VIRGINIA DEPARTMENT OF TRANSPORTATION

FAIRFAX COUNTY PARKWAY INTERCHANGE IMPROVEMENTS

STATE PROJECT: 0095-029-890, P101; UPC 96259

FINAL REPORT

AIR QUALITY TECHNICAL STUDY

Interchanges of Fairfax County Parkway (Route 286) with Interstate 95 & Rolling Road (Route 638)/Franconia-Springfield Parkway (Route 289)
Fairfax County, Virginia

Prepared for:

Virginia Department of Transportation
Environmental Division
1401 East Broad Street
Richmond, VA 23219

APRIL 2012

Virginia Department of Transportation
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I. Introduction

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 federal air quality standards for carbon monoxide (CO) and ozone (O_3).

As a result of federal funding for this project, compliance is required with both the National Environmental Policy Act (NEPA) and the U.S. Environmental Protection Agency (EPA) Transportation Conformity Rule. 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 (NOx) emissions fall below the established motor vehicle emission budgets identified by the State Implementation Plan (SIP). When applicable, this assessment is performed by the Virginia Department of Transportation (VDOT) and / or regional planning commissions and documented in the Transportation Improvement Program (TIP) and Long Range Transportation Plan (LRTP). The project lies within the VA-DC-MD 8-hour ozone and fine particulate matter ($PM_{2.5}$) nonattainment area; therefore, conformity requirements apply.

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.

As published in a VDOT news release (NR12-17) on February 16, 2012, the Fairfax County Parkway (Route 7100), which runs from Route 1 to Route 7, will be renamed Route 286. In addition, the Franconia-Springfield Parkway (Route 7900), which runs from Beulah Road to the Fairfax County Parkway, will be renamed Route 289. Over the course of the next three months, VDOT will replace sings with the new route numbers along each corridor. For consistency with this VDOT news release, both roadways will be referred to as Route 286 and Route 289 throughout the remainder of this report.

II. Project Description / Alternatives

Project Study Area

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is studying improvements to two existing interchanges on the Fairfax County Parkway (Route 286). The first involves constructing a new flyover ramp at the Interstate 95 (I-95) interchange (Exit 166) for traffic moving from northbound I-95 to westbound Fairfax County Parkway. That movement currently is made using a loop ramp in the northeast quadrant of the interchange. The second

involves expanding the existing single-lane loop ramp in the northeast quadrant of the Rolling Road/Franconia-Springfield Parkway/Fairfax County Parkway interchange, which carries traffic from northbound and southbound Rolling Road to westbound Fairfax County Parkway to two lanes. With the recent completion of the section of Fairfax County Parkway through the U.S. Army's Fort Belvoir North Area (formerly known as Engineer Proving Ground), northbound traffic on that facility will use the expanded ramp to access westbound Fairfax County Parkway. **Figure 1** shows the location of the project. The study area consists of lands surrounding these two proposed project elements on which there are human activities that could potentially be affected by the project.

ALTERNATIVES:

No-build Alternative

Under the No-build Alternative, no improvements to the subject interchange ramps would be implemented. For this alternative, the existing transportation system plus all other projects funded for construction in the National Capital Region's Financially Constrained Long Range Transportation Plan (CLRP) are assumed to be in place. Thus, the following projects are assumed to have been constructed by the design year of 2040:

- **I-95/I-395 HOV/Bus/HOT Lanes Project.** Construct a third lane along existing two high occupancy vehicle (HOV) lanes and convert HOV lanes to HOV/Bus/HOT (high occupancy toll) lanes. The limits of each of the three improvement areas are identified below:
    - Widen existing I-95 HOV lanes from two to three lanes across 14 miles between the Prince William Parkway to approximately two miles north of the Springfield Interchange in the vicinity of Edsall Road.
    - Make improvements to the existing two HOV lanes for six miles from Route 234 to the Prince William Parkway.
    - Extend a two-lane 9-mile extension of the existing HOV lanes from Dumfries to Garrisonville Road in Stafford County.
- **Defense Access Roads (DAR) Ramps.** Construct a new access ramp from I-95 to the Fort Belvoir North Area. The proposed project would include a new connection between Heller Road on the eastern side of the Fort Belvoir North Area and the existing flyover bridge that connects the HOV lanes with the northbound I-95 general-purpose lanes.
- **Fairfax County Parkway/Franconia-Springfield Parkway High Occupancy Vehicle (HOV) Lanes.** Construct a single HOV lane in each direction between Sydenstricker Road (Route 640) and Frontier Drive (which is east of I-95 at the Franconia-Springfield Metro Station, the southernmost stop on the Washington Metropolitan Area Transit Authority's regional rail system).
- **Rolling Road Widening.** Widen existing road from two to four lanes from Fairfax County Parkway northward to Old Keene Mill Road (Route 644).

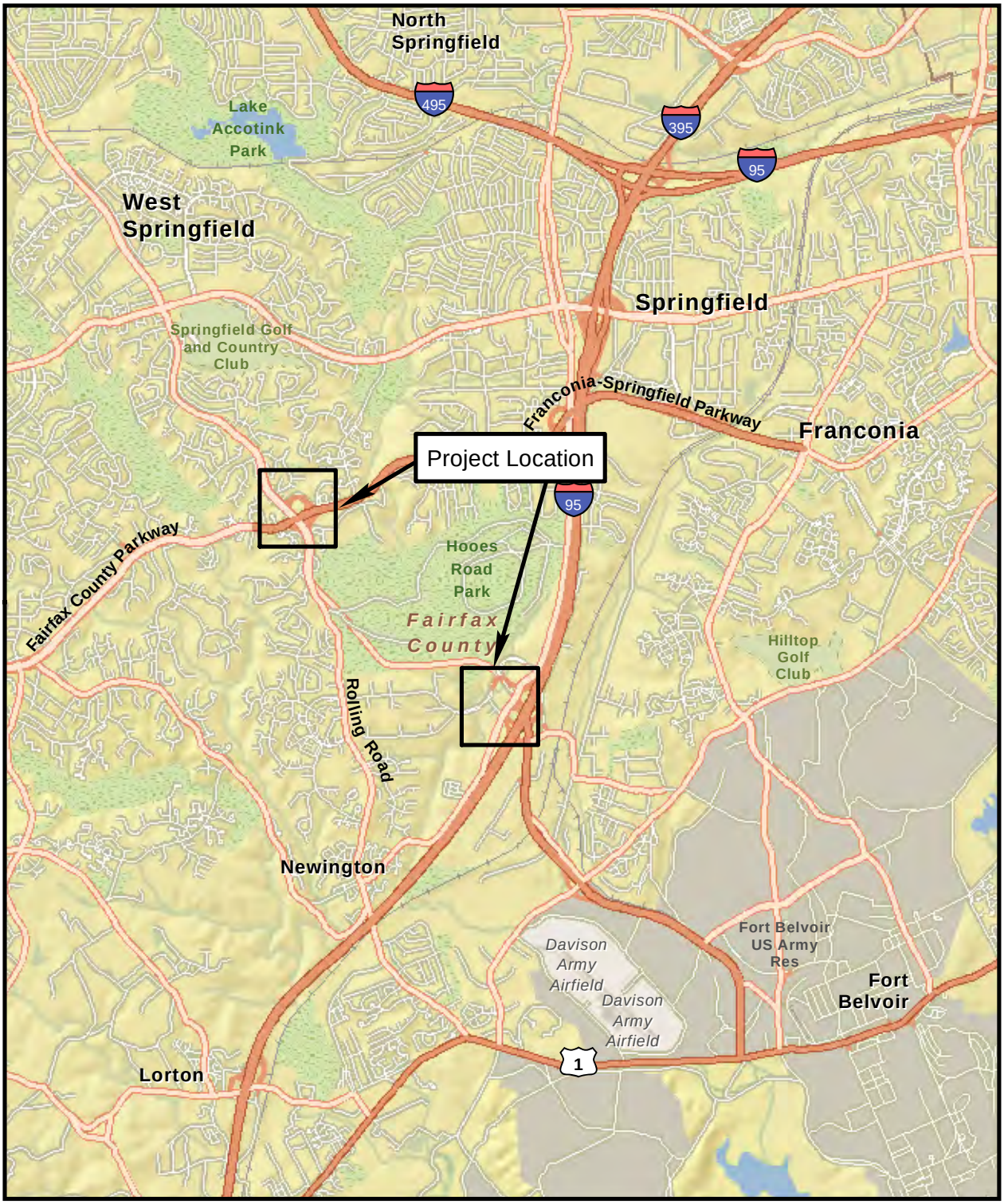


Figure 1
Regional Location Map
Fairfax County Parkway Interchange Improvements Project

Fairfax County, Virginia

N W E S

0 0.5 1 Mile

Proposed Build Alternatives

The proposed build alternatives are approximately two miles apart in Fairfax County, Virginia. The improvement at the Fairfax County Parkway (Route 286) and I-95 (Exit 166) interchange consists of a single-lane flyover ramp to carry traffic exiting northbound I-95 to go west on Fairfax County Parkway. The diverge point for this ramp and diverge point for the existing I-95-to-eastbound-Fairfax County Parkway would be combined into a single diverge point to facilitate getting traffic off I-95 and to avoid introducing an additional diverge point. A single diverge point for the Fairfax County Parkway westbound and eastbound off-ramps is the preferred solution to minimize impacts on the I-95 mainline traffic flow. The conceptual design would preclude traffic on the flyover ramp from accessing Backlick Road or the future Boudinot Drive interchange. This is to avoid conflicts with traffic entering Fairfax County Parkway from the right and weaving movements at the Boudinot Drive interchange. To provide for the Backlick Road and Boudinot Drive interchange access, two design options are being considered:

- **Option 1.** The first option would involve leaving the existing loop ramp open so that I-95 northbound traffic could continue to reach northbound Backlick Road and also access the future Boudinot Drive interchange, as shown on **Figure 2A**.
- **Option 2.** The second option would involve eliminating the existing loop ramp and constructing left-turn lanes at the terminus of the existing ramp from I-95 northbound to eastbound Fairfax County Parkway and Loisdale Road. Left turns are not currently permitted at this intersection. Option 2 can be referenced on **Figure 2B**.

The second improvement is located approximately two miles northwest at the Rolling Road (Route 638) / Franconia-Springfield Parkway (Route 289) interchange and consists of the widening of the inside loop ramp from one to two lanes and minor improvements to the Fairfax County Parkway, as shown in **Figure 3**.

III. Existing Conditions

The proposed project is located in northern Virginia in Fairfax County. The area is best categorized as a humid subtropical climate that averages approximately 43 inches of precipitation per year. The average daily high temperature in July is 90 degrees Fahrenheit while the average daily low temperature in January is 23 degrees Fahrenheit.

Traffic Summary Information

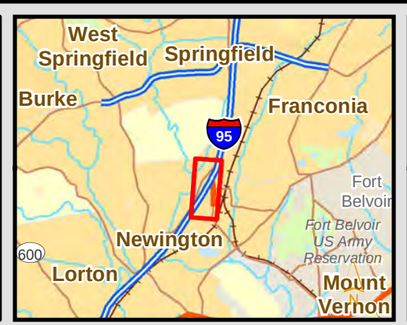
Traffic forecasts were revised for the project for Existing (2011), Interim/Opening Year No-Build (2020), Interim/Opening Year Build (2020), Design Year No-Build (2040), and Design Year Build (2040) conditions for both interchange locations. The traffic operations for the network were evaluated using SYNCHRO and VISSIM and volumes were adjusted based on actual operating conditions of the intersection. The traffic volumes used in the CO analysis are based on the preliminary AM and PM peak traffic volume projections used by the Project Team and as presented in the SYNCHRO reports.

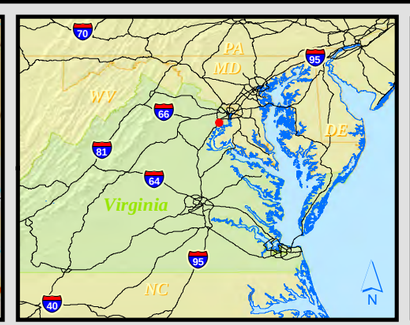
Air Quality Receptor

Proposed New Alignment

0 300 600 Feet

0 36 72 108 144 180 Meters





Fairfax County Parkway Interchange Improvements
I-95 / Fairfax County Parkway Interchange - Option 1

State Project:0095-029-890, P101; UPC 96259

VDOT Virginia Department of Transportation

Figure 2A

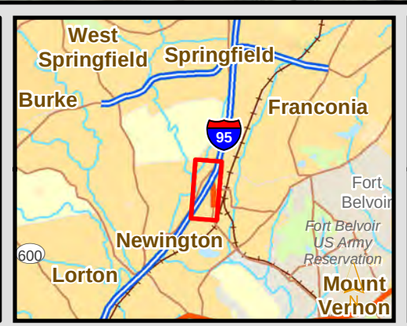
Fairfax County, Virginia
Aerial Source: VBMP 2011 Preliminary Imagery
AERIAL IMAGERY COPYRIGHT 2011 COMMONWEALTH OF VIRGINIA

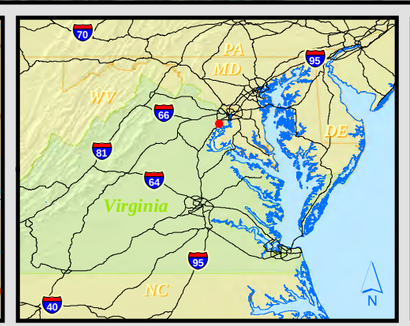
Air Quality Receptor

Proposed New Alignment

0 300 600 Feet

0 36 72 108 144 180 Meters





Fairfax County Parkway Interchange Improvements
I-95 / Fairfax County Parkway Interchange - Option 2

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Figure 2B

Fairfax County, Virginia
Aerial Source: VBMP 2011 Preliminary Imagery
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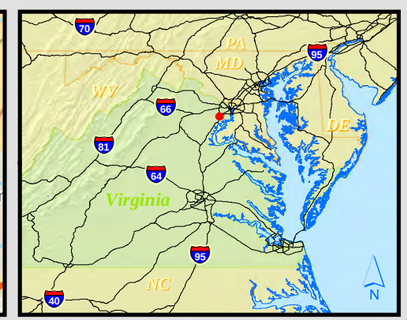
Air Quality Receptor

Proposed New Alignment

N W E S

0 300 600 Feet

0 36 72 108 144 180 Meters



Fairfax County Parkway Interchange Improvements
Rolling Road / Franconia - Springfield Parkway Interchange

State Project:0095-029-890, P101; UPC 96259

VDOT Virginia Department of Transportation

Figure 3

Fairfax County, Virginia
Aerial Source: VBMP 2011 Preliminary Imagery
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IV. Regulations / Criteria

Under the National Environmental Policy Act (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 decisionmakers. The findings of the analysis, as presented in this report, are summarized in the NEPA documentation.

As implemented by the Clean Air Act, the EPA is required to set the National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and welfare. As shown in **Table 1**, there are currently two standards: Primary Standards to protect public heath and Secondary Standards to protect the public welfare (e.g., to protect against damage to crops, vegetation, buildings, and animals). Federal actions must not cause or contribute to any new violation of any standard, 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 EPA 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 is located in Fairfax County and lies within the 8-hour ozone and fine particulate matter ($PM_{2.5}$) nonattainment areas, which includes portions of Northern Virginia, Southern Maryland, and the District of Columbia.

The federal conformity rule (40 CFR Parts 51 and 93) requires air quality conformity determinations for transportation plans, programs, and projects in "non-attainment 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 ozone (O_3), carbon monoxide (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.

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 EPA's *Guideline for Modeling Carbon Monoxide from Roadway* Intersections (EPA-454/R-92-005).

EPA and FHWA issued joint guidance for conducting hot-spot analyses for particulate matter: *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (March 2006). Based on the guidance, the proposed project is not considered a "project of air quality concern," and, as such, is exempt from a qualitative assessment of $PM_{2.5}$. A detailed discussion can be found in **Section VI** of this report.

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	Same as Primary	
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)]	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour [(6)]	Same as Primary	
	0.08 ppm (1997 std)	8-hour [(7)]	Same as Primary	
	0.12 ppm	1-hour [(8)]	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 µg/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 $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.
[(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/m^3 (effective December 17, 2006).
[(6)] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentration 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 concentration 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 $\leq$ 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

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. In the original air study completed in March 2010, Average Annual Daily Traffic (AADT) volumes exceeded 59,000 at both interchange locations. However, as part of the project's reevaluation, regional traffic models were revised to include a decline in recent growth trends as well as to project Design Year 2040 volumes. As shown in **Table 2**, *Average Annual Daily Traffic (AADT) Summary*, traffic volumes no longer exceed 59,000 AADT at either interchange location. Although not required in the agreement, a quantitative CO analysis was performed as part of the detailed air quality study to remain consistent with the March 2010 assessment.

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. This project does not create new capacity or add significant capacity to urban highways, such as interstates, urban arterials, or urban collector-distributor routes with forecasted design year average annual daily traffic volumes in the range of 140,000 to 150,000 or greater, and which are also in proximity to populated areas. Furthermore, this project will not result in any meaningful changes in traffic volumes or vehicle mix or changes relative to the No-Build (2040) condition and is therefore, considered exempt from an 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 EPA regulations and guidelines. The air quality analyses presented in this report are consistent with the guide.

In 2009, the EPA 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 EPA published a Federal register notice of availability that approved MOVES2010 as the EPA's tool for estimating emissions of volatile organic compounds (VOCs), nitrogen oxide (NOx), CO, PM_{10}, $PM_{2.5}$, and other pollutants. This approval started the beginning of the two-year grace period before MOVES2010 is required for use in transportation conformity analysis.

In August of 2010, EPA approved the latest version of the MOVES model (MOVES2010a) for official use. It incorporates new car and light truck greenhouse gas emission standards that were published May 2, 2010 as well as a number of other minor improvements.

Table 2
Fairfax County Parkway Interchange Improvements
Average Annual Daily Traffic (AADT) Summary

Road	Segment	Existing (2011) ADT	Interim/Opening Year No-Build (2020) ADT	Interim/Opening Year Build (2020) ADT (Option 1)	Interim/Opening Year Build (2020) ADT (Option 2)	Design Year No-Build (2040) ADT	Design Year Build (2040) ADT (Option 1)	Design Year Build (2040) ADT (Option 2)
New Flyover Ramp	n/a	0	0	4,500	4,500	0	5,800	5,800
Existing I-95 NB Loop Off-Ramp to Backlick Rd/Fullerton Rd	Existing Exit 166B	8,400	5,600	5,600	0	7,200	7,200	0
Existing I-95 NB Off-Ramp to Fairfax County Parkway East/Ft Belvoir	Existing Exit 166A	9,200	6,100	6,100	11,700	7,800	7,800	15,000
Fairfax County Parkway (Route 286)	South of Loisdale Road	50,300	46,400	46,400	46,400	46,800	46,800	46,800
Fairfax County Parkway (Route 286) North --> I-95 NB On-Ramp	n/a	11,600	9,900	9,900	9,900	9,500	9,500	9,500
Loisdale Road	East of Fairfax County Parkway (Route 286)	14,600	15,000	15,000	15,000	16,200	16,200	16,200

Road	Segment	Existing (2011) ADT	Interim/Opening Year No-Build (2020) ADT	Interim/Opening Year Build (2020) Build ADT	Design Year No-Build (2040) ADT	Design Year Build (2040) ADT
Rolling Road	North of Fairfax County Parkway (Route 286)	29,000	30,400	30,400	32,200	32,200
Rolling Road	South of Fairfax County Parkway (Route 286)	40,100	45,900	45,900	53,200	53,200
Fairfax County Parkway (Route 286) --> Rolling Road Off-Ramp	n/a	5,800	9,200	9,200	12,000	12,000
Fairfax County Parkway (Route 286)	West of Rolling Road	61,900	65,200	65,200	69,000	69,000

NOTE: Build "Option 1" involves keeping the existing I-95 North loop ramp. Build "Option 2" accounts for closure of existing I-95 North loop ramp.

On December 20, 2010, EPA released final guidance for conducting quantitative hot-spot analyses in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas titled *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas, EPA-420-B-10-040*. After the grace period expires, the new guidance must be used by state and local agencies to conduct quantitative PM hot-spot analyses for new or expanded highway or transit projects with significant levels of diesel traffic that are located in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas. However, it was determined that this project is considered not a project of air quality concern and as such, is exempt from a quantitative analysis and has met all requirements of the March 2006 Final Rule. Addition documentation can be referenced in **Section VI** of this report.

Transportation Conformity Rule

EPA promulgated the Transportation Conformity Rule concerning the applicability, procedures, and criteria that transportation agencies must use in analyzing and determining conformity of transportation projects. The Transportation Conformity Rule applies to federally-funded transportation projects in certain areas that have violated one or more of the NAAQS (non-attainment/maintenance areas). This project lies within the VA-DC-MD 8-hour ozone and fine particulate matter ($PM_{2.5}$) nonattainment area. The project is considered regionally significant and therefore the conformity requirements apply. The appropriate documentation can be referenced in **Chapter IX** of this report.

V. Carbon Monoxide Analysis

The purpose of this study is to identify "worst-case" carbon monoxide (CO) concentrations throughout the project corridor. The proposed improvements include the addition of a flyover ramp from I-95 northbound to the Fairfax County Parkway westbound and the widening of the existing loop ramp from one to two lanes at the Rolling Road / Franconia-Springfield Parkway interchange area. Existing (2011), Interim/Opening Year No-Build (2020), Interim/Opening Year Build (2020), Design Year No-Build (2040), and Design Year Build (2040) conditions will be analyzed to determine if air quality exceedences would occur as a result of the proposed improvements.

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 EPA'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 data and historic climatic data, CO emissions are calculated using the EPA MOBILE6.2 computer model. In order to streamline this approach, FHWA's EMIT model was used to calculate CO emission rates at varying speeds for each analysis year. The projected worst-case CO emission rates are then applied to the CAL3QHC computer

model. This program is used to determine dispersion of CO from highway sources to air quality sensitive 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 factor, and background CO concentrations. This program is fully documented in the *User's Guide to CAL3QHC, Version 2.0 (EPA-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, these levels are 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 areas were modeled under existing and future traffic conditions. As stipulated by EPA'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*, input will include local vehicle registration data for 2008 or the latest approved data, fuel quality (sulfur and Reid Vapor Pressure), and other applicable data. The average January temperature will be used as specified in the guidance. Other applicable data will be kept at EPA defaults where appropriate. The modeling inputs used for MOBILE6.2 and CAL3QHC are summarized in **Table 3** and **Table 4**. Additionally, **Table 5** summarizes the worst-case CO emission rates that were used for each analysis year to predict worst-case CO concentrations throughout the project corridor.

CO Receptor Locations

As stipulated by EPA'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 where the general public has continuous access over specific time periods;
- Select reasonable receptor locations.

As referenced in EPA'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. Areas were selected based on generalized assessments of where human activity is likely to coincide with the highest CO concentrations.

Table 3
Inputs to MOBILE6.2

Parameter	Data
Evaluation Month	January
Evaluation Season	2
Min/Max Temperature (Fahrenheit)	22/22
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 4
CAL3QHC Worst-Case Inputs

Parameter		Data
Surface Roughness Coefficient		175 cm
Background CO Concentrations (parts per million) Urban Areas (Northern Virginia)	1-hour	2.9 ppm
	8-hour	2.3 ppm
Wind Speed (meters per second)		1 m/s
Stability Class		Urban - D
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 5
MOBILE6.2 Outputs
Summary of CO Emission Rates

Location	Speed (mph)	Analysis Year 2011	2020	2040
Fairfax County	2.5	102.844	80.979	78.937
	25	16.382	13.298	12.996
	35	16.194	13.071	12.777
	45	17.147	13.842	13.533
	50	17.646	14.245	13.928
	55	18.159	14.661	14.334
	60	18.722	15.121	14.785
	65	19.309	15.600	15.254

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

Typical areas selected for the analysis include residential yards, open areas, and outdoor use areas adjacent to a motel. If the worst-case areas selected in the analysis are below the NAAQS, it is assumed that all other sections of the corridor will also remain below the thresholds. **Figure 2A**, **Figure 2B**, and **Figure 3** show the sensitive receptor locations selected for the analysis at each interchange location.

The 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 adjacent to each interchange location. The project area is comprised of an urban environment, which consists of local street systems as well as collector-distributor roads that parallel the project corridor. Potential traffic queues between interchanges along the mainline 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 the I-95 and the Fairfax County Parkway as well as local arterial roadways and other merge areas.

EPA guidance for selecting intersection locations for analysis suggests ranking the top intersection locations based on traffic volumes and level of service (LOS). Using an analysis area radius of 1,000 feet around potential receptors, traffic impacts for most potential receptor locations are adjacent to both interchange locations. For the purposes of this assessment and based on the proposed improvements, it was also assumed that both interchange areas would be included in the air study. Therefore, the traditional ranking of intersections was not necessary as part of this assessment.

Analysis Methodologies & Results

The CAL3QHC computer dispersion model was used to predict the 1-hour CO concentrations at the receptor locations shown in **Table 6**, **Figure 2A**, **Figure 2B**, and **Figure 3** for Existing (2011), Interim/Opening Year No-Build (2020), Interim/Opening Year Build (2020), Design Year No-Build (2040), and Design Year Build (2040) conditions. All traffic input was provided by Parsons Transportation Group.

Worst-case traffic operations and atmospheric conditions were incorporated to predict existing, worst-case CO concentrations. Based on review of the supplied traffic data, the CO modeling analysis for the project corridor focused on the PM-peak conditions. Maximum CO concentrations, calculated by adding together the background concentration to the CO concentration projected for all years considered in the analysis area, are shown in **Table 7** and **Table 8**. The 1-hour background concentration, 2.9 ppm, was derived from VDOT's *Consultant Guide*. Additionally, a persistence factor of 0.7 was used to project the 8-hour CO concentrations at each interchange location.

As shown in **Table 7**, adjacent to the Fairfax County Parkway and I-95 interchange area (**Figure 2A** and **Figure 2B**), the highest 1-hour and 8-hour CO concentrations under Existing (2011) conditions were projected to be 7.3 and 5.1 ppm, respectively, including the assumed background concentration of 2.9 ppm for the 1-hour standard. Under Interim/Opening Year No-Build (2020) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.5 and 4.6 ppm, respectively. Under Option 1 Interim/Opening Year Build (2020) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.5 and 4.6 ppm, respectively. Under Option 2 Interim/Opening Year Build (2020) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.5 and 4.6 ppm, respectively. Under Design Year No-Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.7 and 4.7 ppm, respectively. Under Option 1 Design Year Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.5 and 4.6 ppm, respectively. Under Option 2 Design Year Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.6 and 4.6 ppm, respectively. The highest CO concentrations for all analysis years were projected at receptor site 1D, which represents open areas / parking lots.

The second project location is located approximately two miles northwest at the Rolling Road (Route 638) / Franconia-Springfield Parkway (Route 289) interchange area (**Figure 3**). The results of the analysis are also shown in **Table 8**. Including the assumed background concentration of 2.9 ppm for the 1-hour standard, the highest 1-hour and 8-hour CO concentrations under Existing (2011) conditions were projected at 4.8 and 3.4 ppm, respectively. Under Interim/Opening Year No-Build (2020) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 4.8 and 3.4 ppm, respectively. Under Interim/Opening Year Build (2020) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 4.7 and 3.3 ppm, respectively. Under Design Year No-Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 4.8 and 3.4 ppm, respectively. Under Design Year Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 4.7 and 3.3 ppm, respectively. The highest CO concentration for Existing (2011),

Table 6
Sensitive Receptor Locations Selected for the Carbon Monoxide Analysis

Receptor Location	Receptor ID	Land Use	Receptor Site Description	Pedestrian Activity Level
Fairfax County Parkway / Loisdale Road Intersection	1A- 1G	Open areas / parking lots	Southeast quadrant, impact possible due to traffic queues at signal	Moderate
Fairfax County Parkway / Loisdale Road Intersection	1H - 1N	Open areas / parking lots	Northeast quadrant, impact possible due to traffic queues at signal	Moderate
Fairfax County Parkway / Loisdale Road Intersection	1O - 1R	Open area	Southwest quadrant, impact possible due to traffic queues at signal	Low
Rolling Road / Spring Forest Court Intersection	2A - 2D	Single family townhomes along Tanworth Drive	Northwest quadrant, impact possible due to traffic queues at signal	Moderate to High
Rolling Road / Spring Forest Court Intersection	2E - 2H	Single family townhomes along Spring Forest Court	Southwest quadrant, impact possible due to traffic queues at signal	Moderate to High
Rolling Road / Spring Forest Court Intersection	2I - 2J	Single family townhomes along Wentworth Place	Northeast quadrant, impact possible due to traffic queues at signal	Moderate to High
Hunter Village Drive	2K	High density residential area	East quadrant, impact possible due to traffic queues near off-ramp	Moderate to High

Table 7
Fairfax County Parkway / I-95 Interchange Location
Carbon Monoxide Analysis
1-Hour and 8-Hour CO Level Summary (ppm)

		Existing (2011)		Interim/Opening Year No-Build (2020)		Option 1 Interim/Opening Year Build (2020)		Option 2 Interim/Opening Year Build (2020)		Design Year No-Build (2040)		Option 1 Design Year Build (2040)		Option 2 Design Year Build (2040)	
	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
Fairfax County Parkway / I-95 Interchange Location	1A	6.7	4.7	6.0	4.2	6.0	4.2	5.9	4.1	6.1	4.3	6.0	4.2	6.0	4.2
	1B	7.0	4.9	6.1	4.3	6.1	4.3	6.2	4.3	6.4	4.5	6.2	4.3	6.2	4.3
	1C	7.0	4.9	6.0	4.2	6.0	4.2	6.1	4.3	6.2	4.3	6.1	4.3	6.2	4.3
	1D	7.3	5.1	6.5	4.6	6.5	4.6	6.5	4.6	6.7	4.7	6.5	4.6	6.6	4.6
	1E	6.5	4.6	6.0	4.2	6.0	4.2	6.0	4.2	6.2	4.3	6.1	4.3	6.1	4.3
	1F	5.5	3.9	5.3	3.7	5.3	3.7	5.3	3.7	5.4	3.8	5.3	3.7	5.3	3.7
	1G	6.2	4.3	5.8	4.1	5.8	4.1	5.8	4.1	6.5	4.6	6.4	4.5	6.4	4.5
	1H	4.6	3.2	4.5	3.2	4.5	3.2	4.5	3.2	4.5	3.2	4.5	3.2	4.5	3.2
	1I	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
	1J	5.9	4.1	5.3	3.7	5.3	3.7	5.3	3.7	5.4	3.8	5.4	3.8	5.4	3.8
	1K	7.1	5.0	6.3	4.4	6.3	4.4	6.3	4.4	6.4	4.5	6.2	4.3	6.3	4.4
	1L	6.7	4.7	6.2	4.3	6.2	4.3	6.2	4.3	6.4	4.5	6.2	4.3	6.2	4.3
	1M	6.5	4.6	5.9	4.1	5.9	4.1	5.9	4.1	6.1	4.3	6.0	4.2	6.0	4.2
	1N	5.8	4.1	5.3	3.7	5.3	3.7	5.4	3.8	5.5	3.9	5.4	3.8	5.4	3.8
	1O	5.2	3.6	4.9	3.4	4.9	3.4	5.1	3.6	4.9	3.4	4.9	3.4	4.9	3.4
	1P	5.0	3.5	4.8	3.4	4.8	3.4	5.0	3.5	4.9	3.4	4.8	3.4	5.1	3.6
	1Q	5.1	3.6	4.7	3.3	4.7	3.3	4.8	3.4	4.9	3.4	4.8	3.4	5.0	3.5
	1R	5.1	3.6	4.7	3.3	4.7	3.3	4.7	3.3	4.8	3.4	4.7	3.3	4.7	3.3

Notes:
1. 1-Hour and 8-Hour concentrations shown above are in parts per million (ppm).
2. 1-Hour concentrations predicted using CAL3QHC computer dispersion model and assumes a background concentration of 2.9 ppm.
3. 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 Guidelines for Modeling Carbon Monoxide from Roadway Intersections, EPA, November 1992.
4. Highligted cells represent the highest CO concentrations per analysis year.

Table 8
Rolling Road / Franconia-Springfield Parkway Interchange Location
Carbon Monoxide Analysis
1-Hour and 8-Hour CO Level Summary (ppm)

		Existing (2011)		Interim/Opening Year No-Build (2020)		Interim/Opening Year Build (2020)		Design Year No-Build (2040)		Design Year Build (2040)	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Rolling Road / Franconia-Springfield Parkway Interchange Location	2A	3.9	2.7	3.9	2.7	4.0	2.8	4.0	2.8	4.1	2.9
	2B	4.2	2.9	4.1	2.9	4.1	2.9	4.1	2.9	4.3	3.0
	2C	4.6	3.2	4.3	3.0	4.3	3.0	4.3	3.0	4.4	3.1
	2D	4.5	3.2	4.4	3.1	4.3	3.0	4.3	3.0	4.5	3.2
	2E	4.3	3.0	4.3	3.0	4.2	2.9	4.4	3.1	4.6	3.2
	2F	4.3	3.0	4.3	3.0	4.3	3.0	4.4	3.1	4.6	3.2
	2G	4.7	3.3	4.5	3.2	4.6	3.2	4.6	3.2	4.7	3.3
	2H	4.8	3.4	4.8	3.4	4.7	3.3	4.8	3.4	4.7	3.3
	2I	4.5	3.2	4.2	2.9	4.3	3.0	4.2	2.9	4.5	3.2
	2J	4.1	2.9	4.2	2.9	4.4	3.1	4.3	3.0	4.5	3.2
	2K	3.5	2.5	3.6	2.5	3.6	2.5	3.7	2.6	3.7	2.6

Notes:
1. 1-Hour and 8-Hour concentrations shown above are in parts per million (ppm).
2. 1-Hour concentrations predicted using CAL3QHC computer dispersion model and assumes a background concentration of 2.9 ppm.
3. 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 Guidelines for Modeling Carbon Monoxide from Roadway Intersections, EPA, November 1992.
4. Highligted cells represent the highest CO concentrations per analysis year.

Interim/Opening Year No-Build (2020), Interim/Opening Year Build (2020), Design Year No-Build (2040), and Design Year Build (2040) was projected at site 2H, which represents a parking lot area adjacent to the townhomes along Spring Forest Court. In addition, under Design Year Build (2040) conditions, the highest CO concentration was also projected at site 2G, which represents the same land use as site 2H.

Under all scenarios for each project location, the highest 1-hour and 8-hour CO concentrations are projected to be below the standards of 35 ppm and 9 ppm, respectively. Additionally, in all cases, the 1-hour CO projections are below the 8-hour standard. Therefore, since the projected 1-hour and 8-hour CO concentrations do not exceed the NAAQS as a result of the proposed improvements, no mitigation measures are required.

VI. 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. Particulate matter (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 volatile organic compounds (VOC).

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

The project is located in Fairfax County, an area designated as attainment for PM_{10} and nonattainment for $PM_{2.5}$. Therefore, based on the nonattainment designation for $PM_{2.5}$, it will need to be determined whether the project is of air quality concern. The March 2006 final rule provides examples of projects that would not be covered by 40 CFR 93.123(b)(1)(i) and (ii) and would not require a $PM_{2.5}$ hot-spot analysis (71 FR 12491).

Based on the final rule, this project falls within the category of "Not a Project of Air Quality Concern." The project addresses the air quality concerns of 40 CFR 93.123(b)(1) since the improvements reduce congestion and improve level-of-service (LOS). The Fairfax County Parkway Interchange Improvements fit into the EPA/FHWA Guidance of *Example of Projects NOT of Air Quality Concern*: (shown below)

Example 1: *An intersection channelization project or interchange configuration project that involves either turn lanes or slots, or lanes or movements that are physically separated. These kinds of projects improve freeway operations by smoothing traffic flow and vehicle speeds by improving weave and merge operations, which would not be expected to create or worsen $PM_{2.5}$ or PM_{10} violations.*

Example 2: *Intersection channelization projects, traffic circles or roundabouts, intersection signalization projects at individual intersections, and interchange reconfiguration projects that are designed to improve traffic flow and vehicle speeds, and do no involve any increases in idling. Thus, they would be expected to have a neutral or positive influence on $PM_{2.5}$ or PM_{10} emissions.*

Based on the above examples, it was determined that the project is not considered a project of "air quality concern" and has met all the conformity requirements. The proposed improvements at the Fairfax County Parkway / I-95 interchange separate traffic destined to westbound Fairfax County Parkway and local traffic destined to Backlick Road and Boudinot Drive. As a result of the proposed improvements, the separation of traffic in the weave and merge segments between I-95 and Boudinot Drive consequently reduces congestion in that area under Design Year (2040) Build conditions. Additionally, with the provision of a flyover ramp, a portion of traffic is diverted from the slower-speed loop ramp to the higher-speed flyover.

At the Rolling Road interchange area, the inside loop ramp is being widened from one to two travel lanes under Design Year (2040) Build conditions. As a result, an additional merge section onto the Fairfax County Parkway improves traffic operations within the merge influence area.

The project also addresses the air quality concerns of 40 CFR 93.123(b)(1)(i) and (ii) since the study area is a new highway project primarily servicing gasoline vehicle traffic and does not involve a significant number or increase in diesel vehicles. Using conservative assumptions, all trucks were classified as diesel vehicles for the purposes of this assessment. The highest ADT and diesel truck percentage for the Existing (2011) condition 61,900 with a diesel truck percentage of 3%. Additionally, the highest ADT and diesel truck percentage for the Design Year Build (2040) condition was projected to be 69,000 with a diesel truck percentage of 4%. As a result of using conservative assumptions for diesel vehicles, the project is well below the 125,000 ADT and 8% diesel trucks thresholds as identified in the guidance. Additionally, the project is not considered to be a project of air quality concern since it does not change the LOS to D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.

As shown in **Table 2**, the project will not result in any meaningful changes in traffic volumes, diesel vehicles, vehicle mix, or changes in the facility relative to the No-Build alternative. In addition, the intersection and interchange improvements associated with this project are designed to improve traffic flow and vehicle speeds and do not involve any increases in idling (as discussed above).

Based on the above information, it was determined that the project is <u>not</u> considered a project of "air quality concern" with respect to particulate matter, is located in a geographic area that is in attainment for $PM_{2.5}$, and has met all the state and federal requirements as identified in the March 2006 final rule. The project will not cause or contribute to a new violation of the $PM_{2.5}$ NAAQS or increase the frequency or severity of a violation.

VII. Mobile Source Air Toxics

On February 3, 2006, FHWA issued guidance for the assessment of Mobile Source Air Toxics (MSAT) in the NEPA process for highways. The MSAT guidance included specific criteria for determining whether projects are to be considered exempt from MSAT analysis requirements, or if they may require a qualitative assessment or a quantitative analysis. In response, VDOT updated the *Consultant Guide* to reflect the guidance released by FHWA.

On September 30, 2009, FHWA issued *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. This interim guidance update reflects recent regulatory changes; addresses stakeholder requests to broaden the horizon years of emission trends performed with MOBILE6.2; and updates stakeholders on the status of scientific research on air toxics.

The purpose of the project is to provide direct access from I-95 northbound to the Fairfax County Parkway westbound by constructing a flyover ramp. Additionally, as part of the proposed improvements, the inside loop ramp at the Rolling Road / Franconia-Springfield Parkway interchange area will be widened from a single-lane to a two-lane off-ramp to provide access to westbound Fairfax County Parkway.

In accordance with the updated guidance, this project is best characterized as a project with no meaningful potential MSAT effects. Based on this approach, no analysis is required since the proposed project will not result in any meaningful changes in traffic volumes, vehicle mix, or changes in the facility relative to the No-Build alternative. As shown in **Table 2**, the project has negligible impacts on traffic under Interim/Opening Year (2020) and Design Year Build (2020) conditions, regardless of alternative. It is also anticipated that the proposed improvements would improve traffic flow and vehicle speeds and do not involve any increases in idling. Therefore, FHWA has determined that the Fairfax County Parkway Interchange Improvements will generate minimal air quality impacts for CAAA criteria pollutants and have not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSAT.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOBILE6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to increase by 145 percent. This trend will both reduce the background level of MSAT as well as the possibility of even minor MSAT emission from this project.

VIII. 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, all construction activities are to be performed in accordance with VDOT's *Road and Bridge Specifications*. These

specifications are approved as conforming to the State Implementation Plan and require compliance with all applicable local, state, and federal regulations.

The project lies in an area designated by the Virginia Department of Environmental Quality (VDEQ) as an emissions control area for volatile organic compounds (VOC) and nitrogen oxides (NOx) (9VAC5-20-206). In addition, for work in this area, the following VDEQ air pollution regulations must be adhered to during the construction of this project: 9VAC 5-1304 restrictions; 9VAC 5-40-5490, Cutback Asphalt restrictions; and 9 VAC5-40-90, Fugitive Dust precautions.

IX. Conformity Status of the Project

The project has also been evaluated with respect to regional air quality concerns. The Clean Air Act Amendments (CAAA) of 1990 mandate improvements to the nation's air quality. The final conformity regulations promulgated by the US EPA in 1997, as part of 40 CFR Part 93, require that transportation plans and programs conform to the State Implementation Plan (SIP). The final conformity rule requires that transportation plans in ozone nonattainment areas are consistent with the most recent estimates of mobile source emissions; provide for the expeditious implementation of transportation control measures in the applicable implementation plan; and contribute to annual emission reductions in ozone and carbon monoxide nonattainment areas.

Based on the CAAA and most recent EPA classifications, Fairfax County has been designated as nonattainment for ozone and $PM_{2.5}$; therefore, the project is subject to regional conformity requirements. The Fairfax County Parkway Interchange Improvements Project was included in the National Capital Region Transportation Planning Board's FY 2011 Constrained Long Range Plan (CLRP) and FY 2012-2017 Transportation Improvement Program (TIP), which has been found to conform to both the 8-hour ozone and $PM_{2.5}$ NAAQS. Therefore, since the project is part of a conforming TIP, it has met all conformity requirements as outlined by the CAAA of 1990.

X. Conclusion

Based on the results of the air quality analysis, CO concentrations with the Build Alternatives are predicted to be well below the NAAQS in both the Opening Year (2020) and Design Year (2040). Therefore, since projected CO levels are below the NAAQS under Build conditions, no exceedences are anticipated as a result of the proposed project and no mitigation measures are required.

Additionally, Fairfax County has been designated as nonattainment for $PM_{2.5}$; however, no analysis is required as part of the air quality assessment since the project was not found to be a project of air quality concern. Similarly, the project has been determined to generate minimal air quality impacts for the CAAA criteria pollutants and has not yet been linked with any special MSAT concerns. The proposed project will not result in any meaningful changes in traffic volumes, vehicle mix, or changes in the facility relative to the No-Build alternative (as shown in **Table 2**). As such, FHWA has determined that the Fairfax County Parkway Interchange Improvements will generate minimal air quality impacts for CAAA criteria pollutants and is not linked with any special MSAT concerns. Consequently, this project was found to have no meaningful impact on MSAT.

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 regionally significant and regional conformity requirements apply; it originates from regional financially constrained long range transportation plans and Transportation Improvement Programs that have been found to conform to the State Implementation Plan. The project completion schedule, design concept, and scope are correctly reflected in the currently conforming transportation plans and programs.

Finally, the project is not expected to cause or contribute to any violations of the NAAQS or to interfere with the attainment or maintenance of the applicable NAAQS. The results of the air study reevaluation are consistent with the results presented in the *Fairfax County Parkway Interchange Improvements – Air Quality Analysis* – March 2010.

APPENDIX A
MOBILE INPUT / OUTPUT FILES

```
*EMIT Data File
*Existing 2011 Conditions
*CO Emissions
*Fairfax County Parkway Interchange Improvements
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 5.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2011
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
```

```
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
```

```
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 55.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 ARTERIAL
FUEL RVP            : 13.5
```

```
END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 10.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 15.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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 - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2011
EVALUATION MONTH    : 1
ALTITUDE            : 1
```

```
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
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\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : LocalFVMT.d
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : RampFVMT.d
FUEL RVP            : 13.5

END OF RUN          :
```

```
*EMIT Data File
*Existing 2020 Conditions
*CO Emissions
*Fairfax County Parkway Interchange Improvements
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Month - January; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Month - January; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 5.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2020; Month - January; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2020
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
```

```
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
```

```
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR          : HVMT.DEF
STARTS PER DAY       : STPERDAY.D
START DIST           : SDIST.D
FUEL PROGRAM         : 1

SCENARIO RECORD      : EMIT | Calendar Year - 2020; Month - January; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR        : 2020
EVALUATION MONTH     : 1
ALTITUDE             : 1
MIN/MAX TEMP         : 22 22
ABSOLUTE HUMIDITY    : 75.0
AVERAGE SPEED        : 35.0 NON-RAMP
FUEL RVP             : 13.5

END OF RUN           :

NO REFUELING         :
EXPAND EXHAUST       :
REG DIST             : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS        :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR          : HVMT.DEF
STARTS PER DAY       : STPERDAY.D
START DIST           : SDIST.D
FUEL PROGRAM         : 1

SCENARIO RECORD      : EMIT | Calendar Year - 2020; Month - January; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR        : 2020
EVALUATION MONTH     : 1
ALTITUDE             : 1
MIN/MAX TEMP         : 22 22
ABSOLUTE HUMIDITY    : 75.0
AVERAGE SPEED        : 40.0 NON-RAMP
FUEL RVP             : 13.5

END OF RUN           :

NO REFUELING         :
EXPAND EXHAUST       :
REG DIST             : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS        :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR          : HVMT.DEF
STARTS PER DAY       : STPERDAY.D
START DIST           : SDIST.D
FUEL PROGRAM         : 1

SCENARIO RECORD      : EMIT | Calendar Year - 2020; Month - January; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR        : 2020
EVALUATION MONTH     : 1
ALTITUDE             : 1
MIN/MAX TEMP         : 22 22
ABSOLUTE HUMIDITY    : 75.0
AVERAGE SPEED        : 45.0 NON-RAMP
FUEL RVP             : 13.5

END OF RUN           :

NO REFUELING         :
EXPAND EXHAUST       :
REG DIST             : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS        :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR          : HVMT.DEF
STARTS PER DAY       : STPERDAY.D
START DIST           : SDIST.D
FUEL PROGRAM         : 1

SCENARIO RECORD      : EMIT | Calendar Year - 2020; Month - January; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR        : 2020
EVALUATION MONTH     : 1
ALTITUDE             : 1
MIN/MAX TEMP         : 22 22
ABSOLUTE HUMIDITY    : 75.0
AVERAGE SPEED        : 50.0 NON-RAMP
FUEL RVP             : 13.5

END OF RUN           :

NO REFUELING         :
```

```
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 55.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 60.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 65.0 mph, NON-RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 ARTERIAL
FUEL RVP            : 13.5
```

```
END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 10.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
```

```
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1
```

```
SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
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\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
```

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

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 60.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 65.0 mph, ARTERIAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 12.9 mph, LOCAL
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : LocalFVMT.d
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2020; Month - January; Speed - 34.6 mph, RAMP
CALENDAR YEAR       : 2020
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : RampFVMT.d
FUEL RVP            : 13.5

END OF RUN          :
```

```
*EMIT Data File
*Build 2040 Conditions
*CO Emission Rates
*Fairfax County Interchange Improvements
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 2.5 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 5.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 22 22
ABSOLUTE HUMIDITY  : 75.0
AVERAGE SPEED      : 10.0 NON-RAMP
FUEL RVP           : 13.5

END OF RUN         :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS      :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR        : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
```

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FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
```

```
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
```

```
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 55.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 2.5 ARTERIAL
FUEL RVP            : 13.5
```

```
END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 5.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 10.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 15.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
```

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MIN/MAX TEMP        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 20.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 25.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 30.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 35.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 40.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 45.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
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\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 60.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 65.0 ARTERIAL
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : LocalFVMT.d
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\fairfax\059_2008.d
VMT FRACTIONS       :
0.3020 0.0936 0.3401 0.1169 0.0568 0.0271 0.0027 0.0023
0.0024 0.0076 0.0061 0.0084 0.0297 0.0000 0.0000 0.0043
VMT BY HOUR         : C:\EMIT - Easy Mobile Inventory Tool\fairfax\Avg_2010_NB.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        : 22 22
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : RampFVMT.d
FUEL RVP            : 13.5

END OF RUN          :
```

Existing 2011 Conditions
CO Emissions
Fairfax County Parkway Interchange Improvements

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2011	Idle*	102.844	102.844
CO	2011	5	27.43462	27.43462
CO	2011	10	19.67571	20.55613
CO	2011	15	17.25696	18.28935
CO	2011	20	16.71337	17.12816
CO	2011	25	16.3826	16.48287
CO	2011	30	16.16503	16.18288
CO	2011	35	16.19422	16.19422
CO	2011	40	16.66283	16.66283
CO	2011	45	17.14714	17.14714
CO	2011	50	17.64607	17.64607
CO	2011	55	18.16	18.16
CO	2011	60	18.72258	18.72258
CO	2011	65	19.30902	19.30902
CO	2011	12.9	Local	16.93013
CO	2011	34.6	Ramp	20.63942

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

2020 Conditions
CO Emissions
Fairfax County Parkway Interchange Improvements

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2020	Idle*	80.97863	80.97863
CO	2020	5	21.84057	21.84057
CO	2020	10	15.77277	16.49797
CO	2020	15	13.86718	14.72042
CO	2020	20	13.4627	13.81209
CO	2020	25	13.21695	13.2979
CO	2020	30	13.0554	13.06982
CO	2020	35	13.07079	13.07079
CO	2020	40	13.45033	13.45033
CO	2020	45	13.84211	13.84211
CO	2020	50	14.24542	14.24542
CO	2020	55	14.66058	14.66058
CO	2020	60	15.12065	15.12065
CO	2020	65	15.5996	15.5996
CO	2020	12.9	Local	13.96914
CO	2020	34.6	Ramp	16.26528

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

Build 2040 Conditions
CO Emission Rates
Fairfax County Interchange Improvements

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2040	Idle*	78.93716	78.93716
CO	2040	5	21.30822	21.30822
CO	2040	10	15.39954	16.1093
CO	2040	15	13.54472	14.37994
CO	2040	20	13.15444	13.4968
CO	2040	25	12.91742	12.99621
CO	2040	30	12.7616	12.77563
CO	2040	35	12.7768	12.7768
CO	2040	40	13.14888	13.14888
CO	2040	45	13.53274	13.53274
CO	2040	50	13.92772	13.92772
CO	2040	55	14.33412	14.33412
CO	2040	60	14.78493	14.78493
CO	2040	65	15.25394	15.25394
CO	2040	12.9	Local	13.6702
CO	2040	34.6	Ramp	15.88719

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

APPENDIX B
CAL3QHC INPUTS / OUTPUTS

1 CAL3QHC - (DATED 95221)

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

Run Began on 2/17/2012 at 12:55:13

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: EXISTING 2011

DATE : 02/17/ 0
TIME : 12:55:13

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. I95 NB A	*	-102.5	249.3	-38.3	366.6	*	134.	29.	AG	3975.	19.3	0.0	26.5		
2. I95 NB B	*	-38.3	366.6	51.2	544.5	*	199.	27.	AG	3393.	19.3	0.0	26.5		
3. I95 SB	*	27.9	552.9	-77.4	333.1	*	244.	206.	AG	7428.	19.3	0.0	26.5		
4. I95 SB A	*	-78.3	335.0	-281.4	-20.8	*	410.	210.	AG	6581.	19.3	0.0	26.5		
5. OFF RAMP	*	-182.6	71.4	-138.9	92.8	*	49.	64.	AG	504.	16.2	0.0	10.0		
6. OFF RAMP	*	-138.9	92.8	-96.0	106.8	*	45.	72.	AG	504.	16.2	0.0	10.0		
7. OFF RAMP	*	-96.0	106.8	-61.5	104.9	*	35.	93.	AG	504.	16.2	0.0	10.0		
8. EB THRU	*	-65.3	110.5	-19.6	115.1	*	46.	84.	AG	144.	16.4	0.0	10.0		
9. ON RAMP	*	-21.5	233.4	-24.3	170.1	*	63.	183.	AG	483.	16.4	0.0	10.0		
10. ON RAMP	*	-24.3	170.1	-39.2	140.3	*	33.	207.	AG	483.	16.4	0.0	10.0		
11. ON RAMP	*	-39.2	140.3	-63.4	128.2	*	27.	243.	AG	483.	16.4	0.0	10.0		
12. ON RAMP	*	-63.4	128.2	-95.1	130.0	*	32.	273.	AG	483.	16.4	0.0	10.0		
13. ON RAMP	*	-95.1	130.0	-114.6	144.9	*	25.	307.	AG	483.	16.4	0.0	10.0		
14. ON RAMP	*	-114.6	144.9	-121.2	166.4	*	22.	343.	AG	483.	16.4	0.0	10.0		
15. ON RAMP	*	-121.2	166.4	-117.4	186.9	*	21.	11.	AG	483.	16.4	0.0	10.0		
16. ON RAMP	*	-117.4	186.9	-91.4	240.0	*	59.	26.	AG	483.	16.4	0.0	10.0		
17. ON RAMP	*	2.7	250.2	14.8	294.9	*	46.	15.	AG	1028.	16.4	0.0	10.0		
18. ON RAMP	*	14.8	294.9	36.3	328.4	*	40.	33.	AG	1028.	16.4	0.0	10.0		
19. ON RAMP	*	36.3	328.4	62.3	340.5	*	29.	65.	AG	1028.	16.4	0.0	10.0		
20. ON RAMP	*	62.3	340.5	86.6	353.6	*	28.	62.	AG	1028.	16.4	0.0	10.0		
21. ON RAMP	*	86.6	353.6	132.2	397.4	*	63.	46.	AG	1028.	16.4	0.0	10.0		
22. ON RAMP	*	132.2	397.4	139.6	426.2	*	30.	14.	AG	1028.	16.4	0.0	10.0		
23. OFF RAMP	*	8.3	429.0	27.9	454.2	*	32.	38.	AG	739.	16.4	0.0	10.0		
24. OFF RAMP	*	27.9	454.2	52.1	453.3	*	24.	92.	AG	739.	16.4	0.0	10.0		
25. OFF RAMP	*	52.1	453.3	75.4	437.4	*	28.	124.	AG	739.	16.4	0.0	10.0		
26. OFF RAMP	*	75.4	437.4	79.1	421.6	*	16.	167.	AG	739.	16.4	0.0	10.0		
27. OFF RAMP	*	79.1	421.6	78.2	398.3	*	23.	182.	AG	739.	16.4	0.0	10.0		
28. OFF RAMP	*	78.2	398.3	69.8	362.0	*	37.	193.	AG	739.	16.4	0.0	10.0		
29. OFF RAMP	*	69.8	362.0	58.6	355.5	*	13.	240.	AG	739.	16.4	0.0	10.0		
30. OFF RAMP	*	58.6	355.5	35.3	345.2	*	25.	246.	AG	739.	16.4	0.0	10.0		
31. OFF RAMP	*	35.3	345.2	11.1	340.5	*	25.	259.	AG	739.	16.4	0.0	10.0		
32. OFF RAMP	*	11.1	340.5	-16.8	345.2	*	28.	280.	AG	739.	16.4	0.0	10.0		
33. OFF RAMP	*	-16.8	345.2	-28.0	348.0	*	12.	284.	AG	739.	16.4	0.0	10.0		
34. NEWINGTON ROAD	*	159.2	351.7	154.5	253.0	*	99.	183.	AG	877.	16.2	0.0	13.4		
35. NEWINGTON ROAD	*	154.5	253.0	149.0	219.5	*	34.	189.	AG	877.	16.2	0.0	13.4		
36. NEWINGTON ROAD	*	149.0	219.5	111.7	169.2	*	63.	217.	AG	877.	16.2	0.0	13.4		
37. NEWINGTON ROAD	*	111.7	169.2	62.3	143.1	*	56.	242.	AG	877.	16.2	0.0	13.4		

38. NEWINGTON ROAD	*	62.3	143.1	-1.9	125.4	*	67.	255.	AG	877.	16.2	0.0 13.4
39. NB PARKWAY	*	-20.6	-138.2	-5.7	124.5	*	263.	3.	AG	2779.	16.2	0.0 13.4
40. NB PARKWAY DEC	*	-5.7	121.7	-1.0	206.4	*	85.	3.	AG	3255.	16.2	0.0 13.4
41. NB PARKWAY DEC	*	-1.0	206.4	-8.5	266.0	*	60.	353.	AG	3255.	16.2	0.0 13.4
42. NB PARKWAY DEC	*	-8.5	266.0	-17.8	310.7	*	46.	348.	AG	3255.	16.2	0.0 13.4
43. NB PARKWAY DEC	*	-17.8	310.7	-34.5	342.4	*	36.	332.	AG	3255.	16.2	0.0 13.4
44. SB PARKWAY	*	-46.6	322.9	-16.8	227.8	*	100.	163.	AG	1513.	16.2	0.0 13.4

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: EXISTING 2011

DATE : 02/17/ 0
TIME : 12:55:13

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. SB PARKWAY	*	-16.8	227.8	-18.7	118.9	*	109.	181.	AG	1513.	16.2	0.0	13.4		
46. SB PARKWAY DEC	*	-17.8	120.7	-33.6	-139.1	*	260.	183.	AG	1655.	16.2	0.0	13.4		
47. EB QUE	*	-27.1	114.6	-60.7	112.0	*	34.	266.	AG	257.	100.0	0.0	3.7	0.99	5.6
48. NB TTHRU QUE	*	-7.7	110.3	-18.6	-56.0	*	167.	184.	AG	209.	100.0	0.0	7.3	0.54	27.8
49. NB RIGHT QUE	*	-1.5	113.6	-2.3	100.8	*	13.	183.	AG	105.	100.0	0.0	3.7	0.11	2.1
50. WB LEFT QUE	*	4.1	126.4	265.3	202.1	*	272.	74.	AG	237.	100.0	0.0	3.7	1.27	45.3
51. WB RR QUE	*	3.2	131.1	72.9	149.9	*	72.	75.	AG	415.	100.0	0.0	7.3	0.48	12.0
52. SB TTHRU QUE	*	-19.5	127.4	-19.3	180.9	*	53.	0.	AG	142.	100.0	0.0	7.3	0.26	8.9
53. SB LEFT QUE	*	-13.8	124.5	-16.4	377.8	*	253.	359.	AG	247.	100.0	0.0	3.7	1.39	42.2
54.	*	-62.5	103.0	-38.0	83.8	*	31.	128.	AG	360.	16.4	0.0	9.8		
55.	*	-38.0	83.8	-28.2	57.7	*	28.	159.	AG	360.	16.4	0.0	9.8		
56. I-95 NB	*	-259.8	-30.1	-201.4	74.8	*	120.	29.	AG	3975.	19.3	0.0	26.5		
57. I-95 NB	*	-201.4	74.0	-103.0	249.2	*	201.	29.	AG	3535.	19.3	0.0	26.5		
58. EB DEC LINK	*	0.9	118.9	62.7	135.9	*	64.	75.	AG	454.	16.2	0.0	13.4		
59. EB DEC LINK	*	62.7	135.9	115.0	162.7	*	59.	63.	AG	454.	16.2	0.0	13.4		
60. EB DEC LINK	*	115.0	162.7	155.1	216.5	*	67.	37.	AG	454.	16.2	0.0	13.4		
61. EB DEC LINK	*	155.1	216.5	162.1	256.6	*	41.	10.	AG	454.	16.2	0.0	13.4		
62. EB DEC LINK	*	162.1	256.6	166.2	351.9	*	95.	2.	AG	454.	16.2	0.0	13.4		

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: EXISTING 2011

DATE : 02/17/ 0
TIME : 12:55:13

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
47. EB QUE	*	190	177	2.0	74	1600	102.84	3	3
48. NB TTHRU QUE	*	190	72	2.0	2779	4284	102.84	3	3
49. NB RIGHT QUE	*	190	72	2.0	107	1600	102.84	3	3
50. WB LEFT QUE	*	190	163	2.0	271	1770	102.84	3	3
51. WB RR QUE	*	190	143	2.0	606	2787	102.84	3	3
52. SB TTHRU QUE	*	190	49	2.0	1310	3468	102.84	3	3

53. SB LEFT QUE	*	190	170	2.0	203	1734	102.84	3	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 1A	-0.1	-2.3	1.8
2. 1B	1.8	40.8	1.8
3.	6.0	82.9	1.8
4. 1D	10.8	108.0	1.8
5. 1E	35.8	117.9	1.8
6. 1F	91.2	127.8	1.8
7. 1G	126.7	157.6	1.8
8. 1H	99.7	190.3	1.8
9. 1I	67.0	169.9	1.8
10. 1J	26.4	151.5	1.8
11. 1K	9.8	152.0	1.8
12. 1L	11.7	182.7	1.8
13. 1M	12.2	231.9	1.8
14. 1N	23.5	251.3	1.8
15. 1O	-99.0	91.9	1.8
16. 1P	-64.5	84.3	1.8
17. 1Q	-45.5	63.5	1.8
18. 1R	-45.1	-2.7	1.8

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: EXISTING 2011

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
0.	6.0	6.2	5.9	6.3	5.0	3.7	4.2	3.1	3.3	4.0	5.3	4.7	4.6	4.2	5.0	4.8	5.1	4.6
10.	4.4	4.5	4.6	4.9	4.5	3.6	4.3	2.9	2.9	3.1	3.5	3.5	3.7	3.5	5.2	5.0	5.1	5.0
20.	3.2	3.5	3.9	4.3	4.3	3.8	4.2	3.0	2.9	2.9	2.9	2.9	3.2	3.1	4.7	4.7	4.7	5.1
30.	3.1	3.3	3.8	4.3	4.5	3.7	3.9	3.1	3.0	2.9	2.9	2.9	2.9	3.0	4.0	4.3	4.9	4.9
40.	3.0	3.2	3.7	4.4	4.5	3.5	3.9	3.1	3.0	3.0	2.9	2.9	2.9	3.0	3.8	4.4	4.8	4.7
50.	3.0	3.0	3.5	4.4	4.5	3.3	3.9	3.2	3.0	2.9	2.9	3.0	2.9	2.9	4.0	4.6	5.0	4.6
60.	2.9	3.0	3.1	4.2	4.2	3.2	4.0	3.3	3.0	3.0	2.9	2.9	3.0	3.0	4.1	4.7	4.6	4.4
70.	2.9	2.9	3.0	3.7	3.5	3.1	3.8	3.2	3.3	3.4	3.2	2.9	3.0	3.0	4.3	4.5	4.3	4.3
80.	2.9	2.9	2.9	3.0	3.0	3.0	3.4	3.4	3.4	3.8	3.6	3.1	2.9	3.0	4.0	4.0	4.2	4.2
90.	2.9	2.9	2.9	2.9	2.9	2.9	3.1	3.5	3.6	4.2	4.0	3.2	2.9	2.9	3.6	3.9	4.2	4.2
100.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.5	4.5	4.2	3.2	3.1	3.0	3.5	3.9	4.2	4.2
110.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.6	4.7	4.2	3.4	3.1	3.1	3.5	3.9	4.2	4.2
120.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.6	4.5	4.3	3.5	3.0	3.1	3.5	3.9	4.1	4.3
130.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.6	4.4	4.2	3.6	3.1	3.0	3.5	3.8	4.2	4.2
140.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.6	4.4	4.2	3.6	3.2	3.1	3.5	3.9	4.2	4.4
150.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.6	4.4	4.2	3.7	3.2	3.2	3.5	3.9	4.4	4.4
160.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.6	4.4	4.2	3.7	3.3	3.1	3.3	3.7	4.4	4.3
170.	3.1	3.1	3.1	3.0	2.9	2.9	2.9	3.4	3.8	4.4	4.2	3.8	3.6	3.4	3.1	3.6	4.0	3.8
180.	3.6	3.8	3.8	3.6	3.0	2.9	2.9	3.4	4.1	4.8	5.2	4.6	4.8	4.0	2.9	3.1	3.4	3.4
190.	4.5	4.8	4.8	4.5	3.4	2.9	2.9	3.5	4.5	5.4	6.0	5.5	5.5	4.5	2.9	2.9	3.1	3.0
200.	5.1	5.5	5.4	5.0	4.0	3.2	3.0	3.8	4.8	5.9	6.0	5.6	5.6	4.9	2.9	2.9	2.9	2.9
210.	5.3	5.4	5.3	5.0	4.0	3.4	3.2	4.3	4.9	5.8	5.5	5.5	5.5	4.7	2.9	2.9	2.9	2.9

220.	*	5.2	5.3	5.1	4.9	4.0	3.5	3.4	4.4	4.9	5.4	5.1	5.6	5.4	4.8	3.0	2.9	2.9	2.9
230.	*	5.1	5.1	5.0	4.7	4.0	3.5	3.5	4.5	4.9	5.3	5.3	6.0	5.8	5.4	3.5	3.1	2.9	2.9
240.	*	4.9	4.9	5.0	5.1	4.2	3.7	3.9	4.6	5.0	5.3	5.7	6.2	6.0	5.4	4.1	3.5	3.1	2.9
250.	*	4.8	5.0	5.4	5.4	4.6	4.1	5.4	4.3	4.9	5.3	6.1	6.1	6.0	5.5	4.5	3.9	3.6	2.9
260.	*	5.0	5.5	5.6	5.7	5.0	4.6	6.2	4.2	4.7	5.2	6.2	6.0	5.9	5.5	4.6	4.1	3.9	3.3
270.	*	5.3	5.7	5.7	5.7	5.3	5.0	6.1	4.3	4.6	5.2	6.1	6.0	6.0	5.6	4.6	4.1	3.9	3.6
280.	*	5.6	5.7	5.6	5.5	5.6	5.5	5.6	4.3	4.5	5.2	6.1	5.9	5.7	5.6	4.6	4.2	3.9	3.7
290.	*	5.6	5.7	5.7	5.5	5.7	5.5	5.4	4.4	4.4	5.1	6.1	6.0	6.0	5.7	4.6	4.1	3.9	3.9
300.	*	5.6	5.7	5.9	5.6	6.2	5.4	5.6	4.2	4.4	5.3	6.2	5.9	6.0	5.8	4.6	4.3	4.0	3.8
310.	*	5.7	5.8	5.9	6.0	6.2	5.5	5.2	4.4	4.5	5.2	6.1	6.3	6.2	5.8	4.6	4.1	3.9	3.8
320.	*	5.9	6.0	6.2	6.2	6.5	5.3	5.2	4.1	4.6	5.4	6.3	6.6	6.4	5.8	4.6	4.3	4.1	3.8
330.	*	6.1	6.3	6.4	6.6	6.5	5.0	4.9	3.9	4.6	5.6	6.4	6.6	6.5	5.5	4.6	4.3	4.2	3.8
340.	*	6.7	6.6	6.7	7.3	6.4	4.5	4.7	3.7	4.2	5.6	7.1	6.7	6.3	5.1	4.7	4.5	4.3	4.0
350.	*	6.6	7.0	7.0	7.2	5.9	4.1	4.4	3.4	3.7	5.0	6.3	6.2	5.3	4.7	4.9	4.4	4.4	3.8
MAX	*	6.7	7.0	7.0	7.3	6.5	5.5	6.2	4.6	5.0	5.9	7.1	6.7	6.5	5.8	5.2	5.0	5.1	5.1
DEGR.	*	340	350	350	340	330	310	260	240	240	200	340	340	330	300	10	10	10	20

THE HIGHEST CONCENTRATION OF 7.30 PPM OCCURRED AT RECEPTOR REC4 .

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: EXISTING 2011

DATE : 02/17/ 0
TIME : 12:55:13

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 340	REC2 350	REC3 350	REC4 340	REC5 330	REC6 310	REC7 260	REC8 240	REC9 240	REC10 200	REC11 340	REC12 340	REC13 330	REC14 300	REC15 10	REC16 10	REC17 10	REC18 20
1	0.2	0.2	0.2	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.4	0.3	0.5	0.5	0.4	0.2	0.1	0.0
2	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.1
3	0.2	0.5	0.5	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.6	0.7	0.7	0.2	0.7	0.6	0.4	0.1
4	0.4	0.2	0.1	0.3	0.3	0.4	0.4	0.3	0.3	0.0	0.2	0.1	0.1	0.6	0.4	0.1	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	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	0.0	0.1	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	0.0	0.1	0.1	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
9	0.0	0.0	0.0	0.1	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
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
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	0.1	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	0.1	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
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
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
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
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	0.2	0.3	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	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	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	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	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
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
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	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	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	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	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	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	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	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	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	0.0	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	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	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	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
37 *	0.0	0.0	0.0	0.0	0.0	0.2	0.3	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	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39 *	1.5	1.3	0.6	0.1	0.0	0.0	0.1	0.1	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
40 *	0.1	0.4	0.8	1.2	0.5	0.2	0.2	0.2	0.3	0.0	1.3	0.6	0.0	0.0	0.0	0.0	0.2	0.2
41 *	0.0	0.1	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.4	1.0	0.7	0.3	0.0	0.1	0.2	0.1
42 *	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.5	0.0	0.1	0.1	0.0
43 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.0	0.0
44 *	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.3	0.1	0.1	0.1	0.0
45 *	0.1	0.2	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.0	0.3	0.1	0.0	0.0	0.0	0.1	0.3	0.1

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: EXISTING 2011

	* CO/LINK (PPM)																	
	* ANGLE (DEGREES)																	
	* REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18
LINK # *	340	350	350	340	330	310	260	240	240	200	340	340	330	300	10	10	10	20
46 *	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
47 *	0.1	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	0.0	0.1	0.1	0.0
48 *	0.5	0.4	0.1	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	0.2
49 *	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	0.0	0.0	0.0
50 *	0.0	0.0	0.1	0.1	0.3	0.3	1.0	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
51 *	0.0	0.0	0.1	0.2	0.6	0.4	0.4	0.3	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
52 *	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	0.0	0.1	0.0
53 *	0.1	0.2	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.0	0.4	0.3	0.3	0.2	0.1	0.1	0.2	0.1
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	0.0	0.0	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0
56 *	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57 *	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
58 *	0.0	0.0	0.0	0.2	0.2	0.0	0.1	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	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	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	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	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 2/17/2012 at 12:54:01

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: OPENING YEAR 2020 NOBUILD I-95 INTERCHAN

DATE : 02/17/ 0
TIME : 12:54:01

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. NB I95	*	-260.9	-32.0	-102.5	251.1	*	324.	29.	AG	3604.	15.6	0.0	26.5		
2. I95 NB A	*	-102.5	249.3	-38.3	366.6	*	134.	29.	AG	3894.	15.6	0.0	26.5		
3. I95 NB B	*	-38.3	366.6	51.2	544.5	*	199.	27.	AG	3488.	15.6	0.0	26.5		
4. I95 SB	*	27.9	552.9	-77.4	333.1	*	244.	206.	AG	7468.	15.6	0.0	26.5		
5. I95 SB A	*	-78.3	335.0	-281.4	-20.8	*	410.	210.	AG	6619.	15.6	0.0	26.5		
6. OFF RAMP	*	-182.6	71.4	-138.9	92.8	*	49.	64.	AG	583.	13.3	0.0	10.0		
7. OFF RAMP	*	-138.9	92.8	-96.0	106.8	*	45.	72.	AG	583.	13.3	0.0	10.0		
8. OFF RAMP	*	-96.0	106.8	-61.5	104.9	*	35.	93.	AG	583.	13.3	0.0	10.0		
9. EB THRU	*	-65.3	110.5	-19.6	115.1	*	46.	84.	AG	206.	13.3	0.0	10.0		
10. ONN RAMP	*	-21.5	233.4	-24.3	170.1	*	63.	183.	AG	279.	13.1	0.0	10.0		
11. ONN RAMP	*	-24.3	170.1	-39.2	140.3	*	33.	207.	AG	279.	13.1	0.0	10.0		
12. ONN RAMP	*	-39.2	140.3	-63.4	128.2	*	27.	243.	AG	279.	13.1	0.0	10.0		
13. ONN RAMP	*	-63.4	128.2	-95.1	130.0	*	32.	273.	AG	279.	13.1	0.0	10.0		
14. ONN RAMP	*	-95.1	130.0	-114.6	144.9	*	25.	307.	AG	279.	13.1	0.0	10.0		
15. ONN RAMP	*	-114.6	144.9	-121.2	166.4	*	22.	343.	AG	279.	13.1	0.0	10.0		
16. ONN RAMP	*	-121.2	166.4	-117.4	186.9	*	21.	11.	AG	279.	13.1	0.0	10.0		
17. ONN RAMP	*	-117.4	186.9	-91.4	240.0	*	59.	26.	AG	279.	13.1	0.0	10.0		
18. ON RAMP	*	2.7	250.2	14.8	294.9	*	46.	15.	AG	879.	13.1	0.0	10.0		
19. ON RAMP	*	14.8	294.9	36.3	328.4	*	40.	33.	AG	879.	13.1	0.0	10.0		
20. ON RAMP	*	36.3	328.4	62.3	340.5	*	29.	65.	AG	879.	13.1	0.0	10.0		
21. ON RAMP	*	62.3	340.5	86.6	353.6	*	28.	62.	AG	879.	13.1	0.0	10.0		
22. ON RAMP	*	86.6	353.6	132.2	397.4	*	63.	46.	AG	879.	13.1	0.0	10.0		
23. ON RAMP	*	132.2	397.4	139.6	426.2	*	30.	14.	AG	879.	13.1	0.0	10.0		
24. OFF RAMP	*	8.3	429.0	27.9	454.2	*	32.	38.	AG	489.	13.1	0.0	10.0		
25. OFF RAMP	*	27.9	454.2	52.1	453.3	*	24.	92.	AG	489.	13.1	0.0	10.0		
26. OFF RAMP	*	52.1	453.3	75.4	437.4	*	28.	124.	AG	489.	13.1	0.0	10.0		
27. OFF RAMP	*	75.4	437.4	79.1	421.6	*	16.	167.	AG	489.	13.1	0.0	10.0		
28. OFF RAMP	*	79.1	421.6	78.2	398.3	*	23.	182.	AG	489.	13.1	0.0	10.0		
29. OFF RAMP	*	78.2	398.3	69.8	362.0	*	37.	193.	AG	489.	13.1	0.0	10.0		
30. OFF RAMP	*	69.8	362.0	58.6	355.5	*	13.	240.	AG	489.	13.1	0.0	10.0		
31. OFF RAMP	*	58.6	355.5	35.3	345.2	*	25.	246.	AG	489.	13.1	0.0	10.0		
32. OFF RAMP	*	35.3	345.2	11.1	340.5	*	25.	259.	AG	489.	13.1	0.0	10.0		
33. OFF RAMP	*	11.1	340.5	-16.8	345.2	*	28.	280.	AG	489.	13.1	0.0	10.0		
34. OFF RAMP	*	-16.8	345.2	-28.0	348.0	*	12.	284.	AG	489.	13.1	0.0	10.0		
35. NEWINGTON ROAD	*	159.2	351.7	154.5	253.0	*	99.	183.	AG	925.	13.1	0.0	13.4		
36. NEWINGTON ROAD	*	154.5	253.0	149.0	219.5	*	34.	189.	AG	925.	13.1	0.0	13.4		
37. NEWINGTON ROAD	*	149.0	219.5	111.7	169.2	*	63.	217.	AG	925.	13.1	0.0	13.4		

38. NEWINGTON ROAD	*	111.7	169.2	62.3	143.1	*	56.	242.	AG	925.	13.1	0.0 13.4
39. NEWINGTON ROAD	*	62.3	143.1	-1.9	125.4	*	67.	255.	AG	925.	13.1	0.0 13.4
40. NB PARKWAY	*	-20.6	-138.2	-5.7	124.5	*	263.	3.	AG	2591.	13.1	0.0 13.4
41. NB PARKWAY DEC	*	-5.7	121.7	-1.0	206.4	*	85.	3.	AG	3349.	13.1	0.0 13.4
42. NB PARKWAY DEC	*	-1.0	206.4	-8.5	266.0	*	60.	353.	AG	3349.	13.1	0.0 13.4
43. NB PARKWAY DEC	*	-8.5	266.0	-17.8	310.7	*	46.	348.	AG	3349.	13.1	0.0 13.4
44. NB PARKWAY DEC	*	-17.8	310.7	-34.5	342.4	*	36.	332.	AG	3349.	13.1	0.0 13.4

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: OPENING YEAR 2020 NOBUILD I-95 INTERCHAN

DATE : 02/17/ 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. SB PARKWAY	*	-46.6	322.9	-16.8	227.8	*	100.	163.	AG	1609.	13.1	0.0	13.4		
46. SB PARKWAY	*	-16.8	227.8	-18.7	118.9	*	109.	181.	AG	1609.	13.1	0.0	13.4		
47. SB PARKWAY DEC	*	-17.8	120.7	-33.6	-139.1	*	260.	183.	AG	1828.	13.1	0.0	13.4		
48. EB QUE	*	-27.1	114.6	-268.4	95.6	*	242.	266.	AG	194.	100.0	0.0	3.7	1.38	40.3
49. NB TTHRU QUE	*	-7.7	110.3	-16.3	-21.0	*	132.	184.	AG	180.	100.0	0.0	7.3	0.53	21.9
50. NB RIGHT QUE	*	-1.5	113.6	-1.8	109.0	*	5.	183.	AG	90.	100.0	0.0	3.7	0.05	0.8
51. WB LEFT QUE	*	4.1	126.4	165.7	173.2	*	168.	74.	AG	201.	100.0	0.0	3.7	1.49	28.0
52. WB RR QUE	*	3.2	131.1	78.0	151.3	*	78.	75.	AG	336.	100.0	0.0	7.3	0.72	12.9
53. SB TTHRU QUE	*	-19.5	127.4	-19.3	167.2	*	40.	0.	AG	104.	100.0	0.0	7.3	0.26	6.6
54. SB LEFT QUE	*	-13.8	124.5	-16.6	394.8	*	270.	359.	AG	184.	100.0	0.0	3.7	1.28	45.0
55.	*	-61.8	102.5	-37.3	82.8	*	31.	129.	AG	377.	13.3	0.0	10.0		
56.	*	-37.3	82.8	-28.0	60.2	*	24.	158.	AG	377.	13.3	0.0	10.0		
57. eb dec link	*	0.8	119.0	63.4	135.9	*	65.	75.	AG	531.	13.1	0.0	13.4		
58. eb dec link	*	63.4	135.9	115.6	163.6	*	59.	62.	AG	531.	13.1	0.0	13.4		
59. eb dec link	*	115.6	163.6	156.0	217.6	*	67.	37.	AG	531.	13.1	0.0	13.4		
60. eb dec link	*	156.0	217.6	162.1	256.1	*	39.	9.	AG	531.	13.1	0.0	13.4		
61. eb dec link	*	162.1	256.1	166.0	351.2	*	95.	2.	AG	531.	13.1	0.0	13.4		

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: OPENING YEAR 2020 NOBUILD I-95 INTERCHAN

DATE : 02/17/ 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
48. EB QUE	*	150	134	2.0	206	1863	80.98	3	3
49. NB TTHRU QUE	*	150	62	2.0	2546	4293	80.98	3	3
50. NB RIGHT QUE	*	150	62	2.0	45	1600	80.98	3	3
51. WB LEFT QUE	*	150	139	2.0	122	1770	80.98	3	3
52. WB RR QUE	*	150	116	2.0	803	2787	80.98	3	3
53. SB TTHRU QUE	*	150	36	2.0	1329	3468	80.98	3	3
54. SB LEFT QUE	*	150	127	2.0	280	1734	80.98	3	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 1A	-0.1	-2.3	1.8
2. 1B	1.8	40.8	1.8
3. 1C	6.0	82.9	1.8
4. 1D	10.8	108.0	1.8
5. 1E	35.8	117.9	1.8
6. 1F	91.2	127.8	1.8
7. 1G	126.7	157.6	1.8
8. 1H	99.7	190.3	1.8
9. 1I	67.0	169.9	1.8
10. 1J	26.4	151.5	1.8
11. 1K	9.8	152.0	1.8
12. 1L	11.7	182.7	1.8
13. 1M	12.2	231.9	1.8
14. 1N	23.5	251.3	1.8
15. 1O	-99.0	91.9	1.8
16. 1P	-64.5	84.3	1.8
17. 1Q	-45.5	63.5	1.8
18. 1R	-45.1	-2.7	1.8

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: OPENING YEAR 2020 NOBUILD I-95 INTERCHAN

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
0.	5.1	5.5	5.6	5.7	4.7	3.6	4.0	3.1	3.2	3.7	4.6	4.5	4.3	3.9	4.9	4.6	4.7	4.5
10.	3.9	4.1	4.4	4.4	4.4	3.4	4.1	2.9	2.9	3.1	3.4	3.4	3.5	3.4	4.9	4.8	4.7	4.5
20.	3.2	3.3	3.7	4.1	4.2	3.5	4.1	3.0	2.9	2.9	2.9	2.9	3.0	2.9	4.7	4.3	4.6	4.7
30.	3.1	3.2	3.6	4.1	4.1	3.5	3.8	3.0	3.0	2.9	2.9	2.9	2.9	2.9	4.1	4.1	4.3	4.4
40.	3.0	3.1	3.7	4.1	4.2	3.5	3.7	3.1	3.0	2.9	2.9	2.9	2.9	2.9	3.9	4.1	4.6	4.3
50.	2.9	3.0	3.4	4.1	4.3	3.1	3.7	3.1	2.9	2.9	2.9	2.9	2.9	2.9	4.0	4.1	4.6	4.2
60.	2.9	2.9	3.0	4.0	4.0	3.1	3.6	3.3	3.0	3.0	2.9	2.9	3.0	2.9	4.0	4.3	4.2	4.1
70.	2.9	2.9	2.9	3.5	3.5	3.0	3.4	3.2	3.1	3.3	3.1	2.9	3.0	3.0	4.1	4.1	4.1	4.1
80.	2.9	2.9	2.9	3.0	3.0	2.9	3.2	3.2	3.3	3.5	3.4	3.0	2.9	3.0	3.8	3.9	4.0	4.1
90.	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.2	3.4	4.1	3.9	3.1	2.9	2.9	3.4	3.7	4.0	4.0
100.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.4	4.2	4.1	3.1	2.9	2.9	3.4	3.6	4.0	4.0
110.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.4	4.4	4.1	3.3	3.0	2.9	3.4	3.7	3.9	4.1
120.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.4	4.2	4.0	3.3	3.0	3.0	3.4	3.7	3.9	4.0
130.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.4	4.3	4.0	3.4	3.1	3.0	3.4	3.6	4.0	4.0
140.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.5	4.3	3.9	3.4	3.2	3.0	3.4	3.7	4.0	3.9
150.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.7	4.1	3.9	3.5	3.1	3.2	3.3	3.7	4.1	3.9
160.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.8	4.1	3.9	3.5	3.3	3.1	3.3	3.6	4.0	4.0
170.	3.0	3.1	3.0	3.0	2.9	2.9	2.9	3.4	3.9	4.1	4.1	3.6	3.5	3.4	3.1	3.3	3.8	3.7
180.	3.4	3.6	3.6	3.5	3.0	2.9	2.9	3.4	3.9	4.4	4.8	4.2	4.3	3.8	2.9	3.1	3.4	3.3
190.	4.0	4.4	4.3	4.2	3.3	2.9	2.9	3.4	4.1	4.9	5.5	4.9	4.9	4.3	2.9	2.9	3.0	3.0
200.	4.4	4.9	4.9	4.5	3.6	3.1	3.0	3.7	4.4	5.3	5.3	5.0	5.3	4.5	2.9	2.9	2.9	2.9
210.	4.6	5.0	4.8	4.6	3.9	3.2	3.1	4.0	4.6	5.3	5.1	5.1	4.8	4.4	2.9	2.9	2.9	2.9
220.	4.5	4.9	4.7	4.4	3.8	3.4	3.3	4.1	4.6	5.0	4.7	5.0	4.9	4.7	3.0	2.9	2.9	2.9

230.	*	4.5	4.7	4.6	4.4	3.8	3.4	3.3	4.5	4.7	4.9	5.1	5.1	5.3	5.0	3.4	3.1	2.9	2.9
240.	*	4.5	4.6	4.6	4.5	3.9	3.5	3.9	4.3	4.4	4.8	5.4	5.5	5.5	5.1	3.8	3.4	3.1	2.9
250.	*	4.4	4.7	4.9	4.9	4.2	3.9	5.1	4.1	4.3	5.0	5.5	5.5	5.4	5.0	4.2	3.8	3.4	2.9
260.	*	4.6	4.9	5.1	5.1	4.8	4.4	5.7	4.2	4.3	4.8	5.5	5.3	5.3	5.0	4.5	3.9	3.7	3.1
270.	*	4.9	5.0	5.3	5.2	4.9	4.9	5.8	4.0	4.2	4.8	5.3	5.3	5.3	4.9	4.6	4.0	3.7	3.4
280.	*	5.0	5.2	5.4	5.3	5.3	4.9	5.3	4.0	4.1	4.7	5.3	5.2	5.3	5.1	4.6	4.2	3.8	3.6
290.	*	5.1	5.2	5.4	5.1	5.4	5.3	5.0	4.1	4.2	4.6	5.3	5.3	5.5	5.0	4.6	4.2	3.9	3.7
300.	*	5.2	5.3	5.4	5.0	5.6	5.0	5.1	4.0	4.3	4.6	5.5	5.4	5.4	5.2	4.6	4.3	3.9	3.8
310.	*	5.2	5.3	5.3	5.1	5.8	5.1	4.9	4.1	4.5	4.7	5.4	5.6	5.6	5.3	4.6	4.2	3.9	3.8
320.	*	5.4	5.4	5.5	5.5	5.8	4.9	5.0	4.0	4.3	4.9	5.6	5.9	5.9	5.3	4.6	4.2	3.9	3.8
330.	*	5.5	5.6	5.5	5.8	5.9	4.8	4.5	3.7	4.3	5.2	5.8	6.1	5.9	5.0	4.7	4.2	3.9	3.8
340.	*	5.7	5.9	5.9	6.5	6.0	4.2	4.4	3.5	3.9	5.1	6.3	6.2	5.6	4.6	4.6	4.2	4.0	3.8
350.	*	6.0	6.1	6.0	6.5	5.5	3.9	4.3	3.4	3.5	4.6	5.8	5.5	5.0	4.3	4.8	4.3	4.1	3.9
MAX	*	6.0	6.1	6.0	6.5	6.0	5.3	5.8	4.5	4.7	5.3	6.3	6.2	5.9	5.3	4.9	4.8	4.7	4.7
DEGR.	*	350	350	350	350	340	290	270	230	230	200	340	340	330	310	10	10	0	20

THE HIGHEST CONCENTRATION OF 6.50 PPM OCCURRED AT RECEPTOR REC4 .

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: OPENING YEAR 2020 NOBUILD I-95 INTERCHAN

DATE : 02/17/ 0
TIME : 12:54:01

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 350	REC2 350	REC3 350	REC4 350	REC5 340	REC6 290	REC7 270	REC8 230	REC9 230	REC10 200	REC11 340	REC12 340	REC13 330	REC14 310	REC15 10	REC16 10	REC17 0	REC18 20
1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.0
3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.0
4	0.3	0.4	0.4	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.6	0.4	0.6	0.5	0.5	0.1
5	0.2	0.2	0.1	0.1	0.1	0.4	0.4	0.1	0.1	0.0	0.2	0.1	0.1	0.3	0.3	0.1	0.2	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	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	0.0	0.1	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	0.1	0.1	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
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
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
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
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
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
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
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
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	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	0.1	0.2	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	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	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	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
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
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	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	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	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	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	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	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	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	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	0.0	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	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	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	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
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
38 *	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	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	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40 *	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.2	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
41 *	0.2	0.3	0.7	0.9	0.3	0.3	0.2	0.1	0.1	0.0	1.1	0.5	0.0	0.0	0.0	0.0	0.1	0.2
42 *	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.6	0.1	0.0	0.1	0.1	0.1
43 *	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.5	0.0	0.1	0.1	0.0
44 *	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0
45 *	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: OPENING YEAR 2020 NOBUILD I-95 INTERCHAN

LINK #	* CO/LINK (PPM) / ANGLE (DEGREES)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18
	* ANGLE	350	350	350	350	340	290	270	230	230	200	340	340	330	310	10	10	0	20
46	*	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1
47	*	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
48	*	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	0.2	0.2	0.1	0.0
49	*	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
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	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.2	0.3	0.3	0.9	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.0	0.0	0.1	0.3	0.5	0.5	0.3	0.4	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
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	0.0	0.0	0.0	0.0	0.0
54	*	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.0	0.1	0.1	0.1
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	0.0	0.0	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0
57	*	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.1	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	0.0	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
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	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	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	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 2/17/2012 at 12:57:19

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 12:57:19

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. NB I95	*	-260.9	-32.0	-102.5	251.1	*	324.	29.	AG	3392.	15.6	0.0	26.5		
2. I95 NB A	*	-102.5	249.3	-38.3	366.6	*	134.	29.	AG	3683.	15.6	0.0	26.5		
3. I95 NB B	*	-38.3	366.6	51.2	544.5	*	199.	27.	AG	3488.	15.6	0.0	26.5		
4. I95 SB	*	27.9	552.9	-77.4	333.1	*	244.	206.	AG	7468.	15.6	0.0	26.5		
5. I95 SB A	*	-78.3	335.0	-281.4	-20.8	*	410.	210.	AG	6619.	15.6	0.0	26.5		
6. OFF RAMP	*	-182.6	71.4	-138.9	92.8	*	49.	64.	AG	583.	13.3	0.0	10.0		
7. OFF RAMP	*	-138.9	92.8	-96.0	106.8	*	45.	72.	AG	583.	13.3	0.0	10.0		
8. OFF RAMP	*	-96.0	106.8	-61.5	104.9	*	35.	93.	AG	583.	13.3	0.0	10.0		
9. EB THRU	*	-65.3	110.5	-19.6	115.1	*	46.	84.	AG	206.	13.3	0.0	10.0		
10. ONN RAMP	*	-21.5	233.4	-24.3	170.1	*	63.	183.	AG	279.	13.3	0.0	10.0		
11. ONN RAMP	*	-24.3	170.1	-39.2	140.3	*	33.	207.	AG	279.	13.3	0.0	10.0		
12. ONN RAMP	*	-39.2	140.3	-63.4	128.2	*	27.	243.	AG	279.	13.3	0.0	10.0		
13. ONN RAMP	*	-63.4	128.2	-95.1	130.0	*	32.	273.	AG	279.	13.3	0.0	10.0		
14. ONN RAMP	*	-95.1	130.0	-114.6	144.9	*	25.	307.	AG	279.	13.3	0.0	10.0		
15. ONN RAMP	*	-114.6	144.9	-121.2	166.4	*	22.	343.	AG	279.	13.3	0.0	10.0		
16. ONN RAMP	*	-121.2	166.4	-117.4	186.9	*	21.	11.	AG	279.	13.3	0.0	10.0		
17. ONN RAMP	*	-117.4	186.9	-91.4	240.0	*	59.	26.	AG	279.	13.3	0.0	10.0		
18. ON RAMP	*	2.7	250.2	14.8	294.9	*	46.	15.	AG	879.	13.3	0.0	10.0		
19. ON RAMP	*	14.8	294.9	36.3	328.4	*	40.	33.	AG	879.	13.3	0.0	10.0		
20. ON RAMP	*	36.3	328.4	62.3	340.5	*	29.	65.	AG	879.	13.3	0.0	10.0		
21. ON RAMP	*	62.3	340.5	86.6	353.6	*	28.	62.	AG	879.	13.3	0.0	10.0		
22. ON RAMP	*	86.6	353.6	132.2	397.4	*	63.	46.	AG	879.	13.3	0.0	10.0		
23. ON RAMP	*	132.2	397.4	139.6	426.2	*	30.	14.	AG	879.	13.3	0.0	10.0		
24. OFF RAMP	*	8.3	429.0	27.9	454.2	*	32.	38.	AG	98.	13.3	0.0	10.0		
25. OFF RAMP	*	27.9	454.2	52.1	453.3	*	24.	92.	AG	98.	13.3	0.0	10.0		
26. OFF RAMP	*	52.1	453.3	75.4	437.4	*	28.	124.	AG	98.	13.3	0.0	10.0		
27. OFF RAMP	*	75.4	437.4	79.1	421.6	*	16.	167.	AG	98.	13.3	0.0	10.0		
28. OFF RAMP	*	79.1	421.6	78.2	398.3	*	23.	182.	AG	98.	13.3	0.0	10.0		
29. OFF RAMP	*	78.2	398.3	69.8	362.0	*	37.	193.	AG	98.	13.3	0.0	10.0		
30. OFF RAMP	*	69.8	362.0	58.6	355.5	*	13.	240.	AG	98.	13.3	0.0	10.0		
31. OFF RAMP	*	58.6	355.5	35.3	345.2	*	25.	246.	AG	98.	13.3	0.0	10.0		
32. OFF RAMP	*	35.3	345.2	11.1	340.5	*	25.	259.	AG	98.	13.3	0.0	10.0		
33. OFF RAMP	*	11.1	340.5	-16.8	345.2	*	28.	280.	AG	98.	13.3	0.0	10.0		
34. OFF RAMP	*	-16.8	345.2	-28.0	348.0	*	12.	284.	AG	98.	13.3	0.0	10.0		
35. NEWINGTON ROAD	*	159.2	351.7	154.5	253.0	*	99.	183.	AG	925.	13.1	0.0	13.4		
36. NEWINGTON ROAD	*	154.5	253.0	149.0	219.5	*	34.	189.	AG	925.	13.1	0.0	13.4		
37. NEWINGTON ROAD	*	149.0	219.5	111.7	169.2	*	63.	217.	AG	925.	13.1	0.0	13.4		

38. NEWINGTON ROAD	*	111.7	169.2	62.3	143.1	*	56.	242.	AG	925.	13.1	0.0	13.4
39. NEWINGTON ROAD	*	62.3	143.1	-1.9	125.4	*	67.	255.	AG	925.	13.1	0.0	13.4
40. NB PARKWAY	*	-20.6	-138.2	-5.7	124.5	*	263.	3.	AG	2591.	13.1	0.0	13.4
41. NB PARKWAY DEC	*	-5.7	121.7	-1.0	206.4	*	85.	3.	AG	3349.	13.1	0.0	13.4
42. NB PARKWAY DEC	*	-1.0	206.4	-8.5	266.0	*	60.	353.	AG	3349.	13.1	0.0	13.4
43. NB PARKWAY DEC	*	-8.5	266.0	-17.8	310.7	*	46.	348.	AG	3349.	13.1	0.0	13.4
44. NB PARKWAY DEC	*	-17.8	310.7	-34.5	342.4	*	36.	332.	AG	3349.	13.1	0.0	13.4

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 12:57:19

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. SB PARKWAY	*	-46.6	322.9	-16.8	227.8	*	100.	163.	AG	1609.	13.1	0.0	13.4		
46. SB PARKWAY	*	-16.8	227.8	-18.7	118.9	*	109.	181.	AG	1609.	13.1	0.0	13.4		
47. SB PARKWAY DEC	*	-17.8	120.7	-33.6	-139.1	*	260.	183.	AG	1828.	13.1	0.0	13.4		
48. EB QUE	*	-27.1	114.6	-268.4	95.6	*	242.	266.	AG	194.	100.0	0.0	3.7	1.38	40.3
49. NB TTHRU QUE	*	-7.7	110.3	-16.3	-21.0	*	132.	184.	AG	180.	100.0	0.0	7.3	0.53	21.9
50. NB RIGHT QUE	*	-1.5	113.6	-1.8	109.0	*	5.	183.	AG	90.	100.0	0.0	3.7	0.05	0.8
51. WB LEFT QUE	*	4.1	126.4	165.7	173.2	*	168.	74.	AG	201.	100.0	0.0	3.7	1.49	28.0
52. WB RR QUE	*	3.2	131.1	78.0	151.3	*	78.	75.	AG	336.	100.0	0.0	7.3	0.47	12.9
53. SB TTHRU QUE	*	-19.5	127.4	-19.3	167.2	*	40.	0.	AG	104.	100.0	0.0	7.3	0.26	6.6
54. SB LEFT QUE	*	-13.8	124.5	-16.6	394.8	*	270.	359.	AG	184.	100.0	0.0	3.7	1.28	45.0
55. FLYOVER RAMP	*	-196.9	42.1	-135.4	150.3	*	124.	30.	AG	396.	13.1	0.0	10.0		
56. FLYOVER RAMP	*	-135.4	150.3	-75.6	224.0	*	95.	39.	AG	396.	13.1	0.0	10.0		
57. FLYOVER RAMP	*	-75.6	224.0	-43.0	267.9	*	55.	37.	AG	396.	13.1	0.0	10.0		
58. FLYOVER RAMP	*	-43.0	267.9	-34.6	336.9	*	70.	7.	AG	396.	13.1	0.0	10.0		
59. FLYOVER RAMP	*	-34.6	336.9	-37.4	358.4	*	22.	353.	AG	396.	13.1	0.0	10.0		
60. FLYOVER RAMP	*	-37.4	358.4	-84.0	427.4	*	83.	326.	AG	396.	13.1	0.0	10.0		
61.	*	-62.1	103.8	-37.5	83.1	*	32.	130.	AG	377.	13.3	0.0	10.0		
62.	*	-37.5	83.1	-28.1	62.8	*	22.	155.	AG	377.	13.3	0.0	10.0		
63. eb dec link	*	1.2	119.2	62.4	135.7	*	63.	75.	AG	531.	13.1	0.0	13.4		
64. eb dec link	*	62.4	135.7	115.0	164.0	*	60.	62.	AG	531.	13.1	0.0	13.4		
65. eb dec link	*	115.0	164.0	155.7	216.9	*	67.	38.	AG	531.	13.1	0.0	13.4		
66. eb dec link	*	155.7	216.9	161.8	257.0	*	41.	9.	AG	531.	13.1	0.0	13.4		
67. eb dec link	*	161.8	257.0	166.1	351.1	*	94.	3.	AG	531.	13.1	0.0	13.4		

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 12:57:19

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
48. EB QUE	*	150	134	2.0	206	1863	80.98	3	3

49. NB TTHRU QUE	*	150	62	2.0	2546	4293	80.98	3	3
50. NB RIGHT QUE	*	150	62	2.0	45	1600	80.98	3	3
51. WB LEFT QUE	*	150	139	2.0	122	1770	80.98	3	3
52. WB RR QUE	*	150	116	2.0	803	4293	80.98	3	3
53. SB TTHRU QUE	*	150	36	2.0	1329	3468	80.98	3	3
54. SB LEFT QUE	*	150	127	2.0	280	1734	80.98	3	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 1A	-0.1	-2.3	1.8
2. 1B	1.8	40.8	1.8
3. 1C	6.0	82.9	1.8
4. 1D	10.8	108.0	1.8
5. 1E	35.8	117.9	1.8
6. 1F	91.2	127.8	1.8
7. 1G	126.7	157.6	1.8
8. 1H	99.7	190.3	1.8
9. 1I	67.0	169.9	1.8
10. 1J	26.4	151.5	1.8
11. 1K	9.8	152.0	1.8
12. 1L	11.7	182.7	1.8
13. 1M	12.2	231.9	1.8
14. 1N	23.5	251.3	1.8
15. 1O	-99.0	91.9	1.8
16. 1P	-64.5	84.3	1.8
17. 1Q	-45.5	63.5	1.8
18. 1R	-45.1	-2.7	1.8

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2020 BUILD

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
0.	5.1	5.5	5.6	5.7	4.7	3.6	4.0	3.1	3.2	3.7	4.6	4.5	4.3	3.9	4.9	4.6	4.7	4.5
10.	3.9	4.1	4.4	4.4	4.4	3.4	4.1	2.9	2.9	3.1	3.4	3.4	3.5	3.4	4.9	4.8	4.7	4.5
20.	3.2	3.3	3.7	4.1	4.2	3.5	4.1	3.0	2.9	2.9	2.9	2.9	3.0	2.9	4.7	4.3	4.6	4.7
30.	3.1	3.2	3.6	4.1	4.1	3.5	3.8	3.0	3.0	2.9	2.9	2.9	2.9	2.9	4.1	4.1	4.3	4.4
40.	3.0	3.1	3.7	4.1	4.2	3.5	3.6	3.1	3.0	2.9	2.9	2.9	2.9	2.9	3.9	4.1	4.6	4.3
50.	2.9	3.0	3.4	4.1	4.3	3.1	3.7	3.1	2.9	2.9	2.9	2.9	2.9	2.9	4.0	4.1	4.6	4.2
60.	2.9	2.9	3.0	3.9	3.9	3.1	3.6	3.3	3.0	3.0	2.9	2.9	3.0	2.9	4.0	4.3	4.2	4.1
70.	2.9	2.9	2.9	3.5	3.5	3.0	3.4	3.2	3.1	3.3	3.1	2.9	3.0	3.0	4.1	4.1	4.1	4.1
80.	2.9	2.9	2.9	3.0	3.0	2.9	3.2	3.2	3.3	3.5	3.4	3.0	2.9	3.0	3.8	3.9	4.0	4.1
90.	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.2	3.4	4.1	3.9	3.1	2.9	2.9	3.4	3.7	4.0	4.0
100.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.4	4.2	4.1	3.1	2.9	2.9	3.4	3.6	3.9	4.0
110.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.4	4.4	4.1	3.3	3.0	2.9	3.4	3.7	3.9	4.1
120.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.4	4.2	4.0	3.3	3.0	3.0	3.4	3.6	3.9	4.0
130.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.4	4.3	4.0	3.4	3.1	3.0	3.4	3.6	4.0	4.0
140.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.5	4.3	3.9	3.4	3.2	3.0	3.4	3.7	4.0	3.9
150.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.7	4.1	3.9	3.5	3.1	3.2	3.3	3.7	4.1	3.9
160.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.8	4.1	3.9	3.5	3.3	3.1	3.3	3.6	4.0	4.0

170.	*	3.0	3.1	3.0	3.0	2.9	2.9	2.9	3.4	3.9	4.1	4.1	3.6	3.5	3.4	3.1	3.3	3.8	3.7
180.	*	3.4	3.6	3.6	3.5	3.0	2.9	2.9	3.4	3.9	4.4	4.8	4.2	4.3	3.8	2.9	3.1	3.4	3.3
190.	*	4.0	4.4	4.3	4.2	3.3	2.9	2.9	3.4	4.1	4.9	5.5	4.9	4.9	4.3	2.9	2.9	3.0	3.0
200.	*	4.4	4.9	4.9	4.5	3.6	3.1	3.0	3.7	4.4	5.3	5.3	5.0	5.3	4.5	2.9	2.9	2.9	2.9
210.	*	4.6	5.0	4.8	4.6	3.9	3.2	3.1	4.0	4.6	5.3	5.1	5.1	4.8	4.4	2.9	2.9	2.9	2.9
220.	*	4.5	4.9	4.7	4.4	3.8	3.4	3.3	4.1	4.6	5.0	4.7	4.9	4.9	4.7	3.0	2.9	2.9	2.9
230.	*	4.5	4.7	4.6	4.4	3.8	3.4	3.3	4.5	4.7	4.9	5.1	5.1	5.3	4.9	3.3	3.1	2.9	2.9
240.	*	4.5	4.6	4.6	4.5	3.9	3.5	3.9	4.3	4.4	4.8	5.3	5.5	5.5	5.1	3.8	3.4	3.1	2.9
250.	*	4.4	4.7	4.9	4.9	4.2	3.9	5.1	4.1	4.2	5.0	5.5	5.4	5.4	5.0	4.2	3.7	3.4	2.9
260.	*	4.6	4.9	5.1	5.1	4.8	4.4	5.7	4.1	4.3	4.8	5.5	5.3	5.3	5.0	4.5	3.9	3.7	3.1
270.	*	4.9	5.0	5.3	5.2	4.9	4.9	5.8	4.0	4.1	4.8	5.3	5.3	5.3	4.9	4.6	4.0	3.7	3.4
280.	*	5.0	5.1	5.4	5.3	5.2	4.9	5.3	4.0	4.1	4.7	5.3	5.2	5.3	5.0	4.5	4.1	3.8	3.5
290.	*	5.1	5.1	5.4	5.1	5.3	5.3	4.9	4.1	4.2	4.6	5.3	5.3	5.4	5.0	4.6	4.1	3.9	3.7
300.	*	5.2	5.2	5.4	5.0	5.6	5.0	5.1	4.0	4.3	4.6	5.5	5.4	5.4	5.2	4.6	4.3	3.9	3.8
310.	*	5.2	5.3	5.2	5.1	5.8	5.0	4.9	4.1	4.4	4.7	5.3	5.6	5.6	5.3	4.6	4.1	3.9	3.8
320.	*	5.4	5.4	5.5	5.5	5.8	4.9	4.9	3.9	4.2	4.9	5.6	5.8	5.9	5.2	4.5	4.2	3.9	3.8
330.	*	5.5	5.6	5.5	5.8	5.9	4.8	4.5	3.7	4.3	5.2	5.8	6.0	5.8	4.9	4.7	4.2	3.9	3.8
340.	*	5.7	5.9	5.9	6.4	6.0	4.1	4.4	3.5	3.9	5.1	6.3	6.2	5.6	4.6	4.6	4.2	4.0	3.8
350.	*	6.0	6.1	6.0	6.5	5.5	3.9	4.3	3.4	3.5	4.6	5.7	5.5	5.0	4.3	4.8	4.3	4.1	3.9
MAX	*	6.0	6.1	6.0	6.5	6.0	5.3	5.8	4.5	4.7	5.3	6.3	6.2	5.9	5.3	4.9	4.8	4.7	4.7
DEGR.	*	350	350	350	350	340	290	270	230	230	200	340	340	320	310	10	10	0	20

THE HIGHEST CONCENTRATION OF 6.50 PPM OCCURRED AT RECEPTOR REC4 .

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 12:57:19

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 350	REC2 350	REC3 350	REC4 350	REC5 340	REC6 290	REC7 270	REC8 230	REC9 230	REC10 200	REC11 340	REC12 340	REC13 320	REC14 310	REC15 10	REC16 10	REC17 0	REC18 20
1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.0
3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.0
4	0.3	0.4	0.4	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.4	0.4	0.6	0.5	0.5	0.1
5	0.2	0.2	0.1	0.1	0.1	0.4	0.4	0.1	0.1	0.0	0.2	0.1	0.3	0.3	0.3	0.1	0.2	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	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	0.0	0.1	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	0.1	0.1	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
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
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
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
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
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
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
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
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	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	0.1	0.2	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	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	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	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
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
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	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	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	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	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	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	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	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	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	0.0	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	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	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	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
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
38	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	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	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.2	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
41	*	0.2	0.3	0.7	0.9	0.3	0.3	0.2	0.1	0.1	0.0	1.1	0.5	0.0	0.0	0.0	0.0	0.1	0.2
42	*	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.9	0.1	0.0	0.1	0.1	0.1
43	*	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5	0.0	0.1	0.1	0.0
44	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
45	*	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.0

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2020 BUILD

LINK #	*	CO/LINK (PPM) ANGLE (DEGREES) REC1 350	REC2 350	REC3 350	REC4 350	REC5 340	REC6 290	REC7 270	REC8 230	REC9 230	REC10 200	REC11 340	REC12 340	REC13 320	REC14 310	REC15 10	REC16 10	REC17 0	REC18 20
46	*	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1
47	*	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
48	*	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	0.2	0.2	0.1	0.0
49	*	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
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	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.2	0.3	0.3	0.9	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.0	0.0	0.1	0.3	0.5	0.5	0.3	0.4	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
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	0.0	0.0	0.0	0.0	0.0
54	*	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.0	0.1	0.1	0.1
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	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	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	0.0	0.0	0.0	0.0	0.0
58	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	0.0	0.0	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0
63	*	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.1	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	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	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	0.0	0.0	0.0	0.0	0.0
67	*	0.0	0.0	0.0	0.0	0.0	0.0	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 2/21/2012 at 8:08:47

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2020 BUILD

DATE : 02/21/ 0
TIME : 08:08:47

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. NB I95	*	-260.9	-32.0	-102.5	251.1	*	324.	29.	AG	3392.	15.6	0.0	26.5		
2. I95 NB A	*	-102.5	249.3	-38.3	366.6	*	134.	29.	AG	3683.	15.6	0.0	26.5		
3. I95 NB B	*	-38.3	366.6	51.2	544.5	*	199.	27.	AG	3488.	15.6	0.0	26.5		
4. I95 SB	*	27.9	552.9	-77.4	333.1	*	244.	206.	AG	7468.	15.6	0.0	26.5		
5. I95 SB A	*	-78.3	335.0	-281.4	-20.8	*	410.	210.	AG	6619.	15.6	0.0	26.5		
6. EB THRU	*	-65.3	110.5	-19.6	115.1	*	46.	84.	AG	348.	13.3	0.0	13.4		
7. ONN RAMP	*	-21.5	233.4	-24.3	170.1	*	63.	183.	AG	279.	13.1	0.0	10.0		
8. ONN RAMP	*	-24.3	170.1	-39.2	140.3	*	33.	207.	AG	279.	13.1	0.0	10.0		
9. ONN RAMP	*	-39.2	140.3	-63.4	128.2	*	27.	243.	AG	279.	13.1	0.0	10.0		
10. ONN RAMP	*	-63.4	128.2	-95.1	130.0	*	32.	273.	AG	279.	13.1	0.0	10.0		
11. ONN RAMP	*	-95.1	130.0	-114.6	144.9	*	25.	307.	AG	279.	13.1	0.0	10.0		
12. ONN RAMP	*	-114.6	144.9	-121.2	166.4	*	22.	343.	AG	279.	13.1	0.0	10.0		
13. ONN RAMP	*	-121.2	166.4	-117.4	186.9	*	21.	11.	AG	279.	13.1	0.0	10.0		
14. ONN RAMP	*	-117.4	186.9	-91.4	240.0	*	59.	26.	AG	279.	13.1	0.0	10.0		
15. ON RAMP	*	2.7	250.2	14.8	294.9	*	46.	15.	AG	879.	13.1	0.0	10.0		
16. ON RAMP	*	14.8	294.9	36.3	328.4	*	40.	33.	AG	879.	13.1	0.0	10.0		
17. ON RAMP	*	36.3	328.4	62.3	340.5	*	29.	65.	AG	879.	13.1	0.0	10.0		
18. ON RAMP	*	62.3	340.5	86.6	353.6	*	28.	62.	AG	879.	13.1	0.0	10.0		
19. ON RAMP	*	86.6	353.6	132.2	397.4	*	63.	46.	AG	879.	13.1	0.0	10.0		
20. ON RAMP	*	132.2	397.4	139.6	426.2	*	30.	14.	AG	879.	13.1	0.0	10.0		
21. NEWINGTON ROAD	*	159.2	351.7	154.5	253.0	*	99.	183.	AG	925.	13.1	0.0	13.4		
22. NEWINGTON ROAD	*	154.5	253.0	149.0	219.5	*	34.	189.	AG	925.	13.1	0.0	13.4		
23. NEWINGTON ROAD	*	149.0	219.5	111.7	169.2	*	63.	217.	AG	925.	13.1	0.0	13.4		
24. NEWINGTON ROAD	*	111.7	169.2	62.3	143.1	*	56.	242.	AG	925.	13.1	0.0	13.4		
25. NEWINGTON ROAD	*	62.3	143.1	-1.9	125.4	*	67.	255.	AG	925.	13.1	0.0	13.4		
26. NB PARKWAY	*	-20.6	-138.2	-5.7	124.5	*	263.	3.	AG	2546.	13.1	0.0	13.4		
27. NB PARKWAY DEC	*	-5.7	121.7	-1.0	206.4	*	85.	3.	AG	3491.	13.1	0.0	13.4		
28. NB PARKWAY DEC	*	-1.0	206.4	-8.5	266.0	*	60.	353.	AG	3491.	13.1	0.0	13.4		
29. NB PARKWAY DEC	*	-8.5	266.0	-17.8	310.7	*	46.	348.	AG	3491.	13.1	0.0	13.4		
30. NB PARKWAY DEC	*	-17.8	310.7	-34.5	342.4	*	36.	332.	AG	3491.	13.1	0.0	13.4		
31. SB PARKWAY	*	-46.6	322.9	-16.8	227.8	*	100.	163.	AG	1537.	13.1	0.0	13.4		
32. SB PARKWAY	*	-16.8	227.8	-18.7	118.9	*	109.	181.	AG	1537.	13.1	0.0	13.4		
33. SB PARKWAY DEC	*	-17.8	120.7	-33.6	-139.1	*	260.	183.	AG	1828.	13.1	0.0	13.4		
34. NB TTHRU QUE	*	-7.7	110.3	-16.3	-21.0	*	132.	184.	AG	180.	100.0	0.0	7.3	0.53	21.9
35. NB RIGHT QUE	*	-1.5	113.6	-1.8	109.0	*	5.	183.	AG	90.	100.0	0.0	3.7	0.05	0.8

36. WB LEFT QUE	*	4.1	126.4	165.7	173.2	*	168.	74.	AG	201.	100.0	0.0	3.7	1.49	28.0
37. WB RR QUE	*	3.2	131.1	78.0	151.3	*	78.	75.	AG	336.	100.0	0.0	7.3	0.72	12.9
38. SB TTHRU QUE	*	-19.5	127.4	-19.3	167.2	*	40.	0.	AG	104.	100.0	0.0	7.3	0.26	6.6
39. SB LEFT QUE	*	-13.8	124.5	-16.6	394.8	*	270.	359.	AG	184.	100.0	0.0	3.7	1.28	45.0
40. FLYOVER RAMP	*	-196.9	42.1	-135.4	150.3	*	124.	30.	AG	396.	13.1	0.0	10.0		
41. FLYOVER RAMP	*	-135.4	150.3	-75.6	224.0	*	95.	39.	AG	396.	13.1	0.0	10.0		
42. FLYOVER RAMP	*	-75.6	224.0	-43.0	267.9	*	55.	37.	AG	396.	13.1	0.0	10.0		
43. FLYOVER RAMP	*	-43.0	267.9	-34.6	336.9	*	70.	7.	AG	396.	13.1	0.0	10.0		
44. FLYOVER RAMP	*	-34.6	336.9	-37.4	358.4	*	22.	353.	AG	396.	13.1	0.0	10.0		

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2020 BUILD

DATE : 02/21/ 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. FLYOVER RAMP	*	-37.4	358.4	-84.0	427.4	*	83.	326.	AG	396.	13.1	0.0	10.0		
46.	*	-176.5	73.6	-138.3	92.3	*	43.	64.	AG	725.	13.3	0.0	10.0		
47.	*	-138.3	92.3	-95.2	106.1	*	45.	72.	AG	725.	13.3	0.0	10.0		
48.	*	-95.2	106.1	-65.4	104.5	*	30.	93.	AG	725.	13.3	0.0	10.0		
49.	*	-65.0	104.2	-47.1	93.5	*	21.	121.	AG	377.	13.3	0.0	10.0		
50.	*	-47.1	93.5	-27.6	62.2	*	37.	148.	AG	377.	13.3	0.0	10.0		
51. LEFT QUE	*	-23.8	116.4	-91.6	111.6	*	68.	266.	AG	195.	100.0	0.0	3.7	1.04	11.3
52. EB DEC LINK	*	0.9	118.7	63.8	136.4	*	65.	74.	AG	531.	13.1	0.0	13.4		
53. EB DEC LINK	*	63.8	136.4	116.7	164.2	*	60.	62.	AG	531.	13.1	0.0	13.4		
54. EB DEC LINK	*	116.7	164.2	155.7	217.4	*	66.	36.	AG	531.	13.1	0.0	13.4		
55. EB DEC LINK	*	155.7	217.4	161.2	251.5	*	35.	9.	AG	531.	13.1	0.0	13.4		
56. EB DEC LINK	*	161.2	251.5	166.3	351.5	*	100.	3.	AG	531.	13.1	0.0	13.4		
57. eb thru que	*	-24.7	113.0	-299.2	93.7	*	275.	266.	AG	195.	100.0	0.0	3.7	1.51	45.9

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2020 BUILD

DATE : 02/21/ 0
TIME : 08:08:47

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
34. NB TTHRU QUE	*	150	62	2.0	2546	4293	80.98	3	3
35. NB RIGHT QUE	*	150	62	2.0	45	1600	80.98	3	3
36. WB LEFT QUE	*	150	139	2.0	122	1770	80.98	3	3
37. WB RR QUE	*	150	116	2.0	803	2787	80.98	3	3
38. SB TTHRU QUE	*	150	36	2.0	1329	3468	80.98	3	3
39. SB LEFT QUE	*	150	127	2.0	280	1734	80.98	3	3
51. LEFT QUE	*	150	135	2.0	142	1863	80.98	3	3
57. eb thru que	*	150	135	2.0	206	1863	80.98	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 1A	-0.1	-2.3	1.8
2. 1B	1.8	40.8	1.8
3. 1C	6.0	82.9	1.8
4. 1D	10.8	108.0	1.8
5. 1E	35.8	117.9	1.8
6. 1F	91.2	127.8	1.8
7. 1G	126.7	157.6	1.8
8. 1H	99.7	190.3	1.8
9. 1I	67.0	169.9	1.8
10. 1J	26.4	151.5	1.8
11. 1K	9.8	152.0	1.8
12. 1L	11.7	182.7	1.8
13. 1M	12.2	231.9	1.8
14. 1N	23.5	251.3	1.8
15. 1O	-99.0	91.9	1.8
16. 1P	-64.5	84.3	1.8
17. 1Q	-45.5	63.5	1.8
18. 1R	-45.1	-2.7	1.8

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2020 BUILD

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
0.	5.1	5.6	5.6	5.6	4.7	3.6	4.0	3.1	3.2	3.7	4.5	4.5	4.3	3.9	5.0	4.9	4.8	4.5
10.	4.0	4.1	4.3	4.5	4.4	3.4	4.1	2.9	2.9	3.1	3.4	3.4	3.5	3.4	5.1	5.0	4.8	4.5
20.	3.2	3.4	3.7	4.1	4.2	3.5	4.1	3.0	2.9	2.9	2.9	2.9	3.0	2.9	4.8	4.7	4.7	4.7
30.	3.1	3.2	3.6	4.1	4.1	3.5	3.8	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.5	4.4	4.3	4.4
40.	3.0	3.1	3.7	4.1	4.2	3.5	3.7	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.1	4.4	4.5	4.3
50.	2.9	3.0	3.4	4.1	4.3	3.1	3.7	3.1	2.9	2.9	2.9	2.9	2.9	2.9	4.2	4.3	4.6	4.2
60.	2.9	2.9	3.0	4.0	4.0	3.1	3.6	3.3	3.0	3.0	2.9	2.9	3.0	2.9	4.4	4.4	4.2	4.1
70.	2.9	2.9	2.9	3.5	3.5	3.0	3.4	3.2	3.1	3.3	3.1	2.9	3.0	3.0	4.5	4.1	4.1	4.1
80.	2.9	2.9	2.9	3.0	3.0	2.9	3.2	3.2	3.3	3.5	3.4	3.0	2.9	3.0	3.9	3.9	4.0	4.1
90.	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.2	3.4	4.1	3.9	3.1	2.9	2.9	3.4	3.7	4.0	4.0
100.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.4	4.2	4.1	3.1	2.9	2.9	3.4	3.7	3.9	4.0
110.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.4	4.4	4.1	3.3	3.0	2.9	3.4	3.7	3.9	4.0
120.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.4	4.2	4.0	3.3	3.0	3.0	3.4	3.7	3.9	4.0
130.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.4	4.3	4.0	3.4	3.1	3.0	3.4	3.6	3.9	4.0
140.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.5	4.3	3.9	3.4	3.2	3.0	3.4	3.6	4.0	3.9
150.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.7	4.1	3.9	3.5	3.1	3.2	3.3	3.7	4.1	3.9
160.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.8	4.1	3.9	3.5	3.3	3.1	3.3	3.6	4.0	4.0
170.	3.0	3.1	3.0	3.0	2.9	2.9	2.9	3.4	3.9	4.1	4.0	3.6	3.6	3.4	3.1	3.3	3.8	3.7
180.	3.4	3.6	3.6	3.5	3.0	2.9	2.9	3.4	3.9	4.4	4.8	4.2	4.3	3.8	2.9	3.1	3.4	3.3
190.	4.0	4.4	4.3	4.2	3.3	2.9	2.9	3.4	4.1	4.9	5.4	4.9	4.9	4.3	2.9	2.9	3.0	3.0
200.	4.4	4.9	4.9	4.5	3.6	3.1	3.0	3.7	4.3	5.3	5.3	5.0	5.3	4.5	2.9	2.9	2.9	2.9
210.	4.6	4.9	4.8	4.6	3.9	3.2	3.1	4.0	4.6	5.2	5.2	5.1	4.9	4.5	2.9	2.9	2.9	2.9
220.	4.5	4.8	4.6	4.4	3.8	3.4	3.3	4.1	4.6	5.0	4.9	5.0	4.9	4.6	3.0	2.9	2.9	2.9
230.	4.5	4.7	4.6	4.4	3.8	3.4	3.3	4.5	4.7	5.0	5.2	5.3	5.3	4.9	3.3	3.1	2.9	2.9
240.	4.5	4.6	4.6	4.5	3.9	3.5	3.9	4.3	4.5	5.1	5.5	5.6	5.6	5.1	3.8	3.4	3.1	2.9

250.	*	4.4	4.6	4.9	4.9	4.2	3.9	5.1	4.2	4.3	5.1	5.7	5.5	5.4	5.1	4.2	3.7	3.4	2.9
260.	*	4.6	4.9	5.2	5.2	4.8	4.5	5.7	4.1	4.4	5.0	5.5	5.4	5.4	5.1	4.5	4.0	3.7	3.1
270.	*	4.9	5.0	5.3	5.6	5.0	5.0	5.8	4.0	4.2	4.8	5.4	5.4	5.4	4.9	4.8	4.3	3.8	3.4
280.	*	5.0	5.1	5.5	5.6	5.2	4.9	5.3	4.1	4.1	4.7	5.4	5.2	5.4	5.1	4.6	4.2	3.8	3.5
290.	*	5.1	5.1	5.5	5.1	5.3	5.3	5.0	4.0	4.2	4.6	5.4	5.3	5.4	5.1	4.7	4.2	4.0	3.8
300.	*	5.1	5.2	5.6	5.1	5.6	5.1	5.2	4.0	4.3	4.6	5.5	5.5	5.4	5.3	4.6	4.3	4.0	3.8
310.	*	5.2	5.5	5.3	5.1	5.8	5.0	4.9	4.1	4.3	4.8	5.3	5.6	5.6	5.4	4.6	4.2	4.0	3.8
320.	*	5.4	5.5	5.6	5.5	5.9	4.9	4.9	3.9	4.3	4.9	5.6	5.8	5.9	5.2	4.5	4.4	4.0	3.8
330.	*	5.6	5.6	5.5	5.9	6.0	4.8	4.5	3.7	4.3	5.2	5.8	6.1	5.8	4.9	4.7	4.5	4.0	3.8
340.	*	5.8	6.1	5.9	6.5	6.0	4.1	4.4	3.5	3.9	5.1	6.3	6.2	5.6	4.6	4.7	4.4	4.0	3.8
350.	*	5.9	6.2	6.1	6.5	5.6	3.9	4.3	3.4	3.5	4.6	5.8	5.5	5.0	4.3	4.8	4.5	4.1	4.0
MAX	*	5.9	6.2	6.1	6.5	6.0	5.3	5.8	4.5	4.7	5.3	6.3	6.2	5.9	5.4	5.1	5.0	4.8	4.7
DEGR.	*	350	350	350	350	340	290	270	230	230	200	340	340	320	310	10	10	0	20

THE HIGHEST CONCENTRATION OF 6.50 PPM OCCURRED AT RECEPTOR REC4 .

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2020 BUILD

DATE : 02/21/ 0
TIME : 08:08:47

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 350	REC2 350	REC3 350	REC4 350	REC5 340	REC6 290	REC7 270	REC8 230	REC9 230	REC10 200	REC11 340	REC12 340	REC13 320	REC14 310	REC15 10	REC16 10	REC17 0	REC18 20
1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.0
3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.0
4	0.3	0.4	0.4	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.4	0.4	0.6	0.5	0.5	0.1
5	0.2	0.2	0.1	0.1	0.1	0.4	0.4	0.1	0.1	0.0	0.2	0.1	0.3	0.3	0.3	0.1	0.2	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	0.0	0.0	0.1	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	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
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
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
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
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
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
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
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	0.1	0.2	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
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	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	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	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	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	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
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
24	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	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	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.2	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
27	0.2	0.3	0.7	0.9	0.3	0.3	0.2	0.1	0.1	0.0	1.1	0.5	0.0	0.0	0.0	0.0	0.1	0.2
28	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.9	0.1	0.0	0.1	0.1	0.1
29	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.0	0.1	0.1	0.0
30	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
31	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.0
32	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1
33	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5

34 *	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
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
36 *	0.0	0.0	0.0	0.2	0.3	0.3	0.9	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37 *	0.0	0.0	0.1	0.3	0.5	0.5	0.3	0.4	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
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
39 *	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.0	0.1	0.1	0.1
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
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
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	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	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	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	0.0	0.0	0.0	0.0	0.0

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2020 BUILD

LINK #	* CO/LINK (PPM) ANGLE (DEGREES)	REC1 350	REC2 350	REC3 350	REC4 350	REC5 340	REC6 290	REC7 270	REC8 230	REC9 230	REC10 200	REC11 340	REC12 340	REC13 320	REC14 310	REC15 10	REC16 10	REC17 0	REC18 20
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	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	0.0	0.1	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	0.0	0.1	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	0.0	0.0	0.1	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	0.0	0.0	0.0	0.1	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	0.0	0.1	0.2	0.1	0.0
52	*	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.1	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	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	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	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	0.0	0.0	0.0	0.0	0.0
57	*	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	0.3	0.2	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 2/17/2012 at 11:20:36

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: Design YEAR 2040 NOBUILD I-95 INTERCHAN

DATE : 02/17/ 0
TIME : 11:20:36

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. NB I95	*	-260.9	-32.0	-102.5	251.1	*	324.	29.	AG	3624.	15.3	0.0	26.5		
2. I95 NB A	*	-102.5	249.3	-38.3	366.6	*	134.	29.	AG	3995.	15.3	0.0	26.5		
3. I95 NB B	*	-38.3	366.6	51.2	544.5	*	199.	27.	AG	3405.	15.3	0.0	26.5		
4. I95 SB	*	27.9	552.9	-77.4	333.1	*	244.	206.	AG	7489.	15.3	0.0	26.5		
5. I95 SB A	*	-78.3	335.0	-281.4	-20.8	*	410.	210.	AG	6785.	15.3	0.0	26.5		
6. OFF RAMP	*	-182.6	71.4	-138.9	92.8	*	49.	64.	AG	780.	13.0	0.0	10.0		
7. OFF RAMP	*	-138.9	92.8	-96.0	106.8	*	45.	72.	AG	780.	13.0	0.0	10.0		
8. OFF RAMP	*	-96.0	106.8	-61.5	104.9	*	35.	93.	AG	780.	13.0	0.0	10.0		
9. EB THRU	*	-65.3	110.5	-19.6	115.1	*	46.	84.	AG	270.	13.0	0.0	10.0		
10. ON RAMP	*	-21.5	233.4	-24.3	170.1	*	63.	183.	AG	235.	12.8	0.0	10.0		
11. ON RAMP	*	-24.3	170.1	-39.2	140.3	*	33.	207.	AG	235.	12.8	0.0	10.0		
12. ON RAMP	*	-39.2	140.3	-63.4	128.2	*	27.	243.	AG	235.	12.8	0.0	10.0		
13. ON RAMP	*	-63.4	128.2	-95.1	130.0	*	32.	273.	AG	235.	12.8	0.0	10.0		
14. ON RAMP	*	-95.1	130.0	-114.6	144.9	*	25.	307.	AG	235.	12.8	0.0	10.0		
15. ON RAMP	*	-114.6	144.9	-121.2	166.4	*	22.	343.	AG	235.	12.8	0.0	10.0		
16. ON RAMP	*	-121.2	166.4	-117.4	186.9	*	21.	11.	AG	235.	12.8	0.0	10.0		
17. ON RAMP	*	-117.4	186.9	-91.4	240.0	*	59.	26.	AG	235.	12.8	0.0	10.0		
18. ON RAMP	*	2.7	250.2	14.8	294.9	*	46.	15.	AG	846.	12.8	0.0	10.0		
19. ON RAMP	*	14.8	294.9	36.3	328.4	*	40.	33.	AG	846.	12.8	0.0	10.0		
20. ON RAMP	*	36.3	328.4	62.3	340.5	*	29.	65.	AG	846.	12.8	0.0	10.0		
21. ON RAMP	*	62.3	340.5	86.6	353.6	*	28.	62.	AG	846.	12.8	0.0	10.0		
22. ON RAMP	*	86.6	353.6	132.2	397.4	*	63.	46.	AG	846.	12.8	0.0	10.0		
23. ON RAMP	*	132.2	397.4	139.6	426.2	*	30.	14.	AG	846.	12.8	0.0	10.0		
24. OFF RAMP	*	8.3	429.0	27.9	454.2	*	32.	38.	AG	637.	12.8	0.0	10.0		
25. OFF RAMP	*	27.9	454.2	52.1	453.3	*	24.	92.	AG	637.	12.8	0.0	10.0		
26. OFF RAMP	*	52.1	453.3	75.4	437.4	*	28.	124.	AG	637.	12.8	0.0	10.0		
27. OFF RAMP	*	75.4	437.4	79.1	421.6	*	16.	167.	AG	637.	12.8	0.0	10.0		
28. OFF RAMP	*	79.1	421.6	78.2	398.3	*	23.	182.	AG	637.	12.8	0.0	10.0		
29. OFF RAMP	*	78.2	398.3	69.8	362.0	*	37.	193.	AG	637.	12.8	0.0	10.0		
30. OFF RAMP	*	69.8	362.0	58.6	355.5	*	13.	240.	AG	637.	12.8	0.0	10.0		
31. OFF RAMP	*	58.6	355.5	35.3	345.2	*	25.	246.	AG	637.	12.8	0.0	10.0		
32. OFF RAMP	*	35.3	345.2	11.1	340.5	*	25.	259.	AG	637.	12.8	0.0	10.0		
33. OFF RAMP	*	11.1	340.5	-16.8	345.2	*	28.	280.	AG	637.	12.8	0.0	10.0		
34. OFF RAMP	*	-16.8	345.2	-28.0	348.0	*	12.	284.	AG	637.	12.8	0.0	10.0		
35. NEWINGTON ROAD	*	159.2	351.7	154.5	253.0	*	99.	183.	AG	1004.	12.8	0.0	13.4		
36. NEWINGTON ROAD	*	154.5	253.0	149.0	219.5	*	34.	189.	AG	1004.	12.8	0.0	13.4		
37. NEWINGTON ROAD	*	149.0	219.5	111.7	169.2	*	63.	217.	AG	1004.	12.8	0.0	13.4		

38. NEWINGTON ROAD	*	111.7	169.2	62.3	143.1	*	56.	242.	AG	1004.	12.8	0.0	13.4
39. NEWINGTON ROAD	*	62.3	143.1	-1.9	125.4	*	67.	255.	AG	1004.	12.8	0.0	13.4
40. NB PARKWAY	*	-20.6	-138.2	-5.7	124.5	*	263.	3.	AG	2624.	12.8	0.0	13.4
41. NB PARKWAY DEC	*	-5.7	121.7	-1.0	206.4	*	85.	3.	AG	3468.	12.8	0.0	13.4
42. NB PARKWAY DEC	*	-1.0	206.4	-8.5	266.0	*	60.	353.	AG	3468.	12.8	0.0	13.4
43. NB PARKWAY DEC	*	-8.5	266.0	-17.8	310.7	*	46.	348.	AG	3468.	12.8	0.0	13.4
44. NB PARKWAY DEC	*	-17.8	310.7	-34.5	342.4	*	36.	332.	AG	3468.	12.8	0.0	13.4

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: Design YEAR 2040 NOBUILD I-95 INTERCHAN

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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. SB PARKWAY	*	-46.6	322.9	-16.8	227.8	*	100.	163.	AG	1653.	12.8	0.0	13.4		
46. SB PARKWAY	*	-16.8	227.8	-18.7	118.9	*	109.	181.	AG	1653.	12.8	0.0	13.4		
47. SB PARKWAY DEC	*	-17.8	120.7	-33.6	-139.1	*	260.	183.	AG	2002.	12.8	0.0	13.4		
48. EB QUE	*	-27.1	114.6	-313.1	92.1	*	287.	266.	AG	184.	100.0	0.0	3.7	1.30	47.8
49. NB TTHRU QUE	*	-7.7	110.3	-18.1	-48.7	*	159.	184.	AG	174.	100.0	0.0	7.3	0.53	26.6
50. NB RIGHT QUE	*	-1.5	113.6	-1.8	108.7	*	5.	183.	AG	87.	100.0	0.0	3.7	0.04	0.8
51. WB LEFT QUE	*	4.1	126.4	207.2	185.2	*	211.	74.	AG	199.	100.0	0.0	3.7	1.76	35.2
52. WB RR QUE	*	3.2	131.1	109.0	159.7	*	110.	75.	AG	334.	100.0	0.0	7.3	0.84	18.3
53. SB TTHRU QUE	*	-19.5	127.4	-18.8	286.7	*	159.	0.	AG	174.	100.0	0.0	7.3	0.53	26.6
54. SB LEFT QUE	*	-13.8	124.5	-16.7	404.1	*	280.	359.	AG	180.	100.0	0.0	3.7	1.27	46.6
55.	*	-61.8	102.5	-37.3	82.8	*	31.	129.	AG	510.	13.0	0.0	10.0		
56.	*	-37.3	82.8	-28.0	60.2	*	24.	158.	AG	510.	13.0	0.0	10.0		
57. eb dec link	*	-0.3	119.7	61.2	136.9	*	64.	74.	AG	591.	12.8	0.0	13.4		
58. eb dec link	*	61.2	136.9	115.6	165.1	*	61.	63.	AG	591.	12.8	0.0	13.4		
59. eb dec link	*	115.6	165.1	154.2	216.1	*	64.	37.	AG	591.	12.8	0.0	13.4		
60. eb dec link	*	154.2	216.1	162.1	258.4	*	43.	11.	AG	591.	12.8	0.0	13.4		
61. eb dec link	*	162.1	258.4	165.8	351.4	*	93.	2.	AG	591.	12.8	0.0	13.4		

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: Design YEAR 2040 NOBUILD I-95 INTERCHAN

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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
48. EB QUE	*	180	156	2.0	270	1863	78.94	3	3
49. NB TTHRU QUE	*	180	74	2.0	2584	4295	78.94	3	3
50. NB RIGHT QUE	*	180	74	2.0	40	1600	78.94	3	3
51. WB LEFT QUE	*	180	169	2.0	120	1770	78.94	3	3
52. WB RR QUE	*	180	142	2.0	884	2787	78.94	3	3
53. SB TTHRU QUE	*	180	74	2.0	2584	4295	78.94	3	3
54. SB LEFT QUE	*	180	153	2.0	281	1734	78.94	3	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 1A	-0.1	-2.3	1.8
2. 1B	1.8	40.8	1.8
3. 1C	6.0	82.9	1.8
4. 1D	10.8	108.0	1.8
5. 1E	35.8	117.9	1.8
6. 1F	91.2	127.8	1.8
7. 1G	126.7	157.6	1.8
8. 1H	99.7	190.3	1.8
9. 1I	67.0	169.9	1.8
10. 1J	26.4	151.5	1.8
11. 1K	9.8	152.0	1.8
12. 1L	11.7	182.7	1.8
13. 1M	12.2	231.9	1.8
14. 1N	23.5	251.3	1.8
15. 1O	-99.0	91.9	1.8
16. 1P	-64.5	84.3	1.8
17. 1Q	-45.5	63.5	1.8
18. 1R	-45.1	-2.7	1.8

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: Design YEAR 2040 NOBUILD I-95 INTERCHAN

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
0.	5.2	5.6	5.7	5.8	4.8	4.0	4.0	3.1	3.2	3.7	4.7	4.5	4.3	3.9	4.9	4.6	4.8	4.6
10.	4.0	4.1	4.3	4.4	4.4	3.9	4.2	2.9	2.9	3.1	3.4	3.3	3.5	3.4	4.8	4.9	4.9	4.6
20.	3.2	3.3	3.7	4.1	4.2	4.0	4.2	3.0	2.9	2.9	2.9	2.9	2.9	2.9	4.7	4.5	4.8	4.8
30.	3.1	3.3	3.6	4.2	4.3	3.8	3.8	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.3	4.2	4.4	4.5
40.	3.1	3.1	3.7	4.2	4.4	3.6	3.6	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.0	4.2	4.6	4.4
50.	2.9	3.1	3.6	4.3	4.5	3.2	3.7	3.2	3.0	2.9	2.9	2.9	2.9	2.9	4.1	4.3	4.8	4.3
60.	2.9	2.9	3.1	4.0	4.2	3.1	3.8	3.3	3.0	3.0	2.9	2.9	3.0	3.0	4.2	4.5	4.3	4.1
70.	2.9	2.9	3.0	3.7	3.6	3.0	3.6	3.2	3.1	3.4	3.2	2.9	3.0	3.0	4.2	4.4	4.2	4.1
80.	2.9	2.9	2.9	3.0	3.0	2.9	3.3	3.2	3.3	3.9	3.6	3.0	2.9	3.0	4.0	3.9	4.0	4.1
90.	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.3	3.6	4.3	4.0	3.1	2.9	2.9	3.5	3.7	4.0	4.1
100.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.8	4.3	4.2	3.2	2.9	2.9	3.4	3.8	4.0	4.1
110.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.5	4.1	3.5	3.1	2.9	3.4	3.7	3.9	4.1
120.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.3	4.0	3.5	3.1	3.1	3.4	3.7	3.9	4.1
130.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.3	4.0	3.5	3.2	3.0	3.4	3.6	3.9	4.1
140.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.9	4.2	3.9	3.5	3.3	3.2	3.4	3.7	4.1	4.1
150.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.6	3.9	4.1	3.9	3.5	3.2	3.2	3.4	3.7	4.1	4.1
160.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.7	3.9	4.1	3.9	3.5	3.3	3.2	3.3	3.6	4.1	4.1
170.	3.0	3.1	3.0	3.0	2.9	2.9	2.9	3.7	3.9	4.1	4.0	3.6	3.5	3.4	3.1	3.3	3.9	3.7
180.	3.4	3.6	3.6	3.5	3.0	2.9	2.9	3.7	4.0	4.4	4.8	4.3	4.4	3.8	2.9	3.1	3.4	3.3
190.	4.2	4.4	4.4	4.2	3.4	2.9	2.9	3.8	4.2	4.9	5.4	4.9	5.1	4.3	2.9	2.9	3.0	3.0
200.	4.6	5.0	4.9	4.6	3.6	3.1	3.0	4.0	4.5	5.2	5.4	5.1	5.4	4.6	2.9	2.9	2.9	2.9
210.	4.8	4.9	4.8	4.7	3.9	3.3	3.1	4.2	4.5	5.4	5.1	5.1	5.1	4.6	2.9	2.9	2.9	2.9
220.	4.8	4.8	4.7	4.4	3.8	3.4	3.3	4.4	4.6	5.0	4.8	5.1	5.2	4.9	3.0	2.9	2.9	2.9

230.	*	4.6	4.8	4.5	4.4	3.8	3.4	3.3	4.5	4.7	4.9	5.1	5.3	5.5	5.1	3.4	3.1	2.9	2.9
240.	*	4.5	4.5	4.6	4.5	4.0	3.6	4.0	4.3	4.4	4.9	5.4	5.6	5.7	5.2	3.8	3.4	3.1	2.9
250.	*	4.4	4.6	5.0	5.0	4.2	3.9	5.4	4.2	4.4	5.0	5.6	5.7	5.6	5.2	4.2	3.8	3.4	2.9
260.	*	4.6	4.9	5.2	5.2	4.8	4.4	6.3	4.3	4.4	4.9	5.6	5.6	5.6	5.2	4.5	4.0	3.7	3.1
270.	*	4.9	5.0	5.3	5.4	4.8	4.9	6.5	4.1	4.4	4.9	5.5	5.5	5.5	5.1	4.7	4.3	3.8	3.4
280.	*	5.0	5.2	5.5	5.3	5.4	5.0	5.8	4.1	4.2	4.8	5.4	5.4	5.5	5.3	4.6	4.1	3.8	3.6
290.	*	5.1	5.1	5.4	5.0	5.4	5.4	5.4	4.2	4.3	4.8	5.4	5.5	5.7	5.2	4.6	4.2	4.0	3.8
300.	*	5.1	5.3	5.4	5.0	5.6	5.1	5.3	4.1	4.4	4.8	5.6	5.6	5.6	5.1	4.6	4.3	4.0	3.8
310.	*	5.2	5.3	5.4	5.2	5.8	5.2	4.9	4.1	4.6	4.9	5.6	5.8	5.8	5.5	4.6	4.2	3.9	3.8
320.	*	5.5	5.5	5.6	5.6	6.0	5.1	4.8	4.0	4.4	5.1	5.8	6.1	6.1	5.3	4.7	4.3	3.9	3.8
330.	*	5.6	5.7	5.5	6.0	6.2	5.0	4.5	3.8	4.3	5.4	5.9	6.3	6.0	5.0	4.6	4.3	3.9	3.8
340.	*	5.8	6.0	5.9	6.7	6.2	4.5	4.5	3.5	3.9	5.3	6.4	6.4	5.6	4.6	4.6	4.3	4.1	3.8
350.	*	6.1	6.4	6.2	6.7	5.6	4.3	4.3	3.3	3.5	4.6	5.9	5.5	4.9	4.3	4.7	4.4	4.1	3.9
MAX	*	6.1	6.4	6.2	6.7	6.2	5.4	6.5	4.5	4.7	5.4	6.4	6.4	6.1	5.5	4.9	4.9	4.9	4.8
DEGR.	*	350	350	350	340	330	290	270	230	230	330	340	340	320	310	0	10	10	20

THE HIGHEST CONCENTRATION OF 6.70 PPM OCCURRED AT RECEPTOR REC4 .

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: Design YEAR 2040 NOBUILD I-95 INTERCHAN

DATE : 02/17/ 0
TIME : 11:20:36

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 350	REC2 350	REC3 350	REC4 340	REC5 330	REC6 290	REC7 270	REC8 230	REC9 230	REC10 330	REC11 340	REC12 340	REC13 320	REC14 310	REC15 0	REC16 10	REC17 10	REC18 20
1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
2	0.2	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.0
3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.0
4	0.3	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.3	0.4	0.6	0.4	0.4	0.3	0.5	0.3	0.1
5	0.2	0.2	0.1	0.2	0.3	0.4	0.4	0.1	0.1	0.3	0.2	0.1	0.3	0.3	0.6	0.1	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	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	0.0	0.2	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	0.1	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
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
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
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
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
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
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
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
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	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	0.1	0.2	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	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	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	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
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
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	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	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	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	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	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	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	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	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	0.0	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	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	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	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
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
38	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	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	0.1	0.2	0.3	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	1.0	0.9	0.4	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
41	*	0.2	0.3	0.7	1.0	0.5	0.3	0.2	0.1	0.1	0.5	1.1	0.5	0.0	0.0	0.0	0.0	0.2	0.2
42	*	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.3	0.3	0.9	0.9	0.1	0.0	0.1	0.1	0.1
43	*	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.6	0.0	0.1	0.1	0.0
44	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
45	*	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.2	0.0	0.1	0.1	0.0

JOB: FAIRFAX PARKWAY / I-95 OFF RAMP RUN: Design YEAR 2040 NOBUILD I-95 INTERCHAN

		CO/LINK (PPM)																	
		ANGLE (DEGREES)																	
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18
LINK #	*	350	350	350	340	330	290	270	230	230	330	340	340	320	310	0	10	10	20
46	*	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
47	*	0.3	0.2	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	0.1	0.5
48	*	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	0.2	0.2	0.1	0.0
49	*	0.4	0.3	0.1	0.0	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	0.2
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	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.1	0.3	0.3	0.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.0	0.0	0.1	0.2	0.5	0.5	0.9	0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
53	*	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.2	0.1
54	*	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.2	0.3	0.2	0.2	0.2	0.0	0.1	0.2	0.1
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	0.0	0.0	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0
57	*	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	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	0.0	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
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	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	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	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

CAL3QHC PC (32 BIT) VERSION 3.0.0
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Run Began on 2/17/2012 at 12:49:16

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 12:49:16

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. NB I95	*	-260.9	-32.0	-102.5	251.1	*	324.	29.	AG	3348.	15.3	0.0	26.5		
2. I95 NB A	*	-102.5	249.3	-38.3	366.6	*	134.	29.	AG	3719.	15.3	0.0	26.5		
3. I95 NB B	*	-38.3	366.6	51.2	544.5	*	199.	27.	AG	3405.	15.3	0.0	26.5		
4. I95 SB	*	27.9	552.9	-77.4	333.1	*	244.	206.	AG	7489.	15.3	0.0	26.5		
5. I95 SB A	*	-78.3	335.0	-281.4	-20.8	*	410.	210.	AG	6785.	15.3	0.0	26.5		
6. OFF RAMP	*	-182.6	71.4	-138.9	92.8	*	49.	64.	AG	780.	13.0	0.0	10.0		
7. OFF RAMP	*	-138.9	92.8	-96.0	106.8	*	45.	72.	AG	780.	13.0	0.0	10.0		
8. OFF RAMP	*	-96.0	106.8	-61.5	104.9	*	35.	93.	AG	780.	13.0	0.0	10.0		
9. EB THRU	*	-65.3	110.5	-19.6	115.1	*	46.	84.	AG	270.	13.0	0.0	10.0		
10. ONN RAMP	*	-21.5	233.4	-24.3	170.1	*	63.	183.	AG	235.	13.0	0.0	10.0		
11. ONN RAMP	*	-24.3	170.1	-39.2	140.3	*	33.	207.	AG	235.	13.0	0.0	10.0		
12. ONN RAMP	*	-39.2	140.3	-63.4	128.2	*	27.	243.	AG	235.	13.0	0.0	10.0		
13. ONN RAMP	*	-63.4	128.2	-95.1	130.0	*	32.	273.	AG	235.	13.0	0.0	10.0		
14. ONN RAMP	*	-95.1	130.0	-114.6	144.9	*	25.	307.	AG	235.	13.0	0.0	10.0		
15. ONN RAMP	*	-114.6	144.9	-121.2	166.4	*	22.	343.	AG	235.	13.0	0.0	10.0		
16. ONN RAMP	*	-121.2	166.4	-117.4	186.9	*	21.	11.	AG	235.	13.0	0.0	10.0		
17. ONN RAMP	*	-117.4	186.9	-91.4	240.0	*	59.	26.	AG	235.	13.0	0.0	10.0		
18. ON RAMP	*	2.7	250.2	14.8	294.9	*	46.	15.	AG	846.	13.0	0.0	10.0		
19. ON RAMP	*	14.8	294.9	36.3	328.4	*	40.	33.	AG	846.	13.0	0.0	10.0		
20. ON RAMP	*	36.3	328.4	62.3	340.5	*	29.	65.	AG	846.	13.0	0.0	10.0		
21. ON RAMP	*	62.3	340.5	86.6	353.6	*	28.	62.	AG	846.	13.0	0.0	10.0		
22. ON RAMP	*	86.6	353.6	132.2	397.4	*	63.	46.	AG	846.	13.0	0.0	10.0		
23. ON RAMP	*	132.2	397.4	139.6	426.2	*	30.	14.	AG	846.	13.0	0.0	10.0		
24. OFF RAMP	*	8.3	429.0	27.9	454.2	*	32.	38.	AG	127.	13.0	0.0	10.0		
25. OFF RAMP	*	27.9	454.2	52.1	453.3	*	24.	92.	AG	127.	13.0	0.0	10.0		
26. OFF RAMP	*	52.1	453.3	75.4	437.4	*	28.	124.	AG	127.	13.0	0.0	10.0		
27. OFF RAMP	*	75.4	437.4	79.1	421.6	*	16.	167.	AG	127.	13.0	0.0	10.0		
28. OFF RAMP	*	79.1	421.6	78.2	398.3	*	23.	182.	AG	127.	13.0	0.0	10.0		
29. OFF RAMP	*	78.2	398.3	69.8	362.0	*	37.	193.	AG	127.	13.0	0.0	10.0		
30. OFF RAMP	*	69.8	362.0	58.6	355.5	*	13.	240.	AG	127.	13.0	0.0	10.0		
31. OFF RAMP	*	58.6	355.5	35.3	345.2	*	25.	246.	AG	127.	13.0	0.0	10.0		
32. OFF RAMP	*	35.3	345.2	11.1	340.5	*	25.	259.	AG	127.	13.0	0.0	10.0		
33. OFF RAMP	*	11.1	340.5	-16.8	345.2	*	28.	280.	AG	127.	13.0	0.0	10.0		
34. OFF RAMP	*	-16.8	345.2	-28.0	348.0	*	12.	284.	AG	127.	13.0	0.0	10.0		
35. NEWINGTON ROAD	*	159.2	351.7	154.5	253.0	*	99.	183.	AG	1004.	12.8	0.0	13.4		
36. NEWINGTON ROAD	*	154.5	253.0	149.0	219.5	*	34.	189.	AG	1004.	12.8	0.0	13.4		
37. NEWINGTON ROAD	*	149.0	219.5	111.7	169.2	*	63.	217.	AG	1004.	12.8	0.0	13.4		

38. NEWINGTON ROAD	*	111.7	169.2	62.3	143.1	*	56.	242.	AG	1004.	12.8	0.0	13.4
39. NEWINGTON ROAD	*	62.3	143.1	-1.9	125.4	*	67.	255.	AG	1004.	12.8	0.0	13.4
40. NB PARKWAY	*	-20.6	-138.2	-5.7	124.5	*	263.	3.	AG	2624.	12.8	0.0	13.4
41. NB PARKWAY DEC	*	-5.7	121.7	-1.0	206.4	*	85.	3.	AG	3468.	12.8	0.0	13.4
42. NB PARKWAY DEC	*	-1.0	206.4	-8.5	266.0	*	60.	353.	AG	3468.	12.8	0.0	13.4
43. NB PARKWAY DEC	*	-8.5	266.0	-17.8	310.7	*	46.	348.	AG	3468.	12.8	0.0	13.4
44. NB PARKWAY DEC	*	-17.8	310.7	-34.5	342.4	*	36.	332.	AG	3468.	12.8	0.0	13.4

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 12:49:16

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. SB PARKWAY	*	-46.6	322.9	-16.8	227.8	*	100.	163.	AG	1653.	12.8	0.0	13.4		
46. SB PARKWAY	*	-16.8	227.8	-18.7	118.9	*	109.	181.	AG	1653.	12.8	0.0	13.4		
47. SB PARKWAY DEC	*	-17.8	120.7	-33.6	-139.1	*	260.	183.	AG	2002.	12.8	0.0	13.4		
48. EB QUE	*	-27.1	114.6	-313.1	92.1	*	287.	266.	AG	184.	100.0	0.0	3.7	1.30	47.8
49. NB TTHRU QUE	*	-7.7	110.3	-18.1	-48.7	*	159.	184.	AG	174.	100.0	0.0	7.3	0.53	26.6
50. NB RIGHT QUE	*	-1.5	113.6	-1.8	108.7	*	5.	183.	AG	87.	100.0	0.0	3.7	0.04	0.8
51. WB LEFT QUE	*	4.1	126.4	207.2	185.2	*	211.	74.	AG	199.	100.0	0.0	3.7	1.76	35.2
52. WB RR QUE	*	3.2	131.1	109.0	159.7	*	110.	75.	AG	334.	100.0	0.0	7.3	0.84	18.3
53. SB TTHRU QUE	*	-19.5	127.4	-19.3	176.1	*	49.	0.	AG	104.	100.0	0.0	7.3	0.26	8.1
54. SB LEFT QUE	*	-13.8	124.5	-16.7	404.1	*	280.	359.	AG	180.	100.0	0.0	3.7	1.27	46.6
55. FLYOVER RAMP	*	-196.9	42.1	-135.4	150.3	*	124.	30.	AG	515.	12.8	0.0	10.0		
56. FLYOVER RAMP	*	-135.4	150.3	-75.6	224.0	*	95.	39.	AG	515.	12.8	0.0	10.0		
57. FLYOVER RAMP	*	-75.6	224.0	-43.0	267.9	*	55.	37.	AG	515.	12.8	0.0	10.0		
58. FLYOVER RAMP	*	-43.0	267.9	-34.6	336.9	*	70.	7.	AG	515.	12.8	0.0	10.0		
59. FLYOVER RAMP	*	-34.6	336.9	-37.4	358.4	*	22.	353.	AG	515.	12.8	0.0	10.0		
60. FLYOVER RAMP	*	-37.4	358.4	-84.0	427.4	*	83.	326.	AG	515.	12.8	0.0	10.0		
61.	*	-62.1	103.8	-37.5	83.1	*	32.	130.	AG	510.	13.0	0.0	10.0		
62.	*	-37.5	83.1	-28.1	62.8	*	22.	155.	AG	510.	13.0	0.0	10.0		
63. eb dec link	*	0.2	119.1	62.9	136.0	*	65.	75.	AG	591.	12.8	0.0	13.4		
64. eb dec link	*	62.9	136.0	114.9	163.2	*	59.	62.	AG	591.	12.8	0.0	13.4		
65. eb dec link	*	114.9	163.2	155.6	217.8	*	68.	37.	AG	591.	12.8	0.0	13.4		
66. eb dec link	*	155.6	217.8	162.1	253.3	*	36.	10.	AG	591.	12.8	0.0	13.4		
67. eb dec link	*	162.1	253.3	165.6	351.6	*	98.	2.	AG	591.	12.8	0.0	13.4		

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 12:49:16

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
48. EB QUE	*	180	156	2.0	270	1863	78.94	3	3

49. NB TTHRU QUE	*	180	74	2.0	2584	4295	78.94	3	3
50. NB RIGHT QUE	*	180	74	2.0	40	1600	78.94	3	3
51. WB LEFT QUE	*	180	169	2.0	120	1770	78.94	3	3
52. WB RR QUE	*	180	142	2.0	884	2787	78.94	3	3
53. SB TTHRU QUE	*	180	44	2.0	1329	3468	78.94	3	3
54. SB LEFT QUE	*	180	153	2.0	281	1734	78.94	3	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 1A	-0.1	-2.3	1.8
2. 1B	1.8	40.8	1.8
3. 1C	6.0	82.9	1.8
4. 1D	10.8	108.0	1.8
5. 1E	35.8	117.9	1.8
6. 1F	91.2	127.8	1.8
7. 1G	126.7	157.6	1.8
8. 1H	99.7	190.3	1.8
9. 1I	67.0	169.9	1.8
10. 1J	26.4	151.5	1.8
11. 1K	9.8	152.0	1.8
12. 1L	11.7	182.7	1.8
13. 1M	12.2	231.9	1.8
14. 1N	23.5	251.3	1.8
15. 1O	-99.0	91.9	1.8
16. 1P	-64.5	84.3	1.8
17. 1Q	-45.5	63.5	1.8
18. 1R	-45.1	-2.7	1.8

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2040 BUILD

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
0.	5.1	5.5	5.6	5.6	4.8	4.0	4.0	3.1	3.2	3.7	4.6	4.5	4.3	3.9	4.9	4.5	4.7	4.5
10.	4.0	4.1	4.3	4.4	4.4	3.9	4.2	2.9	2.9	3.1	3.4	3.3	3.5	3.4	4.8	4.8	4.8	4.5
20.	3.2	3.3	3.7	4.1	4.2	4.0	4.1	3.0	2.9	2.9	2.9	2.9	2.9	2.9	4.5	4.3	4.7	4.7
30.	3.1	3.3	3.6	4.2	4.3	3.8	3.8	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.2	4.1	4.3	4.5
40.	3.1	3.1	3.7	4.2	4.3	3.6	3.7	3.1	3.0	2.9	2.9	2.9	2.9	2.9	3.9	4.2	4.6	4.4
50.	2.9	3.1	3.7	4.3	4.5	3.3	3.7	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.0	4.2	4.8	4.3
60.	2.9	2.9	3.1	4.1	4.3	3.1	3.8	3.3	3.1	3.0	2.9	2.9	3.0	3.0	4.1	4.5	4.3	4.1
70.	2.9	2.9	3.0	3.7	3.6	3.0	3.6	3.2	3.1	3.4	3.2	2.9	3.0	3.0	4.2	4.4	4.2	4.1
80.	2.9	2.9	2.9	3.0	3.0	2.9	3.3	3.2	3.3	3.9	3.6	3.0	2.9	3.0	4.0	3.9	4.0	4.1
90.	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.3	3.5	4.3	4.0	3.1	2.9	2.9	3.5	3.7	4.0	4.1
100.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.8	4.3	4.2	3.2	2.9	2.9	3.4	3.8	3.9	4.1
110.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.5	4.1	3.5	3.1	2.9	3.4	3.7	3.9	4.1
120.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.3	4.0	3.5	3.1	3.1	3.4	3.7	3.9	4.1
130.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.3	4.0	3.5	3.2	3.0	3.4	3.6	3.9	4.1
140.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.9	4.2	3.9	3.5	3.3	3.2	3.4	3.7	4.1	4.1
150.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.6	3.9	4.1	3.9	3.5	3.2	3.2	3.4	3.7	4.1	4.1
160.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.7	3.9	4.1	3.9	3.5	3.3	3.2	3.3	3.6	4.1	4.1

170.	*	3.0	3.1	3.0	3.0	2.9	2.9	2.9	3.7	3.9	4.1	4.0	3.6	3.5	3.4	3.1	3.3	3.9	3.7
180.	*	3.4	3.6	3.6	3.5	3.0	2.9	2.9	3.7	4.0	4.4	4.8	4.3	4.4	3.8	2.9	3.1	3.4	3.3
190.	*	4.2	4.4	4.4	4.2	3.4	2.9	2.9	3.8	4.2	4.9	5.4	4.9	5.0	4.3	2.9	2.9	3.0	3.0
200.	*	4.6	5.0	4.9	4.6	3.6	3.1	3.0	4.0	4.5	5.2	5.3	5.0	5.3	4.5	2.9	2.9	2.9	2.9
210.	*	4.8	4.9	4.8	4.7	3.9	3.3	3.1	4.2	4.5	5.4	5.1	5.1	5.0	4.4	2.9	2.9	2.9	2.9
220.	*	4.8	4.8	4.7	4.4	3.8	3.4	3.3	4.3	4.6	5.0	4.7	4.9	5.0	4.6	3.0	2.9	2.9	2.9
230.	*	4.6	4.8	4.5	4.4	3.8	3.4	3.3	4.5	4.7	4.9	5.1	5.2	5.3	4.9	3.3	3.1	2.9	2.9
240.	*	4.5	4.5	4.6	4.5	4.0	3.6	4.0	4.3	4.4	4.8	5.3	5.5	5.5	5.0	3.8	3.4	3.1	2.9
250.	*	4.4	4.6	5.0	5.0	4.2	3.9	5.4	4.1	4.2	5.0	5.5	5.5	5.4	5.0	4.2	3.7	3.4	2.9
260.	*	4.6	4.9	5.1	5.2	4.7	4.4	6.3	4.1	4.3	4.9	5.5	5.5	5.3	5.0	4.6	3.9	3.7	3.1
270.	*	4.9	5.0	5.2	5.4	4.8	4.9	6.4	4.0	4.2	4.8	5.4	5.3	5.3	4.9	4.7	4.2	3.8	3.4
280.	*	5.0	5.1	5.4	5.3	5.2	4.9	5.7	4.0	4.1	4.7	5.3	5.2	5.3	5.1	4.7	4.1	3.8	3.5
290.	*	5.1	5.1	5.3	5.0	5.3	5.3	5.3	4.1	4.2	4.6	5.3	5.3	5.4	5.0	4.6	4.1	4.0	3.7
300.	*	5.1	5.2	5.3	5.0	5.6	5.0	5.2	4.0	4.3	4.6	5.4	5.4	5.4	5.0	4.6	4.2	4.0	3.8
310.	*	5.2	5.3	5.3	5.2	5.8	5.0	4.9	4.1	4.4	4.7	5.4	5.6	5.6	5.4	4.5	4.1	3.9	3.7
320.	*	5.5	5.5	5.5	5.4	5.8	5.0	4.9	3.9	4.2	4.9	5.6	5.8	6.0	5.2	4.6	4.2	3.9	3.8
330.	*	5.6	5.7	5.5	5.9	6.1	5.0	4.5	3.8	4.3	5.2	5.7	6.0	5.8	4.9	4.5	4.2	3.9	3.7
340.	*	5.8	5.9	5.8	6.5	6.1	4.4	4.5	3.5	3.9	5.2	6.2	6.2	5.5	4.6	4.5	4.3	4.1	3.8
350.	*	6.0	6.2	6.1	6.5	5.6	4.3	4.3	3.3	3.5	4.5	5.7	5.4	4.9	4.3	4.8	4.4	4.1	3.9
MAX	*	6.0	6.2	6.1	6.5	6.1	5.3	6.4	4.5	4.7	5.4	6.2	6.2	6.0	5.4	4.9	4.8	4.8	4.7
DEGR.	*	350	350	350	350	330	290	270	230	230	210	340	340	320	310	0	10	10	20

THE HIGHEST CONCENTRATION OF 6.50 PPM OCCURRED AT RECEPTOR REC4 .

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JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 12:49:16

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 350	REC2 350	REC3 350	REC4 350	REC5 330	REC6 290	REC7 270	REC8 230	REC9 230	REC10 210	REC11 340	REC12 340	REC13 320	REC14 310	REC15 0	REC16 10	REC17 10	REC18 20
1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.0
3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.0
4	0.3	0.4	0.4	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.4	0.4	0.3	0.5	0.3	0.1
5	0.2	0.2	0.1	0.1	0.3	0.4	0.4	0.1	0.1	0.0	0.2	0.1	0.3	0.3	0.6	0.1	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	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	0.0	0.2	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	0.1	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
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
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
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
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
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
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
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
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	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	0.1	0.2	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	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	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	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
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
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	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	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	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	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	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	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	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	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	0.0	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	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	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	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
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
38	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	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	0.1	0.2	0.3	0.2	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	1.0	0.9	0.4	0.0	0.0	0.0	0.0	0.2	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
41	*	0.2	0.3	0.7	0.9	0.5	0.3	0.2	0.1	0.1	0.1	1.1	0.5	0.0	0.0	0.0	0.0	0.2	0.2
42	*	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.9	0.1	0.0	0.1	0.1	0.1
43	*	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.0	0.1	0.1	0.0
44	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
45	*	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.0	0.1	0.1	0.0

JOB: FAIRFAX PARKWAY - OPTION 1 RUN: DESIGN YEAR 2040 BUILD

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	*	REC1 350	REC2 350	REC3 350	REC4 350	REC5 330	REC6 290	REC7 270	REC8 230	REC9 230	REC10 210	REC11 340	REC12 340	REC13 320	REC14 310	REC15 0	REC16 10	REC17 10	REC18 20
46	*	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
47	*	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
48	*	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	0.2	0.2	0.1	0.0
49	*	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
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	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.2	0.3	0.3	0.9	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.0	0.0	0.1	0.3	0.5	0.5	0.9	0.4	0.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
53	*	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	0.0	0.1	0.0
54	*	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.0	0.1	0.2	0.1
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	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	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	0.0	0.0	0.0	0.0	0.0
58	*	0.0	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	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	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	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	0.0	0.0	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0
63	*	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.1	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	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	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	0.0	0.0	0.0	0.0	0.0
67	*	0.0	0.0	0.0	0.0	0.0	0.0	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 2/21/2012 at 8:21:30

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2040 BUILD

DATE : 02/21/ 0
TIME : 08:21:30

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. NB I95	*	-260.9	-32.0	-102.5	251.1	*	324.	29.	AG	3348.	15.3	0.0	26.5		
2. I95 NB A	*	-102.5	249.3	-38.3	366.6	*	134.	29.	AG	3719.	15.3	0.0	26.5		
3. I95 NB B	*	-38.3	366.6	51.2	544.5	*	199.	27.	AG	3405.	15.3	0.0	26.5		
4. I95 SB	*	27.9	552.9	-77.4	333.1	*	244.	206.	AG	7489.	15.3	0.0	26.5		
5. I95 SB A	*	-78.3	335.0	-281.4	-20.8	*	410.	210.	AG	6785.	15.3	0.0	26.5		
6. EB THRU	*	-65.3	110.5	-19.6	115.1	*	46.	84.	AG	459.	13.0	0.0	13.4		
7. ONN RAMP	*	-21.5	233.4	-24.3	170.1	*	63.	183.	AG	235.	12.8	0.0	10.0		
8. ONN RAMP	*	-24.3	170.1	-39.2	140.3	*	33.	207.	AG	235.	12.8	0.0	10.0		
9. ONN RAMP	*	-39.2	140.3	-63.4	128.2	*	27.	243.	AG	235.	12.8	0.0	10.0		
10. ONN RAMP	*	-63.4	128.2	-95.1	130.0	*	32.	273.	AG	235.	12.8	0.0	10.0		
11. ONN RAMP	*	-95.1	130.0	-114.6	144.9	*	25.	307.	AG	235.	12.8	0.0	10.0		
12. ONN RAMP	*	-114.6	144.9	-121.2	166.4	*	22.	343.	AG	235.	12.8	0.0	10.0		
13. ONN RAMP	*	-121.2	166.4	-117.4	186.9	*	21.	11.	AG	235.	12.8	0.0	10.0		
14. ONN RAMP	*	-117.4	186.9	-91.4	240.0	*	59.	26.	AG	235.	12.8	0.0	10.0		
15. ON RAMP	*	2.7	250.2	14.8	294.9	*	46.	15.	AG	846.	12.8	0.0	10.0		
16. ON RAMP	*	14.8	294.9	36.3	328.4	*	40.	33.	AG	846.	12.8	0.0	10.0		
17. ON RAMP	*	36.3	328.4	62.3	340.5	*	29.	65.	AG	846.	12.8	0.0	10.0		
18. ON RAMP	*	62.3	340.5	86.6	353.6	*	28.	62.	AG	846.	12.8	0.0	10.0		
19. ON RAMP	*	86.6	353.6	132.2	397.4	*	63.	46.	AG	846.	12.8	0.0	10.0		
20. ON RAMP	*	132.2	397.4	139.6	426.2	*	30.	14.	AG	846.	12.8	0.0	10.0		
21. NEWINGTON ROAD	*	159.2	351.7	154.5	253.0	*	99.	183.	AG	1004.	12.8	0.0	13.4		
22. NEWINGTON ROAD	*	154.5	253.0	149.0	219.5	*	34.	189.	AG	1004.	12.8	0.0	13.4		
23. NEWINGTON ROAD	*	149.0	219.5	111.7	169.2	*	63.	217.	AG	1004.	12.8	0.0	13.4		
24. NEWINGTON ROAD	*	111.7	169.2	62.3	143.1	*	56.	242.	AG	1004.	12.8	0.0	13.4		
25. NEWINGTON ROAD	*	62.3	143.1	-1.9	125.4	*	67.	255.	AG	1004.	12.8	0.0	13.4		
26. NB PARKWAY	*	-20.6	-138.2	-5.7	124.5	*	263.	3.	AG	2625.	12.8	0.0	13.4		
27. NB PARKWAY DEC	*	-5.7	121.7	-1.0	206.4	*	85.	3.	AG	3657.	12.8	0.0	13.4		
28. NB PARKWAY DEC	*	-1.0	206.4	-8.5	266.0	*	60.	353.	AG	3657.	12.8	0.0	13.4		
29. NB PARKWAY DEC	*	-8.5	266.0	-17.8	310.7	*	46.	348.	AG	3657.	12.8	0.0	13.4		
30. NB PARKWAY DEC	*	-17.8	310.7	-34.5	342.4	*	36.	332.	AG	3657.	12.8	0.0	13.4		
31. SB PARKWAY	*	-46.6	322.9	-16.8	227.8	*	100.	163.	AG	1653.	12.8	0.0	13.4		
32. SB PARKWAY	*	-16.8	227.8	-18.7	118.9	*	109.	181.	AG	1653.	12.8	0.0	13.4		
33. SB PARKWAY DEC	*	-17.8	120.7	-33.6	-139.1	*	260.	183.	AG	2002.	12.8	0.0	13.4		
34. NB TTHRU QUE	*	-7.7	110.3	-18.1	-48.7	*	159.	184.	AG	174.	100.0	0.0	7.3	0.53	26.6
35. NB RIGHT QUE	*	-1.5	113.6	-1.8	108.7	*	5.	183.	AG	87.	100.0	0.0	3.7	0.04	0.8

36. WB LEFT QUE	*	4.1	126.4	207.2	185.2	*	211.	74.	AG	199.	100.0	0.0	3.7	1.76	35.2
37. WB RR QUE	*	3.2	131.1	109.0	159.7	*	110.	75.	AG	334.	100.0	0.0	7.3	0.84	18.3
38. SB TTHRU QUE	*	-19.5	127.4	-19.3	177.7	*	50.	0.	AG	104.	100.0	0.0	7.3	0.27	8.4
39. SB LEFT QUE	*	-13.8	124.5	-16.7	404.1	*	280.	359.	AG	180.	100.0	0.0	3.7	1.27	46.6
40. FLYOVER RAMP	*	-196.9	42.1	-135.4	150.3	*	124.	30.	AG	515.	12.8	0.0	10.0		
41. FLYOVER RAMP	*	-135.4	150.3	-75.6	224.0	*	95.	39.	AG	515.	12.8	0.0	10.0		
42. FLYOVER RAMP	*	-75.6	224.0	-43.0	267.9	*	55.	37.	AG	515.	12.8	0.0	10.0		
43. FLYOVER RAMP	*	-43.0	267.9	-34.6	336.9	*	70.	7.	AG	515.	12.8	0.0	10.0		
44. FLYOVER RAMP	*	-34.6	336.9	-37.4	358.4	*	22.	353.	AG	515.	12.8	0.0	10.0		

PAGE 2

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2040 BUILD

DATE : 02/21/ 0
TIME : 08:21:30

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. FLYOVER RAMP	*	-37.4	358.4	-84.0	427.4	*	83.	326.	AG	515.	12.8	0.0	10.0		
46.	*	-176.5	73.6	-138.3	92.3	*	43.	64.	AG	969.	13.0	0.0	10.0		
47.	*	-138.3	92.3	-95.2	106.1	*	45.	72.	AG	969.	13.0	0.0	10.0		
48.	*	-95.2	106.1	-65.4	104.5	*	30.	93.	AG	969.	13.0	0.0	10.0		
49.	*	-65.0	104.2	-47.1	93.5	*	21.	121.	AG	510.	13.0	0.0	10.0		
50.	*	-47.1	93.5	-27.6	62.2	*	37.	148.	AG	510.	13.0	0.0	10.0		
51. LEFT QUE	*	-23.8	116.4	-83.5	112.1	*	60.	266.	AG	184.	100.0	0.0	3.7	0.91	10.0
52. EB DEC LINK	*	0.9	118.7	63.8	136.4	*	65.	74.	AG	591.	12.8	0.0	13.4		
53. EB DEC LINK	*	63.8	136.4	116.7	164.2	*	60.	62.	AG	591.	12.8	0.0	13.4		
54. EB DEC LINK	*	116.7	164.2	155.7	217.4	*	66.	36.	AG	591.	12.8	0.0	13.4		
55. EB DEC LINK	*	155.7	217.4	161.2	251.5	*	35.	9.	AG	591.	12.8	0.0	13.4		
56. EB DEC LINK	*	161.2	251.5	166.3	351.5	*	100.	3.	AG	591.	12.8	0.0	13.4		
57. eb thru	*	-23.6	114.3	-300.1	90.7	*	277.	265.	AG	184.	100.0	0.0	3.7	1.30	46.2

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JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2040 BUILD

DATE : 02/21/ 0
TIME : 08:21:30

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
34. NB TTHRU QUE	*	180	74	2.0	2584	4295	78.94	3	3
35. NB RIGHT QUE	*	180	74	2.0	40	1600	78.94	3	3
36. WB LEFT QUE	*	180	169	2.0	120	1770	78.94	3	3
37. WB RR QUE	*	180	142	2.0	884	2787	78.94	3	3
38. SB TTHRU QUE	*	180	44	2.0	1372	3468	78.94	3	3
39. SB LEFT QUE	*	180	153	2.0	281	1734	78.94	3	3
51. LEFT QUE	*	180	156	2.0	189	1863	78.94	3	3
57. eb thru	*	180	156	2.0	270	1863	78.94	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 1A	-0.1	-2.3	1.8
2. 1B	1.8	40.8	1.8
3. 1C	6.0	82.9	1.8
4. 1D	10.8	108.0	1.8
5. 1E	35.8	117.9	1.8
6. 1F	91.2	127.8	1.8
7. 1G	126.7	157.6	1.8
8. 1H	99.7	190.3	1.8
9. 1I	67.0	169.9	1.8
10. 1J	26.4	151.5	1.8
11. 1K	9.8	152.0	1.8
12. 1L	11.7	182.7	1.8
13. 1M	12.2	231.9	1.8
14. 1N	23.5	251.3	1.8
15. 1O	-99.0	91.9	1.8
16. 1P	-64.5	84.3	1.8
17. 1Q	-45.5	63.5	1.8
18. 1R	-45.1	-2.7	1.8

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2040 BUILD

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
0.	5.1	5.6	5.6	5.6	4.8	4.0	4.0	3.1	3.2	3.7	4.6	4.5	4.3	3.9	4.9	4.9	4.9	4.6
10.	4.1	4.1	4.3	4.5	4.4	3.9	4.2	2.9	2.9	3.1	3.4	3.3	3.5	3.4	4.9	5.1	5.0	4.5
20.	3.2	3.5	3.7	4.1	4.2	3.9	4.1	3.0	2.9	2.9	2.9	2.9	2.9	2.9	4.7	4.7	4.7	4.7
30.	3.1	3.3	3.6	4.2	4.3	3.8	3.8	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.4	4.3	4.3	4.5
40.	3.1	3.1	3.7	4.2	4.3	3.6	3.7	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.0	4.5	4.6	4.4
50.	2.9	3.1	3.7	4.3	4.5	3.3	3.7	3.1	3.0	2.9	2.9	2.9	2.9	2.9	4.4	4.4	4.8	4.3
60.	2.9	2.9	3.1	4.1	4.3	3.1	3.8	3.3	3.0	3.0	2.9	2.9	3.0	3.0	4.4	4.7	4.3	4.1
70.	2.9	2.9	3.0	3.7	3.6	3.0	3.6	3.2	3.1	3.4	3.2	2.9	3.0	3.0	4.5	4.4	4.2	4.1
80.	2.9	2.9	2.9	3.0	3.0	2.9	3.3	3.2	3.3	3.9	3.6	3.0	2.9	3.0	4.2	3.9	4.0	4.1
90.	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.3	3.5	4.3	4.0	3.1	2.9	2.9	3.4	3.7	4.0	4.1
100.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.8	4.3	4.2	3.2	2.9	2.9	3.4	3.7	4.0	4.1
110.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.5	4.1	3.5	3.1	2.9	3.4	3.7	3.9	4.1
120.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.3	4.0	3.5	3.1	3.1	3.4	3.7	3.9	4.1
130.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.4	3.9	4.3	4.0	3.5	3.2	3.0	3.4	3.6	3.9	4.1
140.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.9	4.2	3.9	3.5	3.3	3.2	3.4	3.7	4.1	4.1
150.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.5	3.9	4.1	3.9	3.5	3.2	3.2	3.4	3.7	4.1	4.1
160.	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.7	3.9	4.1	3.9	3.5	3.3	3.2	3.3	3.6	4.1	4.1
170.	3.0	3.1	3.0	3.0	2.9	2.9	2.9	3.7	3.9	4.1	4.0	3.7	3.6	3.4	3.1	3.3	3.9	3.7
180.	3.4	3.6	3.6	3.5	3.0	2.9	2.9	3.7	4.0	4.4	4.8	4.3	4.4	3.8	2.9	3.1	3.4	3.3
190.	4.2	4.4	4.4	4.2	3.4	2.9	2.9	3.8	4.1	4.9	5.4	4.9	5.0	4.4	2.9	2.9	3.0	3.0
200.	4.6	5.0	4.9	4.6	3.6	3.1	3.0	4.0	4.5	5.2	5.4	5.0	5.3	4.5	2.9	2.9	2.9	2.9
210.	4.8	4.9	4.8	4.7	3.9	3.3	3.1	4.2	4.5	5.4	5.1	5.3	5.1	4.4	2.9	2.9	2.9	2.9
220.	4.8	4.8	4.7	4.4	3.8	3.4	3.3	4.3	4.6	5.0	4.9	5.1	5.0	4.6	3.0	2.9	2.9	2.9
230.	4.6	4.8	4.5	4.4	3.8	3.4	3.3	4.5	4.7	5.0	5.4	5.3	5.3	5.0	3.3	3.1	2.9	2.9
240.	4.5	4.5	4.6	4.5	4.0	3.6	4.0	4.3	4.5	5.1	5.6	5.6	5.6	5.1	3.8	3.4	3.1	2.9

250. *	4.4	4.6	5.0	5.0	4.2	3.9	5.4	4.2	4.3	5.1	5.7	5.6	5.5	5.1	4.2	3.7	3.4	2.9
260. *	4.6	4.9	5.1	5.3	4.8	4.5	6.3	4.1	4.5	4.9	5.6	5.5	5.4	5.1	4.6	3.9	3.7	3.1
270. *	4.9	5.0	5.3	5.7	4.9	5.0	6.4	4.0	4.2	4.9	5.4	5.4	5.4	4.9	4.8	4.2	3.8	3.4
280. *	5.0	5.1	5.4	5.6	5.3	5.0	5.7	4.1	4.2	4.8	5.4	5.3	5.4	5.0	4.8	4.1	3.8	3.5
290. *	5.1	5.1	5.4	5.2	5.3	5.3	5.3	4.1	4.2	4.7	5.4	5.4	5.4	5.1	4.7	4.1	4.0	3.6
300. *	5.1	5.2	5.5	5.1	5.6	5.1	5.3	4.0	4.3	4.7	5.4	5.5	5.4	5.2	4.7	4.2	4.0	3.8
310. *	5.2	5.4	5.5	5.3	5.9	5.0	4.9	4.1	4.4	4.8	5.5	5.6	5.6	5.4	4.6	4.3	4.0	3.7
320. *	5.5	5.7	5.6	5.4	6.0	5.0	4.9	3.9	4.3	4.9	5.7	5.9	6.0	5.2	4.7	4.3	4.0	3.8
330. *	5.7	5.8	5.5	6.0	6.1	5.0	4.5	3.8	4.3	5.2	5.8	6.1	5.9	4.9	4.7	4.3	4.0	3.7
340. *	5.9	5.9	5.8	6.6	6.1	4.4	4.5	3.5	4.0	5.2	6.3	6.2	5.5	4.6	4.6	4.4	4.1	3.8
350. *	6.0	6.2	6.2	6.5	5.7	4.3	4.3	3.3	3.5	4.5	5.8	5.5	4.9	4.3	4.9	4.5	4.4	4.0
MAX *	6.0	6.2	6.2	6.6	6.1	5.3	6.4	4.5	4.7	5.4	6.3	6.2	6.0	5.4	4.9	5.1	5.0	4.7
DEGR. *	350	350	350	340	330	290	270	230	230	210	340	340	320	310	350	10	10	20

THE HIGHEST CONCENTRATION OF 6.60 PPM OCCURRED AT RECEPTOR REC4 .

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2040 BUILD

DATE : 02/21/ 0
TIME : 08:21:30

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 350	REC2 350	REC3 350	REC4 340	REC5 330	REC6 290	REC7 270	REC8 230	REC9 230	REC10 210	REC11 340	REC12 340	REC13 320	REC14 310	REC15 350	REC16 10	REC17 10	REC18 20
1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.4	0.1	0.2	0.1	0.0
3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.0
4	0.3	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.4	0.4	0.1	0.5	0.3	0.1
5	0.2	0.2	0.1	0.2	0.3	0.4	0.4	0.1	0.1	0.0	0.2	0.1	0.3	0.3	0.8	0.1	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	0.0	0.0	0.1	0.1	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	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
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
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
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
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
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
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
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	0.1	0.2	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
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	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	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	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	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	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
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
24	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	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	0.1	0.2	0.3	0.2	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	1.0	0.9	0.4	0.1	0.0	0.0	0.0	0.2	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
27	0.2	0.3	0.7	1.1	0.5	0.3	0.2	0.1	0.1	0.1	1.2	0.5	0.0	0.0	0.0	0.0	0.2	0.2
28	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.9	0.1	0.0	0.1	0.1	0.1
29	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.0	0.1	0.1	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0
31	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.0	0.1	0.1	0.0
32	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
33	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5

34 *	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
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
36 *	0.0	0.0	0.0	0.1	0.3	0.3	0.9	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37 *	0.0	0.0	0.1	0.2	0.5	0.5	0.9	0.4	0.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
38 *	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	0.0	0.0	0.1	0.0
39 *	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.0	0.1	0.2	0.1
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
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	0.1	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	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	0.1	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	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	0.0	0.0	0.0	0.0	0.0

JOB: FAIRFAX PARKWAY - OPTION 2 RUN: OPENING YEAR 2040 BUILD

LINK #	* CO/LINK (PPM) ANGLE (DEGREES) REC1 350	REC2 350	REC3 350	REC4 340	REC5 330	REC6 290	REC7 270	REC8 230	REC9 230	REC10 210	REC11 340	REC12 340	REC13 320	REC14 310	REC15 350	REC16 10	REC17 10	REC18 20
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	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	0.0	0.3	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	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	0.0	0.0	0.1	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	0.0	0.0	0.0	0.1	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	0.0	0.0	0.2	0.1	0.0
52 *	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.1	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	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	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	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	0.0	0.0	0.0	0.0	0.0
57 *	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	0.2	0.2	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 2/17/2012 at 8:40:08

JOB: ROLLING ROAD AREA RUN: EXISTING 2011 CONDITIONS

DATE : 02/17/ 0
TIME : 08:40:08

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. RR EB	-201.2	-279.7	-88.2	-296.3	114.	98.	AG	2007.	17.6	0.0	17.1		
2. RR EB	-88.2	-296.3	7.2	-297.3	95.	91.	AG	2007.	17.6	0.0	17.1		
3. RR EB	7.2	-297.3	79.3	-279.7	74.	76.	AG	2007.	17.6	0.0	17.1		
4. RR EB	79.3	-279.7	129.9	-258.3	55.	67.	AG	2007.	17.6	0.0	17.1		
5. RR EB A	131.9	-259.3	377.2	-135.6	275.	63.	AG	1387.	17.6	0.0	17.1		
6. RR EB B	377.2	-134.6	522.3	-86.9	153.	72.	AG	1387.	17.6	0.0	17.1		
7. RR EB B	522.3	-86.9	647.0	-66.5	126.	81.	AG	1387.	17.6	0.0	17.1		
8. RR EB B	647.0	-66.5	738.5	-45.0	94.	77.	AG	1387.	17.6	0.0	17.1		
9. RR WB	729.7	-23.6	416.2	-98.6	322.	257.	AG	2286.	17.6	0.0	17.1		
10. RR WB	416.2	-98.6	361.7	-121.0	59.	248.	AG	2286.	17.6	0.0	17.1		
11. RR WB A	362.6	-122.0	73.4	-258.3	320.	245.	AG	2413.	17.6	0.0	17.1		
12. RR WB A	73.4	-258.3	-1.5	-278.8	78.	255.	AG	2413.	17.6	0.0	17.1		
13. RR WB A	-1.5	-278.8	-95.0	-281.7	94.	268.	AG	2413.	17.6	0.0	17.1		
14. RR WB A	-95.0	-281.7	-201.2	-263.2	108.	280.	AG	2413.	17.6	0.0	17.1		
15. NB	387.0	-376.1	357.8	-308.0	74.	337.	AG	1120.	18.1	0.0	17.1		
16. NB	357.8	-308.0	276.9	-209.6	127.	321.	AG	1120.	18.1	0.0	17.1		
17. NB	276.9	-209.6	221.4	-156.1	77.	314.	AG	1120.	18.1	0.0	17.1		
18. NB A	223.4	-157.0	124.1	-54.8	142.	316.	AG	2195.	16.2	0.0	17.1		
19. NB B	125.0	-56.7	60.8	11.4	94.	317.	AG	1759.	16.2	0.0	17.1		
20. NB B	60.8	11.4	-46.3	97.1	137.	309.	AG	1759.	16.2	0.0	17.1		
21. SB	-50.2	86.4	119.2	-66.5	228.	132.	AG	1188.	16.2	0.0	17.1		
22. SB decent	119.2	-65.5	260.4	-218.4	208.	137.	AG	1133.	16.2	0.0	17.1		
23. SB decent	260.4	-218.4	319.8	-282.6	87.	137.	AG	1133.	16.2	0.0	17.1		
24. SB decent	319.8	-282.6	364.6	-363.5	92.	151.	AG	1133.	16.2	0.0	17.1		
25. SB decent	364.6	-363.5	369.5	-388.8	26.	169.	AG	1133.	16.2	0.0	17.1		
26. LOOP RAMP	188.3	-107.4	170.8	-74.3	37.	332.	AG	280.	17.7	0.0	9.8		
27. LOOP RAMP	170.8	-74.3	168.9	-31.4	43.	357.	AG	280.	17.7	0.0	9.8		
28. LOOP RAMP	168.9	-31.4	195.2	12.4	51.	31.	AG	280.	17.7	0.0	9.8		
29. LOOP RAMP	195.2	12.4	237.0	36.7	48.	60.	AG	280.	17.7	0.0	9.8		
30. LOOP RAMP	237.0	36.7	272.1	41.6	35.	82.	AG	280.	17.7	0.0	9.8		
31. LOOP RAMP	272.1	41.6	312.0	29.0	42.	108.	AG	280.	17.7	0.0	9.8		
32. LOOP RAMP	312.0	29.0	345.1	-1.2	45.	132.	AG	280.	17.7	0.0	9.8		
33. LOOP RAMP	345.1	-1.2	357.8	-30.4	32.	156.	AG	280.	17.7	0.0	9.8		
34. LOOP RAMP	357.8	-30.4	361.7	-62.6	32.	173.	AG	280.	17.7	0.0	9.8		
35. LOOP RAMP	361.7	-62.6	351.9	-95.7	35.	196.	AG	280.	17.7	0.0	9.8		
36. LOOP RAMP	351.9	-95.7	332.5	-120.0	31.	219.	AG	280.	17.7	0.0	9.8		
37. LOOP RAMP	332.5	-120.0	300.3	-139.5	38.	239.	AG	280.	17.7	0.0	9.8		

38. OFF RAMP	*	578.8	-46.0	493.1	-47.0	*	86.	269.	AG	506.	16.2	0.0	9.8
39. OFF RAMP	*	493.1	-47.0	404.5	-13.9	*	95.	290.	AG	506.	16.2	0.0	9.8
40. OFF RAMP	*	404.5	-13.9	335.4	29.0	*	81.	302.	AG	506.	16.2	0.0	9.8
41. OFF RAMP	*	335.4	29.0	275.0	52.3	*	65.	291.	AG	506.	16.2	0.0	9.8
42. OFF RAMP	*	275.0	52.3	238.0	49.4	*	37.	266.	AG	506.	16.2	0.0	9.8
43. OFF RAMP	*	238.0	49.4	166.9	12.4	*	80.	243.	AG	506.	16.2	0.0	9.8
44. OFF RAMP	*	166.9	12.4	130.9	-42.1	*	65.	213.	AG	506.	16.2	0.0	9.8

JOB: ROLLING ROAD AREA RUN: EXISTING 2011 CONDITIONS

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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. SPRING FOREST	*	49.0	-114.2	108.7	-69.4	*	75.	53.	AG	54.	16.4	0.0	9.8		
46. EB thru right QUE	*	108.4	-71.7	69.3	-100.6	*	49.	234.	AG	264.	100.0	0.0	3.7	1.36	8.1
47. WB QUE	*	129.3	-41.6	148.5	-20.5	*	29.	42.	AG	484.	100.0	0.0	7.3	0.68	4.8
48. wb RIGHT QUE	*	125.5	-35.8	413.6	267.6	*	418.	44.	AG	242.	100.0	0.0	3.7	1.70	69.7
49. NB LEFT TURN	*	127.0	-62.3	128.7	-64.2	*	3.	138.	AG	127.	100.0	0.0	3.7	0.02	0.4
50. NB TTHRU QUE	*	130.2	-60.2	262.8	-198.7	*	192.	136.	AG	127.	100.0	0.0	7.3	0.81	32.0
51. SB LEFT QUE	*	114.2	-53.5	93.7	-34.3	*	28.	313.	AG	94.	100.0	0.0	3.7	0.29	4.7
52. SB THRU QUE	*	107.2	-56.7	76.1	-28.4	*	42.	312.	AG	188.	100.0	0.0	7.3	0.19	7.0
53. SB RIGHT QUE	*	105.5	-61.1	103.5	-59.3	*	3.	312.	AG	94.	100.0	0.0	3.7	0.03	0.5
54. wb decent	*	103.8	-64.8	45.1	-108.5	*	73.	233.	AG	55.	16.4	0.0	9.8		
55. eb left que	*	107.3	-66.2	103.8	-68.8	*	4.	233.	AG	264.	100.0	0.0	3.7	0.52	0.7

JOB: ROLLING ROAD AREA RUN: EXISTING 2011 CONDITIONS

DATE : 02/17/ 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
46. EB thru right QUE	*	170	163	2.0	38	1630	102.84	2	3
47. WB QUE	*	170	149	2.0	231	1681	102.84	2	3
48. wb RIGHT QUE	*	170	149	2.0	268	1583	102.84	2	3
49. NB LEFT TURN	*	170	78	2.0	20	1600	102.84	2	3
50. NB TTHRU QUE	*	170	78	2.0	1475	3539	102.84	2	3
51. SB LEFT QUE	*	170	58	2.0	290	1600	102.84	2	3
52. SB THRU QUE	*	170	58	2.0	870	3539	102.84	2	3
53. SB RIGHT QUE	*	170	58	2.0	28	1583	102.84	2	3
55. eb left que	*	170	163	2.0	16	1770	102.84	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 2A	1.4	-1.2	1.8
2. 2B	25.2	-19.6	1.8
3. 2C	49.0	-36.1	1.8
4. 2D	72.3	-57.7	1.8
5. 2E	107.2	-94.9	1.8
6. 2F	128.7	-111.9	1.8
7. 2G	155.2	-136.1	1.8
8. 2H	178.9	-161.2	1.8
9. 2I	105.4	15.4	1.8
10. 2J	146.2	35.6	1.8
11. 2K	374.4	48.1	1.8

JOB: ROLLING ROAD AREA RUN: EXISTING 2011 CONDITIONS

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
0.	3.5	3.5	3.7	3.8	4.1	4.2	4.1	4.1	2.9	2.9	3.0
10.	3.5	3.5	3.5	3.8	4.0	4.3	4.0	4.0	2.9	2.9	3.0
20.	3.5	3.5	3.5	3.8	4.1	4.1	4.0	4.0	2.9	2.9	2.9
30.	3.5	3.5	3.5	3.8	4.2	4.0	4.0	4.0	2.9	2.9	2.9
40.	3.5	3.5	3.5	4.1	4.0	3.9	3.8	3.9	2.9	3.0	2.9
50.	3.5	3.7	3.7	4.4	3.8	3.8	3.8	3.9	3.0	3.1	2.9
60.	3.6	3.7	3.8	4.5	3.7	3.8	3.9	4.0	3.1	3.2	2.9
70.	3.6	3.7	3.9	4.3	3.7	3.9	4.0	4.5	3.1	3.2	2.9
80.	3.7	3.6	4.0	4.4	3.9	4.0	4.4	4.7	3.2	3.3	2.9
90.	3.8	3.9	4.3	4.2	4.3	4.3	4.7	4.8	3.3	3.3	2.9
100.	3.8	4.0	4.6	4.3	4.3	4.3	4.6	4.6	3.3	3.3	3.0
110.	3.9	4.2	4.3	4.3	4.2	4.3	4.5	4.6	3.4	3.4	3.2
120.	3.9	4.2	4.4	4.3	4.1	4.2	4.5	4.4	3.4	3.5	3.2
130.	3.7	3.9	3.9	4.1	3.9	4.1	4.1	4.2	3.7	3.4	3.3
140.	3.3	3.4	3.5	3.5	3.3	3.4	3.7	4.0	4.2	3.4	3.3
150.	3.0	3.3	3.3	3.4	3.2	3.3	3.4	3.6	4.5	3.8	3.3
160.	3.0	3.1	3.3	3.4	3.2	3.3	3.4	3.6	4.4	3.9	3.3
170.	3.1	3.2	3.2	3.4	3.3	3.3	3.4	3.6	4.0	4.1	3.3
180.	3.2	3.1	3.1	3.5	3.2	3.4	3.4	3.6	4.0	4.1	3.4
190.	3.1	3.2	3.3	3.2	3.3	3.2	3.4	3.6	4.0	3.9	3.5
200.	3.2	3.1	3.1	3.2	3.2	3.4	3.3	3.8	4.0	3.7	3.3
210.	3.1	3.1	3.2	3.1	3.3	3.4	3.5	3.7	3.8	3.6	3.3
220.	3.0	3.1	3.1	3.2	3.1	3.2	3.5	3.7	3.7	3.4	3.5
230.	2.9	2.9	3.0	3.1	3.2	3.3	3.3	3.8	3.5	3.2	3.3
240.	2.9	2.9	2.9	2.9	3.1	3.2	3.3	3.5	3.5	3.2	3.1
250.	2.9	2.9	2.9	2.9	3.0	3.0	3.1	3.3	3.6	3.2	3.3
260.	2.9	2.9	2.9	2.9	3.1	2.9	2.9	3.0	3.6	3.3	3.3
270.	2.9	2.9	2.9	2.9	3.2	2.9	2.9	2.9	3.6	3.2	3.3
280.	2.9	2.9	2.9	2.9	3.2	3.0	2.9	2.9	3.6	3.2	3.0
290.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	2.9	3.5	3.1	3.0
300.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.3	2.9	3.0
310.	2.9	3.0	3.0	3.1	3.4	3.3	3.2	3.2	3.0	2.9	3.0

320.	*	3.0	3.2	3.4	3.4	3.7	3.8	3.6	3.7	2.9	2.9	3.0
330.	*	3.3	3.4	3.6	3.6	4.1	3.9	3.9	4.0	2.9	2.9	3.0
340.	*	3.5	3.6	3.7	3.7	4.2	4.0	4.0	4.3	2.9	2.9	3.0
350.	*	3.5	3.7	3.7	3.7	4.2	3.9	4.2	4.1	2.9	2.9	3.0
MAX	*	3.9	4.2	4.6	4.5	4.3	4.3	4.7	4.8	4.5	4.1	3.5
DEGR.	*	120	110	100	60	90	10	90	90	150	180	220

THE HIGHEST CONCENTRATION OF 4.80 PPM OCCURRED AT RECEPTOR REC8 .

JOB: ROLLING ROAD AREA RUN: EXISTING 2011 CONDITIONS

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TIME : 08:40:08

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
LINK #	*	120	110	100	60	90	10	90	90	150	180	220
1	*	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
3	*	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	0.0	0.0	0.0	0.0
5	*	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1
6	*	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	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
8	*	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	0.1	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
11	*	0.1	0.1	0.1	0.0	0.1	0.0	0.3	0.6	0.2	0.1	0.2
12	*	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
14	*	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
16	*	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	0.2	0.0	0.0	0.0
18	*	0.2	0.2	0.2	0.0	0.5	0.4	0.5	0.2	0.4	0.3	0.1
19	*	0.1	0.2	0.3	0.4	0.0	0.1	0.0	0.0	0.1	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
21	*	0.2	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.1	0.1	0.1	0.0	0.3	0.3	0.4	0.4	0.2	0.1	0.1
23	*	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
25	*	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
27	*	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
29	*	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
31	*	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	0.0
33	*	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
35	*	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
37	*	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
39	*	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	0.1

41	*	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
43	*	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	0.1	0.0	0.1	0.0	0.0	0.1	0.1	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

JOB: ROLLING ROAD AREA RUN: EXISTING 2011 CONDITIONS

LINK #	*	CO/LINK (PPM) ANGLE (DEGREES) REC1 120	REC2 110	REC3 100	REC4 60	REC5 90	REC6 10	REC7 90	REC8 90	REC9 150	REC10 180	REC11 220
46	*	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	0.1	0.1	0.2	0.0	0.2	0.0	0.0	0.3	0.2	0.0
48	*	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.1	0.2	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
50	*	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.0
51	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.1	0.1	0.2	0.2	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
54	*	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

1 CAL3QHC - (DATED 95221)

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

Run Began on 2/17/2012 at 9:03:02

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 NOBUILD

DATE : 02/17/ 0
TIME : 09:03:02

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. RR EB	*	-201.2	-279.7	-88.2	-296.3	*	114.	98.	AG	2114.	14.2	0.0	17.1		
2. RR EB	*	-88.2	-296.3	7.2	-297.3	*	95.	91.	AG	2114.	14.2	0.0	17.1		
3. RR EB	*	7.2	-297.3	79.3	-279.7	*	74.	76.	AG	2114.	14.2	0.0	17.1		
4. RR EB	*	79.3	-279.7	129.9	-258.3	*	55.	67.	AG	2114.	14.2	0.0	17.1		
5. RR EB A	*	131.9	-259.3	377.2	-135.6	*	275.	63.	AG	1581.	14.2	0.0	17.1		
6. RR EB B	*	377.2	-134.6	522.3	-86.9	*	153.	72.	AG	1441.	14.2	0.0	17.1		
7. RR EB B	*	522.3	-86.9	647.0	-66.5	*	126.	81.	AG	1441.	14.2	0.0	17.1		
8. RR EB B	*	647.0	-66.5	738.5	-45.0	*	94.	77.	AG	1441.	14.2	0.0	17.1		
9. RR WB	*	729.7	-23.6	416.2	-98.6	*	322.	257.	AG	2629.	14.2	0.0	17.1		
10. RR WB	*	416.2	-98.6	361.7	-121.0	*	59.	248.	AG	2629.	14.2	0.0	17.1		
11. RR WB A	*	362.6	-122.0	73.4	-258.3	*	320.	245.	AG	2542.	14.2	0.0	17.1		
12. RR WB A	*	73.4	-258.3	-1.5	-278.8	*	78.	255.	AG	2542.	14.2	0.0	17.1		
13. RR WB A	*	-1.5	-278.8	-95.0	-281.7	*	94.	268.	AG	2542.	14.2	0.0	17.1		
14. RR WB A	*	-95.0	-281.7	-201.2	-263.2	*	108.	280.	AG	2542.	14.2	0.0	17.1		
15. NB	*	387.0	-376.1	357.8	-308.0	*	74.	337.	AG	1562.	13.8	0.0	17.1		
16. NB	*	357.8	-308.0	276.9	-209.6	*	127.	321.	AG	1562.	13.8	0.0	17.1		
17. NB	*	276.9	-209.6	221.4	-156.1	*	77.	314.	AG	1562.	13.8	0.0	17.1		
18. NB A	*	223.4	-157.0	124.1	-54.8	*	142.	316.	AG	2374.	13.1	0.0	17.1		
19. NB B	*	125.0	-56.7	60.8	11.4	*	94.	317.	AG	1826.	13.3	0.0	17.1		
20. NB B	*	60.8	11.4	-46.3	97.1	*	137.	309.	AG	1826.	13.3	0.0	17.1		
21. SB	*	-50.2	86.4	119.2	-66.5	*	228.	132.	AG	1274.	13.1	0.0	17.1		
22. SB A	*	119.2	-65.5	260.4	-218.4	*	208.	137.	AG	1612.	13.1	0.0	17.1		
23. SB A	*	260.4	-218.4	319.8	-282.6	*	87.	137.	AG	1612.	13.1	0.0	17.1		
24. SB A	*	319.8	-282.6	364.6	-363.5	*	92.	151.	AG	1612.	13.1	0.0	17.1		
25. SB A	*	364.6	-363.5	369.5	-388.8	*	26.	169.	AG	1612.	13.1	0.0	17.1		
26. LOOP RAMP	*	188.3	-107.4	170.8	-74.3	*	37.	332.	AG	720.	13.1	0.0	9.8		
27. LOOP RAMP	*	170.8	-74.3	168.9	-31.4	*	43.	357.	AG	720.	13.1	0.0	9.8		
28. LOOP RAMP	*	168.9	-31.4	195.2	12.4	*	51.	31.	AG	720.	13.1	0.0	9.8		
29. LOOP RAMP	*	195.2	12.4	237.0	36.7	*	48.	60.	AG	720.	13.1	0.0	9.8		
30. LOOP RAMP	*	237.0	36.7	272.1	41.6	*	35.	82.	AG	720.	13.1	0.0	9.8		
31. LOOP RAMP	*	272.1	41.6	312.0	29.0	*	42.	108.	AG	720.	13.1	0.0	9.8		
32. LOOP RAMP	*	312.0	29.0	345.1	-1.2	*	45.	132.	AG	720.	13.1	0.0	9.8		
33. LOOP RAMP	*	345.1	-1.2	357.8	-30.4	*	32.	156.	AG	720.	13.1	0.0	9.8		
34. LOOP RAMP	*	357.8	-30.4	361.7	-62.6	*	32.	173.	AG	720.	13.1	0.0	9.8		
35. LOOP RAMP	*	361.7	-62.6	351.9	-95.7	*	35.	196.	AG	720.	13.1	0.0	9.8		
36. LOOP RAMP	*	351.9	-95.7	332.5	-120.0	*	31.	219.	AG	720.	13.1	0.0	9.8		
37. LOOP RAMP	*	332.5	-120.0	300.3	-139.5	*	38.	239.	AG	720.	13.1	0.0	9.8		

38. OFF RAMP	*	578.8	-46.0	493.1	-47.0	*	86.	269.	AG	816.	13.1	0.0	9.8
39. OFF RAMP	*	493.1	-47.0	404.5	-13.9	*	95.	290.	AG	816.	13.1	0.0	9.8
40. OFF RAMP	*	404.5	-13.9	335.4	29.0	*	81.	302.	AG	816.	13.1	0.0	9.8
41. OFF RAMP	*	335.4	29.0	275.0	52.3	*	65.	291.	AG	816.	13.1	0.0	9.8
42. OFF RAMP	*	275.0	52.3	238.0	49.4	*	37.	266.	AG	816.	13.1	0.0	9.8
43. OFF RAMP	*	238.0	49.4	166.9	12.4	*	80.	243.	AG	816.	13.1	0.0	9.8
44. OFF RAMP	*	166.9	12.4	130.9	-42.1	*	65.	213.	AG	816.	13.1	0.0	9.8

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 NOBUILD

DATE : 02/17/ 0
TIME : 09:03:02

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. SPRING FOREST	*	49.0	-114.2	108.7	-69.4	*	75.	53.	AG	46.	13.3	0.0	9.8		
46. EB thru right QUE	*	108.4	-71.7	26.4	-132.3	*	102.	234.	AG	209.	100.0	0.0	3.7	2.30	17.0
47. WB QUE	*	129.3	-41.6	169.9	3.1	*	60.	42.	AG	350.	100.0	0.0	7.3	0.90	10.1
48. wb RIGHT QUE	*	125.5	-35.8	234.8	79.4	*	159.	44.	AG	175.	100.0	0.0	3.7	1.10	26.5
49. NB LEFT TURN	*	127.0	-62.3	129.2	-64.8	*	3.	138.	AG	109.	100.0	0.0	3.7	0.03	0.6
50. NB TTHRU QUE	*	130.2	-60.2	270.6	-206.9	*	203.	136.	AG	109.	100.0	0.0	7.3	0.91	33.8
51. SB LEFT QUE	*	114.2	-53.5	97.7	-38.0	*	23.	313.	AG	94.	100.0	0.0	3.7	0.23	3.8
52. SB THRU QUE	*	107.2	-56.7	62.3	-15.9	*	61.	312.	AG	187.	100.0	0.0	7.3	0.27	10.1
53. SB RIGHT QUE	*	105.5	-61.1	103.8	-59.6	*	2.	312.	AG	94.	100.0	0.0	3.7	0.02	0.4
54. wb dec	*	104.8	-63.8	43.1	-106.5	*	75.	235.	AG	54.	13.3	0.0	10.0		
55. eb left que	*	103.3	-67.2	101.2	-68.6	*	3.	236.	AG	209.	100.0	0.0	3.7	0.45	0.4

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 NOBUILD

DATE : 02/17/ 0
TIME : 09:03:02

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
46. EB thru right QUE	*	160	154	2.0	46	1611	80.98	2	3
47. WB QUE	*	160	129	2.0	514	1688	80.98	2	3
48. wb RIGHT QUE	*	160	129	2.0	293	1583	80.98	2	3
49. NB LEFT TURN	*	160	80	2.0	25	1600	80.98	2	3
50. NB TTHRU QUE	*	160	80	2.0	1523	3539	80.98	2	3
51. SB LEFT QUE	*	160	69	2.0	197	1600	80.98	2	3
52. SB THRU QUE	*	160	69	2.0	1057	3539	80.98	2	3
53. SB RIGHT QUE	*	160	69	2.0	20	1583	80.98	2	3
55. eb left que	*	160	154	2.0	10	1770	80.98	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 2A	1.4	-1.2	1.8
2. 2B	25.2	-19.6	1.8
3. 2C	49.0	-36.1	1.8
4. 2D	72.3	-57.7	1.8
5. 2E	107.2	-94.9	1.8
6. 2F	128.7	-111.9	1.8
7. 2G	155.2	-136.1	1.8
8. 2H	178.9	-161.2	1.8
9. 2I	105.4	15.4	1.8
10. 2J	146.2	35.6	1.8
11. 2K	374.4	48.1	1.8

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 NOBUILD

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
0.	3.5	3.5	3.6	3.8	3.8	4.2	4.3	4.3	2.9	2.9	2.9
10.	3.5	3.5	3.5	3.8	4.0	4.3	4.1	4.0	2.9	2.9	2.9
20.	3.5	3.5	3.5	3.8	4.0	4.2	4.0	3.8	2.9	2.9	2.9
30.	3.5	3.5	3.6	3.7	4.2	4.1	3.9	3.8	2.9	2.9	2.9
40.	3.5	3.5	3.7	3.9	4.1	3.9	3.9	3.8	2.9	2.9	2.9
50.	3.5	3.4	3.7	4.1	3.9	3.8	3.8	3.8	2.9	2.9	2.9
60.	3.5	3.5	3.8	4.4	3.8	3.9	3.8	3.9	3.0	3.0	2.9
70.	3.5	3.6	4.1	4.2	3.7	4.0	3.9	4.5	3.1	3.0	2.9
80.	3.5	3.8	4.2	4.0	3.8	4.1	4.3	4.7	3.1	3.2	2.9
90.	3.8	4.0	4.3	4.0	4.3	4.3	4.4	4.8	3.3	3.4	2.9
100.	3.9	4.0	4.1	4.2	4.2	4.1	4.4	4.6	3.3	3.5	3.0
110.	3.9	4.1	4.2	4.1	4.2	4.3	4.4	4.6	3.5	3.4	3.1
120.	3.9	4.1	4.1	4.3	4.1	4.1	4.5	4.5	3.5	3.6	3.2
130.	3.6	3.8	3.8	4.2	4.0	4.0	4.1	4.1	3.7	3.4	3.3
140.	3.3	3.3	3.3	3.5	3.3	3.4	3.6	3.9	4.2	3.6	3.3
150.	3.1	3.2	3.2	3.4	3.2	3.2	3.4	3.5	4.2	4.0	3.4
160.	3.1	3.1	3.1	3.4	3.2	3.2	3.3	3.5	4.1	4.1	3.3
170.	3.1	3.2	3.1	3.3	3.3	3.2	3.3	3.5	3.8	4.2	3.3
180.	3.1	3.2	3.2	3.4	3.2	3.3	3.3	3.5	3.9	4.1	3.3
190.	3.1	3.1	3.3	3.3	3.3	3.2	3.4	3.6	3.8	3.7	3.4
200.	3.2	3.1	3.1	3.4	3.1	3.3	3.3	3.7	3.7	3.7	3.4
210.	3.1	3.1	3.2	3.2	3.3	3.2	3.4	3.6	3.7	3.5	3.4
220.	2.9	3.1	3.1	3.3	3.1	3.2	3.3	3.6	3.6	3.4	3.6
230.	2.9	2.9	3.0	3.1	3.2	3.3	3.2	3.7	3.5	3.3	3.4
240.	2.9	2.9	2.9	2.9	3.2	3.1	3.3	3.4	3.4	3.2	3.3
250.	2.9	2.9	2.9	2.9	3.2	2.9	3.1	3.2	3.5	3.2	3.1
260.	2.9	2.9	2.9	2.9	3.2	3.0	2.9	2.9	3.4	3.2	3.3
270.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	2.9	3.5	3.2	3.2
280.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	2.9	3.6	3.2	2.9
290.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.5	3.0	2.9
300.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.3	2.9	2.9
310.	2.9	2.9	3.0	3.1	3.4	3.2	3.2	3.2	3.0	2.9	2.9

320.	*	3.0	3.1	3.2	3.4	3.6	3.6	3.6	3.7	2.9	2.9	2.9
330.	*	3.2	3.4	3.5	3.6	4.0	3.8	3.9	4.1	2.9	2.9	2.9
340.	*	3.4	3.5	3.6	3.7	4.0	3.8	4.1	4.1	2.9	2.9	2.9
350.	*	3.5	3.5	3.5	3.8	3.9	3.9	4.1	4.2	2.9	2.9	2.9
MAX	*	3.9	4.1	4.3	4.4	4.3	4.3	4.5	4.8	4.2	4.2	3.6
DEGR.	*	120	120	90	60	90	10	120	90	140	170	220

THE HIGHEST CONCENTRATION OF 4.80 PPM OCCURRED AT RECEPTOR REC8 .

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 NOBUILD

DATE : 02/17/ 0
TIME : 09:03:02

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 120	REC2 120	REC3 90	REC4 60	REC5 90	REC6 10	REC7 120	REC8 90	REC9 140	REC10 170	REC11 220
1	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
3	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	0.0	0.0	0.0	0.0
5	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1
6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	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
8	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	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
11	0.1	0.1	0.0	0.0	0.1	0.0	0.3	0.5	0.1	0.1	0.2
12	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
14	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
16	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0
18	0.2	0.3	0.1	0.0	0.4	0.4	0.1	0.2	0.2	0.2	0.1
19	0.1	0.1	0.3	0.3	0.0	0.1	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
21	0.2	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.1	0.2	0.0	0.0	0.4	0.4	0.5	0.5	0.1	0.2	0.1
23	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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
25	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	0.1	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
28	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
30	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
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
33	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
35	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
37	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
39	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	0.1

41	*	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
43	*	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	0.1	0.0	0.1	0.0	0.0	0.1	0.1	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

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 NOBUILD

	*	CO/LINK (PPM) ANGLE (DEGREES)										
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11
LINK #	*	120	120	90	60	90	10	120	90	140	170	220
46	*	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	0.2	0.3	0.0	0.2	0.0	0.0	0.3	0.3	0.0
48	*	0.0	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.1	0.2	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
50	*	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0
51	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.1	0.1	0.3	0.2	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
54	*	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

1 CAL3QHC - (DATED 95221)

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

Run Began on 2/17/2012 at 9:34:50

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 09:34:50

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. RR EB	*	-201.2	-279.7	-88.2	-296.3	*	114.	98.	AG	2114.	14.2	0.0	17.1		
2. RR EB	*	-88.2	-296.3	7.2	-297.3	*	95.	91.	AG	2114.	14.2	0.0	17.1		
3. RR EB	*	7.2	-297.3	79.3	-279.7	*	74.	76.	AG	2114.	14.2	0.0	17.1		
4. RR EB	*	79.3	-279.7	129.9	-258.3	*	55.	67.	AG	2114.	14.2	0.0	17.1		
5. RR EB A	*	131.9	-259.3	377.2	-135.6	*	275.	63.	AG	1581.	14.2	0.0	17.1		
6. RR EB B	*	377.2	-134.6	522.3	-86.9	*	153.	72.	AG	1441.	14.2	0.0	17.1		
7. RR EB B	*	522.3	-86.9	647.0	-66.5	*	126.	81.	AG	1441.	14.2	0.0	17.1		
8. RR EB B	*	647.0	-66.5	738.5	-45.0	*	94.	77.	AG	1441.	14.2	0.0	17.1		
9. RR WB	*	729.7	-23.6	416.2	-98.6	*	322.	257.	AG	1883.	14.2	0.0	17.1		
10. RR WB	*	416.2	-98.6	361.7	-121.0	*	59.	248.	AG	1883.	14.2	0.0	17.1		
11. RR WB A	*	362.6	-122.0	73.4	-258.3	*	320.	245.	AG	2542.	14.2	0.0	20.7		
12. RR WB A	*	73.4	-258.3	-1.5	-278.8	*	78.	255.	AG	2542.	14.2	0.0	20.7		
13. RR WB A	*	-1.5	-278.8	-95.0	-281.7	*	94.	268.	AG	2542.	14.2	0.0	20.7		
14. RR WB A	*	-95.0	-281.7	-201.2	-263.2	*	108.	280.	AG	2542.	14.2	0.0	20.7		
15. NB	*	387.0	-376.1	357.8	-308.0	*	74.	337.	AG	1562.	13.8	0.0	17.1		
16. NB	*	357.8	-308.0	276.9	-209.6	*	127.	321.	AG	1562.	13.8	0.0	17.1		
17. NB	*	276.9	-209.6	221.4	-156.1	*	77.	314.	AG	1562.	13.8	0.0	17.1		
18. NB A	*	223.4	-157.0	124.1	-54.8	*	142.	316.	AG	2374.	13.3	0.0	17.1		
19. NB B	*	125.0	-56.7	60.8	11.4	*	94.	317.	AG	1826.	13.3	0.0	17.1		
20. NB B	*	60.8	11.4	-46.3	97.1	*	137.	309.	AG	1826.	13.3	0.0	17.1		
21. SB	*	-50.2	86.4	119.2	-66.5	*	228.	132.	AG	1274.	13.3	0.0	17.1		
22. SB A	*	119.2	-65.5	260.4	-218.4	*	208.	137.	AG	1612.	13.3	0.0	17.1		
23. SB A	*	260.4	-218.4	319.8	-282.6	*	87.	137.	AG	1612.	13.3	0.0	17.1		
24. SB A	*	319.8	-282.6	364.6	-363.5	*	92.	151.	AG	1612.	13.3	0.0	17.1		
25. SB A	*	364.6	-363.5	369.5	-388.8	*	26.	169.	AG	1612.	13.3	0.0	17.1		
26. LOOP RAMP	*	188.3	-107.4	170.8	-74.3	*	37.	332.	AG	720.	13.1	0.0	13.4		
27. LOOP RAMP	*	170.8	-74.3	168.9	-31.4	*	43.	357.	AG	720.	13.1	0.0	13.4		
28. LOOP RAMP	*	168.9	-31.4	195.2	12.4	*	51.	31.	AG	720.	13.1	0.0	13.4		
29. LOOP RAMP	*	195.2	12.4	237.0	36.7	*	48.	60.	AG	720.	13.1	0.0	13.4		
30. LOOP RAMP	*	237.0	36.7	272.1	41.6	*	35.	82.	AG	720.	13.1	0.0	13.4		
31. LOOP RAMP	*	272.1	41.6	312.0	29.0	*	42.	108.	AG	720.	13.1	0.0	13.4		
32. LOOP RAMP	*	312.0	29.0	345.1	-1.2	*	45.	132.	AG	720.	13.1	0.0	13.4		
33. LOOP RAMP	*	345.1	-1.2	357.8	-30.4	*	32.	156.	AG	720.	13.1	0.0	13.4		
34. LOOP RAMP	*	357.8	-30.4	361.7	-62.6	*	32.	173.	AG	720.	13.1	0.0	13.4		
35. LOOP RAMP	*	361.7	-62.6	351.9	-95.7	*	35.	196.	AG	720.	13.1	0.0	13.4		
36. LOOP RAMP	*	351.9	-95.7	332.5	-120.0	*	31.	219.	AG	720.	13.1	0.0	13.4		
37. LOOP RAMP	*	332.5	-120.0	300.3	-139.5	*	38.	239.	AG	720.	13.1	0.0	13.4		

38. OFF RAMP	*	578.8	-46.0	493.1	-47.0	*	86.	269.	AG	816.	13.1	0.0	9.8
39. OFF RAMP	*	493.1	-47.0	404.5	-13.9	*	95.	290.	AG	816.	13.1	0.0	9.8
40. OFF RAMP	*	404.5	-13.9	335.4	29.0	*	81.	302.	AG	816.	13.1	0.0	9.8
41. OFF RAMP	*	335.4	29.0	275.0	52.3	*	65.	291.	AG	816.	13.1	0.0	9.8
42. OFF RAMP	*	275.0	52.3	238.0	49.4	*	37.	266.	AG	816.	13.1	0.0	9.8
43. OFF RAMP	*	238.0	49.4	166.9	12.4	*	80.	243.	AG	816.	13.1	0.0	9.8
44. OFF RAMP	*	166.9	12.4	130.9	-42.1	*	65.	213.	AG	816.	13.1	0.0	9.8

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 09:34:50

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. SPRING FOREST	*	49.0	-114.2	108.7	-69.4	*	75.	53.	AG	56.	13.3	0.0	9.8		
46. EB thru right QUE	*	108.4	-71.7	26.4	-132.3	*	102.	234.	AG	209.	100.0	0.0	3.7	2.30	17.0
47. WB thru left QUE	*	129.3	-41.6	169.3	2.3	*	59.	42.	AG	348.	100.0	0.0	7.3	0.89	9.9
48. wb RIGHT QUE	*	125.5	-35.8	234.8	79.4	*	159.	44.	AG	175.	100.0	0.0	3.7	1.10	26.5
49. NB LEFT TURN	*	127.0	-62.3	129.2	-64.8	*	3.	138.	AG	109.	100.0	0.0	3.7	0.03	0.6
50. NB TTHRU QUE	*	130.2	-60.2	270.6	-206.9	*	203.	136.	AG	109.	100.0	0.0	7.3	0.91	33.8
51. SB LEFT QUE	*	114.2	-53.5	97.7	-38.0	*	23.	313.	AG	94.	100.0	0.0	3.7	0.23	3.8
52. SB THRU QUE	*	107.2	-56.7	62.3	-15.9	*	61.	312.	AG	187.	100.0	0.0	7.3	0.27	10.1
53. SB RIGHT QUE	*	105.5	-61.1	103.8	-59.6	*	2.	312.	AG	94.	100.0	0.0	3.7	0.02	0.4
54. wb dec	*	103.8	-64.8	45.1	-107.5	*	73.	234.	AG	54.	13.3	0.0	10.0		
55. eb left que	*	102.3	-67.2	100.2	-68.6	*	3.	237.	AG	209.	100.0	0.0	3.7	0.45	0.4

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 09:34:50

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
46. EB thru right QUE	*	160	154	2.0	46	1611	80.98	2	3
47. WB thru left QUE	*	160	128	2.0	523	1681	80.98	2	3
48. wb RIGHT QUE	*	160	129	2.0	293	1583	80.98	2	3
49. NB LEFT TURN	*	160	80	2.0	25	1600	80.98	2	3
50. NB TTHRU QUE	*	160	80	2.0	1523	3539	80.98	2	3
51. SB LEFT QUE	*	160	69	2.0	197	1600	80.98	2	3
52. SB THRU QUE	*	160	69	2.0	1057	3539	80.98	2	3
53. SB RIGHT QUE	*	160	69	2.0	20	1583	80.98	2	3
55. eb left que	*	160	154	2.0	10	1770	80.98	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 2A	1.4	-1.2	1.8
2. 2B	25.2	-19.6	1.8
3. 2C	49.0	-36.1	1.8
4. 2D	72.3	-57.7	1.8
5. 2E	107.2	-94.9	1.8
6. 2F	128.7	-111.9	1.8
7. 2G	155.2	-136.1	1.8
8. 2H	178.9	-161.2	1.8
9. 2I	105.4	15.4	1.8
10. 2J	146.2	35.6	1.8
11. 2K	374.4	48.1	1.8

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 BUILD

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
0.	3.5	3.5	3.6	3.8	3.8	4.2	4.3	4.3	2.9	2.9	2.9
10.	3.5	3.5	3.5	3.8	4.0	4.3	4.1	4.0	2.9	2.9	2.9
20.	3.5	3.5	3.5	3.8	4.1	4.2	4.0	3.8	2.9	2.9	2.9
30.	3.5	3.5	3.6	3.7	4.2	4.1	3.9	3.8	2.9	2.9	2.9
40.	3.5	3.5	3.7	3.9	4.1	3.9	3.9	3.8	2.9	2.9	2.9
50.	3.5	3.4	3.7	4.1	3.9	3.8	3.8	3.8	2.9	2.9	2.9
60.	3.5	3.5	3.8	4.3	3.8	3.9	3.8	3.8	3.0	3.0	2.9
70.	3.5	3.6	4.1	4.2	3.7	3.9	3.9	4.4	3.1	3.0	2.9
80.	3.5	3.8	4.2	3.9	3.9	4.0	4.2	4.6	3.1	3.2	2.9
90.	3.8	4.0	4.3	4.1	4.2	4.2	4.6	4.7	3.3	3.3	2.9
100.	3.9	4.0	4.2	4.2	4.1	4.2	4.4	4.6	3.4	3.5	3.0
110.	3.9	4.1	4.3	4.1	4.2	4.3	4.4	4.6	3.5	3.4	3.0
120.	4.0	4.1	4.1	4.3	4.1	4.1	4.5	4.5	3.5	3.4	3.1
130.	3.7	3.8	3.9	4.2	4.0	4.0	4.1	4.2	3.7	3.4	3.2
140.	3.3	3.3	3.4	3.5	3.3	3.4	3.7	4.0	4.1	3.6	3.2
150.	3.1	3.2	3.2	3.4	3.2	3.2	3.4	3.6	4.3	4.0	3.3
160.	3.1	3.1	3.1	3.4	3.2	3.2	3.3	3.6	4.1	4.3	3.2
170.	3.1	3.2	3.1	3.3	3.3	3.2	3.3	3.6	3.8	4.4	3.2
180.	3.1	3.2	3.2	3.4	3.2	3.3	3.3	3.6	3.9	4.1	3.3
190.	3.1	3.1	3.3	3.3	3.3	3.2	3.4	3.6	3.8	3.8	3.3
200.	3.2	3.1	3.1	3.4	3.2	3.3	3.3	3.7	3.8	3.7	3.4
210.	3.1	3.1	3.2	3.2	3.3	3.2	3.4	3.6	3.7	3.5	3.4
220.	2.9	3.1	3.1	3.3	3.1	3.2	3.3	3.6	3.6	3.4	3.6
230.	2.9	2.9	3.0	3.1	3.2	3.3	3.2	3.7	3.5	3.3	3.4
240.	2.9	2.9	2.9	2.9	3.2	3.1	3.3	3.4	3.4	3.2	3.3
250.	2.9	2.9	2.9	2.9	3.2	3.0	3.1	3.2	3.5	3.2	3.2
260.	2.9	2.9	2.9	2.9	3.2	3.0	2.9	2.9	3.4	3.2	3.3
270.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	2.9	3.5	3.2	3.2
280.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	2.9	3.6	3.2	2.9
290.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.5	3.0	2.9
300.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.3	2.9	2.9
310.	2.9	2.9	3.0	3.1	3.4	3.2	3.2	3.2	3.0	2.9	2.9

320.	*	3.0	3.2	3.2	3.4	3.6	3.6	3.6	3.7	2.9	2.9	2.9
330.	*	3.2	3.4	3.5	3.6	4.0	3.8	3.9	4.1	2.9	2.9	2.9
340.	*	3.4	3.5	3.6	3.7	4.0	3.8	4.1	4.1	2.9	2.9	2.9
350.	*	3.5	3.5	3.5	3.8	3.9	3.9	4.2	4.2	2.9	2.9	2.9
MAX	*	4.0	4.1	4.3	4.3	4.2	4.3	4.6	4.7	4.3	4.4	3.6
DEGR.	*	120	120	90	60	30	10	90	90	150	170	220

THE HIGHEST CONCENTRATION OF 4.70 PPM OCCURRED AT RECEPTOR REC8 .

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 BUILD

DATE : 02/17/ 0
TIME : 09:34:50

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
LINK #	*	120	120	90	60	30	10	90	90	150	170	220
1	*	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
3	*	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	0.0	0.0	0.0	0.0
5	*	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1
6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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
8	*	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	0.1	0.0	0.0	0.0	0.1	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
11	*	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.5	0.1	0.1	0.2
12	*	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
14	*	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
16	*	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	0.2	0.0	0.0	0.0
18	*	0.2	0.3	0.1	0.0	0.3	0.4	0.5	0.2	0.4	0.3	0.1
19	*	0.1	0.1	0.3	0.3	0.1	0.1	0.0	0.0	0.1	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
21	*	0.2	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.2	0.2	0.0	0.0	0.2	0.4	0.5	0.5	0.2	0.2	0.1
23	*	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
25	*	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
27	*	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
29	*	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
31	*	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
33	*	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
35	*	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
37	*	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
39	*	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	0.1

41	*	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
43	*	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	0.1	0.1	0.1	0.0	0.0	0.1	0.1	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

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2020 BUILD

	*	CO/LINK (PPM)										
	*	ANGLE (DEGREES)										
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11
LINK #	*	120	120	90	60	30	10	90	90	150	170	220
46	*	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	0.2	0.2	0.3	0.2	0.0	0.0	0.2	0.3	0.0
48	*	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.2	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
50	*	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0
51	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.1	0.1	0.3	0.2	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
54	*	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

1 CAL3QHC - (DATED 95221)

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

Run Began on 2/17/2012 at 9:53:15

JOB: ROLLING ROAD AREA RUN: DESIGN YEAR 2040 NOBUILD

DATE : 02/17/ 0
TIME : 09:53:15

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. RR EB	*	-201.2	-279.7	-88.2	-296.3	*	114.	98.	AG	2219.	13.9	0.0	17.1		
2. RR EB	*	-88.2	-296.3	7.2	-297.3	*	95.	91.	AG	2219.	13.9	0.0	17.1		
3. RR EB	*	7.2	-297.3	79.3	-279.7	*	74.	76.	AG	2219.	13.9	0.0	17.1		
4. RR EB	*	79.3	-279.7	129.9	-258.3	*	55.	67.	AG	2219.	13.9	0.0	17.1		
5. RR EB A	*	131.9	-259.3	377.2	-135.6	*	275.	63.	AG	1626.	13.9	0.0	17.1		
6. RR EB B	*	377.2	-134.6	522.3	-86.9	*	153.	72.	AG	1500.	13.9	0.0	17.1		
7. RR EB B	*	522.3	-86.9	647.0	-66.5	*	126.	81.	AG	1500.	13.9	0.0	17.1		
8. RR EB B	*	647.0	-66.5	738.5	-45.0	*	94.	77.	AG	1500.	13.9	0.0	17.1		
9. RR WB	*	729.7	-23.6	416.2	-98.6	*	322.	257.	AG	2989.	13.9	0.0	17.1		
10. RR WB	*	416.2	-98.6	361.7	-121.0	*	59.	248.	AG	2989.	13.9	0.0	17.1		
11. RR WB A	*	362.6	-122.0	73.4	-258.3	*	320.	245.	AG	2714.	13.9	0.0	17.1		
12. RR WB A	*	73.4	-258.3	-1.5	-278.8	*	78.	255.	AG	2714.	13.9	0.0	17.1		
13. RR WB A	*	-1.5	-278.8	-95.0	-281.7	*	94.	268.	AG	2714.	13.9	0.0	17.1		
14. RR WB A	*	-95.0	-281.7	-201.2	-263.2	*	108.	280.	AG	2714.	13.9	0.0	17.1		
15. NB	*	387.0	-376.1	357.8	-308.0	*	74.	337.	AG	1645.	13.9	0.0	17.1		
16. NB	*	357.8	-308.0	276.9	-209.6	*	127.	321.	AG	1645.	13.9	0.0	17.1		
17. NB	*	276.9	-209.6	221.4	-156.1	*	77.	314.	AG	1645.	13.9	0.0	17.1		
18. NB A	*	223.4	-157.0	124.1	-54.8	*	142.	316.	AG	2416.	12.8	0.0	17.1		
19. NB B	*	125.0	-56.7	60.8	11.4	*	94.	317.	AG	1530.	12.8	0.0	17.1		
20. NB B	*	60.8	11.4	-46.3	97.1	*	137.	309.	AG	1530.	12.8	0.0	17.1		
21. SB	*	-50.2	86.4	119.2	-66.5	*	228.	132.	AG	1370.	12.8	0.0	17.1		
22. SB A	*	119.2	-65.5	260.4	-218.4	*	208.	137.	AG	2009.	12.8	0.0	17.1		
23. SB A	*	260.4	-218.4	319.8	-282.6	*	87.	137.	AG	2009.	12.8	0.0	17.1		
24. SB A	*	319.8	-282.6	364.6	-363.5	*	92.	151.	AG	2009.	12.8	0.0	17.1		
25. SB A	*	364.6	-363.5	369.5	-388.8	*	26.	169.	AG	2009.	12.8	0.0	17.1		
26. LOOP RAMP	*	188.3	-107.4	170.8	-74.3	*	37.	332.	AG	765.	12.8	0.0	9.8		
27. LOOP RAMP	*	170.8	-74.3	168.9	-31.4	*	43.	357.	AG	765.	12.8	0.0	9.8		
28. LOOP RAMP	*	168.9	-31.4	195.2	12.4	*	51.	31.	AG	765.	12.8	0.0	9.8		
29. LOOP RAMP	*	195.2	12.4	237.0	36.7	*	48.	60.	AG	765.	12.8	0.0	9.8		
30. LOOP RAMP	*	237.0	36.7	272.1	41.6	*	35.	82.	AG	765.	12.8	0.0	9.8		
31. LOOP RAMP	*	272.1	41.6	312.0	29.0	*	42.	108.	AG	765.	12.8	0.0	9.8		
32. LOOP RAMP	*	312.0	29.0	345.1	-1.2	*	45.	132.	AG	765.	12.8	0.0	9.8		
33. LOOP RAMP	*	345.1	-1.2	357.8	-30.4	*	32.	156.	AG	765.	12.8	0.0	9.8		
34. LOOP RAMP	*	357.8	-30.4	361.7	-62.6	*	32.	173.	AG	765.	12.8	0.0	9.8		
35. LOOP RAMP	*	361.7	-62.6	351.9	-95.7	*	35.	196.	AG	765.	12.8	0.0	9.8		
36. LOOP RAMP	*	351.9	-95.7	332.5	-120.0	*	31.	219.	AG	765.	12.8	0.0	9.8		
37. LOOP RAMP	*	332.5	-120.0	300.3	-139.5	*	38.	239.	AG	765.	12.8	0.0	9.8		

38. OFF RAMP	*	578.8	-46.0	493.1	-47.0	*	86.	269.	AG	1098.	12.8	0.0	9.8
39. OFF RAMP	*	493.1	-47.0	404.5	-13.9	*	95.	290.	AG	1098.	12.8	0.0	9.8
40. OFF RAMP	*	404.5	-13.9	335.4	29.0	*	81.	302.	AG	1098.	12.8	0.0	9.8
41. OFF RAMP	*	335.4	29.0	275.0	52.3	*	65.	291.	AG	1098.	12.8	0.0	9.8
42. OFF RAMP	*	275.0	52.3	238.0	49.4	*	37.	266.	AG	1098.	12.8	0.0	9.8
43. OFF RAMP	*	238.0	49.4	166.9	12.4	*	80.	243.	AG	1098.	12.8	0.0	9.8
44. OFF RAMP	*	166.9	12.4	130.9	-42.1	*	65.	213.	AG	1098.	12.8	0.0	9.8

JOB: ROLLING ROAD AREA RUN: DESIGN YEAR 2040 NOBUILD

DATE : 02/17/ 0
TIME : 09:53:15

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. SPRING FOREST	*	49.0	-114.2	108.7	-69.4	*	75.	53.	AG	56.	13.0	0.0	9.8		
46. EB thru right QUE	*	108.4	-71.7	27.3	-131.7	*	101.	234.	AG	203.	100.0	0.0	3.7	2.18	16.8
47. WB QUE	*	129.3	-41.6	161.0	-6.8	*	47.	42.	AG	221.	100.0	0.0	7.3	0.51	7.8
48. RIGHT QUE	*	125.5	-35.8	172.3	13.5	*	68.	44.	AG	160.	100.0	0.0	3.7	0.95	11.3
49. NB LEFT TURN	*	127.0	-62.3	129.2	-64.7	*	3.	138.	AG	110.	100.0	0.0	3.7	0.04	0.5
50. NB TTHRU QUE	*	130.2	-60.2	287.8	-224.8	*	228.	136.	AG	110.	100.0	0.0	7.3	1.00	38.0
51. SB LEFT QUE	*	114.2	-53.5	102.7	-42.7	*	16.	313.	AG	94.	100.0	0.0	3.7	0.18	2.6
52. SB THRU QUE	*	107.2	-56.7	55.5	-9.7	*	70.	312.	AG	212.	100.0	0.0	7.3	0.36	11.6
53. SB RIGHT QUE	*	105.5	-61.1	103.9	-59.7	*	2.	312.	AG	106.	100.0	0.0	3.7	0.02	0.3
54. wb dec	*	105.3	-63.3	43.6	-106.0	*	75.	235.	AG	55.	13.0	0.0	10.0		
55. eb left que	*	107.3	-67.2	105.8	-68.2	*	2.	237.	AG	203.	100.0	0.0	3.7	0.32	0.3

JOB: ROLLING ROAD AREA RUN: DESIGN YEAR 2040 NOBUILD

DATE : 02/17/ 0
TIME : 09:53:15

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
46. EB thru right QUE	*	140	134	2.0	48	1599	78.94	2	3
47. WB QUE	*	140	73	2.0	775	1687	78.94	2	3
48. RIGHT QUE	*	140	106	2.0	323	1583	78.94	2	3
49. NB LEFT TURN	*	140	73	2.0	27	1600	78.94	2	3
50. NB TTHRU QUE	*	140	73	2.0	1590	3539	78.94	2	3
51. SB LEFT QUE	*	140	62	2.0	153	1600	78.94	2	3
52. SB THRU QUE	*	140	70	2.0	1199	3539	78.94	2	3
53. SB RIGHT QUE	*	140	70	2.0	18	1583	78.94	2	3
55. eb left que	*	140	134	2.0	8	1770	78.94	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 2A	1.4	-1.2	1.8
2. 2B	25.2	-19.6	1.8
3. 2C	49.0	-36.1	1.8
4. 2D	72.3	-57.7	1.8
5. 2E	107.2	-94.9	1.8
6. 2F	128.7	-111.9	1.8
7. 2G	155.2	-136.1	1.8
8. 2H	178.9	-161.2	1.8
9. 2I	105.4	15.4	1.8
10. 2J	146.2	35.6	1.8
11. 2K	374.4	48.1	1.8

JOB: ROLLING ROAD AREA RUN: DESIGN YEAR 2040 NOBUILD

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
0.	3.4	3.4	3.5	3.7	3.8	4.2	4.3	4.2	2.9	2.9	2.9
10.	3.4	3.4	3.5	3.7	4.0	4.2	4.0	4.0	2.9	2.9	2.9
20.	3.4	3.4	3.7	3.7	4.0	4.2	4.0	3.9	2.9	2.9	2.9
30.	3.4	3.4	3.7	3.8	4.2	4.1	4.0	3.9	2.9	2.9	2.9
40.	3.4	3.5	3.7	3.8	4.2	3.9	4.0	3.9	2.9	2.9	2.9
50.	3.4	3.4	3.7	4.2	3.9	3.8	3.9	3.9	2.9	2.9	2.9
60.	3.4	3.5	3.8	4.1	3.9	4.0	3.9	4.0	2.9	2.9	2.9
70.	3.5	3.5	4.1	4.0	3.8	4.1	4.0	4.6	3.0	2.9	2.9
80.	3.4	3.8	4.0	4.0	4.0	4.2	4.4	4.8	3.0	3.0	2.9
90.	3.6	4.1	4.2	3.9	4.4	4.4	4.6	4.8	3.3	3.3	2.9
100.	3.7	4.0	4.2	4.3	4.4	4.2	4.5	4.7	3.4	3.3	3.0
110.	3.9	4.0	4.3	4.2	4.3	4.3	4.5	4.8	3.6	3.3	3.1
120.	4.0	4.1	4.1	4.3	4.2	4.3	4.6	4.7	3.3	3.5	3.2
130.	3.8	3.8	4.1	4.3	4.0	4.1	4.3	4.4	3.6	3.4	3.3
140.	3.3	3.3	3.3	3.5	3.3	3.4	3.7	4.0	4.1	3.5	3.3
150.	3.1	3.2	3.2	3.4	3.2	3.2	3.4	3.6	4.1	3.8	3.4
160.	3.1	3.1	3.1	3.4	3.2	3.2	3.3	3.6	4.2	4.3	3.3
170.	3.1	3.3	3.2	3.3	3.3	3.2	3.3	3.6	3.8	4.2	3.4
180.	3.1	3.1	3.2	3.4	3.2	3.3	3.3	3.6	3.9	4.0	3.4
190.	3.1	3.1	3.3	3.3	3.3	3.2	3.4	3.6	3.8	3.7	3.5
200.	3.2	3.1	3.1	3.4	3.1	3.3	3.3	3.7	3.9	3.8	3.5
210.	3.1	3.1	3.2	3.2	3.3	3.2	3.4	3.6	3.8	3.4	3.5
220.	2.9	3.1	3.1	3.3	3.1	3.2	3.3	3.6	3.8	3.4	3.7
230.	2.9	2.9	3.0	3.1	3.2	3.3	3.2	3.7	3.5	3.3	3.4
240.	2.9	2.9	2.9	2.9	3.2	3.1	3.3	3.4	3.5	3.2	3.4
250.	2.9	2.9	2.9	2.9	3.2	3.0	3.1	3.2	3.4	3.2	3.2
260.	2.9	2.9	2.9	2.9	3.2	3.0	2.9	3.0	3.4	3.2	3.3
270.	2.9	2.9	2.9	2.9	3.2	3.0	3.0	2.9	3.4	3.2	3.0
280.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	2.9	3.4	3.2	3.0
290.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.4	3.0	2.9
300.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.2	2.9	2.9
310.	2.9	3.0	3.0	3.0	3.3	3.1	3.1	3.2	3.0	2.9	2.9

320.	*	3.0	3.2	3.2	3.3	3.6	3.6	3.6	3.7	2.9	2.9	2.9
330.	*	3.2	3.4	3.5	3.6	3.9	3.9	3.9	4.1	2.9	2.9	2.9
340.	*	3.4	3.4	3.6	3.8	4.0	3.7	4.0	4.2	2.9	2.9	2.9
350.	*	3.4	3.4	3.5	3.9	3.9	3.8	4.3	4.3	2.9	2.9	2.9
MAX	*	4.0	4.1	4.3	4.3	4.4	4.4	4.6	4.8	4.2	4.3	3.7
DEGR.	*	120	120	110	100	100	90	120	80	160	160	220

THE HIGHEST CONCENTRATION OF 4.80 PPM OCCURRED AT RECEPTOR REC8 .

JOB: ROLLING ROAD AREA RUN: DESIGN YEAR 2040 NOBUILD

DATE : 02/17/ 0
TIME : 09:53:15

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 120	REC2 120	REC3 110	REC4 100	REC5 100	REC6 90	REC7 120	REC8 80	REC9 160	REC10 160	REC11 220
1	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
3	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	0.0	0.0	0.0	0.0
5	0.1	0.1	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.1
6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	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
8	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	0.1	0.1	0.2	0.0	0.2	0.0	0.0	0.0
10	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
11	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.4	0.1	0.1	0.2
12	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
14	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
16	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0
18	0.2	0.3	0.3	0.4	0.4	0.4	0.1	0.3	0.3	0.2	0.1
19	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	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
21	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.2	0.2	0.2	0.2	0.5	0.5	0.6	0.5	0.3	0.2	0.1
23	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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
25	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
27	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	0.1	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
30	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
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
33	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
35	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
37	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
39	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	0.2

41	*	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
43	*	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	0.1	0.2	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

JOB: ROLLING ROAD AREA RUN: DESIGN YEAR 2040 NOBUILD

		CO/LINK (PPM)										
	*	ANGLE (DEGREES)										
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11
LINK #	*	120	120	110	100	100	90	120	80	160	160	220
46	*	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	0.1	0.1	0.0
48	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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
50	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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
52	*	0.1	0.1	0.2	0.1	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
54	*	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

1 CAL3QHC - (DATED 95221)

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

Run Began on 2/17/2012 at 10:09:05

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 10:09:05

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 = 100. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 2.9 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. RR EB	-201.2	-279.7	-88.2	-296.3	114.	98.	AG	2219.	13.9	0.0	17.1		
2. RR EB	-88.2	-296.3	7.2	-297.3	95.	91.	AG	2219.	13.9	0.0	17.1		
3. RR EB	7.2	-297.3	79.3	-279.7	74.	76.	AG	2219.	13.9	0.0	17.1		
4. RR EB	79.3	-279.7	129.9	-258.3	55.	67.	AG	2219.	13.9	0.0	17.1		
5. RR EB A	131.9	-259.3	377.2	-135.6	275.	63.	AG	1626.	13.9	0.0	17.1		
6. RR EB B	377.2	-134.6	522.3	-86.9	153.	72.	AG	1500.	13.9	0.0	17.1		
7. RR EB B	522.3	-86.9	647.0	-66.5	126.	81.	AG	1500.	13.9	0.0	17.1		
8. RR EB B	647.0	-66.5	738.5	-45.0	94.	77.	AG	1500.	13.9	0.0	17.1		
9. RR WB	729.7	-23.6	416.2	-98.6	322.	257.	AG	2014.	13.9	0.0	17.1		
10. RR WB	416.2	-98.6	361.7	-121.0	59.	248.	AG	2014.	13.9	0.0	17.1		
11. RR WB A	362.6	-122.0	73.4	-258.3	320.	245.	AG	2714.	13.9	0.0	20.7		
12. RR WB A	73.4	-258.3	-1.5	-278.8	78.	255.	AG	2714.	13.9	0.0	20.7		
13. RR WB A	-1.5	-278.8	-95.0	-281.7	94.	268.	AG	2714.	13.9	0.0	20.7		
14. RR WB A	-95.0	-281.7	-201.2	-263.2	108.	280.	AG	2714.	13.9	0.0	20.7		
15. NB	387.0	-376.1	357.8	-308.0	74.	337.	AG	1645.	13.5	0.0	17.1		
16. NB	357.8	-308.0	276.9	-209.6	127.	321.	AG	1645.	13.5	0.0	17.1		
17. NB	276.9	-209.6	221.4	-156.1	77.	314.	AG	1645.	13.5	0.0	17.1		
18. NB A	223.4	-157.0	124.1	-54.8	142.	316.	AG	2416.	13.0	0.0	17.1		
19. NB B	125.0	-56.7	60.8	11.4	94.	317.	AG	1921.	13.0	0.0	17.1		
20. NB B	60.8	11.4	-46.3	97.1	137.	309.	AG	1921.	13.0	0.0	17.1		
21. SB	-50.2	86.4	119.2	-66.5	228.	132.	AG	1370.	13.0	0.0	17.1		
22. SB A	119.2	-65.5	260.4	-218.4	208.	137.	AG	2009.	13.0	0.0	17.1		
23. SB A	260.4	-218.4	319.8	-282.6	87.	137.	AG	2009.	13.0	0.0	17.1		
24. SB A	319.8	-282.6	364.6	-363.5	92.	151.	AG	2009.	13.0	0.0	17.1		
25. SB A	364.6	-363.5	369.5	-388.8	26.	169.	AG	2009.	13.0	0.0	17.1		
26. LOOP RAMP	188.3	-107.4	170.8	-74.3	37.	332.	AG	765.	12.8	0.0	13.4		
27. LOOP RAMP	170.8	-74.3	168.9	-31.4	43.	357.	AG	765.	12.8	0.0	13.4		
28. LOOP RAMP	168.9	-31.4	195.2	12.4	51.	31.	AG	765.	12.8	0.0	13.4		
29. LOOP RAMP	195.2	12.4	237.0	36.7	48.	60.	AG	765.	12.8	0.0	13.4		
30. LOOP RAMP	237.0	36.7	272.1	41.6	35.	82.	AG	765.	12.8	0.0	13.4		
31. LOOP RAMP	272.1	41.6	312.0	29.0	42.	108.	AG	765.	12.8	0.0	13.4		
32. LOOP RAMP	312.0	29.0	345.1	-1.2	45.	132.	AG	765.	12.8	0.0	13.4		
33. LOOP RAMP	345.1	-1.2	357.8	-30.4	32.	156.	AG	765.	12.8	0.0	13.4		
34. LOOP RAMP	357.8	-30.4	361.7	-62.6	32.	173.	AG	765.	12.8	0.0	13.4		
35. LOOP RAMP	361.7	-62.6	351.9	-95.7	35.	196.	AG	765.	12.8	0.0	13.4		
36. LOOP RAMP	351.9	-95.7	332.5	-120.0	31.	219.	AG	765.	12.8	0.0	13.4		
37. LOOP RAMP	332.5	-120.0	300.3	-139.5	38.	239.	AG	765.	12.8	0.0	13.4		

38. OFF RAMP	*	578.8	-46.0	493.1	-47.0	*	86.	269.	AG	1098.	12.8	0.0	9.8
39. OFF RAMP	*	493.1	-47.0	404.5	-13.9	*	95.	290.	AG	1098.	12.8	0.0	9.8
40. OFF RAMP	*	404.5	-13.9	335.4	29.0	*	81.	302.	AG	1098.	12.8	0.0	9.8
41. OFF RAMP	*	335.4	29.0	275.0	52.3	*	65.	291.	AG	1098.	12.8	0.0	9.8
42. OFF RAMP	*	275.0	52.3	238.0	49.4	*	37.	266.	AG	1098.	12.8	0.0	9.8
43. OFF RAMP	*	238.0	49.4	166.9	12.4	*	80.	243.	AG	1098.	12.8	0.0	9.8
44. OFF RAMP	*	166.9	12.4	130.9	-42.1	*	65.	213.	AG	1098.	12.8	0.0	9.8

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 10:09:05

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. SPRING FOREST	*	49.0	-114.2	108.7	-69.4	*	75.	53.	AG	56.	13.0	0.0	9.8		
46. EB THRU RIGHT QUE	*	108.4	-71.7	27.3	-131.7	*	101.	234.	AG	203.	100.0	0.0	3.7	2.18	16.8
47. WB THRU LEFT QUE	*	129.3	-41.6	243.6	84.1	*	170.	42.	AG	321.	100.0	0.0	7.3	1.08	28.3
48. WB RIGHT QUE	*	125.5	-35.8	172.3	13.5	*	68.	44.	AG	160.	100.0	0.0	3.7	0.95	11.3
49. NB LEFT TURN	*	127.0	-62.3	129.2	-64.7	*	3.	138.	AG	110.	100.0	0.0	3.7	0.04	0.5
50. NB TTHRU QUE	*	130.2	-60.2	203.5	-136.8	*	106.	136.	AG	242.	100.0	0.0	7.3	0.56	17.7
51. SB LEFT QUE	*	114.2	-53.5	102.7	-42.7	*	16.	313.	AG	94.	100.0	0.0	3.7	0.18	2.6
52. SB THRU QUE	*	107.2	-56.7	55.5	-9.7	*	70.	312.	AG	212.	100.0	0.0	7.3	0.36	11.6
53. SB RIGHT QUE	*	105.5	-61.1	104.0	-59.7	*	2.	312.	AG	104.	100.0	0.0	3.7	0.02	0.3
54. WB DEC	*	103.8	-64.8	45.1	-107.5	*	73.	234.	AG	54.	13.3	0.0	10.0		
55. EB LEFT QUE	*	102.3	-67.2	100.8	-68.2	*	2.	237.	AG	203.	100.0	0.0	3.7	0.32	0.3

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 10:09:05

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
46. EB THRU RIGHT QUE	*	140	134	2.0	48	1599	78.94	2	3
47. WB THRU LEFT QUE	*	140	106	2.0	775	1681	78.94	2	3
48. WB RIGHT QUE	*	140	106	2.0	323	1583	78.94	2	3
49. NB LEFT TURN	*	140	73	2.0	27	1600	78.94	2	3
50. NB TTHRU QUE	*	140	80	2.0	1590	3539	78.94	2	3
51. SB LEFT QUE	*	140	62	2.0	153	1600	78.94	2	3
52. SB THRU QUE	*	140	70	2.0	1199	3539	78.94	2	3
53. SB RIGHT QUE	*	140	69	2.0	18	1583	78.94	2	3
55. EB LEFT QUE	*	140	134	2.0	8	1770	78.94	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. 2A	1.4	-1.2	1.8
2. 2B	25.2	-19.6	1.8
3. 2C	49.0	-36.1	1.8
4. 2D	72.3	-57.7	1.8
5. 2E	107.2	-94.9	1.8
6. 2F	128.7	-111.9	1.8
7. 2G	155.2	-136.1	1.8
8. 2H	178.9	-161.2	1.8
9. 2I	105.4	15.4	1.8
10. 2J	146.2	35.6	1.8
11. 2K	374.4	48.1	1.8

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2040 BUILD

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
0.	3.5	3.5	3.7	3.9	3.8	4.3	4.7	4.6	2.9	2.9	2.9
10.	3.5	3.5	3.6	3.8	4.1	4.6	4.4	4.3	2.9	2.9	2.9
20.	3.5	3.5	3.7	3.8	4.2	4.5	4.3	4.2	2.9	2.9	2.9
30.	3.5	3.5	3.8	3.8	4.5	4.4	4.3	4.0	2.9	2.9	2.9
40.	3.5	3.5	3.8	3.9	4.6	4.2	4.2	4.0	2.9	2.9	2.9
50.	3.5	3.5	3.9	4.4	4.1	4.1	4.2	3.9	2.9	3.0	2.9
60.	3.5	3.7	4.1	4.5	4.0	4.1	4.1	3.8	3.0	3.1	2.9
70.	3.6	3.8	4.4	4.3	3.9	4.2	4.2	4.4	3.2	3.2	2.9
80.	3.6	4.1	4.2	4.0	4.1	4.3	4.4	4.6	3.3	3.3	2.9
90.	3.9	4.3	4.4	4.1	4.4	4.5	4.7	4.7	3.6	3.5	2.9
100.	3.8	4.1	4.4	4.3	4.3	4.3	4.5	4.6	3.7	3.6	3.0
110.	4.1	4.1	4.4	4.3	4.4	4.5	4.4	4.7	3.7	3.6	3.0
120.	4.0	4.1	4.3	4.5	4.2	4.4	4.5	4.6	3.6	3.6	3.1
130.	3.8	3.8	4.1	4.4	3.9	4.2	4.2	4.4	3.6	3.7	3.2
140.	3.3	3.3	3.5	3.5	3.4	3.4	3.7	4.0	4.1	3.8	3.2
150.	3.1	3.2	3.3	3.4	3.2	3.2	3.4	3.6	4.5	4.1	3.3
160.	3.1	3.1	3.1	3.4	3.2	3.2	3.3	3.6	4.4	4.5	3.2
170.	3.1	3.3	3.3	3.3	3.3	3.2	3.3	3.6	4.0	4.3	3.3
180.	3.1	3.1	3.2	3.4	3.2	3.3	3.3	3.6	3.9	4.1	3.4
190.	3.1	3.1	3.3	3.3	3.3	3.2	3.4	3.6	3.8	3.8	3.4
200.	3.2	3.1	3.1	3.4	3.2	3.3	3.3	3.7	3.9	3.8	3.5
210.	3.1	3.1	3.2	3.2	3.3	3.2	3.4	3.6	3.8	3.5	3.5
220.	3.0	3.1	3.1	3.3	3.1	3.2	3.4	3.7	3.8	3.5	3.7
230.	2.9	2.9	3.0	3.1	3.2	3.3	3.2	3.8	3.5	3.3	3.5
240.	2.9	2.9	2.9	2.9	3.2	3.1	3.3	3.4	3.5	3.3	3.4
250.	2.9	2.9	2.9	2.9	3.2	3.0	3.1	3.2	3.6	3.2	3.3
260.	2.9	2.9	2.9	2.9	3.2	3.0	2.9	3.0	3.4	3.3	3.4
270.	2.9	2.9	2.9	2.9	3.2	3.0	3.0	2.9	3.5	3.2	3.2
280.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	2.9	3.6	3.2	3.1
290.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.5	3.0	3.0
300.	2.9	2.9	2.9	2.9	3.2	3.1	3.0	3.0	3.3	2.9	2.9
310.	2.9	3.0	3.0	3.1	3.4	3.2	3.2	3.2	3.0	2.9	2.9

320.	*	3.0	3.2	3.2	3.4	3.6	3.6	3.6	3.7	2.9	2.9	2.9
330.	*	3.2	3.4	3.6	3.7	4.0	3.9	4.0	4.2	2.9	2.9	2.9
340.	*	3.4	3.5	3.6	3.9	4.1	3.9	4.3	4.3	2.9	2.9	2.9
350.	*	3.5	3.5	3.6	4.0	3.9	4.0	4.5	4.6	2.9	2.9	2.9
MAX	*	4.1	4.3	4.4	4.5	4.6	4.6	4.7	4.7	4.5	4.5	3.7
DEGR.	*	110	90	110	120	40	10	0	90	150	160	220

THE HIGHEST CONCENTRATION OF 4.70 PPM OCCURRED AT RECEPTOR REC7 .

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2040 BUILD

DATE : 02/17/ 0
TIME : 10:09:05

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 110	REC2 90	REC3 110	REC4 120	REC5 40	REC6 10	REC7 0	REC8 90	REC9 150	REC10 160	REC11 220
1	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
3	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	0.0	0.0	0.0	0.0
5	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.1
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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
8	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	0.1	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
11	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.5	0.1	0.1	0.2
12	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
14	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
16	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	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0
18	0.1	0.0	0.3	0.4	0.4	0.4	0.5	0.2	0.4	0.2	0.1
19	0.2	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.1	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
21	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.1	0.0	0.2	0.5	0.4	0.5	0.6	0.6	0.3	0.2	0.1
23	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
25	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
27	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	0.1	0.0	0.0	0.0	0.0	0.1	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
30	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
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
33	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
35	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
37	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
39	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	0.2

41	*	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
43	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
44	*	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2	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

JOB: ROLLING ROAD AREA RUN: OPENING YEAR 2040 BUILD

	*	CO/LINK (PPM) ANGLE (DEGREES)										
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11
LINK #	*	110	90	110	120	40	10	0	90	150	160	220
46	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	*	0.1	0.2	0.0	0.0	0.3	0.3	0.2	0.0	0.2	0.3	0.0
48	*	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	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
50	*	0.1	0.0	0.2	0.2	0.2	0.2	0.3	0.0	0.2	0.1	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
52	*	0.2	0.3	0.2	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
54	*	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

APPENDIX C
TRAFFIC SUMMARY / SYNCHRO REPORTS

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	4	13	97	16	138	4	586	220	104	1351	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1645		1681	1708	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.97	1.00	0.09	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	1770	1645		1681	1708	1583	172	3539	1583	764	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	4	14	105	17	150	4	637	239	113	1468	26
RTOR Reduction (vph)	0	13	0	0	0	130	0	0	0	0	0	7
Lane Group Flow (vph)	30	5	0	61	61	20	4	637	239	113	1468	19
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	5.0	5.0		13.4	13.4	13.4	44.5	44.5	100.0	52.8	52.8	52.8
Effective Green, g (s)	5.0	5.0		13.4	13.4	13.4	44.5	44.5	100.0	52.8	52.8	52.8
Actuated g/C Ratio	0.05	0.05		0.13	0.13	0.13	0.44	0.44	1.00	0.53	0.53	0.53
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	89	82		225	229	212	97	1575	1583	500	1869	836
v/s Ratio Prot	0.02	0.00		c0.04	0.04		0.00	c0.18		0.02	c0.41	
v/s Ratio Perm						0.01	0.02		c0.15	0.10		0.01
v/c Ratio	0.34	0.06		0.27	0.27	0.09	0.04	0.40	0.15	0.23	0.79	0.02
Uniform Delay, d1	45.9	45.3		38.9	38.9	38.0	21.9	18.8	0.0	13.1	19.0	11.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.47	0.48	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.3		0.7	0.6	0.2	0.2	0.8	0.2	0.2	3.4	0.0
Delay (s)	48.1	45.5		39.6	39.5	38.2	10.5	9.7	0.2	13.3	22.4	11.3
Level of Service	D	D		D	D	D	B	A	A	B	C	B
Approach Delay (s)		47.2			38.8			7.1			21.6	
Approach LOS		D			D			A			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	0	0	0	0	0	0	769	0	393	1068	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						6.0		7.0	6.0	
Lane Util. Factor	0.95	0.95						0.91		0.97	0.95	
Frt	1.00	1.00						1.00		1.00	1.00	
Flt Protected	0.95	0.95						1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681						5085		3433	3539	
Flt Permitted	0.95	0.95						1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681						5085		3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	0	0	0	0	0	0	836	0	427	1161	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	22	23	0	0	0	0	0	836	0	427	1161	0
Turn Type	Perm									Prot		
Protected Phases		4						6		5	2	
Permitted Phases	4											
Actuated Green, G (s)	4.7	4.7						57.5		17.8	82.3	
Effective Green, g (s)	4.7	4.7						57.5		17.8	82.3	
Actuated g/C Ratio	0.05	0.05						0.58		0.18	0.82	
Clearance Time (s)	7.0	7.0						6.0		7.0	6.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	79	79						2924		611	2913	
v/s Ratio Prot								0.16		c0.12	c0.33	
v/s Ratio Perm	0.01	0.01										
v/c Ratio	0.28	0.29						0.29		0.70	0.40	
Uniform Delay, d1	46.0	46.0						10.8		38.6	2.3	
Progression Factor	1.00	1.00						1.00		0.63	1.97	
Incremental Delay, d2	1.9	2.0						0.2		2.7	0.3	
Delay (s)	47.9	48.1						11.1		27.0	4.9	
Level of Service	D	D						B		C	A	
Approach Delay (s)		48.0			0.0			11.1			10.8	
Approach LOS		D			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	482	592	85	0	379	0	1260	46	199	2061	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4285		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4285		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	524	643	92	0	412	0	1370	50	216	2240	0
RTOR Reduction (vph)	0	0	0	0	0	310	0	3	0	0	0	0
Lane Group Flow (vph)	0	524	643	92	0	102	0	1417	0	216	2240	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		22.1	108.8	5.5		19.0		39.7		13.5	60.2	
Effective Green, g (s)		26.1	108.8	9.5		27.0		43.7		17.5	64.2	
Actuated g/C Ratio		0.24	1.00	0.09		0.25		0.40		0.16	0.59	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		447	1583	155		768		1721		279	2046	
v/s Ratio Prot		c0.28		c0.05		0.02		0.33		0.12	c0.65	
v/s Ratio Perm			0.41			0.02						
v/c Ratio		1.17	0.41	0.59		0.13		0.82		0.77	1.09	
Uniform Delay, d1		41.3	0.0	47.8		31.8		29.1		43.8	22.3	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		99.0	0.8	7.0		0.1		4.6		13.3	51.1	
Delay (s)		140.3	0.8	54.8		31.9		33.7		57.0	73.4	
Level of Service		F	A	D		C		C		E	E	
Approach Delay (s)		63.4			36.1			33.7			72.0	
Approach LOS		E			D			C			E	

Intersection Summary			
HCM Average Control Delay	57.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	108.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	6	32	231	7	268	20	1475	700	290	870	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1630		1681	1690	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.22	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1770	1630		1681	1690	1583	415	3539	1583	120	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	7	35	251	8	291	22	1603	761	315	946	30
RTOR Reduction (vph)	0	34	0	0	0	256	0	0	0	0	0	9
Lane Group Flow (vph)	17	8	0	131	128	35	22	1603	761	315	946	21
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	6.4	6.4		20.6	20.6	20.6	91.7	91.7	170.0	111.1	111.1	111.1
Effective Green, g (s)	6.4	6.4		20.6	20.6	20.6	91.7	91.7	170.0	111.1	111.1	111.1
Actuated g/C Ratio	0.04	0.04		0.12	0.12	0.12	0.54	0.54	1.00	0.65	0.65	0.65
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	67	61		204	205	192	259	1909	1583	309	2313	1035
v/s Ratio Prot	0.01	0.01		0.08	0.08		0.00	c0.45		c0.14	0.27	
v/s Ratio Perm						0.02	0.04		c0.48	c0.52		0.01
v/c Ratio	0.25	0.14		0.64	0.62	0.18	0.08	0.84	0.48	1.02	0.41	0.02
Uniform Delay, d1	79.5	79.1		71.2	71.0	67.1	19.9	33.0	0.0	55.3	13.9	10.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.70	0.51	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	1.0		6.7	5.8	0.5	0.1	3.5	0.8	56.2	0.5	0.0
Delay (s)	81.5	80.1		77.9	76.8	67.6	13.9	20.4	0.8	111.5	14.5	10.4
Level of Service	F	F		E	E	E	B	C	A	F	B	B
Approach Delay (s)		80.5			72.2			14.1			38.0	
Approach LOS		F			E			B			D	

Intersection Summary			
HCM Average Control Delay	29.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	0	0	0	0	0	0	2142	0	398	735	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0						6.0		7.0	6.0	
Lane Util. Factor	0.95	0.95						0.91		0.97	0.95	
Frt	1.00	1.00						1.00		1.00	1.00	
Flt Protected	0.95	0.95						1.00		0.95	1.00	
Satd. Flow (prot)	1681	1681						5085		3433	3539	
Flt Permitted	0.95	0.95						1.00		0.95	1.00	
Satd. Flow (perm)	1681	1681						5085		3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	0	0	0	0	0	0	2328	0	433	799	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	29	29	0	0	0	0	0	2328	0	433	799	0
Turn Type	Perm									Prot		
Protected Phases		4						6		5	2	
Permitted Phases	4											
Actuated Green, G (s)	7.4	7.4						115.9		26.7	149.6	
Effective Green, g (s)	7.4	7.4						115.9		26.7	149.6	
Actuated g/C Ratio	0.04	0.04						0.68		0.16	0.88	
Clearance Time (s)	7.0	7.0						6.0		7.0	6.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	73	73						3467		539	3114	
v/s Ratio Prot								c0.46		c0.13	0.23	
v/s Ratio Perm	c0.02	0.02										
v/c Ratio	0.40	0.40						0.67		0.80	0.26	
Uniform Delay, d1	79.1	79.1						15.9		69.1	1.6	
Progression Factor	1.00	1.00						1.00		0.91	0.74	
Incremental Delay, d2	3.5	3.5						1.1		8.0	0.2	
Delay (s)	82.7	82.7						16.9		70.9	1.3	
Level of Service	F	F						B		E	A	
Approach Delay (s)		82.7			0.0			16.9			25.8	
Approach LOS		F			A			B			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	144	360	271	0	606	0	2779	107	203	1310	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4284		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4284		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	157	391	295	0	659	0	3021	116	221	1424	0
RTOR Reduction (vph)	0	0	0	0	0	107	0	2	0	0	0	0
Lane Group Flow (vph)	0	157	391	295	0	552	0	3135	0	221	1424	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		9.0	190.0	23.0		39.0		114.0		16.0	137.0	
Effective Green, g (s)		13.0	190.0	27.0		47.0		118.0		20.0	141.0	
Actuated g/C Ratio		0.07	1.00	0.14		0.25		0.62		0.11	0.74	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		127	1583	252		733		2661		183	2574	
v/s Ratio Prot		c0.08		c0.17		0.08		c0.73		c0.13	0.41	
v/s Ratio Perm			0.25			0.12						
v/c Ratio		1.24	0.25	1.17		0.75		1.18		1.21	0.55	
Uniform Delay, d1		88.5	0.0	81.5		66.1		36.0		85.0	10.7	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		156.6	0.4	110.8		4.7		84.4		133.5	0.9	
Delay (s)		245.1	0.4	192.3		70.8		120.4		218.5	11.6	
Level of Service		F	A	F		E		F		F	B	
Approach Delay (s)		70.5			108.4			120.4			39.4	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM Average Control Delay	93.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	3	27	337	25	125	8	617	357	45	1464	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1610		1681	1697	1583	1770	3539	2787	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.07	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1770	1610		1681	1697	1583	127	3539	2787	642	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	3	29	366	27	136	9	671	388	49	1591	13
RTOR Reduction (vph)	0	28	0	0	0	112	0	0	0	0	0	3
Lane Group Flow (vph)	16	4	0	198	195	24	9	671	388	49	1591	10
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	4.5	4.5		21.2	21.2	21.2	59.4	58.6	120.0	73.3	66.0	66.0
Effective Green, g (s)	4.5	4.5		21.2	21.2	21.2	59.4	58.6	120.0	73.3	66.0	66.0
Actuated g/C Ratio	0.04	0.04		0.18	0.18	0.18	0.49	0.49	1.00	0.61	0.55	0.55
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	66	60		297	300	280	74	1728	2787	469	1946	871
v/s Ratio Prot	0.01	0.00		c0.12	0.11		0.00	0.19		0.01	c0.45	
v/s Ratio Perm						0.02	0.06		c0.14	0.06		0.01
v/c Ratio	0.24	0.07		0.67	0.65	0.09	0.12	0.39	0.14	0.10	0.82	0.01
Uniform Delay, d1	56.1	55.7		46.1	45.9	41.3	43.5	19.4	0.0	13.6	22.1	12.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.76	0.81	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.5		5.6	5.0	0.1	0.7	0.6	0.1	0.1	4.0	0.0
Delay (s)	58.0	56.2		51.7	50.9	41.4	33.9	16.4	0.1	13.7	26.0	12.3
Level of Service	E	E		D	D	D	C	B	A	B	C	B
Approach Delay (s)		56.8			48.8			10.6			25.6	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	360	662	365	342	1486
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	391	720	397	372	1615
RTOR Reduction (vph)	0	366	0	152	0	0
Lane Group Flow (vph)	10	25	720	245	372	1615
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	7.6	7.6	74.1	74.1	18.3	99.4
Effective Green, g (s)	7.6	7.6	74.1	74.1	18.3	99.4
Actuated g/C Ratio	0.06	0.06	0.62	0.62	0.15	0.83
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	112	177	3140	978	524	2931
v/s Ratio Prot	0.01		0.14		c0.11	c0.46
v/s Ratio Perm		c0.01		0.15		
v/c Ratio	0.09	0.14	0.23	0.25	0.71	0.55
Uniform Delay, d1	52.9	53.1	10.2	10.4	48.3	3.3
Progression Factor	1.00	1.00	1.00	1.00	0.95	1.01
Incremental Delay, d2	0.3	0.4	0.2	0.6	3.3	0.6
Delay (s)	53.3	53.5	10.4	11.0	49.1	3.8
Level of Service	D	D	B	B	D	A
Approach Delay (s)	53.5		10.6			12.3
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	553	469	36	0	269	0	1088	35	279	1997	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4287		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4287		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	601	510	39	0	292	0	1183	38	303	2171	0
RTOR Reduction (vph)	0	0	0	0	0	215	0	3	0	0	0	0
Lane Group Flow (vph)	0	601	510	39	0	77	0	1218	0	303	2171	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		29.1	117.3	4.0		23.0		37.2		19.0	63.2	
Effective Green, g (s)		33.1	117.3	8.0		31.0		41.2		23.0	67.2	
Actuated g/C Ratio		0.28	1.00	0.07		0.26		0.35		0.20	0.57	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		526	1583	121		808		1506		340	1987	
v/s Ratio Prot		c0.32		0.02		0.02		0.28		0.17	c0.63	
v/s Ratio Perm			c0.32			0.01						
v/c Ratio		1.14	0.32	0.32		0.10		0.81		0.89	1.09	
Uniform Delay, d1		42.1	0.0	52.1		32.6		34.5		45.9	25.0	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		84.9	0.5	2.1		0.1		4.8		24.5	50.5	
Delay (s)		127.0	0.5	54.2		32.6		39.3		70.4	75.5	
Level of Service		F	A	D		C		D		E	E	
Approach Delay (s)		68.9			35.2			39.3			74.9	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM Average Control Delay	62.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	117.3	Sum of lost time (s)	6.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	5	41	514	9	293	25	1523	826	197	1057	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1611		1681	1688	1583	1770	3539	2787	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.13	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)	1770	1611		1681	1688	1583	242	3539	2787	99	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	5	45	559	10	318	27	1655	898	214	1149	22
RTOR Reduction (vph)	0	43	0	0	0	232	0	0	0	0	0	6
Lane Group Flow (vph)	11	7	0	285	284	86	27	1655	898	214	1149	16
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	6.1	6.1		31.1	31.1	31.1	79.5	79.5	160.0	90.7	90.7	90.7
Effective Green, g (s)	6.1	6.1		31.1	31.1	31.1	79.5	79.5	160.0	90.7	90.7	90.7
Actuated g/C Ratio	0.04	0.04		0.19	0.19	0.19	0.50	0.50	1.00	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	67	61		327	328	308	164	1758	2787	221	2006	897
v/s Ratio Prot	0.01	0.00		c0.17	0.17		0.00	c0.47		c0.10	0.32	
v/s Ratio Perm						0.05	0.08		c0.32	c0.45		0.01
v/c Ratio	0.16	0.11		0.87	0.87	0.28	0.16	0.94	0.32	0.97	0.57	0.02
Uniform Delay, d1	74.5	74.3		62.5	62.4	54.9	24.8	38.0	0.0	62.3	22.2	15.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.82	0.69	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.8		21.5	20.5	0.5	0.4	9.5	0.2	50.9	1.2	0.0
Delay (s)	75.6	75.1		84.1	82.9	55.4	20.7	35.7	0.2	113.2	23.4	15.2
Level of Service	E	E		F	F	E	C	D	A	F	C	B
Approach Delay (s)		75.2			73.4			23.2			37.2	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM Average Control Delay	36.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	21	298	2076	593	284	1328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	324	2257	645	309	1443
RTOR Reduction (vph)	0	307	0	150	0	0
Lane Group Flow (vph)	23	17	2257	495	309	1443
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	8.2	8.2	112.1	112.1	19.7	138.8
Effective Green, g (s)	8.2	8.2	112.1	112.1	19.7	138.8
Actuated g/C Ratio	0.05	0.05	0.70	0.70	0.12	0.87
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	91	143	3563	1109	423	3070
v/s Ratio Prot	c0.01		c0.44		c0.09	0.41
v/s Ratio Perm		0.01		0.31		
v/c Ratio	0.25	0.12	0.63	0.45	0.73	0.47
Uniform Delay, d1	73.0	72.4	12.9	10.4	67.6	2.4
Progression Factor	1.00	1.00	1.00	1.00	0.94	0.54
Incremental Delay, d2	1.5	0.4	0.9	1.3	5.1	0.4
Delay (s)	74.4	72.8	13.8	11.7	68.9	1.7
Level of Service	E	E	B	B	E	A
Approach Delay (s)	72.9		13.3			13.5
Approach LOS	E		B			B

Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	206	377	122	0	803	0	2546	45	280	1329	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4293		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4293		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	224	410	133	0	873	0	2767	49	304	1445	0
RTOR Reduction (vph)	0	0	0	0	0	187	0	1	0	0	0	0
Lane Group Flow (vph)	0	224	410	133	0	686	0	2815	0	304	1445	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		12.0	150.0	7.0		26.0		84.0		19.0	110.0	
Effective Green, g (s)		16.0	150.0	11.0		34.0		88.0		23.0	114.0	
Actuated g/C Ratio		0.11	1.00	0.07		0.23		0.59		0.15	0.76	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		199	1583	130		687		2519		266	2636	
v/s Ratio Prot		c0.12		0.08		c0.15		c0.66		c0.18	0.42	
v/s Ratio Perm			0.26			0.09						
v/c Ratio		1.13	0.26	1.02		1.00		1.12		1.14	0.55	
Uniform Delay, d1		67.0	0.0	69.5		58.0		31.0		63.5	7.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		101.6	0.4	85.2		33.7		58.9		99.3	0.8	
Delay (s)		168.6	0.4	154.7		91.7		89.9		162.8	8.2	
Level of Service		F	A	F		F		F		F	A	
Approach Delay (s)		59.8			100.0			89.9			35.1	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM Average Control Delay	73.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	122	553	469	36	269	1088	279	1997
Turn Type	Split		Free	custom	custom		Prot	
Protected Phases	3	3		4	1	2	1	6
Permitted Phases			Free	4	4 1			
Detector Phase	3	3		4	1	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0		7.0	5.0	15.0	5.0	15.0
Minimum Split (s)	14.0	14.0		14.0	12.0	22.0	12.0	22.0
Total Split (s)	36.0	36.0	0.0	14.0	26.0	44.0	26.0	70.0
Total Split (%)	30.0%	30.0%	0.0%	11.7%	21.7%	36.7%	21.7%	58.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.5	4.0	4.5
All-Red Time (s)	3.0	3.0		3.0	3.0	2.5	3.0	2.5
Lost Time Adjust (s)	-4.0	-4.0	-1.0	-4.0	-4.0	-4.0	-4.0	-4.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lag	Lead	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None		None	None	Max	None	Max
Act Effct Green (s)	33.1	33.1	114.4	11.0	31.0	41.2	23.0	67.2
Actuated g/C Ratio	0.29	0.29	1.00	0.10	0.27	0.36	0.20	0.59
v/c Ratio	0.26	1.12	0.32	0.23	0.30	0.79	0.87	1.07
Control Delay	34.4	113.0	0.5	53.6	4.3	38.0	70.3	64.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	113.0	0.5	53.6	4.3	38.0	70.3	64.7
LOS	C	F	A	D	A	D	E	E
Approach Delay		58.5				38.0		65.4
Approach LOS		E				D		E

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 114.4
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 53.9 Intersection LOS: D
Intersection Capacity Utilization 91.8% ICU Level of Service F
Analysis Period (min) 15

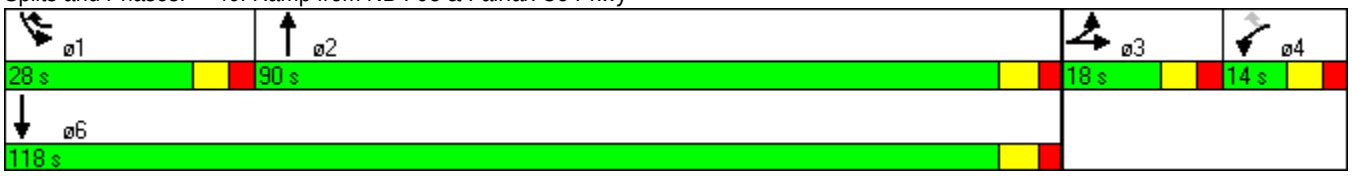
Splits and Phases: 40: Ramp from NB I-95 & Fairfax Co Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	142	206	377	122	803	2546	280	1329
Turn Type	Split		Free	custom	custom		Prot	
Protected Phases	3	3		4	1	2	1	6
Permitted Phases			Free	4	4 1			
Detector Phase	3	3		4	1	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0		7.0	5.0	15.0	5.0	15.0
Minimum Split (s)	14.0	14.0		14.0	12.0	22.0	12.0	22.0
Total Split (s)	18.0	18.0	0.0	14.0	28.0	90.0	28.0	118.0
Total Split (%)	12.0%	12.0%	0.0%	9.3%	18.7%	60.0%	18.7%	78.7%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.5	4.0	4.5
All-Red Time (s)	3.0	3.0		3.0	3.0	2.5	3.0	2.5
Lost Time Adjust (s)	-4.0	-4.0	-1.0	-4.0	-4.0	-4.0	-4.0	-4.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lag	Lead	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None		None	None	Max	None	Max
Act Effct Green (s)	15.0	15.0	150.0	11.0	39.0	87.0	25.0	115.0
Actuated g/C Ratio	0.10	0.10	1.00	0.07	0.26	0.58	0.17	0.77
v/c Ratio	0.87	1.20	0.26	1.02	1.17	1.13	1.05	0.54
Control Delay	106.2	186.2	0.4	151.2	135.5	95.3	125.6	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.2	186.2	0.4	151.2	135.5	95.3	125.6	7.9
LOS	F	F	A	F	F	F	F	A
Approach Delay		73.9				95.3		28.4
Approach LOS		E				F		C

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 80.9 Intersection LOS: F
Intersection Capacity Utilization 96.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 40: Ramp from NB I-95 & Fairfax Co Pkwy



HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	3	27	337	25	125	8	617	357	45	1464	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1610		1681	1697	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.07	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1770	1610		1681	1697	1583	127	3539	1583	642	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	3	29	366	27	136	9	671	388	49	1591	13
RTOR Reduction (vph)	0	28	0	0	0	112	0	0	0	0	0	3
Lane Group Flow (vph)	16	4	0	198	195	24	9	671	388	49	1591	10
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	4.5	4.5		21.2	21.2	21.2	59.4	58.6	120.0	73.3	66.0	66.0
Effective Green, g (s)	4.5	4.5		21.2	21.2	21.2	59.4	58.6	120.0	73.3	66.0	66.0
Actuated g/C Ratio	0.04	0.04		0.18	0.18	0.18	0.49	0.49	1.00	0.61	0.55	0.55
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	66	60		297	300	280	74	1728	1583	469	1946	871
v/s Ratio Prot	0.01	0.00		c0.12	0.11		0.00	0.19		0.01	c0.45	
v/s Ratio Perm						0.02	0.06		c0.25	0.06		0.01
v/c Ratio	0.24	0.07		0.67	0.65	0.09	0.12	0.39	0.25	0.10	0.82	0.01
Uniform Delay, d1	56.1	55.7		46.1	45.9	41.3	43.5	19.4	0.0	13.6	22.1	12.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.76	0.81	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.5		5.6	5.0	0.1	0.7	0.6	0.4	0.1	4.0	0.0
Delay (s)	58.0	56.2		51.7	50.9	41.4	33.6	16.3	0.4	13.7	26.0	12.2
Level of Service	E	E		D	D	D	C	B	A	B	C	B
Approach Delay (s)		56.8			48.8			10.7			25.6	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	360	662	365	342	1486
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	391	720	397	372	1615
RTOR Reduction (vph)	0	366	0	152	0	0
Lane Group Flow (vph)	10	25	720	245	372	1615
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	7.6	7.6	74.1	74.1	18.3	99.4
Effective Green, g (s)	7.6	7.6	74.1	74.1	18.3	99.4
Actuated g/C Ratio	0.06	0.06	0.62	0.62	0.15	0.83
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	112	177	3140	978	524	2931
v/s Ratio Prot	0.01		0.14		c0.11	c0.46
v/s Ratio Perm		c0.01		0.15		
v/c Ratio	0.09	0.14	0.23	0.25	0.71	0.55
Uniform Delay, d1	52.9	53.1	10.2	10.4	48.3	3.3
Progression Factor	1.00	1.00	1.00	1.00	0.95	1.02
Incremental Delay, d2	0.3	0.4	0.2	0.6	3.3	0.6
Delay (s)	53.3	53.5	10.4	11.0	49.0	3.9
Level of Service	D	D	B	B	D	A
Approach Delay (s)	53.5		10.6			12.3
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	553	469	36	0	269	0	1088	35	279	1997	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4287		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4287		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	601	510	39	0	292	0	1183	38	303	2171	0
RTOR Reduction (vph)	0	0	0	0	0	215	0	3	0	0	0	0
Lane Group Flow (vph)	0	601	510	39	0	77	0	1218	0	303	2171	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		29.1	117.3	4.0		23.0		37.2		19.0	63.2	
Effective Green, g (s)		33.1	117.3	8.0		31.0		41.2		23.0	67.2	
Actuated g/C Ratio		0.28	1.00	0.07		0.26		0.35		0.20	0.57	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		526	1583	121		808		1506		340	1987	
v/s Ratio Prot		c0.32		0.02		0.02		0.28		0.17	c0.63	
v/s Ratio Perm			c0.32			0.01						
v/c Ratio		1.14	0.32	0.32		0.10		0.81		0.89	1.09	
Uniform Delay, d1		42.1	0.0	52.1		32.6		34.5		45.9	25.0	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		84.9	0.5	2.1		0.1		4.8		24.5	50.5	
Delay (s)		127.0	0.5	54.2		32.6		39.3		70.4	75.5	
Level of Service		F	A	D		C		D		E	E	
Approach Delay (s)		68.9			35.2			39.3			74.9	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM Average Control Delay	62.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	117.3	Sum of lost time (s)	6.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	5	41	514	9	293	25	1523	826	197	1057	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1611		1681	1688	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.13	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)	1770	1611		1681	1688	1583	242	3539	1583	99	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	5	45	559	10	318	27	1655	898	214	1149	22
RTOR Reduction (vph)	0	43	0	0	0	232	0	0	0	0	0	7
Lane Group Flow (vph)	11	7	0	285	284	86	27	1655	898	214	1149	15
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	6.1	6.1		31.1	31.1	31.1	79.5	79.5	160.0	90.7	90.7	90.7
Effective Green, g (s)	6.1	6.1		31.1	31.1	31.1	79.5	79.5	160.0	90.7	90.7	90.7
Actuated g/C Ratio	0.04	0.04		0.19	0.19	0.19	0.50	0.50	1.00	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	67	61		327	328	308	164	1758	1583	221	2006	897
v/s Ratio Prot	0.01	0.00		c0.17	0.17		0.00	c0.47		c0.10	0.32	
v/s Ratio Perm						0.05	0.08		c0.57	c0.45		0.01
v/c Ratio	0.16	0.11		0.87	0.87	0.28	0.16	0.94	0.57	0.97	0.57	0.02
Uniform Delay, d1	74.5	74.3		62.5	62.4	54.9	24.8	38.0	0.0	62.3	22.2	15.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.82	0.68	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.8		21.5	20.5	0.5	0.4	9.5	1.2	50.9	1.2	0.0
Delay (s)	75.6	75.1		84.1	82.9	55.4	20.7	35.5	1.2	113.2	23.4	15.2
Level of Service	E	E		F	F	E	C	D	A	F	C	B
Approach Delay (s)		75.2			73.4			23.4			37.2	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM Average Control Delay	37.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	21	298	2076	593	284	1328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	324	2257	645	309	1443
RTOR Reduction (vph)	0	307	0	150	0	0
Lane Group Flow (vph)	23	17	2257	495	309	1443
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	8.2	8.2	112.1	112.1	19.7	138.8
Effective Green, g (s)	8.2	8.2	112.1	112.1	19.7	138.8
Actuated g/C Ratio	0.05	0.05	0.70	0.70	0.12	0.87
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	91	143	3563	1109	423	3070
v/s Ratio Prot	c0.01		c0.44		c0.09	0.41
v/s Ratio Perm		0.01		0.31		
v/c Ratio	0.25	0.12	0.63	0.45	0.73	0.47
Uniform Delay, d1	73.0	72.4	12.9	10.4	67.6	2.4
Progression Factor	1.00	1.00	1.00	1.00	0.94	0.53
Incremental Delay, d2	1.5	0.4	0.9	1.3	5.1	0.4
Delay (s)	74.4	72.8	13.8	11.7	68.7	1.7
Level of Service	E	E	B	B	E	A
Approach Delay (s)	72.9		13.3			13.5
Approach LOS	E		B			B

Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	206	377	122	0	803	0	2546	45	280	1329	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4293		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4293		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	224	410	133	0	873	0	2767	49	304	1445	0
RTOR Reduction (vph)	0	0	0	0	0	187	0	1	0	0	0	0
Lane Group Flow (vph)	0	224	410	133	0	686	0	2815	0	304	1445	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		12.0	150.0	7.0		26.0		84.0		19.0	110.0	
Effective Green, g (s)		16.0	150.0	11.0		34.0		88.0		23.0	114.0	
Actuated g/C Ratio		0.11	1.00	0.07		0.23		0.59		0.15	0.76	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		199	1583	130		687		2519		266	2636	
v/s Ratio Prot		c0.12		0.08		c0.15		c0.66		c0.18	0.42	
v/s Ratio Perm			0.26			0.09						
v/c Ratio		1.13	0.26	1.02		1.00		1.12		1.14	0.55	
Uniform Delay, d1		67.0	0.0	69.5		58.0		31.0		63.5	7.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		101.6	0.4	85.2		33.7		58.9		99.3	0.8	
Delay (s)		168.6	0.4	154.7		91.7		89.9		162.8	8.2	
Level of Service		F	A	F		F		F		F	A	
Approach Delay (s)		59.8			100.0			89.9			35.1	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM Average Control Delay	73.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	3	28	591	31	202	6	598	373	47	1538	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1609		1681	1694	1583	1770	3539	2787	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.08	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	1770	1609		1681	1694	1583	144	3539	2787	515	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	3	30	642	34	220	7	650	405	51	1672	9
RTOR Reduction (vph)	0	29	0	0	0	166	0	0	0	0	0	2
Lane Group Flow (vph)	15	4	0	340	336	54	7	650	405	51	1672	7
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	4.5	4.5		29.2	29.2	29.2	52.4	52.4	120.0	58.0	58.0	58.0
Effective Green, g (s)	4.5	4.5		29.2	29.2	29.2	52.4	52.4	120.0	58.0	58.0	58.0
Actuated g/C Ratio	0.04	0.04		0.24	0.24	0.24	0.44	0.44	1.00	0.48	0.48	0.48
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	66	60		409	412	385	74	1545	2787	316	1711	765
v/s Ratio Prot	0.01	0.00		c0.20	0.20		0.00	c0.18		0.01	c0.47	
v/s Ratio Perm						0.03	0.04		c0.15	0.07		0.00
v/c Ratio	0.23	0.07		0.83	0.82	0.14	0.09	0.42	0.15	0.16	0.98	0.01
Uniform Delay, d1	56.1	55.7		43.1	42.9	35.6	48.3	23.3	0.0	17.7	30.4	16.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.73	0.72	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.5		13.4	11.8	0.2	0.5	0.8	0.1	0.2	17.0	0.0
Delay (s)	57.8	56.2		56.5	54.6	35.7	35.6	17.5	0.1	17.9	47.3	16.1
Level of Service	E	E		E	D	D	D	B	A	B	D	B
Approach Delay (s)		56.7			50.7			11.0			46.3	
Approach LOS		E			D			B			D	

Intersection Summary			
HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	260	717	720	489	1668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	283	779	783	532	1813
RTOR Reduction (vph)	0	266	0	169	0	0
Lane Group Flow (vph)	10	17	779	614	532	1813
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	7.3	7.3	69.6	69.6	23.1	99.7
Effective Green, g (s)	7.3	7.3	69.6	69.6	23.1	99.7
Actuated g/C Ratio	0.06	0.06	0.58	0.58	0.19	0.83
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	108	170	2949	918	661	2940
v/s Ratio Prot	0.01		0.15		c0.15	0.51
v/s Ratio Perm		c0.01		c0.39		
v/c Ratio	0.09	0.10	0.26	0.67	0.80	0.62
Uniform Delay, d1	53.2	53.3	12.5	17.3	46.3	3.5
Progression Factor	1.00	1.00	1.00	1.00	0.93	0.84
Incremental Delay, d2	0.4	0.3	0.2	3.9	4.2	0.6
Delay (s)	53.6	53.5	12.7	21.1	47.2	3.5
Level of Service	D	D	B	C	D	A
Approach Delay (s)	53.5		16.9			13.4
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	535	484	41	0	323	0	1179	33	257	1955	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4289		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4289		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	582	526	45	0	351	0	1282	36	279	2125	0
RTOR Reduction (vph)	0	0	0	0	0	261	0	3	0	0	0	0
Lane Group Flow (vph)	0	582	526	45	0	90	0	1315	0	279	2125	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		22.1	97.4	4.0		17.1		30.2		13.1	50.3	
Effective Green, g (s)		26.1	97.4	8.0		25.1		34.2		17.1	54.3	
Actuated g/C Ratio		0.27	1.00	0.08		0.26		0.35		0.18	0.56	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		499	1583	145		804		1506		304	1933	
v/s Ratio Prot		c0.31		0.03		0.02		0.31		0.16	c0.61	
v/s Ratio Perm			c0.33			0.01						
v/c Ratio		1.17	0.33	0.31		0.11		0.87		0.92	1.10	
Uniform Delay, d1		35.7	0.0	42.1		27.6		29.6		39.5	21.6	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		94.8	0.6	1.7		0.1		7.3		31.3	53.3	
Delay (s)		130.5	0.6	43.8		27.7		36.9		70.8	74.9	
Level of Service		F	A	D		C		D		E	E	
Approach Delay (s)		68.8			29.5			36.9			74.4	
Approach LOS		E			C			D			E	

Intersection Summary			
HCM Average Control Delay	60.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	6.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	3	45	765	10	323	27	1590	799	153	1199	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	0.88	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1599		1681	1687	1583	1770	3539	2787	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.09	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1770	1599		1681	1687	1583	172	3539	2787	106	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	3	49	832	11	351	29	1728	868	166	1303	20
RTOR Reduction (vph)	0	47	0	0	0	194	0	0	0	0	0	6
Lane Group Flow (vph)	9	5	0	424	419	157	29	1728	868	166	1303	14
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	5.9	5.9		34.0	34.0	34.0	67.2	64.8	140.0	78.0	70.2	70.2
Effective Green, g (s)	5.9	5.9		34.0	34.0	34.0	67.2	64.8	140.0	78.0	70.2	70.2
Actuated g/C Ratio	0.04	0.04		0.24	0.24	0.24	0.48	0.46	1.00	0.56	0.50	0.50
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	75	67		408	410	384	110	1638	2787	152	1775	794
v/s Ratio Prot	0.01	0.00		c0.25	0.25		0.00	0.49		c0.06	0.37	
v/s Ratio Perm						0.10	0.12		c0.31	c0.55		0.01
v/c Ratio	0.12	0.08		1.04	1.02	0.41	0.26	1.05	0.31	1.09	0.73	0.02
Uniform Delay, d1	64.6	64.4		53.0	53.0	44.6	46.0	37.6	0.0	62.2	27.5	17.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.64	0.66	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.5		55.1	50.1	0.7	1.0	35.6	0.2	99.8	2.7	0.0
Delay (s)	65.3	64.9		108.1	103.1	45.3	30.4	60.6	0.2	162.0	30.3	17.6
Level of Service	E	E		F	F	D	C	E	A	F	C	B
Approach Delay (s)		65.0			87.9			40.3			44.8	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	55	393	2023	935	301	1708
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	427	2199	1016	327	1857
RTOR Reduction (vph)	0	297	0	173	0	0
Lane Group Flow (vph)	60	130	2199	843	327	1857
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	10.9	10.9	92.3	92.3	16.8	116.1
Effective Green, g (s)	10.9	10.9	92.3	92.3	16.8	116.1
Actuated g/C Ratio	0.08	0.08	0.66	0.66	0.12	0.83
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	138	217	3352	1044	412	2935
v/s Ratio Prot	0.03		0.43		0.10	c0.52
v/s Ratio Perm		c0.05		c0.53		
v/c Ratio	0.43	0.60	0.66	0.81	0.79	0.63
Uniform Delay, d1	61.6	62.4	14.3	17.4	59.9	4.3
Progression Factor	1.00	1.00	1.00	1.00	1.01	0.41
Incremental Delay, d2	2.2	4.4	1.0	6.7	6.1	0.6
Delay (s)	63.8	66.8	15.3	24.1	66.4	2.4
Level of Service	E	E	B	C	E	A
Approach Delay (s)	66.5		18.1			12.0
Approach LOS	E		B			B

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	270	510	120	0	884	0	2584	40	281	1372	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4295		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4295		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	293	554	130	0	961	0	2809	43	305	1491	0
RTOR Reduction (vph)	0	0	0	0	0	250	0	1	0	0	0	0
Lane Group Flow (vph)	0	293	554	130	0	711	0	2851	0	305	1491	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		20.0	180.0	7.0		30.0		102.0		23.0	132.0	
Effective Green, g (s)		24.0	180.0	11.0		38.0		106.0		27.0	136.0	
Actuated g/C Ratio		0.13	1.00	0.06		0.21		0.59		0.15	0.76	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		248	1583	108		635		2529		260	2620	
v/s Ratio Prot		c0.16		c0.07		c0.17		c0.66		0.18	0.43	
v/s Ratio Perm			0.35			0.09						
v/c Ratio		1.18	0.35	1.20		1.12		1.13		1.17	0.57	
Uniform Delay, d1		78.0	0.0	84.5		71.0		37.0		76.5	9.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		115.2	0.6	151.3		73.3		63.1		110.9	0.9	
Delay (s)		193.2	0.6	235.8		144.3		100.1		187.4	10.3	
Level of Service		F	A	F		F		F		F	B	
Approach Delay (s)		67.2			155.2			100.1			40.4	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM Average Control Delay	88.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	106.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	138	535	484	41	323	1179	257	1955
Turn Type	Split		Free	custom	custom		Prot	
Protected Phases	3	3		4	1	2	1	6
Permitted Phases			Free	4	4 1			
Detector Phase	3	3		4	1	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0		7.0	5.0	15.0	5.0	15.0
Minimum Split (s)	14.0	14.0		14.0	12.0	22.0	12.0	22.0
Total Split (s)	29.0	29.0	0.0	14.0	20.0	37.0	20.0	57.0
Total Split (%)	29.0%	29.0%	0.0%	14.0%	20.0%	37.0%	20.0%	57.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.5	4.0	4.5
All-Red Time (s)	3.0	3.0		3.0	3.0	2.5	3.0	2.5
Lost Time Adjust (s)	-4.0	-4.0	-1.0	-4.0	-4.0	-4.0	-4.0	-4.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lag	Lead	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None		None	None	Max	None	Max
Act Effct Green (s)	26.1	26.1	94.4	11.1	25.0	34.2	17.1	54.3
Actuated g/C Ratio	0.28	0.28	1.00	0.12	0.26	0.36	0.18	0.58
v/c Ratio	0.31	1.13	0.33	0.22	0.35	0.85	0.89	1.07
Control Delay	30.6	114.2	0.6	43.0	3.9	35.0	69.5	62.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	114.2	0.6	43.0	3.9	35.0	69.5	62.5
LOS	C	F	A	D	A	D	E	E
Approach Delay		56.7				35.0		63.3
Approach LOS		E				D		E

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 94.4	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 50.8	Intersection LOS: D
Intersection Capacity Utilization 94.8%	ICU Level of Service F
Analysis Period (min) 15	

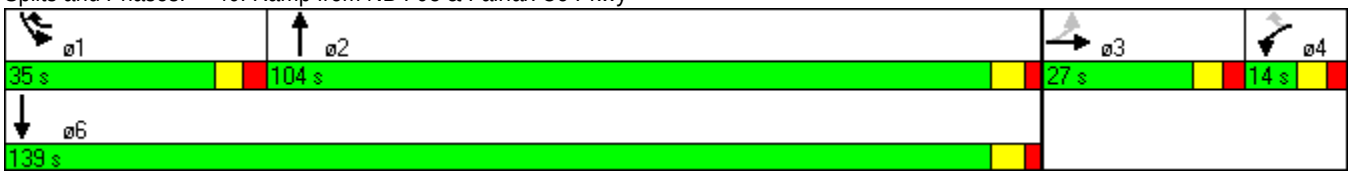
Splits and Phases: 40: Ramp from NB I-95 & Fairfax Co Pkwy

Lane Group	EBL	EBT	EBR	WBL	WBR	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	189	270	510	120	884	2584	281	1372
Turn Type	Perm		Free	custom	custom		Prot	
Protected Phases		3		4	1	2	1	6
Permitted Phases	3		Free	4	4 1			
Detector Phase	3	3		4	1	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0		7.0	5.0	15.0	5.0	15.0
Minimum Split (s)	14.0	14.0		14.0	12.0	22.0	12.0	22.0
Total Split (s)	27.0	27.0	0.0	14.0	35.0	104.0	35.0	139.0
Total Split (%)	15.0%	15.0%	0.0%	7.8%	19.4%	57.8%	19.4%	77.2%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.5	4.0	4.5
All-Red Time (s)	3.0	3.0		3.0	3.0	2.5	3.0	2.5
Lost Time Adjust (s)	-4.0	-4.0	-1.0	-4.0	-4.0	-4.0	-4.0	-4.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lead		Lag	Lead	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None		None	None	Max	None	Max
Act Effct Green (s)	24.0	24.0	180.0	11.0	46.0	101.0	32.0	136.0
Actuated g/C Ratio	0.13	0.13	1.00	0.06	0.26	0.56	0.18	0.76
v/c Ratio	0.87	1.18	0.35	1.20	1.29	1.18	0.99	0.57
Control Delay	108.1	178.0	0.6	216.3	188.1	122.9	120.5	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.1	178.0	0.6	216.3	188.1	122.9	120.5	10.5
LOS	F	F	A	F	F	F	F	B
Approach Delay		71.0				122.9		29.1
Approach LOS		E				F		C

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Natural Cycle: 140
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 101.1 Intersection LOS: F
Intersection Capacity Utilization 102.2% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 40: Ramp from NB I-95 & Fairfax Co Pkwy



HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	3	28	591	31	202	6	598	373	47	1538	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1609		1681	1694	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.08	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	1770	1609		1681	1694	1583	144	3539	1583	515	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	3	30	642	34	220	7	650	405	51	1672	9
RTOR Reduction (vph)	0	29	0	0	0	166	0	0	0	0	0	2
Lane Group Flow (vph)	15	4	0	340	336	54	7	650	405	51	1672	7
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	4.5	4.5		29.2	29.2	29.2	52.4	52.4	120.0	58.0	58.0	58.0
Effective Green, g (s)	4.5	4.5		29.2	29.2	29.2	52.4	52.4	120.0	58.0	58.0	58.0
Actuated g/C Ratio	0.04	0.04		0.24	0.24	0.24	0.44	0.44	1.00	0.48	0.48	0.48
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	66	60		409	412	385	74	1545	1583	316	1711	765
v/s Ratio Prot	0.01	0.00		c0.20	0.20		0.00	0.18		0.01	c0.47	
v/s Ratio Perm						0.03	0.04		c0.26	0.07		0.00
v/c Ratio	0.23	0.07		0.83	0.82	0.14	0.09	0.42	0.26	0.16	0.98	0.01
Uniform Delay, d1	56.1	55.7		43.1	42.9	35.6	48.3	23.3	0.0	17.7	30.4	16.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.71	0.71	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.5		13.4	11.8	0.2	0.5	0.8	0.4	0.2	17.0	0.0
Delay (s)	57.8	56.2		56.5	54.6	35.7	34.9	17.5	0.4	17.9	47.3	16.1
Level of Service	E	E		E	D	D	C	B	A	B	D	B
Approach Delay (s)		56.7			50.7			11.1			46.3	
Approach LOS		E			D			B			D	

Intersection Summary			
HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	260	717	720	489	1668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	283	779	783	532	1813
RTOR Reduction (vph)	0	266	0	169	0	0
Lane Group Flow (vph)	10	17	779	614	532	1813
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	7.3	7.3	69.6	69.6	23.1	99.7
Effective Green, g (s)	7.3	7.3	69.6	69.6	23.1	99.7
Actuated g/C Ratio	0.06	0.06	0.58	0.58	0.19	0.83
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	108	170	2949	918	661	2940
v/s Ratio Prot	0.01		0.15		c0.15	0.51
v/s Ratio Perm		c0.01		c0.39		
v/c Ratio	0.09	0.10	0.26	0.67	0.80	0.62
Uniform Delay, d1	53.2	53.3	12.5	17.3	46.3	3.5
Progression Factor	1.00	1.00	1.00	1.00	0.93	0.84
Incremental Delay, d2	0.4	0.3	0.2	3.9	4.1	0.6
Delay (s)	53.6	53.5	12.7	21.1	47.2	3.5
Level of Service	D	D	B	C	D	A
Approach Delay (s)	53.5		16.9			13.4
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	535	484	41	0	323	0	1179	33	257	1955	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4289		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4289		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	582	526	45	0	351	0	1282	36	279	2125	0
RTOR Reduction (vph)	0	0	0	0	0	261	0	3	0	0	0	0
Lane Group Flow (vph)	0	582	526	45	0	90	0	1315	0	279	2125	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		22.1	97.4	4.0		17.1		30.2		13.1	50.3	
Effective Green, g (s)		26.1	97.4	8.0		25.1		34.2		17.1	54.3	
Actuated g/C Ratio		0.27	1.00	0.08		0.26		0.35		0.18	0.56	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		499	1583	145		804		1506		304	1933	
v/s Ratio Prot		c0.31		0.03		0.02		0.31		0.16	c0.61	
v/s Ratio Perm			c0.33			0.01						
v/c Ratio		1.17	0.33	0.31		0.11		0.87		0.92	1.10	
Uniform Delay, d1		35.7	0.0	42.1		27.6		29.6		39.5	21.6	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		94.8	0.6	1.7		0.1		7.3		31.3	53.3	
Delay (s)		130.5	0.6	43.8		27.7		36.9		70.8	74.9	
Level of Service		F	A	D		C		D		E	E	
Approach Delay (s)		68.8			29.5			36.9			74.4	
Approach LOS		E			C			D			E	

Intersection Summary			
HCM Average Control Delay	60.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	6.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Spring Forest & Rolling Road

1/27/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	3	45	765	10	323	27	1590	799	153	1199	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5	4.0	7.0	6.5	6.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1599		1681	1687	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.09	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1770	1599		1681	1687	1583	172	3539	1583	106	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	3	49	832	11	351	29	1728	868	166	1303	20
RTOR Reduction (vph)	0	47	0	0	0	194	0	0	0	0	0	6
Lane Group Flow (vph)	9	5	0	424	419	157	29	1728	868	166	1303	14
Turn Type	Split			Split		Perm	pm+pt		Free	pm+pt		Perm
Protected Phases	4	4		3	3		1	6		5	2	
Permitted Phases						3	6		Free	2		2
Actuated Green, G (s)	5.9	5.9		34.0	34.0	34.0	67.2	64.8	140.0	78.0	70.2	70.2
Effective Green, g (s)	5.9	5.9		34.0	34.0	34.0	67.2	64.8	140.0	78.0	70.2	70.2
Actuated g/C Ratio	0.04	0.04		0.24	0.24	0.24	0.48	0.46	1.00	0.56	0.50	0.50
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	6.5		7.0	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.0		3.0	5.0	5.0
Lane Grp Cap (vph)	75	67		408	410	384	110	1638	1583	152	1775	794
v/s Ratio Prot	0.01	0.00		c0.25	0.25		0.00	0.49		c0.06	0.37	
v/s Ratio Perm						0.10	0.12		c0.55	c0.55		0.01
v/c Ratio	0.12	0.08		1.04	1.02	0.41	0.26	1.05	0.55	1.09	0.73	0.02
Uniform Delay, d1	64.6	64.4		53.0	53.0	44.6	46.0	37.6	0.0	62.2	27.5	17.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.64	0.66	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.5		55.1	50.1	0.7	0.9	35.5	1.0	99.8	2.7	0.0
Delay (s)	65.3	64.9		108.1	103.1	45.3	30.2	60.3	1.0	162.0	30.3	17.6
Level of Service	E	E		F	F	D	C	E	A	F	C	B
Approach Delay (s)		65.0			87.9			40.4			44.8	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	55	393	2023	935	301	1708
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Lane Util. Factor	1.00	0.88	0.91	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	2787	5085	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	2787	5085	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	427	2199	1016	327	1857
RTOR Reduction (vph)	0	297	0	173	0	0
Lane Group Flow (vph)	60	130	2199	843	327	1857
Turn Type		Perm		Perm	Prot	
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Actuated Green, G (s)	10.9	10.9	92.3	92.3	16.8	116.1
Effective Green, g (s)	10.9	10.9	92.3	92.3	16.8	116.1
Actuated g/C Ratio	0.08	0.08	0.66	0.66	0.12	0.83
Clearance Time (s)	7.0	7.0	6.0	6.0	7.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	138	217	3352	1044	412	2935
v/s Ratio Prot	0.03		0.43		0.10	c0.52
v/s Ratio Perm		c0.05		c0.53		
v/c Ratio	0.43	0.60	0.66	0.81	0.79	0.63
Uniform Delay, d1	61.6	62.4	14.3	17.4	59.9	4.3
Progression Factor	1.00	1.00	1.00	1.00	1.01	0.40
Incremental Delay, d2	2.2	4.4	1.0	6.7	5.9	0.6
Delay (s)	63.8	66.8	15.3	24.1	66.1	2.3
Level of Service	E	E	B	C	E	A
Approach Delay (s)	66.5		18.1			11.9
Approach LOS	E		B			B

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	270	510	120	0	884	0	2584	40	281	1372	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			4%	
Total Lost time (s)		3.0	3.0	3.0		3.0		3.0		3.0	3.0	
Lane Util. Factor		1.00	1.00	1.00		0.88		*0.80		1.00	0.95	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1863	1583	1770		2787		4295		1734	3468	
Flt Permitted		1.00	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583	1770		2787		4295		1734	3468	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	293	554	130	0	961	0	2809	43	305	1491	0
RTOR Reduction (vph)	0	0	0	0	0	250	0	1	0	0	0	0
Lane Group Flow (vph)	0	293	554	130	0	711	0	2851	0	305	1491	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Turn Type	Split		Free	custom		custom				Prot		
Protected Phases	3	3		4		1		2		1	6	
Permitted Phases			Free	4		4 1						
Actuated Green, G (s)		20.0	180.0	7.0		30.0		102.0		23.0	132.0	
Effective Green, g (s)		24.0	180.0	11.0		38.0		106.0		27.0	136.0	
Actuated g/C Ratio		0.13	1.00	0.06		0.21		0.59		0.15	0.76	
Clearance Time (s)		7.0		7.0		7.0		7.0		7.0	7.0	
Vehicle Extension (s)		4.0		4.0		4.0		5.0		4.0	5.0	
Lane Grp Cap (vph)		248	1583	108		635		2529		260	2620	
v/s Ratio Prot		c0.16		c0.07		c0.17		c0.66		0.18	0.43	
v/s Ratio Perm			0.35			0.09						
v/c Ratio		1.18	0.35	1.20		1.12		1.13		1.17	0.57	
Uniform Delay, d1		78.0	0.0	84.5		71.0		37.0		76.5	9.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		115.2	0.6	151.3		73.3		63.1		110.9	0.9	
Delay (s)		193.2	0.6	235.8		144.3		100.1		187.4	10.3	
Level of Service		F	A	F		F		F		F	B	
Approach Delay (s)		67.2			155.2			100.1			40.4	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM Average Control Delay	88.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	106.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX D
REFERENCES

Reference Materials Used For Air Quality Analysis

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APPENDIX E
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