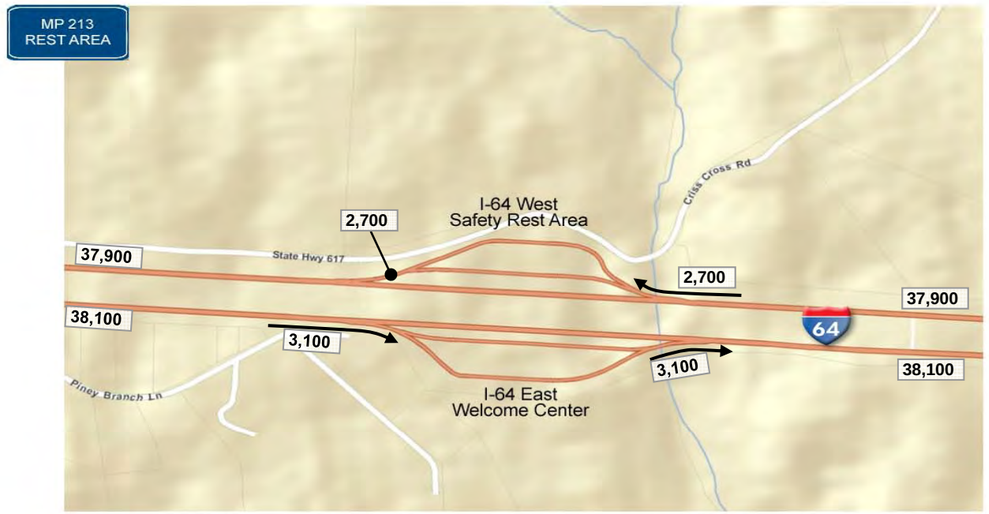

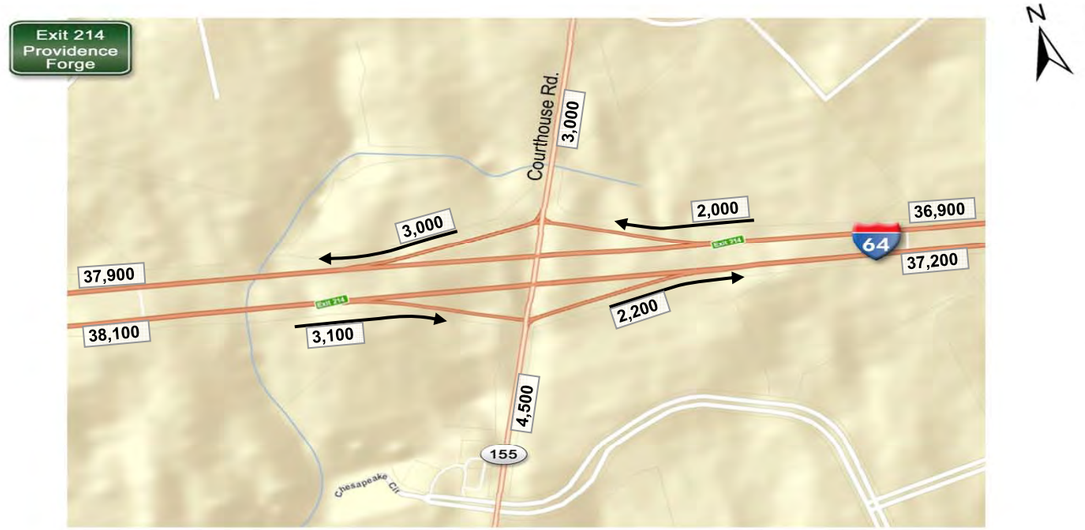

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FIGURE 3: ADT Volumes
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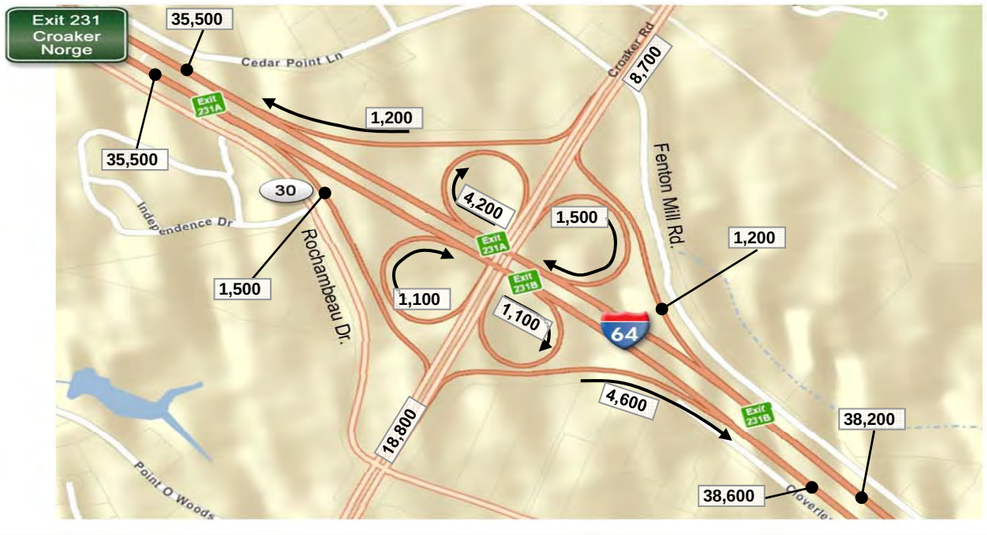

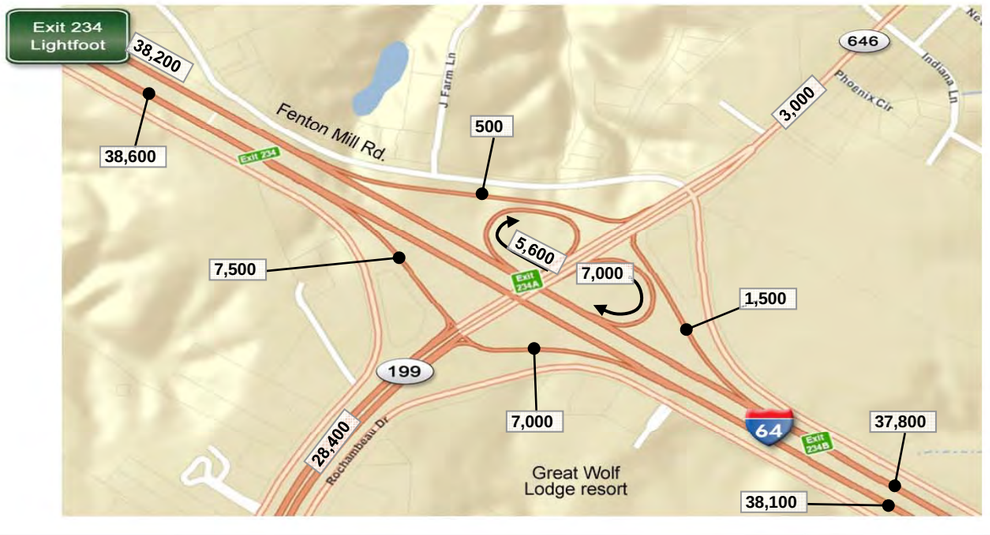

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FIGURE 3: ADT Volumes
2020 Build Alt A Balanced Volumes
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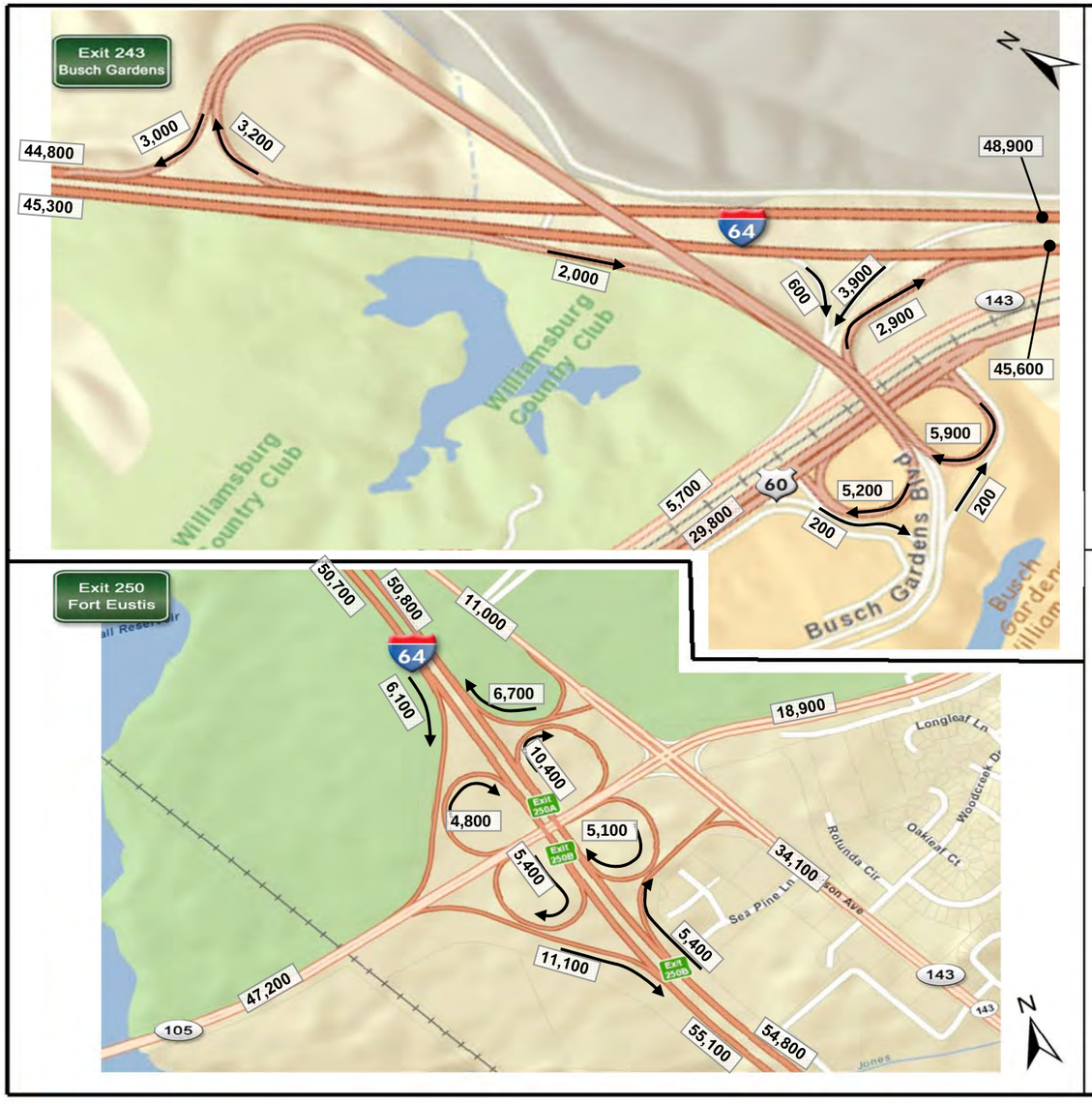

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FIGURE 3: ADT Volumes
2020 Build Alt A Balanced Volumes
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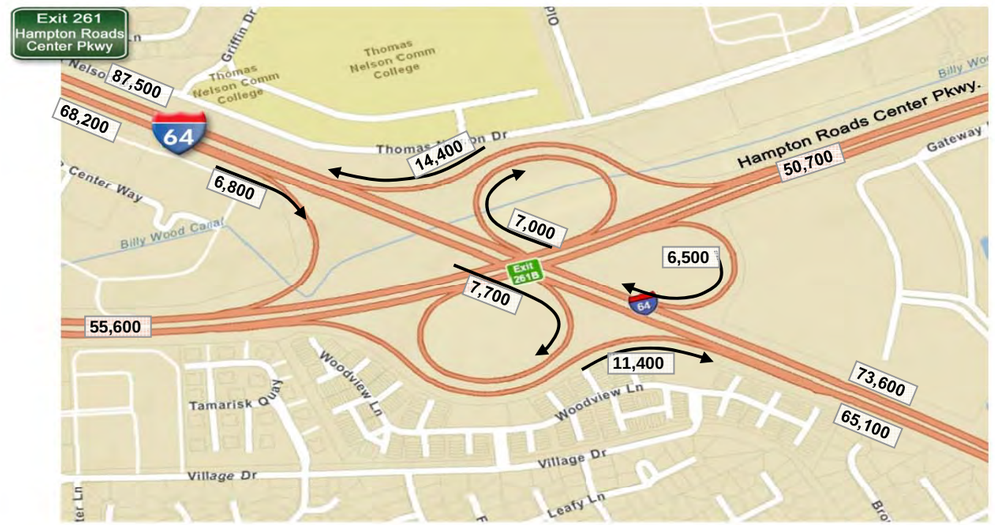

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FIGURE 3: ADT Volumes
2020 Build Alt A Balanced Volumes

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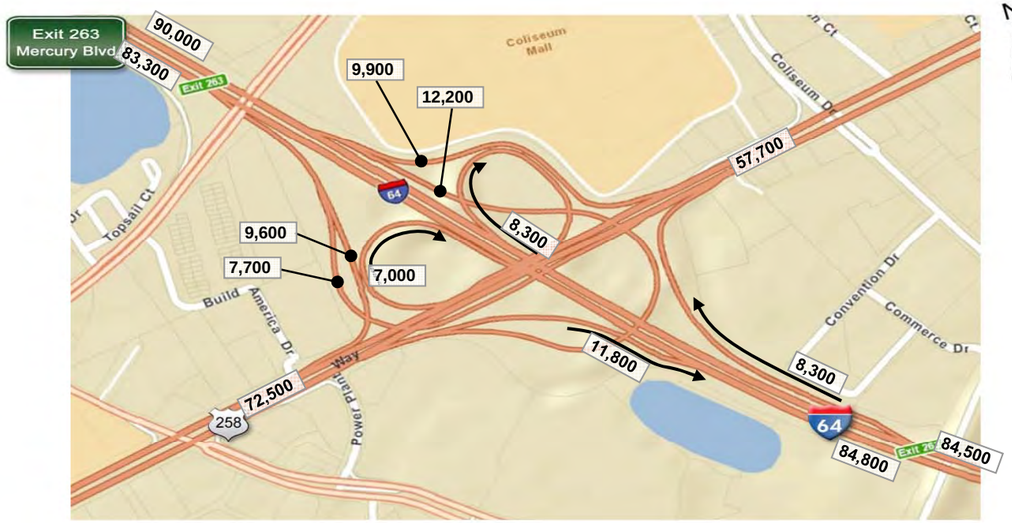

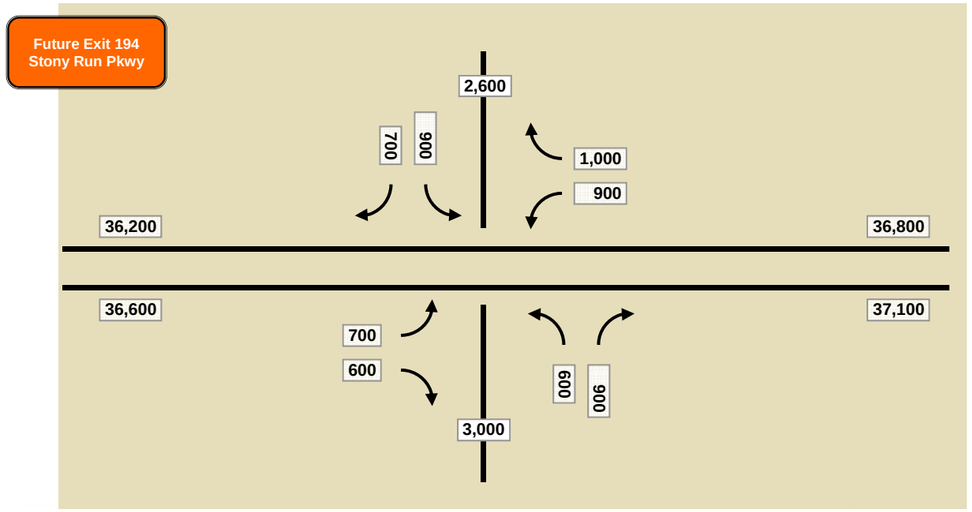

FIGURE 3: ADT Volumes

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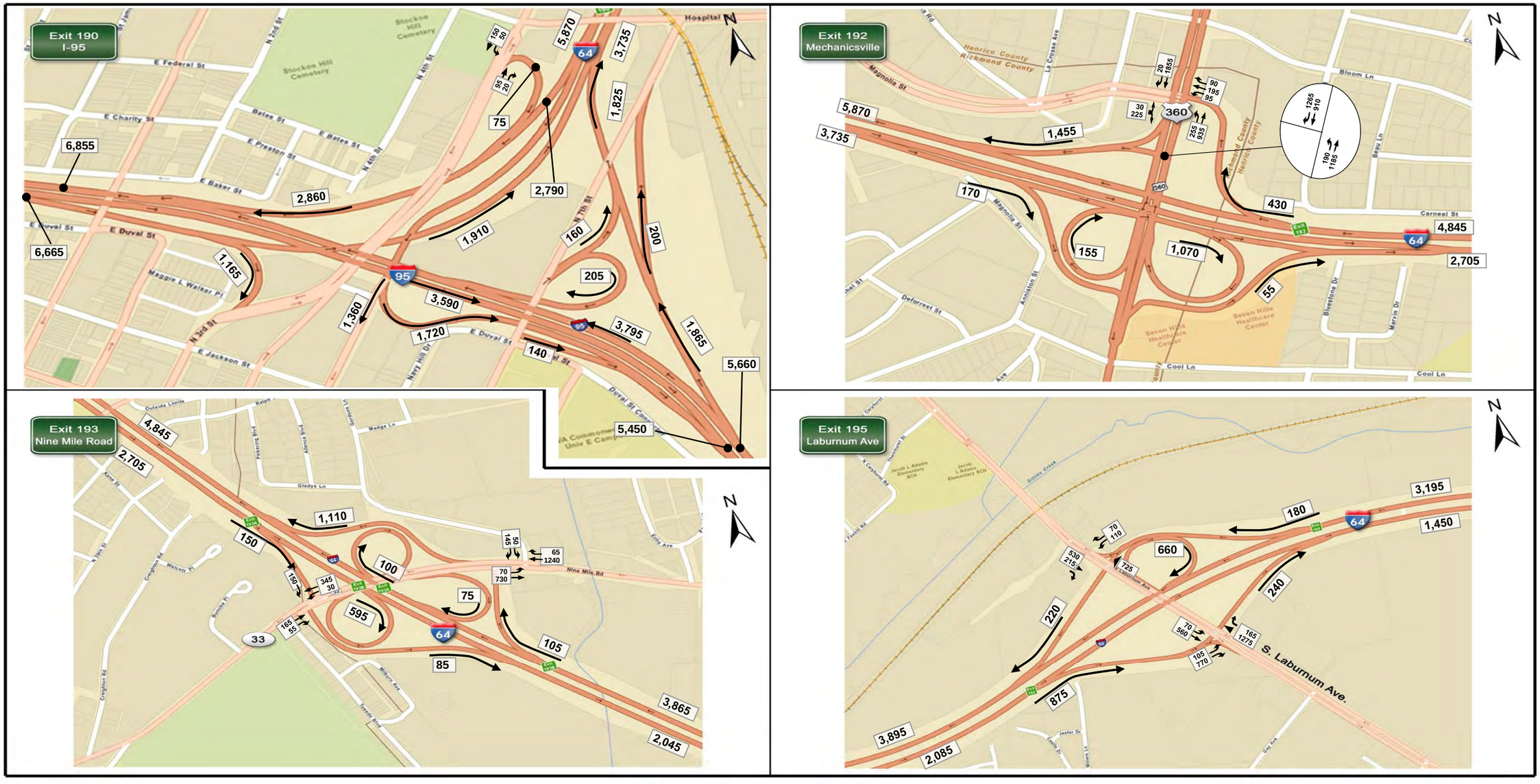

FIGURE 1: AM Peak Hour Volumes
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FIGURE 1: AM Peak Hour Volumes
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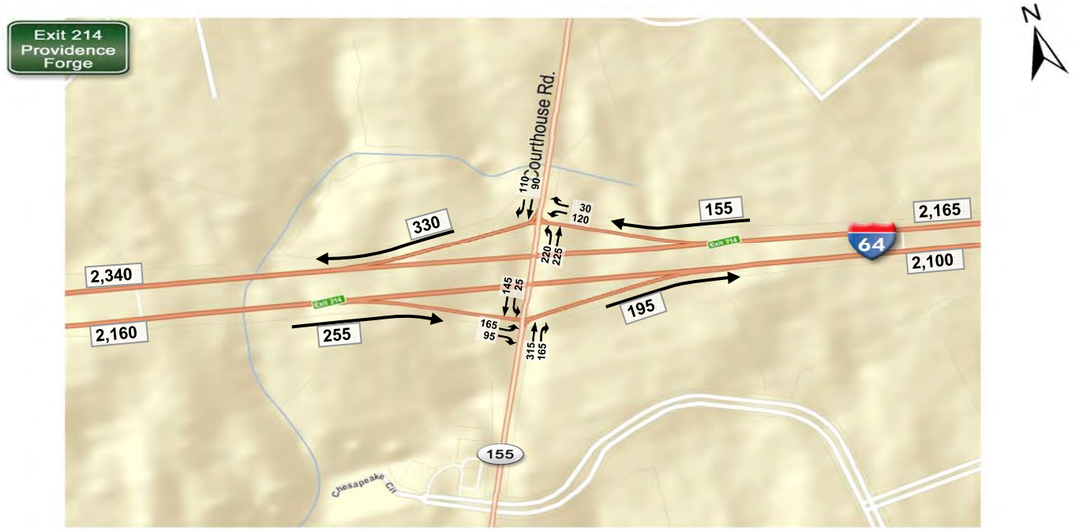

FIGURE 1: AM Peak Hour Volumes
2020 Alt A Balanced Volumes
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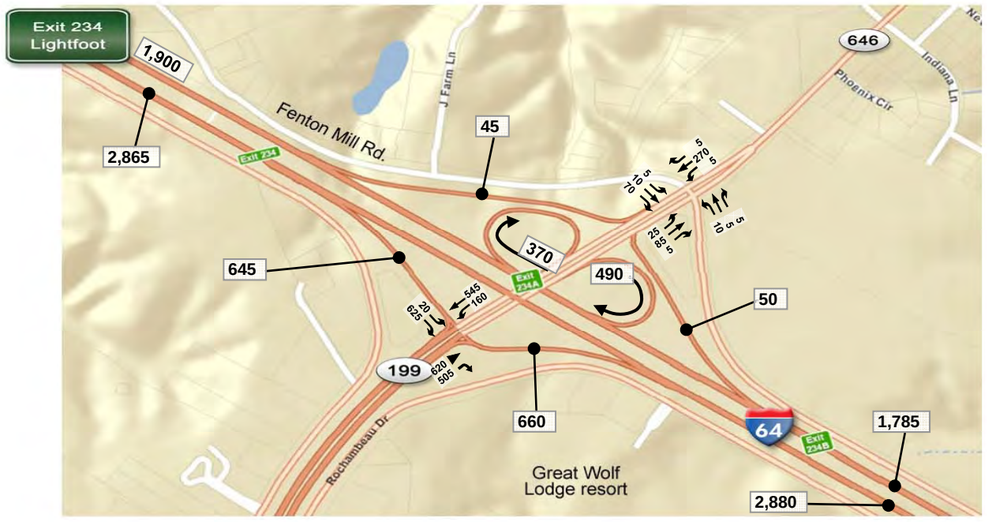

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FIGURE 1: AM Peak Hour Volumes
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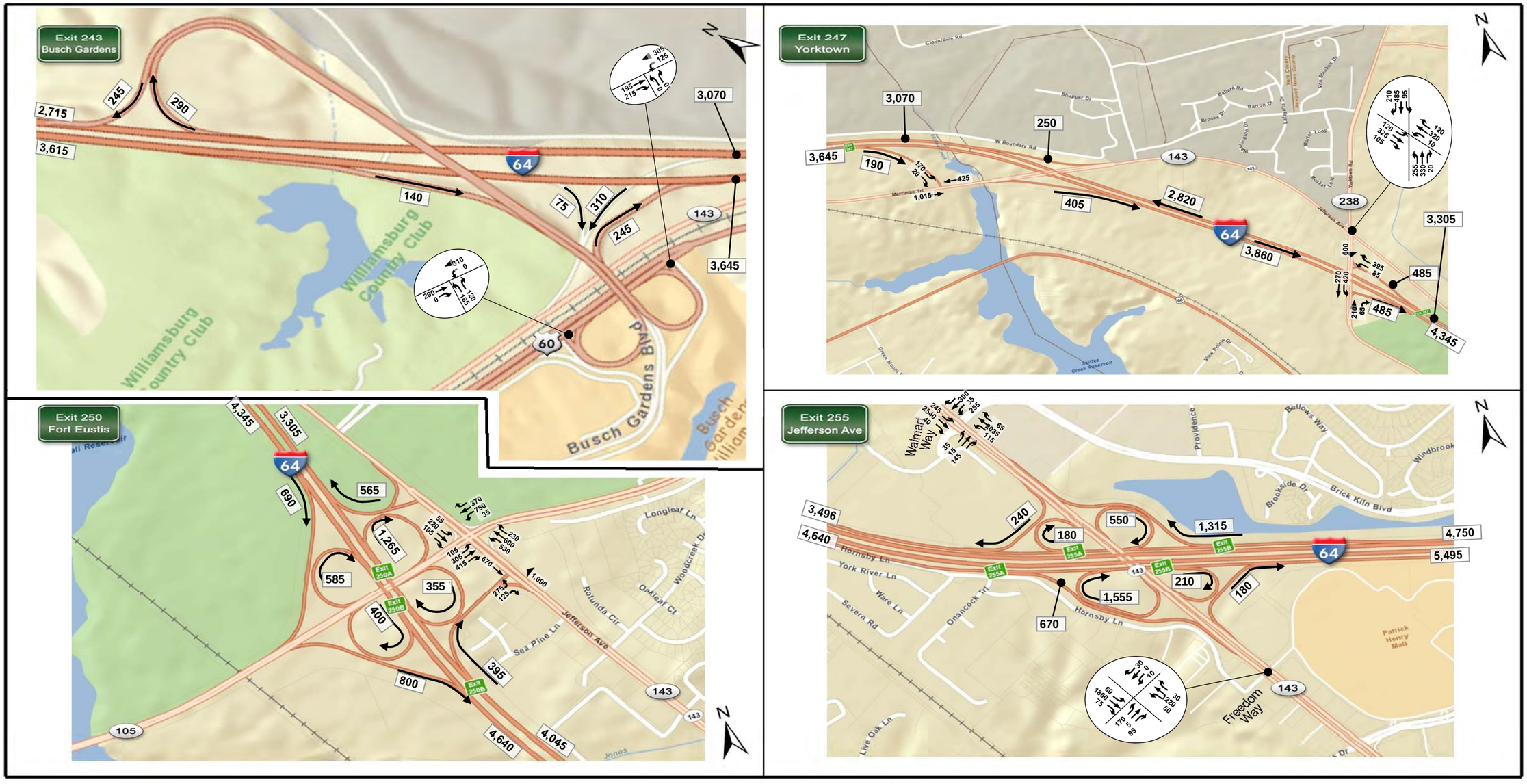

FIGURE 1: AM Peak Hour Volumes
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FIGURE 1: AM Peak Hour Volumes
2020 Alt A Balanced Volumes

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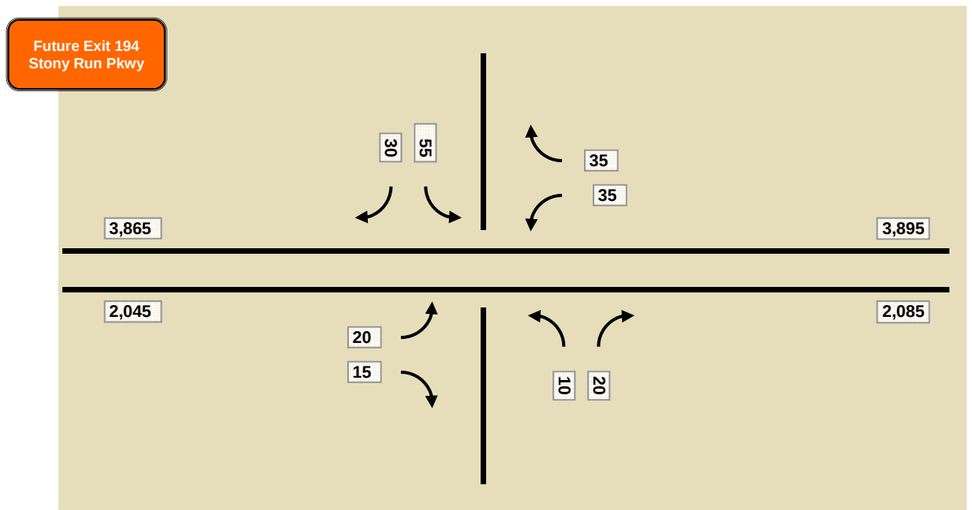

FIGURE 1: AM Peak Hour Volumes
2020 Alt A Balanced Volumes
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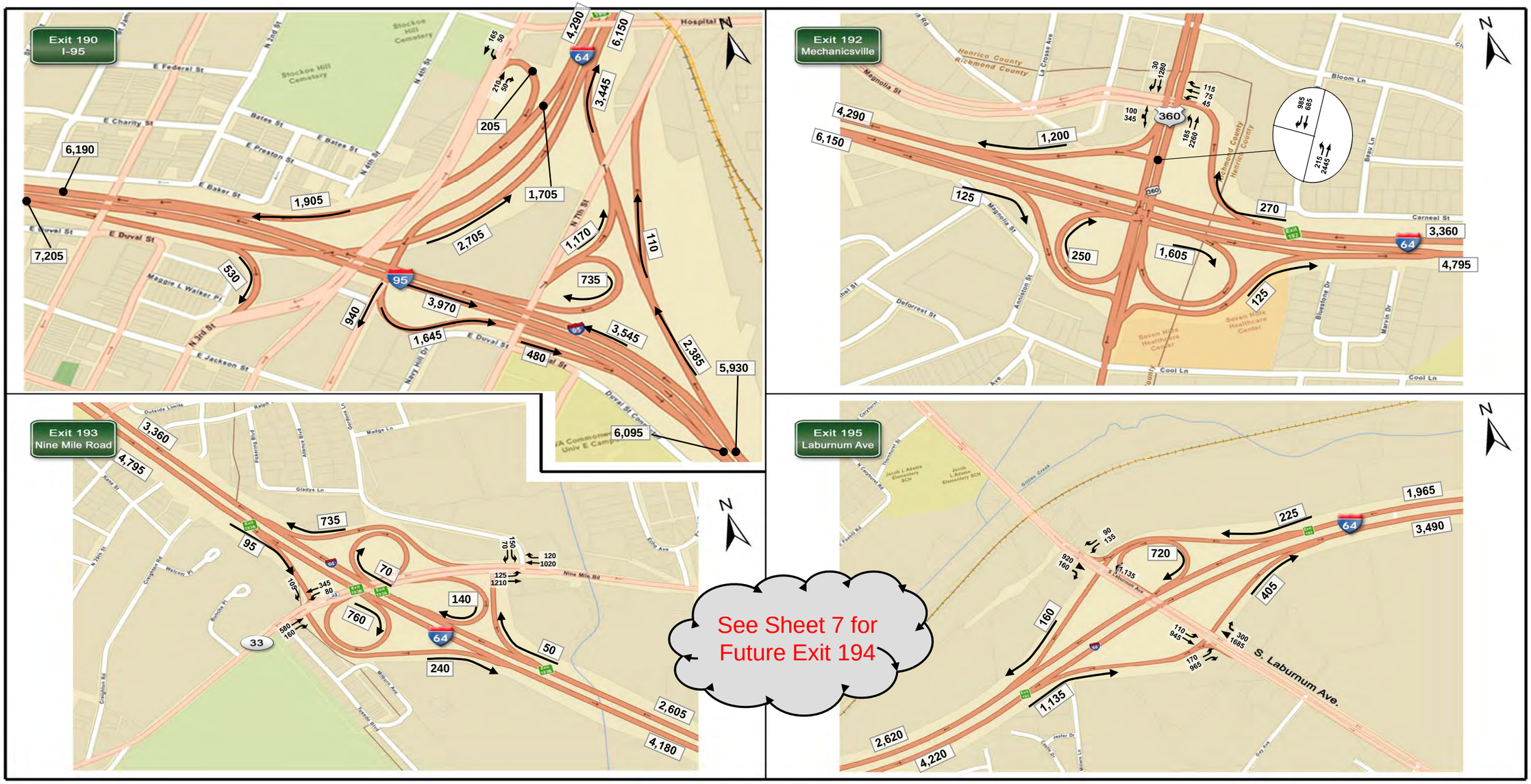

FIGURE 2: PM Peak Hour Volumes
2020 Alt A Balanced Volumes
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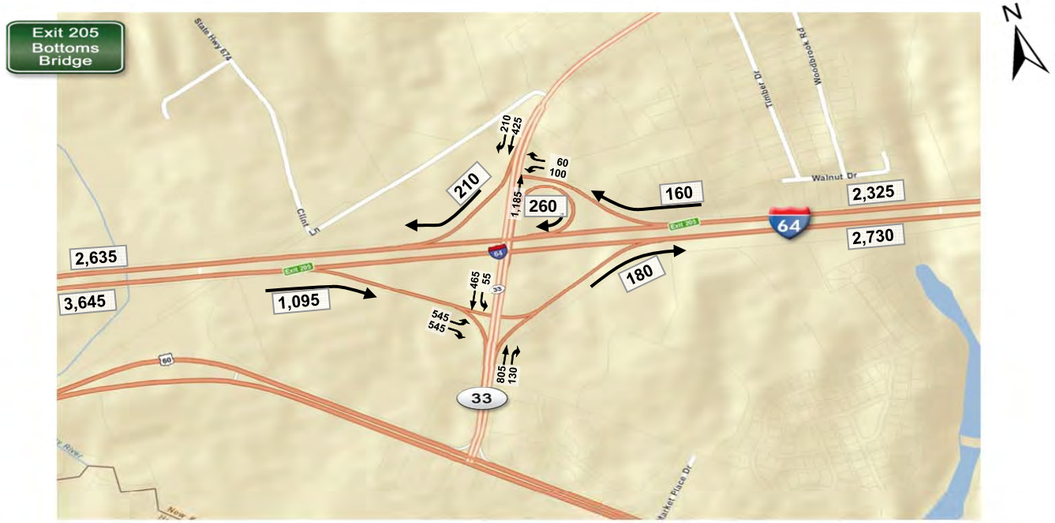

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FIGURE 2: PM Peak Hour Volumes
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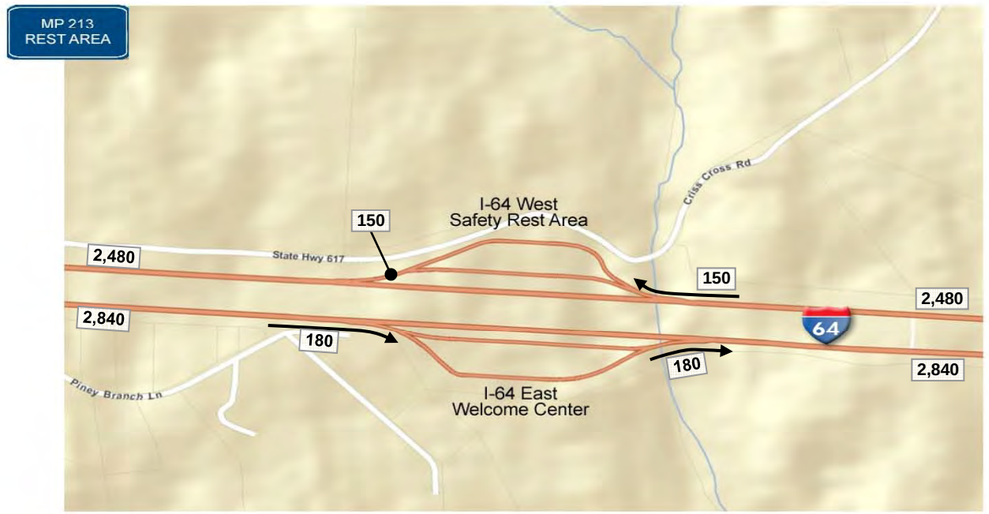

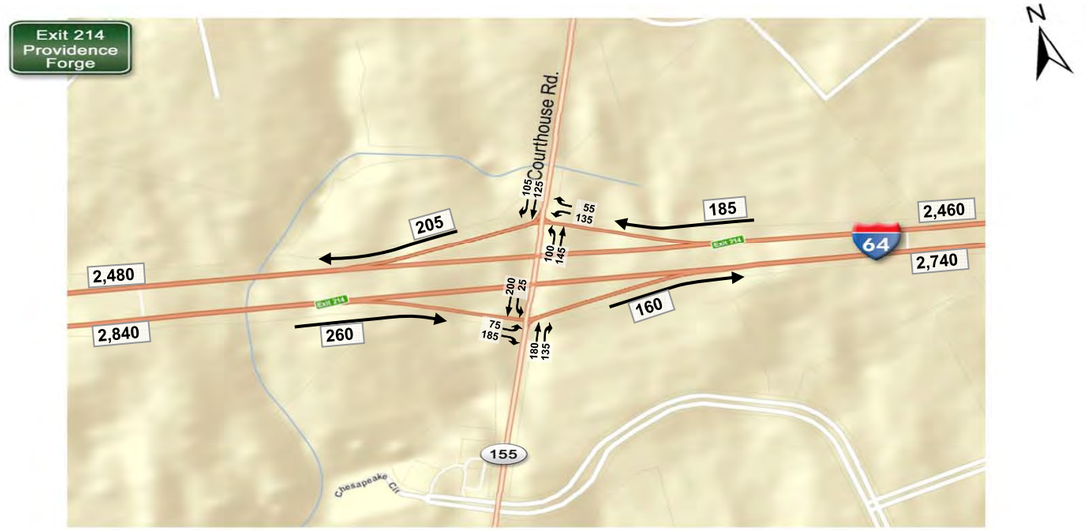

FIGURE 2: PM Peak Hour Volumes
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FIGURE 2: PM Peak Hour Volumes
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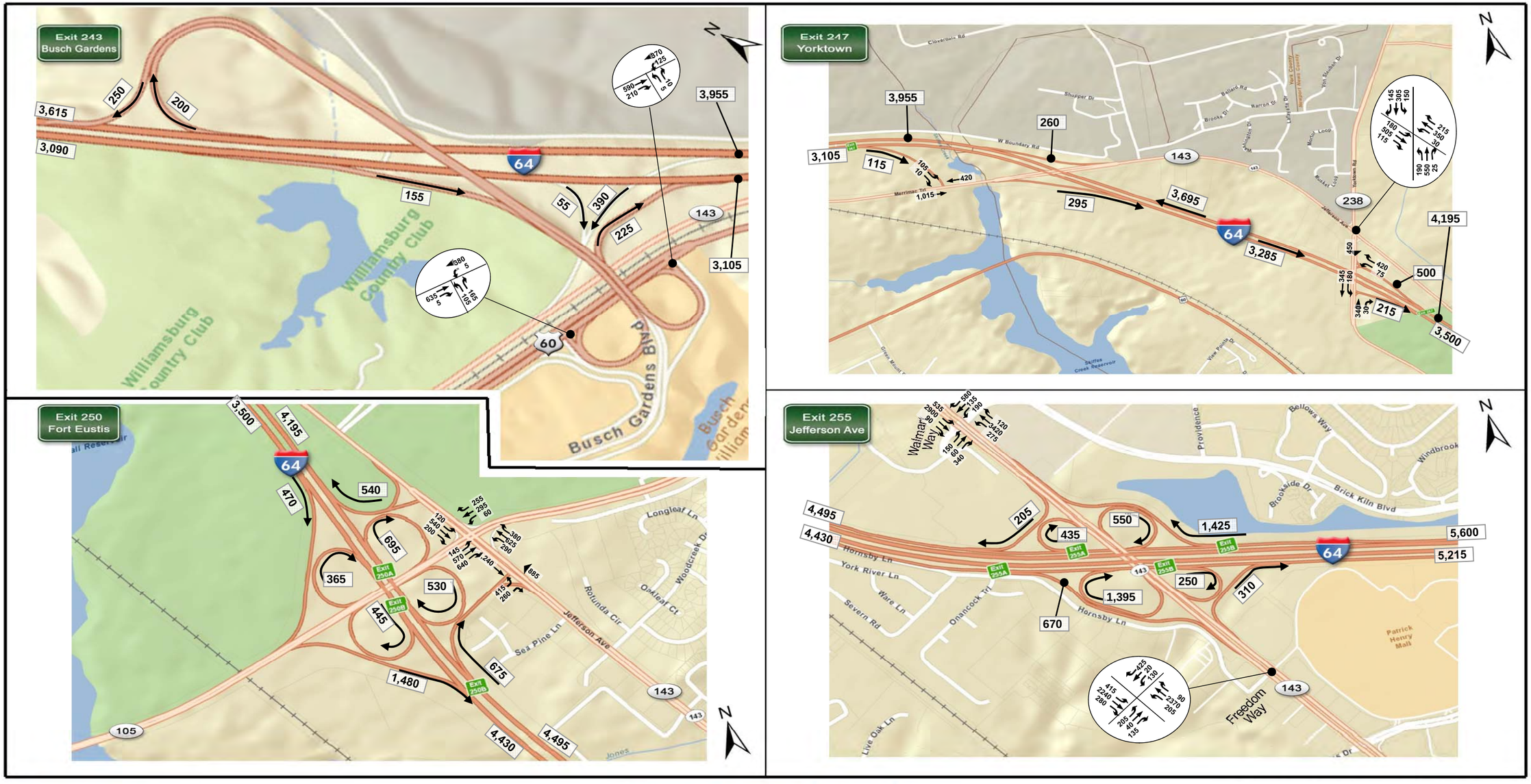

FIGURE 2: PM Peak Hour Volumes
2020 Alt A Balanced Volumes
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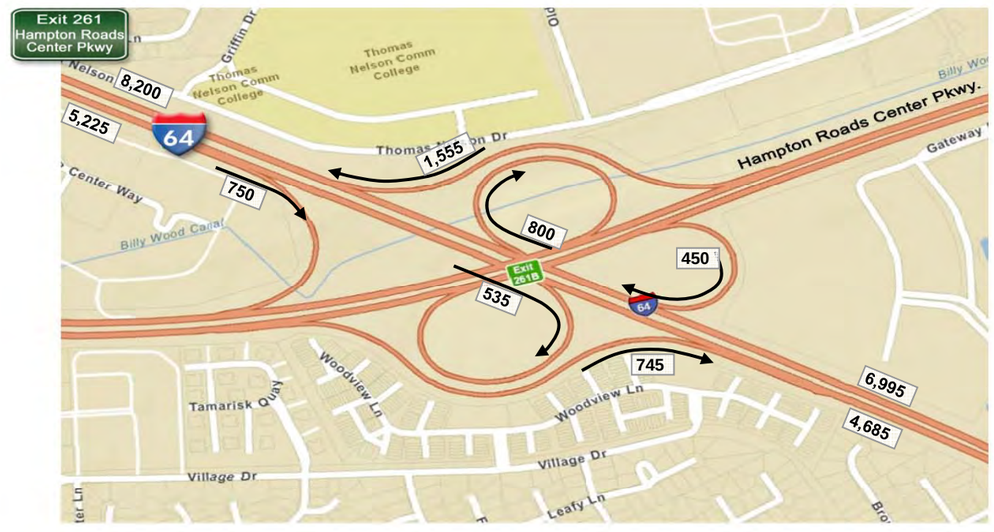

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FIGURE 2: PM Peak Hour Volumes
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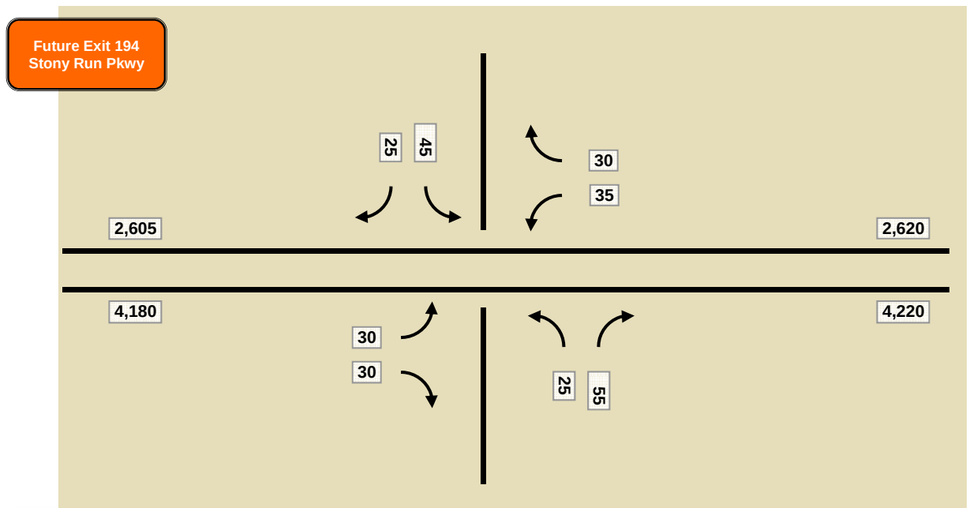

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FIGURE 2: PM Peak Hour Volumes
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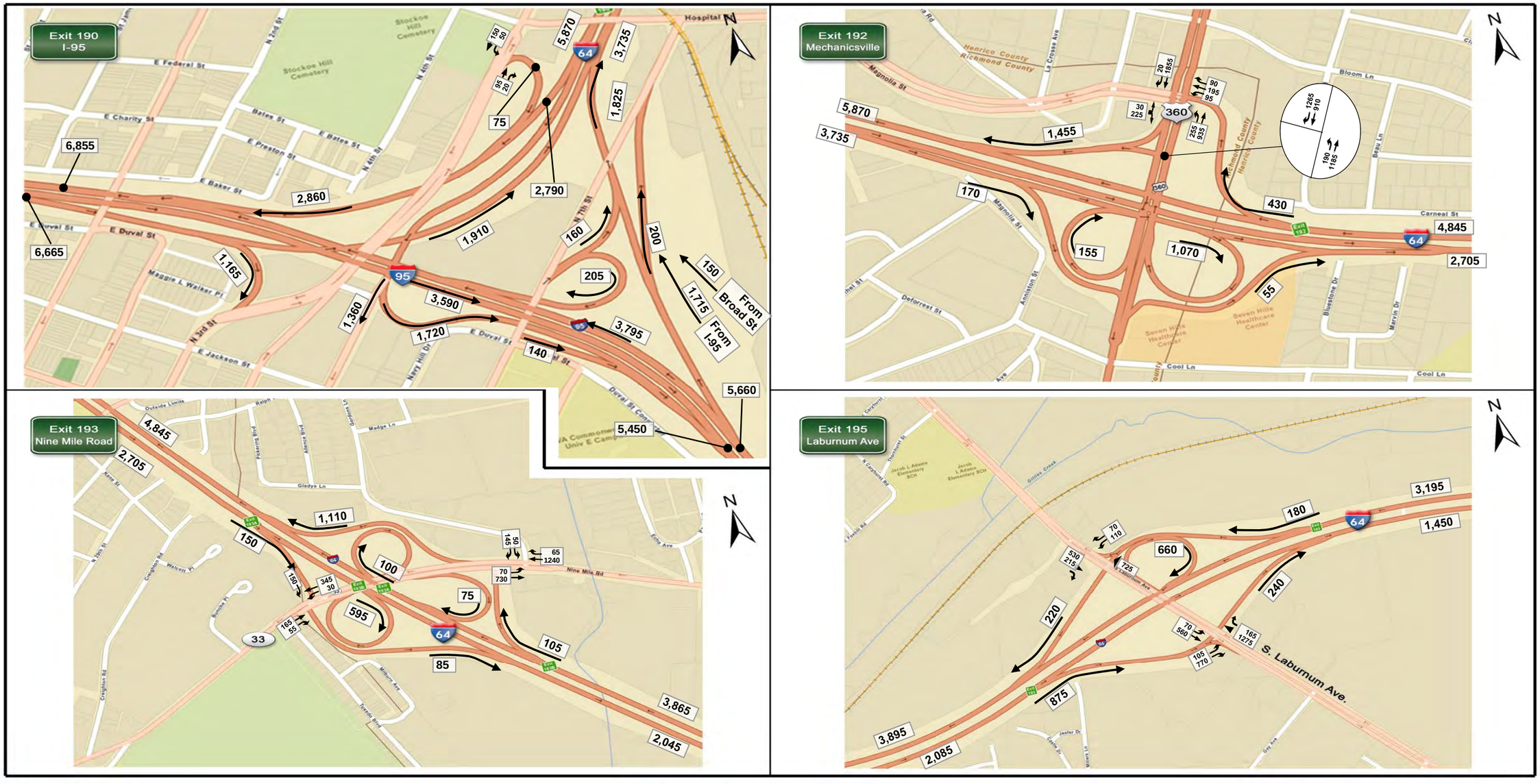

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FIGURE 1: AM Peak Hour Volumes
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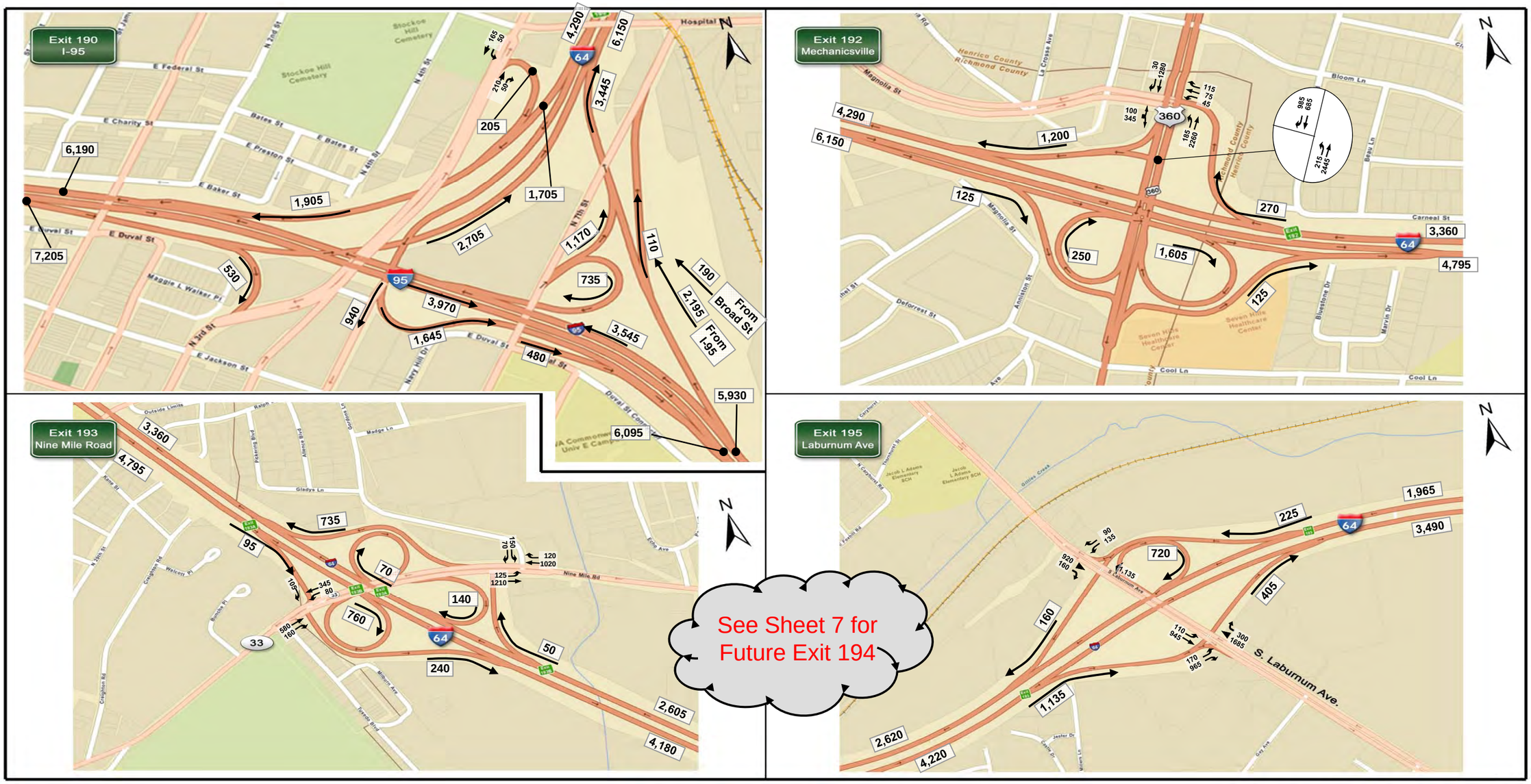

FIGURE 2: PM Peak Hour Volumes
2020 Alt A Balanced Volumes
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Updated 7/19/2012

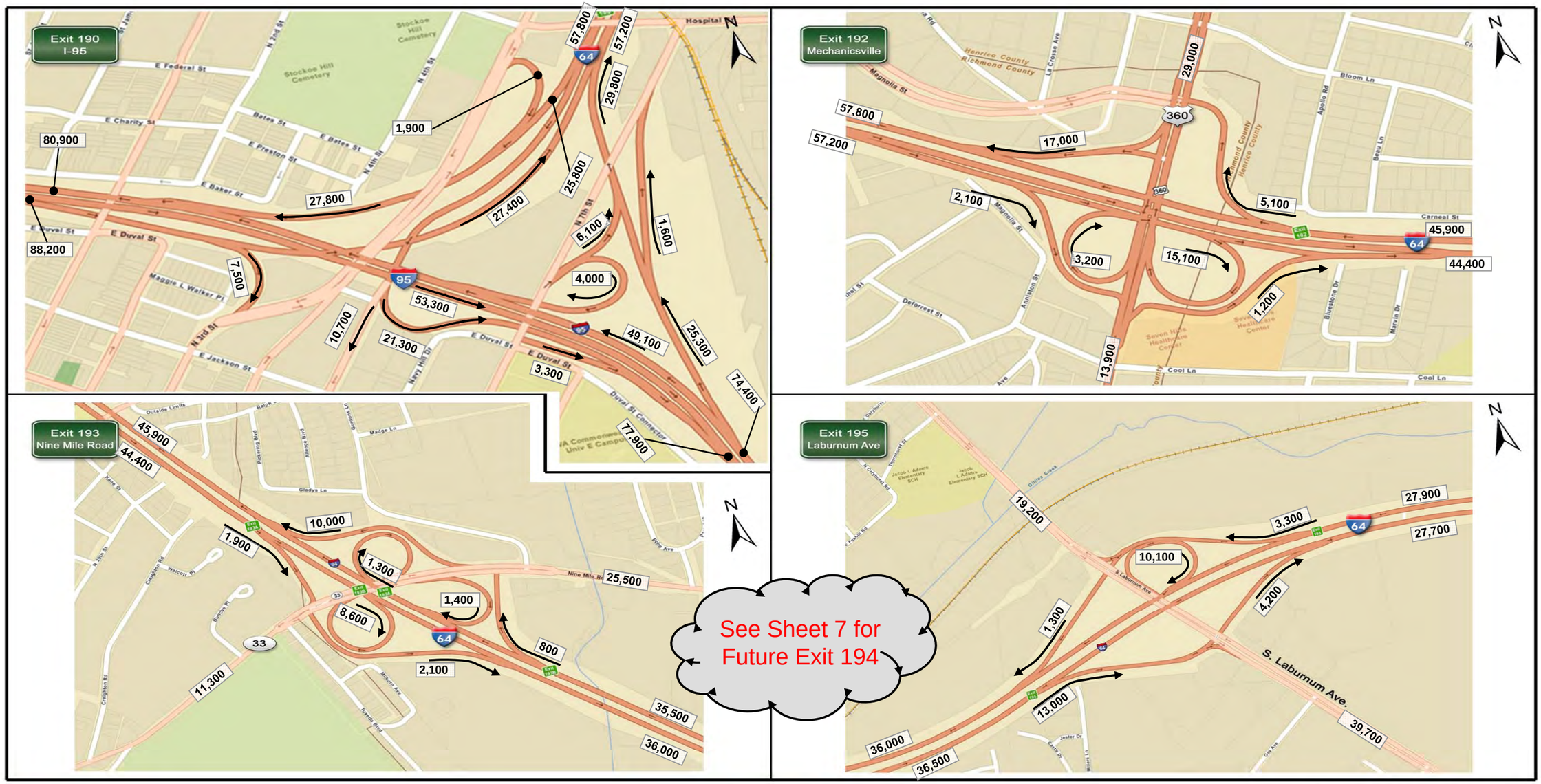

FIGURE 3: ADT Volumes

Alt 2 2020 Balanced Volumes

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Updated 7/19/2012

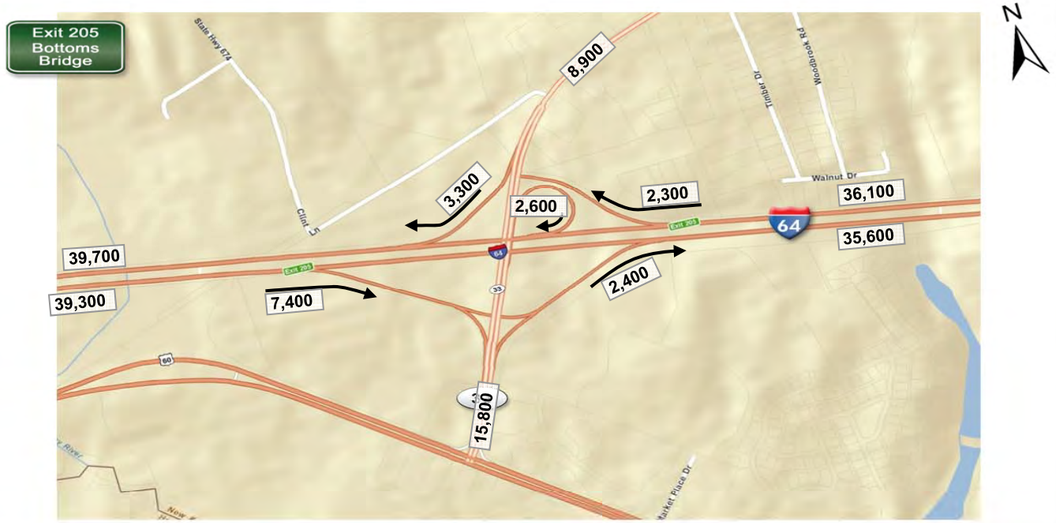

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FIGURE 3: ADT Volumes
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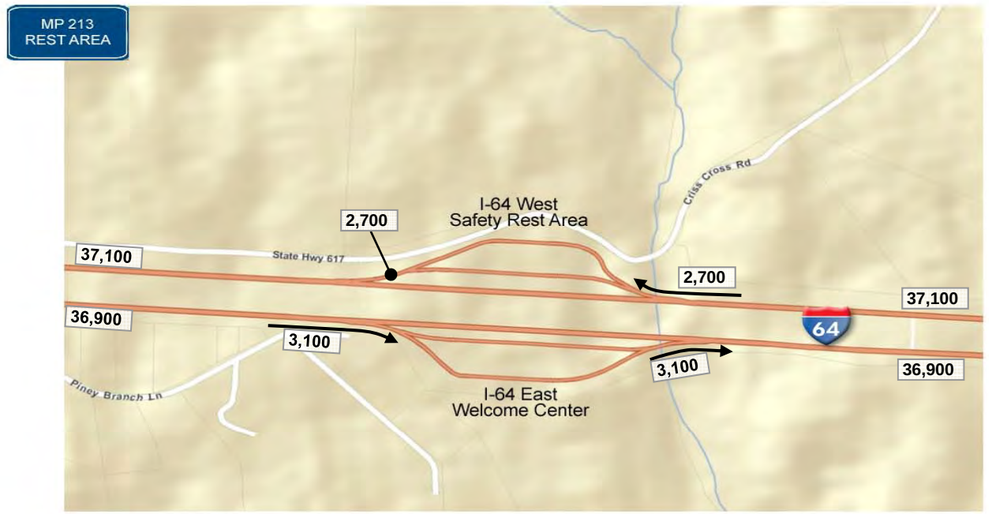

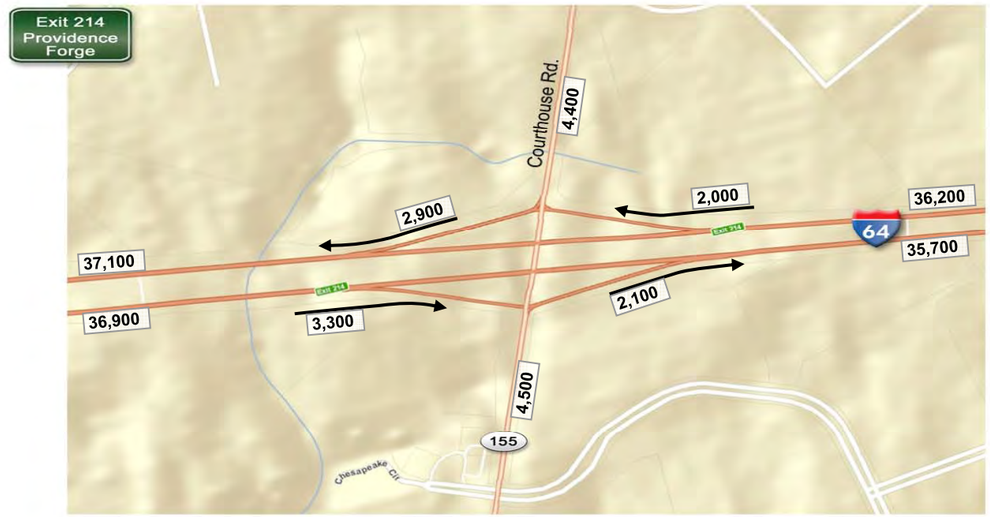

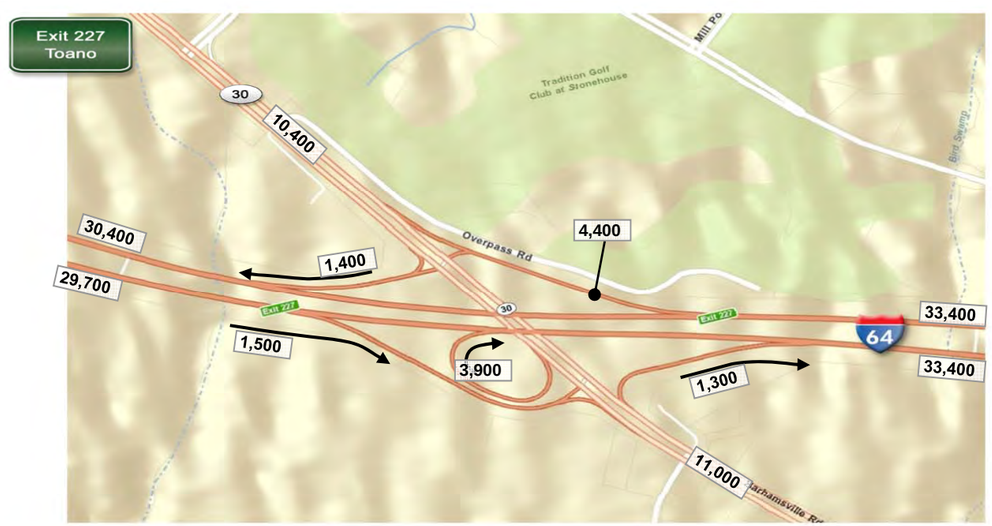

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FIGURE 3: ADT Volumes

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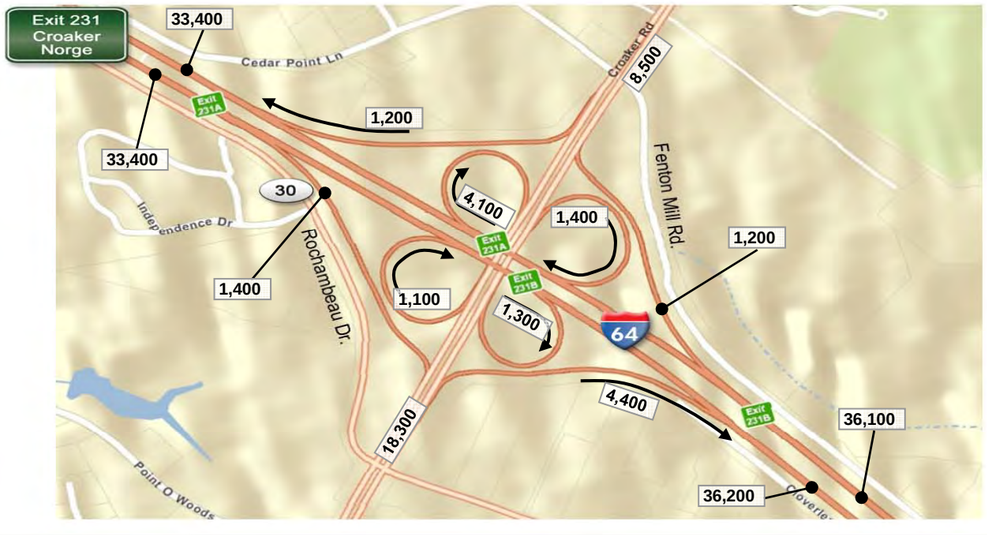

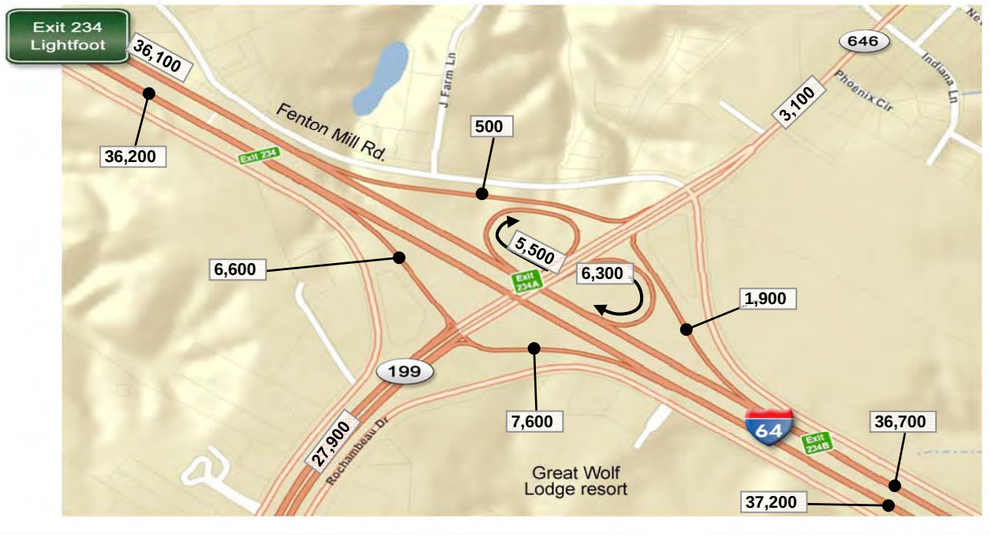

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FIGURE 3: ADT Volumes
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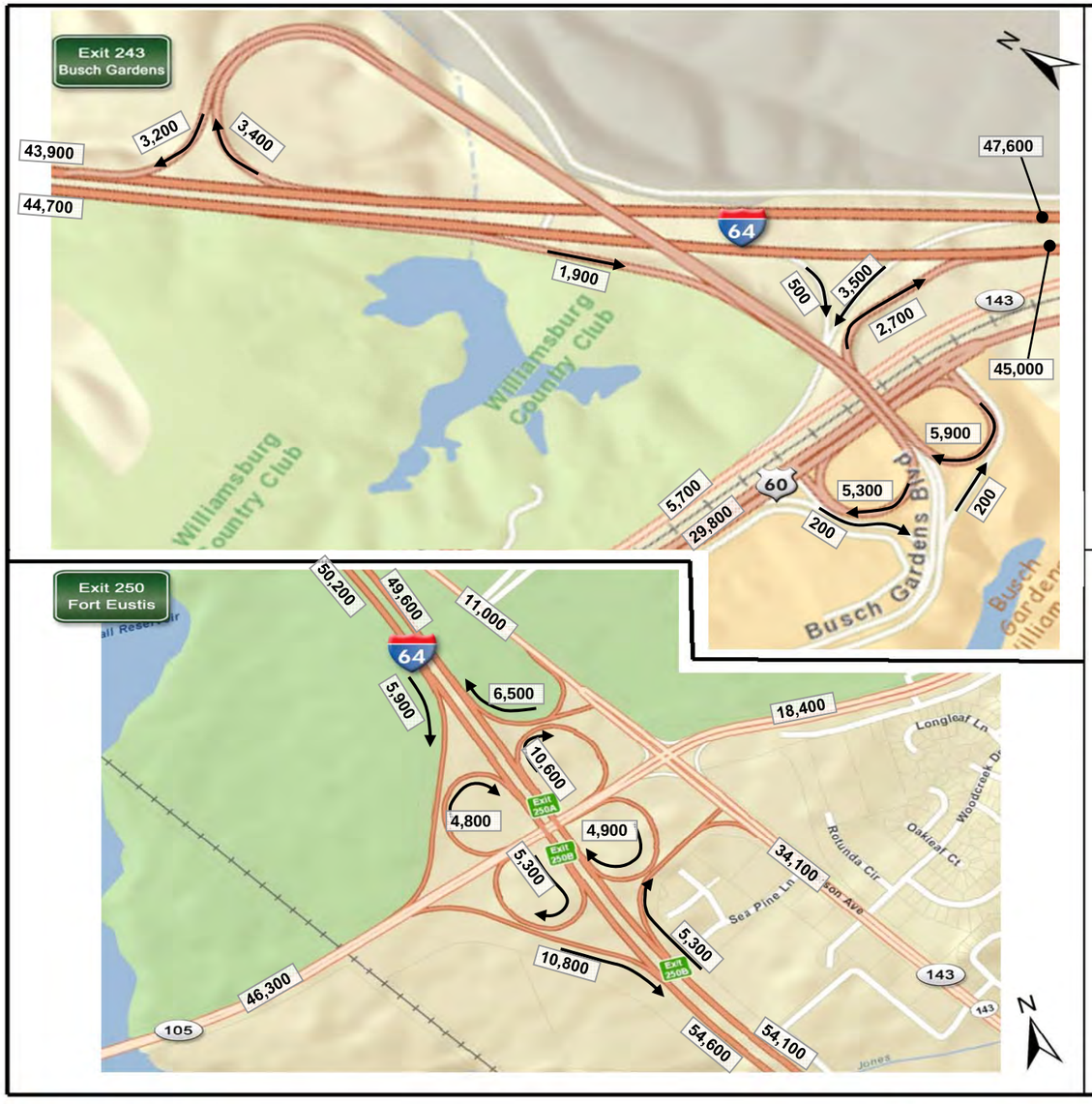

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FIGURE 3: ADT Volumes
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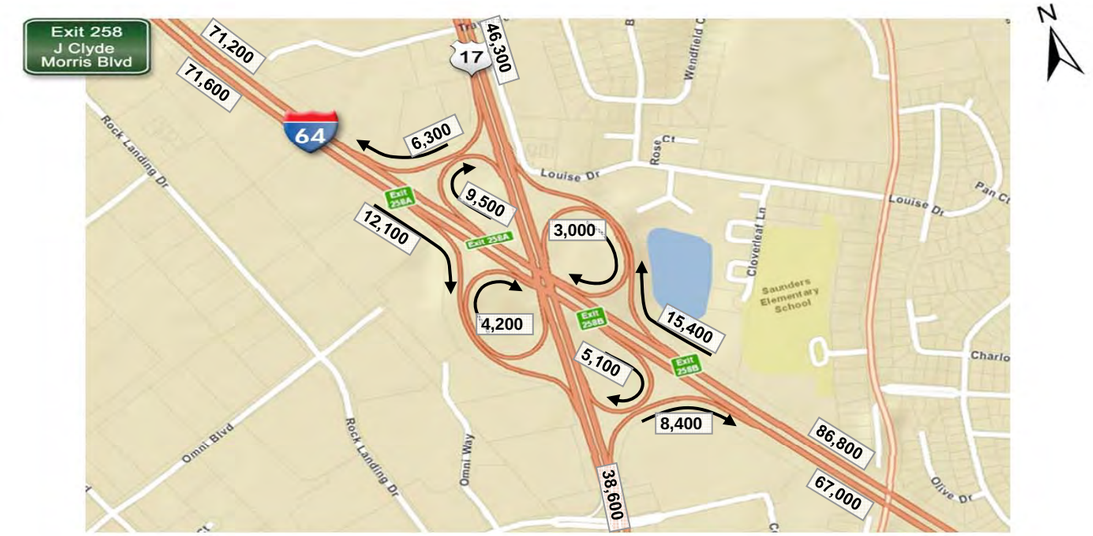

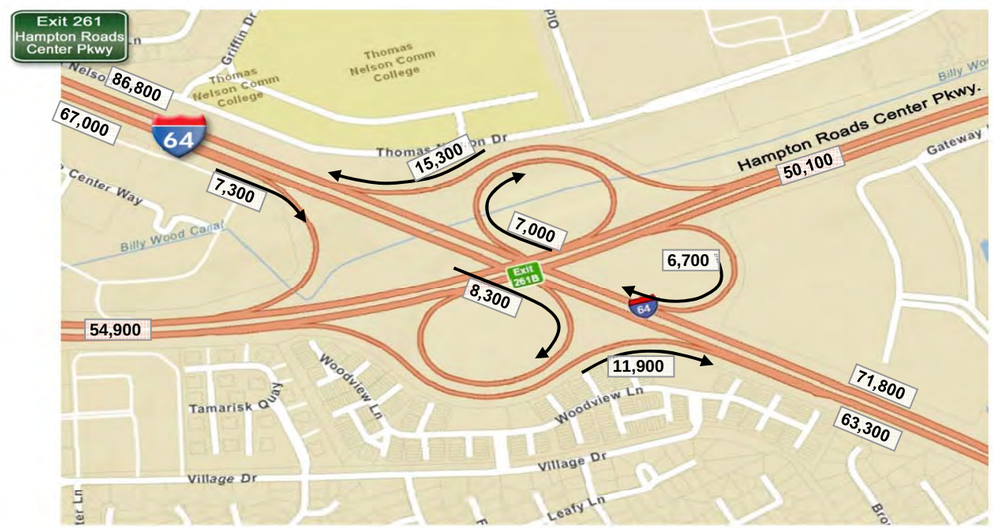

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FIGURE 3: ADT Volumes
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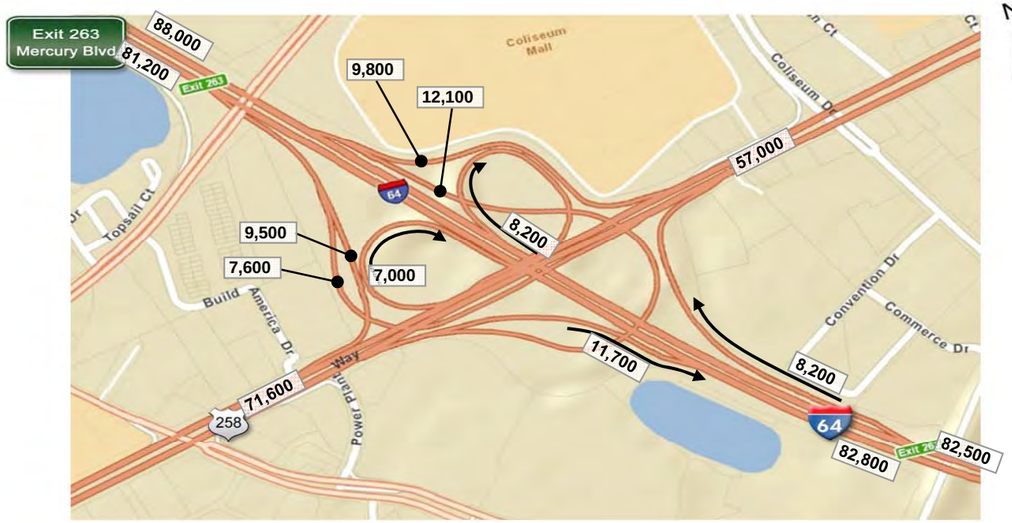

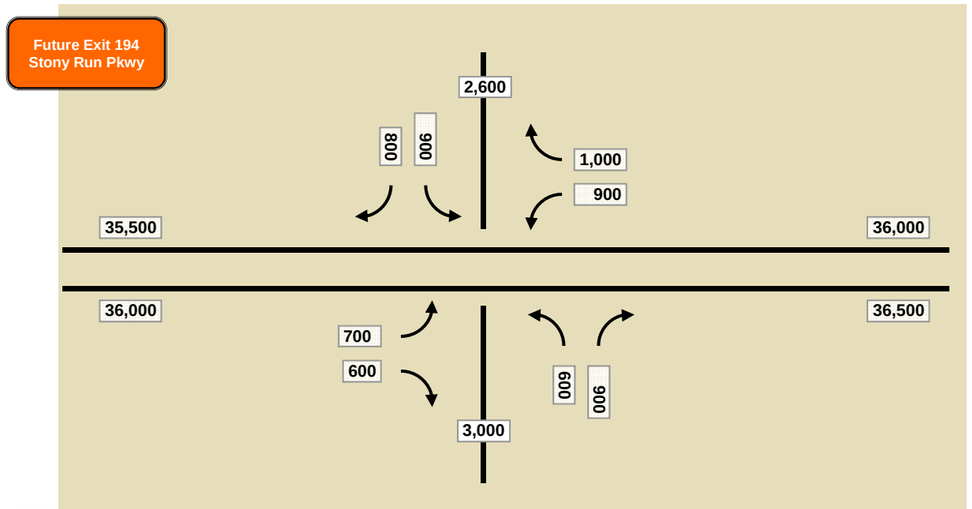

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FIGURE 3: ADT Volumes
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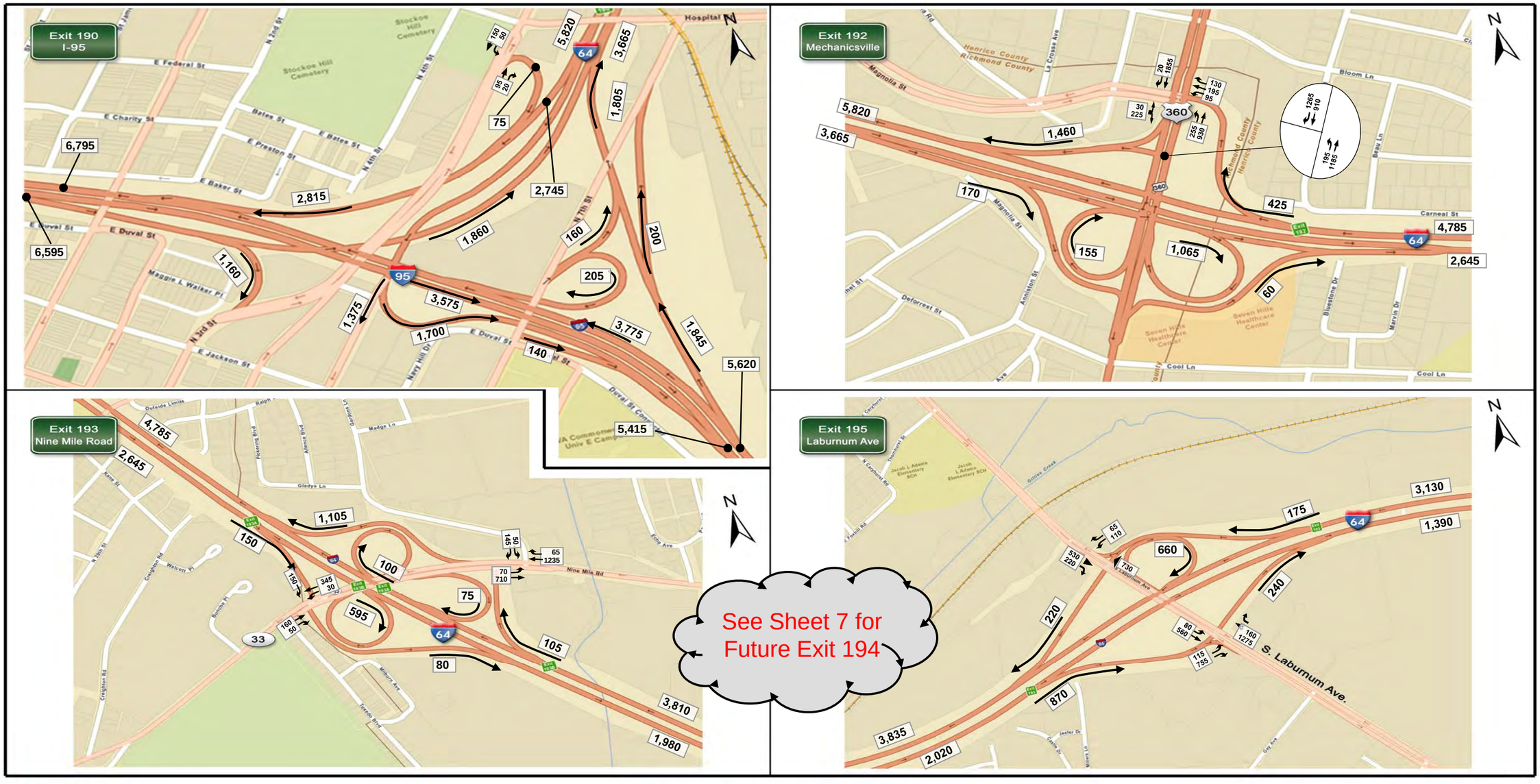

FIGURE 1: AM Peak Hour Volumes
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FIGURE 1: AM Peak Hour Volumes
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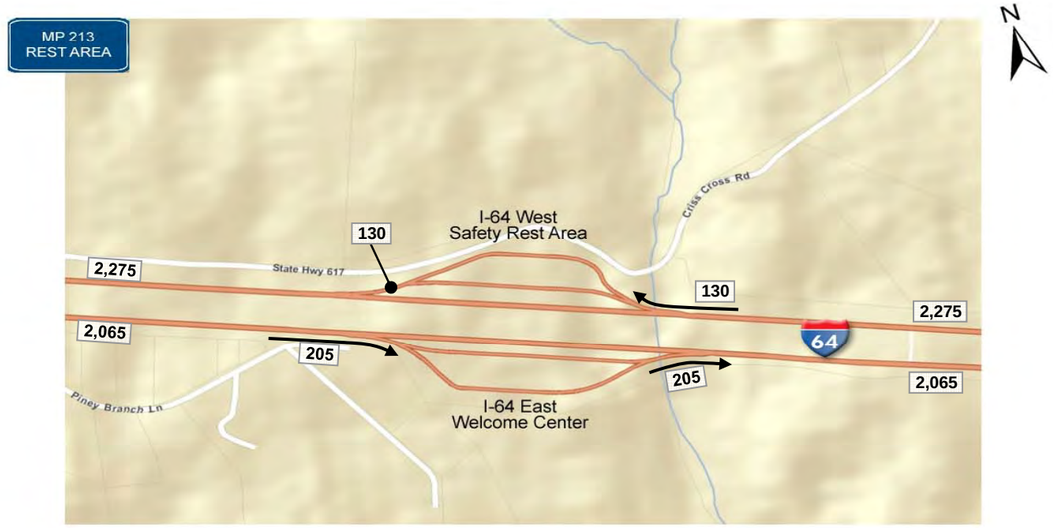

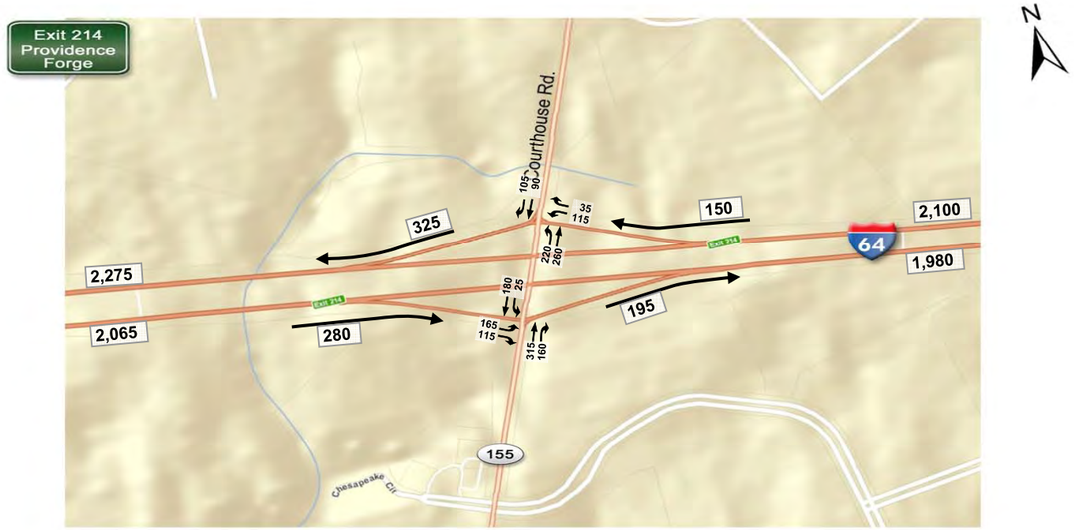

FIGURE 1: AM Peak Hour Volumes
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FIGURE 1: AM Peak Hour Volumes
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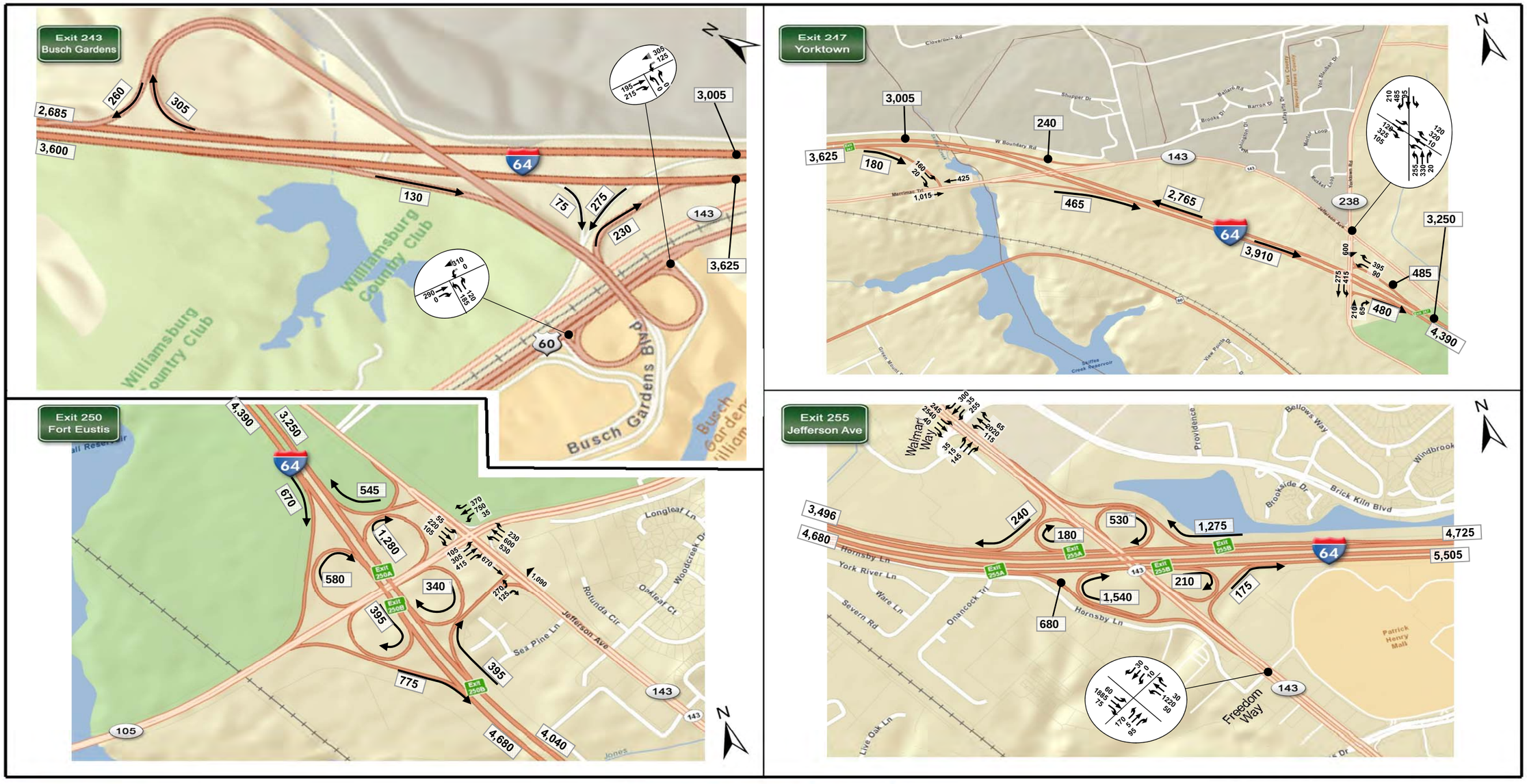

FIGURE 1: AM Peak Hour Volumes
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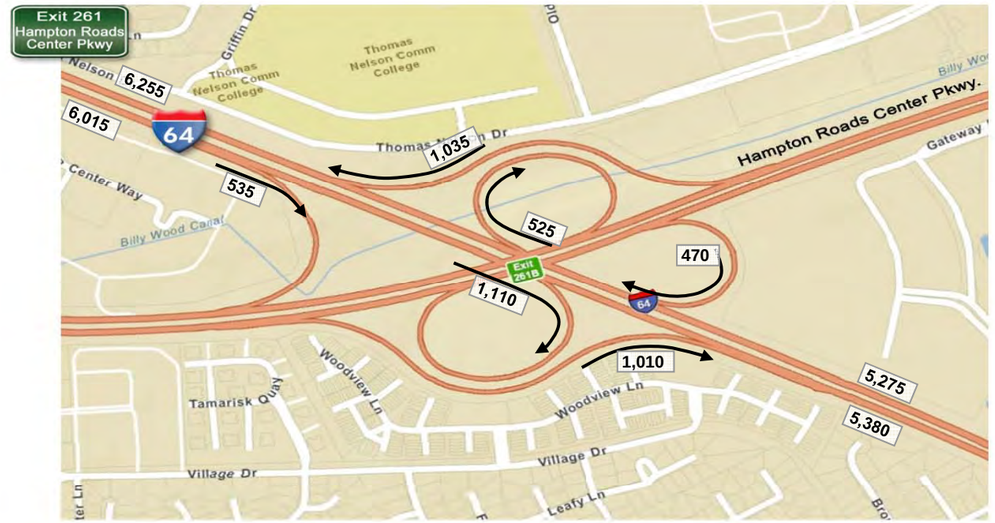

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 1: AM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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DRAFT

Updated 7/19/12

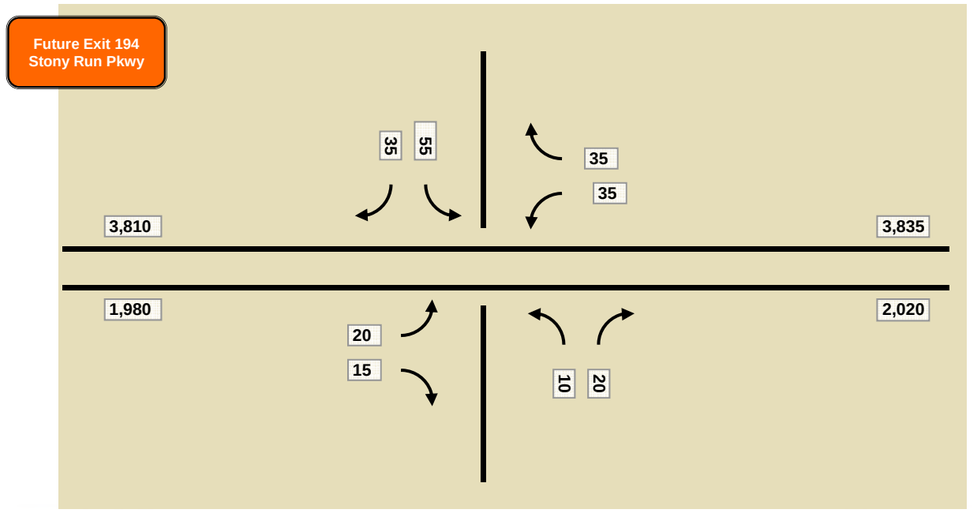

FIGURE 1: AM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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DRAFT

Updated 7/19/12

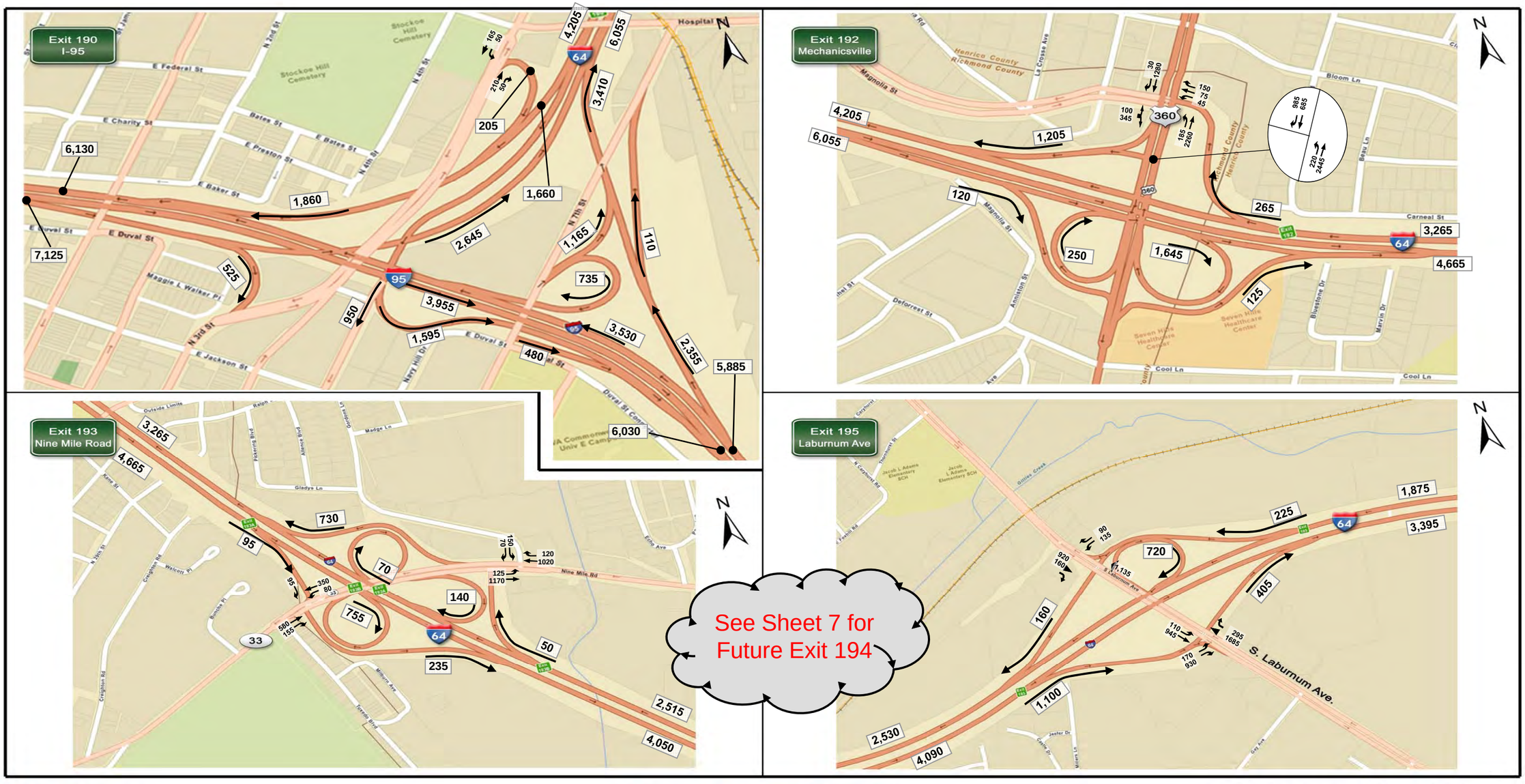

FIGURE 2: PM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
Sheet 1 of 7

DRAFT

Updated 7/19/12

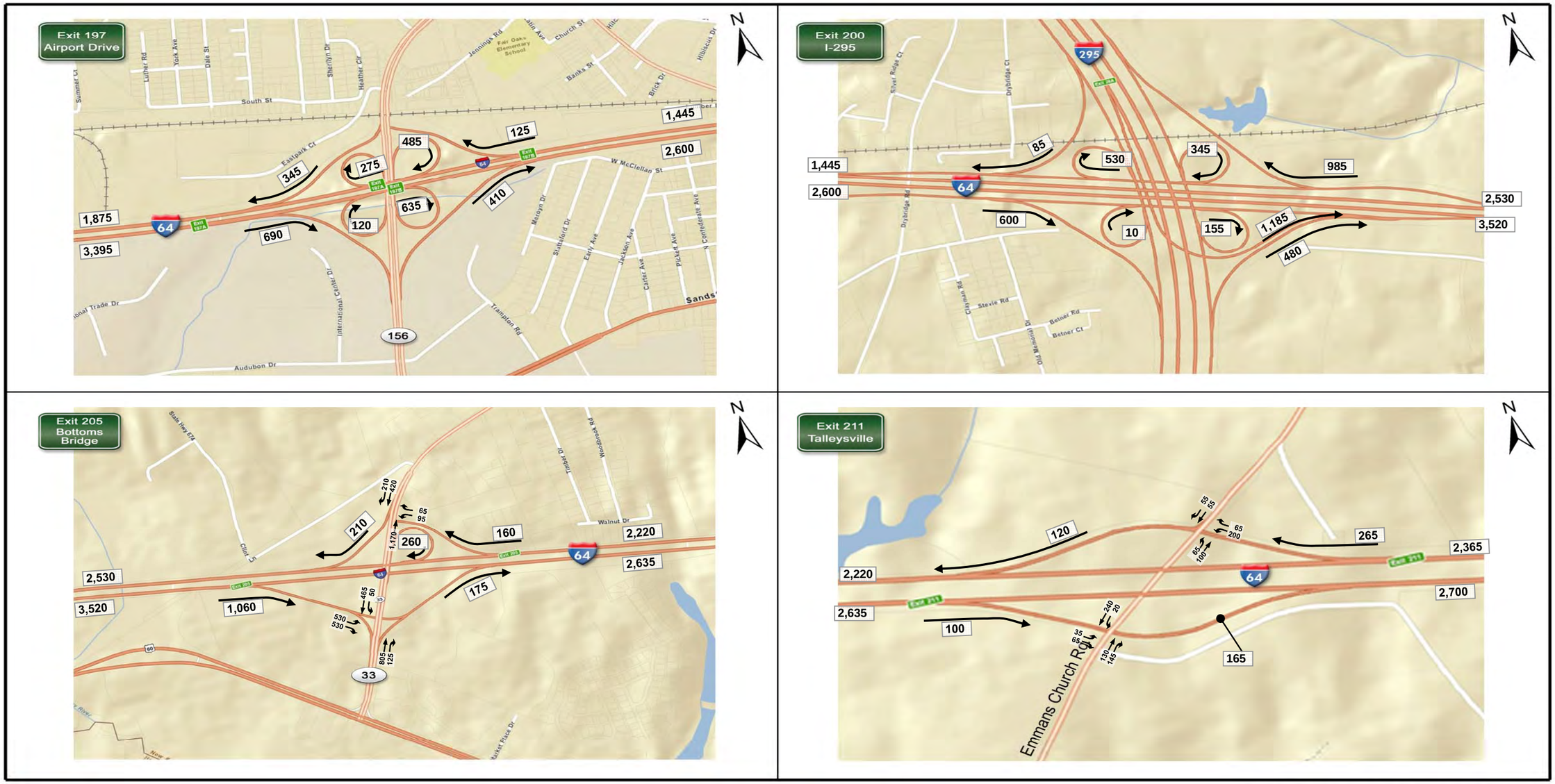

FIGURE 2: PM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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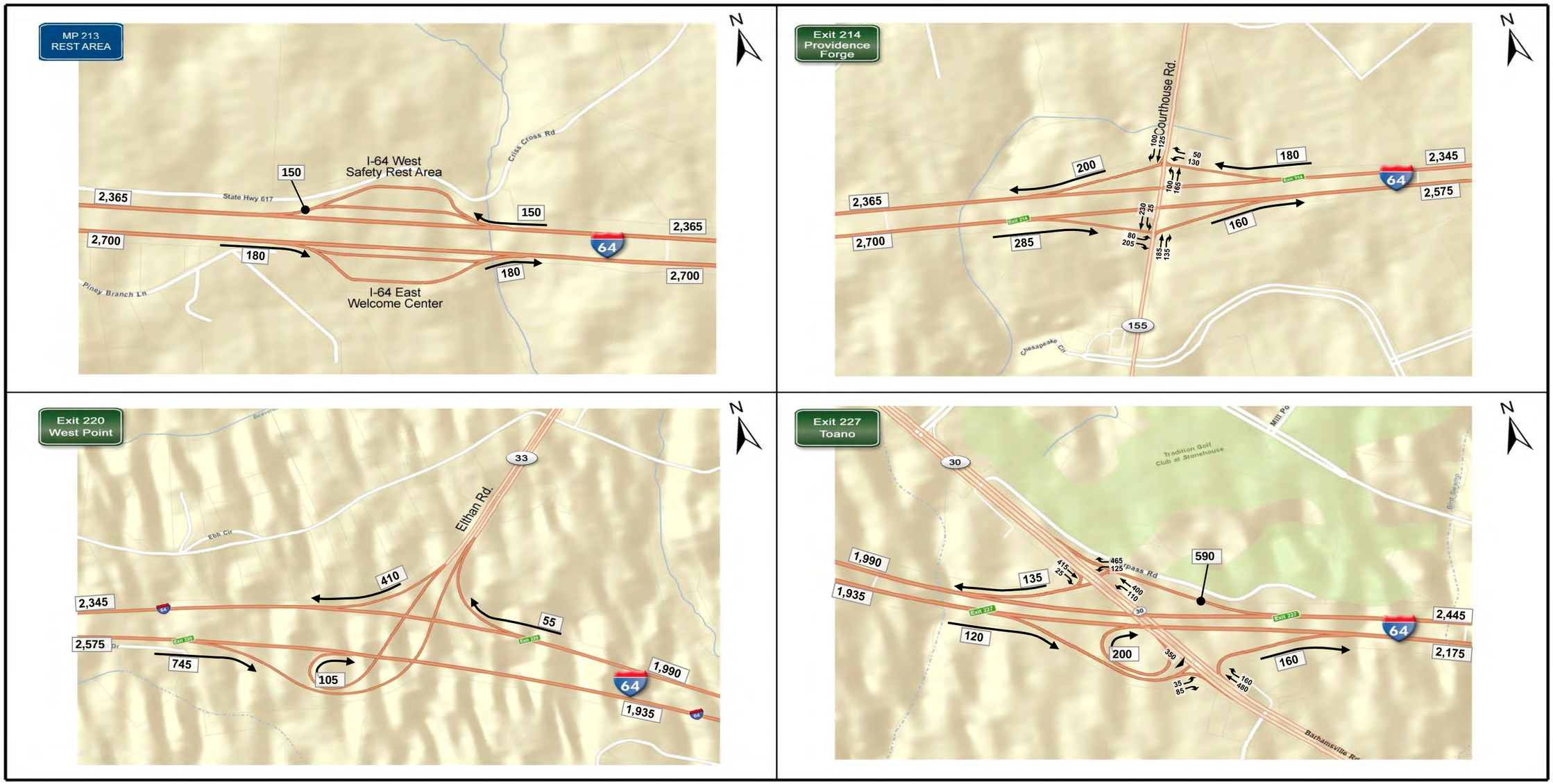

FIGURE 2: PM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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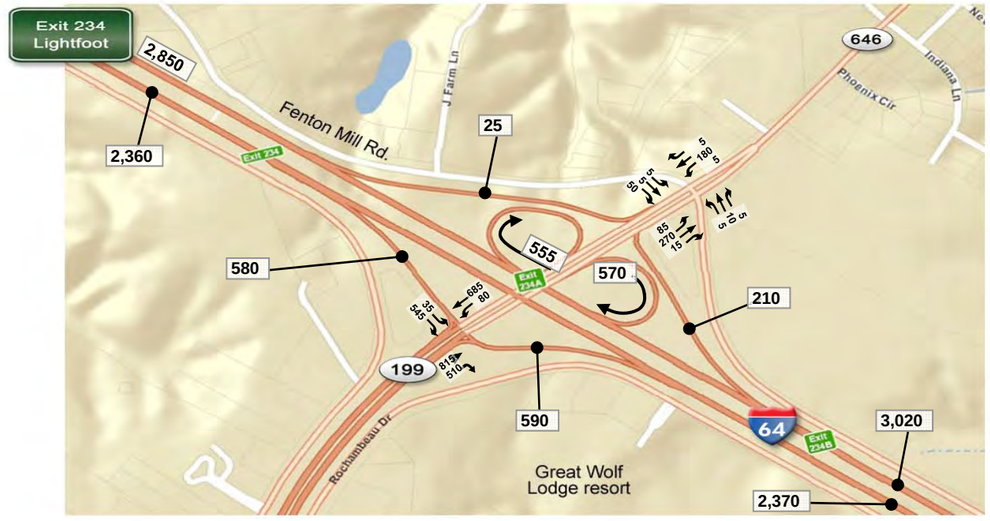
Updated 7/19/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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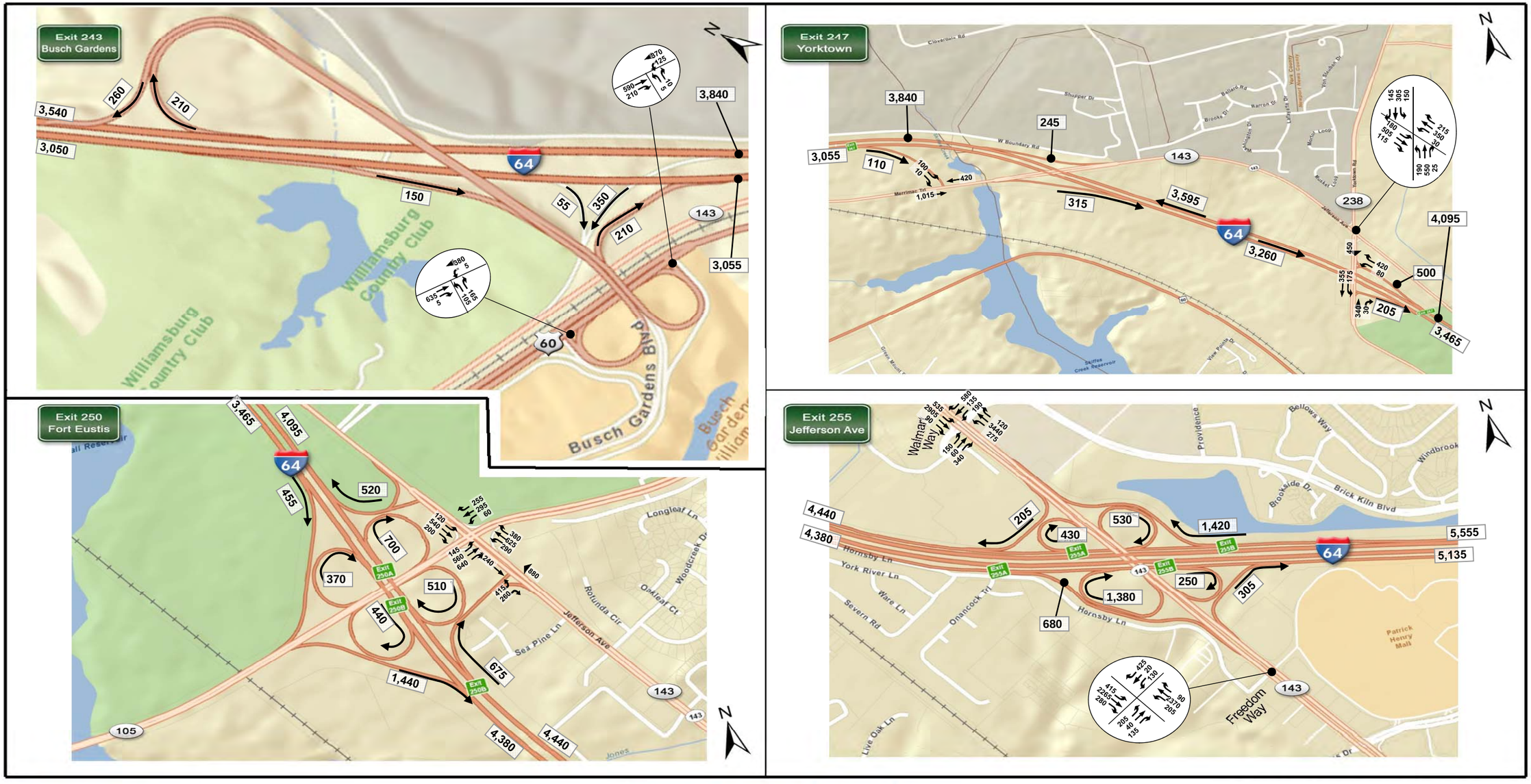

FIGURE 2: PM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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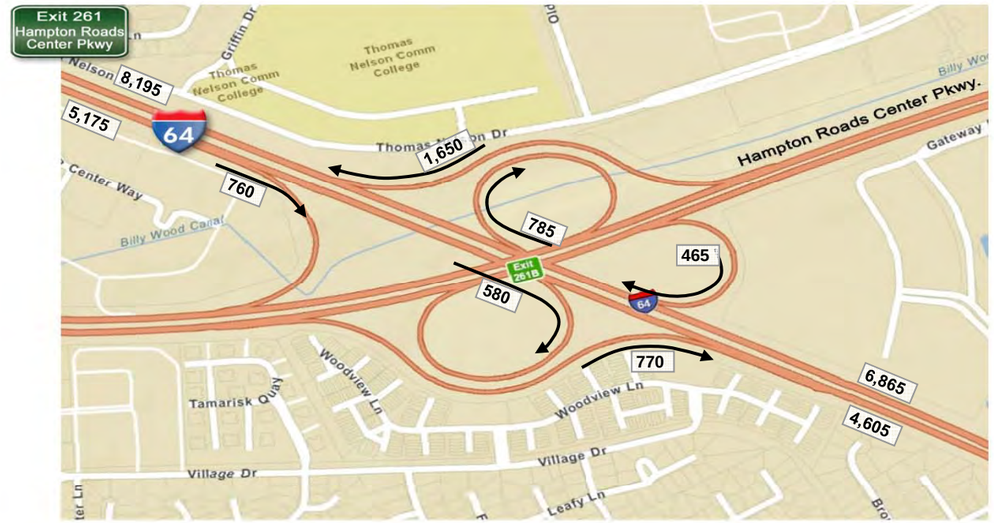
Updated 7/19/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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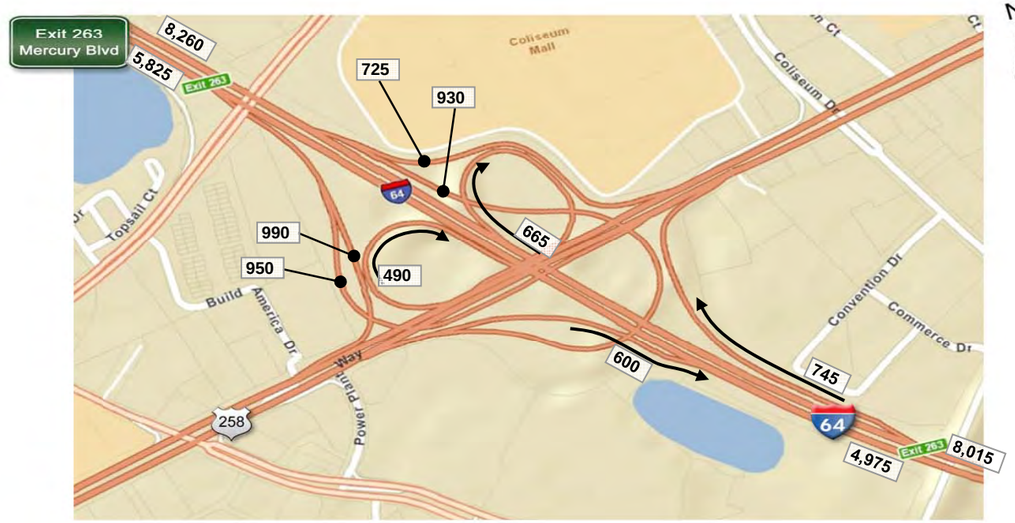

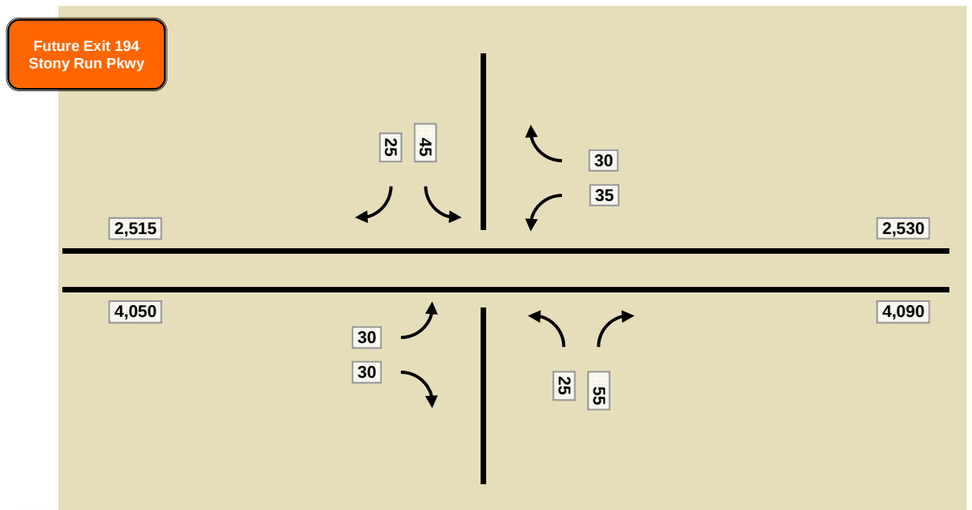

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
2020 Alt 2 Balanced Volumes
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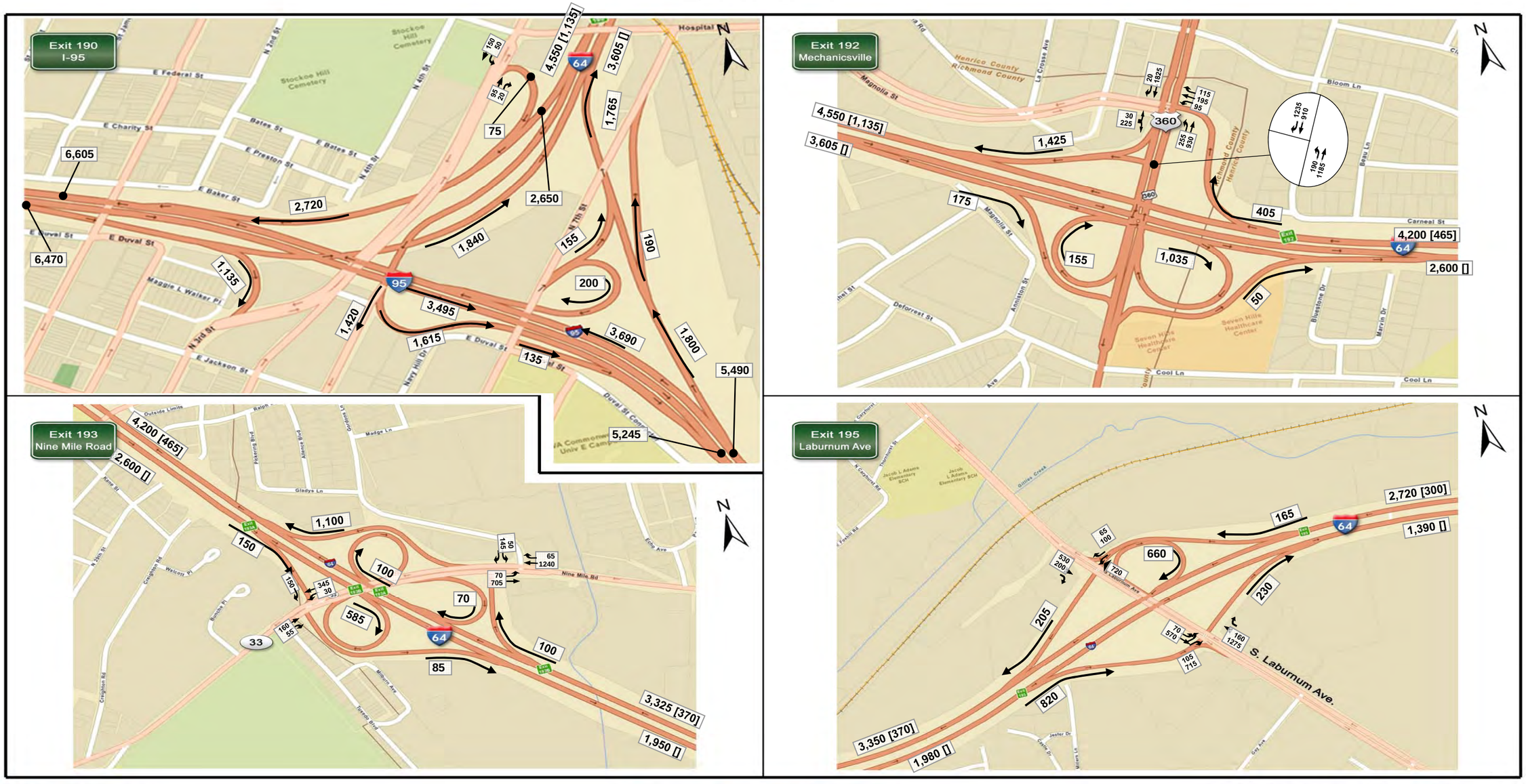

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

Volumes in [brackets] indicate Managed Lane volumes

FIGURE 1: AM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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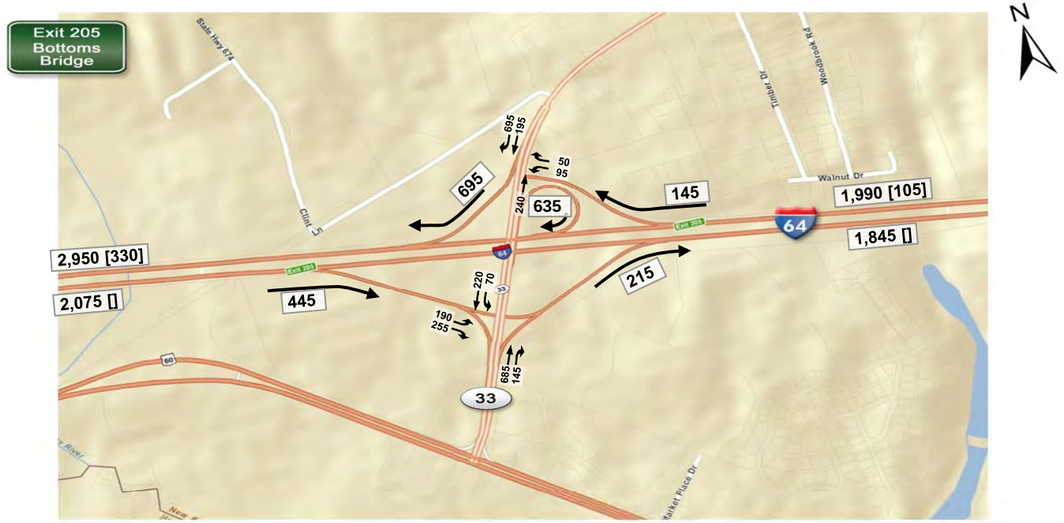
DRAFT

Updated 8/14/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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FIGURE 1: AM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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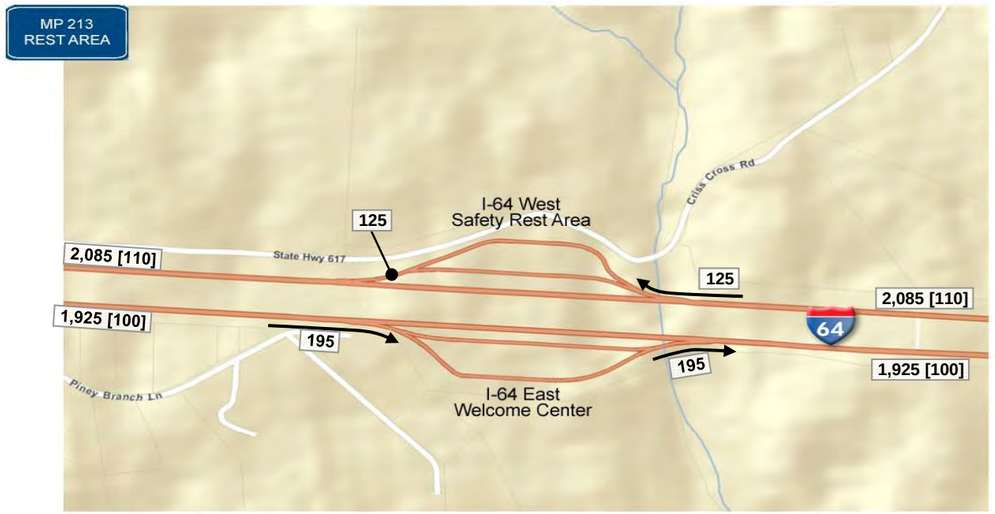
DRAFT

Updated 8/14/12



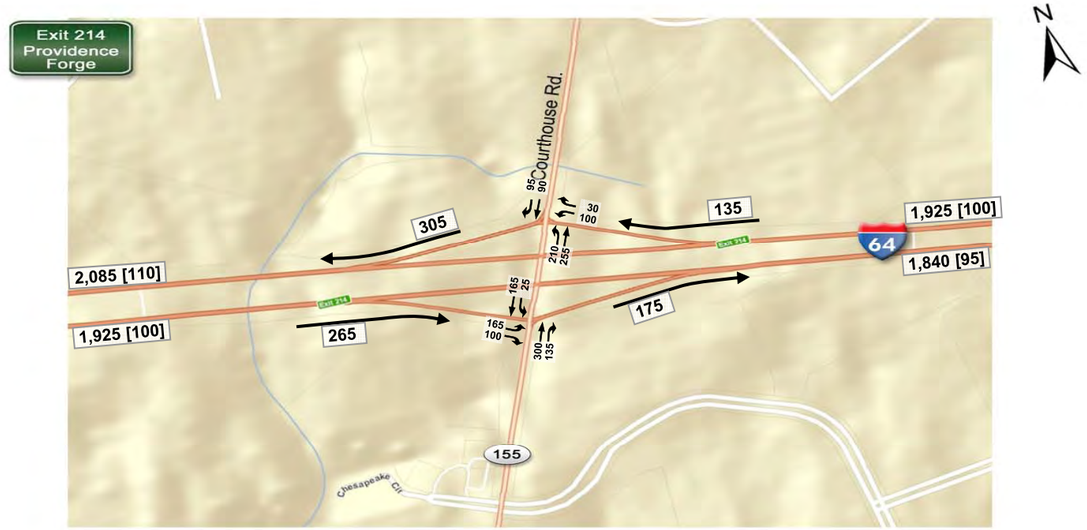


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FIGURE 1: AM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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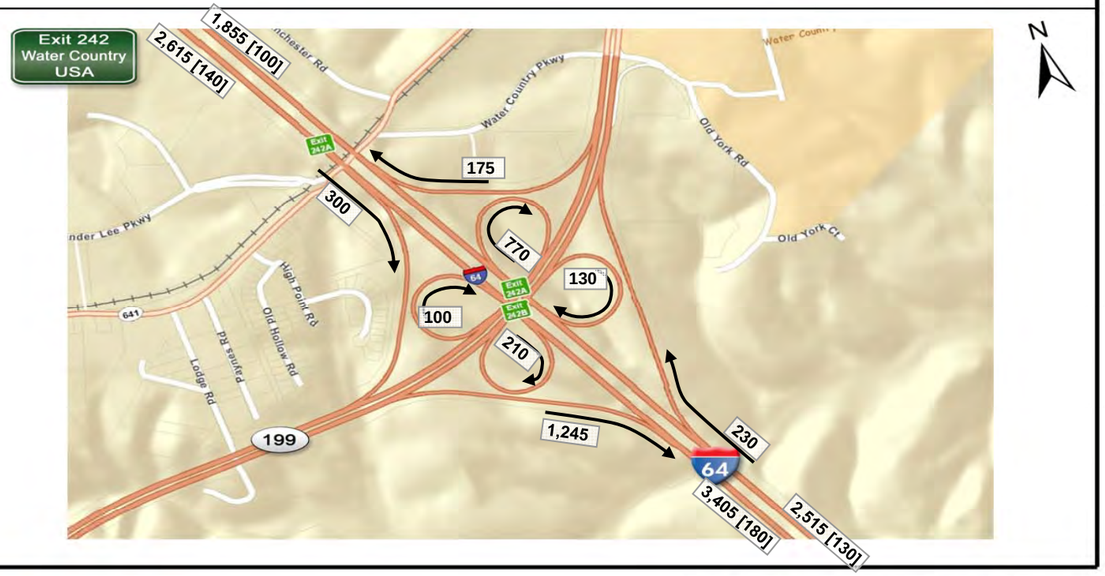

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FIGURE 1: AM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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Updated 8/14/12

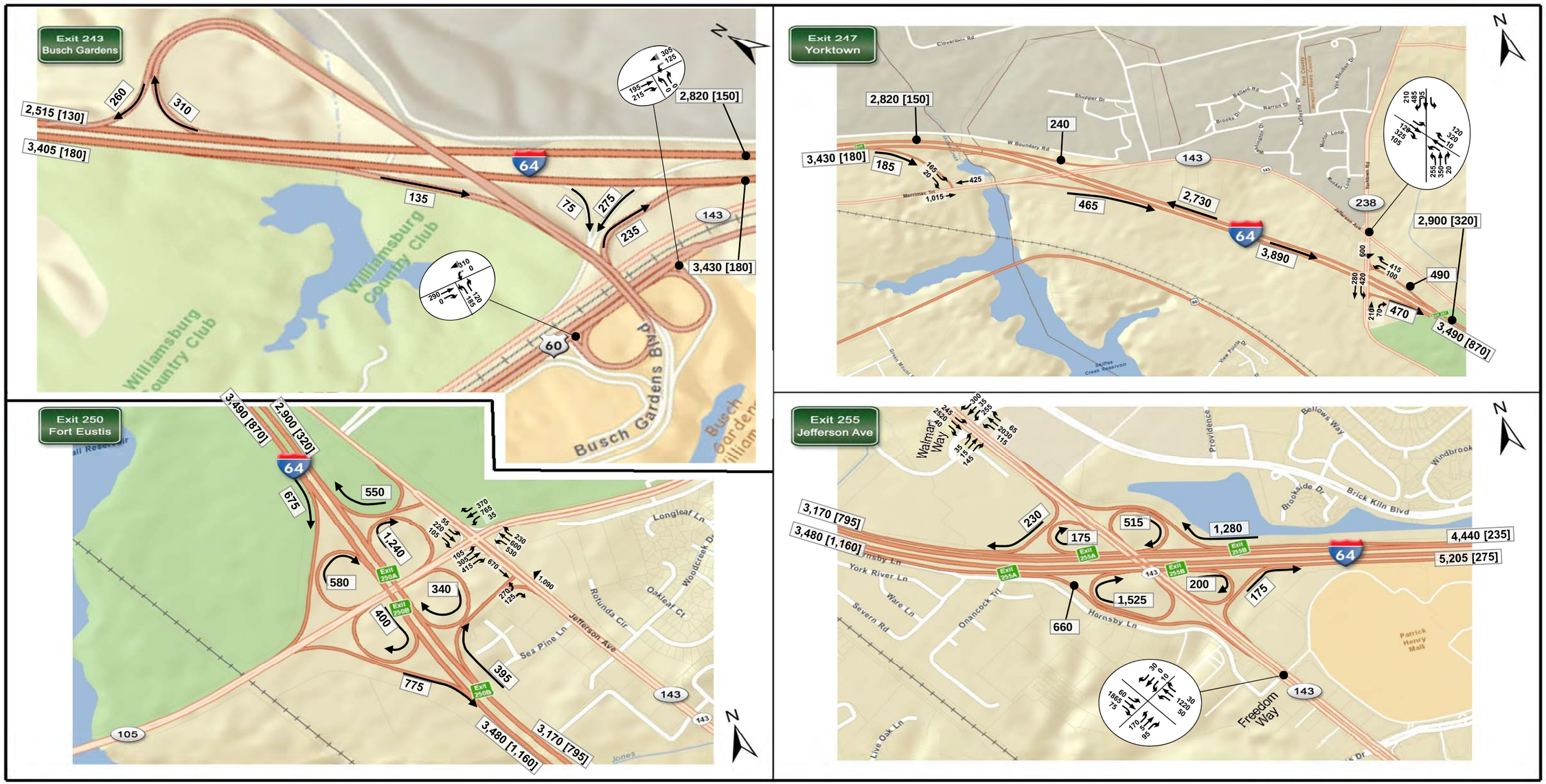

FIGURE 1: AM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
Sheet 5 of 7

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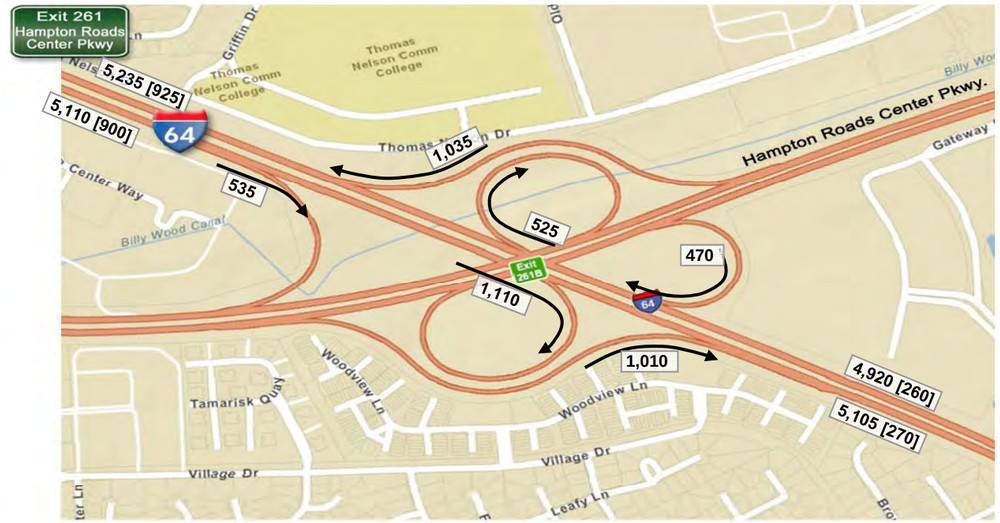
DRAFT

Updated 8/14/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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FIGURE 1: AM Peak Hour Volumes
2020 Alt 3 Balanced Volumes

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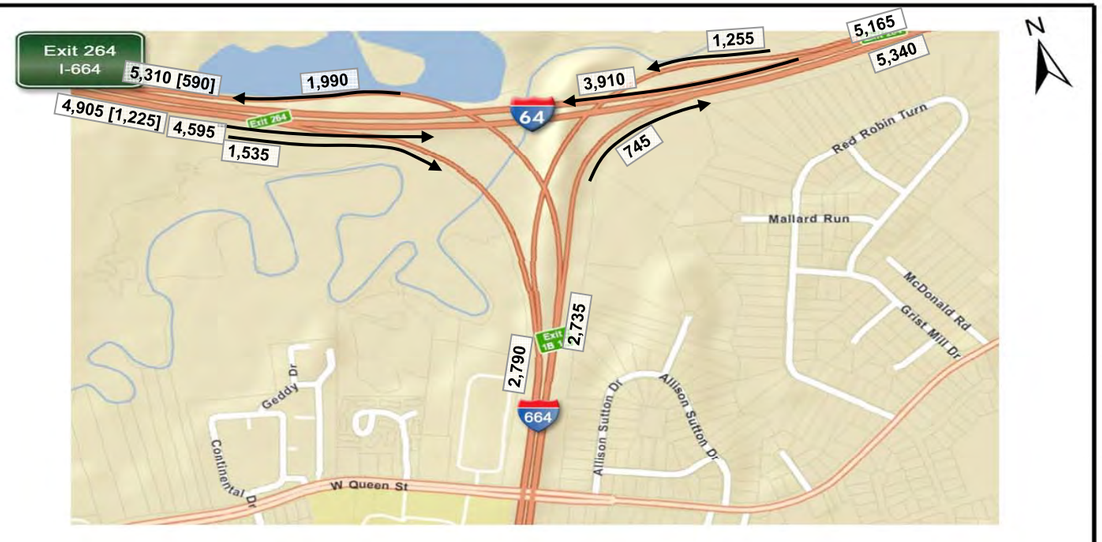

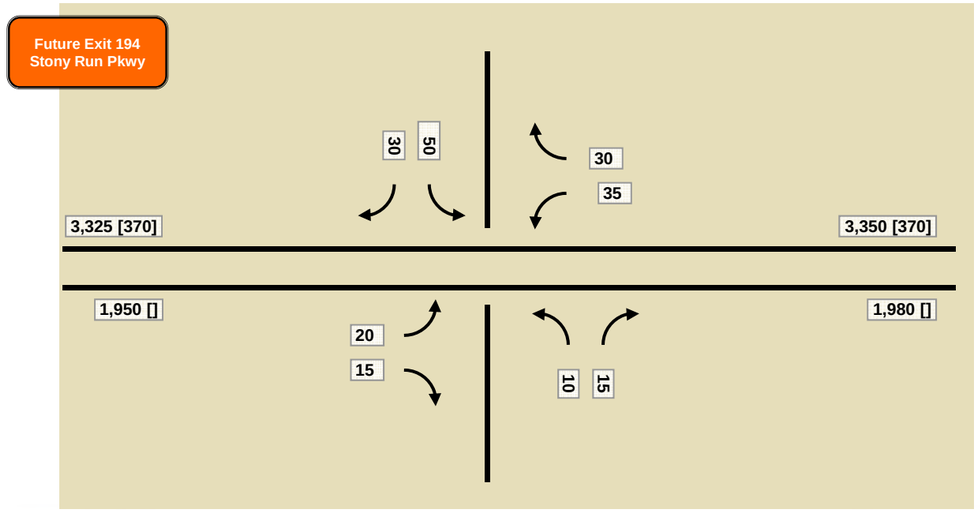

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FIGURE 1: AM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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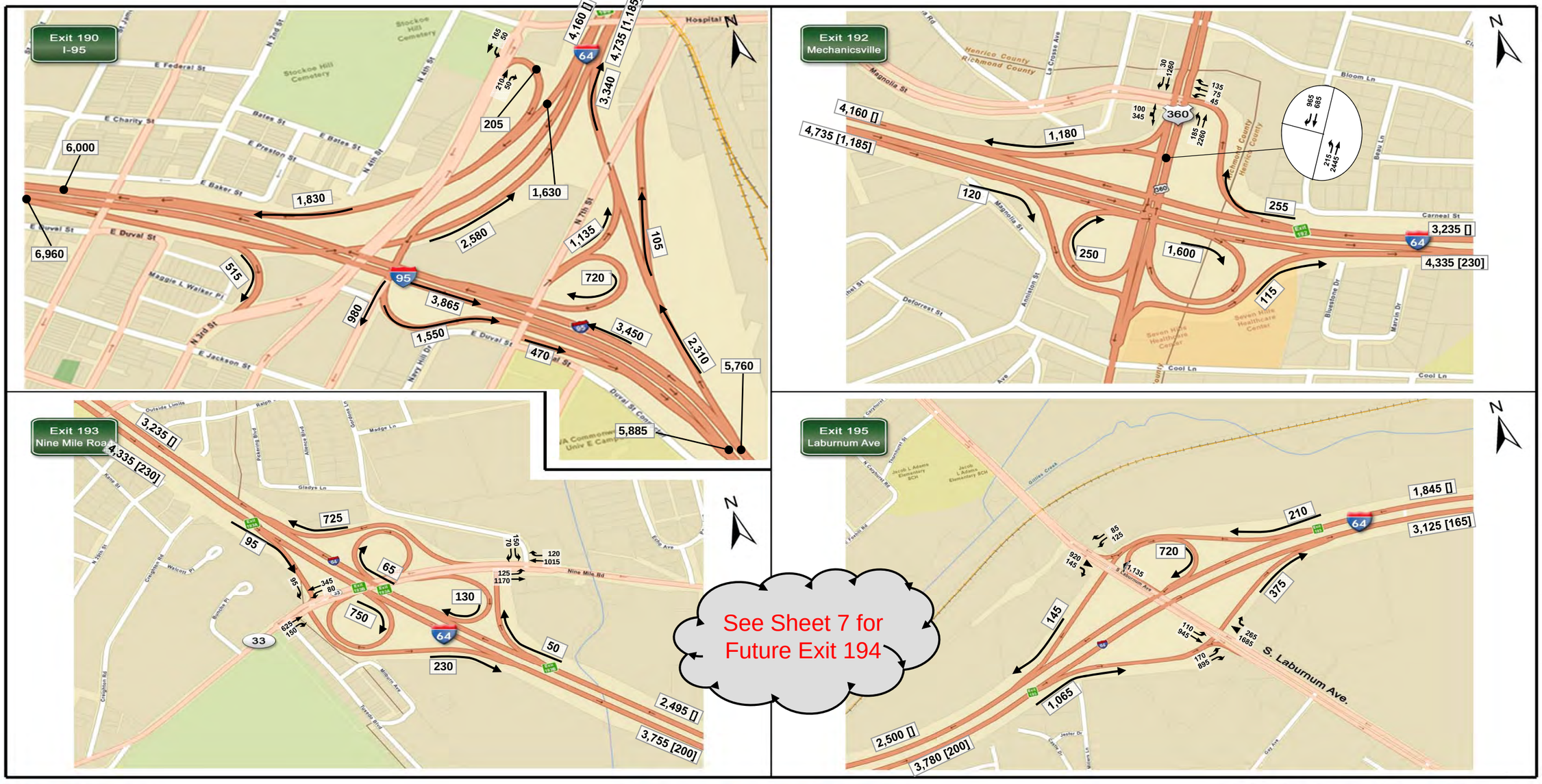

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FIGURE 2: PM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
Sheet 1 of 7

DRAFT

Updated 8/14/12

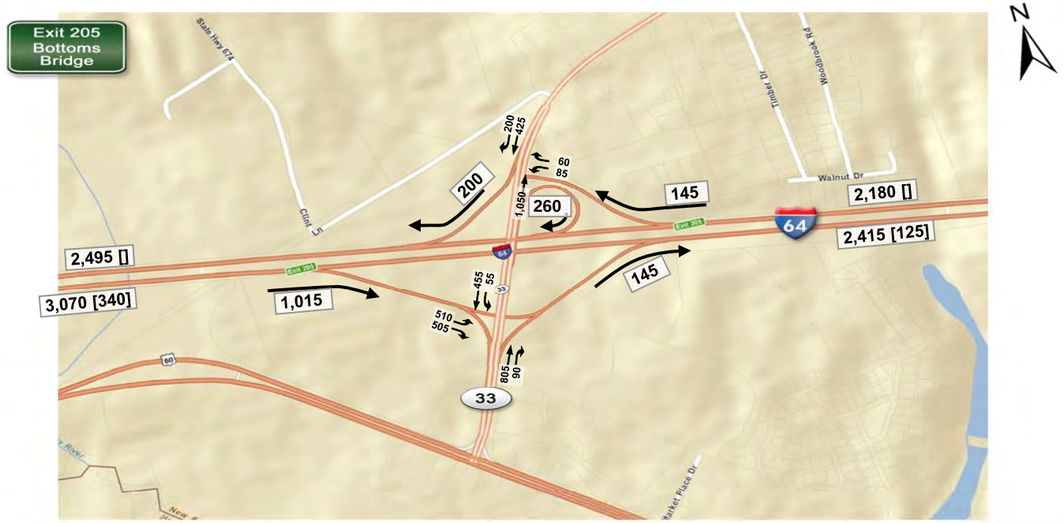

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FIGURE 2: PM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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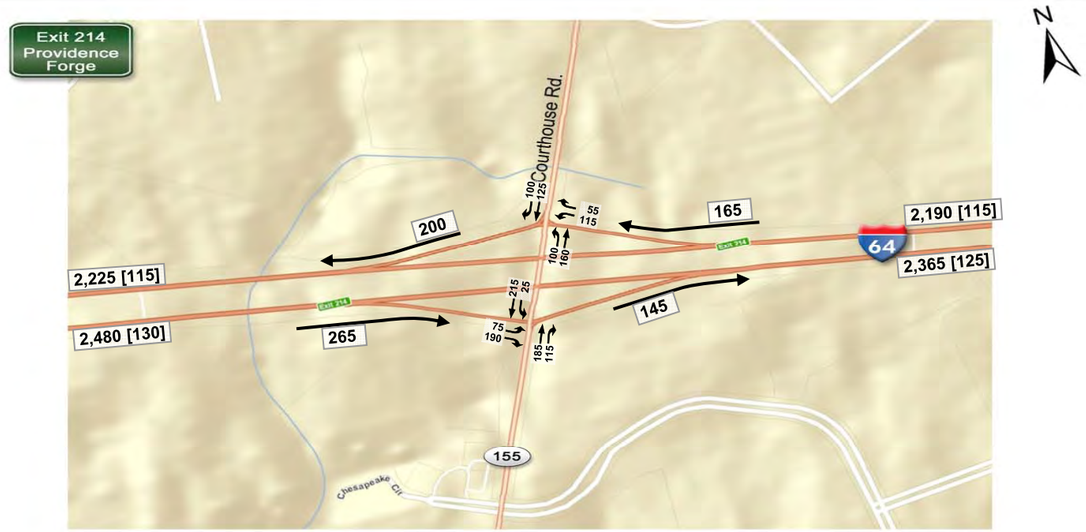
Updated 8/14/12



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2020 Alt 3 Balanced Volumes
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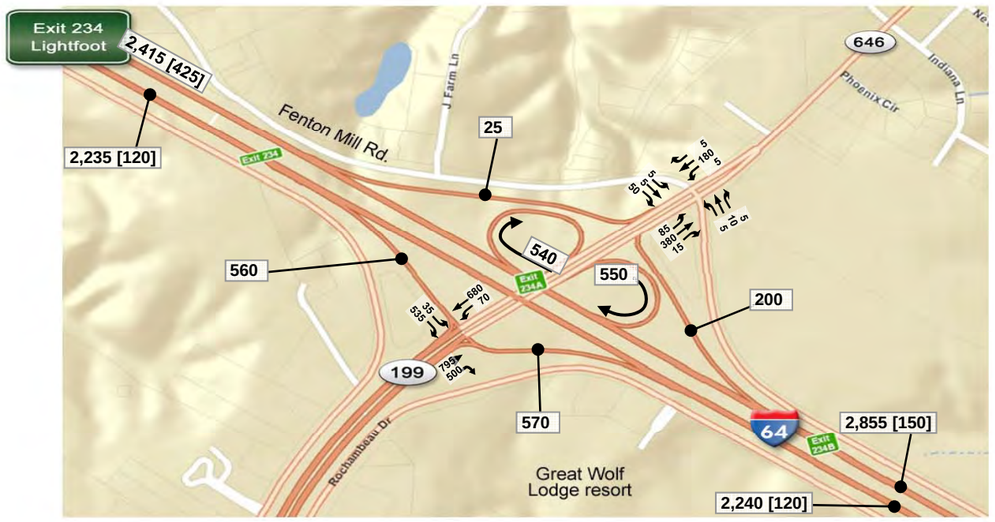

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FIGURE 2: PM Peak Hour Volumes
2020 Alt 3 Balanced Volumes

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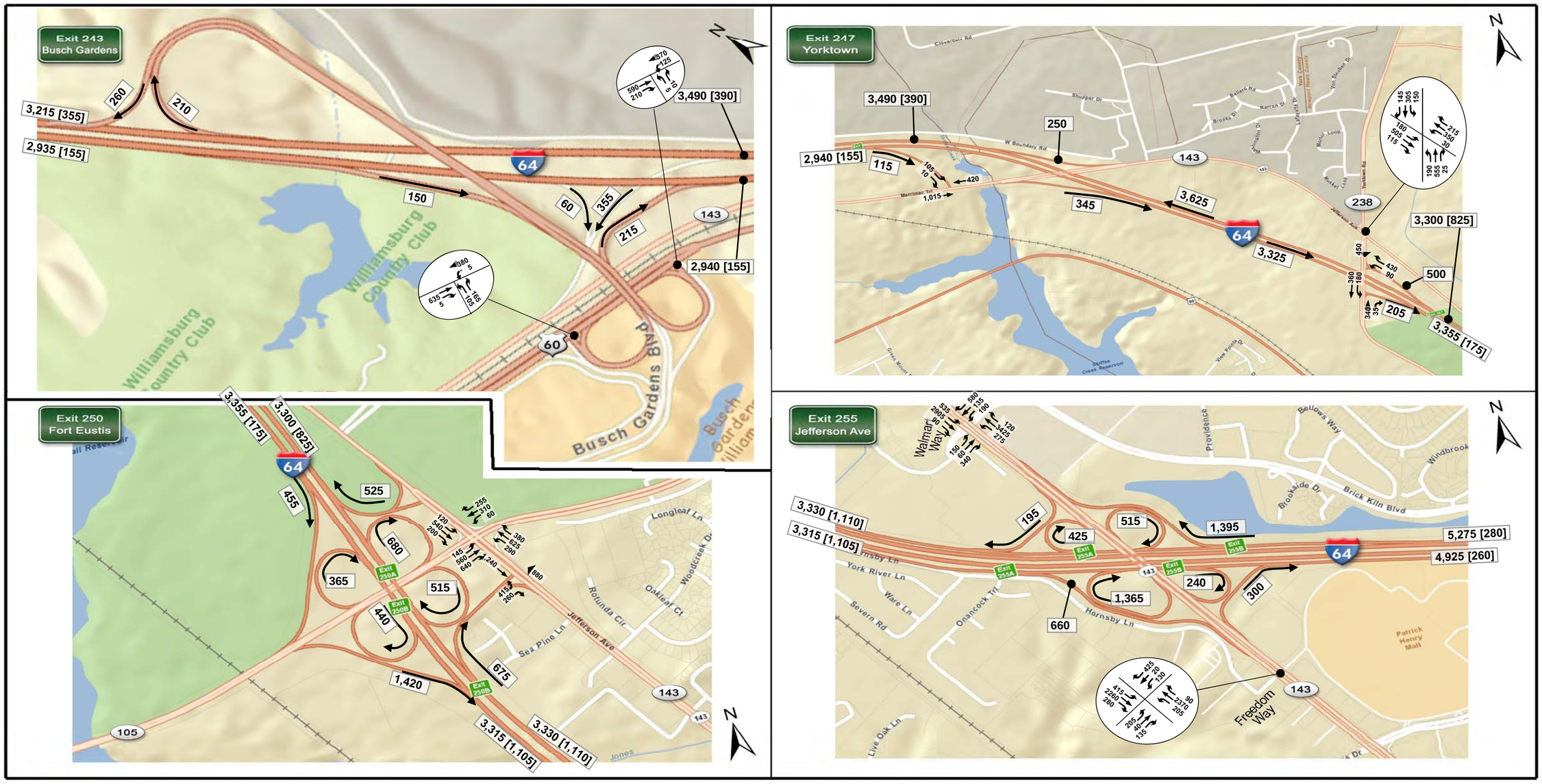

FIGURE 2: PM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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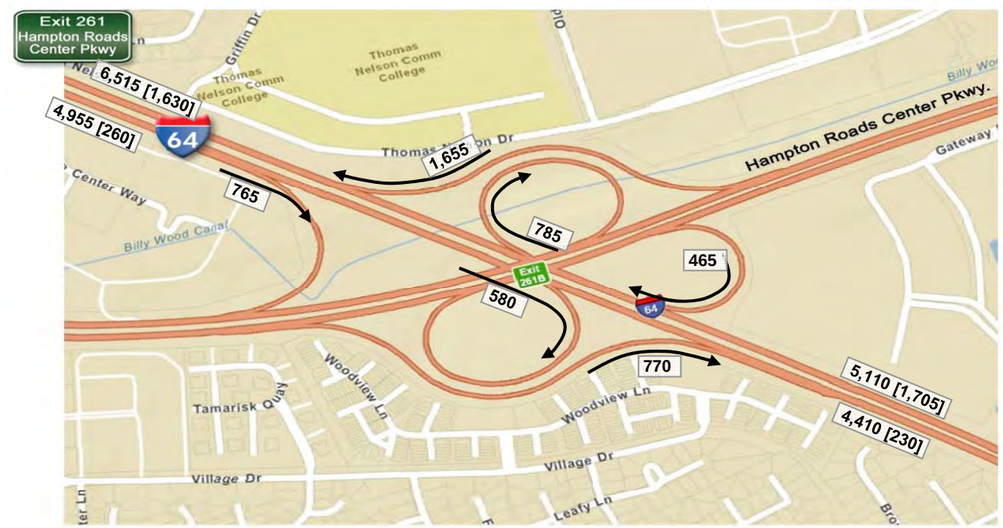

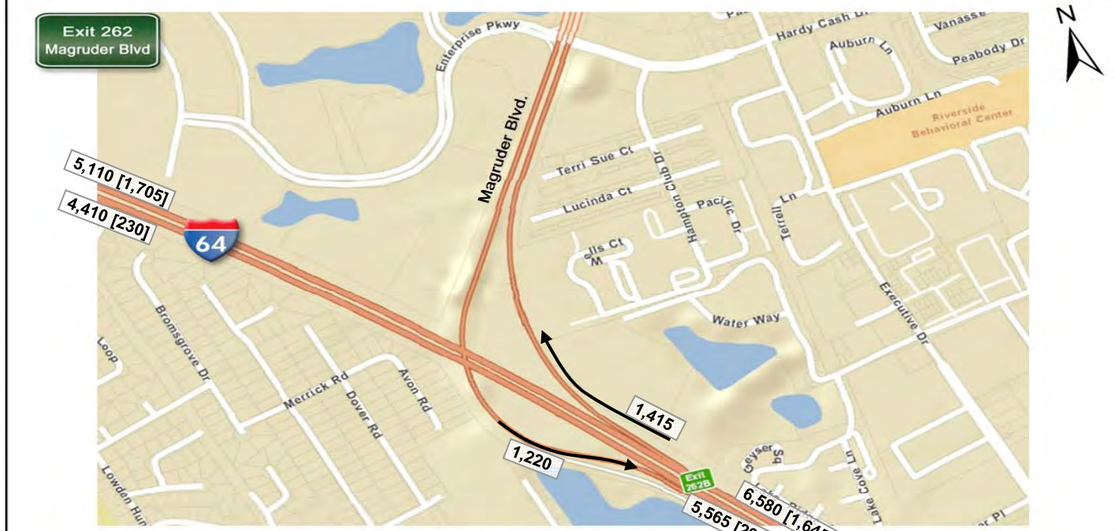

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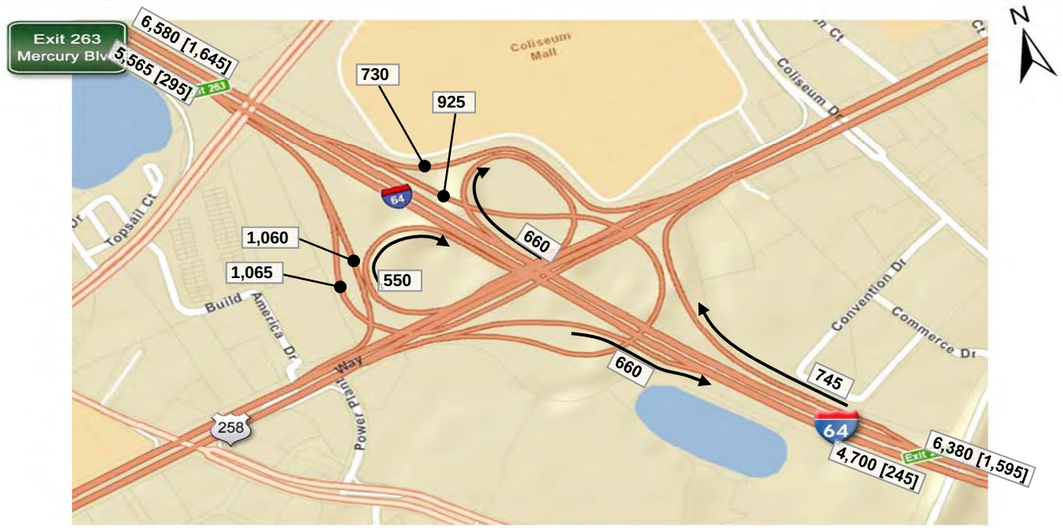

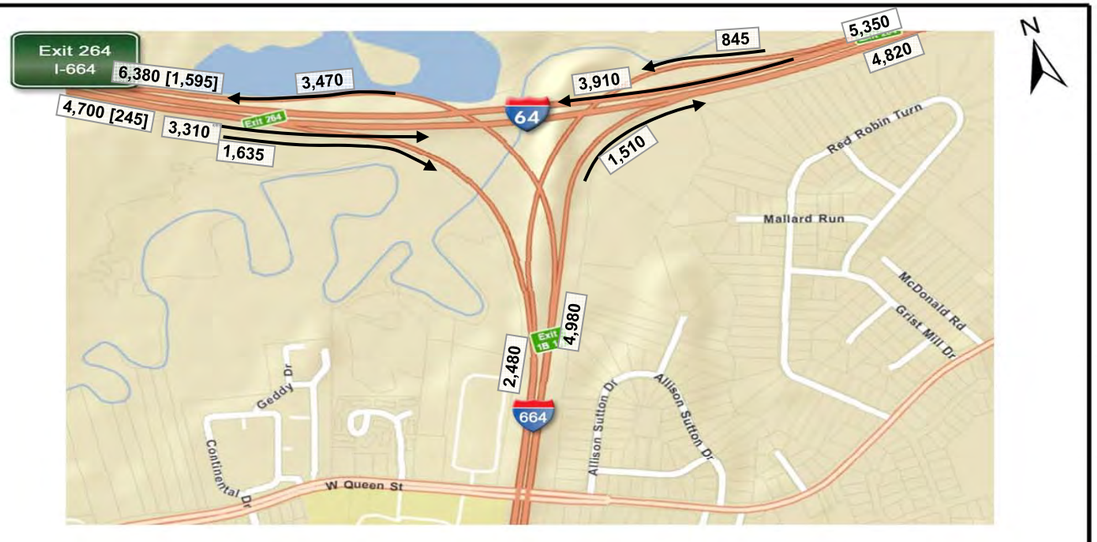

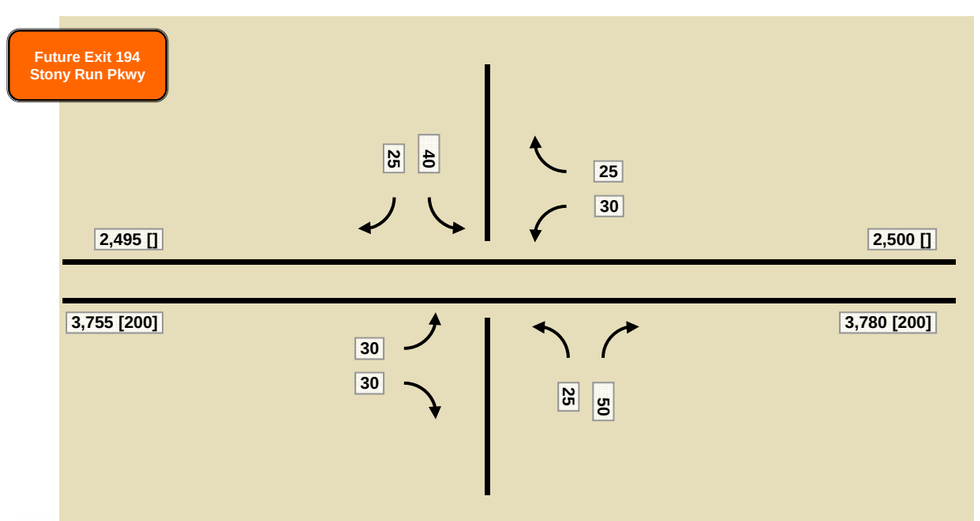

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FIGURE 2: PM Peak Hour Volumes
2020 Alt 3 Balanced Volumes
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FINAL

Updated 1/11/2012

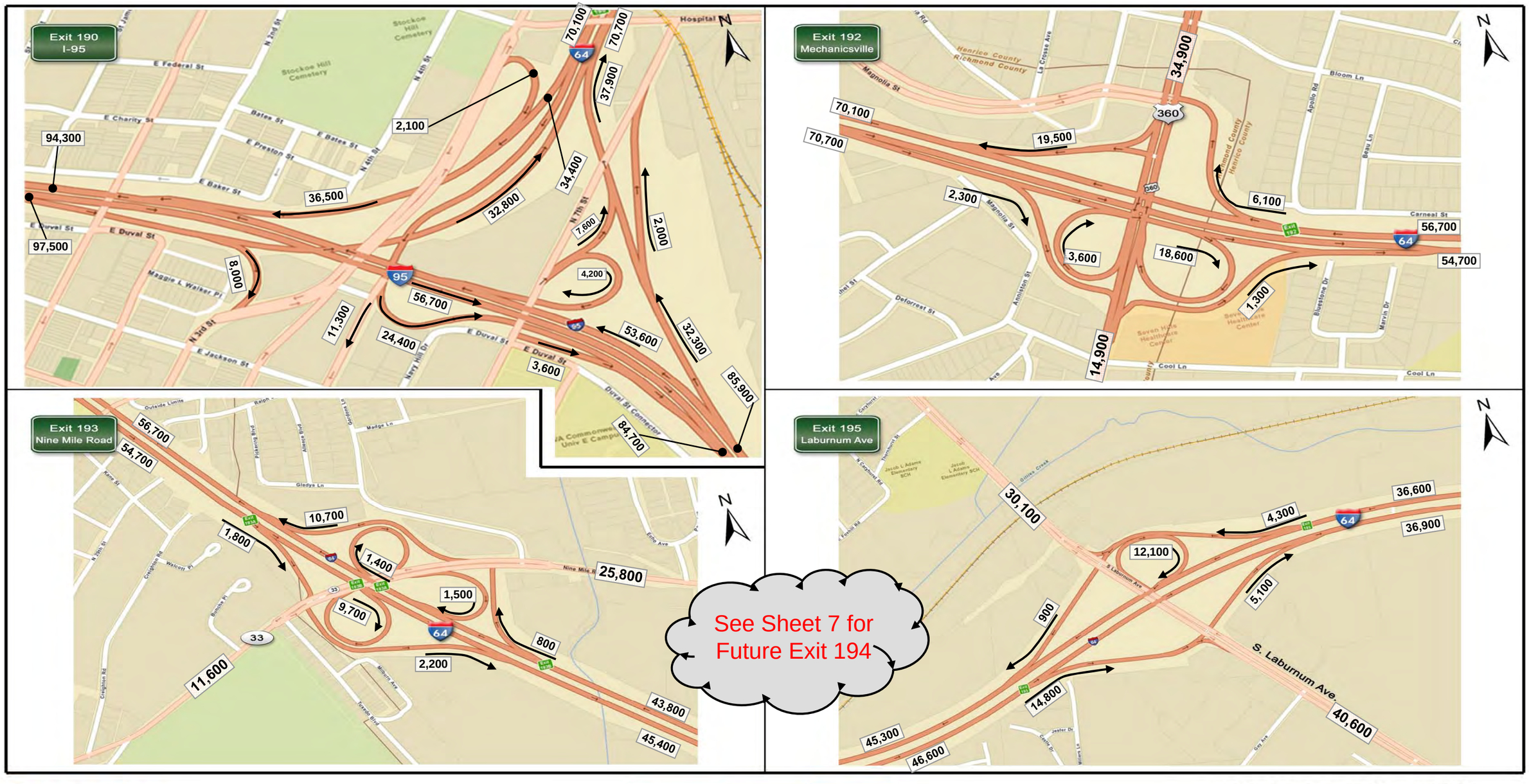

FIGURE 3: ADT Volumes

No Build 2040 Balanced Volumes

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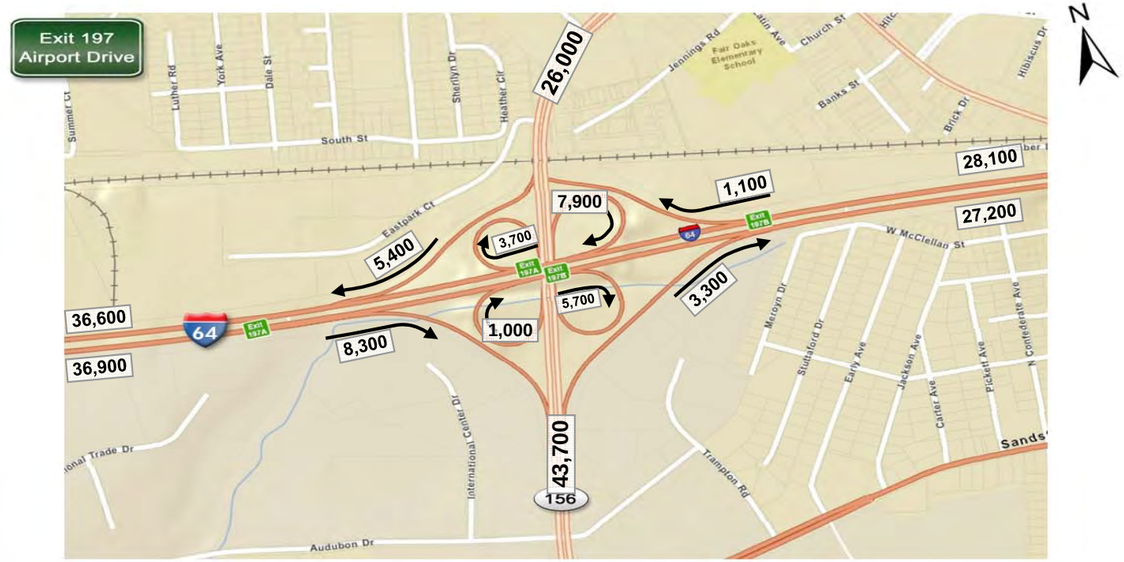
FINAL

Updated 1/11/2012



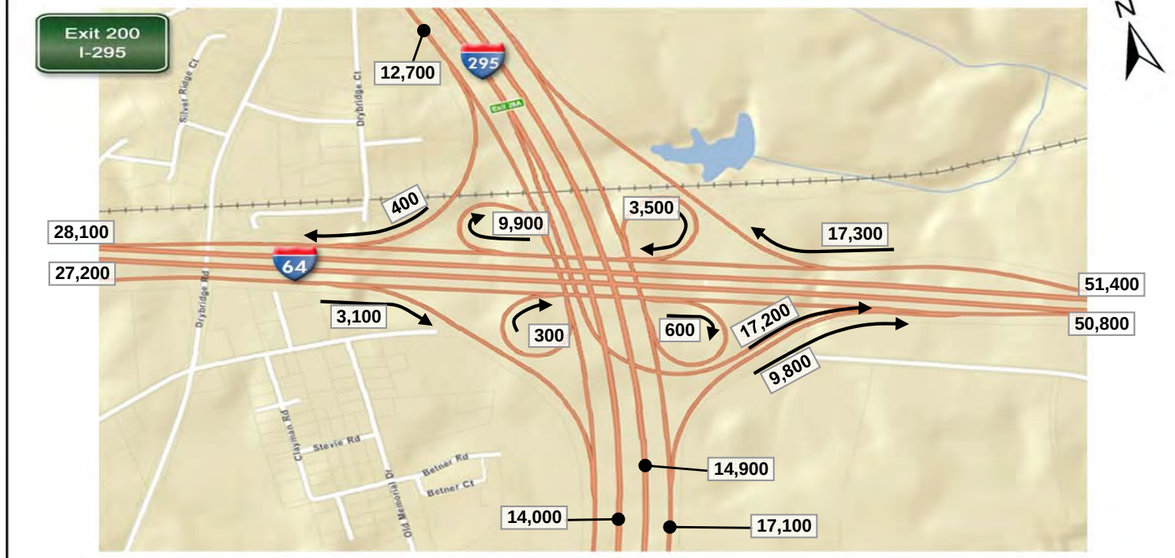


FIGURE 3: ADT Volumes

No Build 2040 Balanced Volumes

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FINAL

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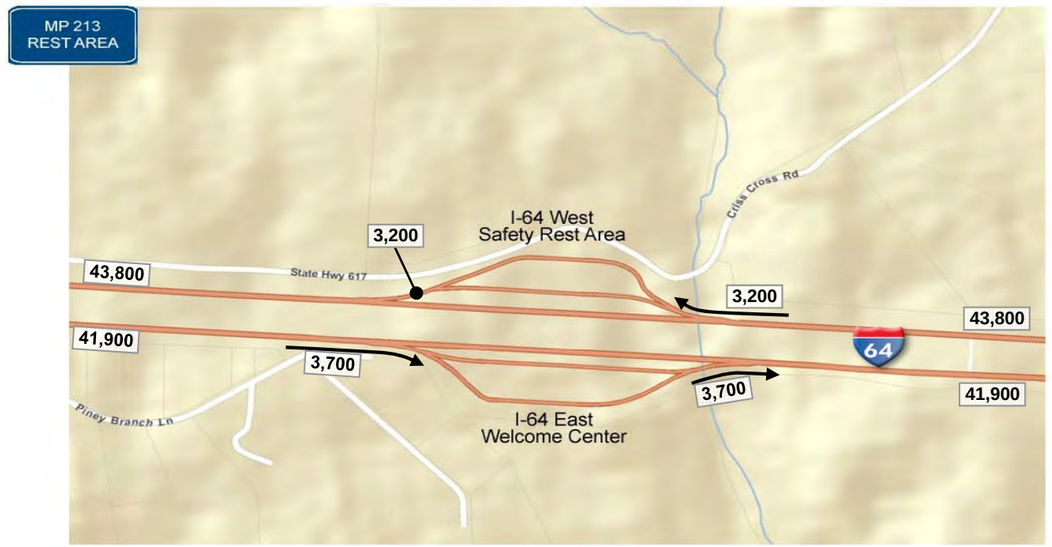

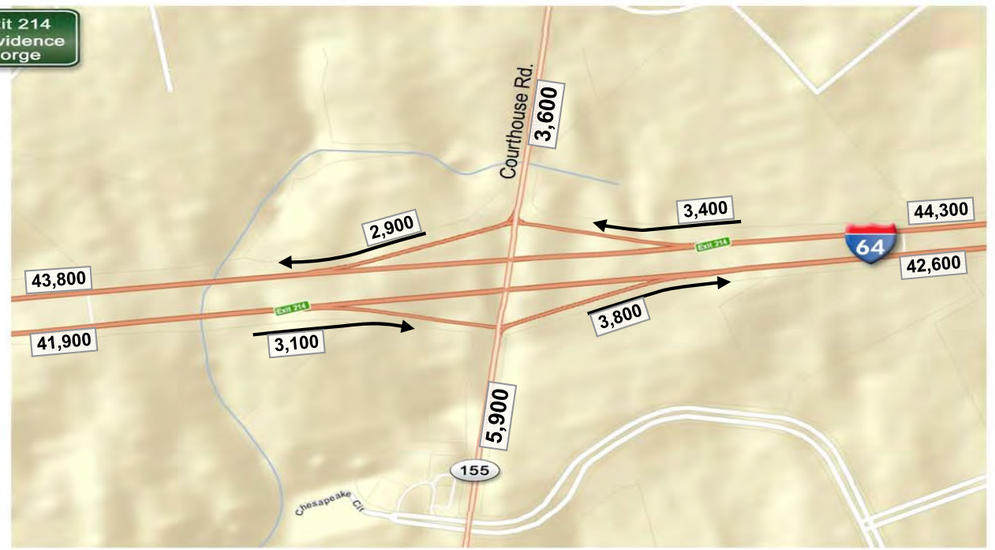

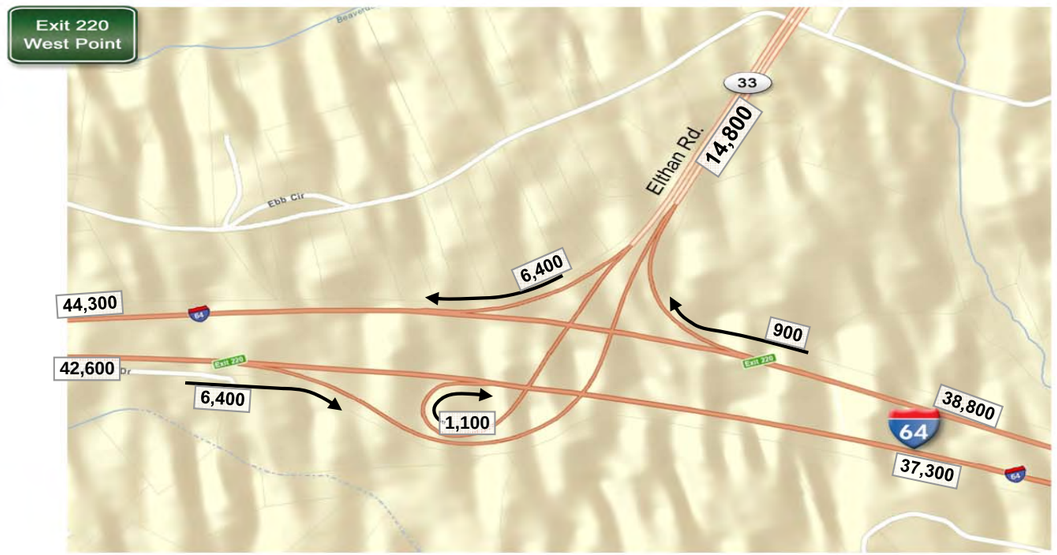

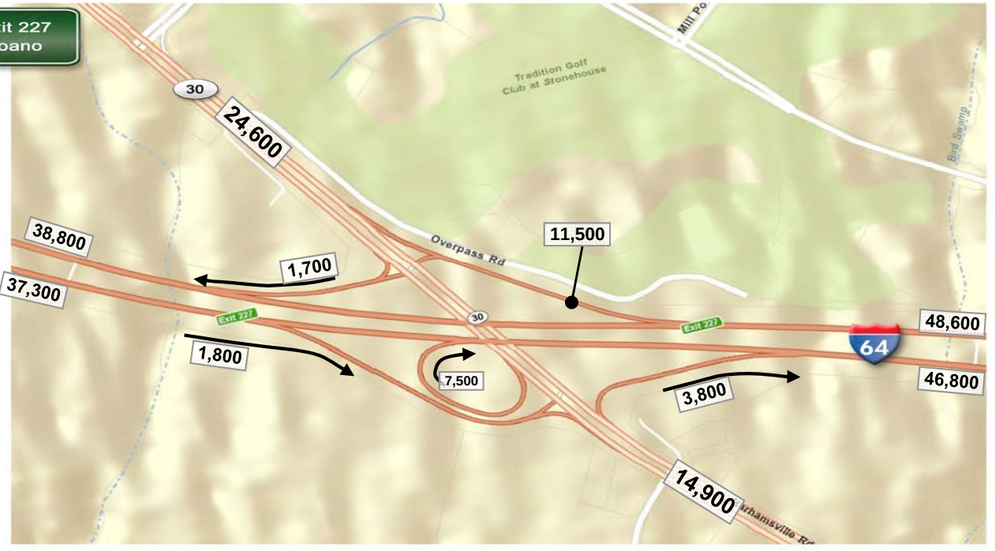

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FIGURE 3: ADT Volumes
No Build 2040 Balanced Volumes
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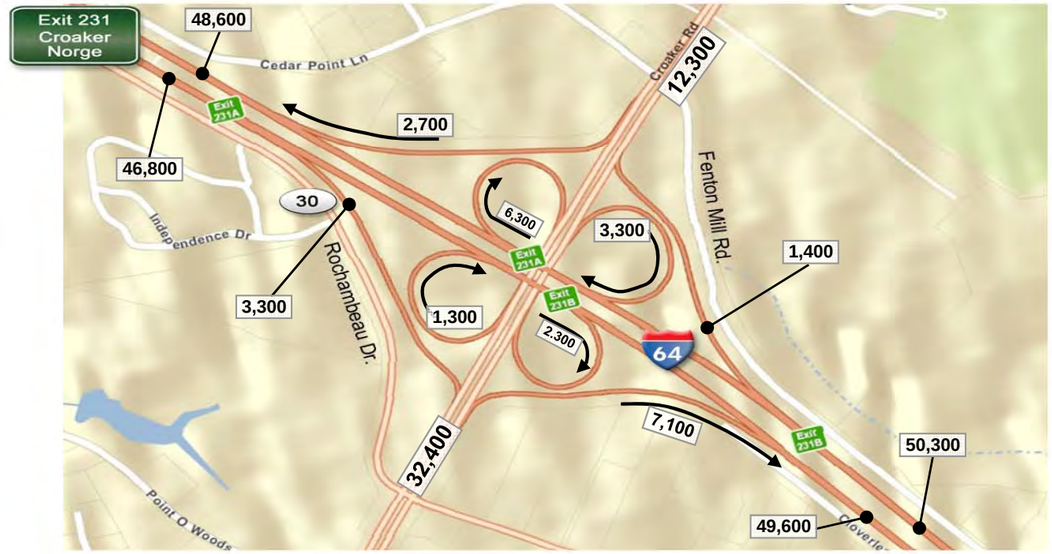

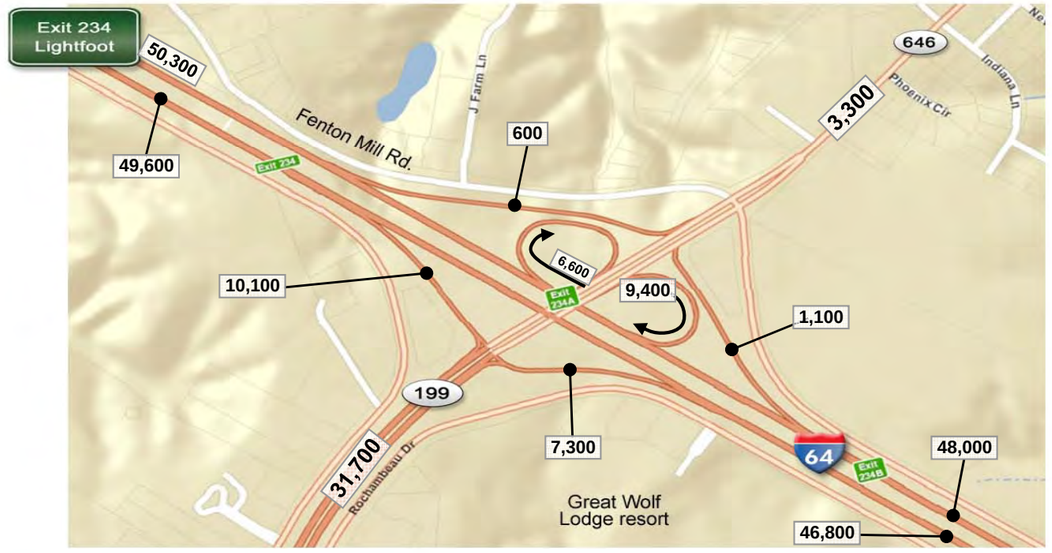

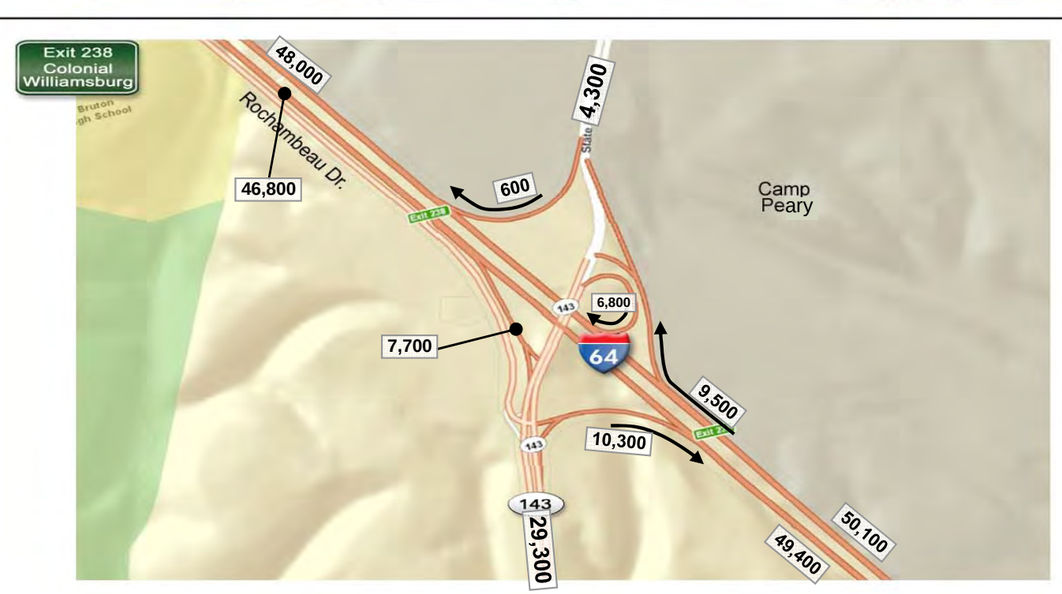

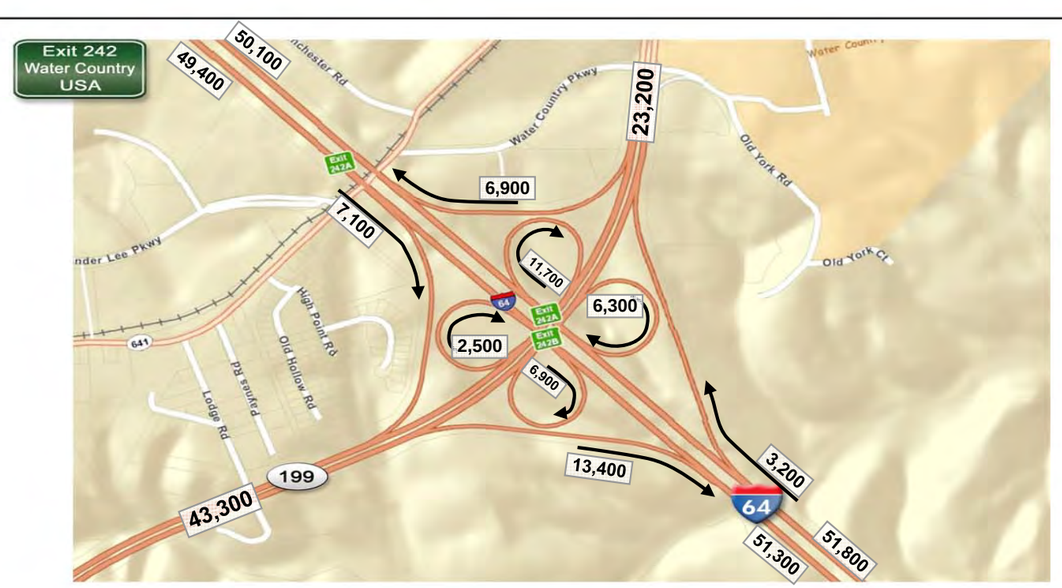

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 3: ADT Volumes
No Build 2040 Balanced Volumes

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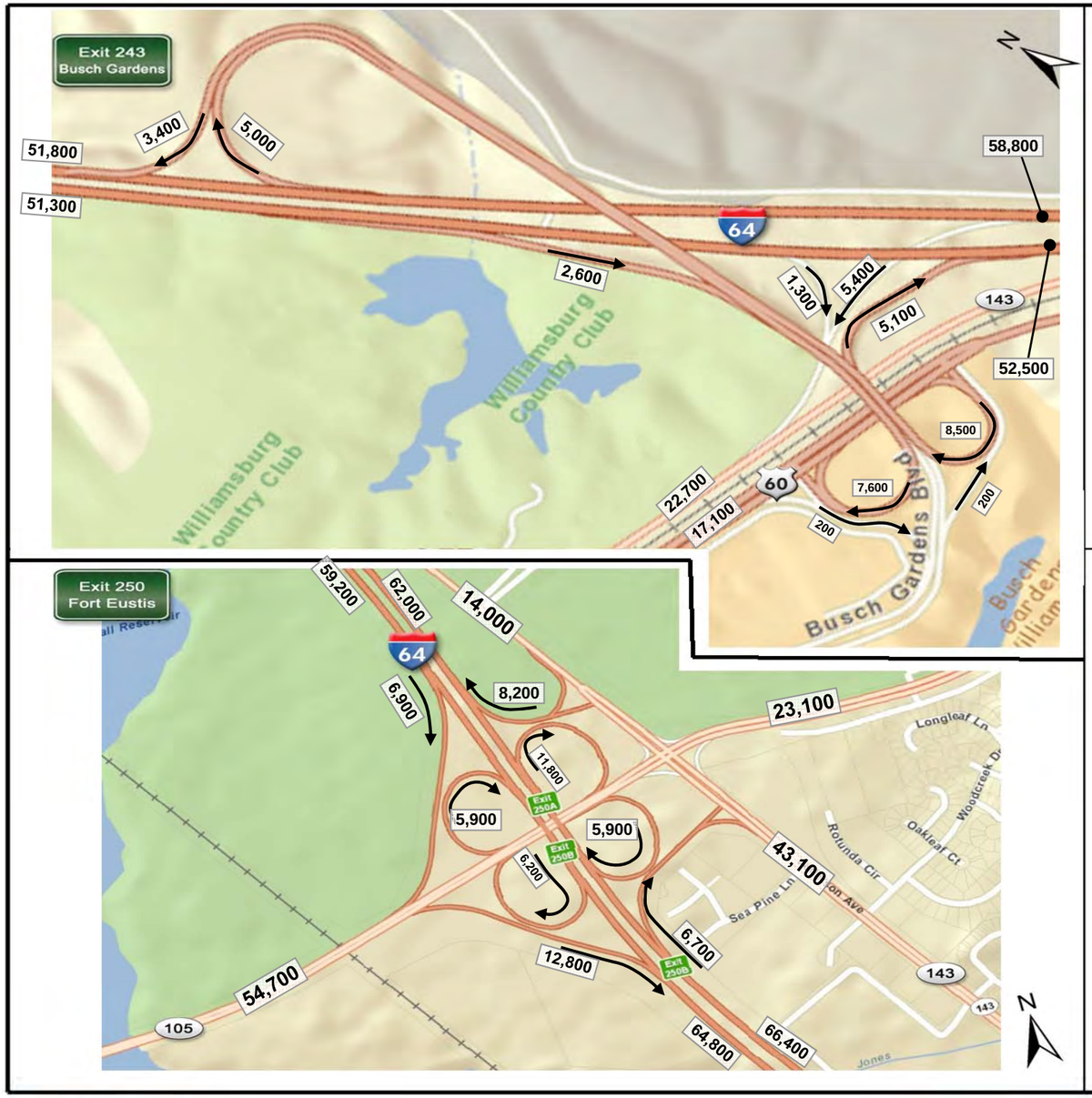

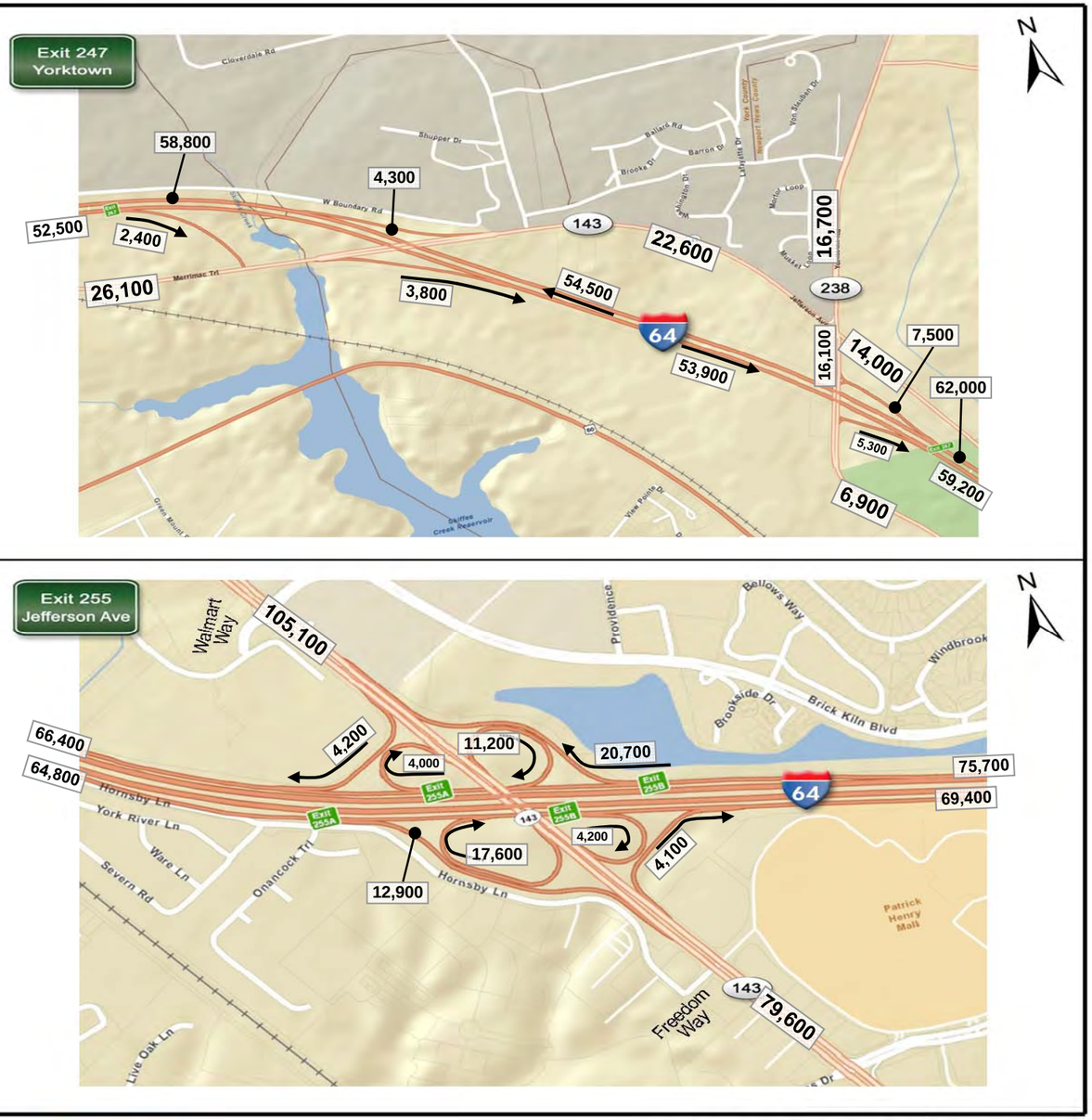

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FIGURE 3: ADT Volumes
No Build 2040 Balanced Volumes
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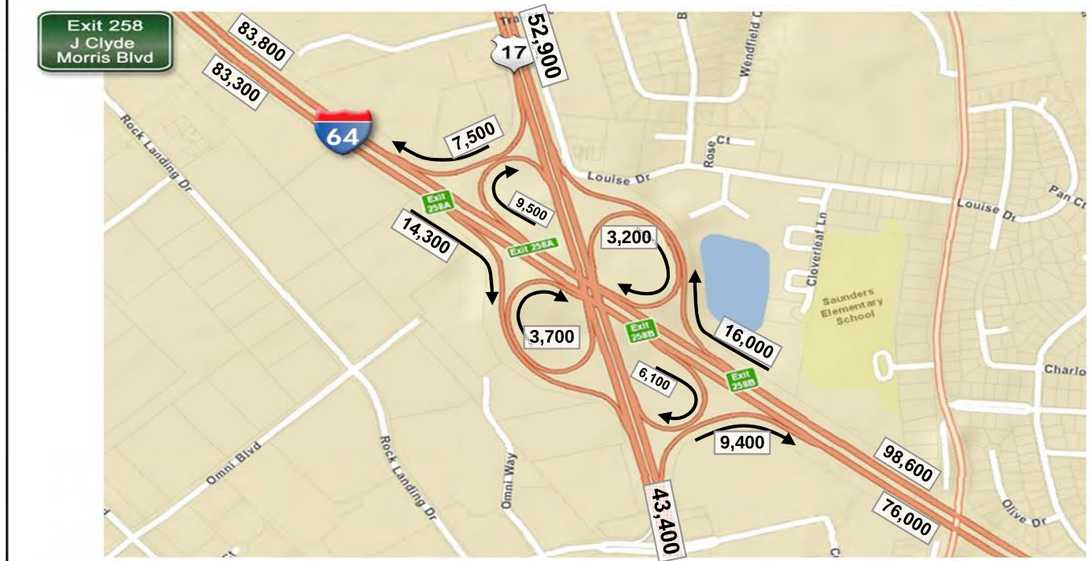

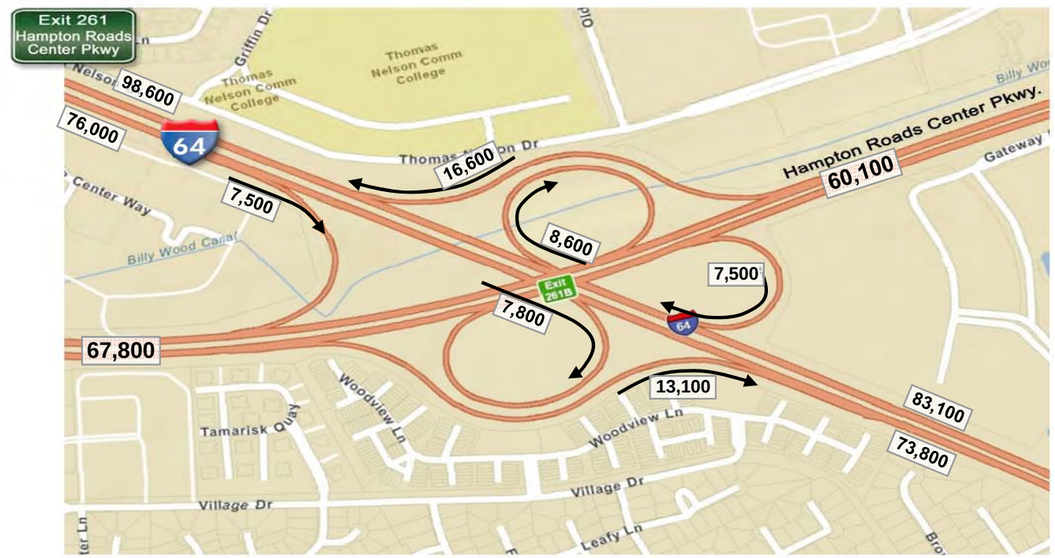

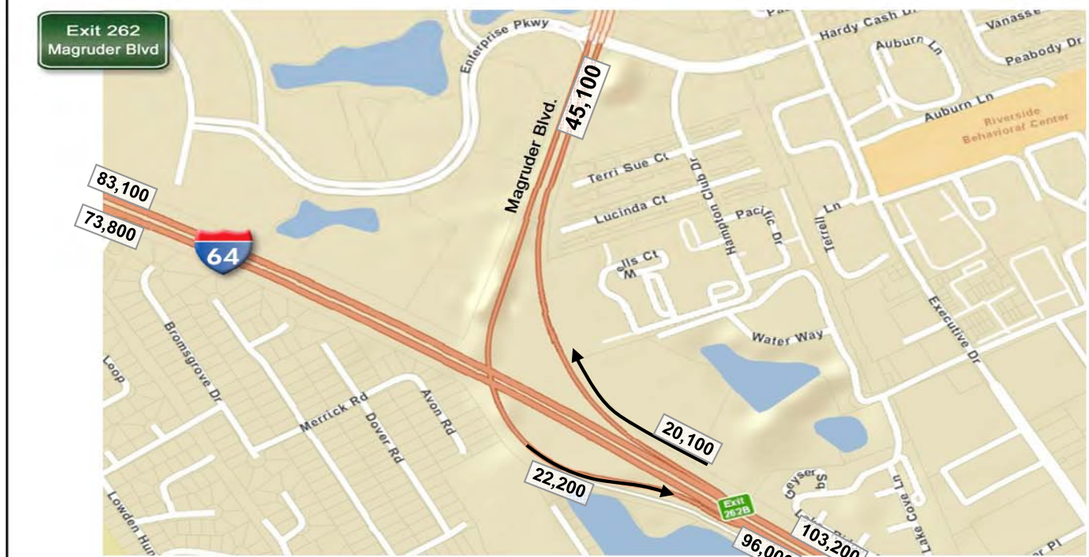

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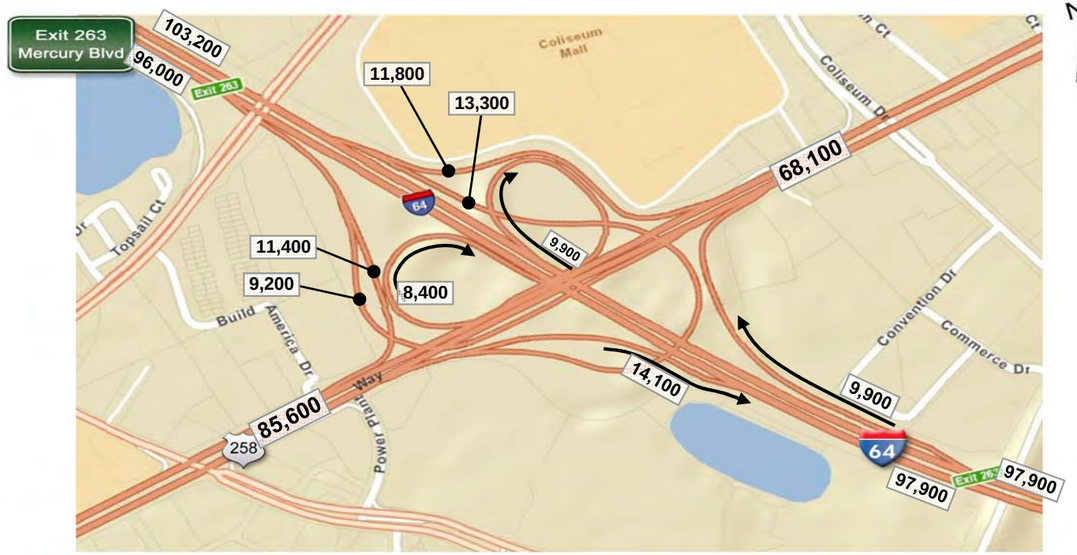
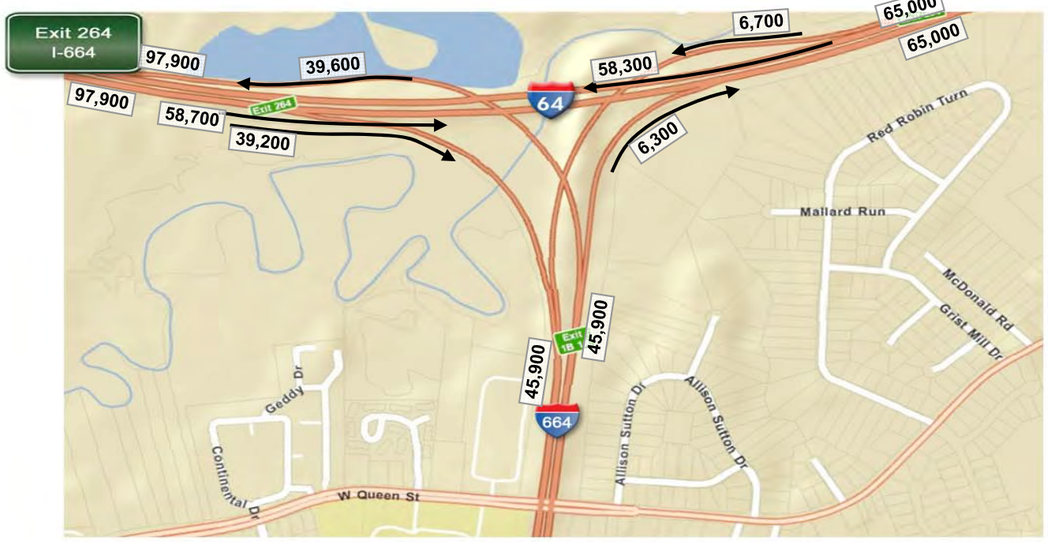
No Build 2040 Balanced Volumes





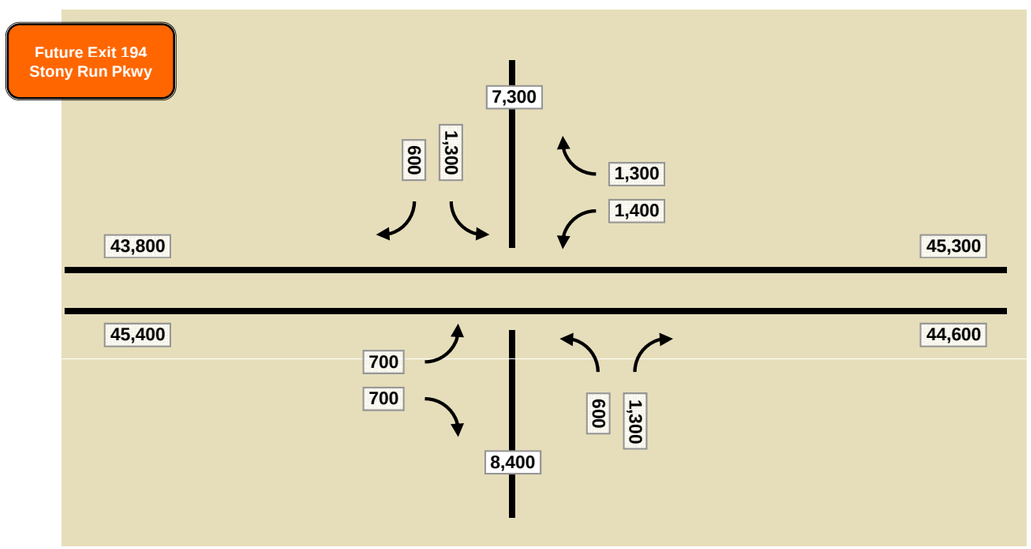


FIGURE 3: ADT Volumes

No Build 2040 Balanced Volumes

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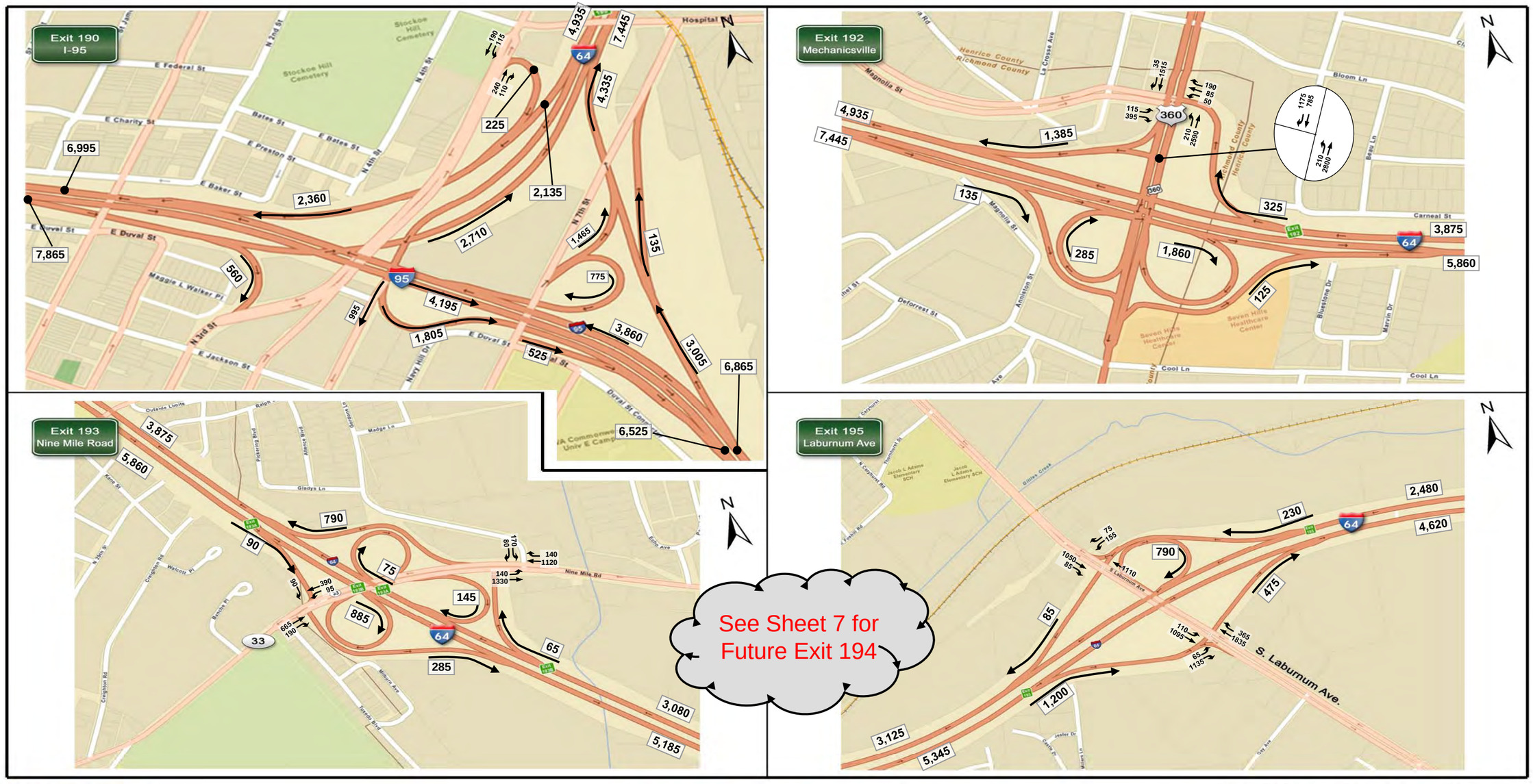

FIGURE 2: PM Peak Hour Volumes
2040 No Build Balanced Volumes
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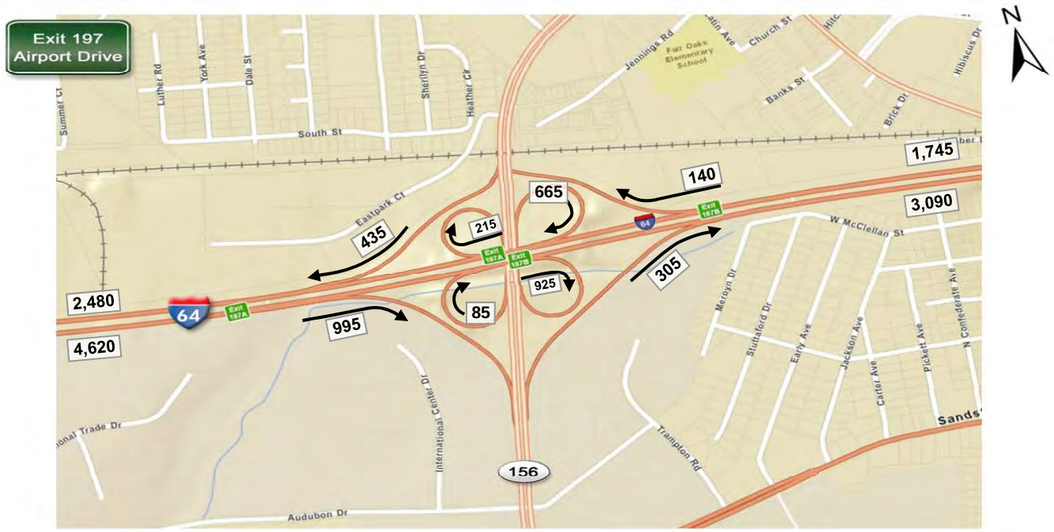

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
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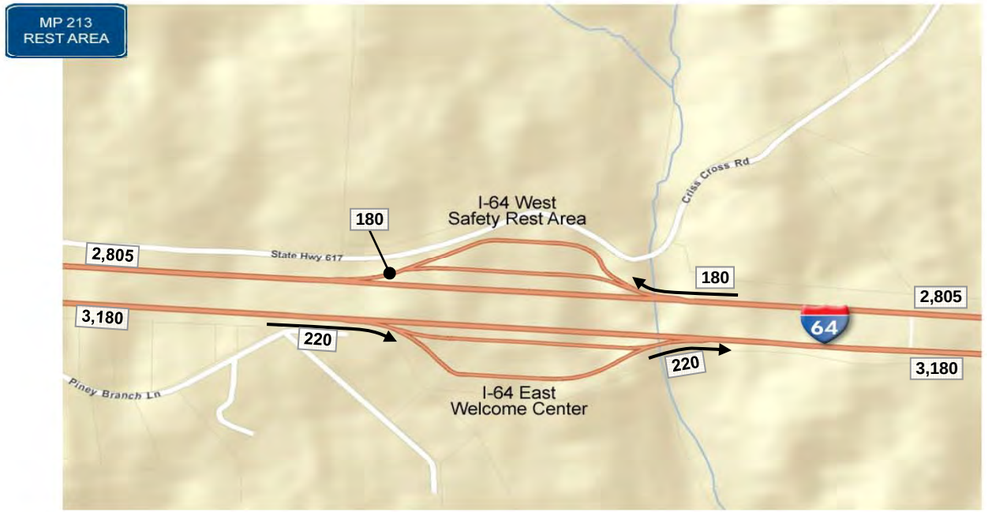

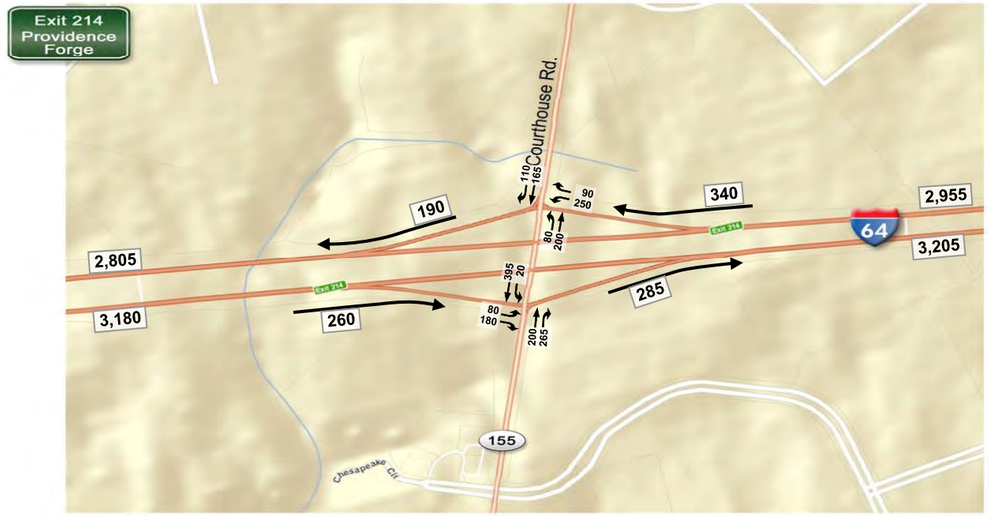

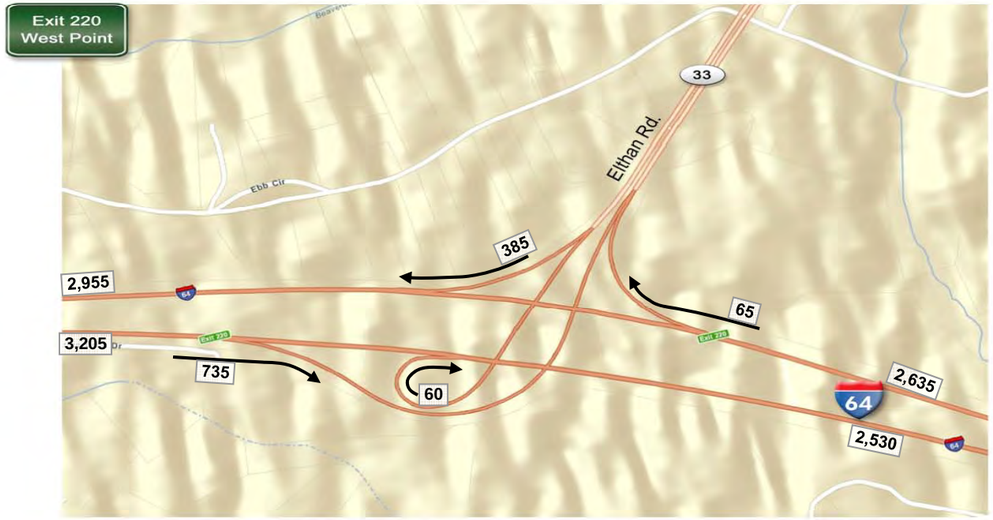

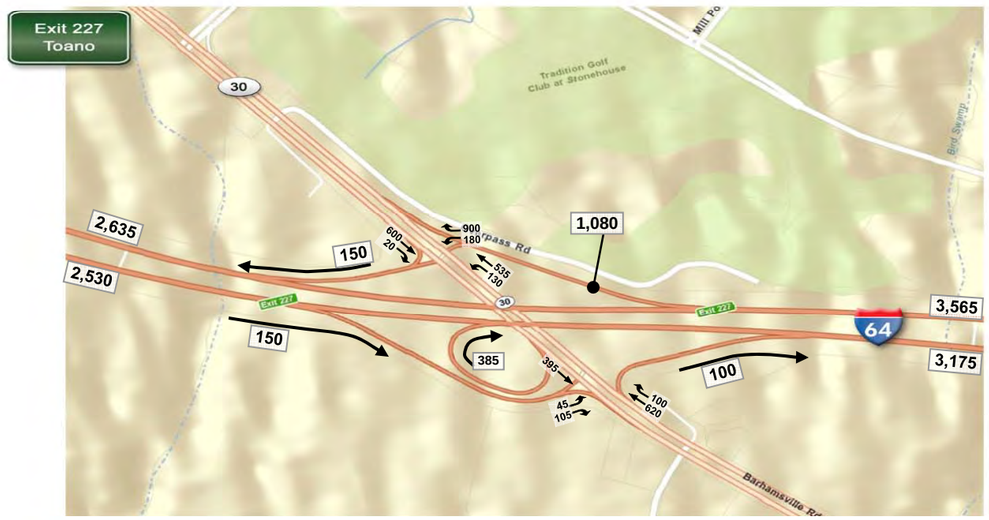

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FIGURE 2: PM Peak Hour Volumes
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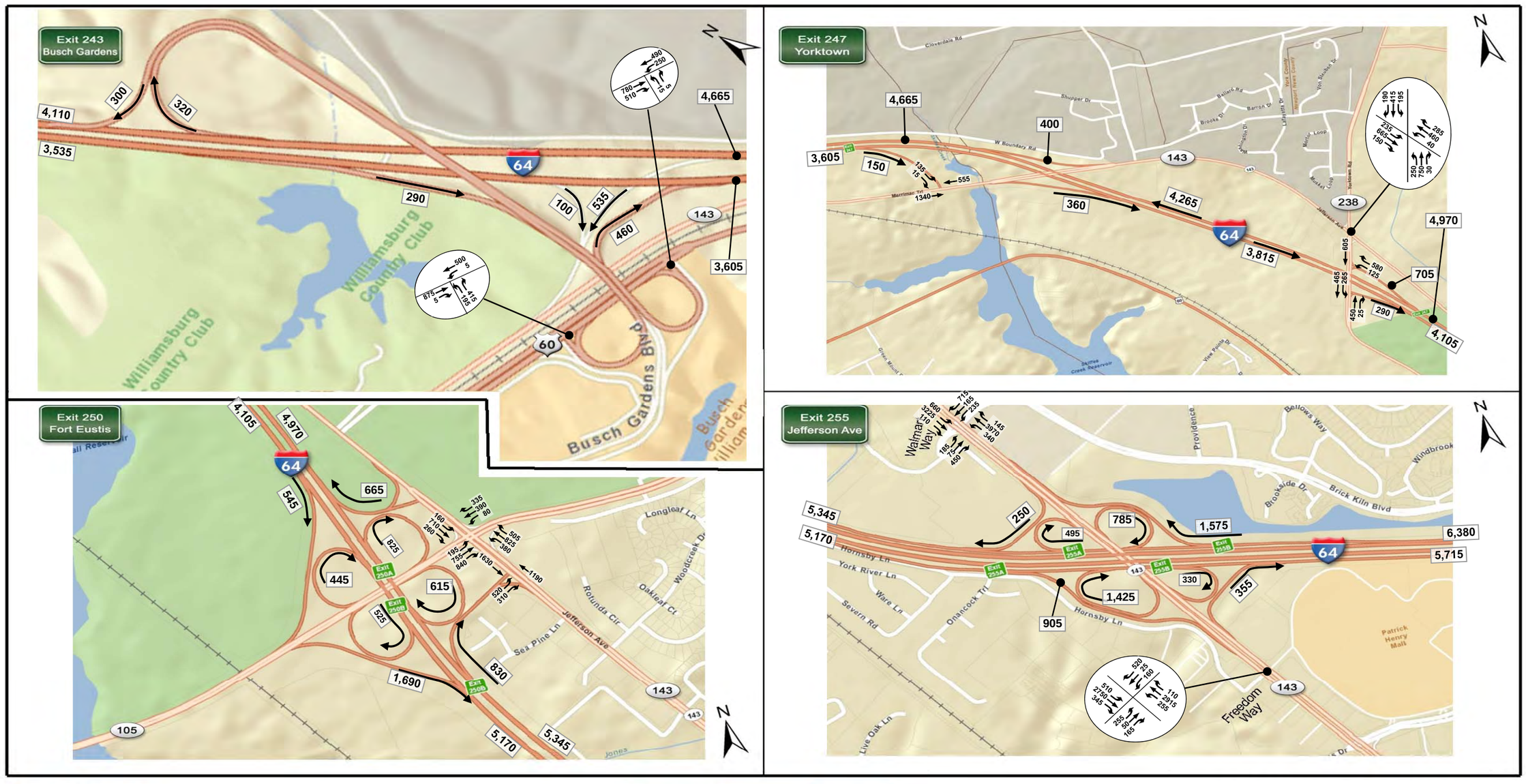

FIGURE 2: PM Peak Hour Volumes
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FIGURE 2: PM Peak Hour Volumes
2040 No Build Balanced Volumes

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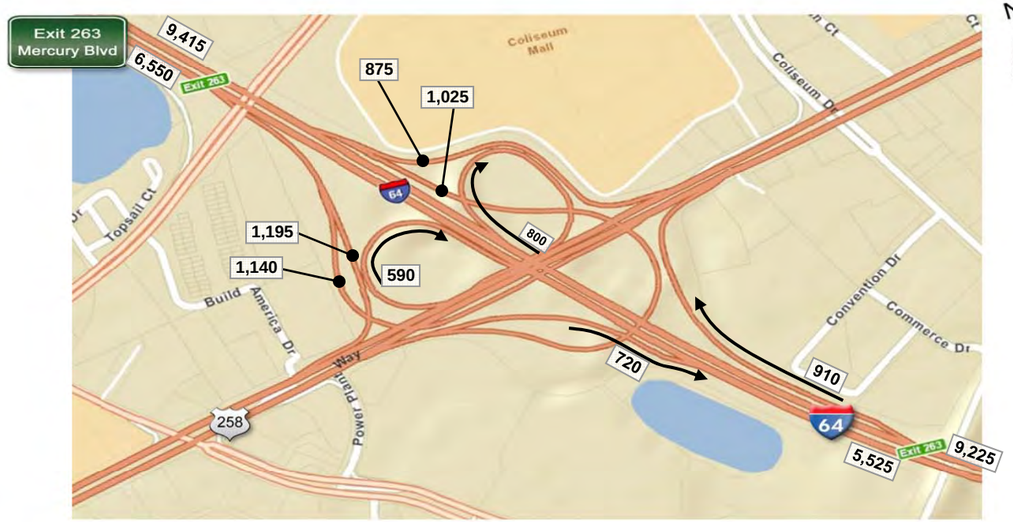

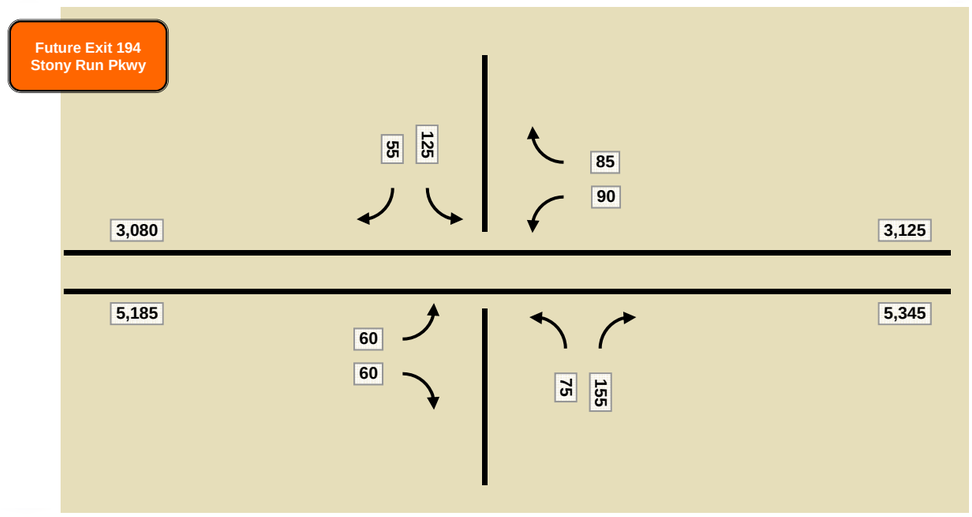

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FIGURE 2: PM Peak Hour Volumes
2040 No Build Balanced Volumes
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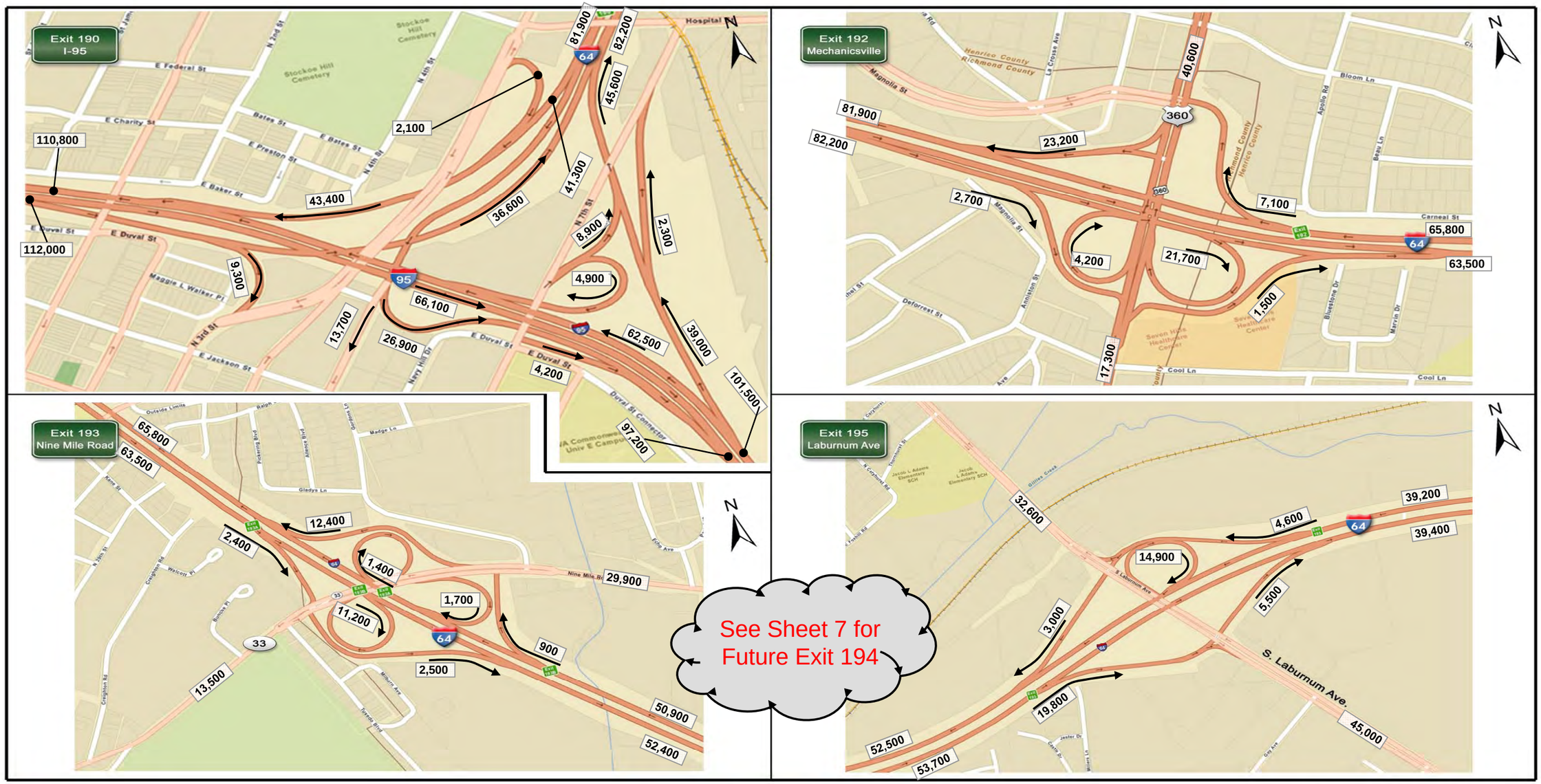

FIGURE 3: ADT Volumes
2040 Build Alt A Balanced Volumes
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FIGURE 3: ADT Volumes
2040 Build Alt A Balanced Volumes
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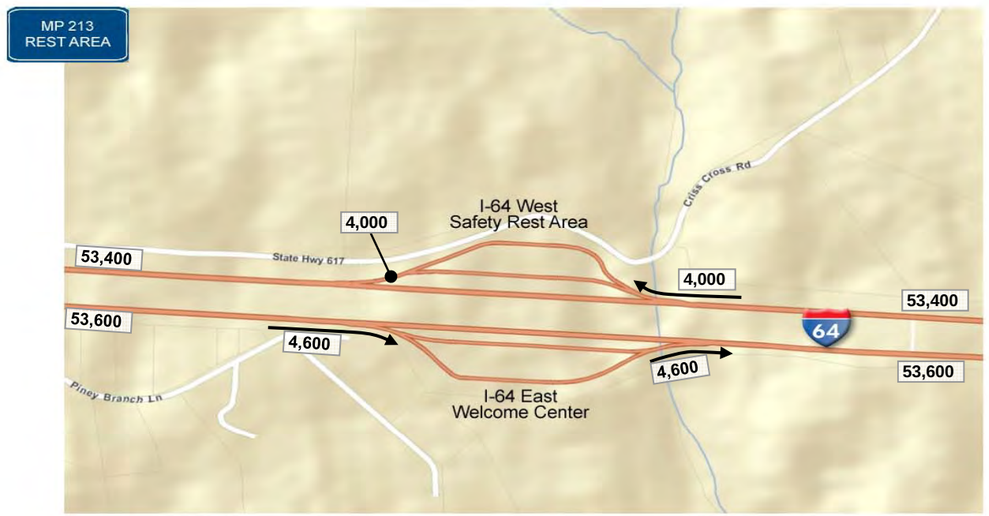

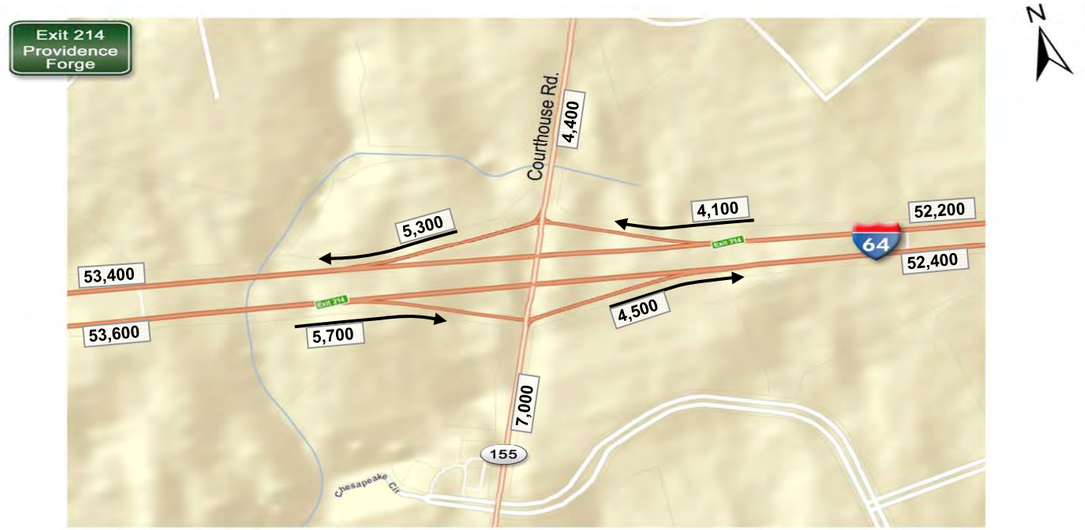

FIGURE 3: ADT Volumes
2040 Build Alt A Balanced Volumes
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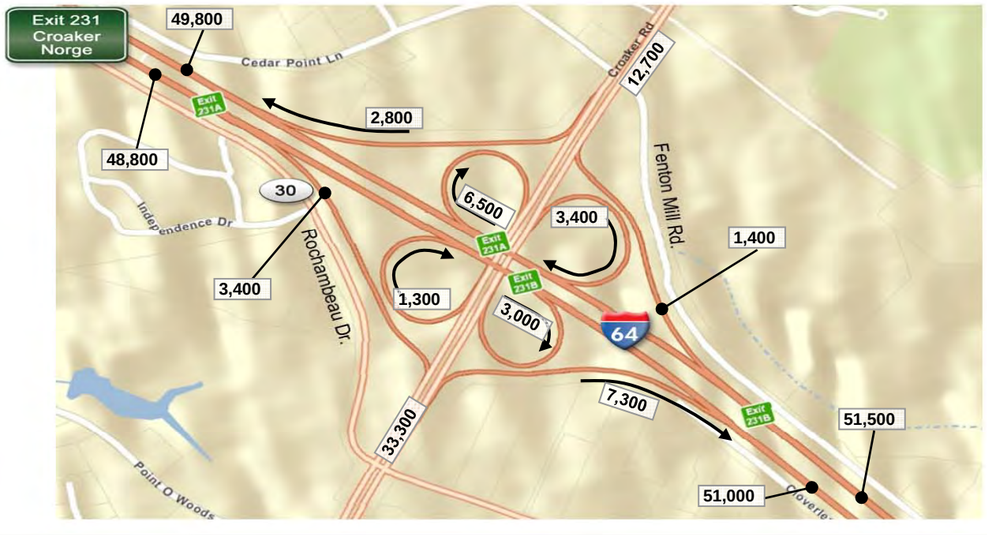

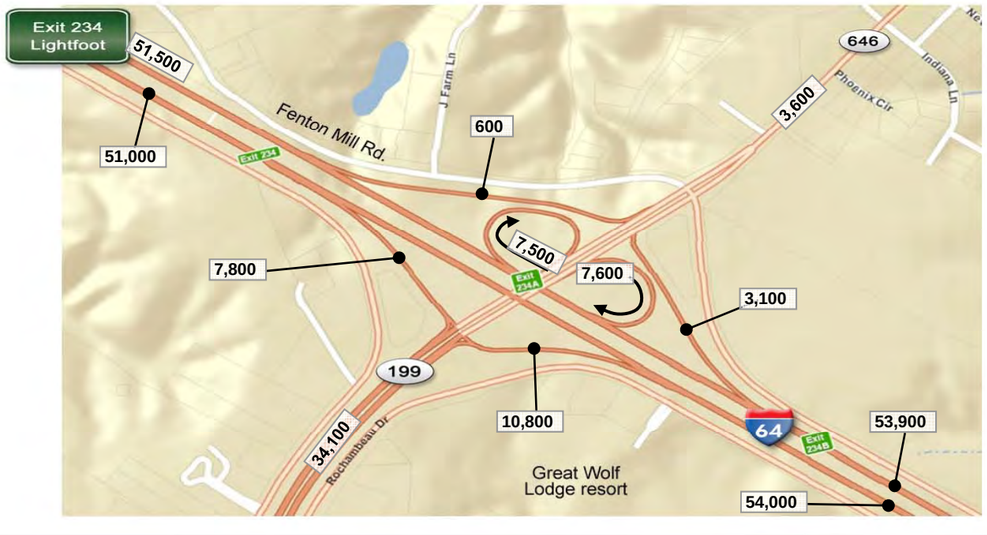

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FIGURE 3: ADT Volumes
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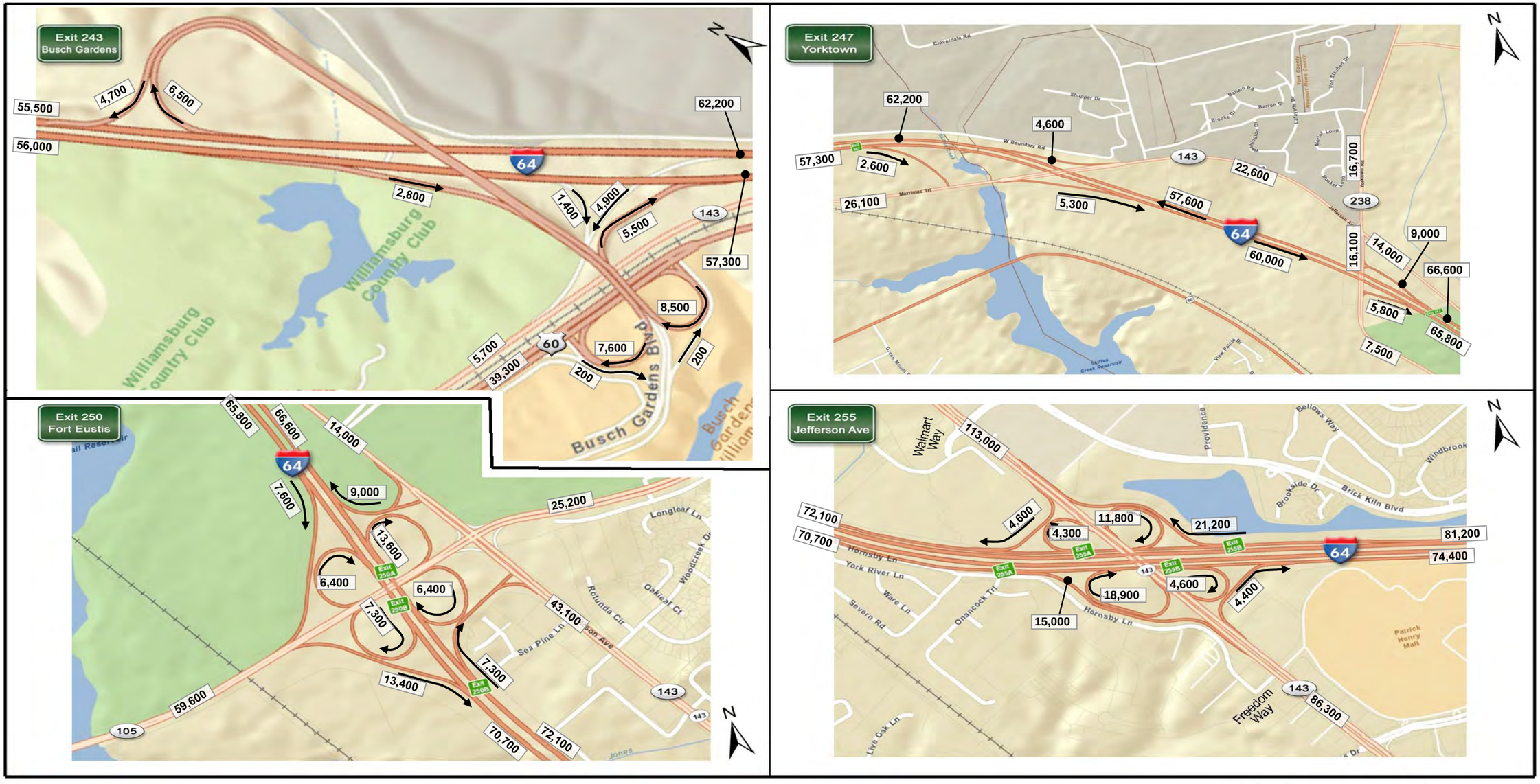

FIGURE 3: ADT Volumes
2040 Build Alt A Balanced Volumes
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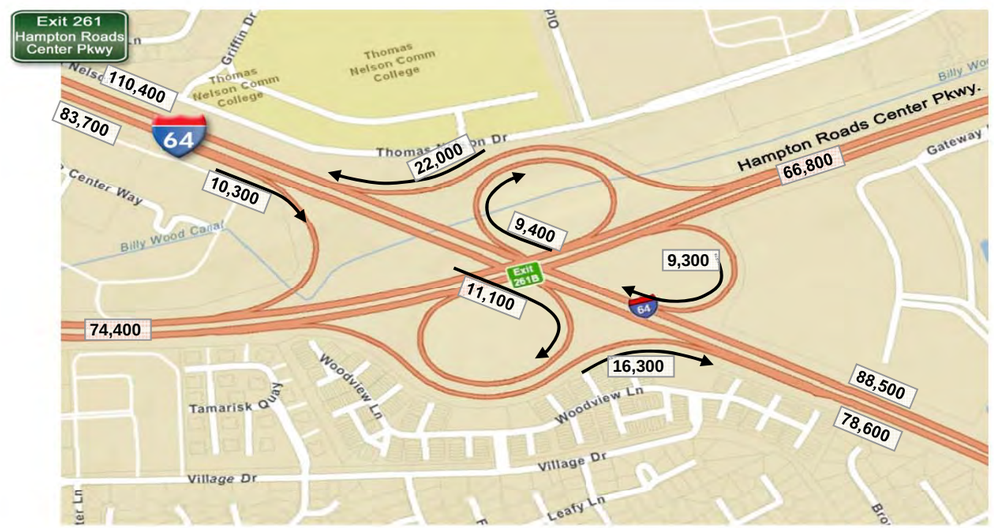

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FIGURE 3: ADT Volumes
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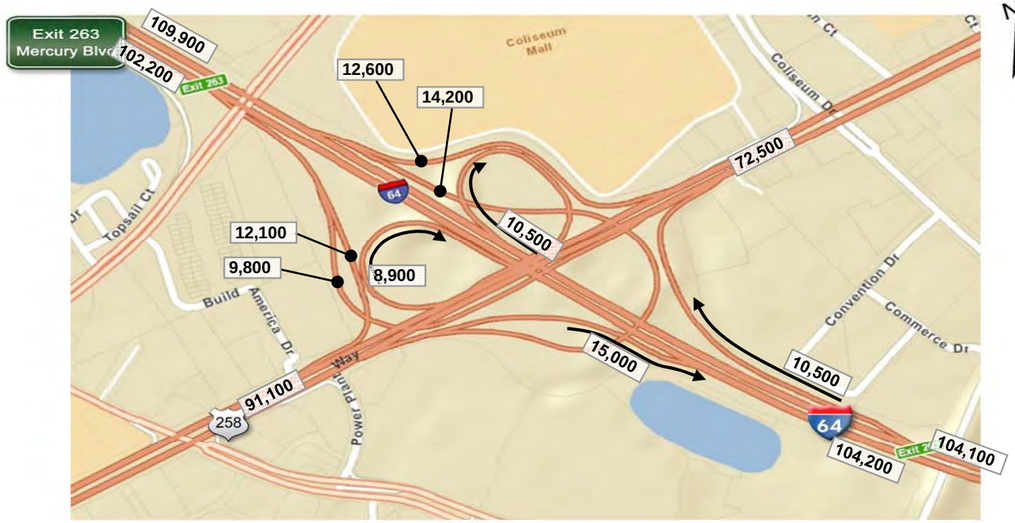

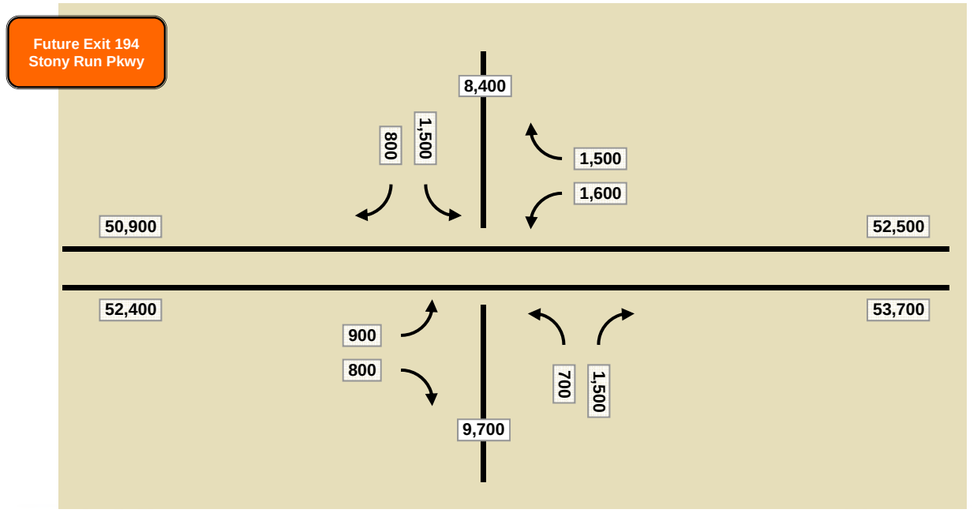

FIGURE 3: ADT Volumes
2040 Build Alt A Balanced Volumes
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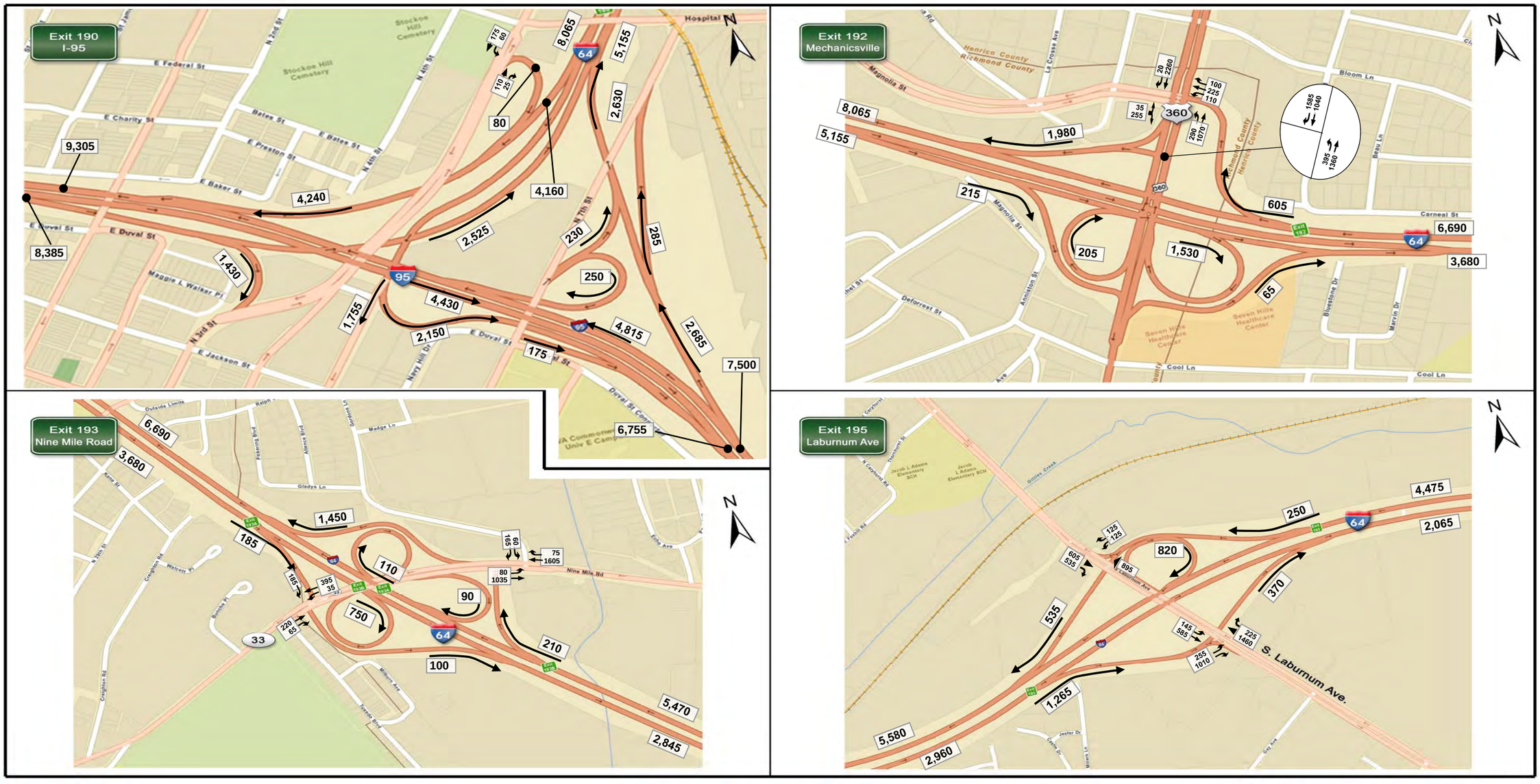

FIGURE 1: AM Peak Hour Volumes
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FIGURE 1: AM Peak Hour Volumes
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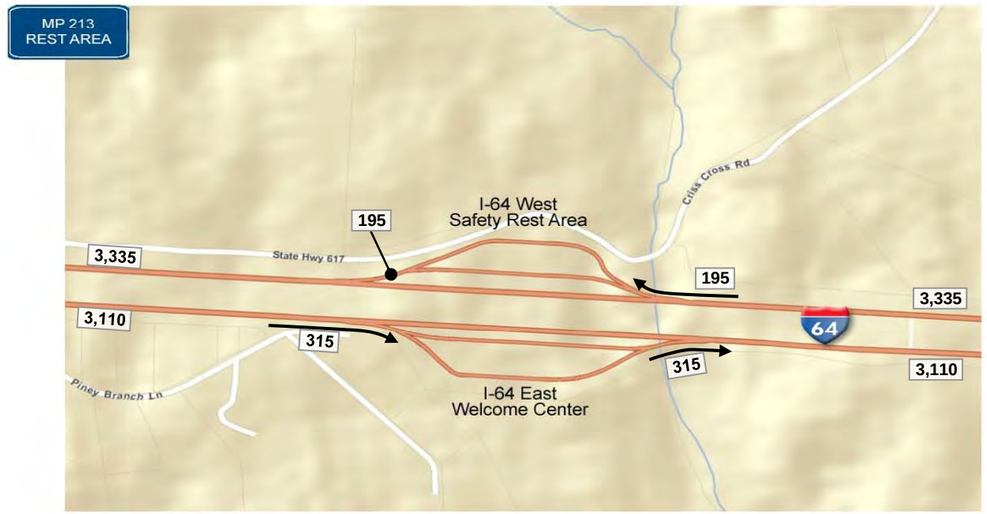

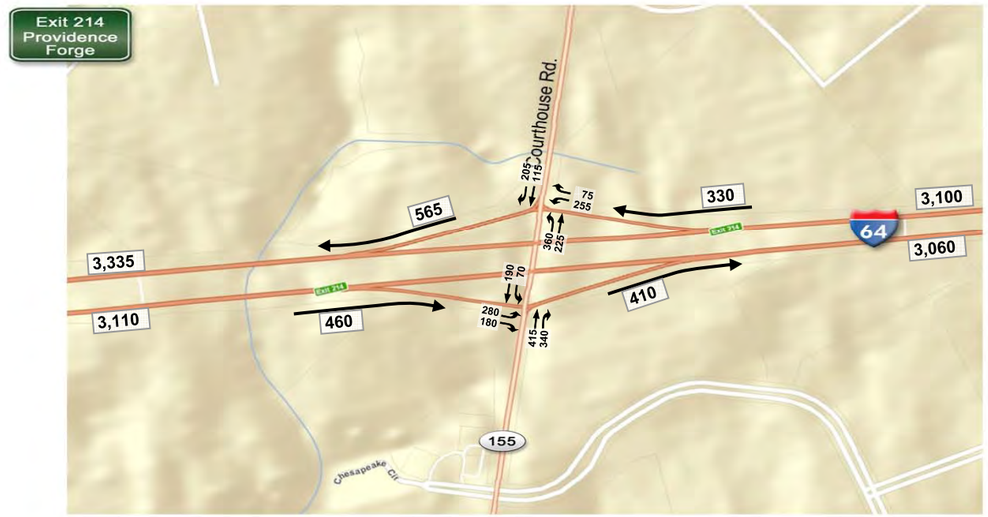

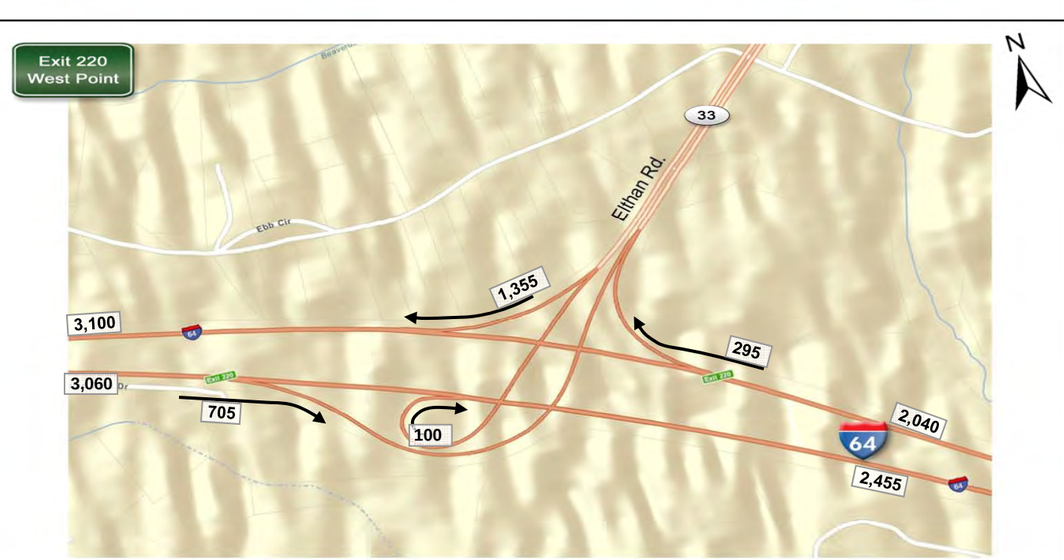

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FIGURE 1: AM Peak Hour Volumes
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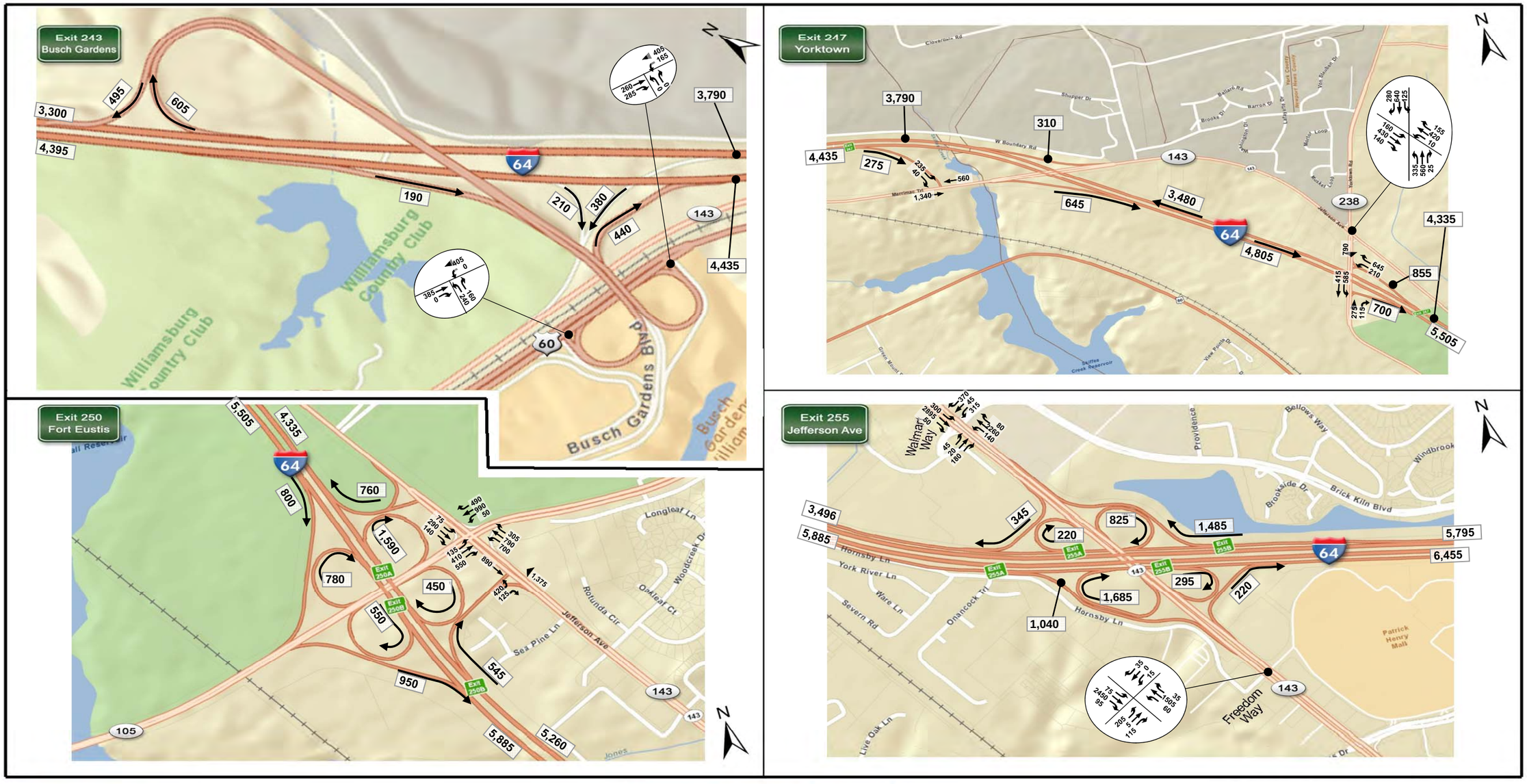

FIGURE 1: AM Peak Hour Volumes
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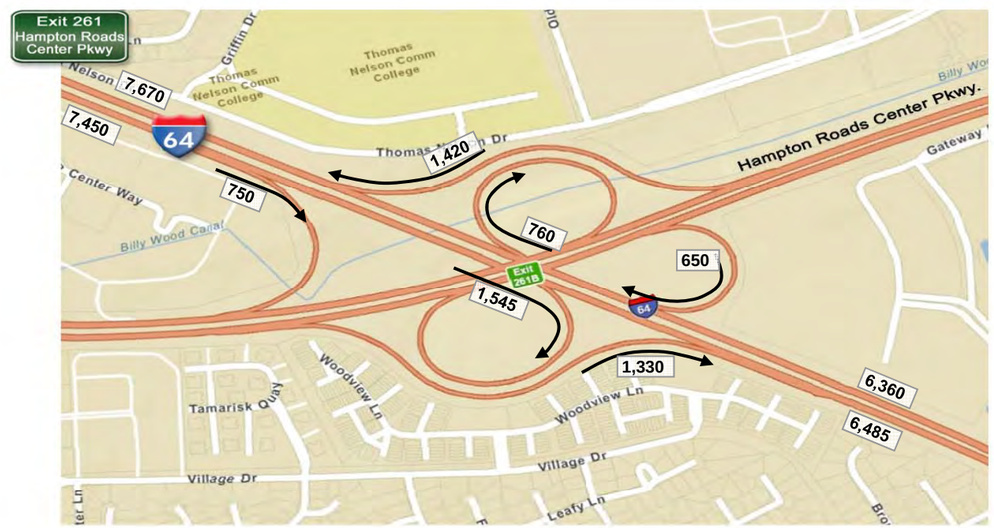

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FIGURE 1: AM Peak Hour Volumes
2040 Alt A Balanced Volumes
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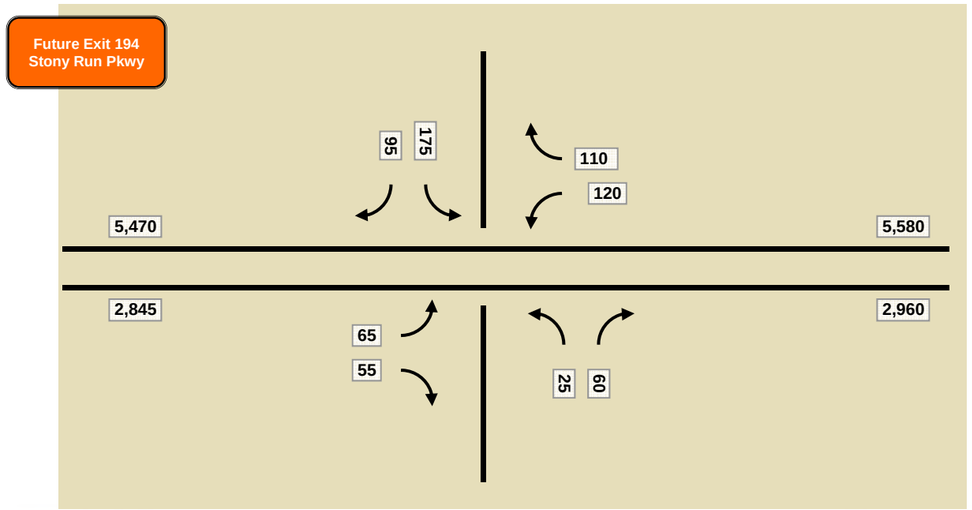

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FIGURE 1: AM Peak Hour Volumes
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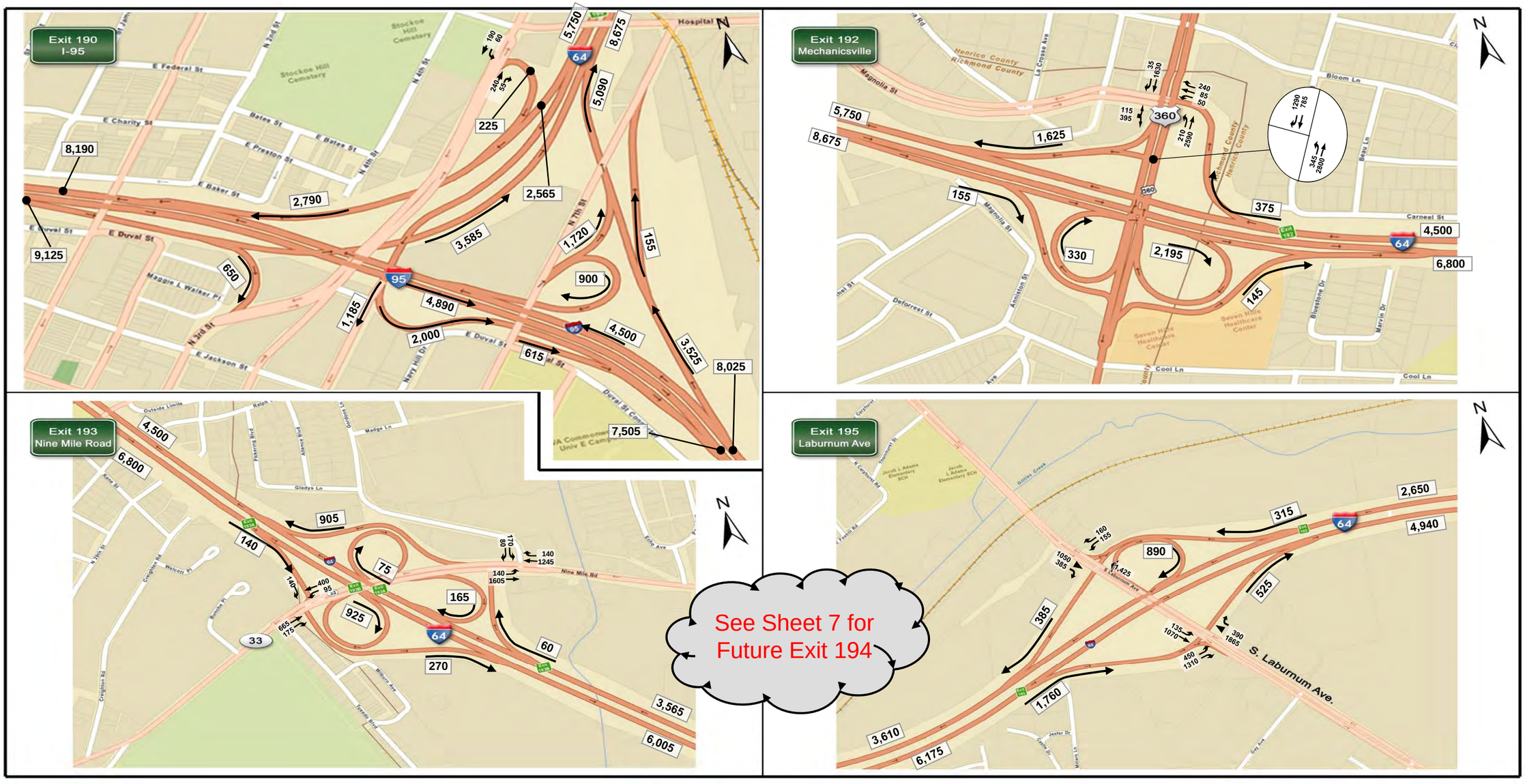

FIGURE 2: PM Peak Hour Volumes
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FIGURE 2: PM Peak Hour Volumes
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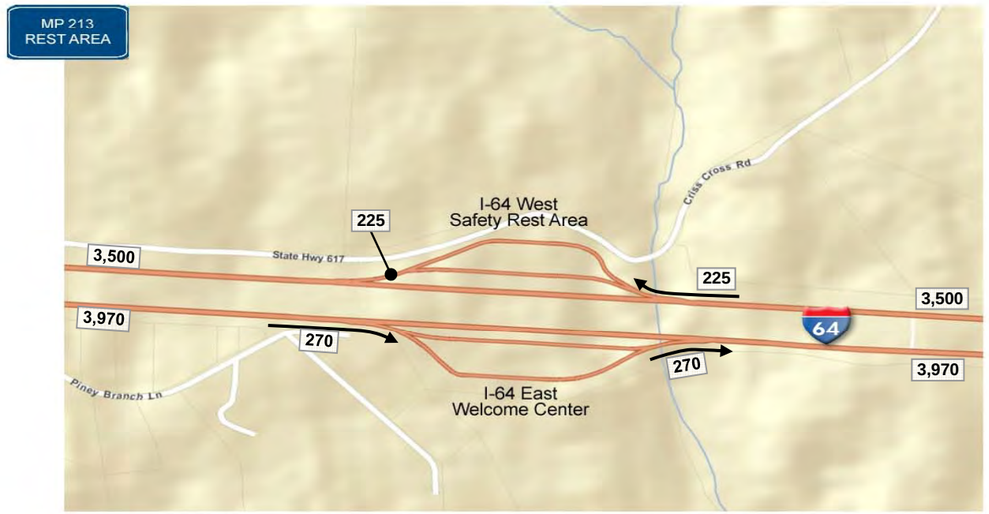

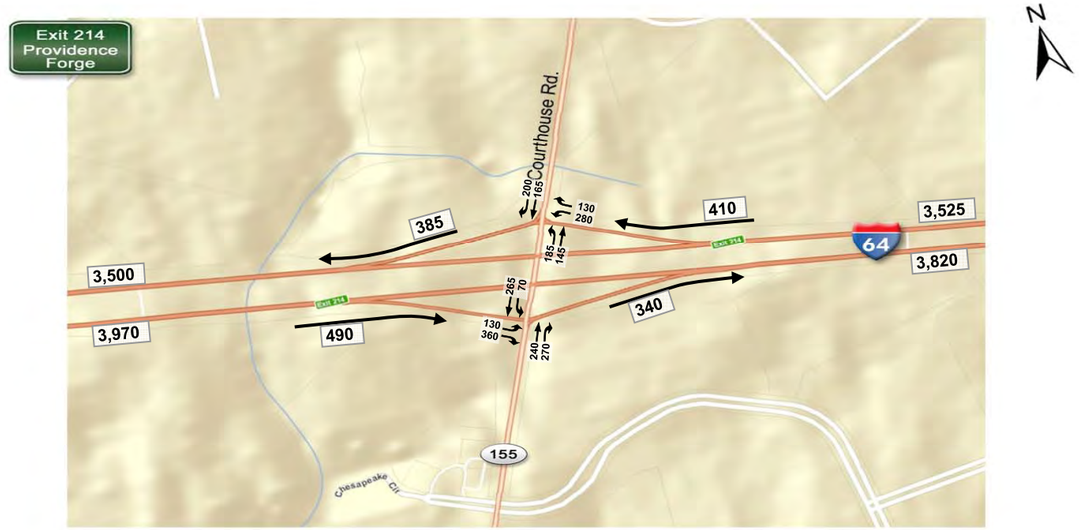

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FIGURE 2: PM Peak Hour Volumes
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2040 Alt A Balanced Volumes
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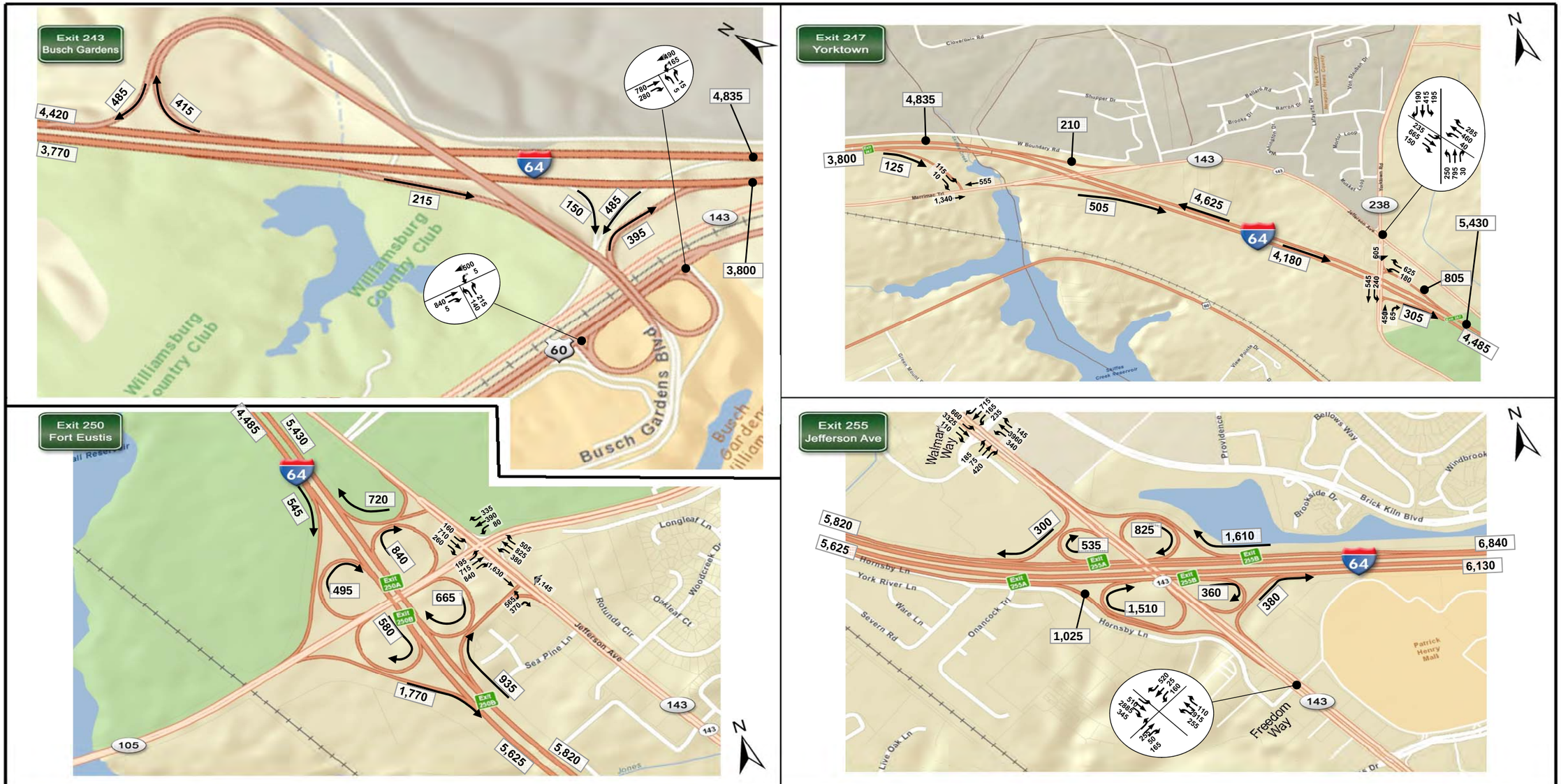

FIGURE 2: PM Peak Hour Volumes
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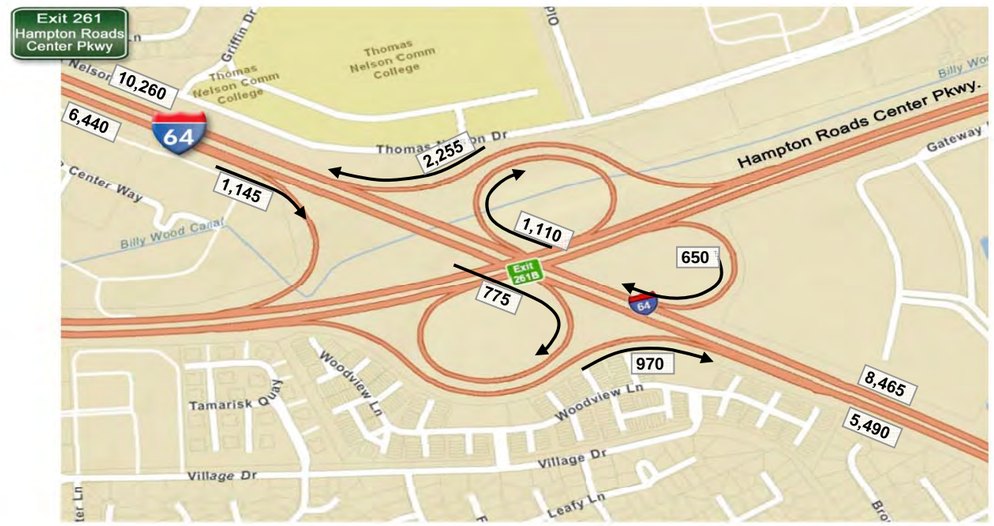

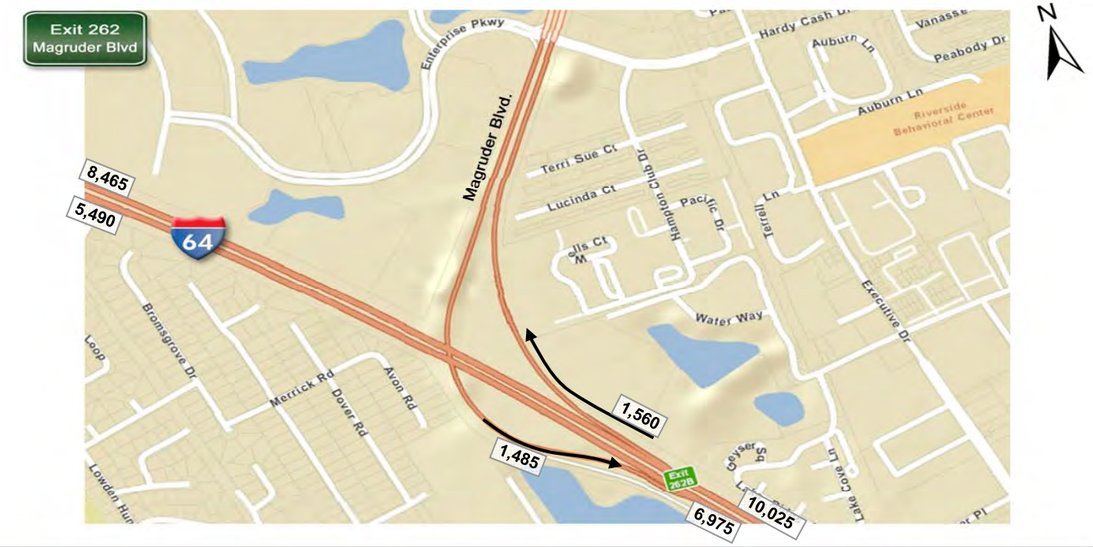

FIGURE 2: PM Peak Hour Volumes
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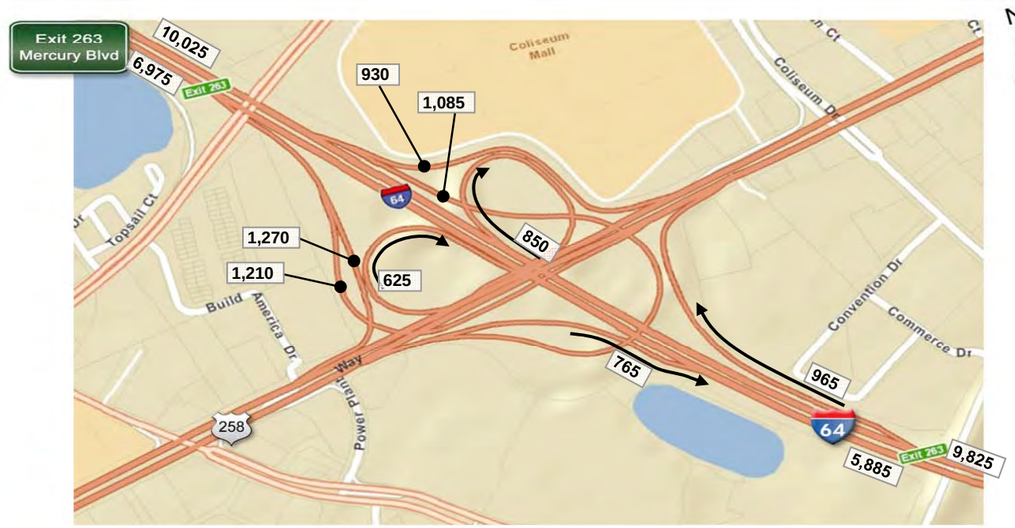

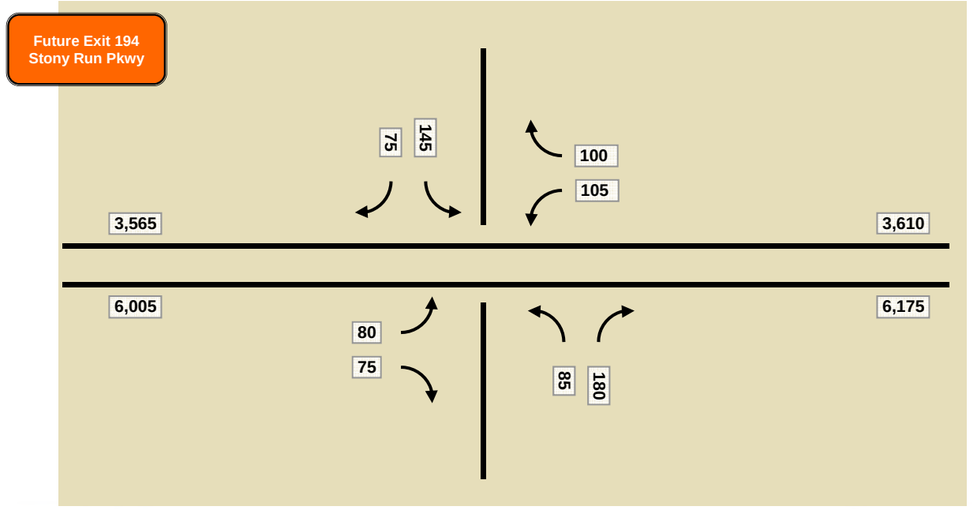

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FIGURE 2: PM Peak Hour Volumes
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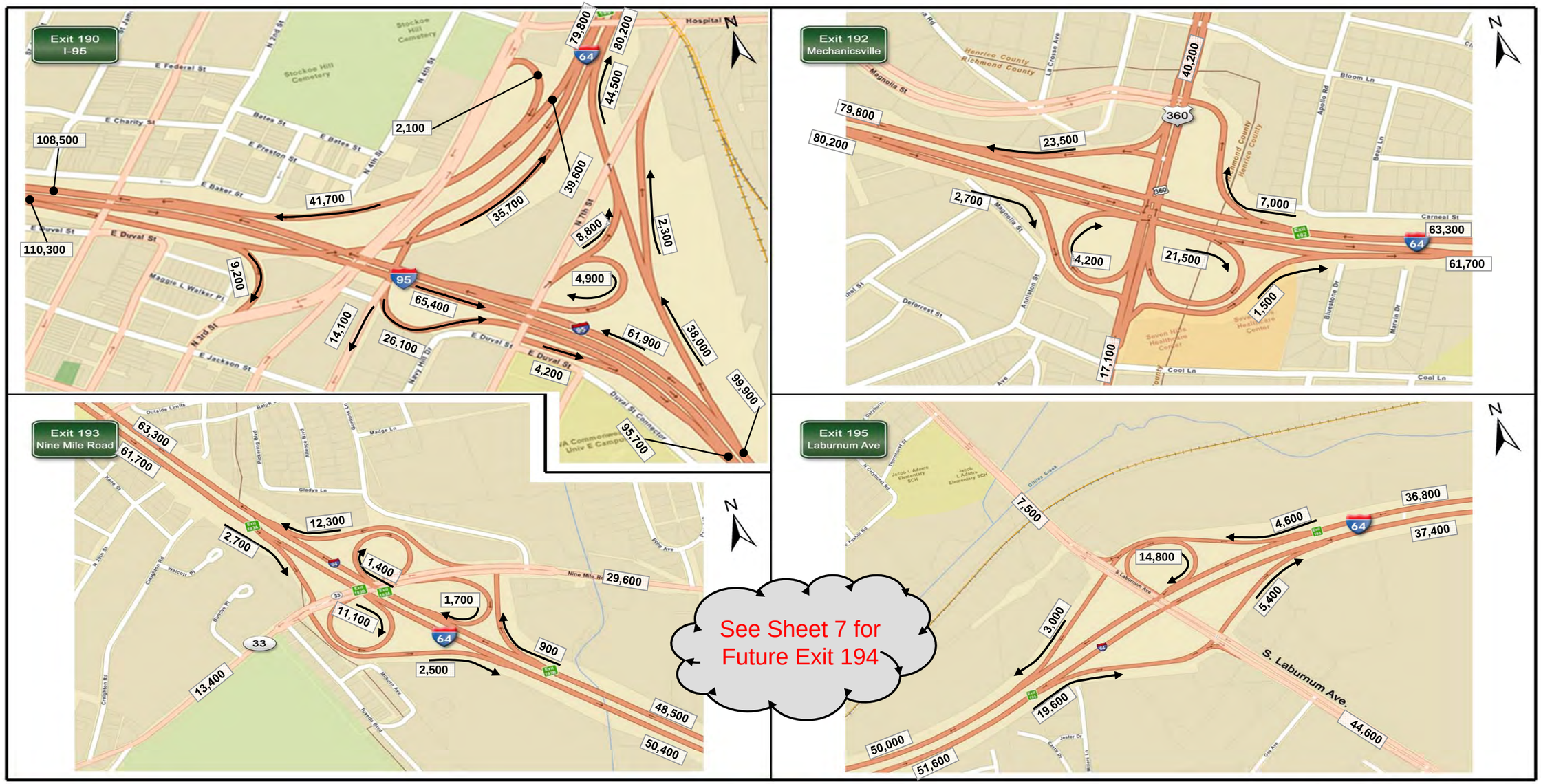

FIGURE 3: ADT Volumes

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FIGURE 3: ADT Volumes

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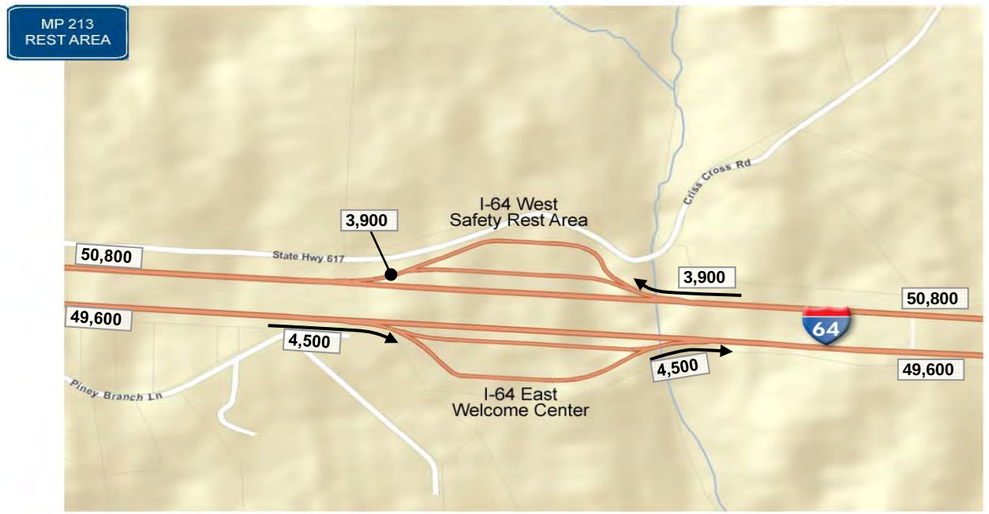

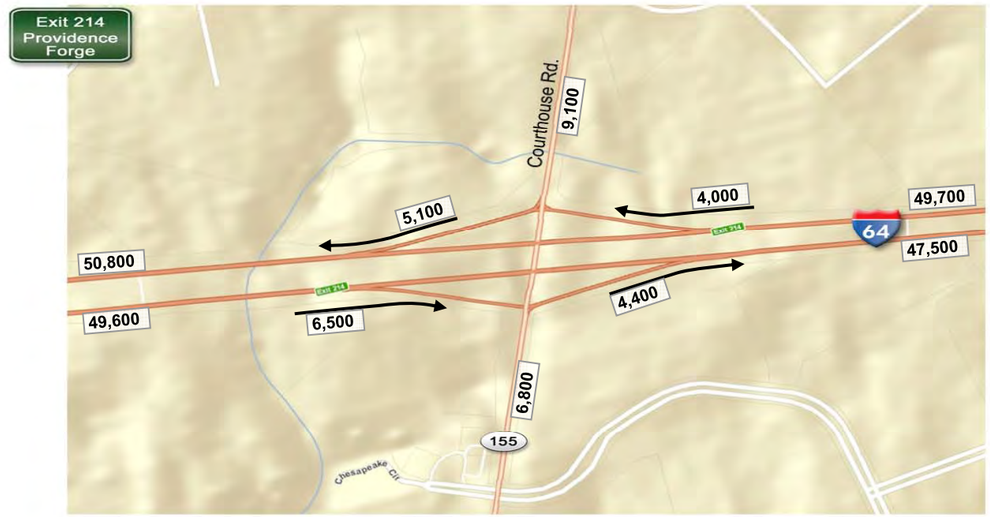

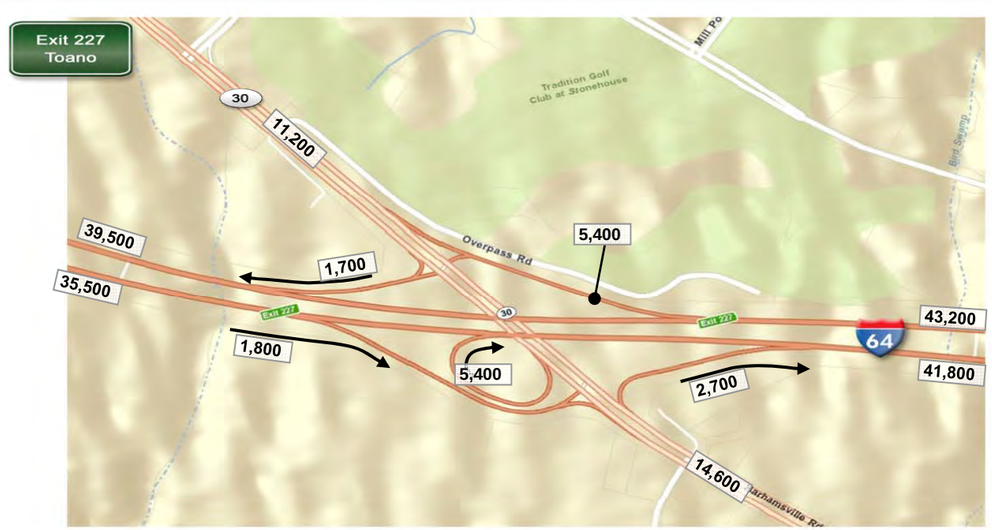

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FIGURE 3: ADT Volumes
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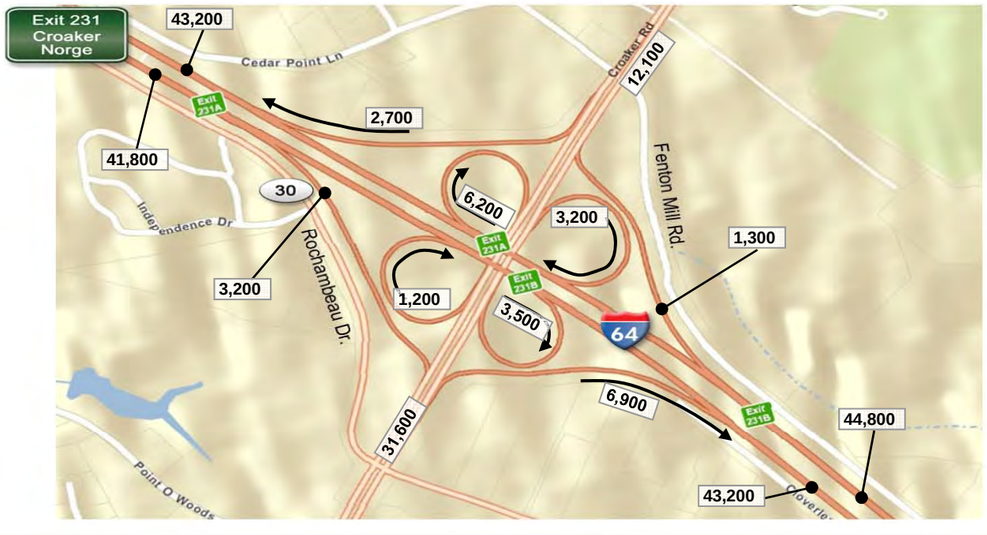

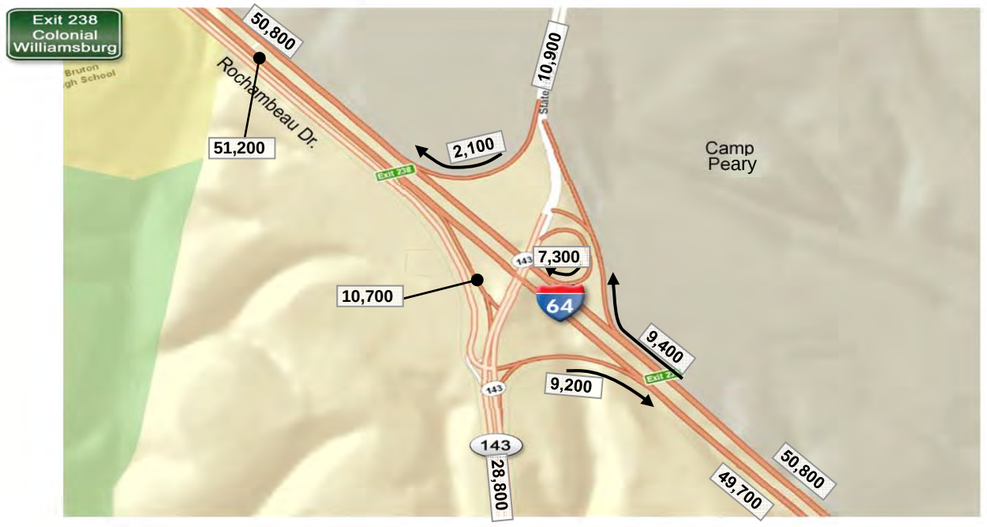

FIGURE 3: ADT Volumes
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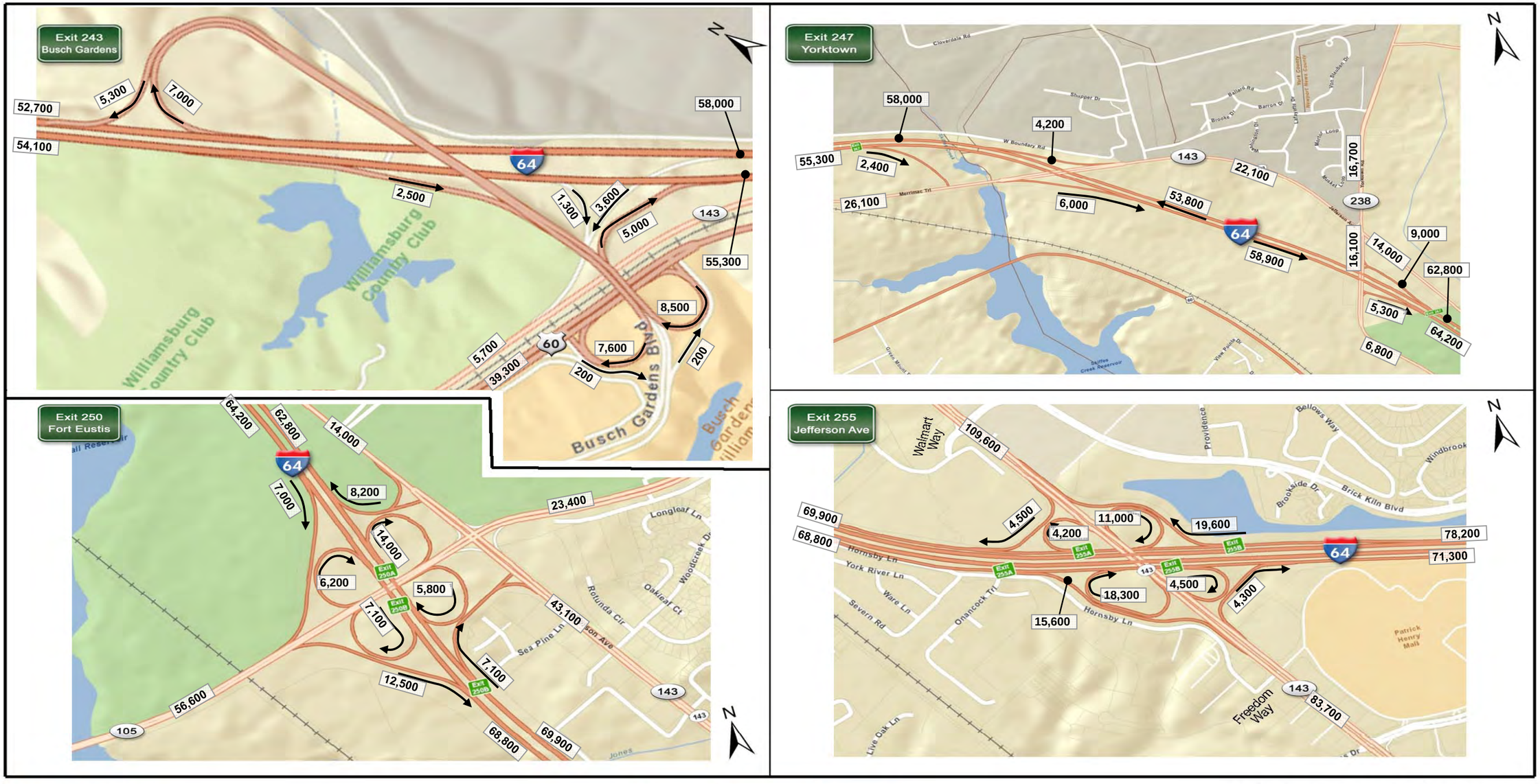

FIGURE 3: ADT Volumes
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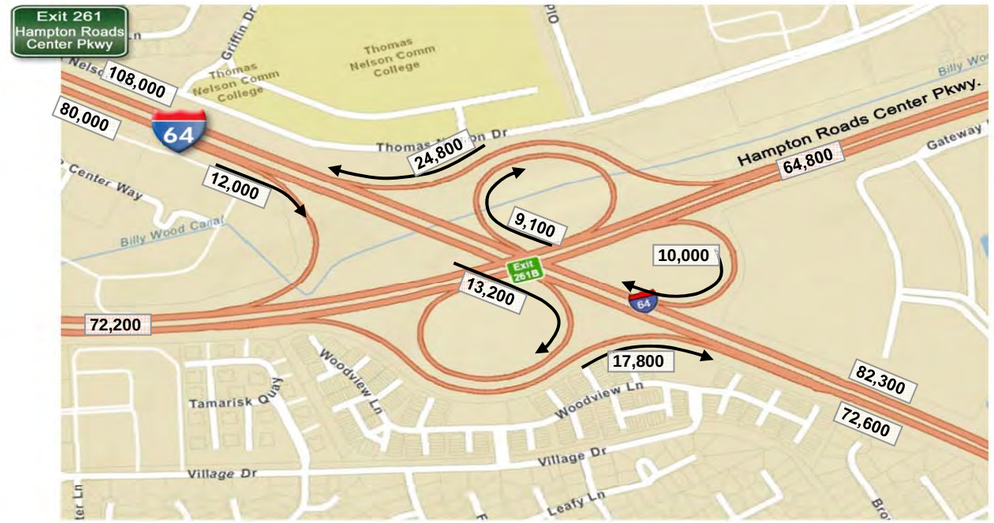

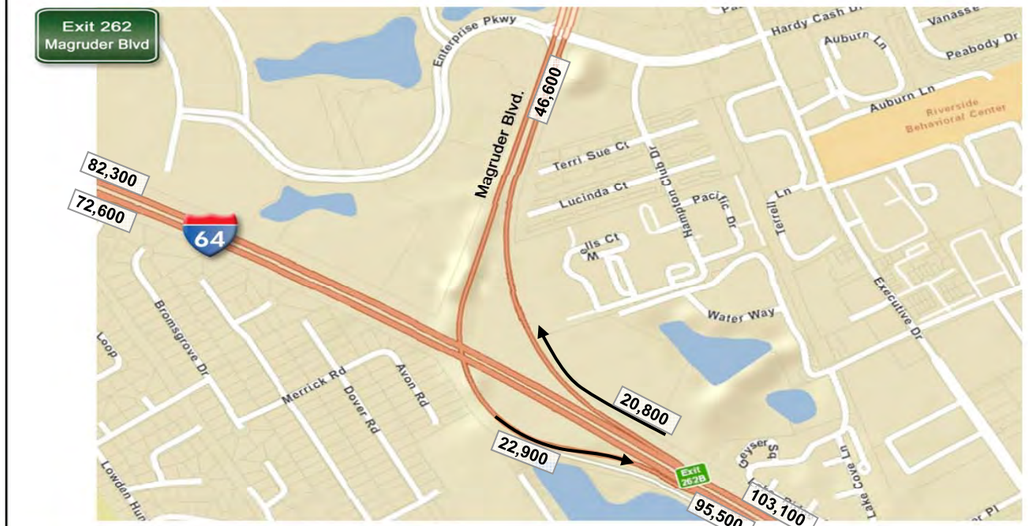

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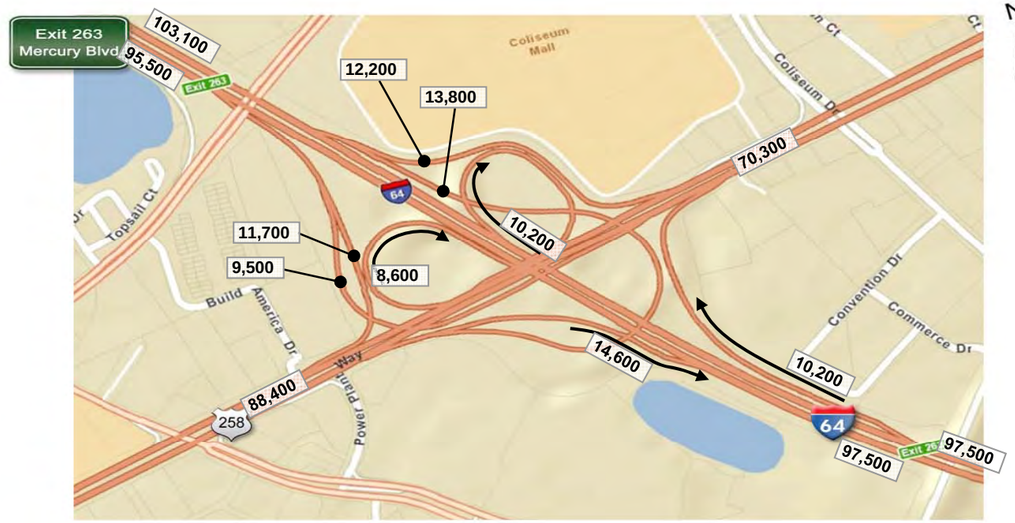
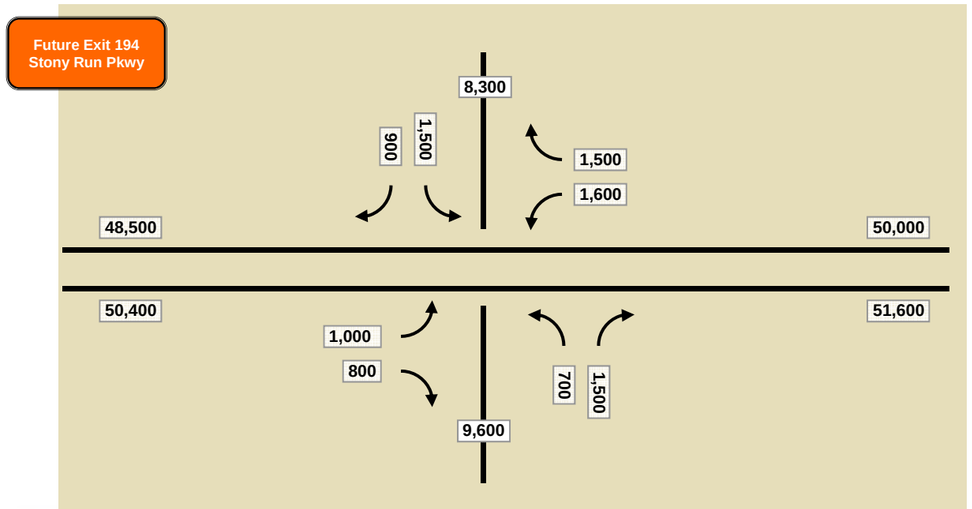
FIGURE 3: ADT Volumes
Alt 2 2040 Balanced Volumes
Sheet 6 of 7

DRAFT

Updated 6/21/2012





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

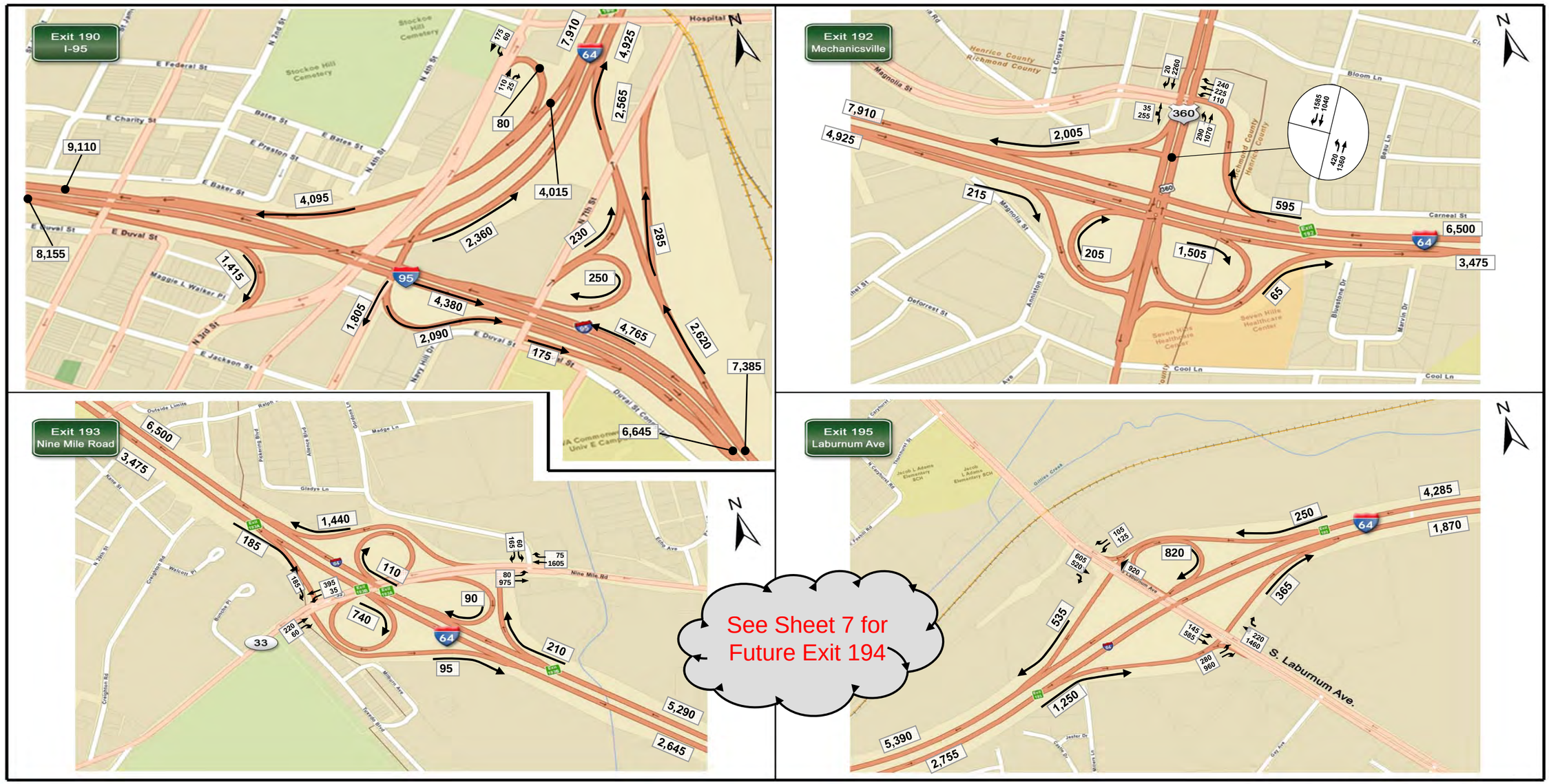
FIGURE 3: ADT Volumes

Alt 2 2040 Balanced Volumes

Sheet 7 of 7

DRAFT

Updated 6/22/12



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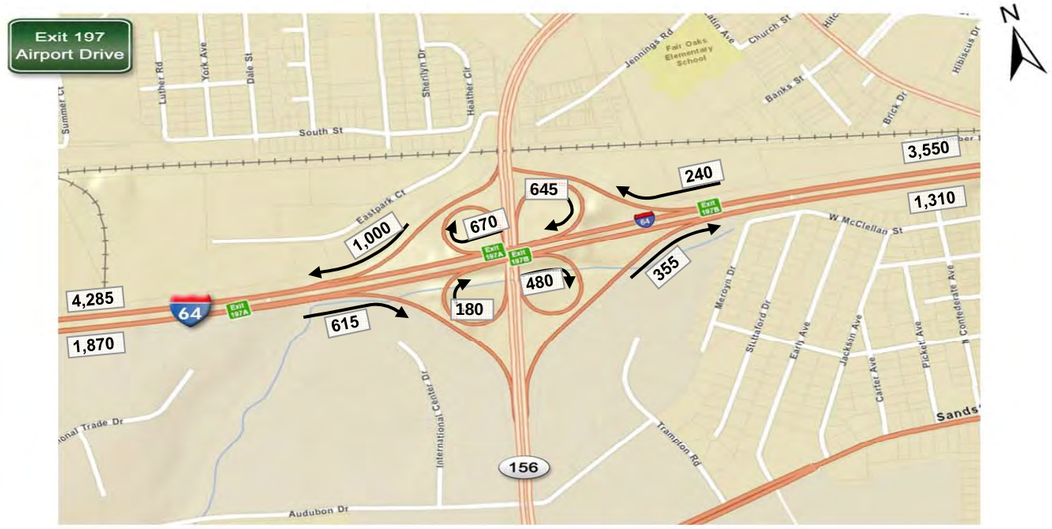
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 1: AM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 1 of 7

DRAFT

Updated 6/22/12



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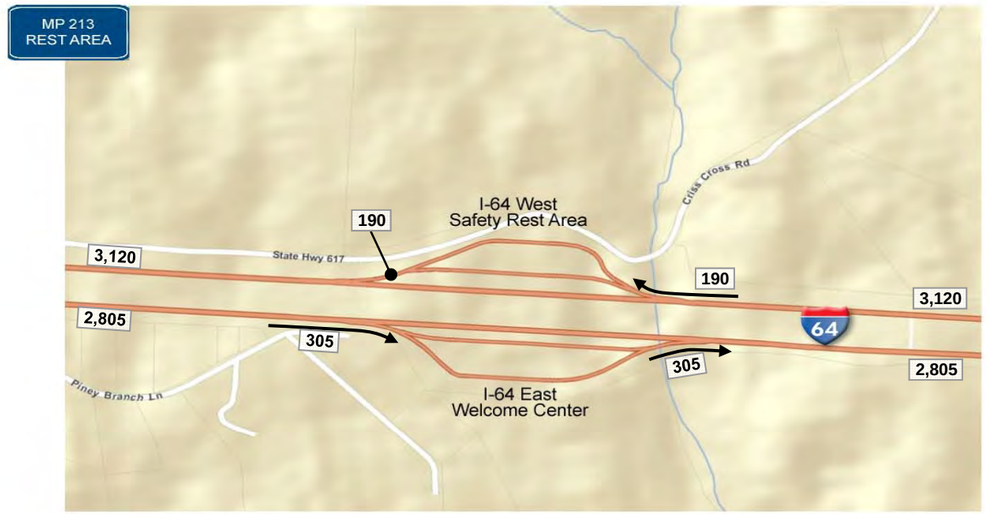
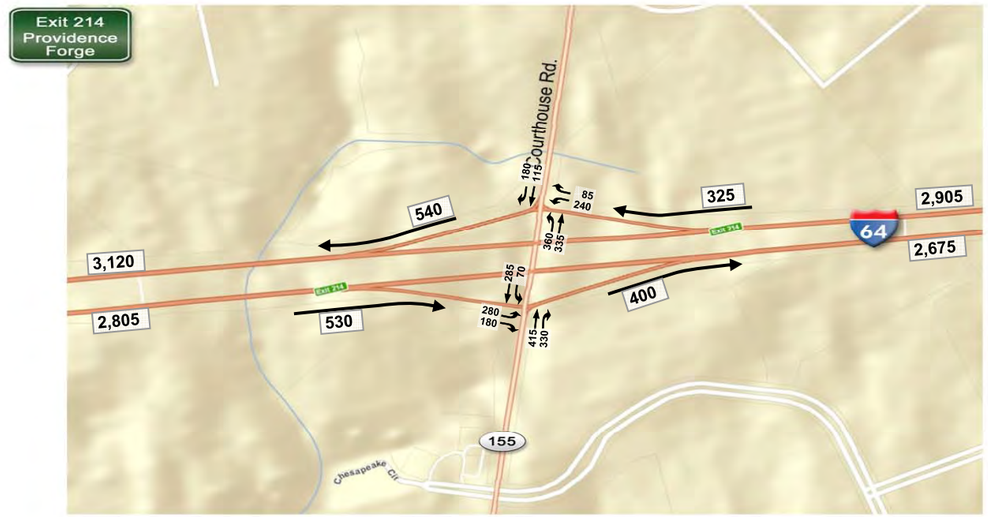
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

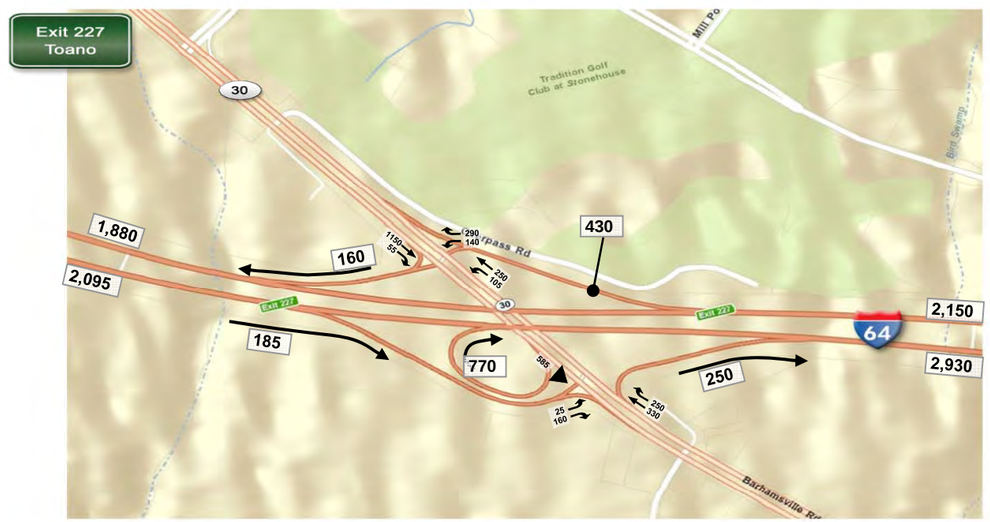
FIGURE 1: AM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 2 of 7

DRAFT

Updated 6/22/12







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I-64 PENINSULA STUDY
ENVIRONMENTAL IMPACT STATEMENT

FIGURE 1: AM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 3 of 7

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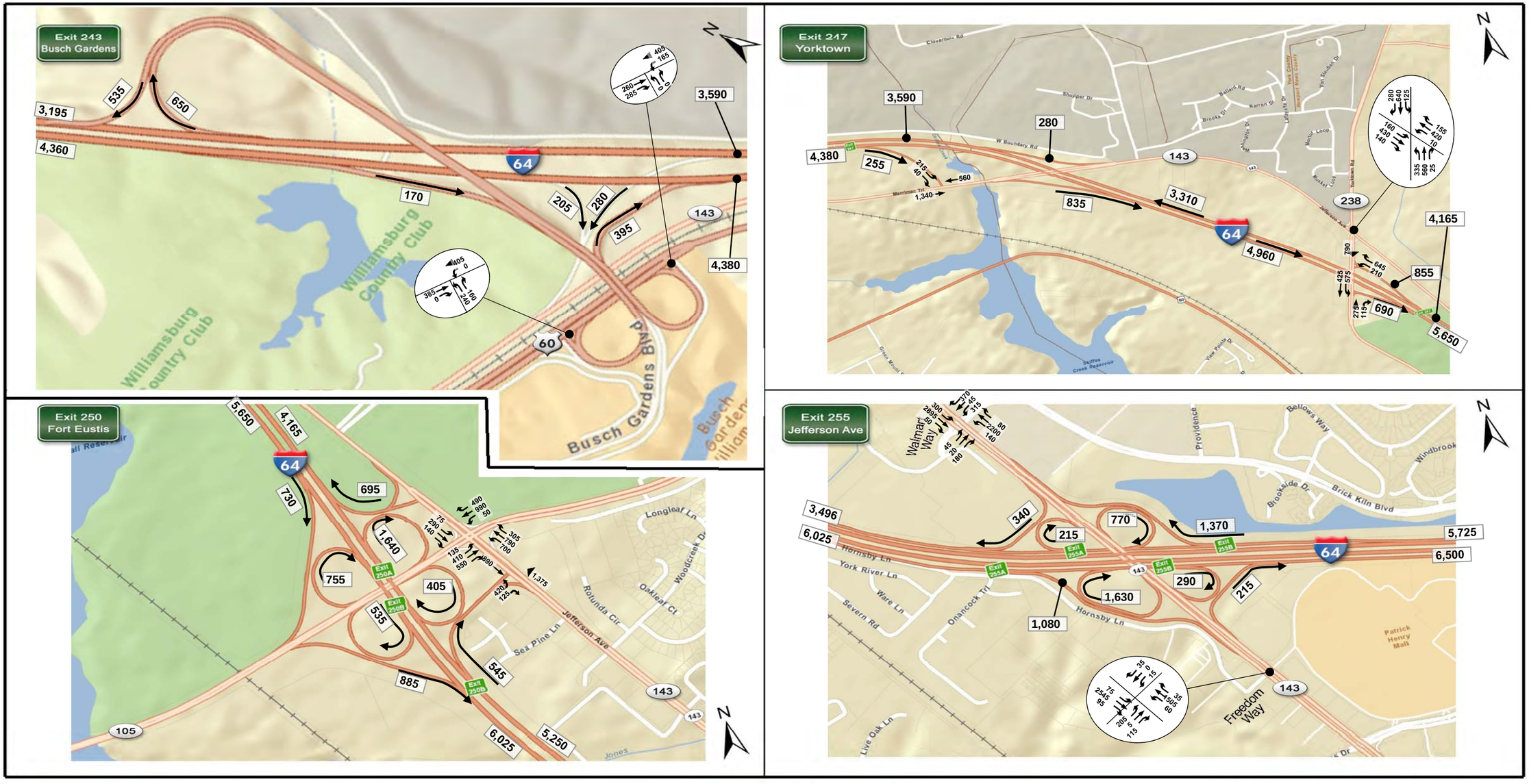
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 1: AM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 4 of 7

DRAFT

Updated 6/22/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 1: AM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 5 of 7

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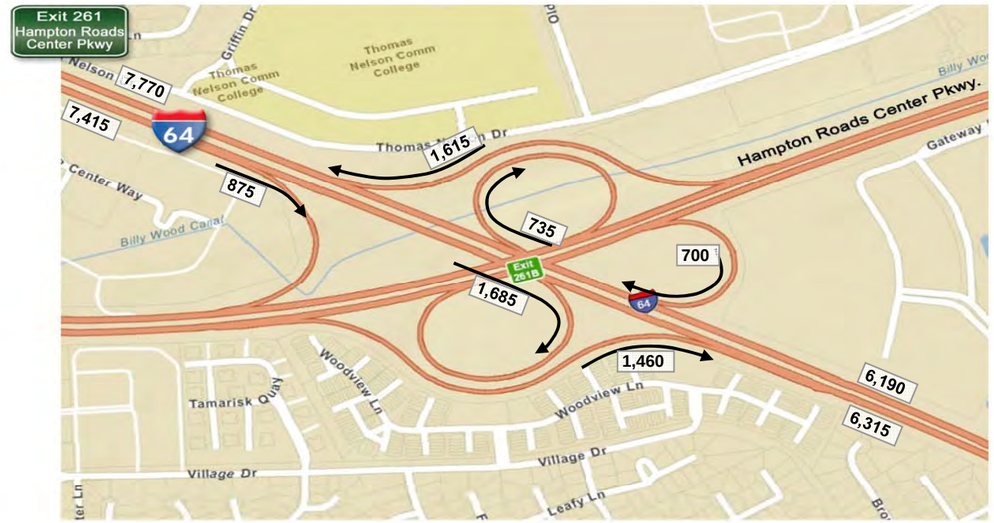
Updated 6/22/12



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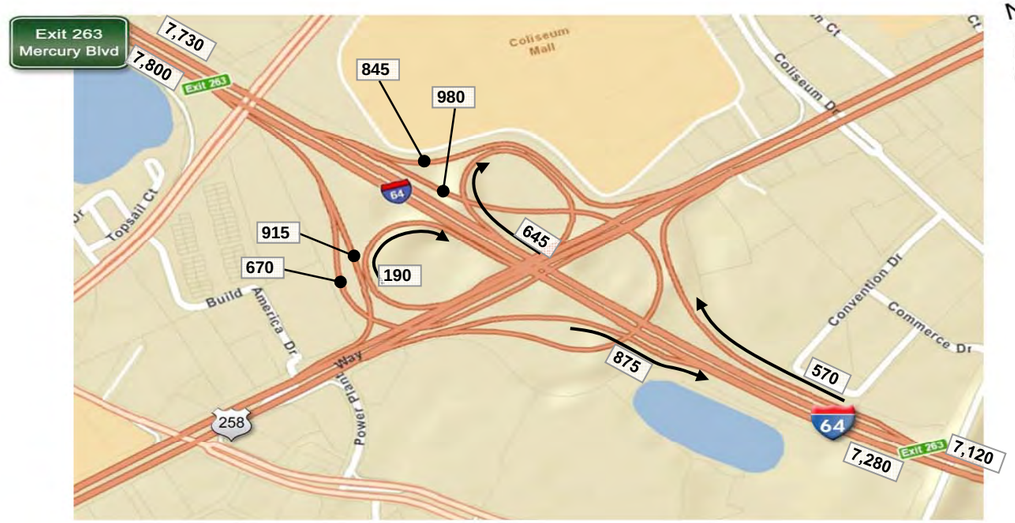
I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 1: AM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 6 of 7

DRAFT

Updated 6/22/12



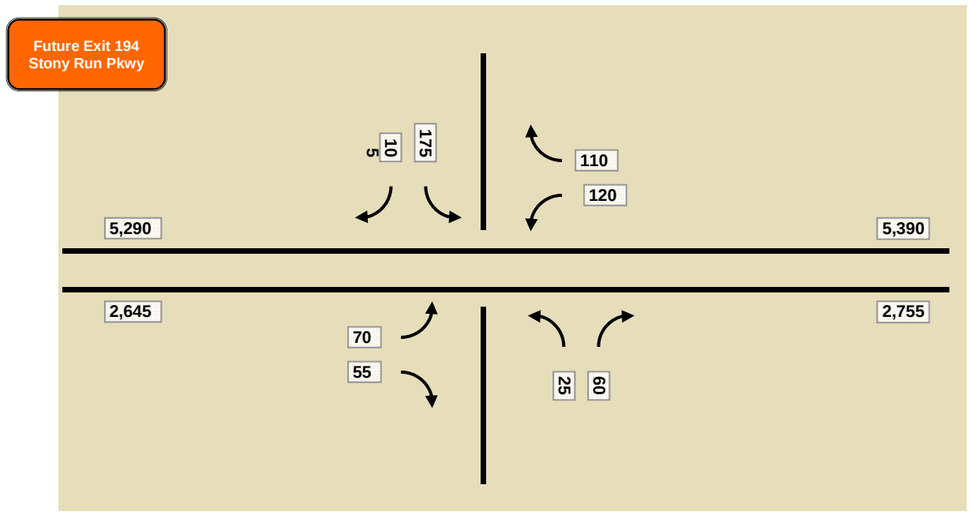


FIGURE 1: AM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 7 of 7

DRAFT

Updated 6/22/12

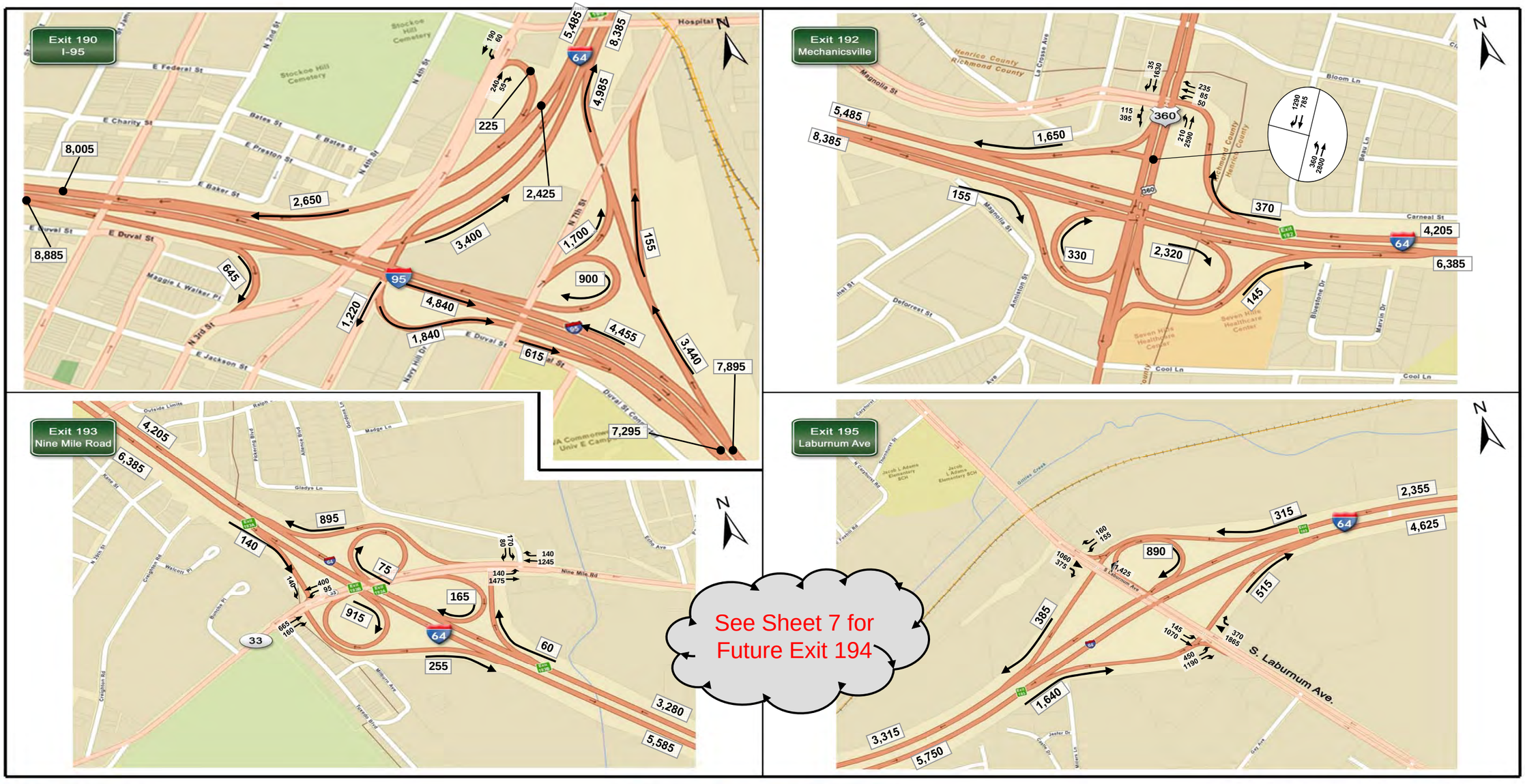


FIGURE 2: PM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 1 of 7

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FIGURE 2: PM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 2 of 7

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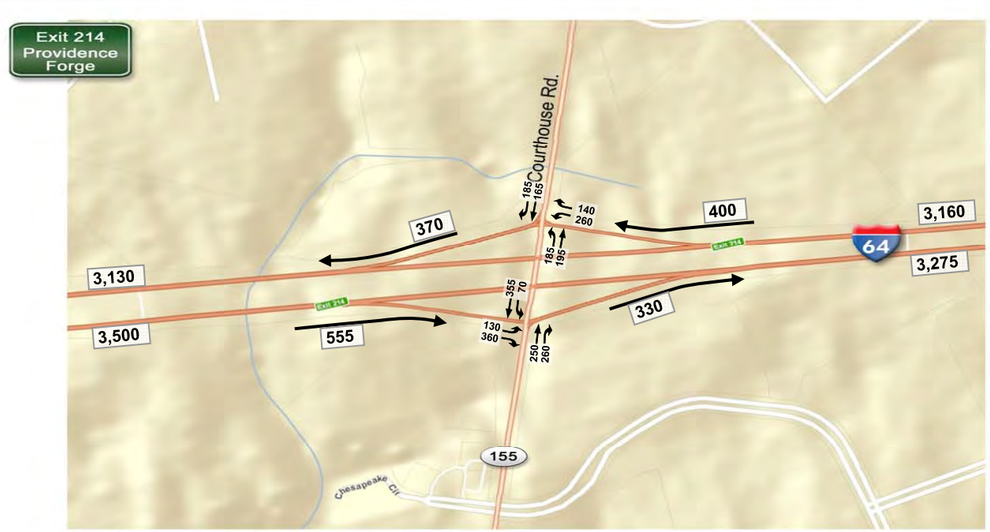


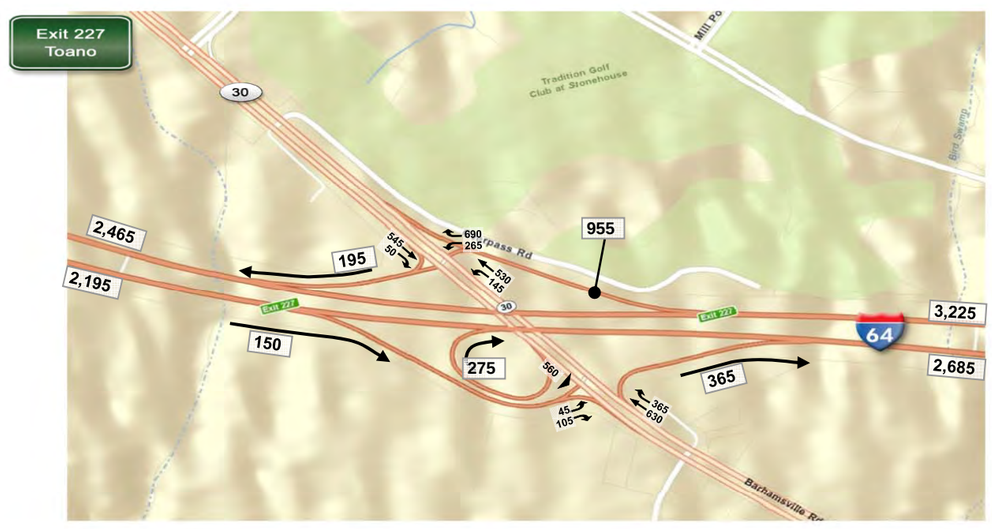
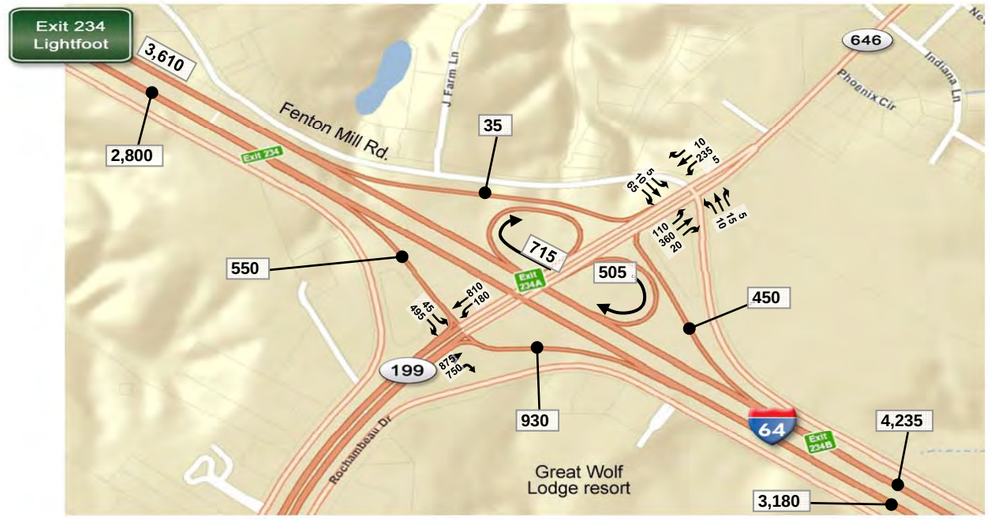
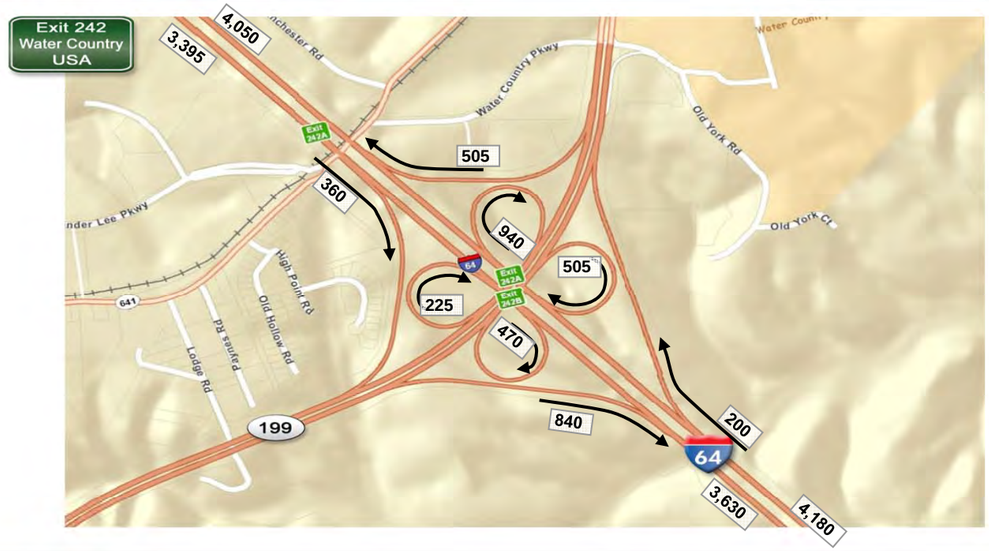


FIGURE 2: PM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 3 of 7

DRAFT

Updated 6/22/12





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 4 of 7

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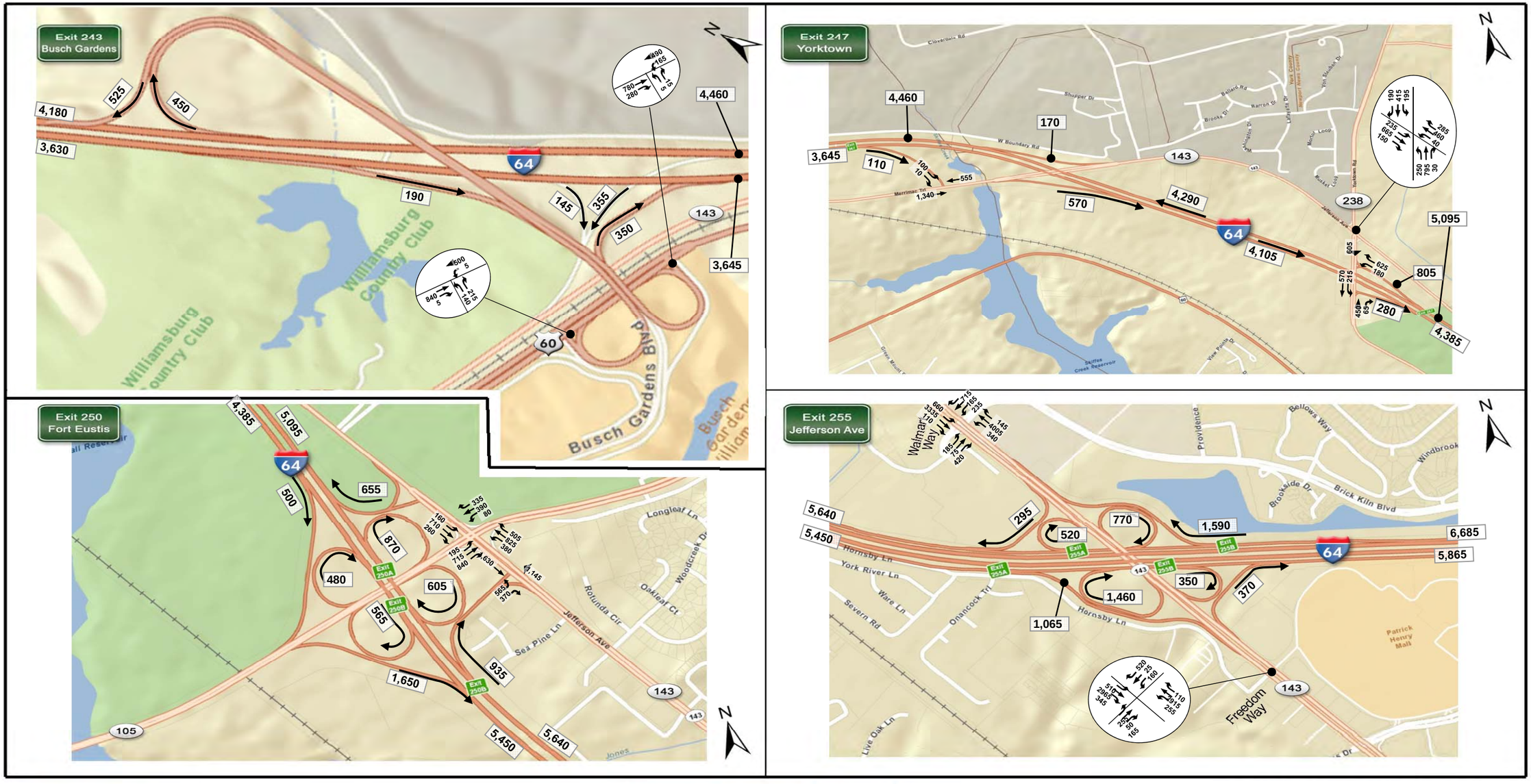

FIGURE 2: PM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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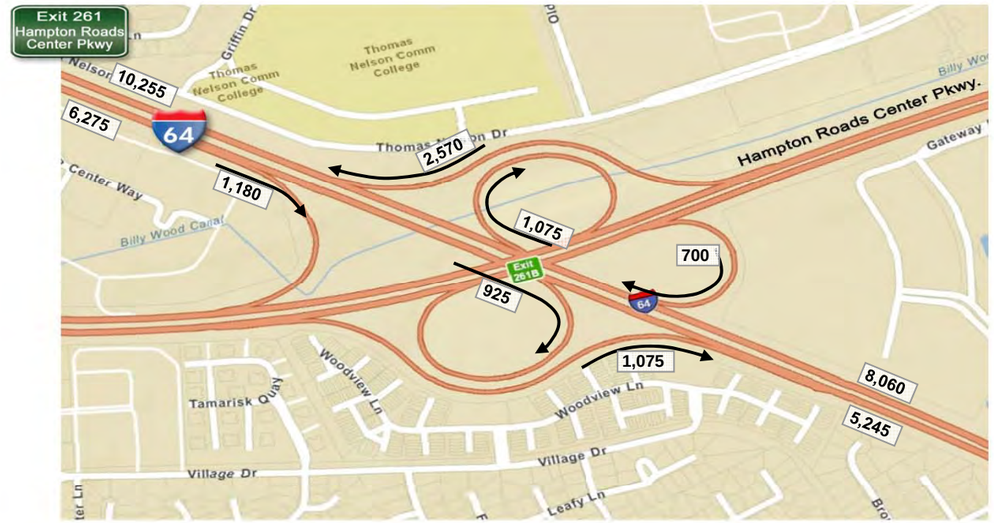

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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

FIGURE 2: PM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 6 of 7

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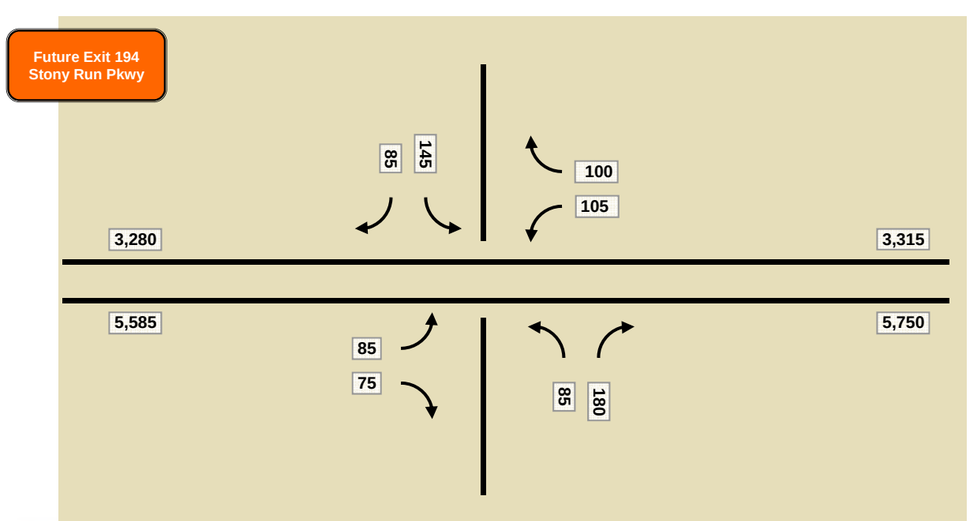

FIGURE 2: PM Peak Hour Volumes
2040 Alt 2 Balanced Volumes
Sheet 7 of 7

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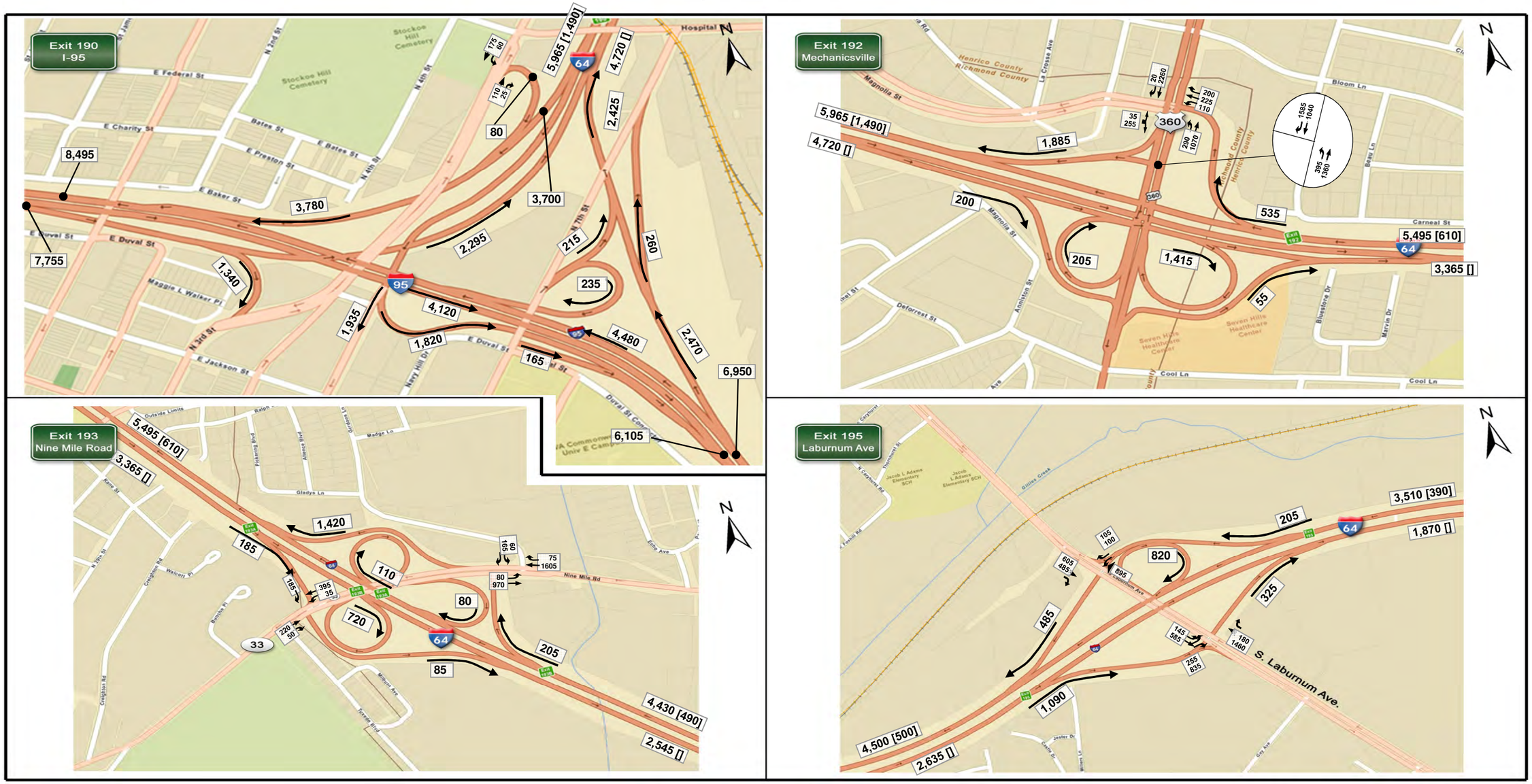
Updated 8/14/12



Volumes in [brackets] indicate Managed Lane volumes

FIGURE 1: AM Peak Hour Volumes

2040 Alt 3 Balanced Volumes

Sheet 1 of 7

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Updated 8/14/12

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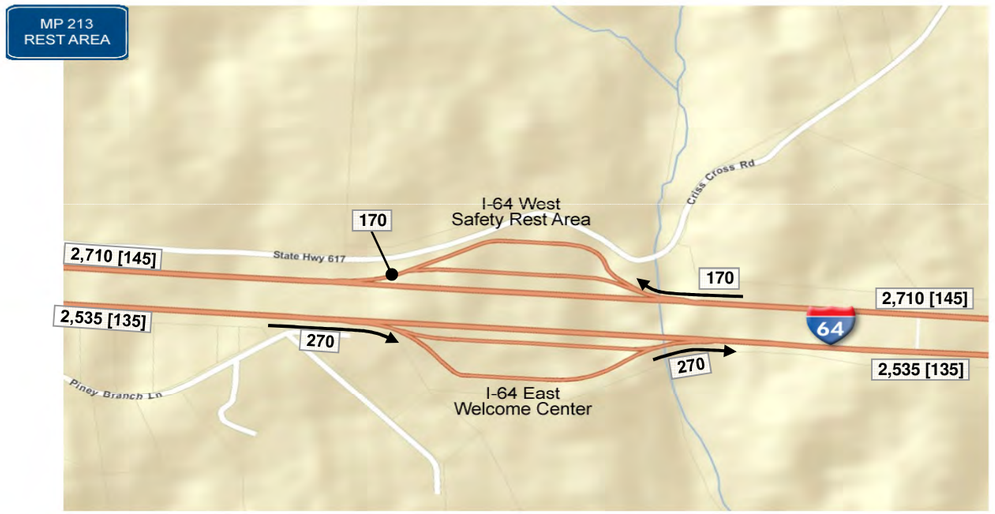
FIGURE 1: AM Peak Hour Volumes

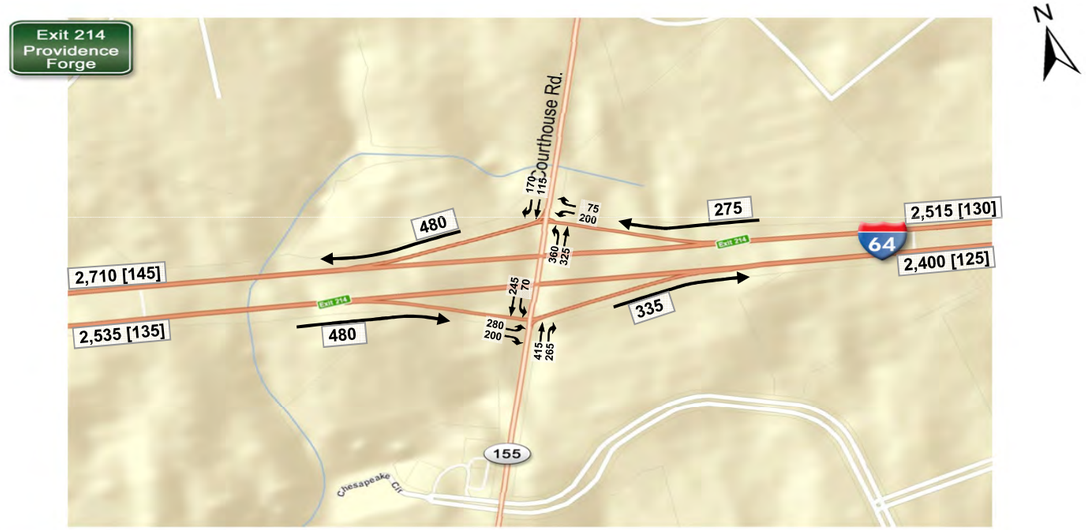
2040 Alt 3 Balanced Volumes

Sheet 2 of 7

DRAFT

Updated 8/14/12





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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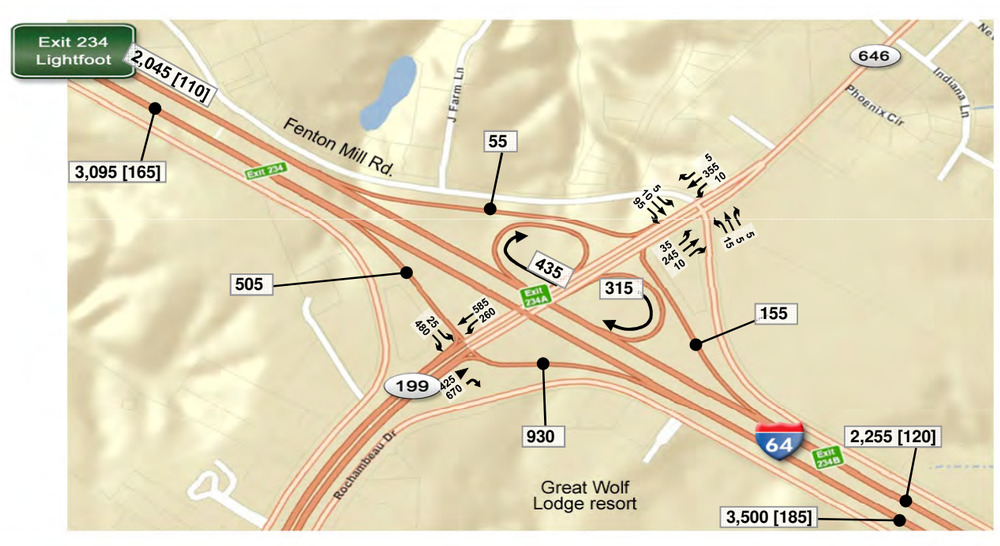
FIGURE 1: AM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 3 of 7

DRAFT

Updated 8/14/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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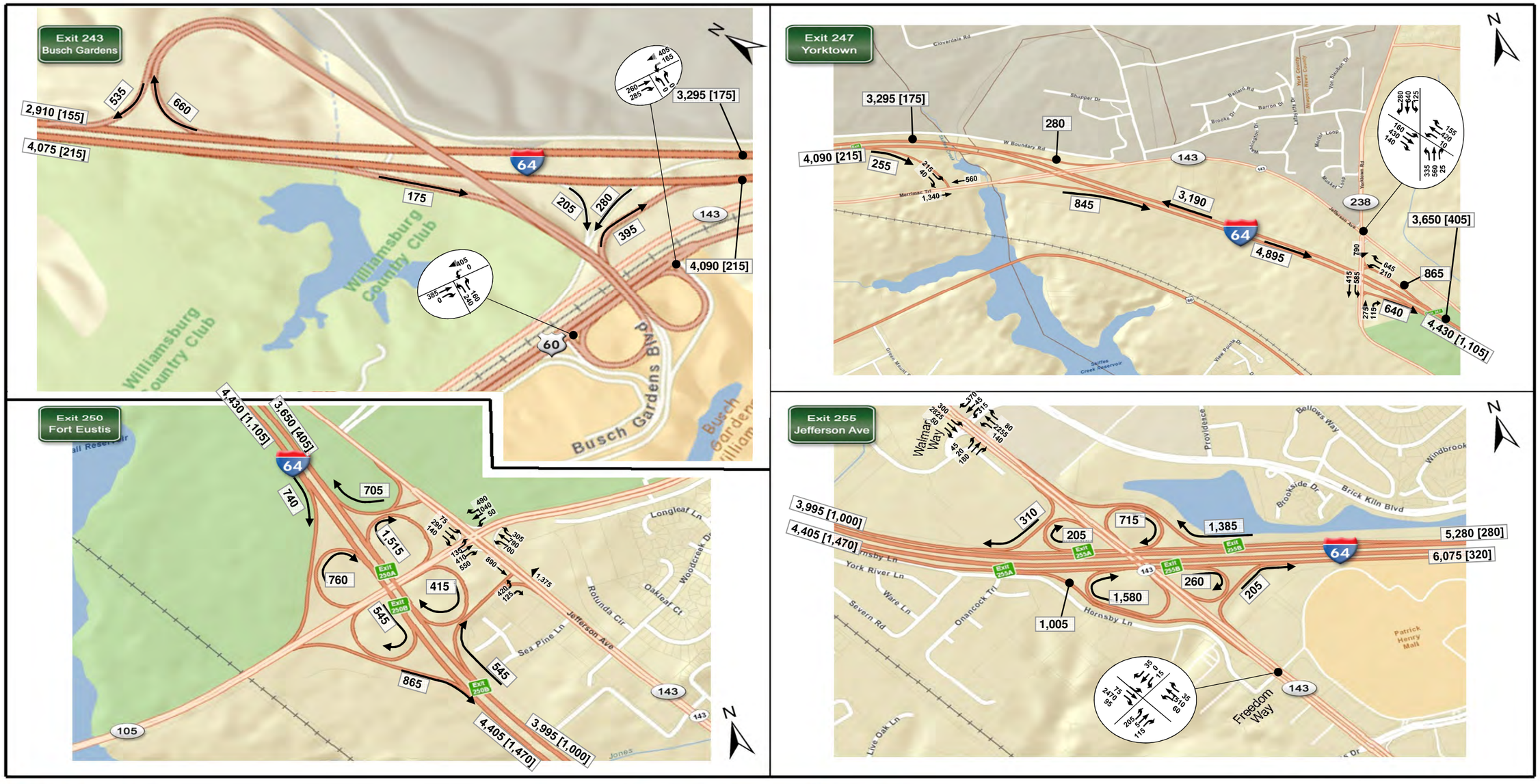
FIGURE 1: AM Peak Hour Volumes

2040 Alt 3 Balanced Volumes

Sheet 4 of 7

DRAFT

Updated 8/14/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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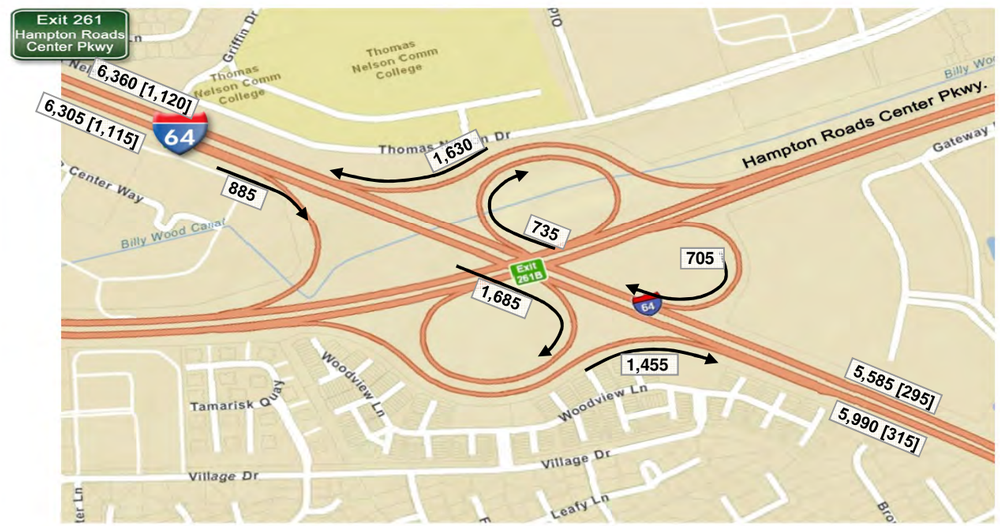
FIGURE 1: AM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 5 of 7

DRAFT

Updated 8/14/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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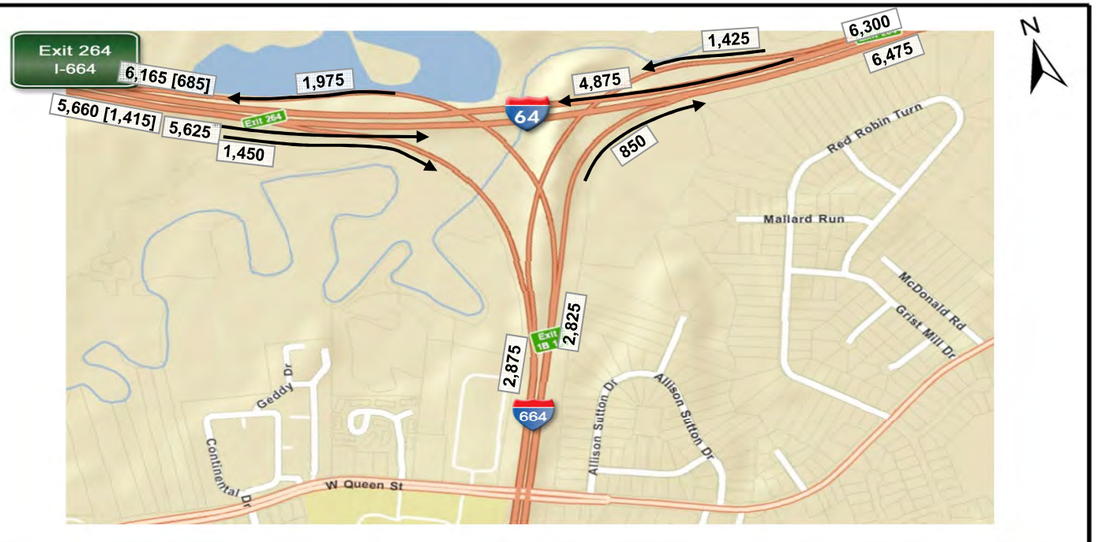
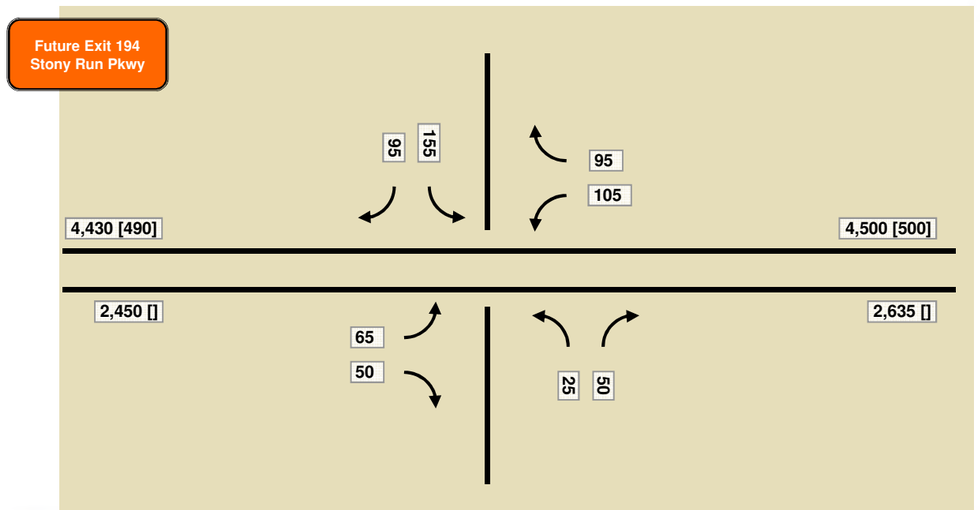
FIGURE 1: AM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 6 of 7

DRAFT

Updated 8/14/12





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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FIGURE 1: AM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 7 of 7

DRAFT

Updated 8/14/12

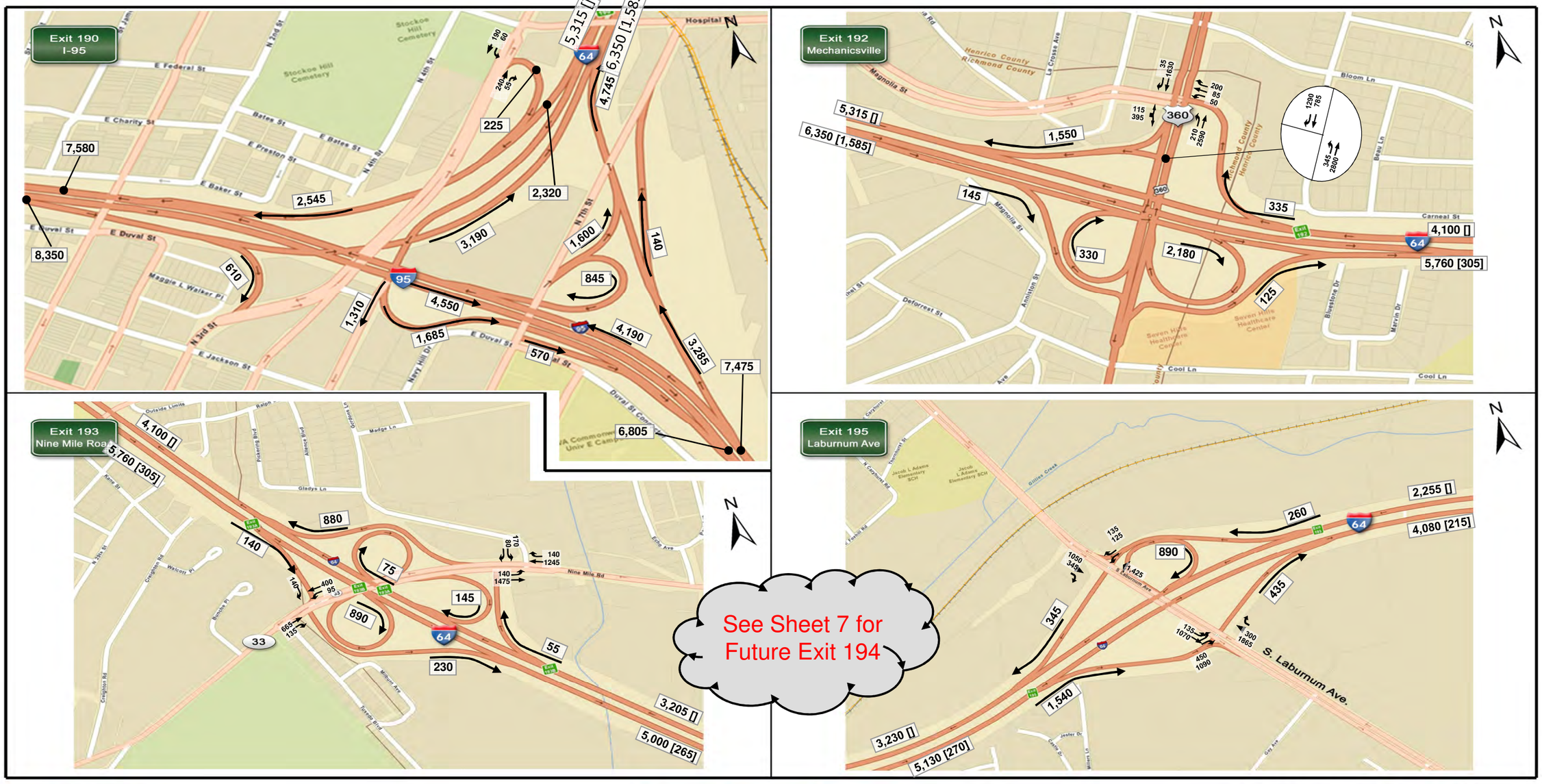

FIGURE 2: PM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 1 of 7

Volumes in [brackets] indicate Managed Lane volumes

I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

DRAFT

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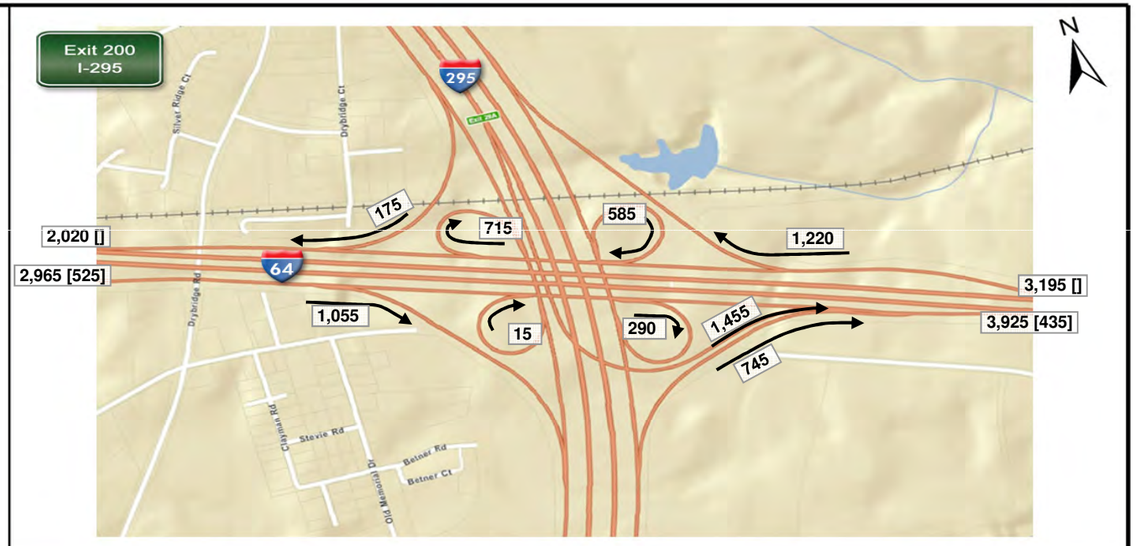
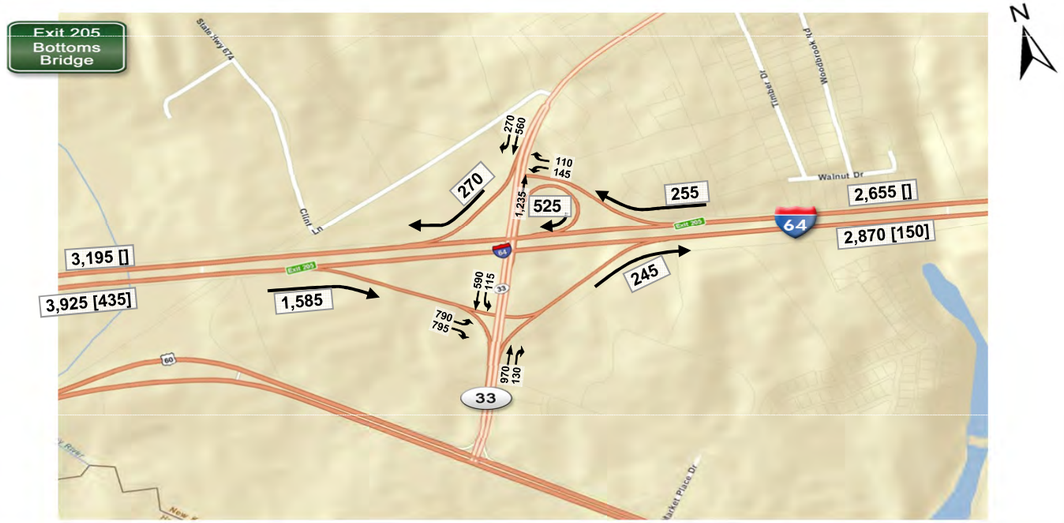
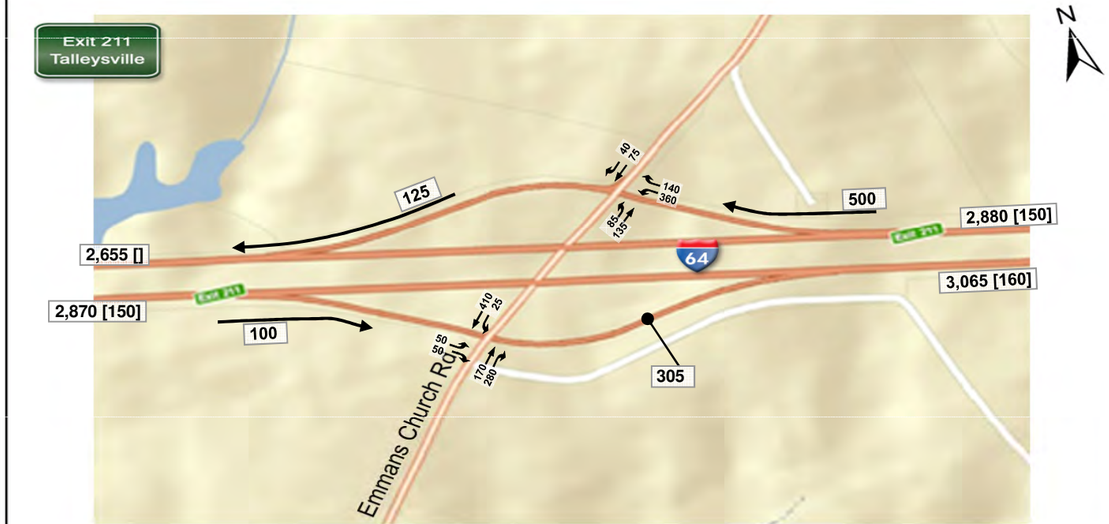




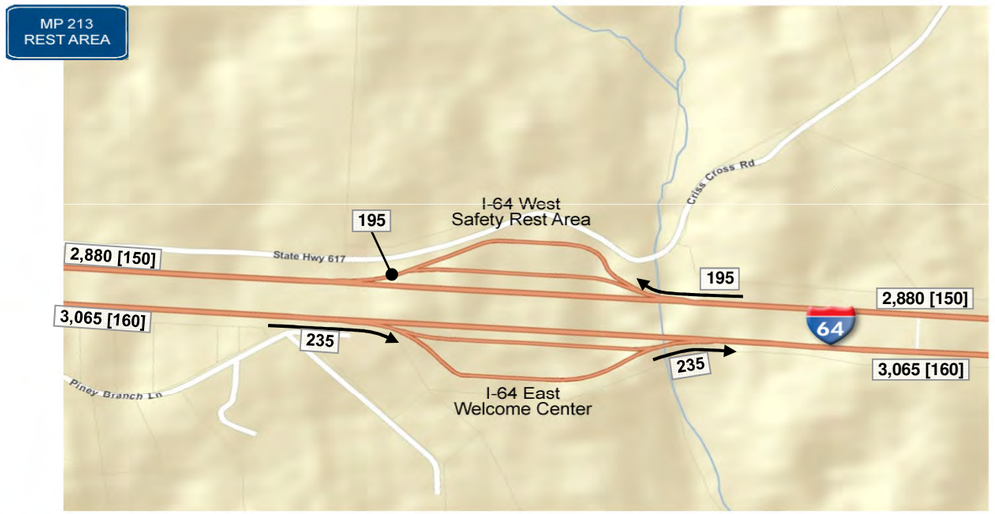


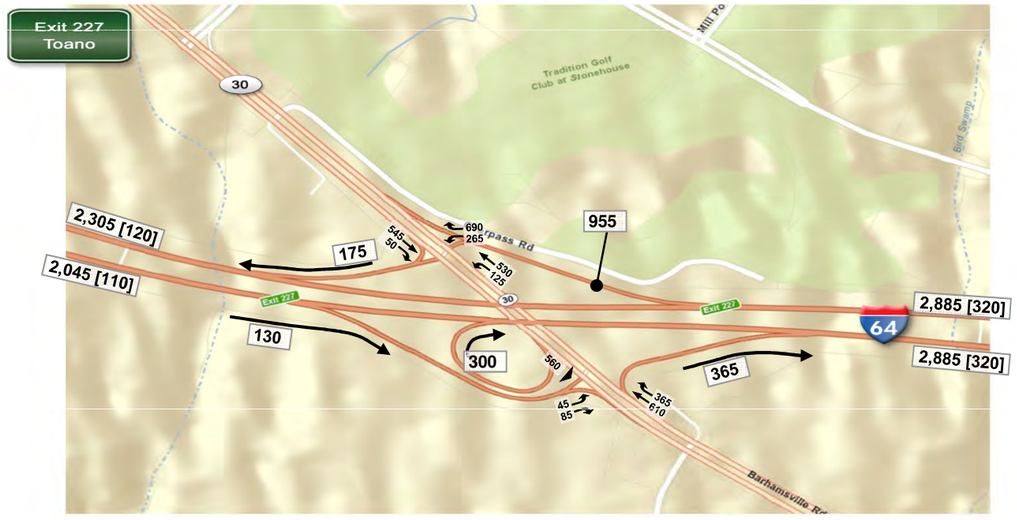
Volumes in [brackets] indicate Managed Lane volumes

FIGURE 2: PM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 2 of 7

DRAFT

Updated 8/14/12





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

Volumes in [brackets] indicate Managed Lane volumes

FIGURE 2: PM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 3 of 7

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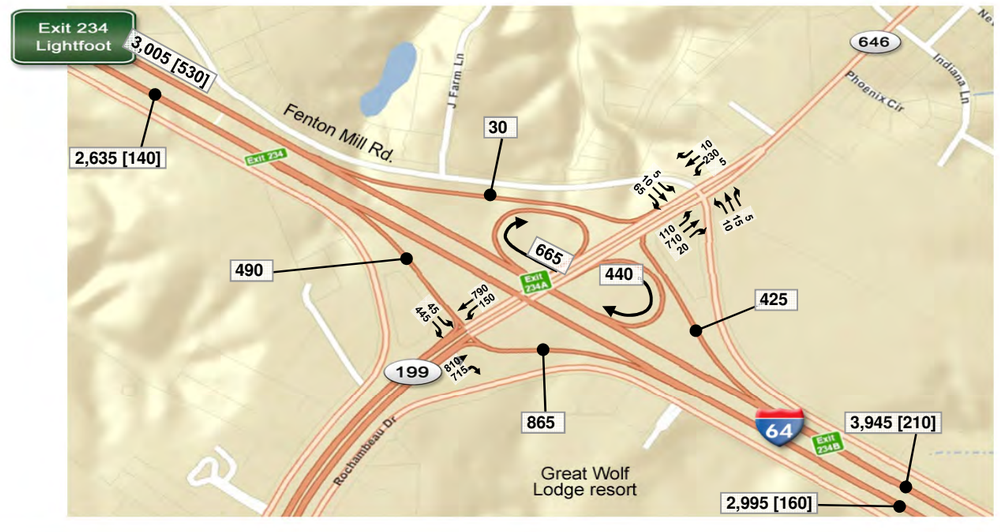
Updated 8/14/12



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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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FIGURE 2: PM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 4 of 7

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Updated 8/14/12

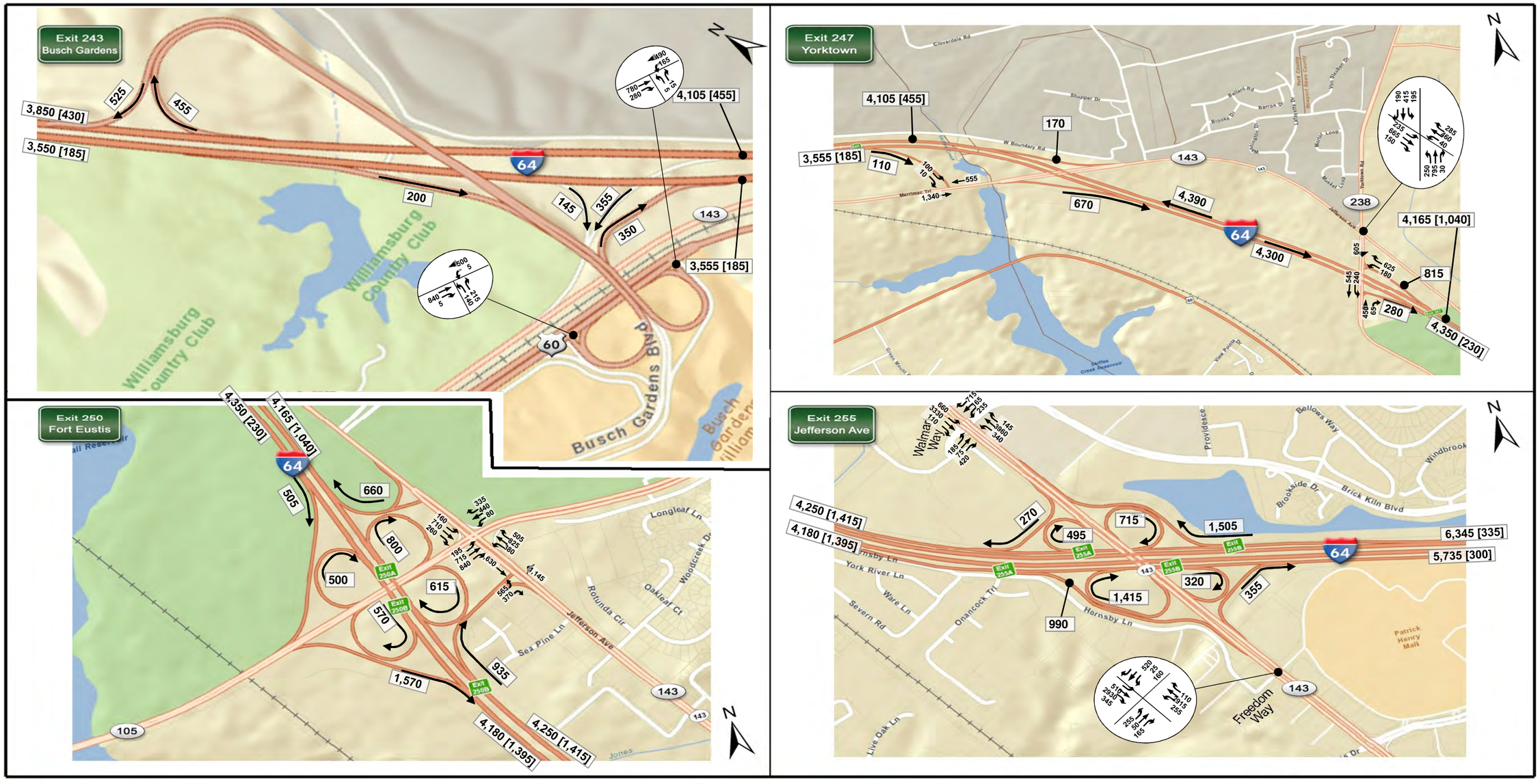

FIGURE 2: PM Peak Hour Volumes

2040 Alt 3 Balanced Volumes

Sheet 5 of 7

Volumes in [brackets] indicate Managed Lane volumes

I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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FIGURE 2: PM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 6 of 7

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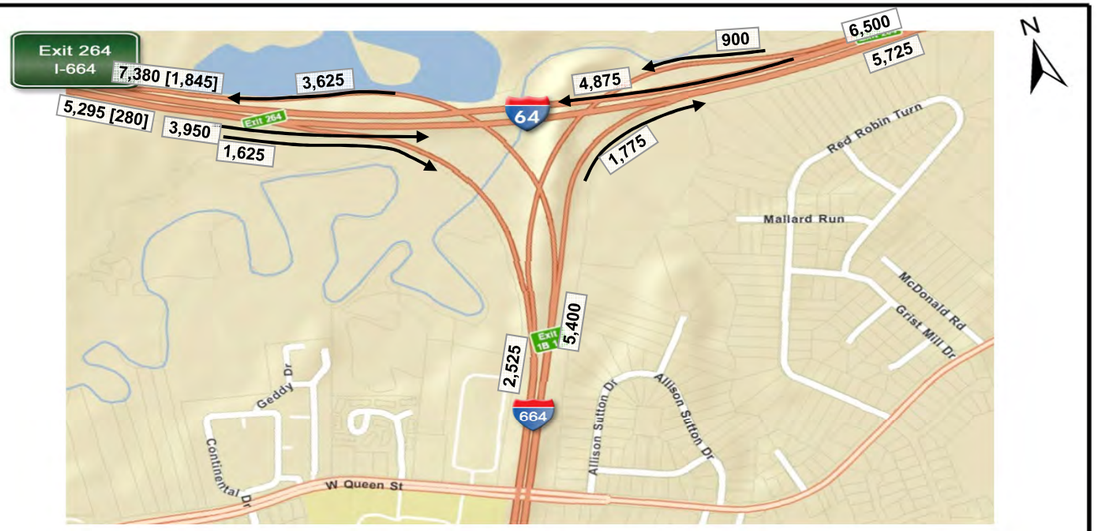
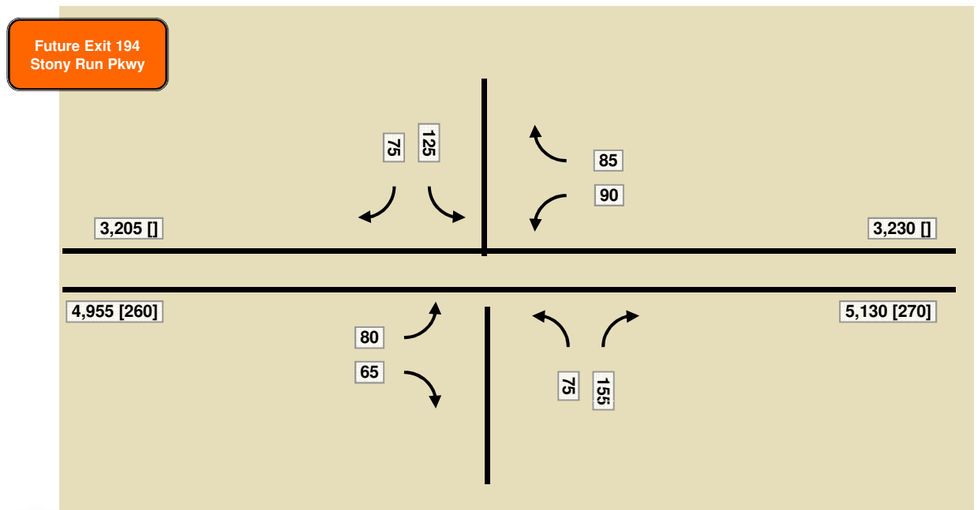
Updated 8/14/12





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I-64 PENINSULA STUDY ENVIRONMENTAL IMPACT STATEMENT

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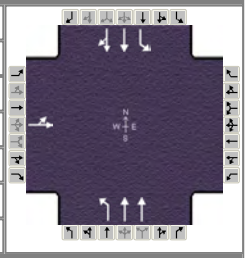
FIGURE 2: PM Peak Hour Volumes
2040 Alt 3 Balanced Volumes
Sheet 7 of 7

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	0.25
Analyst	AP	Analysis Date	Aug 2, 2011	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	0.89
Intersection	Route 143 & Rochambeau	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 238-B_2011 Existing_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	194					199	215		8	502	168

Signal Information					1	2	3	4	5	6	7	8
Cycle, s	60.4	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	0.7	2.2	21.6	10.4	0.0	0.0		
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	5.0	5.0	5.0	4.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.5	1.5	1.5	2.0	0.0	0.0		

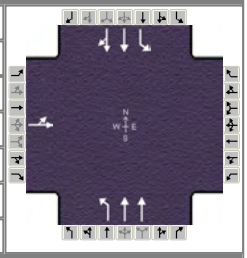
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		16.4			15.9	36.8	7.2	28.1
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(gs)*, s		9.9			9.4	4.2	2.3	12.8
Green Extension Time *(ge)*, s		0.7			0.3	10.0	0.0	8.8
Phase Call Probability		0.98			0.98	1.00	0.14	1.00
Max Out Probability		0.00			0.00	0.13	0.00	0.27

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		240					224	242		9	393	360
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1767					1774	1773		1723	1810	1654
Queue Service Time *(gs)*, s		7.9					7.4	2.2		0.3	10.8	10.8
Cycle Queue Clearance Time *(gc)*, s		7.9					7.4	2.2		0.3	10.8	10.8
Capacity *(c)*, veh/h		304					278	1781		20	647	591
Volume-to-Capacity Ratio *(X)*		0.791					0.805	0.136		0.447	0.607	0.610
Available Capacity *(ca)*, veh/h		730					586	2052		570	1047	957
Back of Queue *(Q)*, veh/ln (50th percentile)		3.4					3.0	0.7		0.2	4.2	3.9
Overflow Queue *(Q3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d1)*, s/veh		24.0					24.6	8.0		29.7	15.9	16.0
Incremental Delay *(d2)*, s/veh		4.6					2.1	0.1		5.7	2.0	2.2
Initial Queue Delay *(d3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		28.6					26.7	8.1		35.4	17.9	18.1
Level of Service (LOS)		C					C	A		D	B	B
Approach Delay, s/veh / LOS	28.6	C		0.0			17.1	B		18.2	B	
Intersection Delay, s/veh / LOS	19.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.8	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			0.9	A	1.1	A

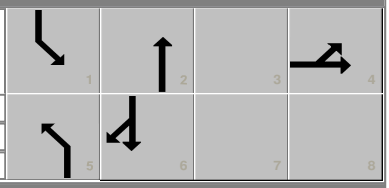
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	0.25
Analyst	AP	Analysis Date	Aug 2, 2011	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	0.93
Intersection	Route 143 & Rochambeau	Analysis Year	2011	Analysis Period	1> 5:00
File Name	Intersection 238-B_2011 Existing_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	3	174					215	302		25	456	225

Signal Information			
Cycle, s	57.2	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.7	1.0	21.2	7.8	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

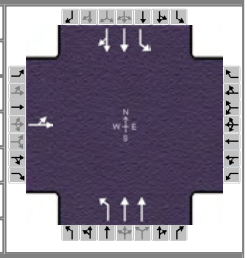
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		13.8			15.7	35.2	8.2	27.7
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(gs)*, s		7.7			9.1	4.9	2.9	11.5
Green Extension Time *(ge)*, s		0.5			0.3	10.7	0.0	9.6
Phase Call Probability		0.95			0.97	1.00	0.35	1.00
Max Out Probability		0.00			0.00	0.17	0.00	0.28

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		190					231	325		27	387	346
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1843					1792	1791		1774	1863	1654
Queue Service Time *(gs)*, s		5.7					7.1	2.9		0.9	9.4	9.5
Cycle Queue Clearance Time *(gc)*, s		5.7					7.1	2.9		0.9	9.4	9.5
Capacity *(c)*, veh/h		253					289	1794		54	690	612
Volume-to-Capacity Ratio *(X)*		0.754					0.801	0.181		0.497	0.561	0.564
Available Capacity *(ca)*, veh/h		804					626	2189		619	1138	1011
Back of Queue *(Q)*, veh/ln (50th percentile)		2.6					2.9	0.9		0.4	3.7	3.3
Overflow Queue *(Q3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d1)*, s/veh		23.8					23.1	7.9		27.3	14.3	14.4
Incremental Delay *(d2)*, s/veh		4.5					2.0	0.1		2.6	1.5	1.7
Initial Queue Delay *(d3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		28.3					25.1	8.0		29.9	15.9	16.1
Level of Service (LOS)		C					C	A		C	B	B
Approach Delay, s/veh / LOS	28.3	C		0.0			15.1	B		16.5	B	
Intersection Delay, s/veh / LOS	17.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.8	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.8	A			0.9	A	1.1	A

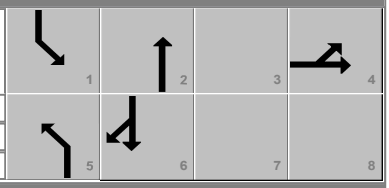
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2020 NB	Analysis Period	1> 7:00
File Name	Intersection 238-B_2020 NB_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	250					230	285		15	650	230

Signal Information			
Cycle, s	69.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.3	3.1	25.9	13.2	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

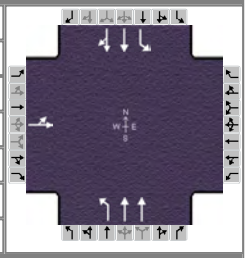
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		19.2			17.3	42.0	7.8	32.4
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		12.5			10.7	4.9	2.6	16.7
Green Extension Time *(g_e)*, s		0.7			0.3	12.1	0.0	9.2
Phase Call Probability		1.00			0.99	1.00	0.25	1.00
Max Out Probability		0.01			0.00	0.23	0.00	0.48

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		280					230	285		15	461	419
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1766					1774	1773		1723	1810	1647
Queue Service Time *(g_s)*, s		10.5					8.7	2.9		0.6	14.7	14.7
Cycle Queue Clearance Time *(g_c)*, s		10.5					8.7	2.9		0.6	14.7	14.7
Capacity *(c)*, veh/h		338					279	1826		31	680	619
Volume-to-Capacity Ratio *(X)*		0.828					0.825	0.156		0.479	0.677	0.677
Available Capacity *(c_a)*, veh/h		640					514	1826		499	918	835
Back of Queue *(Q)*, veh/ln (50th percentile)		4.6					3.6	1.0		0.3	5.9	5.5
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.41	0.00		0.05	0.00	0.00
Uniform Delay *(d_1)*, s/veh		26.8					28.2	8.8		33.6	18.0	18.0
Incremental Delay *(d_2)*, s/veh		5.4					2.4	0.1		4.2	2.6	2.8
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		32.2					30.6	8.9		37.8	20.6	20.8
Level of Service (LOS)		C					C	A		D	C	C
Approach Delay, s/veh / LOS	32.2	C		0.0			18.6	B		21.0	C	
Intersection Delay, s/veh / LOS	22.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			0.9	A	1.2	A

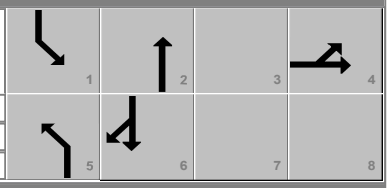
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2020 NB	Analysis Period	1> 5:00
File Name	Intersection 238-B_2020 NB_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	235					250	420		35	585	290

Signal Information			
Cycle, s	68.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.4	2.5	26.4	11.3	0.0	0.0		
Yellow	5.0	5.0	5.0	4.0	0.0	0.0		
Red	1.5	1.5	1.5	2.0	0.0	0.0		

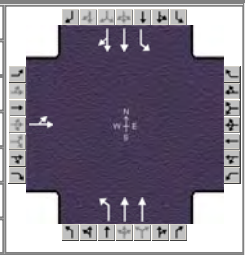
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		17.3			17.9	41.9	8.9	32.9
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		10.7			11.2	6.3	3.3	15.8
Green Extension Time *(g_e)*, s		0.7			0.3	13.4	0.0	10.5
Phase Call Probability		0.99			0.99	1.00	0.48	1.00
Max Out Probability		0.00			0.01	0.32	0.00	0.52

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		245					250	420		35	463	412
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1841					1792	1791		1774	1863	1653
Queue Service Time *(g_s)*, s		8.7					9.2	4.3		1.3	13.8	13.8
Cycle Queue Clearance Time *(g_c)*, s		8.7					9.2	4.3		1.3	13.8	13.8
Capacity *(c)*, veh/h		305					300	1861		63	722	640
Volume-to-Capacity Ratio *(X)*		0.802					0.832	0.226		0.554	0.642	0.643
Available Capacity *(c_a)*, veh/h		676					526	1861		521	957	850
Back of Queue *(Q)*, veh/ln (50th percentile)		4.0					3.9	1.5		0.6	5.7	5.1
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		27.3					27.4	8.9		32.3	17.0	17.0
Incremental Delay *(d_2)*, s/veh		5.1					2.4	0.1		2.8	2.1	2.3
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		32.4					29.8	9.0		35.1	19.1	19.3
Level of Service (LOS)		C					C	A		D	B	B
Approach Delay, s/veh / LOS	32.4	C		0.0			16.8	B		19.8	B	
Intersection Delay, s/veh / LOS	20.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			1.0	A	1.2	A

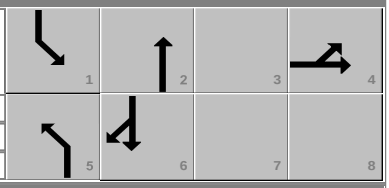
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Aug 2, 2011	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 238-B_2020 Alt1_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	25	255					230	310		25	775	195

Signal Information			
Cycle, s	71.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.0	2.7	27.7	13.6	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

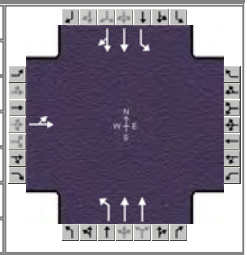
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		19.6			17.7	43.5	8.5	34.2
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		12.9			11.0	5.3	3.0	18.8
Green Extension Time *(g_e)*, s		0.7			0.3	13.5	0.0	8.9
Phase Call Probability		1.00			0.99	1.00	0.39	1.00
Max Out Probability		0.01			0.00	0.30	0.00	0.60

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		280					230	310		25	503	467
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1768					1774	1773		1723	1810	1683
Queue Service Time *(g_s)*, s		10.9					9.0	3.3		1.0	16.8	16.8
Cycle Queue Clearance Time *(g_c)*, s		10.9					9.0	3.3		1.0	16.8	16.8
Capacity *(c)*, veh/h		336					277	1833		47	702	653
Volume-to-Capacity Ratio *(X)*		0.833					0.830	0.169		0.529	0.716	0.716
Available Capacity *(c_a)*, veh/h		618					496	1833		482	885	823
Back of Queue *(Q)*, veh/ln (50th percentile)		4.9					3.8	1.1		0.5	7.0	6.5
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		27.9					29.3	9.2		34.3	18.6	18.6
Incremental Delay *(d_2)*, s/veh		5.6					2.5	0.1		3.4	3.4	3.7
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		33.5					31.8	9.2		37.8	22.0	22.2
Level of Service (LOS)		C					C	A		D	C	C
Approach Delay, s/veh / LOS	33.5	C		0.0			18.8	B		22.5	C	
Intersection Delay, s/veh / LOS	23.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			0.9	A	1.3	A

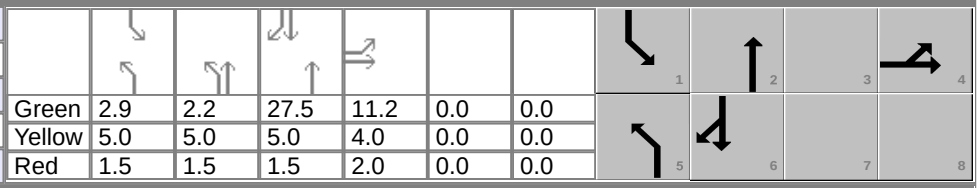
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Aug 2, 2011	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2011	Analysis Period	1> 5:00
File Name	Intersection 238-B_2020 Alt1_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	235					250	465		45	675	260

Signal Information			
Cycle, s	69.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.9	2.2	27.5	11.2	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

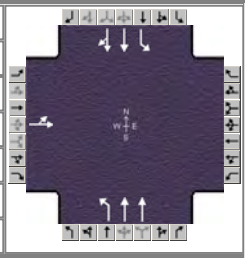
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		17.2			18.1	42.7	9.4	34.0
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		10.7			11.4	6.9	3.7	17.0
Green Extension Time *(g_e)*, s		0.7			0.3	14.5	0.0	10.5
Phase Call Probability		0.99			0.99	1.00	0.58	1.00
Max Out Probability		0.00			0.01	0.39	0.00	0.60

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		240					250	465		45	491	444
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1843					1792	1791		1774	1863	1685
Queue Service Time *(g_s)*, s		8.7					9.4	4.9		1.7	15.0	15.0
Cycle Queue Clearance Time *(g_c)*, s		8.7					9.4	4.9		1.7	15.0	15.0
Capacity *(c)*, veh/h		299					300	1869		74	738	668
Volume-to-Capacity Ratio *(X)*		0.803					0.834	0.249		0.606	0.665	0.665
Available Capacity *(c_a)*, veh/h		664					517	1869		512	940	851
Back of Queue *(Q)*, veh/ln (50th percentile)		4.0					4.0	1.7		0.8	6.2	5.6
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		28.0					27.9	9.1		32.7	17.1	17.1
Incremental Delay *(d_2)*, s/veh		5.2					2.4	0.1		3.0	2.3	2.6
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		33.2					30.3	9.3		35.6	19.5	19.7
Level of Service (LOS)		C					C	A		D	B	B
Approach Delay, s/veh / LOS	33.2	C		0.0			16.6	B		20.3	C	
Intersection Delay, s/veh / LOS	20.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			1.1	A	1.3	A

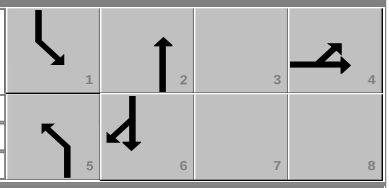
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Aug 2, 2011	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 238-B_2020 Alt2_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	25	255					230	305		25	750	195

Signal Information			
Cycle, s	70.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.9	2.6	27.3	13.5	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

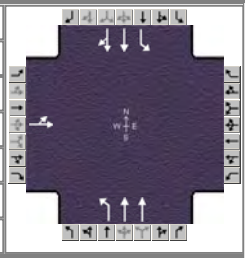
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		19.5			17.6	42.9	8.4	33.8
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		12.8			10.9	5.2	3.0	18.2
Green Extension Time *(g_e)*, s		0.7			0.3	13.1	0.0	9.1
Phase Call Probability		1.00			0.99	1.00	0.39	1.00
Max Out Probability		0.01			0.00	0.28	0.00	0.57

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		280					230	305		25	490	455
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1768					1774	1773		1723	1810	1680
Queue Service Time *(g_s)*, s		10.8					8.9	3.2		1.0	16.2	16.2
Cycle Queue Clearance Time *(g_c)*, s		10.8					8.9	3.2		1.0	16.2	16.2
Capacity *(c)*, veh/h		337					278	1823		47	697	647
Volume-to-Capacity Ratio *(X)*		0.831					0.829	0.167		0.528	0.703	0.703
Available Capacity *(c_a)*, veh/h		623					500	1823		486	893	829
Back of Queue *(Q)*, veh/ln (50th percentile)		4.8					3.8	1.1		0.5	6.7	6.2
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		27.6					29.0	9.2		34.0	18.4	18.4
Incremental Delay *(d_2)*, s/veh		5.6					2.5	0.1		3.4	3.1	3.4
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		33.2					31.5	9.3		37.4	21.5	21.8
Level of Service (LOS)		C					C	A		D	C	C
Approach Delay, s/veh / LOS	33.2	C		0.0			18.8	B		22.0	C	
Intersection Delay, s/veh / LOS	22.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			0.9	A	1.3	A

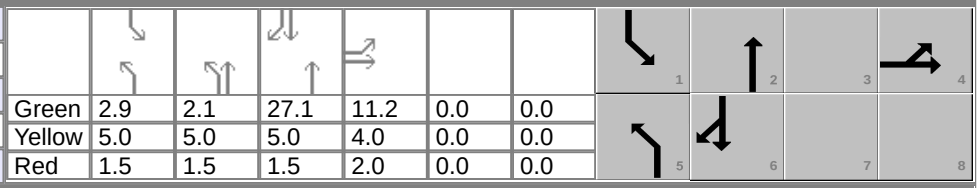
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Aug 2, 2011	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2011	Analysis Period	1> 5:00
File Name	Intersection 238-B_2020 Alt2_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	235					250	465		45	645	260

Signal Information			
Cycle, s	68.7	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.9	2.1	27.1	11.2	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

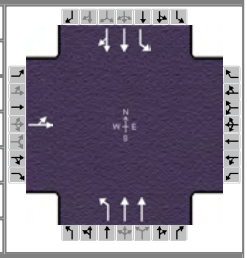
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		17.2			18.0	42.2	9.4	33.6
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		10.6			11.3	6.9	3.7	16.3
Green Extension Time *(g_e)*, s		0.7			0.3	14.1	0.0	10.8
Phase Call Probability		0.99			0.99	1.00	0.58	1.00
Max Out Probability		0.00			0.01	0.38	0.00	0.57

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		240					250	465		45	476	429
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1843					1792	1791		1774	1863	1680
Queue Service Time *(g_s)*, s		8.6					9.3	4.9		1.7	14.3	14.3
Cycle Queue Clearance Time *(g_c)*, s		8.6					9.3	4.9		1.7	14.3	14.3
Capacity *(c)*, veh/h		300					300	1860		75	733	661
Volume-to-Capacity Ratio *(X)*		0.801					0.833	0.250		0.604	0.649	0.649
Available Capacity *(c_a)*, veh/h		670					521	1860		516	948	855
Back of Queue *(Q)*, veh/ln (50th percentile)		4.0					3.9	1.7		0.8	5.8	5.3
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		27.7					27.7	9.1		32.4	17.0	17.0
Incremental Delay *(d_2)*, s/veh		5.2					2.4	0.1		2.9	2.1	2.3
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		32.9					30.1	9.3		35.3	19.1	19.3
Level of Service (LOS)		C					C	A		D	B	B
Approach Delay, s/veh / LOS	32.9	C		0.0			16.6	B		19.9	B	
Intersection Delay, s/veh / LOS	20.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			1.1	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

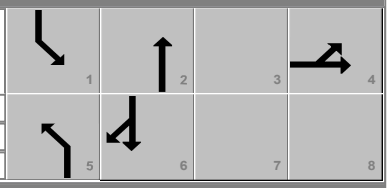
General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2020 Alt 3	Analysis Period	1> 7:00
File Name	Intersection 238-B_2020 BLD_3_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	25	255					230	310		25	720	195

Signal Information			
Cycle, s	70.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.9	2.6	26.8	13.4	0.0	0.0	
Yellow	5.0	5.0	5.0	4.0	0.0	0.0	
Red	1.5	1.5	1.5	2.0	0.0	0.0	



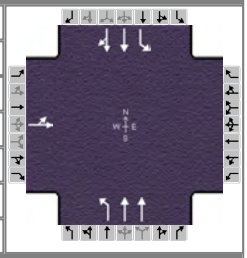
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		19.4			17.5	42.3	8.4	33.3
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		12.7			10.8	5.3	3.0	17.4
Green Extension Time *(g_e)*, s		0.7			0.3	12.8	0.0	9.3
Phase Call Probability		1.00			0.99	1.00	0.39	1.00
Max Out Probability		0.01			0.00	0.27	0.00	0.53

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		280					230	310		25	475	440
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1768					1774	1773		1723	1810	1676
Queue Service Time *(g_s)*, s		10.7					8.8	3.3		1.0	15.4	15.4
Cycle Queue Clearance Time *(g_c)*, s		10.7					8.8	3.3		1.0	15.4	15.4
Capacity *(c)*, veh/h		337					278	1812		47	691	640
Volume-to-Capacity Ratio *(X)*		0.830					0.827	0.171		0.526	0.688	0.688
Available Capacity *(c_a)*, veh/h		630					506	1812		491	902	836
Back of Queue *(Q)*, veh/ln (50th percentile)		4.7					3.7	1.1		0.4	6.3	5.9
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.41	0.00		0.08	0.00	0.00
Uniform Delay *(d_1)*, s/veh		27.3					28.7	9.2		33.7	18.2	18.2
Incremental Delay *(d_2)*, s/veh		5.5					2.5	0.1		3.4	2.8	3.0
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		32.8					31.1	9.3		37.0	21.0	21.2
Level of Service (LOS)		C					C	A		D	C	C
Approach Delay, s/veh / LOS	32.8	C		0.0			18.6	B		21.5	C	
Intersection Delay, s/veh / LOS	22.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			0.9	A	1.3	A

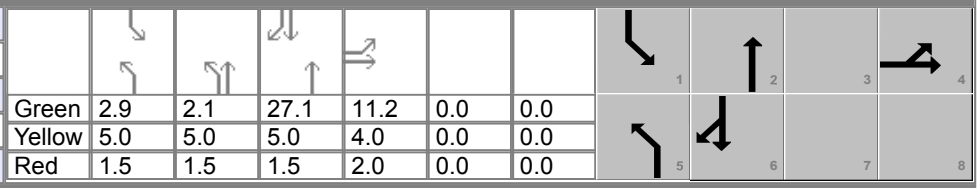
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2020 Alt 3	Analysis Period	1> 5:00
File Name	Intersection 238-B_2020 BLD_3_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	235					250	465		45	650	260

Signal Information			
Cycle, s	68.8	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.9	2.1	27.1	11.2	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

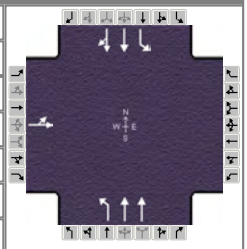
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		17.2			18.0	42.3	9.4	33.6
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		10.6			11.3	6.9	3.7	16.4
Green Extension Time *(g_e)*, s		0.7			0.3	14.2	0.0	10.7
Phase Call Probability		0.99			0.99	1.00	0.58	1.00
Max Out Probability		0.00			0.01	0.38	0.00	0.58

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		240					250	465		45	478	432
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1843					1792	1791		1774	1863	1681
Queue Service Time *(g_s)*, s		8.6					9.3	4.9		1.7	14.4	14.4
Cycle Queue Clearance Time *(g_c)*, s		8.6					9.3	4.9		1.7	14.4	14.4
Capacity *(c)*, veh/h		299					300	1861		74	734	662
Volume-to-Capacity Ratio *(X)*		0.802					0.834	0.250		0.604	0.651	0.652
Available Capacity *(c_a)*, veh/h		669					520	1861		515	947	854
Back of Queue *(Q)*, veh/ln (50th percentile)		4.0					3.9	1.7		0.8	5.9	5.4
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		27.8					27.7	9.1		32.4	17.0	17.0
Incremental Delay *(d_2)*, s/veh		5.2					2.4	0.1		2.9	2.1	2.4
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		32.9					30.1	9.3		35.4	19.1	19.4
Level of Service (LOS)		C					C	A		D	B	B
Approach Delay, s/veh / LOS	32.9	C		0.0			16.6	B		20.0	C	
Intersection Delay, s/veh / LOS	20.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	0.9	A			1.1	A	1.3	A

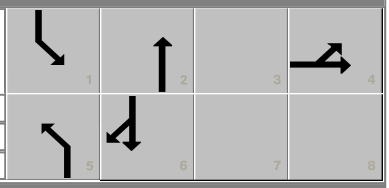
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jan 31, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 NB	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 NB_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	390					305	440		30	985	360

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	9.2	35.0	25.0	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

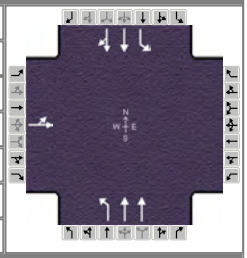
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		31.0			25.0	57.2	9.3	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(gs)*, s		26.1			18.4	8.6	3.7	37.0
Green Extension Time *(ge)*, s		0.0			0.1	18.4	0.0	0.0
Phase Call Probability		1.00			1.00	1.00	0.56	1.00
Max Out Probability		1.00			1.00	0.66	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		440					305	440		30	700	645
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1766					1774	1773		1723	1810	1644
Queue Service Time *(gs)*, s		24.1					16.4	6.6		1.7	35.0	35.0
Cycle Queue Clearance Time *(gc)*, s		24.1					16.4	6.6		1.7	35.0	35.0
Capacity *(c)*, veh/h		453					337	1845		49	649	590
Volume-to-Capacity Ratio *(X)*		0.972					0.906	0.238		0.610	1.078	1.093
Available Capacity *(ca)*, veh/h		453					364	1845		353	649	590
Back of Queue *(Q)*, veh/ln (50th percentile)		17.5					9.8	2.5		0.8	45.4	45.4
Overflow Queue *(Q3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					1.09	0.00		0.13	0.00	0.00
Uniform Delay *(d1)*, s/veh		35.9					38.6	12.8		46.8	31.3	31.3
Incremental Delay *(d2)*, s/veh		60.2					30.5	0.1		4.6	171.7	197.1
Initial Queue Delay *(d3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		96.1					69.2	13.0		51.4	203.0	228.3
Level of Service (LOS)		F					E	B		D	F	F
Approach Delay, s/veh / LOS	96.1	F		0.0			36.0	D		211.6	F	
Intersection Delay, s/veh / LOS	140.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.2	A			1.1	A	1.6	A

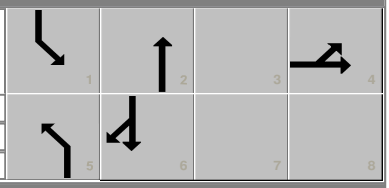
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jan 31, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 NB	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 NB_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	370					330	690		60	870	435

Signal Information			
Cycle, s	96.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.2	8.7	35.0	23.1	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

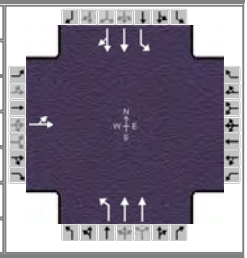
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		29.1			26.0	56.7	10.7	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(gs)*, s		22.8			19.4	13.1	5.2	37.0
Green Extension Time *(ge)*, s		0.4			0.1	17.5	0.1	0.0
Phase Call Probability		1.00			1.00	1.00	0.80	1.00
Max Out Probability		1.00			1.00	0.80	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		405					330	690		60	870	435
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1837					1792	1791		1774	1863	1579
Queue Service Time *(gs)*, s		20.8					17.4	11.1		3.2	35.0	23.4
Cycle Queue Clearance Time *(gc)*, s		20.8					17.4	11.1		3.2	35.0	23.4
Capacity *(c)*, veh/h		440					361	1862		78	675	572
Volume-to-Capacity Ratio *(X)*		0.920					0.914	0.371		0.771	1.289	0.761
Available Capacity *(ca)*, veh/h		475					371	1862		367	675	572
Back of Queue *(Q)*, veh/ln (50th percentile)		12.7					10.9	4.2		1.5	114.6	9.6
Overflow Queue *(Q3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d1)*, s/veh		35.8					37.8	13.8		45.7	30.8	27.1
Incremental Delay *(d2)*, s/veh		30.0					34.6	0.3		6.2	532.2	7.3
Initial Queue Delay *(d3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		65.9					72.3	14.1		51.9	563.0	34.4
Level of Service (LOS)		E					E	B		D	F	C
Approach Delay, s/veh / LOS	65.9	E		0.0			32.9	C		372.1	F	
Intersection Delay, s/veh / LOS	203.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.2	A			1.3	A	1.6	A

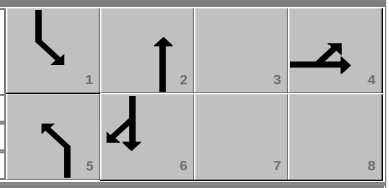
HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 13, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1395	260

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.4	7.7	35.0	25.0	0.0	0.0						
Yellow	5.0	5.0	5.0	4.0	0.0	0.0						
Red	1.5	1.5	1.5	2.0	0.0	0.0						

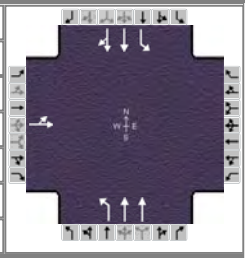
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1395	260
Initial Queue (Q_b), veh/h	0	0					0	0		0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900					1900	1900		1900	1900	1900
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		7					2	2		5	5	
Ped / Bike / RTOR, /h	0	0	0				0	0	0	0	0	0
Buses (N_b), buses/h	0	0					0	0		0	0	0
Arrival Type (*AT*)	3	3					3	3		3	3	3
Upstream Filtering (*I*)	1.00	1.00					1.00	1.00		1.00	1.00	1.00
Lane Width (*W*), ft		12.0					12.0	12.0		12.0	12.0	
Turn Bay Length, ft		0					228	0		150	0	
Grade (P_g), %	0	0					0	0		0	0	0
Speed Limit, mi/h	35	35					35	35		35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		25.0			20.0	35.0	20.0	35.0
Yellow Change Interval (*Y*), s	4.0	4.0			5.0	5.0	5.0	5.0
Red Clearance Interval (R_c), s	1.0	2.0			1.5	1.5	1.5	1.5
Minimum Green (G_{min}), s	5	7			5	15	5	15
Start-Up Lost Time (l_1), s	2.0	2.0			2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0			2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0			2.0	5.0	2.0	5.0
Recall Mode	Off	Off			Off	Min	Off	Min
Dual Entry	No	No			No	No	No	No
Walk (*Walk*), s	0.0	0.0			0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0			0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25				0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0				9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No				0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0				12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50					No	0.50		No	0.50	

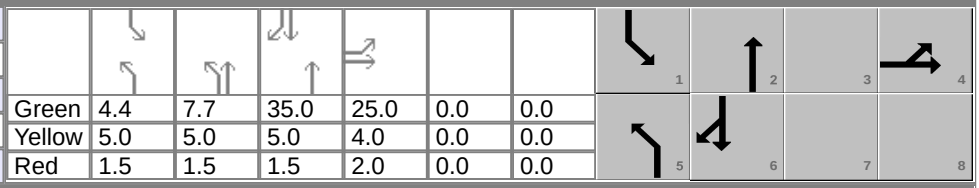
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 13, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1395	260

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.4	7.7	35.0	25.0	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

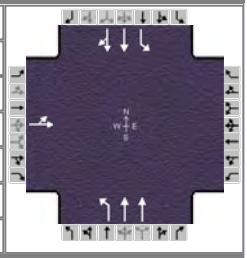
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		31.0			25.0	55.7	10.9	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		25.3			18.4	10.2	5.4	37.0
Green Extension Time *(g_e)*, s		0.0			0.1	20.7	0.1	0.0
Phase Call Probability		1.00			1.00	1.00	0.80	1.00
Max Out Probability		1.00			1.00	0.83	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		430					305	515		60	839	816
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1770					1774	1773		1723	1810	1711
Queue Service Time *(g_s)*, s		23.3					16.4	8.2		3.4	35.0	35.0
Cycle Queue Clearance Time *(g_c)*, s		23.3					16.4	8.2		3.4	35.0	35.0
Capacity *(c)*, veh/h		454					337	1788		77	649	614
Volume-to-Capacity Ratio *(X)*		0.948					0.906	0.288		0.780	1.292	1.328
Available Capacity *(c_a)*, veh/h		454					364	1788		353	649	614
Back of Queue *(Q)*, veh/ln (th percentile)		15.3					9.8	3.2		1.6	111.6	116.3
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (th percentile)		0.00					1.09	0.00		0.27	0.00	0.00
Uniform Delay *(d_1)*, s/veh		35.6					38.6	14.0		46.1	31.3	31.3
Incremental Delay *(d_2)*, s/veh		44.8					30.5	0.2		6.5	538.3	601.6
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		80.4					69.2	14.2		52.7	569.5	632.9
Level of Service (LOS)		F					E	B		D	F	F
Approach Delay, s/veh / LOS	80.4	F		0.0			34.7	C		581.6	F	
Intersection Delay, s/veh / LOS	357.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.2	A			1.2	A	1.9	A

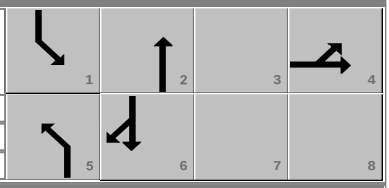
HCS 2010 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 13, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1395	260

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.4	7.7	35.0	25.0	0.0	0.0						
Yellow	5.0	5.0	5.0	4.0	0.0	0.0						
Red	1.5	1.5	1.5	2.0	0.0	0.0						

	EB			WB			NB			SB		
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	0.935	1.000	0.000	0.000	0.000	0.980	0.980	1.000	0.952	0.952	1.000
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})		0.997					0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000						1.000			0.946	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1646					1774	3636		1723	2984	
Platoon Ratio (R_p)		0.00					0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)		0.46					0.35	0.23		0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0			6.5	6.5	6.5	6.5
Green Ratio (*g/C*)		0.26			0.19	0.50	0.04	0.36
Permitted Saturation Flow Rate (s_p), veh/h/ln		0			0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0			0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0			0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0			0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.107	0.00	2.107	0.00	1.198	0.00	1.389	0.00
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.160	0.000	0.100	0.000	0.120
Bicycle c_b / d_b		54.94		53.88	1008.28	11.99	717.86	20.04
Bicycle F_w / F_v	-3.64	0.71	-3.64		-3.64	0.68	-3.64	1.41

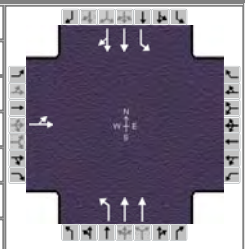
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 14, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1160	345

Signal Information													
Cycle, s	94.3	Reference Phase	2							1	2	3	4
Offset, s	0	Reference Point	End	Green	6.2	6.4	35.0	21.2	0.0	0.0	5	6	7	8
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	5.0	5.0	5.0	4.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.5	1.5	1.5	2.0	0.0	0.0				

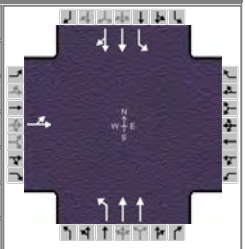
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1160	345
Initial Queue (Q_b), veh/h	0	0					0	0		0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900					1900	1900		1900	1900	1900
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		3					1	1		2	2	
Ped / Bike / RTOR, /h	0	0	0				0	0	0	0	0	0
Buses (N_b), buses/h	0	0					0	0		0	0	0
Arrival Type (*AT*)	3	3					3	3		3	3	3
Upstream Filtering (*I*)	1.00	1.00					1.00	1.00		1.00	1.00	1.00
Lane Width (*W*), ft		12.0					12.0	12.0		12.0	12.0	
Turn Bay Length, ft		0					0	0		0	0	
Grade (P_g), %	0	0					0	0		0	0	0
Speed Limit, mi/h	35	35					35	35		35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		25.0			20.0	35.0	20.0	35.0
Yellow Change Interval (*Y*), s	4.0	4.0			5.0	5.0	5.0	5.0
Red Clearance Interval (R_c), s	1.0	2.0			1.5	1.5	1.5	1.5
Minimum Green (G_{min}), s	5	7			5	15	5	15
Start-Up Lost Time (l_t), s	2.0	2.0			2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0			2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0			2.0	5.0	2.0	5.0
Recall Mode	Off	Off			Off	Min	Off	Min
Dual Entry	No	No			No	No	No	No
Walk (*Walk*), s	0.0	0.0			0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0			0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25				0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0				9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No				0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0				12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50					No	0.50		No	0.50	

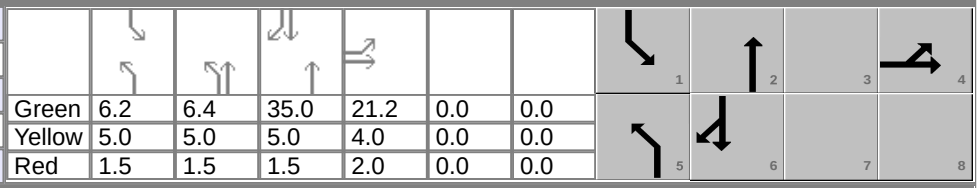
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 14, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1160	345

Signal Information			
Cycle, s	94.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.2	6.4	35.0	21.2	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

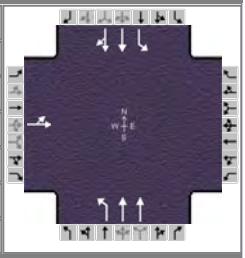
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		27.2			25.6	54.4	12.7	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		20.7			19.0	16.1	6.7	37.0
Green Extension Time *(g_e)*, s		0.6			0.1	16.7	0.1	0.0
Phase Call Probability		1.00			1.00	1.00	0.91	1.00
Max Out Probability		0.86			1.00	0.90	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		375					330	835		90	774	731
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1843					1792	1791		1774	1863	1717
Queue Service Time *(g_s)*, s		18.7					17.0	14.1		4.7	35.0	35.0
Cycle Queue Clearance Time *(g_c)*, s		18.7					17.0	14.1		4.7	35.0	35.0
Capacity *(c)*, veh/h		415					362	1820		116	691	637
Volume-to-Capacity Ratio *(X)*		0.904					0.911	0.459		0.776	1.120	1.147
Available Capacity *(c_a)*, veh/h		489					380	1820		376	691	637
Back of Queue *(Q)*, veh/ln (th percentile)		10.7					10.4	5.4		2.2	60.3	63.9
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		35.5					36.8	14.9		43.4	29.6	29.6
Incremental Delay *(d_2)*, s/veh		22.8					32.1	0.4		4.3	237.7	284.5
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		58.4					68.8	15.3		47.7	267.4	314.1
Level of Service (LOS)		E					E	B		D	F	F
Approach Delay, s/veh / LOS	58.4	E		0.0			30.4	C		276.4	F	
Intersection Delay, s/veh / LOS	158.9						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.1	A			1.4	A	1.8	A

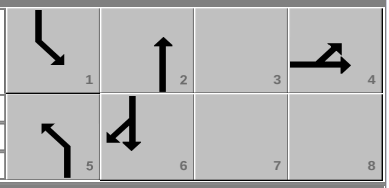
HCS 2010 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 14, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1160	345

Signal Information			
Cycle, s	94.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.2	6.4	35.0	21.2	0.0	0.0						
Yellow	5.0	5.0	5.0	4.0	0.0	0.0						
Red	1.5	1.5	1.5	2.0	0.0	0.0						

	EB			WB			NB			SB		
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	0.971	1.000	0.000	0.000	0.000	0.990	0.990	1.000	0.980	0.980	1.000
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})		0.999					0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000						1.000			0.922	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1819					1792	3672		1774	2795	
Platoon Ratio (R_p)		0.00					0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)		0.32					0.38	0.23		0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0			6.5	6.5	6.5	6.5
Green Ratio (*g/C*)		0.23			0.20	0.51	0.07	0.37
Permitted Saturation Flow Rate (s_p), veh/h/ln		0			0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0			0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0			0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0			0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.107	0.00	2.107	0.00	1.198	0.00	1.389	0.00
Pedestrian F_s / F_{delay}	0.000	0.159	0.000	0.159	0.000	0.098	0.000	0.117
Bicycle c_b / d_b		53.34		52.28	1016.07	11.41	742.38	18.64
Bicycle F_w / F_v	-3.64	0.62	-3.64		-3.64	0.96	-3.64	1.32

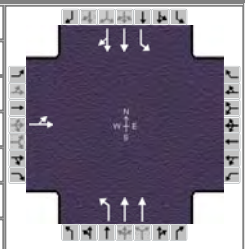
--- Messages ---

No errors or warnings exist.

--- Comments ---

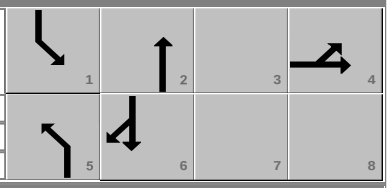
HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1265	260

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.4	7.7	35.0	25.0	0.0	0.0						
Yellow	5.0	5.0	5.0	4.0	0.0	0.0						
Red	1.5	1.5	1.5	2.0	0.0	0.0						

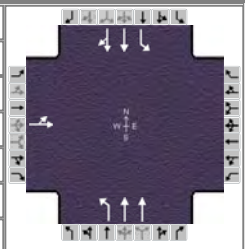
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1265	260
Initial Queue (Q_b), veh/h	0	0					0	0		0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900					1900	1900		1900	1900	1900
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		7					2	2		5	5	
Ped / Bike / RTOR, /h	0	0	0				0	0	0	0	0	0
Buses (N_b), buses/h	0	0					0	0		0	0	0
Arrival Type (*AT*)	3	3					3	3		3	3	3
Upstream Filtering (*I*)	1.00	1.00					1.00	1.00		1.00	1.00	1.00
Lane Width (*W*), ft		12.0					12.0	12.0		12.0	12.0	
Turn Bay Length, ft		0					228	0		150	0	
Grade (P_g), %	0	0					0	0		0	0	0
Speed Limit, mi/h	35	35					35	35		35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		25.0			20.0	35.0	20.0	35.0
Yellow Change Interval (*Y*), s	4.0	4.0			5.0	5.0	5.0	5.0
Red Clearance Interval (R_c), s	1.0	2.0			1.5	1.5	1.5	1.5
Minimum Green (G_{min}), s	5	7			5	15	5	15
Start-Up Lost Time (l_t), s	2.0	2.0			2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0			2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0			2.0	5.0	2.0	5.0
Recall Mode	Off	Off			Off	Min	Off	Min
Dual Entry	No	No			No	No	No	No
Walk (*Walk*), s	0.0	0.0			0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0			0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25				0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0				9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No				0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0				12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50					No	0.50		No	0.50	

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1265	260

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	4.4	7.7	35.0	25.0	0.0	0.0	5	6	7	8
Yellow	5.0	5.0	5.0	4.0	0.0	0.0				
Red	1.5	1.5	1.5	2.0	0.0	0.0				

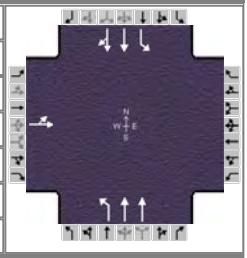
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		31.0			25.0	55.7	10.9	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time (g_s), s		25.3			18.4	10.2	5.4	37.0
Green Extension Time (g_e), s		0.0			0.1	19.7	0.1	0.0
Phase Call Probability		1.00			1.00	1.00	0.80	1.00
Max Out Probability		1.00			1.00	0.78	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		430					305	515		60	778	747
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1770					1774	1773		1723	1810	1703
Queue Service Time (g_s), s		23.3					16.4	8.2		3.4	35.0	35.0
Cycle Queue Clearance Time (g_c), s		23.3					16.4	8.2		3.4	35.0	35.0
Capacity *(c)*, veh/h		454					337	1788		77	649	611
Volume-to-Capacity Ratio *(X)*		0.948					0.906	0.288		0.780	1.198	1.222
Available Capacity (c_a), veh/h		454					364	1788		353	649	611
Back of Queue *(Q)*, veh/ln (th percentile)		15.3					9.8	3.2		1.6	81.8	84.0
Overflow Queue (Q_3), veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (th percentile)		0.00					1.09	0.00		0.27	0.00	0.00
Uniform Delay (d_1), s/veh		35.6					38.6	14.0		46.1	31.3	31.3
Incremental Delay (d_2), s/veh		44.8					30.5	0.2		6.5	373.2	414.5
Initial Queue Delay (d_3), s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		80.4					69.2	14.2		52.7	404.4	445.8
Level of Service (LOS)		F					E	B		D	F	F
Approach Delay, s/veh / LOS	80.4	F		0.0			34.7	C		410.6	F	
Intersection Delay, s/veh / LOS	251.8						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.2	A			1.2	A	1.8	A

HCS 2010 Signalized Intersection Intermediate Values

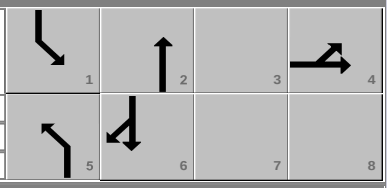
General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1265	260

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.4	7.7	35.0	25.0	0.0	0.0						
Yellow	5.0	5.0	5.0	4.0	0.0	0.0						
Red	1.5	1.5	1.5	2.0	0.0	0.0						



Saturation Flow / Delay	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	0.935	1.000	0.000	0.000	0.000	0.980	0.980	1.000	0.952	0.952	1.000
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})		0.997					0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000						1.000			0.941	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1646					1774	3636		1723	2933	
Platoon Ratio (R_p)		0.00					0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)		0.46					0.35	0.23		0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0			6.5	6.5	6.5	6.5
Green Ratio (*g/C*)		0.26			0.19	0.50	0.04	0.36
Permitted Saturation Flow Rate (s_p), veh/h/ln		0			0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0			0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0			0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0			0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.107	0.00	2.107	0.00	1.198	0.00	1.389	0.00
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.160	0.000	0.100	0.000	0.120
Bicycle c_b / d_b		54.94		53.88	1008.28	11.99	717.86	20.04
Bicycle F_w / F_v	-3.64	0.71	-3.64		-3.64	0.68	-3.64	1.31

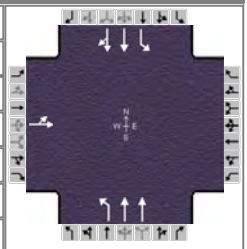
--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1045	345

Signal Information													
Cycle, s	94.3	Reference Phase	2							1	2	3	4
Offset, s	0	Reference Point	End	Green	6.2	6.4	35.0	21.2	0.0	0.0	5	6	7	8
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	5.0	5.0	5.0	4.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.5	1.5	1.5	2.0	0.0	0.0				

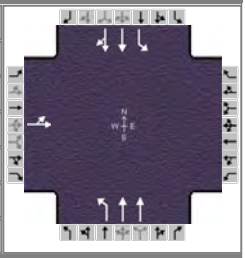
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1045	345
Initial Queue (Q_b), veh/h	0	0					0	0		0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900					1900	1900		1900	1900	1900
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		3					1	1		2	2	
Ped / Bike / RTOR, /h	0	0	0				0	0	0	0	0	0
Buses (N_b), buses/h	0	0					0	0		0	0	0
Arrival Type (*AT*)	3	3					3	3		3	3	3
Upstream Filtering (*I*)	1.00	1.00					1.00	1.00		1.00	1.00	1.00
Lane Width (*W*), ft		12.0					12.0	12.0		12.0	12.0	
Turn Bay Length, ft		0					0	0		0	0	
Grade (P_g), %	0	0					0	0		0	0	0
Speed Limit, mi/h	35	35					35	35		35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		25.0			20.0	35.0	20.0	35.0
Yellow Change Interval (*Y*), s	4.0	4.0			5.0	5.0	5.0	5.0
Red Clearance Interval (R_c), s	1.0	2.0			1.5	1.5	1.5	1.5
Minimum Green (G_{min}), s	5	7			5	15	5	15
Start-Up Lost Time (l_1), s	2.0	2.0			2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0			2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0			2.0	5.0	2.0	5.0
Recall Mode	Off	Off			Off	Min	Off	Min
Dual Entry	No	No			No	No	No	No
Walk (*Walk*), s	0.0	0.0			0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0			0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25				0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0				9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No				0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0				12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50					No	0.50		No	0.50	

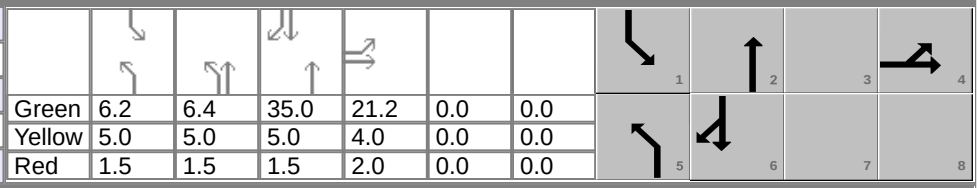
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1045	345

Signal Information			
Cycle, s	94.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.2	6.4	35.0	21.2	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

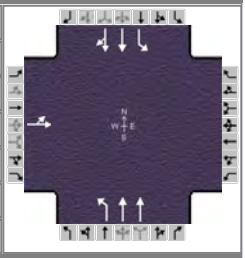
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		27.2			25.6	54.4	12.7	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		20.7			19.0	16.1	6.7	37.0
Green Extension Time *(g_e)*, s		0.6			0.1	16.3	0.1	0.0
Phase Call Probability		1.00			1.00	1.00	0.91	1.00
Max Out Probability		0.86			1.00	0.87	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		375					330	835		90	720	670
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1843					1792	1791		1774	1863	1705
Queue Service Time *(g_s)*, s		18.7					17.0	14.1		4.7	35.0	35.0
Cycle Queue Clearance Time *(g_c)*, s		18.7					17.0	14.1		4.7	35.0	35.0
Capacity *(c)*, veh/h		415					362	1820		116	691	633
Volume-to-Capacity Ratio *(X)*		0.904					0.911	0.459		0.776	1.042	1.058
Available Capacity *(c_a)*, veh/h		489					380	1820		376	691	633
Back of Queue *(Q)*, veh/ln (th percentile)		10.7					10.4	5.4		2.2	37.1	38.5
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		35.5					36.8	14.9		43.4	29.6	29.6
Incremental Delay *(d_2)*, s/veh		22.8					32.1	0.4		4.3	117.0	142.9
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		58.4					68.8	15.3		47.7	146.7	172.5
Level of Service (LOS)		E					E	B		D	F	F
Approach Delay, s/veh / LOS	58.4	E		0.0			30.4	C		152.4	F	
Intersection Delay, s/veh / LOS	93.7						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.1	A			1.4	A	1.7	A

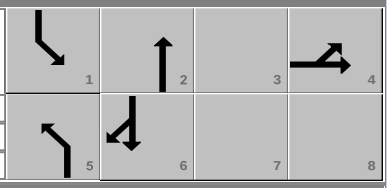
HCS 2010 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Build	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1045	345

Signal Information					EB			WB			NB			SB		
Cycle, s	94.3	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	6.2	6.4		35.0	21.2	0.0		0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	5.0	5.0		5.0	4.0	0.0		0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.5	1.5		1.5	2.0	0.0		0.0				



Saturation Flow / Delay	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	1.000	0.971	1.000	0.000	0.000	0.000	0.990	0.990	1.000	0.980	0.980	1.000
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})		0.999					0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000						1.000			0.915	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1819					1792	3672		1774	2724	
Platoon Ratio (R_p)		0.00					0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)		0.32					0.38	0.23		0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0			6.5	6.5	6.5	6.5
Green Ratio (*g/C*)		0.23			0.20	0.51	0.07	0.37
Permitted Saturation Flow Rate (s_p), veh/h/ln		0			0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0			0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0			0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0			0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.107	0.00	2.107	0.00	1.198	0.00	1.389	0.00
Pedestrian F_s / F_{delay}	0.000	0.159	0.000	0.159	0.000	0.098	0.000	0.117
Bicycle c_b / d_b		53.34		52.28	1016.07	11.41	742.38	18.64
Bicycle F_w / F_v	-3.64	0.62	-3.64		-3.64	0.96	-3.64	1.22

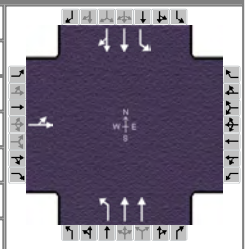
--- Messages ---

No errors or warnings exist.

--- Comments ---

HCS 2010 Signalized Intersection Results Summary

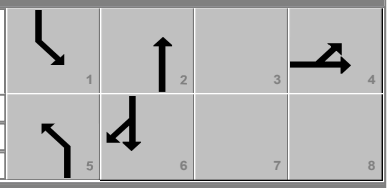
General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	York	Time Period	AM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Alt 3	Analysis Period	1> 7:00
File Name	Intersection 238-B_2040 BLD_3_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	400					305	515		60	1210	260

Signal Information			
Cycle, s	97.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.4	7.7	35.0	25.0	0.0	0.0	
Yellow	5.0	5.0	5.0	4.0	0.0	0.0	
Red	1.5	1.5	1.5	2.0	0.0	0.0	



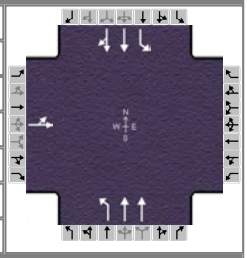
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		31.0			25.0	55.7	10.9	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		25.3			18.4	10.2	5.4	37.0
Green Extension Time *(g_e)*, s		0.0			0.1	19.2	0.1	0.0
Phase Call Probability		1.00			1.00	1.00	0.80	1.00
Max Out Probability		1.00			1.00	0.76	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		430					305	515		60	752	718
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1770					1774	1773		1723	1810	1699
Queue Service Time *(g_s)*, s		23.3					16.4	8.2		3.4	35.0	35.0
Cycle Queue Clearance Time *(g_c)*, s		23.3					16.4	8.2		3.4	35.0	35.0
Capacity *(c)*, veh/h		454					337	1788		77	649	610
Volume-to-Capacity Ratio *(X)*		0.948					0.906	0.288		0.780	1.158	1.177
Available Capacity *(c_a)*, veh/h		454					364	1788		353	649	610
Back of Queue *(Q)*, veh/ln (50th percentile)		15.3					9.8	3.2		1.6	69.3	70.7
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					1.09	0.00		0.27	0.00	0.00
Uniform Delay *(d_1)*, s/veh		35.6					38.6	14.0		46.1	31.3	31.3
Incremental Delay *(d_2)*, s/veh		44.8					30.5	0.2		6.5	303.9	337.3
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		80.4					69.2	14.2		52.7	335.2	368.5
Level of Service (LOS)		F					E	B		D	F	F
Approach Delay, s/veh / LOS	80.4	F		0.0			34.7	C		339.7	F	
Intersection Delay, s/veh / LOS	209.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.2	A			1.2	A	1.7	A

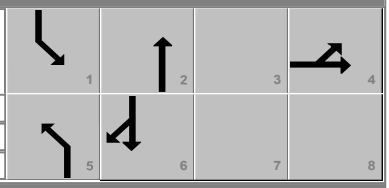
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	York	Time Period	PM Peak	PHF	1.00
Intersection	Route 143 & Rochambeau	Analysis Year	2040 Alt 3	Analysis Period	1> 5:00
File Name	Intersection 238-B_2040 BLD_3_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	5	370					330	835		90	1105	345

Signal Information			
Cycle, s	94.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.2	6.4	35.0	21.2	0.0	0.0
Yellow	5.0	5.0	5.0	4.0	0.0	0.0
Red	1.5	1.5	1.5	2.0	0.0	0.0

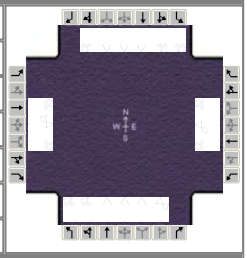
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2	1	6
Case Number		12.0			2.0	4.0	2.0	4.0
Phase Duration, s		27.2			25.6	54.4	12.7	41.5
Change Period, *(Y+Rc)*, s		6.0			6.5	6.5	6.5	6.5
Max Allow Headway *(MAH)*, s		4.0			3.1	6.1	3.1	6.1
Queue Clearance Time *(g_s)*, s		20.7			19.0	16.1	6.7	37.0
Green Extension Time *(g_e)*, s		0.6			0.1	16.5	0.1	0.0
Phase Call Probability		1.00			1.00	1.00	0.91	1.00
Max Out Probability		0.86			1.00	0.89	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4					5	2		1	6	16
Adjusted Flow Rate *(v)*, veh/h		375					330	835		90	749	701
Adjusted Saturation Flow Rate *(s)*, veh/h/ln		1843					1792	1791		1774	1863	1711
Queue Service Time *(g_s)*, s		18.7					17.0	14.1		4.7	35.0	35.0
Cycle Queue Clearance Time *(g_c)*, s		18.7					17.0	14.1		4.7	35.0	35.0
Capacity *(c)*, veh/h		415					362	1820		116	691	635
Volume-to-Capacity Ratio *(X)*		0.904					0.911	0.459		0.776	1.083	1.104
Available Capacity *(c_a)*, veh/h		489					380	1820		376	691	635
Back of Queue *(Q)*, veh/ln (50th percentile)		10.7					10.4	5.4		2.2	48.7	51.2
Overflow Queue *(Q_3)*, veh/ln		0.0					0.0	0.0		0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)		0.00					0.00	0.00		0.00	0.00	0.00
Uniform Delay *(d_1)*, s/veh		35.5					36.8	14.9		43.4	29.6	29.6
Incremental Delay *(d_2)*, s/veh		22.8					32.1	0.4		4.3	177.4	214.0
Initial Queue Delay *(d_3)*, s/veh		0.0					0.0	0.0		0.0	0.0	0.0
Control Delay *(d)*, s/veh		58.4					68.8	15.3		47.7	207.1	243.6
Level of Service (LOS)		E					E	B		D	F	F
Approach Delay, s/veh / LOS	58.4	E		0.0			30.4	C		214.4	F	
Intersection Delay, s/veh / LOS	125.8						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.9	A	2.1	B
Bicycle LOS Score / LOS	1.1	A			1.4	A	1.8	A

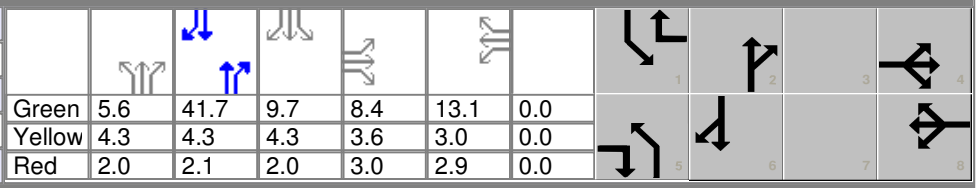
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	0.25
Analyst	AP	Analysis Date	Sep 30, 2011	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	0.87
Intersection	Jefferson Ave. & Walmart \	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 255-B_2011 Existing_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	31	15	131	230	32	271	101	1932	58	217	2383	36

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.6	41.7	9.7	8.4	13.1	0.0
Yellow	4.3	4.3	4.3	3.6	3.0	0.0
Red	2.0	2.1	2.0	3.0	2.9	0.0

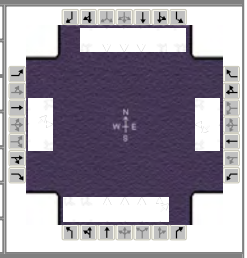
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	11.9	60.0	16.0	64.1
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time *(gs)*, s		10.4		15.1	5.6		9.9	
Green Extension Time *(ge)*, s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.97		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	36	17	151	264	37	311	116	1724	563	249	2739	41
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1842	1706	1675	1563
Queue Service Time *(gs)*, s	2.1	1.0	8.4	13.1	1.9	13.1	3.6	24.8	24.8	7.9	57.8	1.4
Cycle Queue Clearance Time *(gc)*, s	2.1	1.0	8.4	13.1	1.9	13.1	3.6	24.8	24.8	7.9	57.8	1.4
Capacity *(c)*, veh/h	132	138	195	213	224	330	176	2750	898	301	2642	822
Volume-to-Capacity Ratio *(X)*	0.271	0.125	0.774	1.239	0.164	0.943	0.660	0.627	0.627	0.829	1.037	0.050
Available Capacity *(ca)*, veh/h	132	138	195	213	224	330	307	2750	898	301	2642	822
Back of Queue *(Q)*, veh/ln (50th percentile)	1.0	0.5	4.9	14.1	0.9	7.1	1.7	10.7	11.0	4.1	28.0	0.5
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.23	0.00	1.15	1.78	0.00	0.00	0.10	0.00	0.00	0.21	0.00	0.05
Uniform Delay *(d1)*, s/veh	47.9	47.4	46.5	48.5	43.5	43.0	51.3	20.8	20.8	49.3	26.1	12.7
Incremental Delay *(d2)*, s/veh	1.1	0.4	17.4	140.9	0.3	34.7	4.2	1.1	3.3	17.3	27.9	0.1
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0	47.8	63.9	189.4	43.9	77.7	55.5	21.9	24.1	66.7	54.0	12.8
Level of Service (LOS)	D	D	E	F	D	E	E	C	C	E	F	B
Approach Delay, s/veh / LOS	59.9	E		123.9	F		24.1	C		54.5	D	
Intersection Delay, s/veh / LOS	49.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.8	A	1.5	A	1.5	A	2.2	B

HCS 2010 Signalized Intersection Results Summary

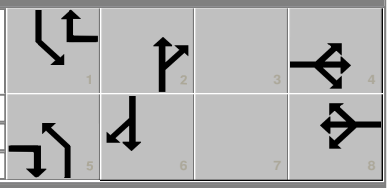
General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	0.25
Analyst	AP	Analysis Date	Sep 30, 2011	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	0.94
Intersection	Jefferson Ave. & Walmart \	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 255-B_2011 Existing_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	135	55	307	172	119	520	249	3178	107	482	2712	81

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.2	48.1	16.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



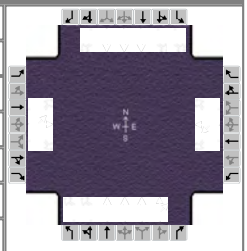
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	18.5	73.0	23.0	77.5
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time *(gs)*, s		10.4		15.1	11.7		18.7	
Green Extension Time *(ge)*, s		0.0		0.0	0.5	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	0.57		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	144	59	327	183	127	553	265	2627	868	513	2885	86
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1838	1723	1691	1579
Queue Service Time *(gs)*, s	8.4	3.9	8.4	13.1	8.4	13.1	9.7	55.2	56.7	16.7	71.2	3.4
Cycle Queue Clearance Time *(gc)*, s	8.4	3.9	8.4	13.1	8.4	13.1	9.7	55.2	56.7	16.7	71.2	3.4
Capacity *(c)*, veh/h	116	122	252	181	190	365	326	2891	942	443	2780	865
Volume-to-Capacity Ratio *(X)*	1.241	0.481	1.295	1.014	0.668	1.514	0.813	0.908	0.922	1.159	1.038	0.100
Available Capacity *(ca)*, veh/h	116	122	252	181	190	365	447	2891	942	443	2780	865
Back of Queue *(Q)*, veh/ln (50th percentile)	9.0	2.0	19.3	9.4	4.4	29.2	4.6	25.2	27.9	13.0	34.2	1.3
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	2.06	0.00	4.42	1.19	0.00	0.00	0.28	0.00	0.00	0.66	0.00	0.13
Uniform Delay *(d1)*, s/veh	60.8	58.7	54.7	58.5	56.4	50.1	57.8	28.9	29.3	56.7	29.4	14.0
Incremental Delay *(d2)*, s/veh	161.9	2.9	158.9	70.5	8.6	244.9	8.0	5.5	15.6	93.9	27.8	0.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	222.7	61.6	213.6	129.0	65.0	295.0	65.8	34.4	44.9	150.6	57.2	14.3
Level of Service (LOS)	F	E	F	F	E	F	E	C	D	F	F	B
Approach Delay, s/veh / LOS	199.2	F		226.0	F		39.0	D		69.9	E	
Intersection Delay, s/veh / LOS	80.0						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	1.9	A	2.0	B	2.4	B

HCS 2010 Signalized Intersection Results Summary

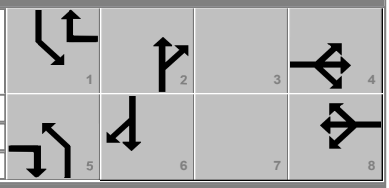
General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2020 NB	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 NB_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	15	145	255	35	300	115	2030	65	245	2525	40

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.5	41.8	9.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



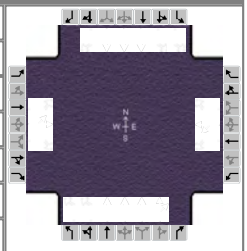
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	11.8	60.0	16.0	64.2
Change Period, ($Y+R_c$), s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway (*MAH*), s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	5.6		9.8	
Green Extension Time (g_e), s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.97		1.00	
Max Out Probability		1.00		1.00	0.99		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	35	15	145	255	35	300	115	1580	515	245	2525	40
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1839	1706	1675	1563
Queue Service Time (g_s), s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	21.9	21.9	7.8	52.6	1.4
Cycle Queue Clearance Time (g_c), s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	21.9	21.9	7.8	52.6	1.4
Capacity (*c*), veh/h	132	138	194	213	224	330	175	2750	896	301	2644	823
Volume-to-Capacity Ratio (*X*)	0.266	0.109	0.747	1.195	0.156	0.908	0.658	0.575	0.575	0.814	0.955	0.049
Available Capacity (c_a), veh/h	132	138	194	213	224	330	307	2750	896	301	2644	823
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	0.4	4.6	29.3	0.9	6.9	1.6	9.4	9.6	4.0	22.3	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.22	0.00	1.10	3.69	0.00	0.00	0.10	0.00	0.00	0.20	0.00	0.05
Uniform Delay (d_1), s/veh	47.9	47.3	46.3	48.5	43.5	42.6	51.3	20.1	20.1	49.3	24.8	12.7
Incremental Delay (d_2), s/veh	1.1	0.3	16.0	397.0	0.3	37.5	4.3	0.9	2.7	17.7	12.5	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.0	47.7	62.3	445.4	43.8	80.0	55.6	21.0	22.8	66.9	37.3	12.8
Level of Service (LOS)	D	D	E	F	D	F	E	C	C	E	D	B
Approach Delay, s/veh / LOS	58.8	E		235.8	F		23.2	C		39.6	D	
Intersection Delay, s/veh / LOS	53.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.8	A	1.5	A	1.4	A	2.0	B

HCS 2010 Signalized Intersection Results Summary

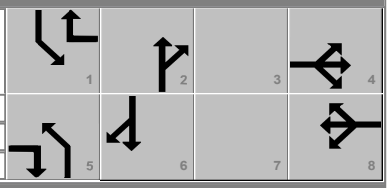
General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2020 NB	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 NB_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	60	340	190	135	580	275	3425	120	535	2870	90

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.5	47.8	16.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



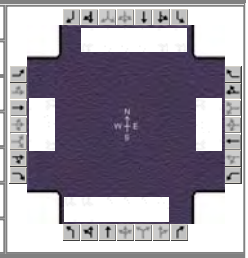
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	18.8	73.0	23.0	77.2
Change Period, ($Y+R_c$), s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway (*MAH*), s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	12.1		18.7	
Green Extension Time (g_e), s		0.0		0.0	0.5	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	0.73		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	150	60	340	190	135	580	275	2664	881	535	2870	90
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1836	1723	1691	1579
Queue Service Time (g_s), s	8.4	4.0	8.4	13.1	9.0	13.1	10.1	56.7	58.5	16.7	70.9	3.6
Cycle Queue Clearance Time (g_c), s	8.4	4.0	8.4	13.1	9.0	13.1	10.1	56.7	58.5	16.7	70.9	3.6
Capacity (*c*), veh/h	116	122	257	181	190	365	335	2891	941	443	2766	861
Volume-to-Capacity Ratio (*X*)	1.296	0.494	1.324	1.052	0.712	1.587	0.820	0.921	0.937	1.209	1.038	0.105
Available Capacity (c_a), veh/h	116	122	257	181	190	365	447	2891	941	443	2766	861
Back of Queue (*Q*), veh/ln (50th percentile)	22.9	2.0	51.9	15.5	4.9	112.9	4.8	26.2	30.7	31.7	48.1	1.3
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	5.24	0.00	11.89	1.96	0.00	0.00	0.30	0.00	0.00	1.61	0.00	0.14
Uniform Delay (d_1), s/veh	60.8	58.7	54.5	58.5	56.6	50.1	57.6	29.3	29.7	56.7	29.6	14.3
Incremental Delay (d_2), s/veh	593.4	3.1	611.3	192.5	12.6	1069.9	9.4	7.0	23.4	398.1	82.4	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	654.2	61.9	665.9	250.9	69.2	1120.0	67.0	36.2	53.1	454.8	112.0	14.5
Level of Service (LOS)	F	E	F	F	E	F	E	D	D	F	F	B
Approach Delay, s/veh / LOS	596.8	F		780.8	F		42.4	D		161.9	F	
Intersection Delay, s/veh / LOS	201.0						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	2.0	A	2.1	B	2.4	B

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Sep 30, 2011	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 Alt1_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	15	145	255	35	300	115	2035	65	245	2540	40

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.5	41.8	9.7	8.4	13.1	0.0						
Yellow	4.3	4.3	4.3	3.6	3.0	0.0						
Red	2.0	2.1	2.0	3.0	2.9	0.0						

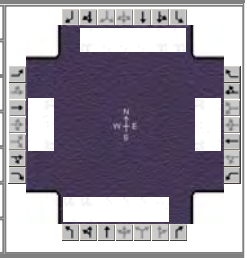
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	11.8	60.0	16.0	64.2
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time *(g_s)*, s		10.4		15.1	5.6		9.8	
Green Extension Time *(g_e)*, s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.97		1.00	
Max Out Probability		1.00		1.00	0.99		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	35	15	145	255	35	300	115	1584	516	245	2540	40
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1840	1706	1675	1563
Queue Service Time *(g_s)*, s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	22.0	22.0	7.8	53.3	1.4
Cycle Queue Clearance Time *(g_c)*, s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	22.0	22.0	7.8	53.3	1.4
Capacity *(c)*, veh/h	132	138	194	213	224	330	175	2750	896	301	2644	823
Volume-to-Capacity Ratio *(X)*	0.266	0.109	0.747	1.195	0.156	0.908	0.658	0.576	0.576	0.814	0.961	0.049
Available Capacity *(c_a)*, veh/h	132	138	194	213	224	330	307	2750	896	301	2644	823
Back of Queue *(Q)*, veh/ln (50th percentile)	0.9	0.4	4.6	29.3	0.9	6.9	1.6	9.4	9.7	4.0	22.9	0.5
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.22	0.00	1.10	3.69	0.00	0.00	0.10	0.00	0.00	0.20	0.00	0.05
Uniform Delay *(d_1)*, s/veh	47.9	47.3	46.3	48.5	43.5	42.6	51.3	20.1	20.1	49.3	25.0	12.7
Incremental Delay *(d_2)*, s/veh	1.1	0.3	16.0	397.0	0.3	37.5	4.3	0.9	2.7	17.7	13.9	0.1
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0	47.7	62.3	445.4	43.8	80.0	55.6	21.0	22.8	66.9	38.9	12.8
Level of Service (LOS)	D	D	E	F	D	F	E	C	C	E	D	B
Approach Delay, s/veh / LOS	58.8	E		235.8	F		23.2	C		40.9	D	
Intersection Delay, s/veh / LOS	54.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.8	A	1.5	A	1.4	A	2.0	B

HCS 2010 Signalized Intersection Results Summary

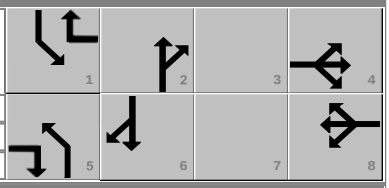
General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Sep 30, 2011	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 Alt1_PM_Optimized.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	60	340	190	135	580	275	3420	120	535	2900	90

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.3	45.0	20.7	9.4	11.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



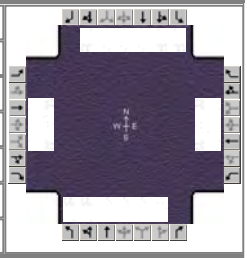
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		16.0		17.0	18.6	70.0	27.0	78.4
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		11.4		13.1	12.1		22.1	
Green Extension Time (g_e), s		0.0		0.0	0.2	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	150	60	340	190	135	580	275	2660	880	535	2900	90
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1836	1723	1691	1579
Queue Service Time (g_s), s	9.4	4.0	9.4	11.1	9.2	11.1	10.1	59.2	61.1	20.1	72.1	3.5
Cycle Queue Clearance Time (g_c), s	9.4	4.0	9.4	11.1	9.2	11.1	10.1	59.2	61.1	20.1	72.1	3.5
Capacity *(c)*, veh/h	130	136	266	153	161	390	329	2761	898	549	2815	876
Volume-to-Capacity Ratio *(X)*	1.158	0.441	1.279	1.242	0.840	1.487	0.836	0.964	0.979	0.975	1.030	0.103
Available Capacity (c_a), veh/h	130	136	266	153	161	390	367	2761	898	549	2815	876
Back of Queue *(Q)*, veh/ln (50th percentile)	17.3	2.0	47.8	25.8	6.1	99.8	5.2	29.3	36.8	12.8	45.9	1.3
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	3.97	0.00	10.95	3.25	0.00	0.00	0.32	0.00	0.00	0.65	0.00	0.14
Uniform Delay (d_1), s/veh	60.3	57.8	54.2	59.5	58.6	49.1	57.9	32.1	32.6	54.4	28.9	13.7
Incremental Delay (d_2), s/veh	363.8	2.3	530.9	489.4	39.0	891.0	16.1	14.2	43.6	55.4	71.1	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	424.1	60.0	585.0	548.8	97.6	940.1	74.0	46.2	76.2	109.8	100.1	13.9
Level of Service (LOS)	F	E	F	F	F	F	E	D	E	F	F	B
Approach Delay, s/veh / LOS	483.9	F		732.3	F		55.2	E		99.4	F	
Intersection Delay, s/veh / LOS	169.4						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	2.0	A	2.1	B	2.4	B

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Sep 30, 2011	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 Alt2_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	15	145	255	35	300	115	2020	65	245	2540	40

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.5	41.8	9.7	8.4	13.1	0.0	1	2	3	4		
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	5	6	7	8		
Red	2.0	2.1	2.0	3.0	2.9	0.0						

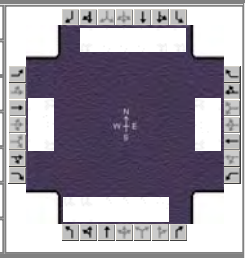
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	11.8	60.0	16.0	64.2
Change Period, $(Y+R_c)$, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	5.6		9.8	
Green Extension Time (g_e), s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.97		1.00	
Max Out Probability		1.00		1.00	0.99		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	35	15	145	255	35	300	115	1572	513	245	2540	40
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1839	1706	1675	1563
Queue Service Time (g_s), s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	21.8	21.8	7.8	53.3	1.4
Cycle Queue Clearance Time (g_c), s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	21.8	21.8	7.8	53.3	1.4
Capacity *(c)*, veh/h	132	138	194	213	224	330	175	2750	896	301	2644	823
Volume-to-Capacity Ratio *(X)*	0.266	0.109	0.747	1.195	0.156	0.908	0.658	0.572	0.572	0.814	0.961	0.049
Available Capacity (c_a), veh/h	132	138	194	213	224	330	307	2750	896	301	2644	823
Back of Queue *(Q)*, veh/ln (50th percentile)	0.9	0.4	4.6	29.3	0.9	6.9	1.6	9.3	9.6	4.0	22.9	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.22	0.00	1.10	3.69	0.00	0.00	0.10	0.00	0.00	0.20	0.00	0.05
Uniform Delay (d_1), s/veh	47.9	47.3	46.3	48.5	43.5	42.6	51.3	20.0	20.0	49.3	25.0	12.7
Incremental Delay (d_2), s/veh	1.1	0.3	16.0	397.0	0.3	37.5	4.3	0.9	2.7	17.7	13.9	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0	47.7	62.3	445.4	43.8	80.0	55.6	20.9	22.7	66.9	38.9	12.8
Level of Service (LOS)	D	D	E	F	D	F	E	C	C	E	D	B
Approach Delay, s/veh / LOS	58.8	E		235.8	F		23.1	C		40.9	D	
Intersection Delay, s/veh / LOS	54.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.8	A	1.5	A	1.4	A	2.0	B

HCS 2010 Signalized Intersection Results Summary

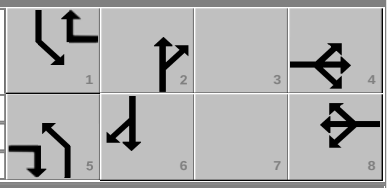
General Information				Intersection Information	
Agency	McCormick Taylor			Duration, h	1.00
Analyst	AP	Analysis Date	Sep 30, 2011	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2011	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 Alt2_PM_Optimized.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	60	340	190	135	580	275	3440	120	535	2905	90

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.3	45.0	20.7	9.4	11.1	0.0
Yellow	4.3	4.3	4.3	3.6	3.0	0.0
Red	2.0	2.1	2.0	3.0	2.9	0.0



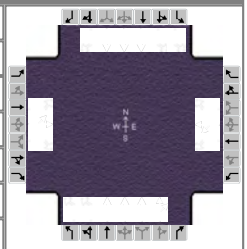
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		16.0		17.0	18.6	70.0	27.0	78.4
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		11.4		13.1	12.1		22.1	
Green Extension Time (g_e), s		0.0		0.0	0.2	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	150	60	340	190	135	580	275	2675	885	535	2905	90
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1836	1723	1691	1579
Queue Service Time (g_s), s	9.4	4.0	9.4	11.1	9.2	11.1	10.1	59.8	61.8	20.1	72.1	3.5
Cycle Queue Clearance Time (g_c), s	9.4	4.0	9.4	11.1	9.2	11.1	10.1	59.8	61.8	20.1	72.1	3.5
Capacity *(c)*, veh/h	130	136	266	153	161	390	329	2761	898	549	2815	876
Volume-to-Capacity Ratio *(X)*	1.158	0.441	1.279	1.242	0.840	1.487	0.836	0.969	0.985	0.975	1.032	0.103
Available Capacity (c_a), veh/h	130	136	266	153	161	390	367	2761	898	549	2815	876
Back of Queue *(Q)*, veh/ln (50th percentile)	17.3	2.0	47.8	25.8	6.1	99.8	5.2	30.0	38.1	12.8	46.5	1.3
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	3.97	0.00	10.95	3.25	0.00	0.00	0.32	0.00	0.00	0.65	0.00	0.14
Uniform Delay (d_1), s/veh	60.3	57.8	54.2	59.5	58.6	49.1	57.9	32.2	32.7	54.4	28.9	13.7
Incremental Delay (d_2), s/veh	363.8	2.3	530.9	489.4	39.0	891.0	16.1	15.8	47.6	55.4	73.8	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	424.1	60.0	585.0	548.8	97.6	940.1	74.0	48.1	80.3	109.8	102.7	13.9
Level of Service (LOS)	F	E	F	F	F	F	E	D	F	F	F	B
Approach Delay, s/veh / LOS	483.9	F		732.3	F		57.4	E		101.5	F	
Intersection Delay, s/veh / LOS	170.9						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	2.0	A	2.1	B	2.4	B

HCS 2010 Signalized Intersection Results Summary

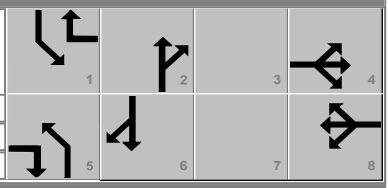
General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2020 Alt 3	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 BLD_3_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	15	145	255	35	300	115	2030	65	245	2520	40

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.5	41.8	9.7	8.4	13.1	0.0						
Yellow	4.3	4.3	4.3	3.6	3.0	0.0						
Red	2.0	2.1	2.0	3.0	2.9	0.0						



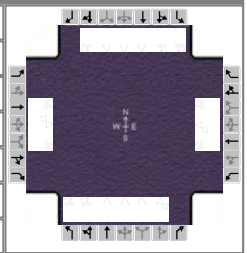
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	11.8	60.0	16.0	64.2
Change Period, (*Y+Rc*), s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway (*MAH*), s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	5.6		9.8	
Green Extension Time (g_e), s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.97		1.00	
Max Out Probability		1.00		1.00	0.99		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	35	15	145	255	35	300	115	1580	515	245	2520	40
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1839	1706	1675	1563
Queue Service Time (g_s), s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	21.9	21.9	7.8	52.4	1.4
Cycle Queue Clearance Time (g_c), s	2.1	0.8	8.4	13.1	1.8	13.1	3.6	21.9	21.9	7.8	52.4	1.4
Capacity (*c*), veh/h	132	138	194	213	224	330	175	2750	896	301	2644	823
Volume-to-Capacity Ratio (*X*)	0.266	0.109	0.747	1.195	0.156	0.908	0.658	0.575	0.575	0.814	0.953	0.049
Available Capacity (c_a), veh/h	132	138	194	213	224	330	307	2750	896	301	2644	823
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	0.4	4.6	29.3	0.9	6.9	1.6	9.4	9.6	4.0	22.1	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.22	0.00	1.10	3.69	0.00	0.00	0.10	0.00	0.00	0.20	0.00	0.05
Uniform Delay (d_1), s/veh	47.9	47.3	46.3	48.5	43.5	42.6	51.3	20.1	20.1	49.3	24.8	12.7
Incremental Delay (d_2), s/veh	1.1	0.3	16.0	397.0	0.3	37.5	4.3	0.9	2.7	17.7	12.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.0	47.7	62.3	445.4	43.8	80.0	55.6	21.0	22.8	66.9	36.9	12.8
Level of Service (LOS)	D	D	E	F	D	F	E	C	C	E	D	B
Approach Delay, s/veh / LOS	58.8	E		235.8	F		23.2	C		39.2	D	
Intersection Delay, s/veh / LOS	53.7						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.8	A	1.5	A	1.4	A	2.0	B

HCS 2010 Signalized Intersection Results Summary

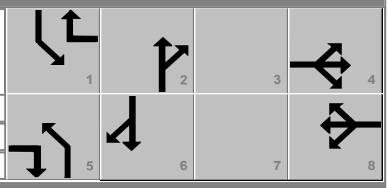
General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2020 Alt 3	Analysis Period	1> 7:00
File Name	Intersection 255-B_2020 BLD_3_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	60	340	190	135	580	275	3425	120	535	2905	90

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.5	47.8	16.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



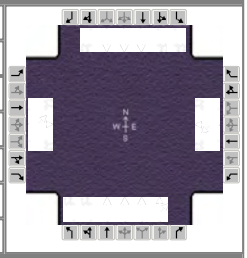
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	18.8	73.0	23.0	77.2
Change Period, ($Y+R_c$), s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway (*MAH*), s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	12.1		18.7	
Green Extension Time (g_e), s		0.0		0.0	0.5	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	0.73		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	150	60	340	190	135	580	275	2664	881	535	2905	90
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1836	1723	1691	1579
Queue Service Time (g_s), s	8.4	4.0	8.4	13.1	9.0	13.1	10.1	56.7	58.5	16.7	70.9	3.6
Cycle Queue Clearance Time (g_c), s	8.4	4.0	8.4	13.1	9.0	13.1	10.1	56.7	58.5	16.7	70.9	3.6
Capacity (*c*), veh/h	116	122	257	181	190	365	335	2891	941	443	2766	861
Volume-to-Capacity Ratio (*X*)	1.296	0.494	1.324	1.052	0.712	1.587	0.820	0.921	0.937	1.209	1.050	0.105
Available Capacity (c_a), veh/h	116	122	257	181	190	365	447	2891	941	443	2766	861
Back of Queue (*Q*), veh/ln (50th percentile)	22.9	2.0	51.9	15.5	4.9	112.9	4.8	26.2	30.7	31.7	53.3	1.3
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	5.24	0.00	11.89	1.96	0.00	0.00	0.30	0.00	0.00	1.61	0.00	0.14
Uniform Delay (d_1), s/veh	60.8	58.7	54.5	58.5	56.6	50.1	57.6	29.3	29.7	56.7	29.6	14.3
Incremental Delay (d_2), s/veh	593.4	3.1	611.3	192.5	12.6	1069.9	9.4	7.0	23.4	398.1	102.4	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	654.2	61.9	665.9	250.9	69.2	1120.0	67.0	36.2	53.1	454.8	132.0	14.5
Level of Service (LOS)	F	E	F	F	E	F	E	D	D	F	F	B
Approach Delay, s/veh / LOS	596.8	F		780.8	F		42.4	D		177.9	F	
Intersection Delay, s/veh / LOS	207.2						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.4	A	2.0	A	2.1	B	2.4	B

HCS 2010 Signalized Intersection Results Summary

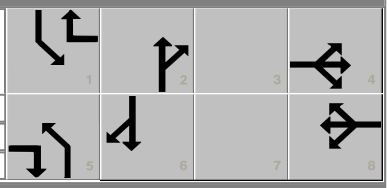
General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jan 31, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart \	Analysis Year	2040 NB	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 NB_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2250	80	300	2835	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.4	40.9	9.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



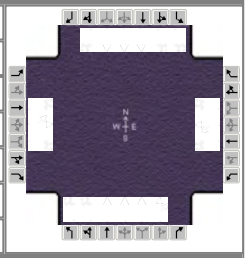
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	12.7	60.0	16.0	63.3
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time *(gs)*, s		10.4		15.1	6.3		11.7	
Green Extension Time *(ge)*, s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	45	20	180	315	45	370	140	1758	572	300	2835	50
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1835	1706	1675	1563
Queue Service Time *(gs)*, s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	25.5	25.6	9.7	57.0	1.8
Cycle Queue Clearance Time *(gc)*, s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	25.5	25.6	9.7	57.0	1.8
Capacity *(c)*, veh/h	132	138	206	213	224	330	202	2750	894	301	2604	810
Volume-to-Capacity Ratio *(X)*	0.342	0.145	0.873	1.476	0.201	1.120	0.693	0.639	0.640	0.997	1.089	0.062
Available Capacity *(ca)*, veh/h	132	138	206	213	224	330	307	2750	894	301	2604	810
Back of Queue *(Q)*, veh/ln (50th percentile)	1.2	0.5	7.1	58.1	1.1	28.2	2.0	11.0	11.3	8.3	61.3	0.6
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.29	0.00	1.68	7.32	0.00	0.00	0.12	0.00	0.00	0.42	0.00	0.07
Uniform Delay *(d1)*, s/veh	48.2	47.4	46.7	48.5	43.7	43.6	50.8	21.0	21.0	50.1	26.5	13.2
Incremental Delay *(d2)*, s/veh	1.5	0.5	40.8	882.8	0.4	258.0	4.3	1.2	3.6	100.9	167.5	0.1
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.7	47.9	87.5	931.3	44.2	301.6	55.2	22.2	24.6	151.0	194.0	13.3
Level of Service (LOS)	D	D	F	F	D	F	E	C	C	F	F	B
Approach Delay, s/veh / LOS	77.3	E		557.5	F		24.6	C		187.1	F	
Intersection Delay, s/veh / LOS	163.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	1.7	A	1.5	A	2.2	B

HCS 2010 Signalized Intersection Results Summary

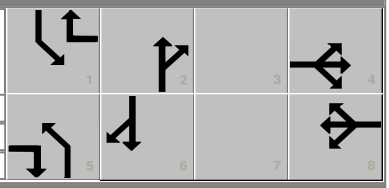
General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jan 31, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart \	Analysis Year	2040 NB	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 NB_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	450	235	165	715	340	3970	145	660	3225	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	14.8	45.5	16.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



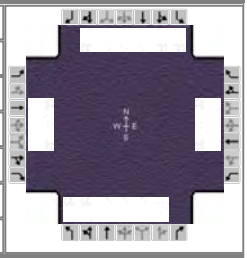
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	21.1	73.0	23.0	74.9
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time *(gs)*, s		10.4		15.1	14.5		18.7	
Green Extension Time *(ge)*, s		0.0		0.0	0.3	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	185	75	450	235	165	715	340	3086	1029	660	3225	110
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1835	1723	1691	1579
Queue Service Time *(gs)*, s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Cycle Queue Clearance Time *(gc)*, s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Capacity *(c)*, veh/h	116	122	285	181	190	365	396	2891	940	443	2678	833
Volume-to-Capacity Ratio *(X)*	1.598	0.617	1.582	1.302	0.870	1.957	0.858	1.067	1.095	1.491	1.204	0.132
Available Capacity *(ca)*, veh/h	116	122	285	181	190	365	447	2891	940	443	2678	833
Back of Queue *(Q)*, veh/ln (50th percentile)	39.7	2.7	93.3	35.1	7.6	180.1	6.3	63.6	77.5	62.3	118.6	1.7
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	9.10	0.00	21.37	4.43	0.00	0.00	0.39	0.00	0.00	3.16	0.00	0.18
Uniform Delay *(d1)*, s/veh	60.8	59.2	53.4	58.5	57.6	50.1	56.6	31.7	31.7	56.7	30.7	15.6
Incremental Delay *(d2)*, s/veh	1116.6	9.4	1063.7	583.0	42.9	1731.7	16.2	130.6	190.0	896.5	372.0	0.3
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	1177.4	68.6	1117.1	641.5	100.5	1781.8	72.7	162.3	221.7	953.1	402.7	15.9
Level of Service (LOS)	F	E	F	F	F	F	E	F	F	F	F	B
Approach Delay, s/veh / LOS	1022.1	F		1292.7	F		169.2	F		483.0	F	
Intersection Delay, s/veh / LOS	472.0						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.7	A	2.3	B	2.3	B	2.7	B

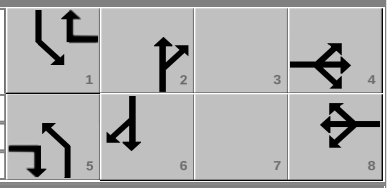
HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 13, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2260	80	300	2895	50

Signal Information												
Cycle, s	110.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	6.4	40.9	9.7	8.4	13.1	0.0		
				Yellow	4.3	4.3	4.3	3.6	3.0	0.0		
				Red	2.0	2.1	2.0	3.0	2.9	0.0		



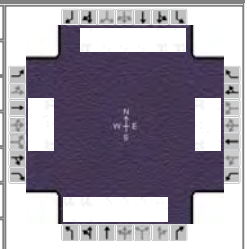
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2260	80	300	2895	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	5	5	5	1	1	1	1	1		3	3	3
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	110	0	110	200	0	0	410	0		500	0	240
Grade (P_g), %	0	0	0	0	0	0	0	0	0	0	0	0
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		15.0		19.0	16.0	60.0	16.0	60.0
Yellow Change Interval (*Y*), s	4.0	3.6	4.0	3.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R_c), s	1.0	3.0	1.0	2.9	2.0	2.1	2.0	2.0
Minimum Green (G_{min}), s	5	4	5	4	4	5	4	5
Start-Up Lost Time (l_1), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0	2.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS 2010 Signalized Intersection Results Summary

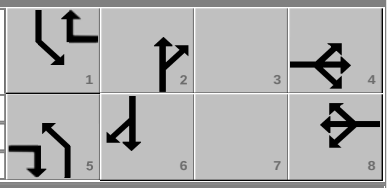
General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 13, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2260	80	300	2895	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.4	40.9	9.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



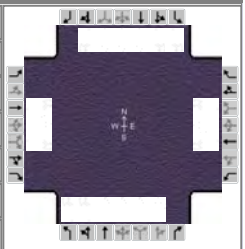
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	12.7	60.0	16.0	63.3
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	6.3		11.7	
Green Extension Time (g_e), s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	45	20	180	315	45	370	140	1765	575	300	2895	50
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1835	1706	1675	1563
Queue Service Time (g_s), s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	25.7	25.7	9.7	57.0	1.8
Cycle Queue Clearance Time (g_c), s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	25.7	25.7	9.7	57.0	1.8
Capacity *(c)*, veh/h	132	138	206	213	224	330	202	2750	894	301	2604	810
Volume-to-Capacity Ratio *(X)*	0.342	0.145	0.873	1.476	0.201	1.120	0.693	0.642	0.643	0.997	1.112	0.062
Available Capacity (c_a), veh/h	132	138	206	213	224	330	307	2750	894	301	2604	810
Back of Queue *(Q)*, veh/ln (th percentile)	1.2	0.5	7.1	58.1	1.1	28.2	2.0	11.0	11.4	8.3	71.0	0.6
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (th percentile)	0.29	0.00	1.68	7.32	0.00	0.00	0.12	0.00	0.00	0.42	0.00	0.07
Uniform Delay (d_1), s/veh	48.2	47.4	46.7	48.5	43.7	43.6	50.8	21.0	21.1	50.1	26.5	13.2
Incremental Delay (d_2), s/veh	1.5	0.5	40.8	882.8	0.4	258.0	4.3	1.2	3.6	100.9	207.6	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.7	47.9	87.5	931.3	44.2	301.6	55.2	22.2	24.6	151.0	234.1	13.3
Level of Service (LOS)	D	D	F	F	D	F	E	C	C	F	F	B
Approach Delay, s/veh / LOS	77.3	E		557.5	F		24.6	C		223.0	F	
Intersection Delay, s/veh / LOS	180.7						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	1.7	A	1.5	A	2.3	B

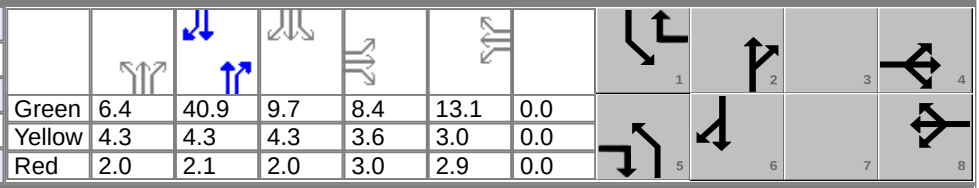
HCS 2010 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 13, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2260	80	300	2895	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.4	40.9	9.7	8.4	13.1	0.0						
Yellow	4.3	4.3	4.3	3.6	3.0	0.0						
Red	2.0	2.1	2.0	3.0	2.9	0.0						

	EB			WB			NB			SB		
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952	0.952	0.990	0.990	0.990	0.990	0.990	1.000	0.971	0.971	0.971
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	0.971	1.000	1.000	0.971	0.908	1.000
Left-Turn Adjustment Factor (f_{LT})		0.000			0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000			0.000			0.976			0.000	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1810			1881		3479	7228		3412	5025	
Platoon Ratio (R_p)		0.00			0.00		0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)	0.11	0.11	0.40	0.50	0.11	0.50	0.11	0.50	0.50	0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0		6.6	6.3	6.3	6.4	6.3
Green Ratio (*g*/*C*)		0.08		0.12	0.06	0.49	0.09	0.52
Permitted Saturation Flow Rate (s_p), veh/h/ln		1723		1792	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0		0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln		1533		1594				0
Protected Right Effective Green Time (g_R), s		6.4		9.7				0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.739	0.00	3.009	0.00	2.107	0.00	2.107	0.00
Pedestrian F_s / F_{delay}	0.000	0.151	0.000	0.165	0.000	0.153	0.000	0.102
Bicycle c_b / d_b	225.45	43.30		61.06	174.55	45.82	1036.58	12.76
Bicycle F_w / F_v	-3.64	0.40	-3.64	1.20	-3.64	1.02	-3.64	1.78

--- Messages ---

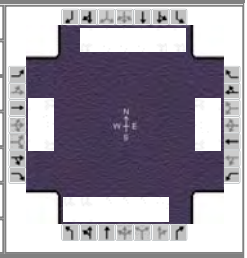
WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

WARNING: The procedure for modeling permitted left turns opposed by 2+ lanes (one of which is a shared L+T lane) produces results that are too conservative in many cases. The Highway Capacity and Quality of Service (HCQS) committee is working on a solution.

--- Comments ---

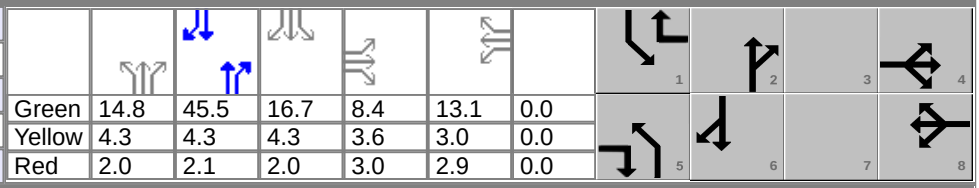
HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 14, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	3960	145	660	3325	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	14.8	45.5	16.7	8.4	13.1	0.0						
Yellow	4.3	4.3	4.3	3.6	3.0	0.0						
Red	2.0	2.1	2.0	3.0	2.9	0.0						

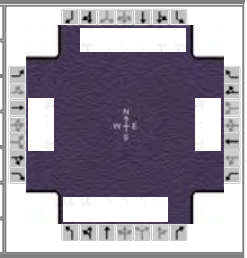
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	3960	145	660	3325	110
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	1	1	1	1	1	1	1	1		2	2	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	110	0	110	200	0	0	410	0		500	0	240
Grade (P_g), %	0	0	0	0	0	0	0	0	0	0	0	0
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		15.0		19.0	23.0	73.0	23.0	73.0
Yellow Change Interval (*Y*), s	4.0	3.6	4.0	3.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R_c), s	1.0	3.0	1.0	2.9	2.0	2.1	2.0	2.0
Minimum Green (G_{min}), s	5	4	5	4	4	5	4	5
Start-Up Lost Time (l_1), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0	2.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

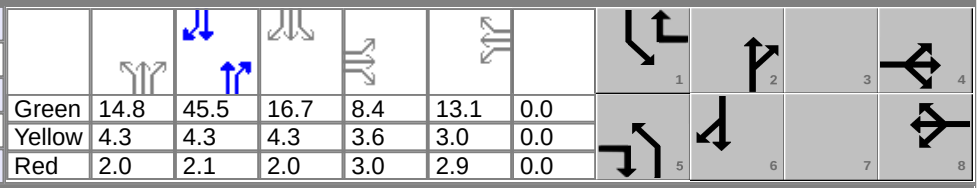
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 14, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	3960	145	660	3325	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	14.8	45.5	16.7	8.4	13.1	0.0
Yellow	4.3	4.3	4.3	3.6	3.0	0.0
Red	2.0	2.1	2.0	3.0	2.9	0.0

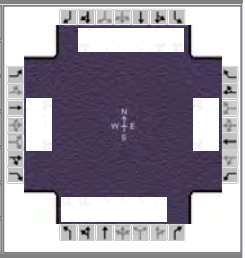
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	21.1	73.0	23.0	74.9
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	14.5		18.7	
Green Extension Time (g_e), s		0.0		0.0	0.3	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	185	75	420	235	165	715	340	3079	1026	660	3325	110
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1835	1723	1691	1579
Queue Service Time (g_s), s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Cycle Queue Clearance Time (g_c), s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Capacity *(c)*, veh/h	116	122	285	181	190	365	396	2891	940	443	2678	833
Volume-to-Capacity Ratio *(X)*	1.598	0.617	1.476	1.302	0.870	1.957	0.858	1.065	1.092	1.491	1.242	0.132
Available Capacity (c_a), veh/h	116	122	285	181	190	365	447	2891	940	443	2678	833
Back of Queue *(Q)*, veh/ln (th percentile)	39.7	2.7	78.4	35.1	7.6	180.1	6.3	62.4	76.4	62.3	135.1	1.7
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (th percentile)	9.10	0.00	17.97	4.43	0.00	0.00	0.39	0.00	0.00	3.16	0.00	0.18
Uniform Delay (d_1), s/veh	60.8	59.2	53.4	58.5	57.6	50.1	56.6	31.7	31.7	56.7	30.7	15.6
Incremental Delay (d_2), s/veh	1116.6	9.4	876.2	583.0	42.9	1731.7	16.2	126.2	185.7	896.5	438.7	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	1177.4	68.6	929.6	641.5	100.5	1781.8	72.7	157.9	217.4	953.1	469.4	15.9
Level of Service (LOS)	F	E	F	F	F	F	E	F	F	F	F	B
Approach Delay, s/veh / LOS	902.0	F		1292.7	F		165.1	F		535.2	F	
Intersection Delay, s/veh / LOS	481.9						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.6	A	2.3	B	2.3	B	2.7	B

HCS 2010 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jun 14, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	3960	145	660	3325	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	14.8	45.5	16.7	8.4	13.1	0.0	1	2	3	4		
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	5	6	7	8		
Red	2.0	2.1	2.0	3.0	2.9	0.0						

	EB			WB			NB			SB		
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	1.000	0.980	0.980	0.980
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	0.971	1.000	1.000	0.971	0.908	1.000
Left-Turn Adjustment Factor (f_{LT})		0.000			0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000			0.000			0.975			0.000	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1881			1881		3479	7219		3445	5074	
Platoon Ratio (R_p)		0.00			0.00		0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)	0.50	0.20	0.50	0.50	0.40	0.50	0.31	0.50	0.50	0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0		6.6	6.3	6.3	6.4	6.3
Green Ratio (*g*/*C*)		0.06		0.10	0.11	0.51	0.13	0.53
Permitted Saturation Flow Rate (s_p), veh/h/ln		1792		1792	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0		0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln		1594		1594				0
Protected Right Effective Green Time (g_R), s		14.8		16.7				0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.739	0.00	3.009	0.00	2.107	0.00	2.107	0.00
Pedestrian F_s / F_{delay}	0.000	0.159	0.000	0.171	0.000	0.156	0.000	0.107
Bicycle c_b / d_b	190.77	53.19	-90.77	71.03	255.38	49.46	1055.36	14.50
Bicycle F_w / F_v	-3.64	1.12	-3.64	1.84	-3.64	1.83	-3.64	2.25

--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

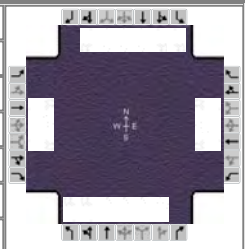
WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

WARNING: The procedure for modeling permitted left turns opposed by 2+ lanes (one of which is a shared L+T lane) produces results that are too conservative in many cases. The Highway Capacity and Quality of Service (HCQS) committee is working on a solution.

--- Comments ---

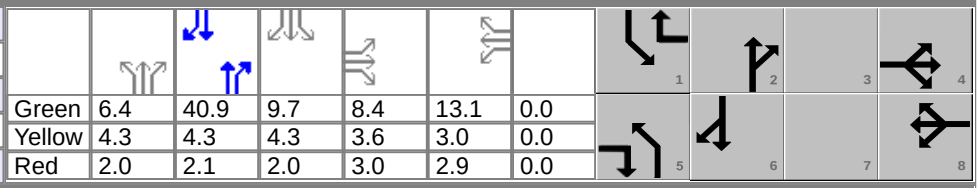
HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2200	80	300	2895	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.4	40.9	9.7	8.4	13.1	0.0
Yellow	4.3	4.3	4.3	3.6	3.0	0.0
Red	2.0	2.1	2.0	3.0	2.9	0.0

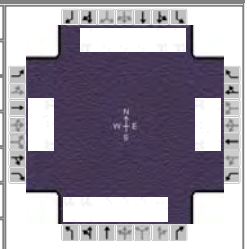
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2200	80	300	2895	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	5	5	5	1	1	1	1	1		3	3	3
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	110	0	110	200	0	0	410	0		500	0	240
Grade (P_g), %	0	0	0	0	0	0	0	0	0	0	0	0
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		15.0		19.0	16.0	60.0	16.0	60.0
Yellow Change Interval (*Y*), s	4.0	3.6	4.0	3.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R_c), s	1.0	3.0	1.0	2.9	2.0	2.1	2.0	2.0
Minimum Green (G_{min}), s	5	4	5	4	4	5	4	5
Start-Up Lost Time (l_1), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0	2.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

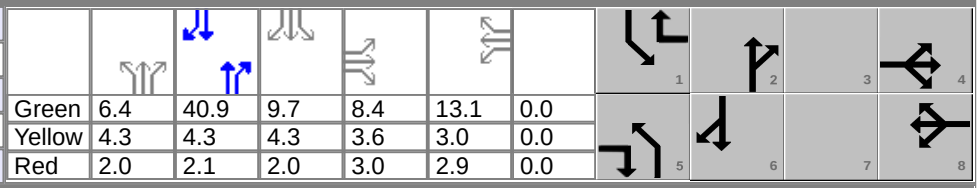
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2200	80	300	2895	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.4	40.9	9.7	8.4	13.1	0.0
Yellow	4.3	4.3	4.3	3.6	3.0	0.0
Red	2.0	2.1	2.0	3.0	2.9	0.0

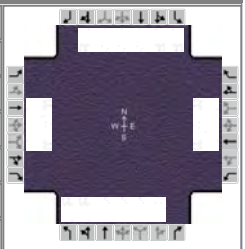
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	12.7	60.0	16.0	63.3
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	6.3		11.7	
Green Extension Time (g_e), s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	45	20	180	315	45	370	140	1720	560	300	2895	50
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1834	1706	1675	1563
Queue Service Time (g_s), s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	24.7	24.8	9.7	57.0	1.8
Cycle Queue Clearance Time (g_c), s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	24.7	24.8	9.7	57.0	1.8
Capacity *(c)*, veh/h	132	138	206	213	224	330	202	2750	894	301	2604	810
Volume-to-Capacity Ratio *(X)*	0.342	0.145	0.873	1.476	0.201	1.120	0.693	0.626	0.626	0.997	1.112	0.062
Available Capacity (c_a), veh/h	132	138	206	213	224	330	307	2750	894	301	2604	810
Back of Queue *(Q)*, veh/ln (th percentile)	1.2	0.5	7.1	58.1	1.1	28.2	2.0	10.6	10.9	8.3	71.0	0.6
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (th percentile)	0.29	0.00	1.68	7.32	0.00	0.00	0.12	0.00	0.00	0.42	0.00	0.07
Uniform Delay (d_1), s/veh	48.2	47.4	46.7	48.5	43.7	43.6	50.8	20.8	20.8	50.1	26.5	13.2
Incremental Delay (d_2), s/veh	1.5	0.5	40.8	882.8	0.4	258.0	4.3	1.1	3.4	100.9	207.6	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.7	47.9	87.5	931.3	44.2	301.6	55.2	21.9	24.2	151.0	234.1	13.3
Level of Service (LOS)	D	D	F	F	D	F	E	C	C	F	F	B
Approach Delay, s/veh / LOS	77.3	E		557.5	F		24.3	C		223.0	F	
Intersection Delay, s/veh / LOS	182.0						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	1.7	A	1.5	A	2.3	B

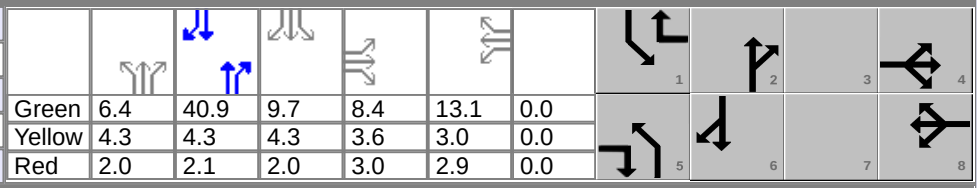
HCS 2010 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2200	80	300	2895	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.4	40.9	9.7	8.4	13.1	0.0						
Yellow	4.3	4.3	4.3	3.6	3.0	0.0						
Red	2.0	2.1	2.0	3.0	2.9	0.0						

	EB			WB			NB			SB		
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952	0.952	0.990	0.990	0.990	0.990	0.990	1.000	0.971	0.971	0.971
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	0.971	1.000	1.000	0.971	0.908	1.000
Left-Turn Adjustment Factor (f_{LT})		0.000			0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000			0.000			0.975			0.000	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1810			1881		3479	7221		3412	5025	
Platoon Ratio (R_p)		0.00			0.00		0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)	0.11	0.11	0.40	0.50	0.11	0.50	0.11	0.50	0.50	0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0		6.6	6.3	6.3	6.4	6.3
Green Ratio (*g*/*C*)		0.08		0.12	0.06	0.49	0.09	0.52
Permitted Saturation Flow Rate (s_p), veh/h/ln		1723		1792	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0		0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln		1533		1594				0
Protected Right Effective Green Time (g_R), s		6.4		9.7				0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.739	0.00	3.009	0.00	2.107	0.00	2.107	0.00
Pedestrian F_s / F_{delay}	0.000	0.151	0.000	0.165	0.000	0.153	0.000	0.102
Bicycle c_b / d_b	225.45	43.30		61.06	174.55	45.82	1036.58	12.76
Bicycle F_w / F_v	-3.64	0.40	-3.64	1.20	-3.64	1.00	-3.64	1.78

--- Messages ---

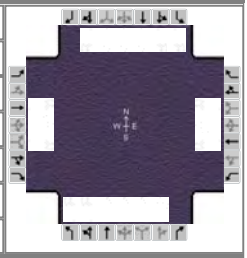
WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

WARNING: The procedure for modeling permitted left turns opposed by 2+ lanes (one of which is a shared L+T lane) produces results that are too conservative in many cases. The Highway Capacity and Quality of Service (HCQS) committee is working on a solution.

--- Comments ---

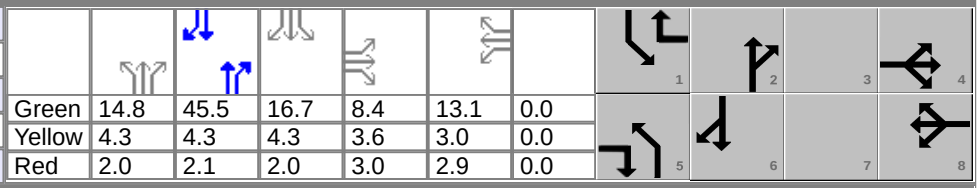
HCS 2010 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	4005	145	660	3335	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	14.8	45.5	16.7	8.4	13.1	0.0						
Yellow	4.3	4.3	4.3	3.6	3.0	0.0						
Red	2.0	2.1	2.0	3.0	2.9	0.0						

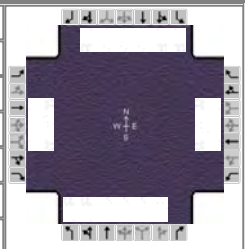
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	4005	145	660	3335	110
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	1	1	1	1	1	1	1	1		2	2	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	110	0	110	200	0	0	410	0		500	0	240
Grade (P_g), %	0	0	0	0	0	0	0	0	0	0	0	0
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		15.0		19.0	23.0	73.0	23.0	73.0
Yellow Change Interval (*Y*), s	4.0	3.6	4.0	3.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R_c), s	1.0	3.0	1.0	2.9	2.0	2.1	2.0	2.0
Minimum Green (G_{min}), s	5	4	5	4	4	5	4	5
Start-Up Lost Time (l_1), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	3.0	2.0	3.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance Time (*PC*), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

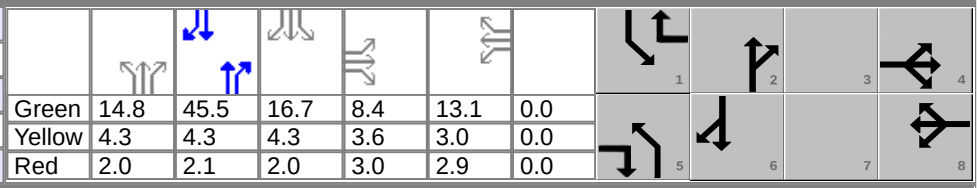
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	4005	145	660	3335	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	14.8	45.5	16.7	8.4	13.1	0.0
Yellow	4.3	4.3	4.3	3.6	3.0	0.0
Red	2.0	2.1	2.0	3.0	2.9	0.0

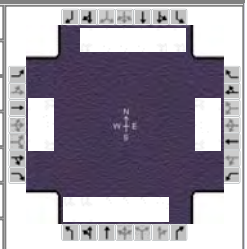
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	21.1	73.0	23.0	74.9
Change Period, (*Y+Rc*), s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway (*MAH*), s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	14.5		18.7	
Green Extension Time (g_e), s		0.0		0.0	0.3	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	185	75	420	235	165	715	340	3113	1038	660	3335	110
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1835	1723	1691	1579
Queue Service Time (g_s), s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Cycle Queue Clearance Time (g_c), s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Capacity (*c*), veh/h	116	122	285	181	190	365	396	2891	940	443	2678	833
Volume-to-Capacity Ratio (*X*)	1.598	0.617	1.476	1.302	0.870	1.957	0.858	1.077	1.104	1.491	1.246	0.132
Available Capacity (c_a), veh/h	116	122	285	181	190	365	447	2891	940	443	2678	833
Back of Queue (*Q*), veh/ln (th percentile)	39.7	2.7	78.4	35.1	7.6	180.1	6.3	67.7	81.5	62.3	136.8	1.7
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (th percentile)	9.10	0.00	17.97	4.43	0.00	0.00	0.39	0.00	0.00	3.16	0.00	0.18
Uniform Delay (d_1), s/veh	60.8	59.2	53.4	58.5	57.6	50.1	56.6	31.7	31.7	56.7	30.7	15.6
Incremental Delay (d_2), s/veh	1116.6	9.4	876.2	583.0	42.9	1731.7	16.2	146.0	205.0	896.5	445.4	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	1177.4	68.6	929.6	641.5	100.5	1781.8	72.7	177.7	236.7	953.1	476.1	15.9
Level of Service (LOS)	F	E	F	F	F	F	E	F	F	F	F	B
Approach Delay, s/veh / LOS	902.0	F		1292.7	F		183.4	F		540.5	F	
Intersection Delay, s/veh / LOS	490.5						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.6	A	2.3	B	2.3	B	2.7	B

HCS 2010 Signalized Intersection Intermediate Values

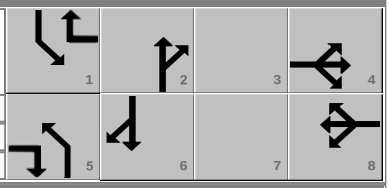
General Information				Intersection Information	
Agency	RK&K			Duration, h	1.00
Analyst	SDK	Analysis Date	Jul 20, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Build	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 Build_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	4005	145	660	3335	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	14.8	45.5	16.7	8.4	13.1	0.0						
Yellow	4.3	4.3	4.3	3.6	3.0	0.0						
Red	2.0	2.1	2.0	3.0	2.9	0.0						



	EB			WB			NB			SB		
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicle Adjustment Factor (f_{HV})	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	1.000	0.980	0.980	0.980
Approach Grade Adjustment Factor (f_g)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	0.971	1.000	1.000	0.971	0.908	1.000
Left-Turn Adjustment Factor (f_{LT})		0.000			0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000			0.000			0.975			0.000	
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Movement Saturation Flow Rate (*s*), veh/h		1881			1881		3479	7222		3445	5074	
Platoon Ratio (R_p)		0.00			0.00		0.00	0.00		0.00	0.00	
Proportion of Vehicles Arriving on Green (*P*)												
Incremental Delay Factor (*k*)	0.50	0.20	0.50	0.50	0.40	0.50	0.31	0.50	0.50	0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0		6.6	6.3	6.3	6.4	6.3
Green Ratio (*g*/*C*)		0.06		0.10	0.11	0.51	0.13	0.53
Permitted Saturation Flow Rate (s_p), veh/h/ln		1792		1792	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0		0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0		0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln		1594		1594				0
Protected Right Effective Green Time (g_R), s		14.8		16.7				0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	2.739	0.00	3.009	0.00	2.107	0.00	2.107	0.00
Pedestrian F_s / F_{delay}	0.000	0.159	0.000	0.171	0.000	0.156	0.000	0.107
Bicycle c_b / d_b	190.77	53.19	-90.77	71.03	255.38	49.46	1055.36	14.50
Bicycle F_w / F_v	-3.64	1.12	-3.64	1.84	-3.64	1.85	-3.64	2.26

--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

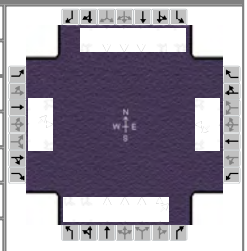
WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

WARNING: The procedure for modeling permitted left turns opposed by 2+ lanes (one of which is a shared L+T lane) produces results that are too conservative in many cases. The Highway Capacity and Quality of Service (HCQS) committee is working on a solution.

--- Comments ---

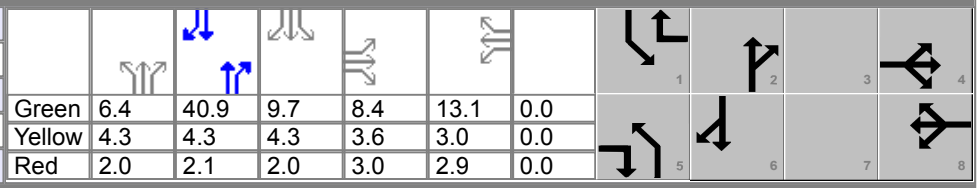
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	AM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Alt 3	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 BLD_3_AM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	45	20	180	315	45	370	140	2255	80	300	2825	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.4	40.9	9.7	8.4	13.1	0.0
Yellow	4.3	4.3	4.3	3.6	3.0	0.0
Red	2.0	2.1	2.0	3.0	2.9	0.0

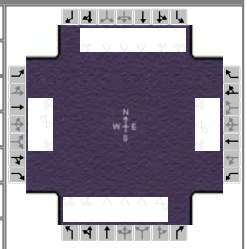
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	12.7	60.0	16.0	63.3
Change Period, *(Y+Rc)*, s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway *(MAH)*, s		4.3		4.2	4.1	0.0	4.1	0.0
Queue Clearance Time *(gs)*, s		10.4		15.1	6.3		11.7	
Green Extension Time *(ge)*, s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	45	20	180	315	45	370	140	1762	573	300	2825	50
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1723	1810	1533	1792	1881	1594	1740	1881	1835	1706	1675	1563
Queue Service Time *(gs)*, s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	25.6	25.6	9.7	57.0	1.8
Cycle Queue Clearance Time *(gc)*, s	2.7	1.1	8.4	13.1	2.4	13.1	4.3	25.6	25.6	9.7	57.0	1.8
Capacity *(c)*, veh/h	132	138	206	213	224	330	202	2750	894	301	2604	810
Volume-to-Capacity Ratio *(X)*	0.342	0.145	0.873	1.476	0.201	1.120	0.693	0.641	0.641	0.997	1.085	0.062
Available Capacity *(ca)*, veh/h	132	138	206	213	224	330	307	2750	894	301	2604	810
Back of Queue *(Q)*, veh/ln (50th percentile)	1.2	0.5	7.1	58.1	1.1	28.2	2.0	11.0	11.4	8.3	59.7	0.6
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.29	0.00	1.68	7.32	0.00	0.00	0.12	0.00	0.00	0.42	0.00	0.07
Uniform Delay *(d1)*, s/veh	48.2	47.4	46.7	48.5	43.7	43.6	50.8	21.0	21.0	50.1	26.5	13.2
Incremental Delay *(d2)*, s/veh	1.5	0.5	40.8	882.8	0.4	258.0	4.3	1.2	3.6	100.9	160.9	0.1
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.7	47.9	87.5	931.3	44.2	301.6	55.2	22.2	24.6	151.0	187.4	13.3
Level of Service (LOS)	D	D	F	F	D	F	E	C	C	F	F	B
Approach Delay, s/veh / LOS	77.3	E		557.5	F		24.6	C		181.2	F	
Intersection Delay, s/veh / LOS	160.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	1.7	A	1.5	A	2.2	B

HCS 2010 Signalized Intersection Results Summary

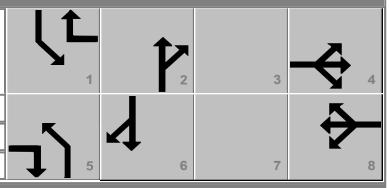
General Information				Intersection Information	
Agency	RK&K/mt			Duration, h	1.00
Analyst	SDK/rjw	Analysis Date	Sep 5, 2012	Area Type	Other
Jurisdiction	Newport News	Time Period	PM Peak	PHF	1.00
Intersection	Jefferson Ave. & Walmart V	Analysis Year	2040 Alt 3	Analysis Period	1> 7:00
File Name	Intersection 255-B_2040 BLD_3_PM.xus				
Project Description	Peninsula Study EIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	185	75	420	235	165	715	340	3960	145	660	3330	110

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	14.8	45.5	16.7	8.4	13.1	0.0	
Yellow	4.3	4.3	4.3	3.6	3.0	0.0	
Red	2.0	2.1	2.0	3.0	2.9	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		9.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		15.0		19.0	21.1	73.0	23.0	74.9
Change Period, ($Y+R_c$), s		6.6		5.9	6.3	6.4	6.3	6.3
Max Allow Headway (*MAH*), s		4.3		4.3	4.1	0.0	4.1	0.0
Queue Clearance Time (g_s), s		10.4		15.1	14.5		18.7	
Green Extension Time (g_e), s		0.0		0.0	0.3	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	185	75	420	235	165	715	340	3079	1026	660	3330	110
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1792	1881	1594	1792	1881	1594	1740	1881	1835	1723	1691	1579
Queue Service Time (g_s), s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Cycle Queue Clearance Time (g_c), s	8.4	5.0	8.4	13.1	11.2	13.1	12.5	66.6	66.6	16.7	68.6	4.6
Capacity (*c*), veh/h	116	122	285	181	190	365	396	2891	940	443	2678	833
Volume-to-Capacity Ratio (*X*)	1.598	0.617	1.476	1.302	0.870	1.957	0.858	1.065	1.092	1.491	1.244	0.132
Available Capacity (c_a), veh/h	116	122	285	181	190	365	447	2891	940	443	2678	833
Back of Queue (*Q*), veh/ln (50th percentile)	39.7	2.7	78.4	35.1	7.6	180.1	6.3	62.4	76.4	62.3	136.0	1.7
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	9.10	0.00	17.97	4.43	0.00	0.00	0.39	0.00	0.00	3.16	0.00	0.18
Uniform Delay (d_1), s/veh	60.8	59.2	53.4	58.5	57.6	50.1	56.6	31.7	31.7	56.7	30.7	15.6
Incremental Delay (d_2), s/veh	1116.6	9.4	876.2	583.0	42.9	1731.7	16.2	126.2	185.7	896.5	442.1	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	1177.4	68.6	929.6	641.5	100.5	1781.8	72.7	157.9	217.4	953.1	472.8	15.9
Level of Service (LOS)	F	E	F	F	F	F	E	F	F	F	F	B
Approach Delay, s/veh / LOS	902.0	F		1292.7	F		165.1	F		537.8	F	
Intersection Delay, s/veh / LOS	483.0						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	3.5	C	3.8	D	2.9	C	2.8	C
Bicycle LOS Score / LOS	1.6	A	2.3	B	2.3	B	2.7	B

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
Richmond	190	I-95		I-95 South to I-64 East	23,700	26,500	27,700	4.5%	32,800	36,600	11.6%	
				I-95 South to 3rd Street	6,800	7,200	7,600	5.6%	8,000	9,300	16.3%	
				I-95 North to 7th Street	1,300	1,500	1,600	6.7%	2,000	2,300	15.0%	
				I-95 North to I-64 East	18,900	22,100	24,000	8.6%	30,300	36,700	21.1%	
				I-64 West to I-95 South	19,100	20,700	21,500	3.9%	24,400	26,900	10.2%	
				I-64 West to I-95 North	19,700	24,300	28,300	16.5%	36,500	43,400	18.9%	
				I-64 West to 5th Street	9,200	9,900	10,600	7.1%	11,300	13,700	21.2%	
				5th Street to I-95 North	1,800	1,900	1,900	0.0%	2,100	2,100	0.0%	
				I-95 NB (average)	65,950	73,300	78,250	6.8%	90,100	106,150	17.8%	
				I-95 SB (average)	74,050	79,350	83,550	5.3%	91,100	104,600	14.8%	
				I-64 East	47,400	54,300	57,900	6.6%	70,700	82,200	16.3%	
				I-64 West	48,000	54,900	58,400	6.4%	70,100	81,900	16.8%	
				TOTAL	**335,900**	**375,950**	**401,300**	**6.7%**	**469,400**	**545,850**	**16.3%**	76,450
Richmond / Henrico	192	US 360	Ramp A	I-64 East to Mech. Tnpk South	1,900	2,000	2,100	5.0%	2,300	2,700	17.4%	
		Mechanicsville Tnpk	Ramp B	I-64 East to Mech. Tnpk North	12,400	14,300	15,300	7.0%	18,600	21,700	16.7%	
			Ramp C	Mech. Tnpk South to I-64 East	2,700	3,000	3,200	6.7%	3,600	4,200	16.7%	
			Ramp D	Mech. Tnpk North to I-64 East	1,100	1,200	1,200	0.0%	1,300	1,500	15.4%	
			Ramp E	Mech. Tnpk to I-64 West	14,100	15,800	16,900	7.0%	19,500	23,200	19.0%	
			Ramp F	I-64 West to Mechanicsville Tnpk/ Magnolia Street	4,200	4,800	5,100	6.3%	6,100	7,100	16.4%	
				I-64 East thru interchange	33,100	38,000	40,500	6.6%	49,800	57,800	16.1%	
				I-64 West thru interchange	33,900	39,100	41,500	6.1%	50,600	58,700	16.0%	
				Mechanicsville Tnpk (average)	20,950	20,300	21,600	6.4%	24,900	28,950	16.3%	
				TOTAL	**124,350**	**138,500**	**147,400**	**6.4%**	**176,700**	**205,850**	**16.5%**	29,150
Richmond/ Henrico	193	VA 33	Ramp A	I-64 East to Nine Mile Rd South	1,500	1,600	1,800	12.5%	1,800	2,400	33.3%	
		Nine Mile Road	Ramp B	I-64 East to Nine Mile Rd North	7,500	8,200	8,600	4.9%	9,700	11,200	15.5%	
			Ramp C	Nine Mile Road to I-64 East	1,900	2,000	2,100	5.0%	2,200	2,500	13.6%	
			Ramp D	Nine Mile Rd South to I-64 West	8,900	9,500	10,000	5.3%	10,700	12,400	15.9%	
			Ramp E	I-64 West to Nine Mile Rd South	1,200	1,300	1,300	0.0%	1,400	1,400	0.0%	
			Ramp F	Nine Mile Rd North to I-64 West	1,300	1,400	1,400	0.0%	1,500	1,700	13.3%	
			Ramp G	I-64 West to Nine Mile Rd North	700	700	800	14.3%	800	900	12.5%	
				I-64 East thru interchange	27,800	32,400	34,500	6.5%	43,200	49,900	15.5%	
				I-64 West thru interchange	27,800	32,300	34,100	5.6%	41,600	48,600	16.8%	
				Nine Mile Road (average)	16,950	17,500	18,450	5.4%	18,700	21,700	16.0%	
				TOTAL	**95,550**	**106,900**	**113,050**	**5.8%**	**131,600**	**152,700**	**16.0%**	21,100

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
Henrico	195	Laburnum Ave	Ramp A	I-64 East to Laburnum Ave	10,000	11,500	13,000	13.0%	14,800	19,800	33.8%	
			Ramp B	Laburnum Ave to I-64 East	3,700	4,100	4,300	4.9%	5,100	5,500	7.8%	
			Ramp C	Laburnum Ave South to I-64 West	600	700	1,300	85.7%	900	3,000	233.3%	
			Ramp D	Laburnum Ave North to I-64 West	8,000	9,300	10,100	8.6%	12,100	14,900	23.1%	
			Ramp E	I-64 West to Laburnum Ave	2,700	3,200	3,300	3.1%	4,300	4,600	7.0%	
				I-64 East thru interchange	19,700	23,300	24,100	3.4%	31,800	33,900	6.6%	
				I-64 West thru interchange	21,200	24,700	25,400	2.8%	32,300	34,600	7.1%	
				Laburnum Ave (average)	30,950	32,350	33,350	3.1%	35,350	38,800	9.8%	
				TOTAL	**96,850**	**109,150**	**114,850**	**5.2%**	**136,650**	**155,100**	**13.5%**	18,450
Henrico	197	VA 156	Ramp A	I-64 East to Airport Drive South	4,400	5,600	5,800	3.6%	8,300	8,900	7.2%	
		Airport Drive	Ramp B	I-64 East to Airport Dr North loop	3,000	3,800	4,000	5.3%	5,700	6,100	7.0%	
			Ramp C	Airport Dr South to I-64 East loop	800	900	1,500	66.7%	1,000	3,200	220.0%	
			Ramp D	Airport Drive North to I-64 East	2,600	2,800	4,300	53.6%	3,300	8,200	148.5%	
			Ramp E	Airport Drive South to I-64 West	3,600	4,200	4,300	2.4%	5,400	5,800	7.4%	
			Ramp F	Airport Dr North to I-64 West loop	5,000	5,900	6,100	3.4%	7,900	8,400	6.3%	
			Ramp G	I-64 West to Airport Dr South loop	2,900	3,100	4,100	32.3%	3,700	6,700	81.1%	
			Ramp H	I-64 West to Airport Drive North	900	1,000	1,500	50.0%	1,100	2,900	163.6%	
				I-64 East thru interchange	16,000	18,000	18,600	3.3%	22,900	24,400	6.6%	
				I-64 West thru interchange	15,400	17,800	18,300	2.8%	23,300	25,000	7.3%	
				Airport Drive (average)	26,950	29,400	30,700	4.4%	34,850	39,000	11.9%	
				TOTAL	**81,550**	**92,500**	**99,200**	**7.2%**	**117,450**	**138,600**	**18.0%**	21,150
Henrico	200	I-295	Ramp A	I-64 East to I-295 South	2,500	2,700	4,200	55.6%	3,100	7,900	154.8%	
			Ramp B	I-64 East to I-295 North loop	500	500	800	60.0%	600	1,500	150.0%	
			Ramp C	I-295 South to I-64 East (loop ramp)	200	200	200	0.0%	300	300	0.0%	
			Ramp D	I-295 South to I-64 East (flyover ramp)	11,700	13,400	13,900	3.7%	17,200	18,900	9.9%	
			Ramp E	I-295 North to I-64 East	4,500	6,100	6,600	8.2%	9,800	10,800	10.2%	
			Ramp F	I-295 South to I-64 West	300	300	600	100.0%	400	1,300	225.0%	
			Ramp G	I-295 North to I-64 West loop	2,700	2,900	3,800	31.0%	3,500	6,400	82.9%	
			Ramp H	I-64 West to I-295 South loop	5,700	7,000	7,400	5.7%	9,900	10,900	10.1%	
			Ramp I	I-64 West to I-295 North	11,800	13,500	14,000	3.7%	17,300	19,000	9.8%	
				I-64 East thru interchange	16,300	18,500	19,400	4.9%	23,500	26,400	12.3%	
				I-64 West thru interchange	16,200	18,700	19,500	4.3%	24,200	26,900	11.2%	
				I-295 inner lanes (NB + SB)	22,300	24,400	24,400	0.0%	28,900	28,900	0.0%	
				I-295 SB outer lanes, N of I-64	9,700	10,600	10,900	2.8%	12,700	13,600	7.1%	
				I-295 NB outer lanes, N of I-64	10,100	12,200	13,600	11.5%	17,100	21,000	22.8%	
				TOTAL	**114,500**	**131,000**	**139,300**	**6.3%**	**168,500**	**193,800**	**15.0%**	25,300

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
New Kent	205	VA 249	Ramp A	I-64 East to New Kent Hwy	4,200	6,600	7,400	12.1%	12,000	14,400	20.0%	
		Bottoms Bridge	Ramp B	New Kent Hwy to I-64 East	1,800	2,400	2,400	0.0%	2,400	8,800	266.7%	
			Ramp C	New Kent Hwy SB to I-64 West	2,700	3,400	3,300	-2.9%	5,100	4,600	-9.8%	
			Ramp D	New Kent Hwy NB to I-64 West	2,000	3,000	2,900	-3.3%	5,100	4,900	-3.9%	
			Ramp E	I-64 West to New Kent Hwy	1,400	1,600	2,300	43.8%	1,900	4,400	131.6%	
				I-64 East thru interchange	28,600	31,600	32,700	3.5%	38,800	42,000	8.2%	
				I-64 West thru interchange	29,000	32,800	34,700	5.8%	41,200	47,300	14.8%	
				New Kent Hwy (average)	11,100	12,900	13,600	5.4%	16,850	19,100	13.4%	
				TOTAL	**80,800**	**94,300**	**99,300**	**5.3%**	**123,350**	**145,500**	**18.0%**	22,150
New Kent	211	VA 106	Ramp A	I-64 East to Emmaus Church Rd	1,100	1,300	1,400	7.7%	1,800	2,100	16.7%	
		Talleysville	Ramp B	Emmaus Church Rd to I-64 East	1,800	2,000	2,800	40.0%	2,500	4,900	96.0%	
			Ramp C	I-64 West to Emmaus Church Rd	1,700	1,900	2,400	26.3%	2,500	3,800	52.0%	
			Ramp D	Emmaus Church Rd to I-64 West	1,200	1,400	1,500	7.1%	1,800	2,100	16.7%	
				I-64 East thru interchange	29,300	32,700	35,300	8.0%	39,400	48,700	23.6%	
				I-64 West thru interchange	29,200	33,000	35,500	7.6%	41,300	49,600	20.1%	
				Emmaus Church Rd (average)	2,350	2,550	2,650	3.9%	3,050	3,300	8.2%	
				TOTAL	**66,650**	**74,850**	**81,550**	**9.0%**	**92,350**	**114,500**	**24.0%**	22,150
New Kent	214	VA 155	Ramp A	I-64 East to N Courthouse Rd	1,900	2,300	3,100	34.8%	3,100	5,700	83.9%	
		Providence Forge	Ramp B	N Courthouse Rd to I-64 East	1,100	1,900	2,200	15.8%	3,800	4,500	18.4%	
			Ramp C	I-64 West to N Courthouse Rd	900	1,700	2,000	17.6%	3,400	4,100	20.6%	
			Ramp D	N Courthouse Rd to I-64 West	1,900	2,200	3,000	36.4%	2,900	5,300	82.8%	
				I-64 East thru interchange	29,200	32,400	35,000	8.0%	38,800	47,900	23.5%	
				I-64 West thru interchange	29,000	32,700	34,900	6.7%	40,900	48,100	17.6%	
				N Courthouse Rd (average)	2,850	3,450	3,750	8.7%	4,750	5,700	20.0%	
				TOTAL	**66,850**	**76,650**	**83,950**	**9.5%**	**97,650**	**121,300**	**24.2%**	23,650

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
New Kent	220	VA 33 West Point	Ramp A	I-64 East to VA 33 North	4,200	4,900	7,100	44.9%	6,400	13,600	112.5%	
			Ramp B	VA 33 South to I-64 East	700	800	900	12.5%	1,100	1,200	9.1%	
			Ramp C	I-64 West to VA 33 North	600	700	700	0.0%	900	1,000	11.1%	
			Ramp D	VA 33 South to I-64 West	4,200	4,900	6,500	32.7%	6,400	11,500	79.7%	
				I-64 East thru interchange	26,100	29,400	30,100	2.4%	36,200	37,800	4.4%	
				I-64 West thru interchange	25,700	29,500	30,400	3.1%	37,900	40,700	7.4%	
				Route 33	9,000	10,800	11,600	7.4%	14,800	17,400	17.6%	
				TOTAL	**70,500**	**81,000**	**87,300**	**7.8%**	**103,700**	**123,200**	**18.8%**	19,500
James City	227	VA 30 Toano	Ramp A	I-64 East to Old Stage Rd	1,300	1,500	1,500	0.0%	1,800	1,900	5.6%	
			Ramp B	Old Stage Rd NB to I-64 East	600	1,600	1,500	-6.3%	3,800	3,400	-10.5%	
			Ramp C	I-64 West to Old Stage Rd	3,900	6,300	5,800	-7.9%	11,500	9,900	-13.9%	
			Ramp D	Old Stage Rd to I-64 West	1,200	1,400	1,400	0.0%	1,700	1,800	5.9%	
			Ramp E	Old Stage Rd SB to I-64 East	3,200	4,500	4,500	0.0%	7,500	7,300	-2.7%	
				I-64 East thru interchange	25,400	28,700	29,500	2.8%	35,500	38,100	7.3%	
				I-64 West thru interchange	25,100	28,800	29,700	3.1%	37,100	39,900	7.5%	
				Old Stage Rd (average)	9,700	12,800	13,050	2.0%	19,750	20,450	3.5%	
				TOTAL	**70,400**	**85,600**	**86,950**	**1.6%**	**118,650**	**122,750**	**3.5%**	4,100
James City	231	Route 607	Ramp A	I-64 East to Croaker Rd South	600	1,400	1,500	7.1%	3,300	3,400	3.0%	
		Croaker/Norge	Ramp B	I-64 East to Croaker Rd N loop	200	900	1,100	22.2%	2,300	3,000	30.4%	
			Ramp C	Croaker Rd S to I-64 East loop	1,000	1,100	1,100	0.0%	1,300	1,300	0.0%	
			Ramp D	Croaker Rd North to I-64 East	3,400	4,500	4,600	2.2%	7,100	7,300	2.8%	
			Ramp E	I-64 West to Croaker Rd North	1,100	1,200	1,200	0.0%	1,400	1,400	0.0%	
			Ramp F	I-64 West to Croaker Rd S loop	3,000	4,100	4,200	2.4%	6,300	6,500	3.2%	
			Ramp G	Croaker Rd N to I-64 West loop	600	1,400	1,500	7.1%	3,300	3,400	3.0%	
			Ramp H	Croaker Rd South to I-64 West	500	1,200	1,200	0.0%	2,700	2,800	3.7%	
				I-64 East thru interchange	28,400	32,500	32,900	1.2%	41,200	42,400	2.9%	
				I-64 West thru interchange	27,900	32,500	32,800	0.9%	42,600	43,600	2.3%	
				Croaker Rd (average)	9,600	13,550	13,750	1.5%	22,350	23,000	2.9%	
				TOTAL	**76,300**	**94,350**	**95,850**	**1.6%**	**133,850**	**138,100**	**3.2%**	4,250

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
York	234	VA 199 Lightfoot	Ramp A	I-64 East to Route 199	7,300	8,200	7,500	-8.5%	10,100	7,800	-22.8%	
			Ramp B	Route 199 to I-64 East	5,300	5,900	7,000	18.6%	7,300	10,800	47.9%	
			Ramp C	I-64 West to Newman Rd NB	800	900	1,500	66.7%	1,100	3,100	181.8%	
			Ramp D	Newman Rd NB to I-64 West	6,800	7,600	7,000	-7.9%	9,400	7,600	-19.1%	
			Ramp E	I-64 West to Newman Rd SB	4,800	5,400	5,600	3.7%	6,600	7,500	13.6%	
			Ramp F	Newman Rd SB to I-64 West	400	500	500	0.0%	600	600	0.0%	
				I-64 East thru interchange	25,600	29,900	31,100	4.0%	39,500	43,200	9.4%	
				I-64 West thru interchange	24,800	29,700	30,700	3.4%	40,300	43,300	7.4%	
				Route 199/Newman Rd (average)	14,300	15,300	15,700	2.6%	17,500	18,850	7.7%	
				TOTAL	**90,100**	**103,400**	**106,600**	**3.1%**	**132,400**	**142,750**	**7.8%**	10,350
York	238	VA 143 / Camp Peary	Ramp A	I-64 East to Merrimac Trail	3,600	4,900	6,000	22.4%	7,700	11,300	46.8%	
			Ramp B	Merrimac Trail to I-64 East	4,900	6,600	6,700	1.5%	10,300	10,800	4.9%	
			Ramp C	I-64 West to Merrimac Trail	4,700	6,100	6,300	3.3%	9,500	10,200	7.4%	
			Ramp D	Merrimac Trail NB to I-64 West	3,000	4,200	4,800	14.3%	6,800	8,700	27.9%	
			Ramp E	Camp Peary to I-64 West	300	500	800	60.0%	600	1,700	183.3%	
				I-64 East thru interchange	27,300	30,900	32,100	3.9%	39,100	42,700	9.2%	
				I-64 West thru interchange	27,100	31,300	32,200	2.9%	40,600	43,500	7.1%	
				Route 143/Camp Peary Entrance (average)	10,550	12,500	12,900	3.2%	16,800	18,100	7.7%	
				TOTAL	**81,450**	**97,000**	**101,800**	**4.9%**	**131,400**	**147,000**	**11.9%**	15,600
York	242	VA 199	Ramp A	I-64 East to VA 199 West	2,200	3,700	3,800	2.7%	7,100	7,400	4.2%	
		(Humelsine Pkwy / Water County USA)	Ramp B	I-64 East to VA 199 East loop	1,300	3,000	3,200	6.7%	6,900	7,300	5.8%	
			Ramp C	VA 199 West to I-64 East loop	1,700	1,900	2,000	5.3%	2,500	2,700	8.0%	
			Ramp D	VA 199 East to I-64 East	10,300	11,200	11,500	2.7%	13,400	14,500	8.2%	
			Ramp E	I-64 West to VA 199 East	2,200	2,500	2,600	4.0%	3,200	3,400	6.3%	
			Ramp F	I-64 West to VA 199 West loop	9,000	9,800	10,100	3.1%	11,700	12,600	7.7%	
			Ramp G	VA 199 East to I-64 West loop	1,600	3,100	3,200	3.2%	6,300	6,800	7.9%	
			Ramp H	VA 199 West to I-64 West	1,300	3,000	6,900	130.0%	6,900	7,400	7.2%	
				I-64 East thru interchange	28,700	30,800	31,800	3.2%	35,400	38,800	9.6%	
				I-64 West thru interchange	28,800	31,300	32,100	2.6%	36,900	39,500	7.0%	
				Route 199 (average)	23,700	26,700	27,200	1.9%	33,250	34,900	5.0%	
				TOTAL	**110,800**	**127,000**	**134,400**	**5.8%**	**163,550**	**175,300**	**7.2%**	11,750

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
York	243	Busch Gardens	Ramp A	I-64 East to Busch Gardens	1,700	2,000	2,000	0.0%	2,600	2,800	7.7%	
			Ramp B	I-64 East to VA 143 West	200	500	600	20.0%	1,300	1,400	7.7%	
			Ramp C	Busch Gardens to I-64 East	1,700	2,800	2,900	3.6%	5,100	5,500	7.8%	
			Ramp D	I-64 West to Busch Gardens	1,600	2,700	3,200	18.5%	5,000	6,500	30.0%	
			Ramp E	I-64 West to VA 143 West (left exit)	3,500	4,100	3,900	-4.9%	5,400	4,900	-9.3%	
			Ramp F	Busch Gardens to I-64 West	2,200	2,600	3,000	15.4%	3,400	4,700	38.2%	
				I-64 East thru interchange	38,800	41,400	42,700	3.1%	47,400	51,800	9.3%	
				I-64 West thru interchange	37,800	41,000	41,800	2.0%	48,400	50,800	5.0%	
				US 60 West of BG Blvd	11,100	29,800	29,800	0.0%	17,100	39,300	129.8%	
				VA 143 West of BG Blvd	14,400	5,700	5,700	0.0%	22,700	5,700	-74.9%	
				TOTAL	**113,000**	**132,600**	**135,600**	**2.3%**	**158,400**	**173,400**	**9.5%**	15,000
Newport News	247	VA 143/VA 238	Ramp A	I-64 East to VA 143	1,800	2,000	2,000	0.0%	2,400	2,600	8.3%	
		Lee Hall	Ramp B	VA 143 West to I-64 West	3,000	3,400	3,500	2.9%	4,300	4,600	7.0%	
			Ramp C	VA 143 East to I-64 East	2,100	2,600	3,100	19.2%	3,800	5,300	39.5%	
			Ramp D	VA 238 to I-64 East	3,200	3,800	4,000	5.3%	5,300	5,800	9.4%	
			Ramp E	I-64 West to VA 238	3,800	5,000	5,400	8.0%	7,500	9,000	20.0%	
				I-64 East thru interchange	38,600	42,200	43,600	3.3%	50,100	54,700	9.2%	
				I-64 West thru interchange	39,900	44,400	45,400	2.3%	54,500	57,600	5.7%	
				Route 143 & Route 238 (average)	11,525	12,875	12,925	0.4%	15,925	16,075	0.9%	
				TOTAL	**103,925**	**116,275**	**119,925**	**3.1%**	**143,825**	**155,675**	**8.2%**	11,850
Newport News	250	VA 105	Ramp A	I-64 East to VA 105 West	5,500	5,900	6,100	3.4%	6,900	7,600	10.1%	
		Fort Eustis Blvd	Ramp B	I-64 East to VA 105 East loop	4,500	5,000	5,400	8.0%	6,200	7,300	17.7%	
			Ramp C	I-64 West to VA 143/Jefferson Ave	4,500	5,200	5,400	3.8%	6,700	7,300	9.0%	
			Ramp D	I-64 West to VA 105 West loop	9,000	9,900	10,400	5.1%	11,800	13,600	15.3%	
			Ramp E	VA 105 East to I-64 East	10,200	11,000	11,100	0.9%	12,800	13,400	4.7%	
			Ramp F	VA 105 West to I-64 East loop	4,100	4,700	4,800	2.1%	5,900	6,400	8.5%	
			Ramp G	VA 143/Jefferson Ave to I-64 West	5,700	6,500	6,700	3.1%	8,200	9,000	9.8%	
			Ramp H	VA 105 East to I-64 West loop	4,500	4,900	5,100	4.1%	5,900	6,400	8.5%	
				I-64 East thru interchange	33,900	37,700	39,200	4.0%	46,100	50,900	10.4%	
				I-64 West thru interchange	33,500	38,000	39,000	2.6%	47,900	51,200	6.9%	
				Route 105 & Route 143 (average)	24,350	27,275	27,800	1.9%	33,725	35,475	5.2%	
				TOTAL	**139,750**	**156,075**	**161,000**	**3.2%**	**192,125**	**208,575**	**8.6%**	16,450

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
Newport News	255	VA 143 Jefferson Ave	Ramp A	VA 143 East to I-64 East loop	16,700	17,000	17,400	2.4%	17,600	18,900	7.4%	
			Ramp B	I-64 East to VA 143 West loop	2,600	3,100	3,200	3.2%	4,200	4,600	9.5%	
			Ramp C	VA 143 West to I-64 West loop	6,100	7,700	7,900	2.6%	11,200	11,800	5.4%	
			Ramp D	I-64 West to VA 143 East loop	3,100	3,400	3,500	2.9%	4,000	4,300	7.5%	
			Ramp E	VA 143 West to I-64 East	3,200	7,000	3,600	-48.6%	4,100	4,400	7.3%	
			Ramp F	I-64 East to VA 143 East	7,200	9,000	9,600	6.7%	12,900	15,000	16.3%	
			Ramp G	I-64 West to VA 143 West	17,700	18,600	18,800	1.1%	20,700	21,200	2.4%	
			Ramp H	VA 143 East to I-64 West	2,600	3,100	3,200	3.2%	4,200	4,600	9.5%	
				I-64 East thru interchange	38,400	41,300	42,300	2.4%	47,700	51,100	7.1%	
				I-64 West thru interchange	38,300	42,300	43,700	3.3%	51,000	55,700	9.2%	
				Route 143 (average)	73,400	79,300	81,550	2.8%	92,350	99,650	7.9%	
				TOTAL	**209,300**	**231,800**	**234,750**	**1.3%**	**269,950**	**291,250**	**7.9%**	21,300
Newport News	256	VA 171 Victory Blvd	Ramp A	I-64 East to VA 171 West	4,300	4,600	5,100	10.9%	5,300	6,900	30.2%	
			Ramp B	I-64 East to VA 171 East loop	2,100	2,300	2,700	17.4%	2,700	3,900	44.4%	
			Ramp C	I-64 West to VA 171 East	8,300	9,000	9,300	3.3%	10,600	11,500	8.5%	
			Ramp D	I-64 West to VA 171 West loop	5,500	6,000	6,200	3.3%	7,200	7,600	5.6%	
			Ramp E	VA 171 East to I-64 East	5,600	7,000	7,200	2.9%	10,100	10,700	5.9%	
			Ramp F	VA 171 West to I-64 East loop	9,200	10,000	10,200	2.0%	11,800	12,500	5.9%	
			Ramp G	VA 171 West to I-64 West	2,300	2,500	2,900	16.0%	2,900	4,300	48.3%	
			Ramp H	VA 171 East to I-64 West loop	5,500	5,900	6,100	3.4%	6,800	7,300	7.4%	
				I-64 East thru interchange	51,900	54,900	55,500	1.1%	61,400	63,600	3.6%	
				I-64 West thru interchange	51,300	55,900	57,000	2.0%	66,000	69,600	5.5%	
				Route 171 (average)	51,300	56,600	57,900	2.3%	68,250	72,650	6.4%	
				TOTAL	**197,300**	**214,700**	**220,100**	**2.5%**	**253,050**	**270,550**	**6.9%**	17,500
Newport News	258	US 17	Ramp A	I-64 East to US 17 South	11,000	12,000	12,200	1.7%	14,300	15,100	5.6%	
		J Clyde Morris Blvd	Ramp B	I-64 East to US 17 North loop	4,600	5,100	5,200	2.0%	6,100	6,400	4.9%	
			Ramp C	I-64 West to US 17 North	12,900	13,900	15,400	10.8%	16,000	20,800	30.0%	
			Ramp D	I-64 West to US 17 South (ex. loop/potential future flyover)	7,300	8,000	8,900	11.3%	9,500	12,600	32.6%	
			Ramp E	US 17 North to I-64 East	7,200	7,800	8,600	10.3%	9,400	11,400	21.3%	
			Ramp F	US 17 South to I-64 East loop	2,800	3,100	4,100	32.3%	3,700	7,000	89.2%	
			Ramp G	US 17 South to I-64 West	5,700	6,300	6,400	1.6%	7,500	7,900	5.3%	
			Ramp H	US 17 North to I-64 West loop	2,500	2,700	2,900	7.4%	3,200	3,800	18.8%	
				I-64 East thru interchange	51,100	54,800	55,500	1.3%	62,900	65,300	3.8%	
				I-64 West thru interchange	57,000	61,900	63,200	2.1%	73,100	77,000	5.3%	
				Route 17 (average)	38,700	41,650	42,900	3.0%	48,150	52,300	8.6%	
				TOTAL	**200,800**	**217,250**	**225,300**	**3.7%**	**253,850**	**279,600**	**10.1%**	25,750

I-64 STUDY AIR QUALITY ANALYIS
Average Daily Traffic (ADT) Summary - Interchanges

Locality	Exit #	Interchange	Ramp/ Street ID	Description	2011	2020			2040			
					Existing	No-Build	Alt. 1A/1B	% Change	No-Build	Alt. 1A/1B	% Change	
Hampton	261	Hampton Roads Center Pkwy	Ramp A	I-64 East to HRCP South	5,200	5,900	6,800	15.3%	7,500	10,300	37.3%	
			Ramp B	I-64 East to HRCP North loop	6,100	6,600	7,700	16.7%	7,800	11,100	42.3%	
			Ramp C	I-64 West to HRCP South loop	6,000	6,700	7,000	4.5%	8,600	9,400	9.3%	
			Ramp D	HRCP North to I-64 East	9,100	10,400	11,400	9.6%	13,100	16,300	24.4%	
			Ramp E	HRCP North to I-64 West loop	5,200	5,900	6,500	10.2%	7,500	9,300	24.0%	
			Ramp F	HRCP South to I-64 West	11,000	12,700	14,400	13.4%	16,600	22,000	32.5%	
				I-64 East thru interchange	49,800	53,200	53,700	0.9%	60,700	62,300	2.6%	
				I-64 West thru interchange	61,000	65,200	66,600	2.1%	74,500	79,100	6.2%	
				HRCP (average)	45,300	51,100	53,150	4.0%	63,950	70,600	10.4%	
				TOTAL	**198,700**	**217,700**	**227,250**	**4.4%**	**260,250**	**290,400**	**11.6%**	30,150
Hampton	262	Magruder Blvd	Ramp A	I-64 West to Magruder Blvd N	14,200	16,100	16,400	1.9%	20,100	21,400	6.5%	
				Magruder Blvd S to I-64 East	15,700	17,700	18,200	2.8%	22,200	23,600	6.3%	
				Magruder Blvd	31,000	35,400	36,300	2.5%	45,100	48,000	6.4%	
				TOTAL	**60,900**	**69,200**	**70,900**	**2.5%**	**87,400**	**93,000**	**6.4%**	5,600
Hampton	263	US 258 Mercury Blvd	Ramp A	I-64 East to US 258 East	6,800	7,500	7,700	2.7%	9,200	9,800	6.5%	
			Ramp B	I-64 East to US 258 West	8,400	9,400	9,600	2.1%	11,400	12,100	6.1%	
			Ramp C	I-64 West to US 258 East	7,300	8,100	8,300	2.5%	9,900	10,500	6.1%	
			Ramp D	I-64 West to US 258 West loop	7,300	8,100	8,300	2.5%	9,900	10,500	6.1%	
			Ramp E	US 258 East to I-64 East	10,400	11,500	11,800	2.6%	14,100	15,000	6.4%	
			Ramp F	US 258 East to I-64 West flyover	11,300	11,900	12,200	2.5%	13,300	14,200	6.8%	
			Ramp G	US 258 West to I-64 East loop	6,200	6,900	7,000	1.4%	8,400	8,900	6.0%	
			Ramp H	US 258 West to I-64 West	8,700	9,700	9,900	2.1%	11,800	12,600	6.8%	
				I-64 East thru interchange	59,500	64,400	66,000	2.5%	75,400	80,300	6.5%	
				I-64 West thru interchange	61,100	66,400	67,900	2.3%	78,100	83,100	6.4%	
				US 258 (average)	57,550	63,550	65,100	2.4%	76,850	81,800	6.4%	
				TOTAL	**244,550**	**267,450**	**273,800**	**2.4%**	**318,350**	**338,800**	**6.4%**	20,450
Hampton	264	I-664	Ramp A	I-64 East to I-664 South	27,200	30,900	30,200	-2.3%	39,200	37,000	-5.6%	
			Ramp B	I-64 West to I-664 South	12,500	10,700	10,200	-4.7%	6,700	5,000	-25.4%	
			Ramp C	I-664 North to I-64 East	8,500	7,800	7,300	-6.4%	6,300	4,700	-25.4%	
			Ramp D	I-664 North to I-64 West	29,900	32,900	32,200	-2.1%	39,600	37,300	-5.8%	
				I-64 East to I-64 East	48,900	51,900	54,600	5.2%	58,700	67,200	14.5%	
				I-64 West to I-64 West	45,800	49,700	52,300	5.2%	58,300	66,800	14.6%	
				I-664 NB approaching I-64	38,400	40,700	39,500	-2.9%	45,900	42,000	-8.5%	
				I-664 SB towards MMBT	39,600	41,600	40,400	-2.9%	45,900	42,000	-8.5%	
				TOTAL	**250,800**	**266,200**	**266,700**	**0.2%**	**300,600**	**302,000**	**0.5%**	1,400

I-64 PENINSULA EIS - AIR QUALITY ANALYSIS
PM Peak Hour Volumes - Signalized Intersections

Exit	Interchange	Locality	Intersection	2040 No-Build PM Peak Hour					Intersection LOS (Delay)	2040 Build Alt A PM Peak Hour					Intersection LOS (Delay)	% Volume Change
				EB	WB	NB	SB	Total		EB	WB	NB	SB	Total		
192	US 360 Mechanicsville Tnpk	Richmond	I-64 WB Off-Ramp/Magnolia St & US 360	510	325	2,800	1,550	**5,185**	**D (41.9)**	510	375	2,800	1,665	**5,350**	**D (50.4)**	**3.2%**
193	Nine Mile Road	Henrico	Route 33 & Gordon's Lane	1,470	1,260	0	250	**2,980**	**B (18.3)**	1,745	1,385	0	250	**3,380**	**B (18.3)**	**13.4%**
195	Laburnum Avenue	Henrico	I-64 EB Ramps & Laburnum Ave	1,200	0	2,200	1,205	**4,605**	**F (243.8)**	1,760	0	2,255	1,205	**5,220**	**F (306.7)**	**13.4%**
195	Laburnum Avenue	Henrico	I-64 WB Ramps & Laburnum Ave	0	230	1,110	1,135	**2,475**	**A (9.1)**	0	315	1,425	1,435	**3,175**	**B (11.7)**	**28.3%**
205	Bottoms Bridge	New Kent	I-64 EB Ramps & Route 33	1,595	0	1,035	650	**3,280**	**C (21.8)**	1,835	0	1,220	725	**3,780**	**C (20.7)**	**15.2%**
231	Croaker/Norge	James City	Croaker Road & Rochambeau Dr	480	430	1,025	1,245	**3,180**	**F (294.6)**	460	450	1,025	1,265	**3,200**	**F (303.1)**	**0.6%**
238	Colonial Williamsburg	York	I-64 EB On-Ramp/Merrimac Trail & Rochambeau Dr	725	0	1,455	1,365	**3,545**	**F (203.6)**	695	0	1,610	1,595	**3,900**	**F (158.9)**	**10.0%**
238	Colonial Williamsburg	York	I-64 WB Off-Ramp & Merrimac Trail	0	835	5	80	**920**	**N/A ***	0	900	5	80	**985**	**N/A ***	**7.1%**
243	Busch Gardens	York/JC	Busch Gardens Blvd NB Ramps & US 60	1,290	740	20	0	**2,050**	**B (11.7)**	1,060	655	20	0	**1,735**	**B (12.3)**	**-15.4%**
243	Busch Gardens	York/JC	Busch Gardens Blvd SB Ramps & US 60	880	505	610	0	**1,995**	**B (10.8)**	845	505	355	0	**1,705**	**A (9.2)**	**-14.5%**
247	Yorktown	Newport News	Route 143 (Jefferson Ave) & Route 238 (Yorktown Road)	1,050	785	1,030	800	**3,665**	**F (308.8)**	1,050	785	1,075	800	**3,710**	**F (358.0)**	**1.2%**
250	Fort Eustis Blvd	Newport News	I-64 WB Off-Ramp & Route 143	1,630	1,190	830	0	**3,650**	**E (69.2)**	1,630	1,145	935	0	**3,710**	**F (103.6)**	**1.6%**
250	Fort Eustis Blvd	Newport News	Route 143 (Jefferson Ave) & Route 105 (Fort Eustis Blvd)	1,130	1,710	1,790	805	**5,435**	**F (281.0)**	1,130	1,710	1,750	805	**5,395**	**F (282.7)**	**-0.7%**
255	Jefferson Avenue	Newport News	Route 143 & Freedom Way/Clair Lane	470	705	3,280	3,605	**8,060**	**F (246.5)**	470	705	3,280	3,740	**8,195**	**F (266.7)**	**1.7%**
255	Jefferson Avenue	Newport News	Route 143 & Brick Kiln Blvd/ Wal-Mart Way	710	1,115	4,455	3,995	**10,275**	**F (472.0)**	680	1,115	4,445	4,095	**10,335**	**F (481.9)**	**0.6%**

Notes:

* Intersection LOS and delay are not defined for unsignalized intersections.

Supplemental Volumes for Air Quality Analysis

AM Peak

Location	Link Description	2010 AADT	K-Factor	D-Factor	2010 Total Peak Hour Veh	Trucks % Trucks (Total)	Trucks % MT	2011 Base Year Total Peak Hour Veh	2011 Base Year Cars	2011 Base Year MT	2011 Base Year HT	2020 Future No-Build Total Peak Hour Veh	2020 Future No-Build Cars	2020 Future No-Build MT	2020 Future No-Build HT
1	Exit 190 - North 1st Street - North of I-95	4,100	0.080		328	5%	4%	330	314	13	3	352	334	14	4
2	Exit 190 - North 1st Street - South of I-95	4,100	0.080		328	5%	4%	330	314	13	3	352	334	14	4
3	Exit 190 - North 3rd Street - Near SB Off-Ramp	3,600	0.148		533	1%	0%	537	532	0	5	572	566	0	6
4	Exit 190 - North 7th Street - North of NB Off-Ramp	5,800	0.197		1,143	1%	1%	1,151	1,139	12	0	1,226	1,214	12	0
5	Exit 243 - VA 143 (Merrimac Trail) - East of Interchange	9,300	0.134		1,246	2%	1%	1,256	1,231	13	12	1,349	1,322	13	14
6	Exit 243 - VA 143 (Merrimac Trail) - West of Interchange	13,000	0.117		1,521	2%	1%	1,544	1,513	15	16	1,765	1,730	18	17
7	Exit 243 - U.S. 60 (Pocahontas Trail) - East of Interchange	10,000	0.086		860	5%	1%	873	829	9	35	998	948	10	40
8	Exit 243 - U.S. 60 (Pocahontas Trail) - West of Interchange	8,600	0.096		826	5%	1%	838	796	8	34	959	911	10	38
9	Exit 261 - Big Bethel Road - At the I-64 Overpass	25,000	0.089		2,225	2%	1%	2,249	2,204	22	23	2,482	2,432	25	25
10	Exit 261 - Hampton Roads Center Parkway - EB East of I-64				4,802	1%	0%	4,893	4,844	0	49	5,796	5,738	0	58
11	Exit 261 - Hampton Roads Center Parkway - WB East of I-64				2,403	1%	0%	2,449	2,425	0	24	2,901	2,872	0	29
12	Exit 261 - Hampton Roads Center Parkway - EB West of I-64				4,554	1%	0%	4,691	4,644	0	47	6,120	6,059	0	61
13	Exit 261 - Hampton Roads Center Parkway - WB West of I-64				2,923	1%	0%	3,011	2,981	0	30	3,928	3,889	0	39
14	Exit 263 - Cunningham Road - East of I-64	20,000	0.097		1,940	0%	0%	1,961	1,961	0	0	2,164	2,164	0	0
15	Exit 263 - Cunningham Road/Todds Lane - West of I-64	20,000	0.090		1,800	0%	0%	1,820	1,820	0	0	2,008	2,008	0	0
16	Exit 263 - Mercury Boulevard - EB East of I-64	50,000	0.083	0.527	2,187	1%	0%	2,209	2,187	0	22	2,416	2,392	0	24
17	Exit 263 - Mercury Boulevard - WB East of I-64	50,000	0.083	0.527	1,963	1%	0%	1,983	1,963	0	20	2,168	2,146	0	22
18	Exit 263 - Mercury Boulevard - EB West of I-64	63,000	0.085	0.527	2,533	1%	0%	2,558	2,532	0	26	2,798	2,770	0	28
19	Exit 263 - Mercury Boulevard - WB West of I-64	63,000	0.085	0.527	2,822	1%	0%	2,850	2,822	0	28	3,117	3,086	0	31
20	Exit 263 - Pine Chapel Road - At the I-64 Overpass	11,000	0.091		1,001	0%	0%	1,012	1,012	0	0	1,117	1,117	0	0
21	Exit 263 - Magruder-Cunningham Connector EB	1,100	0.085		94	0%	0%	94	94	0	0	104	104	0	0

MT = Medium Truck (2 axles with 6 wheels)
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AADT -- Average Annual Daily Traffic Volume.
K-Factor -- Factor for converting daily volume to design hour volume (i.e., highest volume hour of the day).
D-Factor -- Factor for converting total volume for both directions into volumes for each direction. D-factor gives the higher volume direction.

PM Peak

Location	Link Description	2010 AADT	K-Factor	D-Factor	2010 Total Peak Hour Veh	Trucks % Trucks (Total)	Trucks % MT	2011 Base Year Total Peak Hour Veh	2011 Base Year Cars	2011 Base Year MT	2011 Base Year HT	2020 Future No-Build Total Peak Hour Veh	2020 Future No-Build Cars	2020 Future No-Build MT	2020 Future No-Build HT
1	Exit 190 - North 1st Street - North of I-95	4,100	0.080		328	5%	4%	330	314	13	3	352	334	14	4
2	Exit 190 - North 1st Street - South of I-95	4,100	0.080		328	5%	4%	330	314	13	3	352	334	14	4
3	Exit 190 - North 3rd Street - Near SB Off-Ramp	3,600	0.148		533	1%	0%	537	532	0	5	572	566	0	6
4	Exit 190 - North 7th Street - North of NB Off-Ramp	5,800	0.197		1,143	1%	1%	1,151	1,139	12	0	1,226	1,214	12	0
5	Exit 243 - VA 143 (Merrimac Trail) - East of Interchange	9,300	0.134		1,246	2%	1%	1,256	1,231	13	12	1,349	1,322	13	14
6	Exit 243 - VA 143 (Merrimac Trail) - West of Interchange	13,000	0.117		1,521	2%	1%	1,544	1,513	15	16	1,765	1,730	18	17
7	Exit 243 - U.S. 60 (Pocahontas Trail) - East of Interchange	10,000	0.086		860	5%	1%	873	829	9	35	998	948	10	40
8	Exit 243 - U.S. 60 (Pocahontas Trail) - West of Interchange	8,600	0.096		826	5%	1%	838	796	8	34	959	911	10	38
9	Exit 261 - Big Bethel Road - At the I-64 Overpass	25,000	0.089		2,225	2%	1%	2,249	2,204	22	23	2,482	2,432	25	25
10	Exit 261 - Hampton Roads Center Parkway - EB East of I-64				2,990	1%	0%	3,047	3,017	0	30	3,609	3,573	0	36
11	Exit 261 - Hampton Roads Center Parkway - WB East of I-64				5,418	1%	0%	5,521	5,466	0	55	6,540	6,475	0	65
12	Exit 261 - Hampton Roads Center Parkway - EB West of I-64				2,981	1%	0%	3,070	3,039	0	31	4,006	3,966	0	40
13	Exit 261 - Hampton Roads Center Parkway - WB West of I-64				5,573	1%	0%	5,740	5,683	0	57	7,490	7,415	0	75
14	Exit 263 - Cunningham Road - East of I-64	20,000	0.097		1,940	0%	0%	1,961	1,961	0	0	2,164	2,164	0	0
15	Exit 263 - Cunningham Road/Todds Lane - West of I-64	20,000	0.090		1,800	0%	0%	1,820	1,820	0	0	2,008	2,008	0	0
16	Exit 263 - Mercury Boulevard - EB East of I-64	50,000	0.083	0.527	1,963	1%	0%	1,983	1,963	0	20	2,168	2,146	0	22
17	Exit 263 - Mercury Boulevard - WB East of I-64	50,000	0.083	0.527	2,187	1%	0%	2,209	2,187	0	22	2,416	2,392	0	24
18	Exit 263 - Mercury Boulevard - EB West of I-64	63,000	0.085	0.527	2,822	1%	0%	2,850	2,822	0	28	3,117	3,086	0	31
19	Exit 263 - Mercury Boulevard - WB West of I-64	63,000	0.085	0.527	2,533	1%	0%	2,558	2,532	0	26	2,798	2,770	0	28
20	Exit 263 - Pine Chapel Road - At the I-64 Overpass	11,000	0.091		1,001	0%	0%	1,012	1,012	0	0	1,117	1,117	0	0
21	Exit 263 - Magruder-Cunningham Connector EB	1,100	0.085		94	0%	0%	94	94	0	0	104	104	0	0

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K-Factor -- Factor for converting daily volume to design hour volume (i.e., highest volume hour of the day).
D-Factor -- Factor for converting total volume for both directions into volumes for each direction. D-factor gives the higher volume direction.

Supplemental Volumes for Air Quality Analysis

AM Peak

Location	Link Description	2020 Future Build - Alt 1				2020 Future Build - Alt 2				2020 Future Build - Alt 3			
		Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT
1	Exit 190 - North 1st Street - North of I-95	352	334	14	4	352	334	14	4	352	334	14	4
2	Exit 190 - North 1st Street - South of I-95	352	334	14	4	352	334	14	4	352	334	14	4
3	Exit 190 - North 3rd Street - Near SB Off-Ramp	606	600	0	6	603	597	0	6	590	584	0	6
4	Exit 190 - North 7th Street - North of NB Off-Ramp	1,291	1,278	13	0	1,291	1,278	13	0	1,226	1,214	12	0
5	Exit 243 - VA 143 (Merrimac Trail) - East of Interchange	1,349	1,322	13	14	1,349	1,322	13	14	1,349	1,322	13	14
6	Exit 243 - VA 143 (Merrimac Trail) - West of Interchange	1,862	1,825	19	18	1,692	1,658	17	17	1,692	1,658	17	17
7	Exit 243 - U.S. 60 (Pocahontas Trail) - East of Interchange	938	891	9	38	938	891	9	38	938	891	9	38
8	Exit 243 - U.S. 60 (Pocahontas Trail) - West of Interchange	836	794	8	34	836	794	8	34	836	794	8	34
9	Exit 261 - Big Bethel Road - At the I-64 Overpass	2,727	2,672	27	28	2,833	2,776	28	29	2,833	2,776	28	29
10	Exit 261 - Hampton Roads Center Parkway - EB East of I-64	6,235	6,173	0	62	6,499	6,434	0	65	6,499	6,434	0	65
11	Exit 261 - Hampton Roads Center Parkway - WB East of I-64	3,178	3,146	0	32	3,374	3,340	0	34	3,374	3,340	0	34
12	Exit 261 - Hampton Roads Center Parkway - EB West of I-64	6,634	6,568	0	66	6,914	6,845	0	69	6,914	6,845	0	69
13	Exit 261 - Hampton Roads Center Parkway - WB West of I-64	4,400	4,356	0	44	4,550	4,505	0	45	4,550	4,505	0	45
14	Exit 263 - Cunningham Road - East of I-64	2,164	2,164	0	0	2,164	2,164	0	0	2,164	2,164	0	0
15	Exit 263 - Cunningham Road/Todds Lane - West of I-64	2,008	2,008	0	0	2,008	2,008	0	0	2,008	2,008	0	0
16	Exit 263 - Mercury Boulevard - EB East of I-64	2,477	2,452	0	25	2,453	2,428	0	25	2,612	2,586	0	26
17	Exit 263 - Mercury Boulevard - WB East of I-64	2,207	2,185	0	22	2,194	2,172	0	22	2,181	2,159	0	22
18	Exit 263 - Mercury Boulevard - EB West of I-64	2,862	2,833	0	29	2,834	2,806	0	28	2,834	2,806	0	28
19	Exit 263 - Mercury Boulevard - WB West of I-64	3,192	3,160	0	32	3,155	3,123	0	32	3,242	3,210	0	32
20	Exit 263 - Pine Chapel Road - At the I-64 Overpass	1,117	1,117	0	0	1,117	1,117	0	0	1,117	1,117	0	0
21	Exit 263 - Magruder-Cunningham Connector EB	104	104	0	0	104	104	0	0	104	104	0	0

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AADT -- Average Annual Daily Traffic Volume.
K-Factor -- Factor for converting daily volume to design hour volume (i
D-Factor -- Factor for converting total volume for both directions into v

PM Peak

Location	Link Description	2020 Future Build - Alt 1				2020 Future Build - Alt 2				2020 Future Build - Alt 3			
		Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT
1	Exit 190 - North 1st Street - North of I-95	352	334	14	4	352	334	14	4	352	334	14	4
2	Exit 190 - North 1st Street - South of I-95	352	334	14	4	352	334	14	4	352	334	14	4
3	Exit 190 - North 3rd Street - Near SB Off-Ramp	606	600	0	6	601	595	0	6	589	583	0	6
4	Exit 190 - North 7th Street - North of NB Off-Ramp	1,349	1,336	13	0	1,349	1,336	13	0	1,287	1,274	13	0
5	Exit 243 - VA 143 (Merrimac Trail) - East of Interchange	1,349	1,322	13	14	1,349	1,322	13	14	1,349	1,322	13	14
6	Exit 243 - VA 143 (Merrimac Trail) - West of Interchange	1,765	1,730	18	17	1,606	1,574	16	16	1,646	1,613	16	17
7	Exit 243 - U.S. 60 (Pocahontas Trail) - East of Interchange	976	927	10	39	976	927	10	39	976	927	10	39
8	Exit 243 - U.S. 60 (Pocahontas Trail) - West of Interchange	930	884	9	37	930	884	9	37	930	884	9	37
9	Exit 261 - Big Bethel Road - At the I-64 Overpass	2,693	2,639	27	27	2,727	2,672	27	28	2,732	2,677	27	28
10	Exit 261 - Hampton Roads Center Parkway - EB East of I-64	3,609	3,573	0	36	3,913	3,874	0	39	3,913	3,874	0	39
11	Exit 261 - Hampton Roads Center Parkway - WB East of I-64	7,087	7,016	0	71	7,520	7,445	0	75	7,543	7,468	0	75
12	Exit 261 - Hampton Roads Center Parkway - EB West of I-64	4,255	4,212	0	43	4,398	4,354	0	44	4,398	4,354	0	44
13	Exit 261 - Hampton Roads Center Parkway - WB West of I-64	8,263	8,180	0	83	8,236	8,154	0	82	8,263	8,180	0	83
14	Exit 263 - Cunningham Road - East of I-64	2,164	2,164	0	0	2,164	2,164	0	0	2,164	2,164	0	0
15	Exit 263 - Cunningham Road/Todds Lane - West of I-64	2,008	2,008	0	0	2,008	2,008	0	0	2,008	2,008	0	0
16	Exit 263 - Mercury Boulevard - EB East of I-64	2,220	2,198	0	22	2,187	2,165	0	22	2,336	2,313	0	23
17	Exit 263 - Mercury Boulevard - WB East of I-64	2,476	2,451	0	25	2,446	2,422	0	24	2,577	2,551	0	26
18	Exit 263 - Mercury Boulevard - EB West of I-64	3,189	3,157	0	32	3,158	3,126	0	32	3,272	3,239	0	33
19	Exit 263 - Mercury Boulevard - WB West of I-64	2,858	2,829	0	29	2,824	2,796	0	28	2,934	2,905	0	29
20	Exit 263 - Pine Chapel Road - At the I-64 Overpass	1,117	1,117	0	0	1,117	1,117	0	0	1,117	1,117	0	0
21	Exit 263 - Magruder-Cunningham Connector EB	104	104	0	0	104	104	0	0	104	104	0	0

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
AADT -- Average Annual Daily Traffic Volume.
K-Factor -- Factor for converting daily volume to design hour volume (i
D-Factor -- Factor for converting total volume for both directions into v

Supplemental Volumes for Air Quality Analysis

AM Peak

Location	Link Description	2040 Future No-Build				2040 Future Build - Alt 1				2040 Future Build - Alt 2				2040 Future Build - Alt 3			
		Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT
1	Exit 190 - North 1st Street - North of I-95	404	384	16	4	404	384	16	4	404	384	16	4	404	384	16	4
2	Exit 190 - North 1st Street - South of I-95	404	384	16	4	404	384	16	4	404	384	16	4	404	384	16	4
3	Exit 190 - North 3rd Street - Near SB Off-Ramp	657	650	0	7	764	756	0	8	756	748	0	8	716	709	0	7
4	Exit 190 - North 7th Street - North of NB Off-Ramp	1,409	1,395	14	0	1,606	1,590	16	0	1,606	1,590	16	0	1,465	1,450	15	0
5	Exit 243 - VA 143 (Merrimac Trail) - East of Interchange	1,582	1,550	16	16	1,582	1,550	16	16	1,582	1,550	16	16	1,582	1,550	16	16
6	Exit 243 - VA 143 (Merrimac Trail) - West of Interchange	2,377	2,329	24	24	2,671	2,618	27	26	2,196	2,152	22	22	2,196	2,152	22	22
7	Exit 243 - U.S. 60 (Pocahontas Trail) - East of Interchange	1,344	1,277	13	54	1,162	1,104	12	46	1,162	1,104	12	46	1,162	1,104	12	46
8	Exit 243 - U.S. 60 (Pocahontas Trail) - West of Interchange	1,291	1,226	13	52	950	903	10	37	950	903	10	37	950	903	10	37
9	Exit 261 - Big Bethel Road - At the I-64 Overpass	3,089	3,027	31	31	3,878	3,800	39	39	4,189	4,105	42	42	4,200	4,116	42	42
10	Exit 261 - Hampton Roads Center Parkway - EB East of I-64	8,446	8,362	0	84	10,038	9,938	0	100	10,947	10,838	0	109	10,947	10,838	0	109
11	Exit 261 - Hampton Roads Center Parkway - WB East of I-64	4,226	4,184	0	42	5,173	5,121	0	52	5,884	5,825	0	59	5,938	5,879	0	59
12	Exit 261 - Hampton Roads Center Parkway - EB West of I-64	11,054	10,943	0	111	13,428	13,294	0	134	14,648	14,502	0	146	14,648	14,502	0	146
13	Exit 261 - Hampton Roads Center Parkway - WB West of I-64	7,095	7,024	0	71	9,316	9,223	0	93	9,933	9,834	0	99	9,995	9,895	0	100
14	Exit 263 - Cunningham Road - East of I-64	2,694	2,694	0	0	2,694	2,694	0	0	2,694	2,694	0	0	2,694	2,694	0	0
15	Exit 263 - Cunningham Road/Todds Lane - West of I-64	2,499	2,499	0	0	2,499	2,499	0	0	2,499	2,499	0	0	2,499	2,499	0	0
16	Exit 263 - Mercury Boulevard - EB East of I-64	2,948	2,919	0	29	3,145	3,114	0	31	3,046	3,016	0	30	3,550	3,515	0	35
17	Exit 263 - Mercury Boulevard - WB East of I-64	2,646	2,620	0	26	2,790	2,762	0	28	2,711	2,684	0	27	2,698	2,671	0	27
18	Exit 263 - Mercury Boulevard - EB West of I-64	3,414	3,380	0	34	3,643	3,607	0	36	3,538	3,503	0	35	3,500	3,465	0	35
19	Exit 263 - Mercury Boulevard - WB West of I-64	3,804	3,766	0	38	4,030	3,990	0	40	3,917	3,878	0	39	4,269	4,226	0	43
20	Exit 263 - Pine Chapel Road - At the I-64 Overpass	1,390	1,390	0	0	1,390	1,390	0	0	1,390	1,390	0	0	1,390	1,390	0	0
21	Exit 263 - Magruder-Cunningham Connector EB	129	129	0	0	129	129	0	0	129	129	0	0	129	129	0	0

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
AADT -- Average Annual Daily Traffic Volume.
K-Factor -- Factor for converting daily volume to design hour volume (i
D-Factor -- Factor for converting total volume for both directions into v

PM Peak

Location	Link Description	2040 Future No-Build				2040 Future Build - Alt 1				2040 Future Build - Alt 2				2040 Future Build - Alt 3			
		Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT	Total Peak Hour Veh	Cars	MT	HT
1	Exit 190 - North 1st Street - North of I-95	404	384	16	4	404	384	16	4	404	384	16	4	404	384	16	4
2	Exit 190 - North 1st Street - South of I-95	404	384	16	4	404	384	16	4	404	384	16	4	404	384	16	4
3	Exit 190 - North 3rd Street - Near SB Off-Ramp	657	650	0	7	763	755	0	8	757	749	0	8	716	709	0	7
4	Exit 190 - North 7th Street - North of NB Off-Ramp	1,409	1,395	14	0	1,618	1,602	16	0	1,618	1,602	16	0	1,461	1,446	15	0
5	Exit 243 - VA 143 (Merrimac Trail) - East of Interchange	1,582	1,550	16	16	1,582	1,550	16	16	1,582	1,550	16	16	1,582	1,550	16	16
6	Exit 243 - VA 143 (Merrimac Trail) - West of Interchange	2,377	2,329	24	24	2,377	2,329	24	24	1,872	1,835	19	18	1,872	1,835	19	18
7	Exit 243 - U.S. 60 (Pocahontas Trail) - East of Interchange	1,344	1,277	13	54	1,278	1,214	13	51	1,278	1,214	13	51	1,278	1,214	13	51
8	Exit 243 - U.S. 60 (Pocahontas Trail) - West of Interchange	1,291	1,226	13	52	1,217	1,156	12	49	1,217	1,156	12	49	1,217	1,156	12	49
9	Exit 261 - Big Bethel Road - At the I-64 Overpass	3,089	3,027	31	31	3,776	3,700	38	38	3,927	3,848	39	40	3,942	3,863	39	40
10	Exit 261 - Hampton Roads Center Parkway - EB East of I-64	5,259	5,206	0	53	5,225	5,173	0	52	6,237	6,175	0	62	6,237	6,175	0	62
11	Exit 261 - Hampton Roads Center Parkway - WB East of I-64	9,529	9,434	0	95	11,460	11,345	0	115	13,061	12,930	0	131	13,188	13,056	0	132
12	Exit 261 - Hampton Roads Center Parkway - EB West of I-64	7,236	7,164	0	72	8,433	8,349	0	84	9,240	9,148	0	92	9,240	9,148	0	92
13	Exit 261 - Hampton Roads Center Parkway - WB West of I-64	13,527	13,392	0	135	17,137	16,966	0	171	17,137	16,966	0	171	17,251	17,078	0	173
14	Exit 263 - Cunningham Road - East of I-64	2,694	2,694	0	0	2,694	2,694	0	0	2,694	2,694	0	0	2,694	2,694	0	0
15	Exit 263 - Cunningham Road/Todds Lane - West of I-64	2,499	2,499	0	0	2,499	2,499	0	0	2,499	2,499	0	0	2,499	2,499	0	0
16	Exit 263 - Mercury Boulevard - EB East of I-64	2,646	2,620	0	26	2,807	2,779	0	28	2,730	2,703	0	27	3,195	3,163	0	32
17	Exit 263 - Mercury Boulevard - WB East of I-64	2,948	2,919	0	29	3,129	3,098	0	31	3,028	2,998	0	30	3,421	3,387	0	34
18	Exit 263 - Mercury Boulevard - EB West of I-64	3,804	3,766	0	38	4,033	3,993	0	40	3,924	3,885	0	39	4,305	4,262	0	43
19	Exit 263 - Mercury Boulevard - WB West of I-64	3,414	3,380	0	34	3,628	3,592	0	36	3,517	3,482	0	35	3,850	3,812	0	38
20	Exit 263 - Pine Chapel Road - At the I-64 Overpass	1,390	1,390	0	0	1,390	1,390	0	0	1,390	1,390	0	0	1,390	1,390	0	0
21	Exit 263 - Magruder-Cunningham Connector EB	129	129	0	0	129	129	0	0	129	129	0	0	129	129	0	0

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
AADT -- Average Annual Daily Traffic Volume.
K-Factor -- Factor for converting daily volume to design hour volume (i
D-Factor -- Factor for converting total volume for both directions into v

INTERSTATE 64 PENINSULA STUDY

Memorandum: **Air Quality and Noise Methodology for Build Alternatives 2A/2B - Full Toll Lanes**

Date: **May 21, 2012**

In an effort to best conduct the air quality and noise analysis for the I-64 Peninsula Study EIS, the Study Team is proposing that detailed quantitative analyses be performed for the General Purpose Lane Alternatives 1A/1B and the Managed Lane/General Purpose Lane Alternative 3 while qualitative methodology be implemented for the Full Toll Lane Alternatives 2A/2B. The following describes the build alternatives and our rationale for this approach. VDOT and FHWA will need to concur with the methodology presented below for it to be implemented on the project.

Alternatives

Currently, there is a No Action alternative, a TSM/TDM alternative, and five separate build alternatives being considered for the study including:

- Alternatives 1A/1B - General Purpose Lanes
- Alternatives 2A/2B - Full Toll Lanes
- Alternative 3 - Managed Lanes & General Purpose Lanes

Alternatives 1A/1B General Purpose Lanes – These Alternatives involve adding the required number of general purpose travel lanes to achieve a Level of Service "C" or better in the future year 2040. Although there are numerous possible combinations for adding these lanes, the analysis focused on adding all that is needed to either the outside, which is Alternative 1A, or to the median, which is Alternative 1B. For Alternative 1B, the lanes are proposed in the median to the greatest extent practicable. However, not all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside.

For the 25 existing interchanges within the study corridor, the Study Team examined geometric deficiencies along with future year 2040 traffic volumes and resulting Level of Service at each interchange location. Conceptual designs were investigated that would accommodate the future traffic and assumptions

were made and applied to each interchange to establish a study footprint that would allow for flexibility during final design. Further engineering and traffic analyses will be performed at each interchange as the project progresses. During the Interchange Modification Report (IMR) process that will follow completion and approval of the FEIS, each of these interchange configurations will be further studied and refined.

Alternatives 2A/2B Full Toll Lanes – The difference with these alternatives from Alternatives 1A/1B are that the Full Toll Lane Alternatives include tolling of the entire facility. For the purposes of this study, we are assuming that the tolling will be for all vehicles, for both directions, and for the entire length of the corridor from I-95 in Richmond to I-664 in Hampton. We are also assuming that there will be toll collection stations, using overhead gantries and all-electronic tolling, for every single interchange-to-interchange segment of I-64. If Alternative 2A or 2B is selected, subsequent studies will refine the specifics of the tolling, such as whether or not it will encompass the entire length of the I-64 corridor along with the number and placement of the toll collection stations.

Similar to Alternatives 1A/1B, the Full Toll Lane Alternatives involve adding the required number of lanes to achieve a Level of Service "C" or better in the future year 2040. Although there are numerous possible combinations for adding these lanes, the analysis focused on adding all that is needed to either the outside, which is Alternative 2A, or to the median, which is Alternative 2B. For Alternative 2B, the lanes are proposed in the median to the greatest extent practicable. However, not all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside. In addition to these mainline improvements, Alternatives 2A/2B also includes the same improvements to the 25 interchanges as described in Alternatives 1A/1B.

In order to determine the number of lanes needed, the traffic analysis included performing a Toll Diversion Analysis. A summary of the Toll Diversion Analysis is attached to this Memorandum. Overall, the tolling of I-64 is expected to have either a neutral or a negative impact on traffic volumes on the I-64 mainline (due to people choosing to avoid a tolled I-64 and using other parallel routes instead). The tolls are not expected to result in increased volumes at any locations on the I-64 mainline. Therefore, although this analysis indicated possible reductions to traffic on the I-64 corridor, these reductions are not projected to change the number of lanes needed to achieve a Level of Service "C" or better in the future year 2040 from those indicated for the General Purpose Lane Alternatives. Therefore, the proposed disturbance limits for Alternatives 2A/2B will be the same as Alternatives 1A/1B respectively.

Alternative 3 Managed Lanes & General Purpose Lanes Alternative - This alternative involves the addition of a barrier separated, reversible two-lane facility located in the median and/or in between the eastbound and westbound general

purpose travel lanes. As previously described, not all sections of the corridor have sufficient median area to accommodate the addition of two managed lanes. In these areas, the facility is proposed to be widened to the outside in order to accommodate the managed lanes in between the eastbound and westbound general purpose travel lanes. There are also numerous possible locations along the corridor where these lanes can be placed. However for the purpose of examining a worst-case scenario, this two-lane reversible managed lane facility is assumed to stretch for the entire length of the I-64 corridor from I-95 in Richmond to I-664 in Hampton. This study will not identify what type of managed lanes (HOV, HOT or Express Toll Lanes) will be constructed. If Alternative 3 is selected, then the type of managed lanes will be determined after completion of the EIS and after further investigations are completed. The number and locations for access points to these lanes will also be further investigated if this alternative is selected.

In addition to the barrier separated, reversible two-lane facility located in the median, additional general purpose lanes were also included, where needed, to achieve an overall acceptable Level of Service for the facility. Although there are numerous possible combinations for adding these lanes, the analysis focused on the conditions which would result in the widest area of proposed disturbance. Therefore, any additional general purpose lanes required were added to the outside of the existing general purpose lanes. In addition to these mainline improvements, Alternative 3 also includes the same improvements to the 25 interchanges as described in Alternatives 1A/1B.

Air Quality Methodology

For this methodology, the procedures identified in VDOT's *Consultant Guide – Air Quality Project-Level Analysis, May 2009 (Revision 18)*, and in US EPA and FHWA general guidance, will be followed as necessary.

In order to identify the worst-case locations to be included in the analysis, a number of factors were considered. As part of this process, detailed traffic projections were developed for each alternative to be included in the assessment. Overall, the traffic forecasts developed for the mainline section of I-64 for the interim year 2020 and for the future year 2040 conditions for Alternatives 1A/1B are projected to be higher than Alternatives 2A/2B. As such, the selection of the interchange and intersection areas to be included in the analysis was based on the worst-case traffic projections under Alternatives 1A/1B. Traffic forecasts developed for Alternatives 2A/2B are projected to be lower than Alternatives 1A/1B due to users diverting the tolls. As indicated in the attached Toll Diversion Analysis Summary, the percent decrease in traffic on I-64 also increases as the toll rate per mile increases. As such, it can be assumed that the highest CO projections along the project corridor will occur under Alternatives 1A/1B, due to higher projected traffic volumes, as compared to Alternatives 2A/2B.

As stipulated by EPA guidance, worst-case locations will be selected for analysis based on assessments of where human activity is likely to coincide with the highest CO concentrations. If the worst-case intersections/interchanges selected for analysis do not show an exceedance of the carbon monoxide (CO) national ambient air quality standards (NAAQS) using the highest projected traffic volumes under Alternatives 1A/1B, then it is assumed that all locations under Alternative 2A/2B within the project corridor will also remain below the CO NAAQS. Therefore, it is recommended that Alternatives 2A/2B be discussed qualitatively in this manner in the air study, since CO concentrations will be lower under these alternatives.

Noise Analysis Methodology

Using the same rationale outlined in the Air Quality Methodology, the Study Team is proposing to qualitatively study the noise impacts associated with Alternatives 2A/2B. As previously described, traffic forecasts developed for Alternatives 2A/2B are projected to be lower than Alternatives 1A/1B due to users diverting the tolls. As indicated in the attached Toll Diversion Analysis Summary, the percent decrease in traffic on I-64 also increases as the toll rate per mile increases.

In support of a qualitative approach, a sensitivity analysis was completed using TNM to model Alternatives 1A/1B and 2A/2B to make comparisons. Using the highest tolling rate, the traffic forecasts show a maximum diversion of 16% between Exits 243 and 247. East of this area also has a high diversion rate, ranging from 7.7% (between Exits 234 and 238) to 12% (between Exits 238 and 242). Using these diversion rates, approximate traffic volumes were developed for Alternatives 2A/2B, as shown in Table 1. A sample of noise sensitive receptors was selected along these portions of the corridor to determine the degree of change. Twenty-one receptors were selected and modeled with traffic volumes from Alternative 1A/1B and 2A/2B. As shown in Table 2, the greatest change in noise levels based on the traffic diversions is only 0.8 dB(A). This reduction occurs in the segment forecasted to have the highest traffic diversion of 16%. This segment also contains very few noise sensitive receptors, only a total of 5, representing 2 jails and approximately 20 single family residences. In addition, the overall results do not change greatly between the two alternatives. The majority of the sites that were impacted under Alternative 1A/1B were also impacted under Alternative 2A/2B. The few sites that did change from an impact to no impact would not greatly affect the noise abatement process, as these sites were within a CNE that would still warrant noise abatement consideration.

The findings of the noise analysis being completed for the I-64 EIS are based on conceptual information. A Final Design Noise Analysis will be performed for this project based on detailed engineering information. Thus, any conclusions

derived in this analysis should be considered preliminary in nature and subject to change.

Table 1
Traffic Volumes Showing Worst Case Traffic Reductions from Tolling

Location		Alt 1A/1B Volume			Reduction	Alt 2A/2B Volume		
From	To	Cars	MT	HT		Cars	MT	HT
WB Exit 234	WB Exit 238	2427	26	102	7.7%	2240	24	94
EB Exit 234	EB Exit 238	3749	41	330	7.7%	3461	38	304
WB Exit 238	WB Exit 242	2698	28	114	12%	2374	25	100
EB Exit 238	EB Exit 242	3626	40	319	12%	3191	35	281
WB Exit 243	WB Exit 247	3601	38	152	16%	3024	32	127
EB Exit 243	EB Exit 247	4036	44	355	16%	3390	37	298

Table 2
Noise Levels for Selected Sites Based on Traffic
for Build Alternative 1A/1B and Build Alternative 2A/2B Alternatives

Site	Location	Alt 1A/B Level	Impact	Alt 2A/B Level	Impact	Difference
160	Exit 234 to Exit 238	70	Y	70	Y	-0.3
41R2	Exit 234 to Exit 238	68	Y	67	Y	-0.3
163	Exit 234 to Exit 238	74	Y	74	Y	-0.4
164	Exit 234 to Exit 238	63	N	63	N	-0.3
166	Exit 234 to Exit 238	62	N	62	N	-0.4
47R1	Exit 238 to Exit 242	66	Y	65	N	-0.5
45R1	Exit 238 to Exit 242	70	Y	69	Y	-0.5
170	Exit 238 to Exit 242	66	Y	65	N	-0.6

173	Exit 238 to Exit 242	69	Y	69	Y	-0.5
175	Exit 238 to Exit 242	63	N	63	N	-0.6
176	Exit 238 to Exit 242	73	Y	72	Y	-0.5
177	Exit 238 to Exit 242	67	Y	66	Y	-0.5
178	Exit 238 to Exit 242	65	N	64	N	-0.5
181	Exit 238 to Exit 242	70	Y	69	Y	-0.5
183	Exit 238 to Exit 242	66	Y	65	N	-0.6
187	Exit 238 to Exit 242	70	Y	69	Y	-0.5
188	Exit 238 to Exit 242	73	Y	72	Y	-0.5
200	Exit 238 to Exit 242	66	Y	65	N	-0.6
202	Exit 243 to Exit 247	66	Y	66	Y	-0.5
204	Exit 243 to Exit 247	66	Y	65	N	-0.8
205	Exit 243 to Exit 247	67	Y	67	Y	-0.8

* Shaded area indicates sites that change from being impacted to not impacted when comparing Build Alternatives 1A/1B to Build Alternatives 2A/2B

I-64 Peninsula Study

Toll Diversion Analysis Summary

INTERSTATE 64 PENINSULA STUDY

Memorandum: **Toll Diversion Analysis Preliminary Results**

Date: **May 18, 2012**

Scenarios Analyzed:

- Build Alternatives 2A/2B – I-64 Widening With Full Tolling
- Reversible HOT lane (analysis to be completed)

Tools Used:

- VDOT's Superregional Tidewater Model (SRTW) daily assignment model

Key Assumptions:

- Fixed, distance-based toll for both directions of the entire facility (I-95 in Richmond to I-664 in Hampton)
- Toll rates uniform for all segments (for example, with toll-collection gantries placed between each and every interchange within the corridor)
- Tolls collected at highway speeds
- Uniform rate for all vehicles (no higher truck rates)
- Toll rates based current rates for similar facilities in Northeast:

Facility	*Length of full trip (mi)*	*Toll*	*Rate/mile*
Dulles Toll Road	16.2	$ 1.50	$ 0.093
Dulles Greenway (peak)	12.5	$ 4.80	$ 0.383
Dulles Toll Road & Greenway	28.7	$ 6.30	$ 0.220
ICC (peak)	14.1	$ 4.00	$ 0.285
Delaware Route 1 (weekdays)	51	$ 2.00	$ 0.039
Delaware Turnpike	11.2	$ 4.00	$ 0.357
I-95/JFK (Maryland, one way)	48	$ 6.00	$ 0.125
DE I-95 & MD I-95, one way	59.2	$ 10	$ 0.169
New Jersey Turnpike	113	$ 13.85	$ 0.123
DE I-95 & MD I-95, round-trip	118	$ 14	$ 0.118

- Assumed Average Rate for I-64 EIS (based on highlighted regional toll rates): $0.15/mile
- Sensitivity runs conducted: 50% higher and 50% lower ($0.075/mile and $0.225/mile)
- While the toll rate for the Delaware Turnpike was included in the summary of toll rates, it was not factored into the overall average. The Delaware Turnpike per-mile toll rate is an outlier, and its toll could be regarded more as a single-point toll bridge rather than a

mileage-based toll facility. A rate of 35 cents/mile is considerably higher than any other non-peak toll rate currently being charged in the US for passenger cars. The toll rates were coded in 2011 dollars, and not adjusted for future years for consistency with value of time assumptions

Preliminary Results:

Table 1
Daily volume changes at select locations along I-64

Exit		*Segment*	*Assumed Toll Rate*		
From	*To*		*7.5 ¢/mi*	*15 ¢/mi*	*22.5 ¢/mi*
192	193	US 360 to Nine Mile Road	-0.1%	-0.1%	-0.1%
194	195	Stony Run Parkway to Laburnum Road	-0.1%	-0.1%	0.0%
195	197	Laburnum Road to VA 156	-0.1%	-0.1%	0.0%
214	220	VA 155 to VA 33 (West Point)	-0.6%	-1.3%	-2.3%
234	238	VA 199 to VA 143	-2.1%	-4.9%	-7.7%
238	242	VA 143 to VA 199	-4.3%	-8.4%	-12%
243	247	Busch Gardens to Yorktown	-4.2%	-9.5%	-16%
250	255	VA 105 to VA 143	-1.3%	-2.1%	-3.1%
256	258	Victory Boulevard to J Clyde Morris Blvd	-1.2%	-2.3%	-3.5%
262	263	Magruder Boulevard to Mercury Boulevard	-1.5%	-3.7%	-5.5%

Table 2
Daily volume changes at select locations along US 60

Exit		*Segment*	*Assumed Toll Rate*		
From	*To*		*7.5 ¢/mi*	*15 ¢/mi*	*22.5 ¢/mi*
192	193	US 360 to Nine Mile Road	-0.2%	-0.1%	-0.4%
194	195	Stony Run Parkway to Laburnum Road	-0.1%	-0.1%	0.0%
195	197	Laburnum Road to VA 156	2.2%	4.0%	6.7%
214	220	VA 155 to VA 33 (West Point)	6.2%	18%	33%
234	238	VA 199 to VA 143	-0.4%	1.1%	1.9%
238	242	VA 143 to VA 199	2.6%	6.5%	11%
243	247	Busch Gardens to Yorktown	-0.3%	0.9%	3.1%
250	255	VA 105 to VA 143	1.5%	2.9%	3.3%
256	258	Victory Boulevard to J Clyde Morris Blvd	1.2%	1.5%	4.3%

Key Observations:

- Largest reductions in traffic volumes on I-64 projected to occur on "eastern" section of I-64 (east of Exit 214).
- Network congestion and lack of parallel alternate routes limit opportunity for diversion in Richmond area

- Other free parallel alternate routes such as VA Route 5 and US 17 are not projected to see major diversion of traffic from I-64 - Although TSM1 showed some diversion to VA 5, the significant additional time this route adds to long-distance trips between Richmond and Hampton Roads limits its attractiveness as a primary alternate route. US 17 is not modeled in its entirety within TSM1 as a parallel route to I-64 and I-95; consequently, it is not possible to evaluate the level of diversion to this facility.
- Negligible impact on US 460 - The raw assignment in TSM1 showed very little change in daily volumes, which is in line with previous studies and in line with expectations. A select link analysis along I-64 showed approximately 10 percent of all trips originating and ending in Richmond and Hampton Roads (and beyond). This indicates that I-64 and US 460 compete for a limited number of true long-distance trips. The considerable additional distance that US 460 adds to a trip between Richmond and Hampton roads further limits the attractiveness of US 460 as a viable parallel route. US 460 was coded as a tolled, upgraded facility. It should be noted that the trip table in TSM1 is constructed from the individual models' trip tables; the conversion process may have resulted in underestimation of long-distance trips. In addition, TSM1 does not assign truck traffic, which may react differently to toll than passenger cars. Given the modeling tools currently available for this project, we believe the results are reasonable; however, we recommend that all forecasts be reviewed when TSM2 becomes available.

Impacts on Level of Service:

- If we assume that peak hour traffic diversion will be identical to daily traffic volume diversion, less widening may be required to achieve acceptable LOS (see attached spreadsheet). However, **this assumption must be considered carefully, as peak hour network congestion will make alternate routes less attractive, and daily model results may overstate the level of diversion during peak hours.**

Assumptions Used For Air Quality Analysis

1. For the CAL3QHC models' meteorology condition along the I-64 Study Corridor adjacent to Exit 238 and Exit 243, Wind Stability Class E was used to represent a stable atmosphere as well as low wind speeds. Class E conditions are typically associated with "rural" settings and are consistent with the Consultant Guide. Wind direction was modeled from all directions using a 10-degree increment angle (0-360 degrees).

2. For the CAL3QHC models' meteorology condition along the I-64 Study Corridor, Wind Stability Class D was used to represent a neutral stability as well as low wind speeds and all remaining interchanges and intersections. Class D conditions are typically associated with urban settings and were applied to the two signalized intersection CO hot-spot analyses. Wind direction was modeled from all directions using a 10-degree increment angle (0-360 degrees).

3. The site characteristic (surface roughness) along I-64 in select locations was modeled as an "urban" land environment using a 175 cm coefficient, which typically is a measure of the height of obstacles to the wind flow. This coefficient was applied to one signalized intersection (Exit 255) as well as for interchange Exits 190, 261 and 263 for each analysis condition.

4. The site characteristic (surface roughness) along I-64 adjacent to Exit 238 and 243 was modeled as a "rural" land environment using an 11 cm coefficient. Both surface roughness coefficients are in accordance with the Consultant Guide.

5. For all queue link parameters, an "average" driver behavior was used for existing, no-build and all build scenarios.

6. Based on the Consultant Guide, a background CO concentration of 3.0 ppm was assumed and added to the CO concentrations predicted by the computer modeling effort for existing, no-build and build conditions. Areas in the eastern part of the project corridor were assumed to have a background CO concentration of 3.6 ppm. Additionally, 0.7 persistence factor was used to project 8-hour CO concentrations, as stipulated in VDOT and EPA guidance.

7. File of age distribution of vehicle registrations for 2011 were provided by VDOT environmental staff for each jurisdiction in the project area.

8. If all analysis areas for all scenarios are below the National Ambient Air Quality Standards (NAAQS) for CO, than it is assumed that all other parts of the corridor will also remain below the thresholds.


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