VIRGINIA DEPARTMENT OF TRANSPORTATION

ROUTE 29 BYPASS PROJECT

STATE PROJECT: 0029-002-844, P101; UPC 102419

FINAL

AIR QUALITY TECHNICAL REPORT

From: Route 250 Bypass

To: U.S. Route 29 North of South Fork Rivanna River

Albemarle County and City of Charlottesville, Virginia

Prepared for:

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

AUGUST 2012

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Table of Contents

I. Introduction 1
II. Project Description / Alternatives 1
Figure 1 – Regional Location Map 3
III. Existing Conditions 4
IV. Regulations / Criteria 4
Table 1 – National Ambient Air Quality Standards 6
Table 2 – Route 29 Bypass ADT Summary 8
V. Carbon Monoxide Analysis 9
Table 3 – Inputs to MOBILE6.2 11
Table 4 – CAL3QHC Worst-Case Inputs 11
Table 5 – MOBILE6.2 Output - Summary of CO Emission Rates 12
Figure 2 - 8 – Project Location Map – Route 29 Bypass Project 13-19
Figure 9 – Hydraulic Road & Route 29 21
Figure 10 – Rio Road & Route 29 22
Table 6 – Carbon Monoxide Analysis – Route 29 Bypass Corridor 23
Table 7 – Carbon Monoxide Analysis – Signalized Intersection Summary 24
VI. Fine Particulate Matter Analysis 26
VII. Mobile Source Air Toxics (MSAT) 28
Figure 11 – National MSAT Emission Trends 1999 – 2050 for Vehicles Operating on Roadways Using EPA's MOBILE6.2 Model 29
VIII. Potential Greenhouse Gas Impacts 31
IX. Construction Impacts 31
X. Conformity Status of the Project 32
XI. Conclusion 32

Appendices

Appendix A
Mobile Input / Output Files
Appendix B
CAL3QHC Input / Output Files
Appendix C
Traffic Summary / SYNCHRO Reports
Appendix D
List of Assumptions
Appendix E
References
Appendix F
List of Preparers / Reviewers

I. Introduction

Air quality became a national concern in the 1960s, leading to the passage of the Clean Air Act of 1963. This was followed by the Air Quality Act of 1967, the Clean Air Act of 1970, the Clean Air Act Amendments of 1977, and the Clean Air Act Amendments of 1990. With the passage of each piece of legislation, requirements for addressing and controlling air pollution became more stringent as prior legislation failed to achieve its intended purpose. Following the passage of the Federal Clean Air Act Amendments of 1990, 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), particulate matter (PM), 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 Clean Air Act. Highway agencies are required to consider the impacts of transportation improvement projects on both the local and regional level. Regional air quality, when located in ozone nonattainment and maintenance areas, is assessed by ensuring that region wide volatile organic compounds (VOC) and nitrogen oxide (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 Metropolitan Planning Organizations (MPOs) and documented in the Transportation Improvement Program (TIP) and Long Range Transportation Plan (LRTP). The project lies within an area designated as attainment for all criteria pollutants; therefore, the project is exempt from regional and project-level conformity requirements.

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.

II. Project Description / Alternatives

Project Study Area

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is studying potential environmental impacts as a result of a new four-lane divided, limited access bypass to the west of existing Route 29 in Albemarle County, Virginia. The proposed project is the product of many years of study and discussion with citizens and local officials. Among the studies conducted were Draft and Final Environmental Impact Statements documenting a major corridor study, Draft and Final Environmental Assessments documenting changes to the project termini, a Reevaluation to discuss changes to the project and their environmental consequences, and a Section 4(f) Evaluation to discuss new information received on Albemarle County school properties. A Supplemental Environmental Impact Statement (SEIS) was prepared to consider more fully the effects of the Selected Alternative on the South Fork

Rivanna River Reservoir and its watershed and the effects of the project's northern terminus on archaeological resources. Due to recent actions to provide funding to advance the project for construction, another reevaluation is needed to address any changes to the project and any new information or circumstances relevant to environmental concerns and bearing on the proposed project and its impacts (e.g., changes to the affected environment and changes to applicable laws and regulations since completion of previous NEPA documents).

Figure 1 shows the location of the project. The study area consists of lands surrounding the proposed project elements on which there are human activities that could potentially be affected by the project. In addition, the study also includes an assessment of air quality conditions along the existing U.S. 29 corridor at the two worst-case signalized intersections in the vicinity of the project area and the potential benefits in air quality as a result of the proposed improvements.

ALTERNATIVES:

No-Build Alternative

Under the No-Build Alternative, it is assumed that all projects other than the proposed bypass that are funded for construction in the financially constrained long-range transportation plan (CLRP) would be in place by the design year 2040. Using this analysis approach and methodology, we are able to isolate the impact on traffic from the proposed project. UnJAM2035, the region's current CLRP, was adopted by the Charlottesville-Albemarle Metropolitan Planning Organization (MPO) Policy Board in May 2009 and amended in July 2011. By programming funds for construction on projects in the CLRP, the state and localities have demonstrated a commitment to implement those improvements.

Note that the No-Build Alternative presented in this EA differs from the No-Build Alternative evaluated in the 1993 FEIS and 2003 SEIS as it includes projects programmed for construction in the current CLRP that may not have been identified in previous versions. Relevant roadway projects are the Berkmar Drive Extension, the Hillsdale Drive Extension, widening of Route 29 north of the proposed northern terminus of the Route 29 Bypass, improvements to Georgetown Road, a grade-separated interchange at Rio Road and Route 29, and interchange improvements at the Route 29/250 interchange. Also, the design year was 2010 for the 1993 FEIS and 2022 for the 2003 SEIS.

Proposed Build Alternative

The proposed project would provide a new four-lane divided, limited access bypass to the west of existing Route 29 in Albemarle County and the City of Charlottesville. Extending approximately 6.24 miles long, the project limits are from the Route 250 Bypass and the North Grounds of the University of Virginia on the south end to existing Route 29 north of the South Fork Rivanna River on the north end. A connector road into the North Grounds of the University of Virginia, located on the south side of the Route 250 Bypass, which was part of the project has already been constructed (Leonard Sandridge Road).

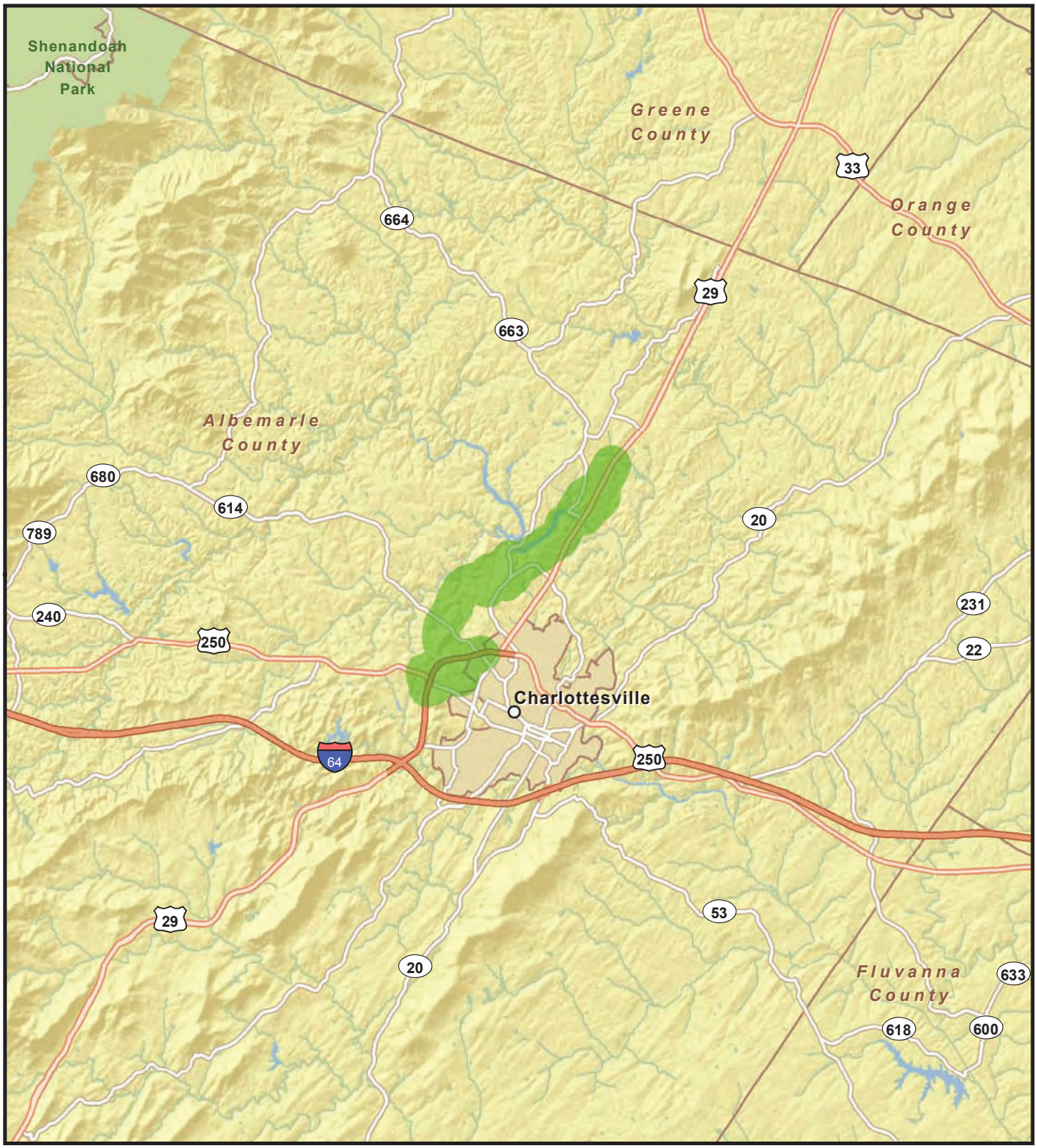


Figure 1
Regional Location Map

Charlottesville Bypass Project

Albemarle County and City of Charlottesville, Virginia

N W E S

0 1.5 3 Mile

Access to the new highway would be via interchanges at both ends, with no intermediate access points to crossroads or adjacent properties. The typical cross section would include 12-foot-wide lanes, with shoulders and a variable-width graded median. The proposed improvements can be referenced in **Figure 2** through **Figure 8**.

III. Existing Conditions

The proposed project is located in central Virginia in Albemarle County and within the City of Charlottesville. The area is best categorized as a humid subtropical climate that averages approximately 49 inches of precipitation per year, with May through September being the wettest. Winters are somewhat cool while the summers are typically hot and humid.

Traffic Summary Information

Traffic forecasts were developed for the project for Existing (2011), Interim/Opening Year No-Build (2015), Interim/Opening Year Build (2015), Design Year No-Build (2040), and Design Year Build (2040) conditions for the project locations. 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 for the traffic analysis and were derived from the VDOT ENTRADA system.

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 health 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. However, this project is located in Albemarle County which is currently designated as attainment for the 8-hour ozone and fine

particulate matter ($PM_{2.5}$). As a result of this attainment designation, the project is exempt from all regional and project-level conformity requirements.

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) commonly referred to as the Final Rule. While the project is not subject to the guidance because it is located in a $PM_{2.5}$ and PM_{10} attainment area, the project was subjected to the guidance and is not considered a "project of air quality concern". A detailed discussion can be found in **Section VI** of this report.

As indicated in the *Consultant Guide*, on February 27, 2009, FHWA and VDOT completed the updated Memorandum of Understanding (MOU) addressing requirements on when a quantitative or qualitative CO hot-spot analysis is required. Under this revised agreement (original agreement was August 4, 2004) project-level air quality (hot-spot) analyses are conducted for CO for projects that meet traffic and related criteria as specified in the revised agreement. As shown in **Table 2**, Average Annual Daily Traffic (AADT) volumes do not exceed 59,000 AADT at the northern interchange area as well as signalized intersections along existing U.S. 29. The proposed Route 29 Bypass will carry approximately 27,800 AADT under a future 2040 Build condition. However, traffic volumes do exceed 59,000 in the vicinity of the southern interchange area, primarily along the Route 250 Bypass. As such, since 2040 AADT do exceed the threshold identified by the MOU, a quantitative CO analysis was performed for the entire project corridor for inclusion in the air study.

On September 30, 2009, FHWA issued 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 mobile source air toxics (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

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 PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.
[(5)] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).
[(6)] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
[(7)] (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
[(8)] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 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

to 150,000 or greater, and which is also in proximity to populated areas. As stipulated in the guidance, since the project does not meet the traffic criteria described above and is not considered exempt, it is best characterized as a project with low potential MSAT effects. As such, the project will include a qualitative assessment of MSAT to evaluate the anticipated changes in MSAT emissions between the No-Build and Build conditions, and also to compare anticipated future MSAT emissions to baseline conditions. Additionally, 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. On February 27, 2012, EPA took final action to extend the original two-year grace period to March 2, 2013 before MOVES2010 is required for use in transportation conformity analysis. Again, the region is not subject to transportation conformity requirements.

In August of 2010, EPA approved an updated version of the MOVES model (MOVES2010a) for official use. It incorporated new car and light truck greenhouse gas emission standards that were published May 2, 2010 as well as a number of other minor improvements. On December 20, 2010, EPA published a Federal Register Notice of Availability that officially announced a new EPA guidance document for completing project-level carbon monoxide analyses using MOVES. This notice also announced a two-year grace period before MOVES2010a is required to be used in quantitative CO and PM hot-spot analyses for project-level conformity determinations outside California. More recently, the latest version of MOVES, MOVES2010b, was released in April 2012 and provides more flexibility for varying inputs with increased functionality of the software. MOVES2010b does not significantly affect the criteria pollutant emissions results when compared to MOVES2010 or MOVES2010a, and is therefore not considered a new model that would restart a new two-year grace period.

On December 20, 2010, EPA also released (as part of the same announcement) 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*. Starting December 20, 2012, the new guidance must be used by state and local agencies to conduct quantitative PM hot-spot analyses for new or expanded highway or

Table 2 - Route 29 Bypass - Average Daily Traffic (ADT) Summary

	Segment	Link Description	2011 Existing		2015 No-Build		2015 Build		2040 No-Build		2040 Build	
			ADT	% Trucks	ADT	% Trucks	ADT	% Trucks	ADT	% Trucks	ADT	% Trucks
Route 29 Bypass Corridor	67	Route 250 Bypass WB (btwn Hydraulic Rd & Emmet St)	11,500	2.0%	12,314	0.02	11,927	2.0%	16,364	0.02	15,977	0.02
	68	Route 250 Bypass EB (btwn Hydraulic Rd & Emmet St)	11,500	2.0%	12,314	0.02	11,927	2.0%	16,364	0.02	15,977	0.02
	69	Route 250 Bypass WB (btwn Emmet St & Barracks Rd)	19,000	3.0%	20,717	0.03	13,026	3.0%	29,329	0.03	20,315	0.03
	70	Route 250 Bypass EB (btwn Emmet St & Barracks Rd)	19,000	3.0%	20,717	0.03	13,026	3.0%	29,329	0.03	20,315	0.03
	77	L. Sandbridge Rd NB, south of 29	500	3.0%	503	3.0%	1,236	3.0%	3,028	3.0%	3,761	3.0%
	78	L. Sandbridge Rd SB, south of 29	500	3.0%	503	3.0%	1,236	3.0%	3,028	3.0%	3,761	3.0%
	109	Route 250 Bypass WB (btwn Barracks Rd & Prop Route 29 Bypass)	24,000	3.0%	25,888	3.0%	17,122	3.0%	35,325	3.0%	26,559	3.0%
	110	Route 250 Bypass EB (btwn Barracks Rd & Prop Route 29 Bypass)	24,000	3.0%	25,888	3.0%	17,122	3.0%	35,325	3.0%	26,559	3.0%
	111	29 NB south of the Bypass (between Fontaine and Ivy)	21,000	7.0%	23,115	7.0%	24,162	7.0%	33,702	7.0%	34,750	7.0%
	112	29 SB south of the Bypass (between Fontaine and Ivy)	21,000	7.0%	23,115	7.0%	24,162	7.0%	33,702	7.0%	34,750	7.0%
	113	Ivy Rd EB (btwn Rt 250 Bypass & Alderman Rd)	8,000	1.0%	7,711	1.0%	7,171	1.0%	6,261	1.0%	5,721	1.0%
	114	Ivy Rd WB (btwn Rt 250 Bypass & Alderman Rd)	8,000	1.0%	7,711	1.0%	7,171	1.0%	6,261	1.0%	5,721	1.0%
	115	Ivy Rd WB (btwn Rt 846 & Golf Course Dr)	7,000	2.0%	7,518	2.0%	7,638	2.0%	10,118	2.0%	10,238	2.0%
	116	Ivy Rd EB (btwn Rt 846 & Golf Course Dr)	7,000	2.0%	7,518	2.0%	7,638	2.0%	10,118	2.0%	10,238	2.0%
	117	Old Ivy Rd EB (btwn Crestwood Rd & Harvest Dr)	2,750	1.0%	2,773	1.0%	2,703	1.0%	2,860	1.0%	2,790	1.0%
	118	Old Ivy Rd WB (btwn Crestwood Rd & Harvest Dr)	2,750	1.0%	2,773	1.0%	2,703	1.0%	2,860	1.0%	2,790	1.0%
	119	Proposed Bypass NB (South Terminus to North Terminus)					8,900	3.0%			13,899	3.0%
	120	Proposed Bypass SB (North Terminus to South Terminus)					8,900	3.0%			13,899	3.0%
	152	AB-AC: Off-Ramp from 29 NB to L. Sandridge Rd (diamond)					557	3.0%			762	3.0%
	163	AB-AJ: 29 NB to Proposed Bypass NB (flyover)					8,144	3.0%			10,135	3.0%
	153	AC-AD: On-Ramp from L. Sandridge Rd to 250 NB (diamond)					394	3.0%			1,930	3.0%
	154	AA-AD: 250 Bypass NB (thru lanes) from 29 NB Bypass diverge to On-Ramp from L. Sandridge Rd					16,920	3.0%			24,537	3.0%
	157	AE-AH: 250 Bypass SB (thru lanes) from Off-Ramp to L. Sandridge Rd to 29 SB Bypass merge					16,498	3.0%			23,047	3.0%
	158	AH-AG: 250 Bypass SB (thru lanes) from 29 SB Bypass merge to On-Ramp from L. Sandridge Rd					24,901	3.0%			34,301	3.0%
	155	AE-AF: Off-Ramp from 250 SB to L. Sandridge Rd (diamond)					799	3.0%			3,435	3.0%
	156	AF-AG: On-Ramp from L. Sandridge Rd to 29 SB (diamond)					708	3.0%			1,144	3.0%
	164	AI-AH: Proposed Bypass SB to 29 SB (flyover)					8,403	3.0%			11,254	3.0%
	151	AA-AB: 250 NB to Split					8,701	3.0%			10,897	3.0%
	159	AC-AF: L. Sandridge Rd NB, between Ramps					1,112	3.0%			3,066	3.0%
	160	AF-AC: L. Sandridge Rd SB, between Ramps					946	3.0%			4,238	3.0%
	161	AF-AJ: L. Sandridge Rd NB ramp to Proposed Bypass NB					843	3.0%			3,728	3.0%
	162	AI-AF: Proposed Bypass SB ramp to L. Sandridge Rd SB					586	3.0%			2,609	3.0%
	109	Route 250 SB/WB Mainline (btwn Ivy Rd & Barracks Rd) - Ex & NB	24,000	3.0%	25,888	3.0%			35,325	3.0%		
	151	Route 250 SB/WB Mainline (btwn Ivy Rd & 29 Bypass) - Build					25,609	3.0%			35,445	3.0%
	110	Route 250 NB/EB Mainline (btwn Ivy Rd & L. Sandridge Rd) - Ex & NB	24,000	3.0%	25,888	3.0%			35,325	3.0%		
	110	Route 250 NB/EB Mainline (btwn L. Sandridge Rd & Barracks Rd) - Ex & NB	24,000	3.0%	25,888	3.0%			35,325	3.0%		
	158	Route 250 NB/EB Mainline (btwn Ivy Rd & 29 Bypass) - Build					25,621	3.0%			35,434	3.0%
	191	Route 250 SB Off-Ramp (loop) to Ivy Rd	6,315	1.0%	6,341	1.0%	5,706	1.0%	6,631	1.0%	6,073	1.0%
	192	Route 250 SB On-Ramp from Ivy Rd	3,353	1.0%	3,612	1.0%	4,011	1.0%	5,058	1.0%	5,516	1.0%
	193	Route 250 NB Off-Ramp to Ivy Rd	3,353	1.0%	3,612	1.0%	4,010	1.0%	5,057	1.0%	5,516	1.0%
	194	Route 250 NB On-Ramp (loop) from Ivy Rd	6,314	1.0%	6,341	1.0%	5,706	1.0%	6,631	1.0%	6,073	1.0%
	119	Proposed Bypass NB (South Terminus to North Terminus)					8,900	3.0%			13,899	3.0%
	120	Proposed Bypass SB (North Terminus to South Terminus)					8,900	3.0%			13,899	3.0%
	136	Ramp 136: Prop Bypass NB to US 29 SB					972	3.0%			4,464	3.0%
	135	Ramp 135: Prop Bypass NB to US 29 NB					7,993	3.0%			9,424	3.0%
	133	Ramp 133: US 29 SB to Prop Bypass SB					7,965	3.0%			9,321	3.0%
	134	Ramp 134: US 29 NB to Prop Bypass SB (left-exit ramp)					1,003	3.0%			4,565	3.0%
	2	29 NB, north of Prop Bypass (south of Hollymead)	24,000	3.0%	25,547	3.0%	29,704	3.0%	33,272	3.0%	37,429	3.0%
	1	29 SB, north of Prop Bypass (south of Hollymead)	24,000	3.0%	25,547	3.0%	29,704	3.0%	33,272	3.0%	37,429	3.0%
	3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%
	4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%
	130	29 Seminole Tr between ramps (NB)					8,900	3.0%			13,899	3.0%
	131	29 Seminole Tr between ramps (SB)					21,441	3.0%			28,085	3.0%
Existing Route 29	109	29/250: Prop Bypass to Barracks Road (SB)	24,000	3.0%	25,888	3.0%	17,122	3.0%	35,325	3.0%	26,559	3.0%
	70	29/250: Barracks Road to Emmet Street (NB)	19,000	3.0%	20,717	3.0%	13,026	3.0%	29,329	3.0%	20,315	3.0%
	69	29/250: Barracks Road to Emmet Street (SB)	19,000	3.0%	20,717	3.0%	13,026	3.0%	29,329	3.0%	20,315	3.0%
	21	29 Seminole Tr: US 250 to Angus Rd (NB)	26,000	3.0%	28,827	3.0%	18,671	3.0%	42,939	3.0%	32,783	3.0%
	22	29 Seminole Tr: US 250 to Angus Rd (SB)	26,000	3.0%	28,827	3.0%	18,671	3.0%	42,939	3.0%	32,783	3.0%
	19	29 Seminole Tr: Angus Rd to Hydraulic Rd (NB)	26,000	3.0%	28,609	3.0%	18,506	3.0%	41,646	3.0%	31,544	3.0%
	20	29 Seminole Tr: Angus Rd to Hydraulic Rd (SB)	26,000	3.0%	28,609	3.0%	18,506	3.0%	41,646	3.0%	31,544	3.0%
	17	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (NB)	28,500	3.0%	30,692	3.0%	22,902	3.0%	41,642	3.0%	33,852	3.0%
	18	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (SB)	28,500	3.0%	30,692	3.0%	22,902	3.0%	41,642	3.0%	33,852	3.0%
	15	29 Seminole Tr: Greenbrier Dr to Dominion Dr (NB)	28,500	3.0%	30,780	3.0%	20,063	3.0%	42,180	3.0%	31,463	3.0%
	16	29 Seminole Tr: Greenbrier Dr to Dominion Dr (SB)	28,500	3.0%	30,780	3.0%	20,063	3.0%	42,180	3.0%	31,463	3.0%
	13	29 Seminole Tr: Dominion Dr to Berkmar Dr (NB)	28,500	3.0%	30,446	3.0%	19,519	3.0%	40,158	3.0%	29,231	3.0%
	14	29 Seminole Tr: Dominion Dr to Berkmar Dr (SB)	28,500	3.0%	30,446	3.0%	19,519	3.0%	40,158	3.0%	29,231	3.0%
	11	29 Seminole Tr: Berkmar Dr to Rio Rd (NB)	24,000	3.0%	25,498	3.0%	18,108	3.0%	32,973	3.0%	25,583	3.0%
	12	29 Seminole Tr: Berkmar Dr to Rio Rd (SB)	24,000	3.0%	25,498	3.0%	18,108	3.0%	32,973	3.0%	25,583	3.0%
	9	29 Seminole Tr: Rio Rd to Woodbrook Dr (NB)	24,000	3.0%	26,753	3.0%	20,522	3.0%	40,528	3.0%	34,297	3.0%
	10	29 Seminole Tr: Rio Rd to Woodbrook Dr (SB)	24,000	3.0%	26,753	3.0%	20,522	3.0%	40,528	3.0%	34,297	3.0%
	7	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (NB)	24,000	3.0%	26,389	3.0%	20,267	3.0%	38,339	3.0%	32,217	3.0%
	8	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (SB)	24,000	3.0%	26,389	3.0%	20,267	3.0%	38,339	3.0%	32,217	3.0%
	5	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (NB)	24,000	3.0%	26,307	3.0%	20,230	3.0%	37,832	3.0%	31,755	3.0%
	6	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (SB)	24,000	3.0%	26,307	3.0%	20,230	3.0%	37,832	3.0%	31,755	3.0%
	3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%
	4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%

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 not considered to be a project of air quality concern and as such, is exempt from a hotspot 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). As discussed previously, this project is located in an area designated as attainment for the 8-hour ozone standard as well as for $PM_{2.5}$. As such, the project is considered exempt from a regional and project-level conformity analysis and has met all conformity requirements as outlined by the Clean Air Act Amendments. The appropriate documentation can be referenced in **Chapter XI** 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, as well as along existing Route 29 in order 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 is 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 (2015), Interim/Opening Year Build (2015), 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 the most recent local vehicle registration data (2011), fuel quality (sulfur and Reid Vapor Pressure), and other applicable data. The average January minimum temperature will be used as specified in the guidance. Other applicable data will be kept at EPA defaults where appropriate and will represent worst-case modeling assumptions. 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. Although the majority of the project is located outside the City of Charlottesville, those emission rates were higher than Albemarle County. As such, the higher emission rates generated for the City of Charlottesville area were used throughout the analysis to ensure worst-case concentrations were projected.

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 of where the general public has continuous access over specific time periods;
- Reasonable receptor locations.

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

The locations selected for analysis include: the St. Anne's Belfield School and associated outdoor facilities; the Albemarle High School, Mary Carr Greer Elementary School, Jack Jouett Middle School, Ivy Creek School, and associated outdoor facilities; the Agnor-Hurt Elementary School and associated outdoor facilities; and other residential and open areas along the proposed alignment where the public has access and maximum CO concentrations would be expected to occur. If the projected peak CO concentrations at the worst-case locations selected in the analysis are below the CO NAAQS, then it is assumed that all other locations within the project corridor will also remain below the CO

Table 3
Inputs to MOBILE6.2

Parameter	Data
Evaluation Month	January
Evaluation Season	2
Min/Max Temperature (Fahrenheit)	30/30
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 (urban)
Surface Roughness Coefficient		11 cm (rural)
Background CO Concentrations (parts per million) (project located between Roanoke and Richmond)	1-hour	3.0 ppm
	8-hour	2.2 ppm
Wind Speed (meters per second)		1 m/s
Stability Class		Urban - D
Stability Class		Rural - E
Mixing Height		1000 meters
Receptor Height		5.9 feet
Persistence Factor		0.7

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

Table 5
MOBILE6.2 Outputs
Summary of CO Emission Rates

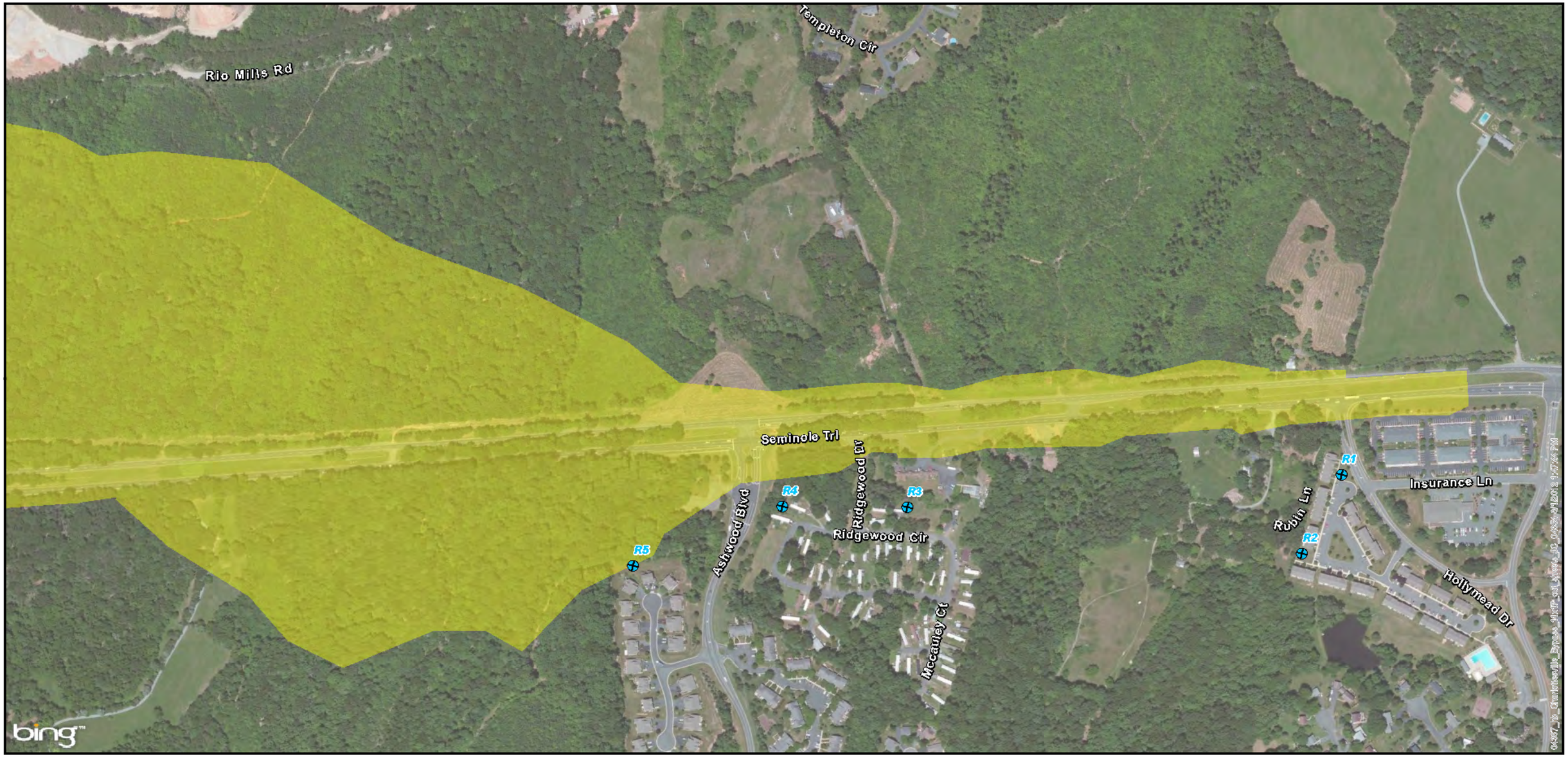
Location	Speed (mph)	Analysis Year 2011	2015	2040
City of Charlottesville	2.5	141.301	117.080	92.909
	25	21.834	18.408	14.470
	30	21.505	18.141	14.264
	35	21.527	18.152	14.269
	40	22.110	18.653	14.686
	45	22.718	19.175	15.120
	50	23.350	19.716	15.570
	55	24.006	20.278	16.037
Albemarle County	2.5	132.717	110.222	88.973
	25	20.544	17.371	13.897
	30	20.222	17.112	13.696
	35	20.230	17.115	13.698
	40	20.770	17.583	14.096
	45	21.338	18.073	14.512
	50	21.931	18.584	14.945
	55	22.550	19.117	15.394

Notes:
1. Emission rates for speeds 25 to 55 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).

NAAQS. **Figure 2** through **Figure 8** show the sensitive receptor locations along the proposed build alternative selected for the air study. It should be noted that only the project corridor is highlighted yellow on **Figure 2** through **Figure 8** and that the conceptual design varies within the highlighted area.

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 the project corridor. The project area is comprised of a rural and urban environment, which consists of local street systems as well as collector-distributor roads paralleling the project corridor.

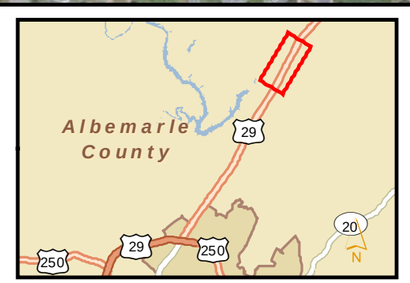
In order to identify the worst-case intersections to be included in the air study, EPA guidance suggests ranking the top intersection locations based on traffic volumes and level of service (LOS). However, the proposed bypass will consist of a limited access highway with a northern and southern interchange area. As such, several receptors were selected adjacent to the northern and southern interchange areas where traffic has the largest potential to queue along the new project corridor. Therefore, for the purposes of this portion of the assessment, both the northern and southern interchange areas were included.

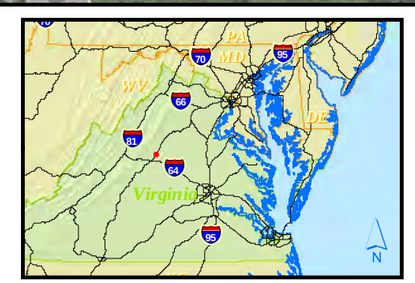


Air Quality Modeling Receptor (5)

0 200 400 600 800 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

State Project #0029-002-844, P101;

UPC 102419

Figure 2

Project Location Map

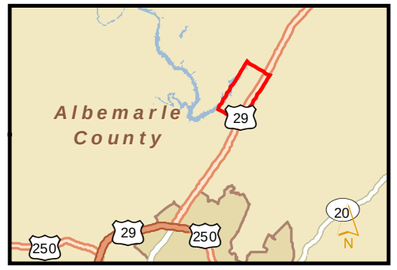
VDOT Virginia Department of Transportation

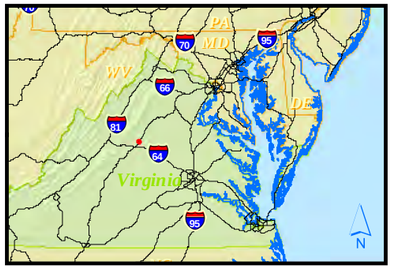
Albemarle County and
City of Charlottesville, Virginia

Air Quality Modeling Receptor (2)

0 200 400 600 800 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

State Project #0029-002-844, P101;

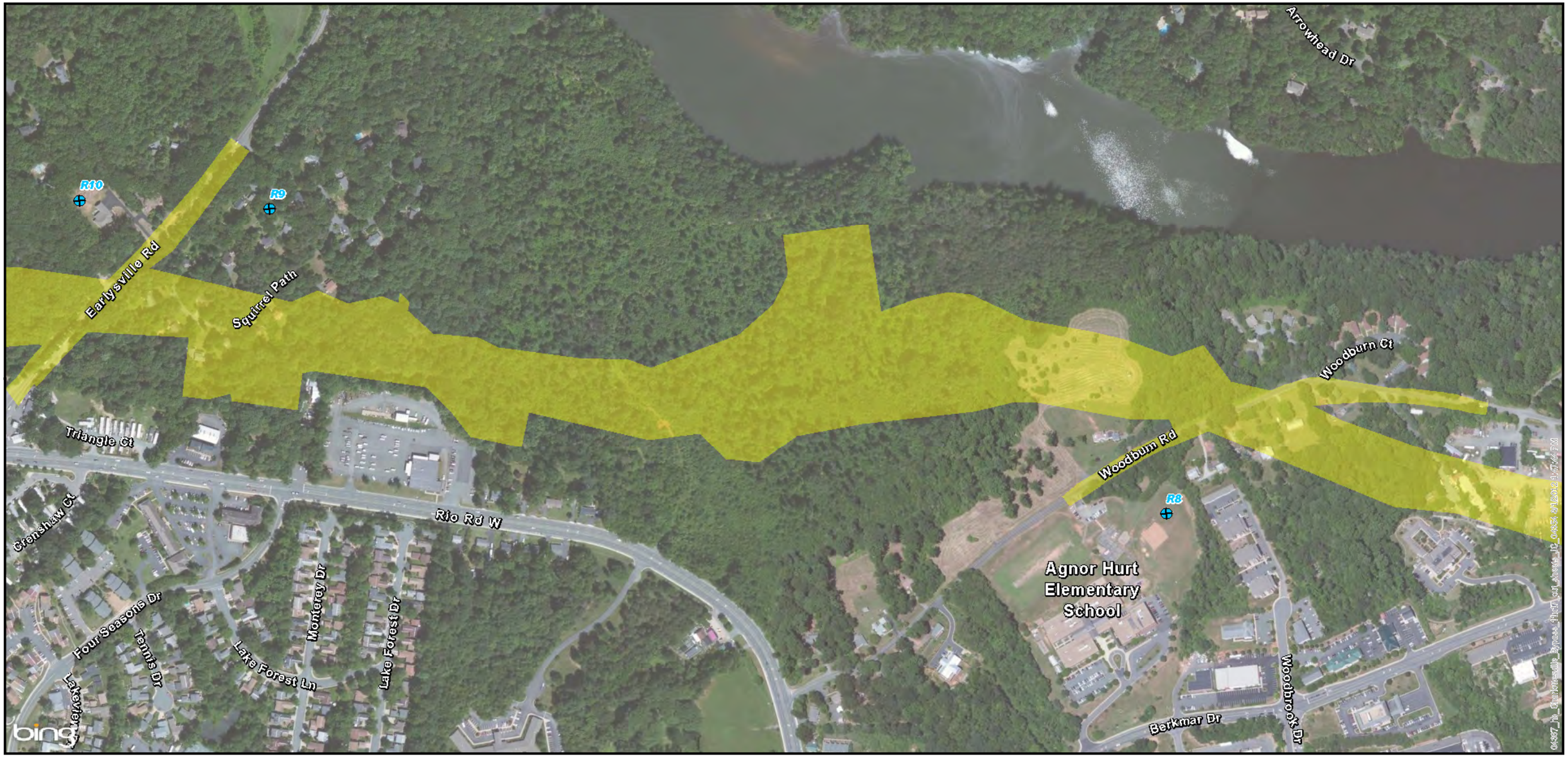
UPC 102419

Figure 3

Project Location Map

VDOT

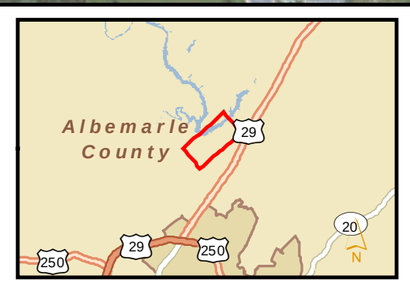
Albemarle County and
City of Charlottesville, Virginia

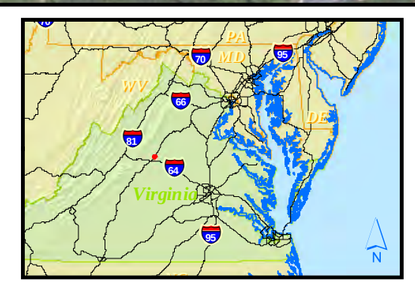


Air Quality Modeling Receptor (3)

0 200 400 600 800 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

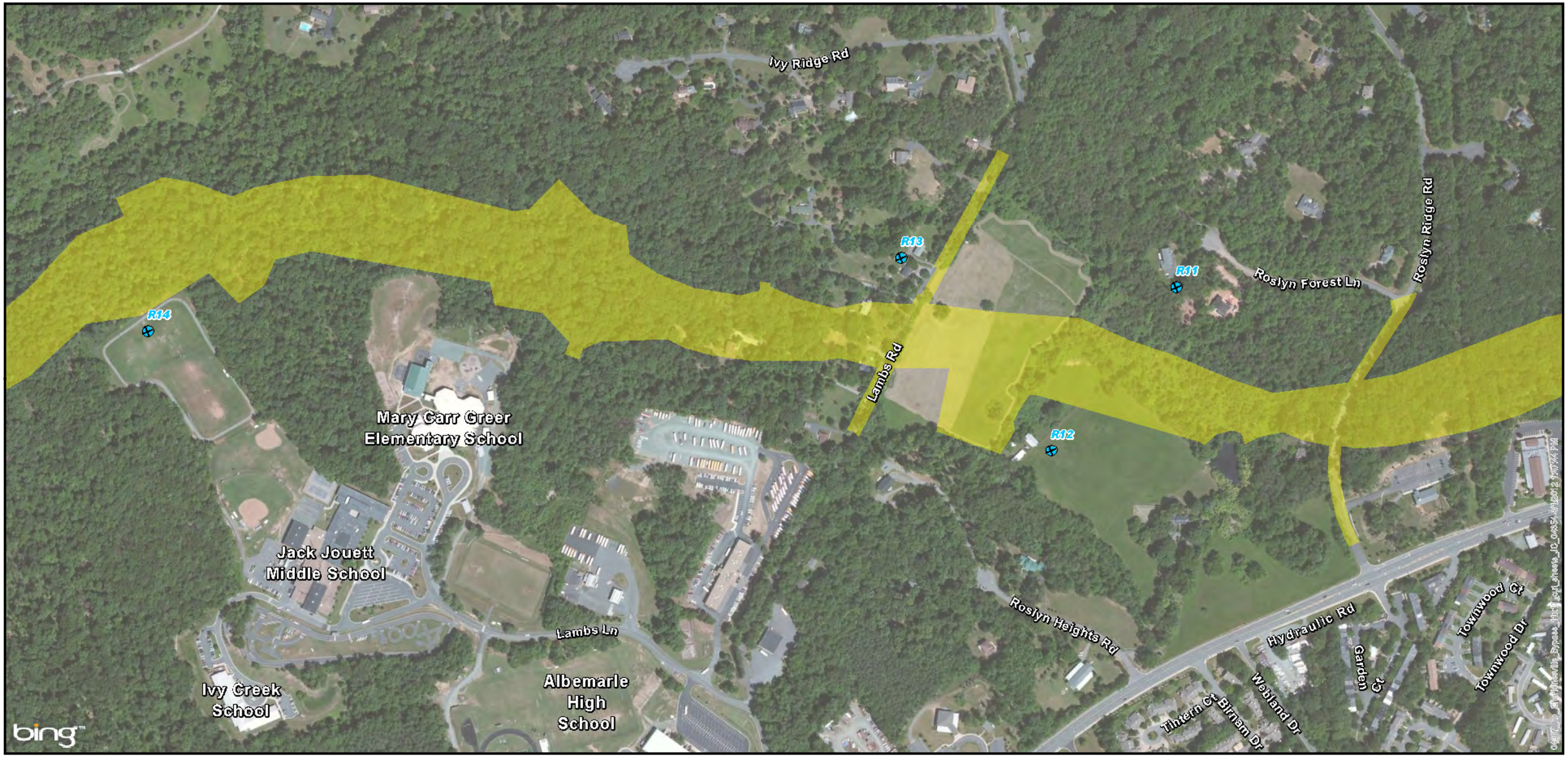
State Project #0029-002-844, P101;

UPC 102419

Figure 4

Project Location Map

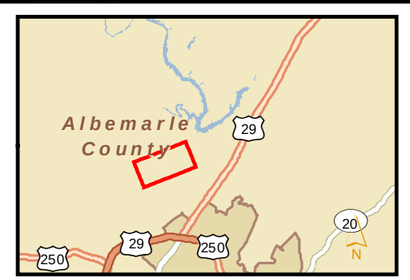
Albemarle County and
City of Charlottesville, Virginia

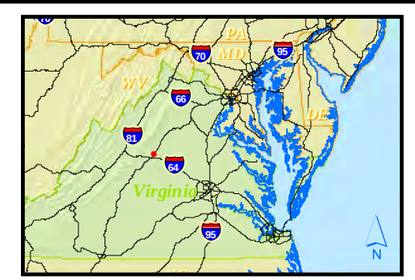


Air Quality Modeling Receptor (4)

0 200 400 600 800 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

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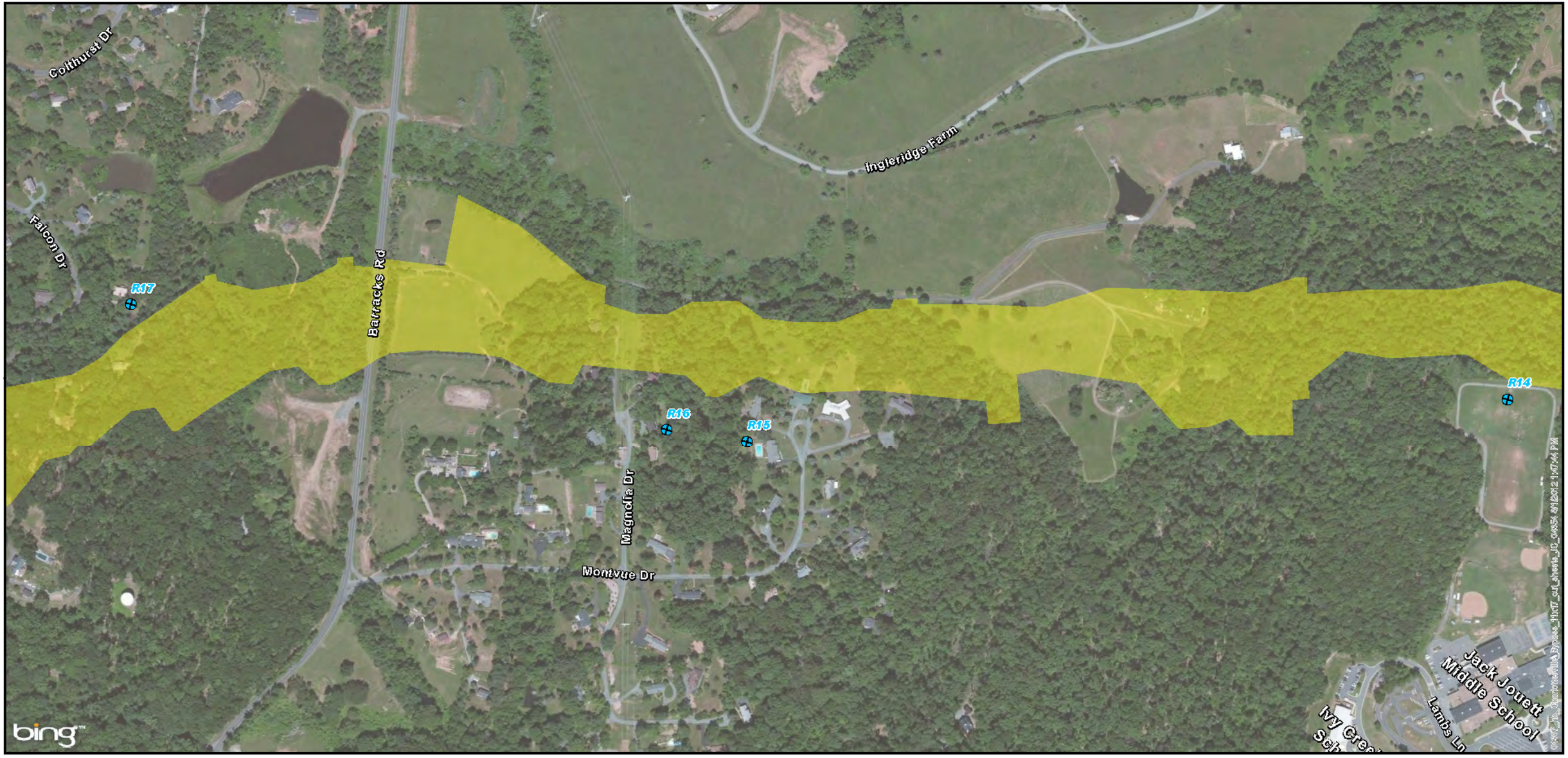
Figure 5

Project Location Map

VDOT

Virginia Department of Transportation

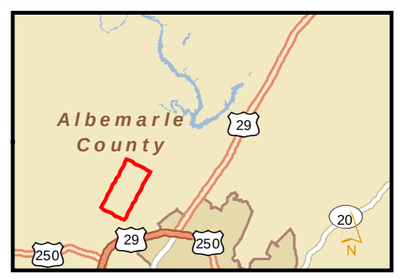
Albemarle County and
City of Charlottesville, Virginia

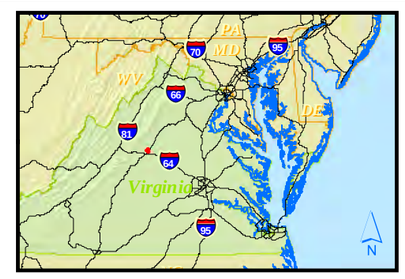


Air Quality Modeling Receptor (4)

0 200 400 600 800 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

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UPC 102419

Figure 6

Project Location Map

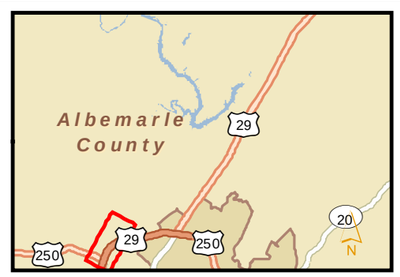
VDOT Virginia Department of Transportation

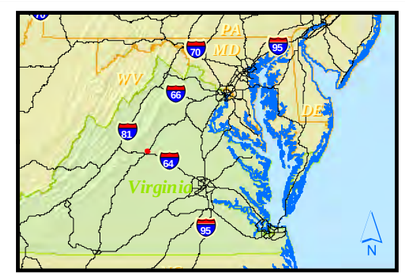
Albemarle County and
City of Charlottesville, Virginia

Air Quality Modeling Receptor (6)

0 200 400 600 800 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

State Project #0029-002-844, P101;

UPC 102419

Figure 7

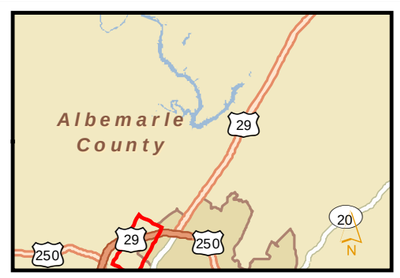
Project Location Map

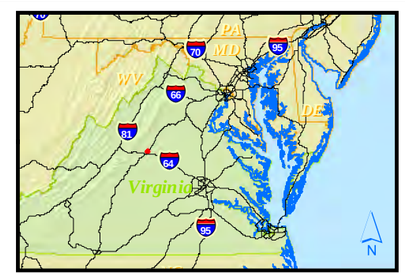
Albemarle County and
City of Charlottesville, Virginia

Air Quality Modeling Receptor (3)

0 200 400 600 800 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

State Project #0029-002-844, P101;

UPC 102419

Figure 8

Project Location Map

Albemarle County and
City of Charlottesville, Virginia

Additionally, since the project will divert traffic off of Route 29 and is expected to improve air quality in the existing Route 29 corridor, the two worst-case signalized intersections along the existing project corridor were also included in the study for comparisons between No-Build and Build conditions.

After review of the detailed traffic data, PM peak hour volumes are higher than AM peak hour volumes along the project corridor under Design Year 2040 conditions. As a result, Design Year No-Build (2015) and Design Year Build (2015) conditions, as well as Design Year No-Build (2040) and Design Year Build (2040) PM peak hour traffic volumes and level-of-service (LOS) were used as a worst-case assumption in the CO hotspot analysis and are included in **Appendix C**. For the purposes of the CO assessment, the two worst-case signalized intersections selected for the assessment, as well as the rank, are identified below:

- Hydraulic Road & Route 29 (Rank – 1)
- Rio Drive & Route 29 (Rank – 2)

The intersections identified above were selected based on having the highest design year PM peak-hour traffic volumes along the existing Route 29 project corridor, as well as the worst-case intersection LOS and delay. A ranking of the signalized intersections along the existing Route 29 corridor in the vicinity of the project area was completed in accordance with EPA Guidance and is included in **Appendix C**. Although no improvements along the existing Route 29 project corridor are proposed as part of the project, all intersection modeling will include the existing footprint while modeling each analysis year. Additionally all modeling and receptor site selection will be in accordance with EPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections*. The air quality modeling receptors evaluated at each signalized intersection can be referenced on **Figure 9** and **Figure 10**.

Analysis Methodologies & Results

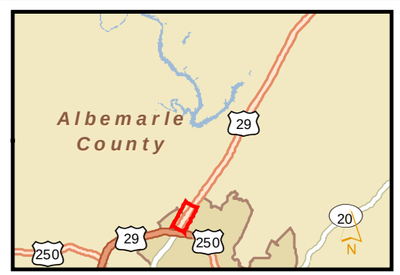
The CAL3QHC computer dispersion model was used to predict the 1-hour CO concentrations at the receptor locations shown in **Table 6** and **Table 7**, as well as **Figure 2** through **Figure 10** for Existing (2011), Interim/Opening Year No-Build (2015), Interim/Opening Year Build (2015), Design Year No-Build (2040), and Design Year Build (2040) conditions. All relevant traffic data used in the analysis was provided by VDOT traffic engineers.

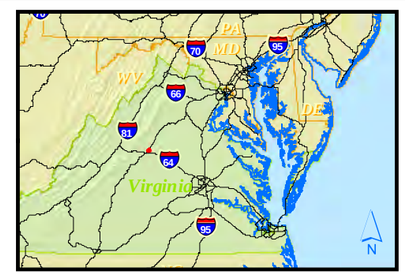
Worst-case traffic operations and atmospheric conditions were incorporated to predict worst-case CO concentrations. Based on review of the supplied traffic data, the CO modeling analysis for the project corridor focused on the PM-peak conditions. Maximum CO concentrations, calculated by adding together the background concentration to the projected peak CO concentration for all locations, scenarios, and years considered in the analysis area, are shown in **Table 6** and **Table 7**. The 1-hour background concentration, 3.0 ppm, was derived from VDOT's *Consultant Guide*. In addition, a persistence factor of 0.7 was used to project the 8-hour CO concentrations as stipulated in EPA and VDOT guidance. Furthermore, to project worst-case CO concentrations, a surface roughness coefficient of 11 cm was assumed for areas along the proposed bypass due to rural conditions, while 175 cm was assumed for the two signalized intersections along existing

Air Quality Modeling Receptor (28)

0 100 200 300 400 Feet

0 48 96 144 192 Meters





Route 29 Bypass Project

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UPC 102419

Figure 9

Hydraulic Road / Route 29

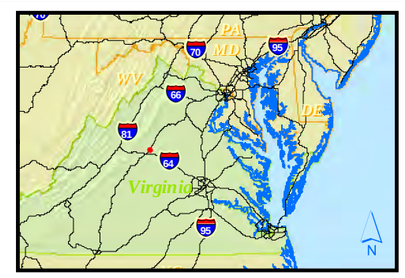
VDOT
Virginia Department of Transportation

Albemarle County and
City of Charlottesville, Virginia

Air Quality Modeling Receptor (28)

0 100 200 300 400 Feet

0 48 96 144 192 Meters



Route 29 Bypass Project

State Project #0029-002-844, P101;

UPC 102419

Figure 10

Rio Road / Route 29

Albemarle County and
City of Charlottesville, Virginia

Table 6
Carbon Monoxide Analysis - Route 29 Bypass Corridor
1-Hour and 8-Hour CO Level Summary (ppm)

		Existing (2011)		2015 Interim/Opening Year No-Build		2015 Interim/Opening Year Build		2040 Design Year No-Build		2040 Design Year Build	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Route 29 Bypass Corridor	R-1	4.4	3.1	4.3	3.0	4.3	3.0	4.5	3.2	4.4	3.1
	R-2	3.6	2.5	3.6	2.5	3.6	2.5	3.6	2.5	3.6	2.5
	R-3	4.0	2.8	3.8	2.7	3.9	2.7	4.2	2.9	3.9	2.7
	R-4	4.2	2.9	4.1	2.9	4.2	2.9	4.3	3.0	4.2	2.9
	R-5	4.0	2.8	3.8	2.7	3.8	2.7	4.0	2.8	3.8	2.7
	R-6	3.7	2.6	3.6	2.5	3.5	2.5	3.7	2.6	3.6	2.5
	R-7	3.5	2.5	3.6	2.5	3.5	2.5	3.6	2.5	3.8	2.7
	R-8	3.4	2.4	3.4	2.4	3.4	2.4	3.6	2.5	3.6	2.5
	R-9	3.2	2.2	3.3	2.3	3.4	2.4	3.2	2.2	3.4	2.4
	R-10	3.3	2.3	3.4	2.4	3.6	2.5	3.2	2.2	3.5	2.5
	R-11	3.1	2.2	3.2	2.2	3.4	2.4	3.1	2.2	3.4	2.4
	R-12	3.2	2.2	3.2	2.2	3.4	2.4	3.2	2.2	3.5	2.5
	R-13	3.1	2.2	3.2	2.2	3.4	2.4	3.2	2.2	3.5	2.5
	R-14	3.0	2.1	3.0	2.1	3.3	2.3	3.0	2.1	3.4	2.4
	R-15	3.1	2.2	3.1	2.2	3.4	2.4	3.1	2.2	3.5	2.5
	R-16	3.1	2.2	3.1	2.2	3.5	2.5	3.1	2.2	3.5	2.5
	R-17	3.1	2.2	3.1	2.2	3.5	2.5	3.1	2.2	3.6	2.5
	R-18	4.5	3.2	4.3	3.0	4.0	2.8	4.5	3.2	4.2	2.9
	R-19	4.6	3.2	4.1	2.9	4.4	3.1	4.6	3.2	4.6	3.2
	R-20	6.2	4.3	5.9	4.1	4.4	3.1	6.3	4.4	4.8	3.4
	R-21	6.9	4.8	6.6	4.6	4.7	3.3	7.0	4.9	4.8	3.4
	R-22	3.8	2.7	3.8	2.7	3.7	2.6	3.7	2.6	3.6	2.5
	R-23	5.1	3.6	4.7	3.3	4.6	3.2	5.0	3.5	4.8	3.4
	R-24	5.4	3.8	5.4	3.8	4.3	3.0	5.4	3.8	4.5	3.2
	R-25	4.0	2.8	4.0	2.8	3.7	2.6	4.0	2.8	4.0	2.8
	R-26	5.2	3.6	5.0	3.5	4.2	2.9	5.2	3.6	4.4	3.1

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 3.0 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 Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA, November 1992.
4. Highlighted cells represent highest CO concentrations per analysis year.

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

		Existing (2011)		2015 Interim/Opening Year No-Build		2015 Interim/Opening Year Build		2040 Design Year No-Build		2040 Design Year Build	
	Receptor ID	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Figure 9 - Hydraulic Road & US 29 Signalized Intersection	A-1	8.0	5.6	6.9	4.8	5.7	4.0	7.3	5.1	7.0	4.9
	A-2	9.2	6.4	8.1	5.7	7.2	5.0	8.3	5.8	7.6	5.3
	A-3	10.0	7.0	8.4	5.9	7.7	5.4	8.9	6.2	7.9	5.5
	A-4	8.4	5.9	7.6	5.3	6.9	4.8	7.8	5.5	7.2	5.0
	A-5	8.3	5.8	7.3	5.1	6.8	4.8	7.4	5.2	7.0	4.9
	A-6	8.1	5.7	7.1	5.0	6.7	4.7	7.0	4.9	6.5	4.6
	A-7	7.4	5.2	6.7	4.7	6.4	4.5	6.5	4.6	6.3	4.4
	A-8	6.5	4.6	5.9	4.1	5.4	3.8	5.8	4.1	5.4	3.8
	A-9	8.8	6.2	8.0	5.6	7.6	5.3	7.3	5.1	7.2	5.0
	A-10	9.2	6.4	8.2	5.7	7.9	5.5	7.6	5.3	7.3	5.1
	A-11	9.4	6.6	8.1	5.7	7.7	5.4	8.2	5.7	7.6	5.3
	A-12	8.7	6.1	8.0	5.6	6.8	4.8	8.0	5.6	7.6	5.3
	A-13	8.3	5.8	7.5	5.3	6.5	4.6	7.7	5.4	7.3	5.1
	A-14	7.6	5.3	6.7	4.7	5.9	4.1	7.1	5.0	6.8	4.8
	A-15	8.4	5.9	7.4	5.2	6.2	4.3	8.7	6.1	7.6	5.3
	A-16	9.8	6.9	8.7	6.1	7.4	5.2	8.6	6.0	8.0	5.6
	A-17	10.4	7.3	8.9	6.2	8.2	5.7	8.7	6.1	8.3	5.8
	A-18	9.9	6.9	8.8	6.2	8.0	5.6	8.8	6.2	8.0	5.6
	A-19	8.0	5.6	7.4	5.2	6.4	4.5	7.4	5.2	6.7	4.7
	A-20	7.5	5.3	7.1	5.0	6.4	4.5	7.5	5.3	6.7	4.7
	A-21	7.5	5.3	7.0	4.9	5.6	3.9	7.3	5.1	6.6	4.6
	A-22	6.5	4.6	6.0	4.2	5.2	3.6	6.1	4.3	5.7	4.0
	A-23	7.7	5.4	7.0	4.9	6.0	4.2	7.3	5.1	6.8	4.8
	A-24	8.6	6.0	7.8	5.5	7.1	5.0	7.6	5.3	7.1	5.0
	A-25	10.2	7.1	9.0	6.3	7.8	5.5	8.9	6.2	8.4	5.9
	A-26	8.2	5.7	7.4	5.2	6.7	4.7	8.0	5.6	6.8	4.8
	A-27	7.8	5.5	6.9	4.8	6.2	4.3	7.1	5.0	6.4	4.5
	A-28	7.8	5.5	6.8	4.8	6.0	4.2	7.0	4.9	6.4	4.5
Figure 10 - Rio Road & US 29 Signalized Intersection	B-1	7.3	5.1	6.7	4.7	5.5	3.9	7.3	5.1	7.0	4.9
	B-2	8.5	6.0	7.1	5.0	6.0	4.2	8.4	5.9	7.8	5.5
	B-3	9.5	6.7	8.5	6.0	7.9	5.5	8.0	5.6	7.7	5.4
	B-4	8.3	5.8	7.1	5.0	6.6	4.6	6.8	4.8	6.5	4.6
	B-5	7.4	5.2	6.9	4.8	6.4	4.5	6.6	4.6	6.3	4.4
	B-6	6.4	4.5	5.8	4.1	5.2	3.6	5.9	4.1	5.6	3.9
	B-7	5.5	3.9	5.0	3.5	4.7	3.3	5.0	3.5	4.7	3.3
	B-8	5.9	4.1	5.6	3.9	5.3	3.7	5.3	3.7	5.3	3.7
	B-9	6.7	4.7	6.2	4.3	5.7	4.0	6.1	4.3	6.0	4.2
	B-10	8.7	6.1	8.2	5.7	7.7	5.4	7.2	5.0	6.7	4.7
	B-11	8.9	6.2	7.8	5.5	7.4	5.2	7.9	5.5	7.6	5.3
	B-12	8.4	5.9	7.1	5.0	6.3	4.4	7.3	5.1	6.9	4.8
	B-13	7.8	5.5	6.4	4.5	5.6	3.9	6.8	4.8	6.3	4.4
	B-14	7.0	4.9	5.9	4.1	5.0	3.5	6.2	4.3	5.7	4.0
	B-15	6.3	4.4	5.3	3.7	5.0	3.5	5.5	3.9	5.1	3.6
	B-16	6.5	4.6	5.8	4.1	5.1	3.6	5.8	4.1	5.6	3.9
	B-17	7.6	5.3	6.4	4.5	5.8	4.1	6.9	4.8	6.4	4.5
	B-18	7.1	5.0	6.6	4.6	6.2	4.3	6.4	4.5	6.0	4.2
	B-19	8.1	5.7	7.0	4.9	6.5	4.6	6.1	4.3	5.9	4.1
	B-20	7.2	5.0	6.8	4.8	6.1	4.3	5.4	3.8	4.9	3.4
	B-21	5.7	4.0	4.8	3.4	4.4	3.1	4.4	3.1	4.2	2.9
	B-22	5.0	3.5	4.2	2.9	3.9	2.7	4.1	2.9	4.0	2.8
	B-23	6.7	4.7	5.9	4.1	5.2	3.6	4.9	3.4	4.6	3.2
	B-24	8.6	6.0	7.3	5.1	6.7	4.7	6.0	4.2	5.8	4.1
	B-25	7.4	5.2	6.7	4.7	6.2	4.3	6.7	4.7	6.4	4.5
	B-26	8.0	5.6	7.6	5.3	7.1	5.0	7.6	5.3	7.2	5.0
	B-27	7.6	5.3	7.0	4.9	6.1	4.3	7.2	5.0	6.9	4.8
	B-28	7.2	5.0	6.2	4.3	5.4	3.8	6.9	4.8	6.4	4.5

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 3.0 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 Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA, November 1992.
4. Highlighted cells represent highest CO concentrations per analysis year.

US 29 which represent urban conditions. These surface roughness coefficients are documented in VDOT's *Consultant Guide*. Additional assumptions used of the analysis can be found in **Appendix D** of the air study.

Table 6 provides a summary of the CO levels at sensitive receptors selected along the proposed project corridor for each analysis year. As shown in **Table 6** (**Figure 2** through **Figure 8**), the highest 1-hour and 8-hour CO concentrations under Existing (2011) conditions were projected at 6.9 and 4.8 ppm, respectively, including the assumed background concentration of 3.0 ppm for the 1-hour standard. Under Interim/Opening Year No-Build (2015) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 6.6 and 4.6 ppm, respectively. Under Interim/Opening Year Build (2015) 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 7.0 and 4.9 ppm, respectively. Under Design Year Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 4.8 and 3.4 ppm, respectively. The highest CO concentrations for all analysis years were projected at receptor site R21, which represents athletic fields at the St. Annes Belfield Lower School. CO levels decrease under both the Interim/Opening Year and Design Year Build conditions when compared to the respective No-Build condition as a result of the realignment of the existing Route 250 bypass further south and away from St. Annes Belfield Lower School. In addition to the selected receptors along the project corridor, additional CO hot-spot modeling was performed at the two worst-case signalized intersections along the Route 29 corridor in the vicinity of the project area. The results of the CO hot-spot modeling are summarized in the following paragraphs.

The first signalized intersection included in the air study is located at Hydraulic Road & Route 29 (**Figure 9**). A summary of the CO concentrations at this intersection are shown in **Table 7**. Including the assumed background concentration of 3.0 ppm for the 1-hour standard, the highest 1-hour and 8-hour CO concentrations under Existing (2011) conditions were projected at 10.4 and 7.3 ppm, respectively. Under Interim/Opening Year No-Build (2015) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 9.0 and 6.3 ppm, respectively. Under Interim/Opening Year Build (2015) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 8.2 and 5.7 ppm, respectively. Under Design Year No-Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 8.9 and 6.2 ppm, respectively. Under Design Year Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 8.4 and 5.9 ppm, respectively. The highest CO concentration for Existing (2011) and Interim/Opening Year Build (2015) was projected at receptor site A-17, which represents a parking lot / open area. The highest CO concentrations for Interim/Opening Year No-Build (2015), Design Year No-Build (2040) and Design Year Build (2040) was projected at site A-25, which also represents an open area and parking lot. In addition, site A-3 also had the same predicted peak CO concentrations as site A-25 in Design Year No-Build (2040) condition.

The second signalized intersection included in the air study is located at Rio Road & Route 29 (**Figure 10**). It should be noted that as part of another transportation improvement project identified in UnJAM2035, the proposed design elements at this intersection include a grade separated interchange. However, to assume a worst-case modeling condition, the existing footprint was modeled for each analysis scenario. In

addition, the intersection was modeled as a signalized intersection using SYNCHRO model outputs for all dispersion modeling. It can be assumed that any improvement tied to the grade separation project will only further improve air quality and CO concentrations by removing all queuing and idling vehicles associated with a signalized intersection and move those vehicles through more efficiently under free-flow conditions. Therefore, the modeling presented in this study is considered a worst-case condition.

A summary of the CO concentrations at this intersection are also shown in **Table 7**. Including the assumed background concentration of 3.0 ppm for the 1-hour standard, the highest 1-hour and 8-hour CO concentrations under Existing (2011) conditions were projected at 9.5 and 6.7 ppm, respectively. Under Interim/Opening Year No-Build (2015) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 8.5 and 6.0 ppm, respectively. Under Interim/Opening Year Build (2015) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 7.9 and 5.5 ppm, respectively. Under Design Year No-Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 8.4 and 5.9 ppm, respectively. Under Design Year Build (2040) conditions, the highest 1-hour and 8-hour CO concentrations were projected to be 7.8 and 5.5 ppm, respectively. The highest CO concentration for Existing (2011), Interim/Opening Year No-Build (2015) and Interim/Opening Year Build (2015) conditions was projected at receptor site B-3, which represents an open area / parking lot. The highest CO concentrations for Design Year No-Build (2040) and Design Year Build (2040) conditions, was projected at site B-2, which also represents open areas and parking lots.

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 and 8-hour CO projections improve along the existing U.S. 29 corridor when comparing No-Build to Build conditions. As such, the improvements in CO levels can be attributed to the reduction in congestion while improving traffic flow.

Since the projected 1-hour and 8-hour CO concentrations do not exceed the NAAQS at each of the worst-case locations chosen for analysis throughout the existing and new Route 29 project corridors, then it is assumed that all other locations within the project corridors will also remain below the CO NAAQS.

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

The project is located in Albemarle County and the City of Charlottesville, an area designated as attainment for PM_{10} and for $PM_{2.5}$. Although the project is designated as attainment for $PM_{2.5}$ for regional conformity purposes, the project was still evaluated to determine whether it is a project of air quality concern. As per 40 CFR 93.123(b)(1) of the federal conformity rule, PM_{10} and $PM_{2.5}$ hotspot analyses are generally required for the following types of projects:

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

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

The study area includes a new highway project primarily servicing gasoline vehicle traffic and will not involve a significant number or increase in diesel vehicles. The proposed bypass is projected to carry only 27,800 vehicles per day with 3% diesel trucks. The project is also designed to improve traffic flow and vehicle speeds within the existing Route 29 corridor, and will not involve any increases in idling. In addition, the project does not affect intersections that are at LOS D, E or F with a significant number of diesel vehicles, or those that will change to LOS D, E or F because of increased traffic volumes from a significant number of diesel vehicles related to the project. Last, criteria (iii), (iv), and (v) noted above are not applicable to this project.

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

VII. Mobile Source Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources, and stationary sources (e.g., factories or refineries). MSAT are a subset of the 188 air toxics defined by the Clean Air Act. EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (*Federal Register*, Vol. 72, No. 37, page 8430, February 26, 2007) and identified seven compounds of particular concern: acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. These are compounds that EPA's 1999 *National-Scale Air Toxics Assessment* (NATA) identified as the most significant contributors to cancer and non-cancer health risk from breathing outdoor air toxics, and that have a significant contribution from mobile sources.

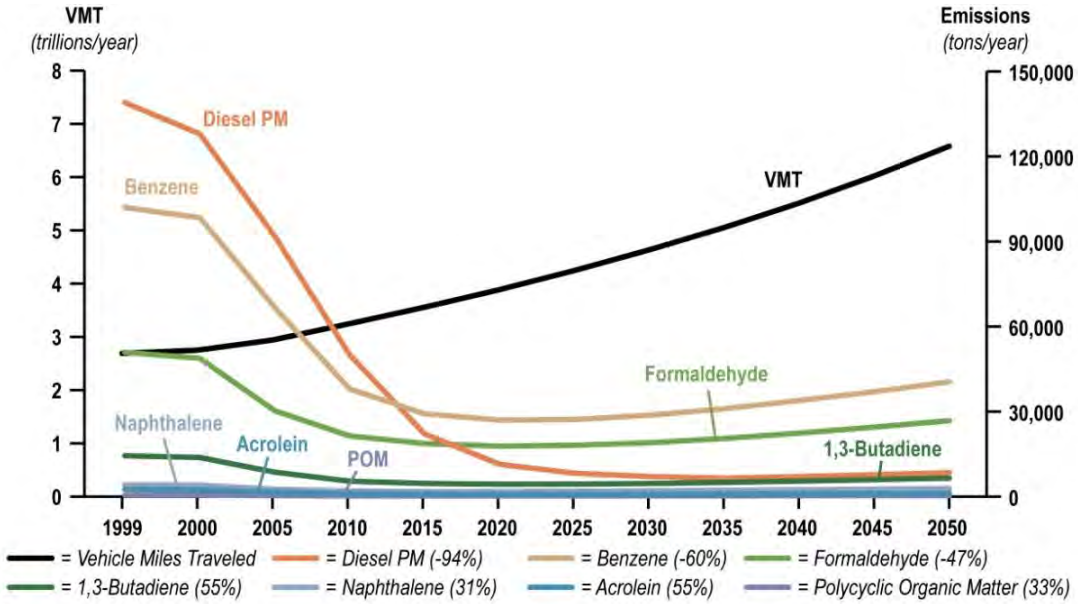
The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle miles traveled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rates for the priority MSAT is projected from 1999 to 2050, as shown in **Figure 11**.

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.

In accordance with the updated guidance, the project area is best characterized as a project with "low potential MSAT effects" since design year traffic is projected to be significantly less than 140,000 to 150,000 annual average daily traffic (AADT) thresholds. As a result, a qualitative assessment of emissions projections was prepared in accordance with Appendix B of the guidance. Project specific elements, including increased travel speeds and improvements to level-of-service (LOS) and the overall effects on MSAT emissions are discussed below. As stipulated in the guidance, additional discussion is required including information that is incomplete or unavailable for a project specific assessment of MSAT impacts. Additionally, air toxics is an emerging field and current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that would result from the transportation project. Appendix C from the guidance is also included in the discussions below to satisfy this portion of the requirements.

When analyzing the project, the amount of MSAT emissions emitted is generally proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix and diesel vehicle percentages remain constant for each alternative. On a regional basis, 2040 VMT on the roadway network in the project area is only anticipated to increase 0.3% with the project in place when compared to the 2040 No-Build scenario. The Build VMT estimates are slightly higher than that for the No-Build alternative, because the project could facilitate new development that attracts trips that would not otherwise occur in the area.

Figure 11
NATIONAL MSAT EMISSION TRENDS 1999 – 2050 FOR VEHICLES OPERATING ON ROADWAYS USING EPA's MOBILE6.2 MODEL



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

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

As such, regional MSAT emissions in the project area are expected to be insignificantly higher as a result of this project. Also, regardless of whether the project is built, MSAT emissions are anticipated to be significantly lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent from 1999 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that a marginal increase in MSAT emissions in the study area due to the project will be significantly offset by EPA's national control programs.

Under the Build alternative, there may be localized areas where VMT could increase and other areas where VMT could decrease. The localized increases in MSAT emissions would be most pronounced along the proposed bypass because it is on new location but as stated previously, any localized increase has a low potential for MSAT effects. In contrast, MSAT emissions are expected to decrease in the existing Route 29 corridor because VMT in the corridor would decrease as traffic shifts from the existing corridor to the bypass corridor. Regardless, even if localized increases do occur in some areas, total MSAT emissions will be substantially lower in future years due to fleet turnover and the implementation of EPA's vehicle and fuel regulations.

In summary, for the design year Build scenario on the roadway network in the project area regional MSAT emissions are expected to be significantly lower than those emitted today even when taking into account the small projected increase in vehicle miles traveled. Additionally, the implementation of EPA's vehicle and fuel regulations will result in significantly lower MSAT levels for the area in the future than exist today, as shown in **Figure 11**.

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

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA's MOBILE6.2 model, the California EPA's Emfac2007 model, and the EPA's DraftMOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in an NCHRP study (http://www.epa.gov/scram001/dispersion_alt.htm#hyroad), which documents poor model performance at ten sites across the country - three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location. There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of

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

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. This trend will both reduce the background level of MSAT as well as the possibility of even minor MSAT emission increases from this project.

VIII. Potential Greenhouse Gas Impacts

There are currently no federal or state requirements to analyze greenhouse gas emissions for individual transportation projects. Climate change is inherently a global issue that is more appropriately addressed, minimally, at the regional level or even more appropriately at the state or national level by assessing the impact of transportation systems as opposed to individual projects. Further, climate change does not readily lend itself to an analysis at the local level, and national air quality standards have not been established. Relative to the scope of global climate change, any change in greenhouse gas levels as a result of the project are likely to be insignificant, which can be concluded by comparing the anticipated VMT and speeds along the project corridor for both the build and no-build conditions.

IX. 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.

X. 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, Albemarle County and the City of Charlottesville have been designated as attainment for ozone and $PM_{2.5}$; therefore, the project is not subject to regional or project level conformity requirements. As such, since the project is located in an attainment area for the pollutants listed above, it has met all conformity requirements as outlined by the CAAA of 1990.

XI. Conclusion

Based on the results of the CO hotspot analysis, peak CO concentrations for the Build Alternatives are predicted to be below the CO NAAQS in both the Interim/Opening Year Build (2015) and Design Year Build (2040) scenarios for each of the worst-case locations analyzed along the proposed project corridor, as well as for the worst-case signalized intersections evaluated in the air study. Therefore, it is anticipated that all other locations within the project corridor will also remain below the CO NAAQS and no mitigation measures are required.

Additionally, Albemarle County and the City of Charlottesville have been designated as attainment with the 8-hour ozone and fine particulate matter standards, and therefore transportation conformity requirements do not apply. The project was evaluated for fine particulate matter impacts and was found not to be a project of air quality concern. In addition, FHWA has determined that the Route 29 Bypass Project will generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As shown in **Table 2,** design year traffic is projected to be less than the 140,000 to 150,000 annual average daily traffic (AADT) thresholds identified in FHWA's guidance and as such, the project area is best characterized as a project with "low potential MSAT effects".

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*.

Finally, the project is not expected to cause or contribute to any violations of the NAAQS, worsen any existing violations, or interfere with the attainment of any applicable NAAQS.

APPENDIX A
MOBILE INPUT / OUTPUT FILES

```
*EMIT Data File
*Charlottseville Bypass Air Study
*Existing 2011 - Charlottesville
*
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
```

```
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5

END OF RUN         :
```

```
*EMIT Data File
*Charlottseville Bypass Air Study
*2015 - Charlottesville
*
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2015; Month - January; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR      : 2015
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2015; Month - January; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2015
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2015; Month - January; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2015
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
```

```
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
```

```
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
```

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MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1
```

```
SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 12.9 mph, LOCAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 34.6 mph, RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : RampFVMT.d
FUEL RVP            : 13.5

END OF RUN          :
```

```
*EMIT Data File
*Charlottseville Bypass Air Study
*Design Year 2040 - Charlottesville
*
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
```

```
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
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0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
ABSOLUTE HUMIDITY   : 75.0
AVERAGE SPEED       : 50.0 NON-RAMP
FUEL RVP            : 13.5

END OF RUN          :

NO REFUELING        :
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```
EXPAND EXHAUST      :
REG DIST            : C:\EMIT - Easy Mobile Inventory Tool\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
```

```
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1
```

```
SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 12.9 mph, LOCAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\charlottesville11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5

END OF RUN         :
```

```
*EMIT Data File
*Charlottseville Bypass Air Study
*Existing 2011 - Albemarle County
*
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
```

```
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.34270 0.09110 0.30310 0.09340 0.04300 0.03900 0.00380 0.00320
0.00240 0.00870 0.01030 0.01120 0.03980 0.00200 0.00100 0.00530
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       : 30 30
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5

END OF RUN         :
```

```
*EMIT Data File
*Charlottsville Bypass Air Study
*Opening Year 2015 - Albemarle County
*
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2015; Month - January; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR      : 2015
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2015; Month - January; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2015
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2015; Month - January; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2015
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
```

```
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
```

```
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
```

```
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1
```

```
SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 12.9 mph, LOCAL
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.30710 0.09710 0.32320 0.09960 0.04580 0.03910 0.00390 0.00320
0.00240 0.00880 0.01040 0.01120 0.04000 0.00200 0.00100 0.00520
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2015; Month - January; Speed - 34.6 mph, RAMP
CALENDAR YEAR       : 2015
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
ABSOLUTE HUMIDITY   : 75.0
VMT BY FACILITY     : RampFVMT.d
FUEL RVP            : 13.5

END OF RUN          :
```

```
*EMIT Data File
*Charlottsville Bypass Air Study
*Design Year 2040 Conditions - Albemarle County
*
*
MOBILE6 INPUT FILE :
POLLUTANTS         : CO
RUN DATA           :

NO REFUELING       :
EXPAND EXHAUST     :
REG DIST           : C:\EMIT - Easy Mobile Inventory Tool\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 2.5 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 5.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 10.0 mph, NON-RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
```

```
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 15.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 20.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 25.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 30.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
```

```
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 35.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 40.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 45.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 50.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 55.0 mph, NON-RAMP
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 2.5 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 5.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 10.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 15.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 20.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 25.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 30.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
```

```
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 35.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 40.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1

SCENARIO RECORD     : EMIT | Calendar Year - 2040; Month - January; Speed - 45.0 mph, ARTERIAL
CALENDAR YEAR       : 2040
EVALUATION MONTH    : 1
ALTITUDE            : 1
MIN/MAX TEMP        : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS       :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR         : HVMT.DEF
STARTS PER DAY      : STPERDAY.D
START DIST          : SDIST.D
FUEL PROGRAM        : 1
```

```
SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 50.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 55.0 mph, ARTERIAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 12.9 mph, LOCAL
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
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\cville bypass\albemarle11.d
VMT FRACTIONS      :
0.27920 0.10160 0.33830 0.10420 0.04800 0.03960 0.00390 0.00330
0.00250 0.00890 0.01050 0.01140 0.04050 0.00200 0.00100 0.00510
VMT BY HOUR        : HVMT.DEF
STARTS PER DAY     : STPERDAY.D
START DIST         : SDIST.D
FUEL PROGRAM       : 1

SCENARIO RECORD    : EMIT | Calendar Year - 2040; Month - January; Speed - 34.6 mph, RAMP
CALENDAR YEAR      : 2040
EVALUATION MONTH   : 1
ALTITUDE           : 1
MIN/MAX TEMP       : 30 30
ABSOLUTE HUMIDITY  : 75.0
VMT BY FACILITY    : RampFVMT.d
FUEL RVP           : 13.5

END OF RUN         :
```

Route 29 Bypass Air Study
CO Emission Rate Summary

Albemarle County

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2011	Idle*	132.7167	132.7167
CO	2011	5	35.20798	35.20798
CO	2011	10	25.05455	26.14041
CO	2011	15	21.84025	23.114
CO	2011	20	21.03551	21.54841
CO	2011	25	20.54388	20.67949
CO	2011	30	20.22153	20.24568
CO	2011	35	20.22951	20.22951
CO	2011	40	20.76987	20.76987
CO	2011	45	21.33774	21.33774
CO	2011	50	21.93099	21.93099
CO	2011	55	22.55043	22.55043
CO	2011	12.9	Local	21.37651
CO	2011	34.6	Ramp	25.30338

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

City of Charlottesville

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2011	Idle*	141.3011	141.3011
CO	2011	5	37.32921	37.32921
CO	2011	10	26.5318	27.69275
CO	2011	15	23.15537	24.51688
CO	2011	20	22.33433	22.88181
CO	2011	25	21.83384	21.98037
CO	2011	30	21.50512	21.53121
CO	2011	35	21.52685	21.52685
CO	2011	40	22.10993	22.10993
CO	2011	45	22.71829	22.71829
CO	2011	50	23.35003	23.35003
CO	2011	55	24.00588	24.00588
CO	2011	12.9	Local	22.58363
CO	2011	34.6	Ramp	26.89203

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

Albemarle County

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2015	Idle*	110.2216	110.2216
CO	2015	5	29.51522	29.51522
CO	2015	10	21.10478	22.04544
CO	2015	15	18.41412	19.51972
CO	2015	20	17.7662	18.21639
CO	2015	25	17.37093	17.48566
CO	2015	30	17.11187	17.1323
CO	2015	35	17.11539	17.11539
CO	2015	40	17.58312	17.58312
CO	2015	45	18.07326	18.07326
CO	2015	50	18.58422	18.58422
CO	2015	55	19.11675	19.11675
CO	2015	12.9	Local	18.3455
CO	2015	34.6	Ramp	20.98494

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

City of Charlottesville

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2015	Idle*	117.0803	117.0803
CO	2015	5	31.24639	31.24639
CO	2015	10	22.31378	23.31748
CO	2015	15	19.48071	20.66034
CO	2015	20	18.81379	19.294
CO	2015	25	18.40756	18.53159
CO	2015	30	18.14089	18.16298
CO	2015	35	18.15225	18.15225
CO	2015	40	18.65286	18.65286
CO	2015	45	19.17469	19.17469
CO	2015	50	19.71628	19.71628
CO	2015	55	20.2783	20.2783
CO	2015	12.9	Local	19.35985
CO	2015	34.6	Ramp	22.23312

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

Albemarle County

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2040	Idle*	88.97303	88.97304
CO	2040	5	23.77881	23.77881
CO	2040	10	16.90668	17.7062
CO	2040	15	14.70708	15.64865
CO	2040	20	14.20347	14.5911
CO	2040	25	13.89704	13.99213
CO	2040	30	13.69636	13.71328
CO	2040	35	13.69795	13.69795
CO	2040	40	14.09634	14.09634
CO	2040	45	14.51221	14.51221
CO	2040	50	14.94451	14.94451
CO	2040	55	15.39393	15.39393
CO	2040	12.9	Local	14.91522
CO	2040	34.6	Ramp	16.66191

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

City of Charlottesville

Pollutant	Calendar Year	Speed (mph)	Emission F (g/VMT) Freeway	Arterial
CO	2040	Idle*	92.90943	92.90943
CO	2040	5	24.77196	24.77196
CO	2040	10	17.58867	18.42773
CO	2040	15	15.30018	16.28846
CO	2040	20	14.78387	15.19109
CO	2040	25	14.46995	14.57095
CO	2040	30	14.26409	14.28208
CO	2040	35	14.26857	14.26857
CO	2040	40	14.6858	14.6858
CO	2040	45	15.12002	15.12002
CO	2040	50	15.57023	15.57023
CO	2040	55	16.03706	16.03706
CO	2040	12.9	Local	15.51671
CO	2040	34.6	Ramp	17.28823

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

APPENDIX B
CAL3QHC INPUT / OUTPUT FILES

1 CAL3QHC - (DATED 95221)

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

Run Began on 7/30/2012 at 10:36:36

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS - R18 through R26

DATE : 07/30/ 0
TIME : 10:36:36

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. OFF RAMP TO IVY	*	134.2	-387.1	181.3	-354.4	*	57.	55.	AG	321.	21.8	0.0	9.8		
2. OFF RAMP TO IVY	*	181.3	-354.4	279.3	-275.5	*	126.	51.	AG	321.	21.8	0.0	9.8		
3. OFF RAMP TO IVY	*	279.3	-275.5	296.8	-203.0	*	75.	14.	AG	321.	21.8	0.0	9.8		
4. ON RAMP TO 250 NB	*	258.6	-169.5	279.3	-222.9	*	57.	159.	AG	604.	21.8	0.0	9.8		
5. ON RAMP TO 250 NB	*	279.3	-222.9	245.0	-304.2	*	88.	203.	AG	604.	21.8	0.0	9.8		
6. ON RAMP TO 250 NB	*	245.0	-304.2	184.5	-314.6	*	61.	260.	AG	604.	21.8	0.0	9.8		
7. ON RAMP TO 250 NB	*	184.5	-314.6	175.7	-287.5	*	28.	342.	AG	604.	21.8	0.0	9.8		
8. ON RAMP TO 250 NB	*	175.7	-287.5	178.1	-256.4	*	31.	4.	AG	604.	21.8	0.0	9.8		
9. ON RAMP TO 250 NB	*	178.1	-256.4	182.1	-216.6	*	40.	6.	AG	604.	21.8	0.0	9.8		
10. ON RAMP TO 250 NB	*	182.1	-216.6	213.1	-139.3	*	83.	22.	AG	604.	21.8	0.0	9.8		
11. OFF RAMP TO IVY	*	207.6	-87.5	159.0	-207.8	*	130.	202.	AG	692.	21.8	0.0	9.8		
12. OFF RAMP TO IVY	*	159.0	-207.8	114.3	-217.4	*	46.	258.	AG	692.	21.8	0.0	9.8		
13. OFF RAMP TO IVY	*	114.3	-217.4	130.3	-101.8	*	117.	8.	AG	692.	21.8	0.0	9.8		
14. OFF RAMP TO IVY	*	130.3	-101.8	189.2	-95.4	*	59.	84.	AG	692.	21.8	0.0	9.8		
15. ON RAMP TO 250 SB	*	134.2	-43.6	112.7	-101.0	*	61.	201.	AG	367.	21.8	0.0	9.8		
16. ON RAMP TO 250 SB	*	112.7	-101.0	98.4	-210.2	*	110.	187.	AG	367.	21.8	0.0	9.8		
17. ON RAMP TO 250 SB	*	98.4	-210.2	123.9	-313.0	*	106.	166.	AG	367.	21.8	0.0	9.8		
18. ON RAMP TO 250 SB	*	123.9	-313.0	106.4	-393.5	*	82.	192.	AG	367.	21.8	0.0	9.8		
19. IVY EB	*	292.8	-201.4	437.9	-292.3	*	171.	122.	AG	765.	22.7	0.0	13.4		
20. IVY EB	*	437.9	-292.3	626.0	-360.8	*	200.	110.	AG	765.	22.7	0.0	13.4		
21. IVY EB	*	626.0	-360.8	1014.9	-485.2	*	408.	108.	AG	765.	22.7	0.0	13.4		
22. IVY ROAD EB	*	-569.5	265.6	-442.0	225.8	*	134.	107.	AG	670.	22.7	0.0	9.8		
23. IVY ROAD EB	*	-442.0	225.8	-257.1	187.5	*	189.	102.	AG	670.	22.7	0.0	9.8		
24. IVY ROAD EB	*	-257.1	187.5	-65.8	131.7	*	199.	106.	AG	670.	22.7	0.0	9.8		
25. IVY ROAD EB	*	-65.8	131.7	135.0	-29.3	*	257.	129.	AG	670.	22.7	0.0	9.8		
26. IVY EB	*	134.7	-30.7	237.1	-136.9	*	148.	136.	AG	995.	22.7	0.0	13.4		
27. IVY EB	*	237.1	-136.9	290.5	-197.1	*	80.	138.	AG	995.	22.7	0.0	13.4		
28. IVY WB	*	1011.5	-469.7	807.8	-395.2	*	217.	290.	AG	876.	22.7	0.0	13.4		
29. IVY WB	*	807.8	-395.2	430.3	-254.8	*	403.	290.	AG	876.	22.7	0.0	13.4		
30. IVY WB	*	430.3	-254.8	222.8	-93.4	*	263.	308.	AG	876.	22.7	0.0	13.4		
31. IVY WB	*	222.8	-93.4	87.5	45.7	*	194.	316.	AG	767.	22.7	0.0	9.8		
32. IVY WB	*	87.5	45.7	-4.5	119.0	*	118.	309.	AG	767.	22.7	0.0	9.8		
33. IVY WB	*	-4.5	119.0	-52.9	140.1	*	53.	294.	AG	767.	22.7	0.0	9.8		
34. IVY WB	*	-52.9	140.1	-291.4	209.7	*	248.	286.	AG	767.	22.7	0.0	9.8		
35. IVY WB	*	-291.4	209.7	-560.9	278.0	*	278.	284.	AG	767.	22.7	0.0	9.8		
36. 250 ALIGNMENT	*	40.3	-734.3	112.3	-402.6	*	339.	12.	AG	4309.	24.0	0.0	20.7		

37.	250 ALIGNMENT	*	112.3	-402.6	179.4	-202.7	*	211.	19.	AG	4309.	24.0	0.0	20.7	
38.	250 ALIGNMENT	*	179.4	-202.7	215.4	-102.1	*	107.	20.	AG	4309.	24.0	0.0	20.7	
39.	250 REALIGN	*	214.1	-92.1	267.5	58.1	*	159.	20.	AG	4992.	24.0	0.0	20.7	
40.	OLD IVY ROAD	*	943.2	-328.1	871.2	-284.7	*	84.	301.	AG	564.	21.5	0.0	13.4	
41.	OLD IVY ROAD	*	871.2	-284.7	697.3	-248.6	*	178.	282.	AG	564.	21.5	0.0	13.4	
42.	OLD IVY ROAD	*	697.3	-248.6	606.6	-171.6	*	119.	310.	AG	564.	21.5	0.0	13.4	
43.	OLD IVY ROAD	*	606.6	-171.6	524.7	-84.7	*	119.	317.	AG	564.	21.5	0.0	13.4	
44.	OLD IVY ROAD	*	524.7	-84.7	465.0	-42.5	*	73.	305.	AG	564.	21.5	0.0	13.4	

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS

DATE : 07/30/ 0
TIME : 10:36:36

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. OLD IVY ROAD	*	465.0	-42.5	212.9	45.7	*	267.	289.	AG	564.	21.5	0.0	13.4		
46. OLD IVY ROAD	*	212.9	45.7	93.7	94.2	*	129.	292.	AG	564.	21.5	0.0	13.4		
47. OLD IVY ROAD	*	93.7	94.2	19.1	168.7	*	105.	315.	AG	564.	21.5	0.0	13.4		
48. OLD IVY ROAD	*	19.1	168.7	-76.5	311.5	*	172.	326.	AG	564.	21.5	0.0	13.4		
49. OLD IVY ROAD	*	-76.5	311.5	-138.6	376.1	*	90.	316.	AG	564.	21.5	0.0	13.4		
50. 250 NB	*	267.6	62.2	310.9	169.2	*	115.	22.	AG	2296.	24.0	0.0	13.4		
51. 250 NB	*	310.9	169.2	378.9	282.6	*	132.	31.	AG	2296.	24.0	0.0	13.4		
52. 250 NB	*	378.9	282.6	447.0	389.6	*	127.	32.	AG	2296.	24.0	0.0	13.4		
53. 250 NB	*	447.0	389.6	491.3	447.9	*	73.	37.	AG	2296.	24.0	0.0	13.4		
54. 250 NB	*	491.3	447.9	609.0	525.7	*	141.	57.	AG	2296.	24.0	0.0	13.4		
55. 250 NB	*	609.0	525.7	719.3	597.0	*	131.	57.	AG	2296.	24.0	0.0	13.4		
56. 250 NB	*	719.3	597.0	780.8	618.6	*	65.	71.	AG	2296.	24.0	0.0	13.4		
57. 250 NB	*	780.8	618.6	820.8	627.3	*	41.	78.	AG	2296.	24.0	0.0	13.4		
58. 250 NB	*	820.1	626.8	1082.2	669.4	*	266.	81.	AG	2296.	24.0	0.0	13.4		
59. 250 NB	*	1082.2	669.4	1250.9	695.6	*	171.	81.	AG	2296.	24.0	0.0	13.4		
60. 250 NB	*	1250.9	695.6	1475.2	728.4	*	227.	82.	AG	2296.	24.0	0.0	13.4		
61. 250 NB	*	1475.2	728.4	1665.2	766.0	*	194.	79.	AG	2296.	24.0	0.0	13.4		
62. 250 NB	*	1665.2	766.0	2110.6	885.6	*	461.	75.	AG	2296.	24.0	0.0	13.4		
63. SB 250	*	2105.7	900.3	1832.2	826.6	*	283.	255.	AG	2629.	24.0	0.0	10.0		
64. SB 250	*	1832.2	826.6	1524.3	751.3	*	317.	256.	AG	2629.	24.0	0.0	10.0		
65. SB 250	*	1524.3	751.3	1388.4	730.0	*	138.	261.	AG	2629.	24.0	0.0	10.0		
66. SB 250	*	1388.4	730.0	1191.9	703.8	*	198.	262.	AG	2629.	24.0	0.0	10.0		
67. SB 250	*	1191.9	703.8	934.8	664.5	*	260.	261.	AG	2629.	24.0	0.0	10.0		
68. SB 250	*	934.8	664.5	816.9	643.2	*	120.	260.	AG	2629.	24.0	0.0	10.0		
69. SB 250	*	815.8	640.9	726.8	618.2	*	92.	256.	AG	2629.	24.0	0.0	13.4		
70. SB 250	*	726.8	618.2	587.5	531.2	*	164.	238.	AG	2629.	24.0	0.0	13.4		
71. SB 250	*	587.5	531.2	509.4	479.8	*	93.	237.	AG	2629.	24.0	0.0	13.4		
72. SB 250	*	509.4	479.8	482.7	457.1	*	35.	230.	AG	2629.	24.0	0.0	13.4		
73. SB 250	*	482.7	457.1	461.0	430.4	*	34.	219.	AG	2629.	24.0	0.0	13.4		
74. SB 250	*	461.0	430.4	403.7	349.3	*	99.	215.	AG	2629.	24.0	0.0	13.4		
75. SB 250	*	403.7	349.3	307.8	203.1	*	175.	213.	AG	2629.	24.0	0.0	13.4		
76. SB 250	*	307.8	203.1	249.5	62.7	*	152.	203.	AG	2629.	24.0	0.0	13.4		
77. SANDRIDGE ROAD	*	924.4	501.7	928.0	531.6	*	30.	7.	AG	87.	21.5	0.0	13.4		
78. SANDRIDGE ROAD	*	928.0	531.6	936.8	554.9	*	25.	21.	AG	87.	21.5	0.0	13.4		
79. SANDRIDGE ROAD	*	936.8	554.9	951.8	586.5	*	35.	25.	AG	87.	21.5	0.0	13.4		
80. SANDRIDGE ROAD	*	951.8	586.5	952.8	610.8	*	24.	2.	AG	87.	21.5	0.0	13.4		
81. SANDRIDGE ROAD	*	952.8	610.8	948.7	637.7	*	27.	351.	AG	87.	21.5	0.0	13.4		
82. SANDRIDGE ROAD	*	1314.2	-2.7	1244.8	71.8	*	102.	317.	AG	87.	21.5	0.0	13.4		
83. SANDRIDGE ROAD	*	1244.8	71.8	1044.8	154.6	*	216.	292.	AG	87.	21.5	0.0	13.4		
84. SANDRIDGE ROAD	*	1044.8	154.6	982.8	211.5	*	84.	313.	AG	87.	21.5	0.0	13.4		
85. SANDRIDGE ROAD	*	982.8	211.5	936.8	304.4	*	104.	334.	AG	87.	21.5	0.0	13.4		
86. SANDRIDGE ROAD	*	936.8	304.4	924.3	501.9	*	198.	356.	AG	87.	21.5	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS

DATE : 07/30/ 0
TIME : 10:36:36

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-18	676.1	899.9	1.8
2. R-19	1077.6	916.8	1.8
3. R-20	769.2	699.1	1.8
4. R-21	474.1	510.5	1.8
5. R-22	592.6	18.3	1.8
6. R-23	14.6	-9.5	1.8
7. R-24	1106.6	765.7	1.8
8. R-25	1123.5	486.3	1.8
9. R-26	1488.8	812.8	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT 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
0.	3.0	3.0	3.0	3.0	3.4	3.4	3.0	3.6	3.0
10.	3.0	3.0	3.0	3.0	3.4	3.5	3.0	3.6	3.0
20.	3.0	3.0	3.0	3.0	3.3	3.4	3.0	3.6	3.0
30.	3.0	3.0	3.0	3.0	3.4	3.4	3.0	3.6	3.0
40.	3.0	3.0	3.0	3.0	3.4	3.6	3.0	3.6	3.0
50.	3.0	3.0	3.0	3.0	3.5	5.1	3.0	3.8	3.0
60.	3.0	3.0	3.0	3.4	3.3	4.8	3.0	4.0	3.0
70.	3.0	3.0	3.0	6.4	3.0	4.1	3.0	3.4	3.0
80.	3.0	3.0	3.9	6.4	3.0	4.2	3.5	3.0	3.7
90.	3.3	3.2	5.1	4.8	3.0	4.2	4.6	3.0	4.7
100.	3.6	3.7	4.8	4.7	3.0	4.0	4.6	3.0	4.6
110.	3.7	3.7	4.6	4.5	3.0	4.0	4.4	3.0	4.4
120.	3.6	3.8	4.4	4.5	3.0	4.7	4.3	3.0	4.3
130.	3.6	3.6	4.2	4.4	3.0	4.0	4.2	3.0	4.3
140.	3.6	3.6	4.1	4.4	3.1	3.9	4.1	3.0	4.2
150.	3.6	3.5	4.2	4.4	3.3	3.8	4.1	3.0	4.1
160.	3.4	3.6	4.1	4.5	3.3	3.8	4.1	3.0	4.1
170.	3.4	3.5	4.2	4.7	3.3	3.8	4.1	3.0	4.1
180.	3.5	3.6	4.1	4.7	3.3	3.4	4.1	3.0	4.1
190.	3.5	3.5	4.2	5.4	3.3	3.0	4.1	3.0	4.1

200.	*	4.5	3.6	4.5	6.9	3.3	3.0	4.1	3.0	4.1
210.	*	4.0	3.8	5.4	5.1	3.2	3.0	4.2	3.0	4.3
220.	*	3.0	4.2	6.2	3.1	3.7	3.0	4.5	3.1	4.4
230.	*	3.0	4.6	4.9	3.0	3.8	3.0	4.8	3.3	4.6
240.	*	3.0	3.1	3.1	3.0	3.8	3.0	5.4	3.3	5.0
250.	*	3.0	3.0	3.0	3.0	3.8	3.0	4.3	3.4	5.2
260.	*	3.0	3.0	3.0	3.0	3.8	3.0	3.0	3.4	3.7
270.	*	3.0	3.0	3.0	3.0	3.8	3.0	3.0	3.4	3.0
280.	*	3.0	3.0	3.0	3.0	3.7	3.0	3.0	3.5	3.0
290.	*	3.0	3.0	3.0	3.0	3.4	3.0	3.0	3.7	3.0
300.	*	3.0	3.0	3.0	3.0	3.5	3.2	3.0	3.7	3.0
310.	*	3.0	3.0	3.0	3.0	3.4	3.2	3.0	3.6	3.0
320.	*	3.0	3.0	3.0	3.0	3.4	3.2	3.0	3.6	3.0
330.	*	3.0	3.0	3.0	3.0	3.4	3.3	3.0	3.6	3.0
340.	*	3.0	3.0	3.0	3.0	3.5	3.3	3.0	3.6	3.0
350.	*	3.0	3.0	3.0	3.0	3.4	3.5	3.0	3.6	3.0
MAX	*	4.5	4.6	6.2	6.9	3.8	5.1	5.4	4.0	5.2
DEGR.	*	200	230	220	200	270	50	240	60	250

THE HIGHEST CONCENTRATION OF 6.90 PPM OCCURRED AT RECEPTOR REC4 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS

DATE : 07/30/ 0
TIME : 10:36:36

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 200	REC2 230	REC3 220	REC4 200	REC5 270	REC6 50	REC7 240	REC8 60	REC9 250
1	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
3	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
5	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
7	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
9	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
11	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
13	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
15	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
17	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
19	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
21	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
23	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
25	0.0	0.0	0.0	0.0	0.1	0.2	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
27	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

29	*	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
31	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
32	*	0.0	0.0	0.0	0.0	0.0	0.1	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
34	*	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
36	*	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
37	*	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
38	*	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0
39	*	0.1	0.0	0.2	0.3	0.5	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
41	*	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
43	*	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
45	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS

LINK #	*	CO/LINK (PPM) ANGLE (DEGREES) REC1 200	REC2 230	REC3 220	REC4 200	REC5 270	REC6 50	REC7 240	REC8 60	REC9 250
46	*	0.0	0.0	0.0	0.0	0.0	0.1	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
48	*	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
50	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
51	*	0.1	0.1	0.1	0.3	0.0	0.2	0.0	0.0	0.0
52	*	0.1	0.1	0.1	0.7	0.0	0.2	0.1	0.0	0.0
53	*	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
54	*	0.2	0.1	0.3	0.0	0.0	0.1	0.1	0.0	0.1
55	*	0.0	0.2	0.6	0.0	0.0	0.1	0.1	0.0	0.1
56	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
57	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
58	*	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.3
59	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
60	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
61	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
62	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
63	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
64	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
65	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
66	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
67	*	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4
68	*	0.0	0.1	0.0	0.0	0.0	0.1	0.4	0.0	0.1
69	*	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0
70	*	0.0	0.2	1.1	0.0	0.0	0.1	0.1	0.0	0.1
71	*	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1
72	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
74	*	0.1	0.1	0.1	1.0	0.0	0.1	0.1	0.0	0.0
75	*	0.1	0.1	0.2	0.5	0.0	0.3	0.1	0.0	0.0
76	*	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
77	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

85	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	*	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 7/30/2012 at 10:39:16

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 No-Build CONDITIONS - R18 through R26

DATE : 07/30/ 0
TIME : 10:39:16

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. OFF RAMP TO IVY	*	134.2	-387.1	181.3	-354.4	*	57.	55.	AG	346.	18.4	0.0	9.8		
2. OFF RAMP TO IVY	*	181.3	-354.4	279.3	-275.5	*	126.	51.	AG	346.	18.4	0.0	9.8		
3. OFF RAMP TO IVY	*	279.3	-275.5	296.8	-203.0	*	75.	14.	AG	346.	18.4	0.0	9.8		
4. ON RAMP TO 250 NB	*	258.6	-169.5	279.3	-222.9	*	57.	159.	AG	607.	18.4	0.0	9.8		
5. ON RAMP TO 250 NB	*	279.3	-222.9	245.0	-304.2	*	88.	203.	AG	607.	18.4	0.0	9.8		
6. ON RAMP TO 250 NB	*	245.0	-304.2	184.5	-314.6	*	61.	260.	AG	607.	18.4	0.0	9.8		
7. ON RAMP TO 250 NB	*	184.5	-314.6	175.7	-287.5	*	28.	342.	AG	607.	18.4	0.0	9.8		
8. ON RAMP TO 250 NB	*	175.7	-287.5	178.1	-256.4	*	31.	4.	AG	607.	18.4	0.0	9.8		
9. ON RAMP TO 250 NB	*	178.1	-256.4	182.1	-216.6	*	40.	6.	AG	607.	18.4	0.0	9.8		
10. ON RAMP TO 250 NB	*	182.1	-216.6	213.1	-139.3	*	83.	22.	AG	607.	18.4	0.0	9.8		
11. OFF RAMP TO IVY	*	207.6	-87.5	159.0	-207.8	*	130.	202.	AG	1018.	18.4	0.0	9.8		
12. OFF RAMP TO IVY	*	159.0	-207.8	114.3	-217.4	*	46.	258.	AG	1018.	18.4	0.0	9.8		
13. OFF RAMP TO IVY	*	114.3	-217.4	130.3	-101.8	*	117.	8.	AG	1018.	18.4	0.0	9.8		
14. OFF RAMP TO IVY	*	130.3	-101.8	189.2	-95.4	*	59.	84.	AG	1018.	18.4	0.0	9.8		
15. ON RAMP TO 250 SB	*	134.2	-43.6	112.7	-101.0	*	61.	201.	AG	396.	18.4	0.0	9.8		
16. ON RAMP TO 250 SB	*	112.7	-101.0	98.4	-210.2	*	110.	187.	AG	396.	18.4	0.0	9.8		
17. ON RAMP TO 250 SB	*	98.4	-210.2	123.9	-313.0	*	106.	166.	AG	396.	18.4	0.0	9.8		
18. ON RAMP TO 250 SB	*	123.9	-313.0	106.4	-393.5	*	82.	192.	AG	396.	18.4	0.0	9.8		
19. IVY EB	*	292.8	-201.4	437.9	-292.3	*	171.	122.	AG	738.	19.2	0.0	13.4		
20. IVY EB	*	437.9	-292.3	626.0	-360.8	*	200.	110.	AG	738.	19.2	0.0	13.4		
21. IVY EB	*	626.0	-360.8	1014.9	-485.2	*	408.	108.	AG	738.	19.2	0.0	13.4		
22. IVY ROAD EB	*	-569.5	265.6	-442.0	225.8	*	134.	107.	AG	719.	19.2	0.0	9.8		
23. IVY ROAD EB	*	-442.0	225.8	-257.1	187.5	*	189.	102.	AG	719.	19.2	0.0	9.8		
24. IVY ROAD EB	*	-257.1	187.5	-65.8	131.7	*	199.	106.	AG	719.	19.2	0.0	9.8		
25. IVY ROAD EB	*	-65.8	131.7	135.0	-29.3	*	257.	129.	AG	719.	19.2	0.0	9.8		
26. IVY EB	*	134.7	-30.7	237.1	-136.9	*	148.	136.	AG	995.	22.7	0.0	13.4		
27. IVY EB	*	237.1	-136.9	290.5	-197.1	*	80.	138.	AG	995.	22.7	0.0	13.4		
28. IVY WB	*	1011.5	-469.7	807.8	-395.2	*	217.	290.	AG	845.	19.2	0.0	13.4		
29. IVY WB	*	807.8	-395.2	430.3	-254.8	*	403.	290.	AG	845.	19.2	0.0	13.4		
30. IVY WB	*	430.3	-254.8	222.8	-93.4	*	263.	308.	AG	845.	19.2	0.0	13.4		
31. IVY WB	*	222.8	-93.4	87.5	45.7	*	194.	316.	AG	823.	19.2	0.0	9.8		
32. IVY WB	*	87.5	45.7	-4.5	119.0	*	118.	309.	AG	823.	19.2	0.0	9.8		
33. IVY WB	*	-4.5	119.0	-52.9	140.1	*	53.	294.	AG	823.	19.2	0.0	9.8		
34. IVY WB	*	-52.9	140.1	-291.4	209.7	*	248.	286.	AG	823.	19.2	0.0	9.8		
35. IVY WB	*	-291.4	209.7	-560.9	278.0	*	278.	284.	AG	823.	19.2	0.0	9.8		
36. 250 ALIGNMENT	*	40.3	-734.3	112.3	-402.6	*	339.	12.	AG	4744.	20.3	0.0	20.7		

37.	250 ALIGNMENT	*	112.3	-402.6	179.4	-202.7	*	211.	19.	AG	4744.	20.3	0.0	20.7
38.	250 ALIGNMENT	*	179.4	-202.7	215.4	-102.1	*	107.	20.	AG	4744.	20.3	0.0	20.7
39.	250 REALIGN	*	214.1	-92.1	267.5	58.1	*	159.	20.	AG	5312.	20.3	0.0	20.7
40.	OLD IVY ROAD	*	943.2	-328.1	871.2	-284.7	*	84.	301.	AG	569.	18.2	0.0	13.4
41.	OLD IVY ROAD	*	871.2	-284.7	697.3	-248.6	*	178.	282.	AG	569.	18.2	0.0	13.4
42.	OLD IVY ROAD	*	697.3	-248.6	606.6	-171.6	*	119.	310.	AG	569.	18.2	0.0	13.4
43.	OLD IVY ROAD	*	606.6	-171.6	524.7	-84.7	*	119.	317.	AG	569.	18.2	0.0	13.4
44.	OLD IVY ROAD	*	524.7	-84.7	465.0	-42.5	*	73.	305.	AG	569.	18.2	0.0	13.4

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

DATE : 07/30/ 0
TIME : 10:39:16

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. OLD IVY ROAD	*	465.0	-42.5	212.9	45.7	*	267.	289.	AG	569.	18.2	0.0	13.4		
46. OLD IVY ROAD	*	212.9	45.7	93.7	94.2	*	129.	292.	AG	569.	18.2	0.0	13.4		
47. OLD IVY ROAD	*	93.7	94.2	19.1	168.7	*	105.	315.	AG	569.	18.2	0.0	13.4		
48. OLD IVY ROAD	*	19.1	168.7	-76.5	311.5	*	172.	326.	AG	569.	18.2	0.0	13.4		
49. OLD IVY ROAD	*	-76.5	311.5	-138.6	376.1	*	90.	316.	AG	569.	18.2	0.0	13.4		
50. 250 NB	*	267.6	62.2	310.9	169.2	*	115.	22.	AG	2477.	20.3	0.0	13.4		
51. 250 NB	*	310.9	169.2	378.9	282.6	*	132.	31.	AG	2477.	20.3	0.0	13.4		
52. 250 NB	*	378.9	282.6	447.0	389.6	*	127.	32.	AG	2477.	20.3	0.0	13.4		
53. 250 NB	*	447.0	389.6	491.3	447.9	*	73.	37.	AG	2477.	20.3	0.0	13.4		
54. 250 NB	*	491.3	447.9	609.0	525.7	*	141.	57.	AG	2477.	20.3	0.0	13.4		
55. 250 NB	*	609.0	525.7	719.3	597.0	*	131.	57.	AG	2477.	20.3	0.0	13.4		
56. 250 NB	*	719.3	597.0	780.8	618.6	*	65.	71.	AG	2477.	20.3	0.0	13.4		
57. 250 NB	*	780.8	618.6	820.8	627.3	*	41.	78.	AG	2477.	20.3	0.0	13.4		
58. 250 NB	*	820.1	626.8	1082.2	669.4	*	266.	81.	AG	2477.	20.3	0.0	13.4		
59. 250 NB	*	1082.2	669.4	1250.9	695.6	*	171.	81.	AG	2477.	20.3	0.0	13.4		
60. 250 NB	*	1250.9	695.6	1475.2	728.4	*	227.	82.	AG	2477.	20.3	0.0	13.4		
61. 250 NB	*	1475.2	728.4	1665.2	766.0	*	194.	79.	AG	2477.	20.3	0.0	13.4		
62. 250 NB	*	1665.2	766.0	2110.6	885.6	*	461.	75.	AG	2477.	20.3	0.0	13.4		
63. SB 250	*	2105.7	900.3	1832.2	826.6	*	283.	255.	AG	2835.	20.3	0.0	10.0		
64. SB 250	*	1832.2	826.6	1524.3	751.3	*	317.	256.	AG	2835.	20.3	0.0	10.0		
65. SB 250	*	1524.3	751.3	1388.4	730.0	*	138.	261.	AG	2835.	20.3	0.0	10.0		
66. SB 250	*	1388.4	730.0	1191.9	703.8	*	198.	262.	AG	2835.	20.3	0.0	10.0		
67. SB 250	*	1191.9	703.8	934.8	664.5	*	260.	261.	AG	2835.	20.3	0.0	10.0		
68. SB 250	*	934.8	664.5	816.9	643.2	*	120.	260.	AG	2835.	20.3	0.0	10.0		
69. SB 250	*	815.8	640.9	726.8	618.2	*	92.	256.	AG	2835.	20.3	0.0	13.4		
70. SB 250	*	726.8	618.2	587.5	531.2	*	164.	238.	AG	2835.	20.3	0.0	13.4		
71. SB 250	*	587.5	531.2	509.4	479.8	*	93.	237.	AG	2835.	20.3	0.0	13.4		
72. SB 250	*	509.4	479.8	482.7	457.1	*	35.	230.	AG	2835.	20.3	0.0	13.4		
73. SB 250	*	482.7	457.1	461.0	430.4	*	34.	219.	AG	2835.	20.3	0.0	13.4		
74. SB 250	*	461.0	430.4	403.7	349.3	*	99.	215.	AG	2835.	20.3	0.0	13.4		
75. SB 250	*	403.7	349.3	307.8	203.1	*	175.	213.	AG	2835.	20.3	0.0	13.4		
76. SB 250	*	307.8	203.1	249.5	62.7	*	152.	203.	AG	2835.	20.3	0.0	13.4		
77. SANDRIDGE ROAD	*	924.4	501.7	928.0	531.6	*	30.	7.	AG	88.	18.2	0.0	13.4		
78. SANDRIDGE ROAD	*	928.0	531.6	936.8	554.9	*	25.	21.	AG	88.	18.2	0.0	13.4		
79. SANDRIDGE ROAD	*	936.8	554.9	951.8	586.5	*	35.	25.	AG	88.	18.2	0.0	13.4		
80. SANDRIDGE ROAD	*	951.8	586.5	952.8	610.8	*	24.	2.	AG	88.	18.2	0.0	13.4		
81. SANDRIDGE ROAD	*	952.8	610.8	948.7	637.7	*	27.	351.	AG	88.	18.2	0.0	13.4		
82. SANDRIDGE ROAD	*	1314.2	-2.7	1244.8	71.8	*	102.	317.	AG	88.	18.2	0.0	13.4		
83. SANDRIDGE ROAD	*	1244.8	71.8	1044.8	154.6	*	216.	292.	AG	88.	18.2	0.0	13.4		
84. SANDRIDGE ROAD	*	1044.8	154.6	982.8	211.5	*	84.	313.	AG	88.	18.2	0.0	13.4		
85. SANDRIDGE ROAD	*	982.8	211.5	936.8	304.4	*	104.	334.	AG	88.	18.2	0.0	13.4		
86. SANDRIDGE ROAD	*	936.8	304.4	924.3	501.9	*	198.	356.	AG	88.	18.2	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

DATE : 07/30/ 0
TIME : 10:39:16

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-18	676.1	899.9	1.8
2. R-19	1077.6	916.8	1.8
3. R-20	769.2	699.1	1.8
4. R-21	474.1	510.5	1.8
5. R-22	592.6	18.3	1.8
6. R-23	14.6	-9.5	1.8
7. R-24	1106.6	765.7	1.8
8. R-25	1123.5	486.3	1.8
9. R-26	1488.8	812.8	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 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
0.	3.0	3.0	3.0	3.0	3.4	3.4	3.0	3.6	3.0
10.	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.6	3.0
20.	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.6	3.0
30.	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.6	3.0
40.	3.0	3.0	3.0	3.0	3.3	3.4	3.0	3.6	3.0
50.	3.0	3.0	3.0	3.0	3.5	4.7	3.0	3.8	3.0
60.	3.0	3.0	3.0	3.3	3.3	4.4	3.0	4.0	3.0
70.	3.0	3.0	3.0	5.8	3.0	3.9	3.0	3.4	3.0
80.	3.0	3.0	3.8	6.1	3.0	4.0	3.4	3.0	3.6
90.	3.3	3.2	4.9	4.7	3.0	4.0	4.2	3.0	4.6
100.	3.6	3.6	4.6	4.5	3.0	4.0	4.5	3.0	4.5
110.	3.6	3.7	4.4	4.5	3.0	4.0	4.3	3.0	4.3
120.	3.5	3.6	4.3	4.4	3.0	4.6	4.1	3.0	4.2
130.	3.5	3.6	4.1	4.2	3.0	3.8	4.1	3.0	4.1
140.	3.4	3.6	4.0	4.3	3.0	3.9	3.9	3.0	4.0
150.	3.4	3.5	4.0	4.2	3.3	3.8	3.9	3.0	4.1
160.	3.4	3.5	4.0	4.4	3.3	3.7	3.9	3.0	4.0
170.	3.4	3.5	4.1	4.4	3.2	3.8	3.9	3.0	4.1
180.	3.5	3.5	4.1	4.6	3.2	3.3	3.9	3.0	4.0
190.	3.5	3.5	4.1	5.0	3.3	3.0	3.9	3.0	4.0

200.	*	4.3	3.6	4.2	6.6	3.2	3.0	3.9	3.0	4.0
210.	*	3.8	3.7	5.1	5.1	3.2	3.0	4.1	3.0	4.1
220.	*	3.0	4.1	5.9	3.1	3.7	3.0	4.3	3.1	4.2
230.	*	3.0	4.0	4.9	3.0	3.7	3.0	4.6	3.2	4.5
240.	*	3.0	3.1	3.1	3.0	3.8	3.0	5.4	3.3	4.7
250.	*	3.0	3.0	3.0	3.0	3.8	3.0	4.3	3.3	5.0
260.	*	3.0	3.0	3.0	3.0	3.7	3.0	3.0	3.3	3.6
270.	*	3.0	3.0	3.0	3.0	3.6	3.0	3.0	3.4	3.0
280.	*	3.0	3.0	3.0	3.0	3.4	3.0	3.0	3.4	3.0
290.	*	3.0	3.0	3.0	3.0	3.4	3.0	3.0	3.6	3.0
300.	*	3.0	3.0	3.0	3.0	3.5	3.2	3.0	3.6	3.0
310.	*	3.0	3.0	3.0	3.0	3.4	3.2	3.0	3.6	3.0
320.	*	3.0	3.0	3.0	3.0	3.4	3.2	3.0	3.6	3.0
330.	*	3.0	3.0	3.0	3.0	3.4	3.3	3.0	3.6	3.0
340.	*	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.6	3.0
350.	*	3.0	3.0	3.0	3.0	3.4	3.5	3.0	3.6	3.0
MAX	*	4.3	4.1	5.9	6.6	3.8	4.7	5.4	4.0	5.0
DEGR.	*	200	220	220	200	250	50	240	60	250

THE HIGHEST CONCENTRATION OF 6.60 PPM OCCURRED AT RECEPTOR REC4 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

DATE : 07/30/ 0
TIME : 10:39:16

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 200	REC2 220	REC3 220	REC4 200	REC5 250	REC6 50	REC7 240	REC8 60	REC9 250
1	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
3	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
5	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
7	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
9	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
11	0.0	0.0	0.0	0.0	0.1	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
13	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
15	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
17	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
19	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
21	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
23	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
25	0.0	0.0	0.0	0.0	0.0	0.1	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
27	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

29	*	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	0.1	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
32	*	0.0	0.0	0.0	0.0	0.0	0.1	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
34	*	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
36	*	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
37	*	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
38	*	0.1	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.0
39	*	0.1	0.1	0.2	0.3	0.1	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
41	*	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
43	*	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
45	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

LINK #	*	CO/LINK (PPM) ANGLE (DEGREES) REC1 200	REC2 220	REC3 220	REC4 200	REC5 250	REC6 50	REC7 240	REC8 60	REC9 250
46	*	0.0	0.0	0.0	0.0	0.0	0.1	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
48	*	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
50	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.1	0.3	0.0	0.2	0.0	0.0	0.0
52	*	0.1	0.0	0.1	0.7	0.0	0.1	0.1	0.0	0.0
53	*	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0
54	*	0.2	0.0	0.3	0.0	0.0	0.1	0.1	0.0	0.1
55	*	0.0	0.0	0.6	0.0	0.0	0.1	0.1	0.0	0.1
56	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
57	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
58	*	0.0	0.2	0.0	0.0	0.0	0.1	0.5	0.0	0.3
59	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
60	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
61	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
62	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
63	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
64	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
65	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
66	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
67	*	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4
68	*	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.1
69	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
70	*	0.0	0.0	1.0	0.0	0.0	0.1	0.1	0.0	0.1
71	*	0.2	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0
72	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
74	*	0.1	0.0	0.1	0.9	0.0	0.1	0.1	0.0	0.0
75	*	0.1	0.0	0.1	0.4	0.0	0.3	0.1	0.0	0.0
76	*	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
77	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

85	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	*	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 7/13/2012 at 12:58:19

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD CONDITIONS - R18 through R26

DATE : 07/13/ 0
TIME : 12:58:19

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 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. ON RAMP TO 29 SB	920.5	655.0	796.9	636.8	125.	262.	AG	66.	18.2	0.0	9.8		
2. ON RAMP TO 29 SB	796.9	636.8	724.3	613.0	76.	252.	AG	66.	18.2	0.0	9.8		
3. ON RAMP TO 29 SB	724.3	613.0	599.6	530.2	150.	236.	AG	66.	18.2	0.0	9.8		
4. ON RAMP TO 29 SB	599.6	530.2	486.2	455.4	136.	237.	AG	66.	18.2	0.0	9.8		
5. ON RAMP TO 29 SB	486.2	455.4	408.0	342.0	138.	215.	AG	66.	18.2	0.0	9.8		
6. ON RAMP TO 29 SB	408.0	342.0	335.4	233.2	131.	214.	AG	66.	18.2	0.0	9.8		
7. ON RAMP TO 29 SB	335.4	233.2	301.4	176.5	66.	211.	AG	66.	18.2	0.0	9.8		
8. ON RAMP TO 29 SB	301.4	176.5	262.9	69.9	113.	200.	AG	66.	18.2	0.0	9.8		
9. OFF RAMP TO SANDRIDG	313.9	33.6	340.0	113.0	84.	18.	AG	43.	18.2	0.0	9.8		
10. OFF RAMP TO SANDRIDG	340.0	113.0	393.3	204.8	106.	30.	AG	43.	18.2	0.0	9.8		
11. OFF RAMP TO SANDRIDG	393.3	204.8	459.0	277.4	98.	42.	AG	43.	18.2	0.0	9.8		
12. OFF RAMP TO SANDRIDG	459.0	277.4	658.6	406.7	238.	57.	AG	43.	18.2	0.0	9.8		
13. OFF RAMP TO SANDRIDG	658.6	406.7	791.2	467.9	146.	65.	AG	43.	18.2	0.0	9.8		
14. OFF RAMP TO SANDRIDG	791.2	467.9	911.4	511.0	128.	70.	AG	43.	18.2	0.0	9.8		
15. ON RAMP TO 250	932.9	515.5	1152.9	600.5	236.	69.	AG	31.	18.2	0.0	9.8		
16. ON RAMP TO 250	1152.9	600.5	1343.4	664.0	201.	72.	AG	31.	18.2	0.0	9.8		
17. ON RAMP TO 250	1343.4	664.0	1465.8	708.2	130.	70.	AG	31.	18.2	0.0	9.8		
18. ON RAMP TO 250	1465.8	708.2	1698.3	767.2	240.	76.	AG	31.	18.2	0.0	9.8		
19. 250 OFF TO SANDRIDGE	1659.7	788.7	1533.9	753.6	131.	254.	AG	72.	18.2	0.0	9.8		
20. 250 OFF TO SANDRIDGE	1533.9	753.6	1421.6	727.5	115.	257.	AG	72.	18.2	0.0	9.8		
21. 250 OFF TO SANDRIDGE	1421.6	727.5	1259.5	704.8	164.	262.	AG	72.	18.2	0.0	9.8		
22. 250 OFF TO SANDRIDGE	1259.5	704.8	1010.0	669.7	252.	262.	AG	72.	18.2	0.0	9.8		
23. 250 OFF TO SANDRIDGE	1010.0	669.7	929.5	658.4	81.	262.	AG	72.	18.2	0.0	9.8		
24. NB 250 BYPASS	279.9	48.4	368.3	216.2	190.	28.	AG	1619.	20.3	0.0	13.4		
25. NB 250 BYPASS	368.3	216.2	599.6	436.1	319.	46.	AG	1619.	20.3	0.0	13.4		
26. NB 250 BYPASS	599.6	436.1	776.5	522.3	197.	64.	AG	1619.	20.3	0.0	13.4		
27. NB 250 BYPASS	776.5	522.3	917.1	563.1	146.	74.	AG	1619.	20.3	0.0	13.4		
28. NB 250 BYPASS	917.1	563.1	1123.4	626.6	216.	73.	AG	1619.	20.3	0.0	13.4		
29. NB 250 BYPASS	1123.4	626.6	1658.6	767.2	553.	75.	AG	1619.	20.3	0.0	13.4		
30. 250 BYPASS SB	1647.2	776.3	1266.3	669.7	396.	254.	AG	1819.	20.3	0.0	13.4		
31. 250 BYPASS SB	1266.3	669.7	765.1	542.7	517.	256.	AG	1819.	20.3	0.0	13.4		
32. 250 BYPASS SB	765.1	542.7	515.7	393.1	291.	239.	AG	1819.	20.3	0.0	13.4		
33. 250 BYPASS SB	515.7	393.1	443.1	327.3	98.	228.	AG	1819.	20.3	0.0	13.4		
34. 250 BYPASS SB	443.1	327.3	266.3	57.4	323.	213.	AG	1819.	20.3	0.0	13.4		
35. SANDRIDGE ROAD	925.5	508.2	924.2	659.1	151.	360.	AG	174.	19.2	0.0	13.4		
36. NB RAMP	424.5	271.6	659.8	442.1	291.	54.	AG	692.	20.3	0.0	13.4		

37. NB RAMP	*	659.8	442.1	821.6	536.3	*	187.	60.	AG	692.	20.3	0.0	13.4	
38. NB RAMP	*	821.6	536.3	886.3	614.2	*	101.	40.	AG	692.	20.3	0.0	13.4	
39. NB RAMP	*	886.3	614.2	926.0	689.2	*	85.	28.	AG	692.	20.3	0.0	13.4	
40. NB RAMP	*	926.0	689.2	933.3	705.4	*	18.	24.	AG	692.	20.3	0.0	13.4	
41. NB RAMP	*	933.3	705.4	945.1	783.3	*	79.	9.	AG	692.	20.3	0.0	13.4	
42. NB RAMP	*	945.1	783.3	928.9	899.5	*	117.	352.	AG	692.	20.3	0.0	13.4	
43. NB RAMP	*	928.9	899.5	845.1	998.0	*	129.	320.	AG	692.	20.3	0.0	13.4	
44. SB RAMP	*	826.0	977.4	867.1	892.2	*	95.	154.	AG	780.	20.3	0.0	13.4	

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/13/ 0
TIME : 12:58:19

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 RAMP	*	867.1	892.2	887.7	802.4	*	92.	167.	AG	780.	20.3	0.0	13.4		
46. SB RAMP	*	887.7	802.4	870.1	703.9	*	100.	190.	AG	780.	20.3	0.0	13.4		
47. SB RAMP	*	870.1	703.9	820.1	627.4	*	91.	213.	AG	780.	20.3	0.0	13.4		
48. SB RAMP	*	820.1	627.4	749.5	564.2	*	95.	228.	AG	780.	20.3	0.0	13.4		
49. SB RAMP	*	749.5	564.2	618.6	489.2	*	151.	240.	AG	780.	20.3	0.0	13.4		
50. L. SANDRIDGE ROAD	*	1312.7	-4.9	1164.2	108.3	*	187.	307.	AG	216.	19.2	0.0	13.4		
51. L. SANDRIDGE ROAD	*	1164.2	108.3	984.8	209.8	*	206.	300.	AG	216.	19.2	0.0	13.4		
52. L. SANDRIDGE ROAD	*	984.8	209.8	937.7	309.8	*	111.	335.	AG	216.	19.2	0.0	13.4		
53. L. SANDRIDGE ROAD	*	937.7	309.8	923.0	501.0	*	192.	356.	AG	216.	19.2	0.0	13.4		
54. L. SANDRIDGE ROAD	*	924.4	659.0	923.7	807.4	*	148.	360.	AG	120.	19.2	0.0	13.4		
55. L. SANDRIDGE ROAD	*	923.7	807.4	889.2	897.5	*	96.	339.	AG	120.	19.2	0.0	13.4		
56. L. SANDRIDGE ROAD	*	889.2	897.5	839.1	985.6	*	101.	330.	AG	120.	19.2	0.0	13.4		
57. 250 EAST OF PROJECT	*	1650.6	769.4	2222.2	922.4	*	592.	75.	AG	3515.	20.3	0.0	20.7		
58. OFF RAMP TO IVY	*	134.2	-387.1	181.3	-354.4	*	57.	55.	AG	384.	18.4	0.0	9.8		
59. OFF RAMP TO IVY	*	181.3	-354.4	279.3	-275.5	*	126.	51.	AG	384.	18.4	0.0	9.8		
60. OFF RAMP TO IVY	*	279.3	-275.5	296.8	-203.0	*	75.	14.	AG	384.	18.4	0.0	9.8		
61. ON RAMP TO 250 NB	*	258.6	-169.5	279.3	-222.9	*	57.	159.	AG	546.	18.4	0.0	9.8		
62. ON RAMP TO 250 NB	*	279.3	-222.9	245.0	-304.2	*	88.	203.	AG	546.	18.4	0.0	9.8		
63. ON RAMP TO 250 NB	*	245.0	-304.2	184.5	-314.6	*	61.	260.	AG	546.	18.4	0.0	9.8		
64. ON RAMP TO 250 NB	*	184.5	-314.6	175.7	-287.5	*	28.	342.	AG	546.	18.4	0.0	9.8		
65. ON RAMP TO 250 NB	*	175.7	-287.5	178.1	-256.4	*	31.	4.	AG	546.	18.4	0.0	9.8		
66. ON RAMP TO 250 NB	*	178.1	-256.4	182.1	-216.6	*	40.	6.	AG	546.	18.4	0.0	9.8		
67. ON RAMP TO 250 NB	*	182.1	-216.6	213.1	-139.3	*	83.	22.	AG	546.	18.4	0.0	9.8		
68. OFF RAMP TO IVY	*	207.6	-87.5	159.0	-207.8	*	130.	202.	AG	619.	18.4	0.0	9.8		
69. OFF RAMP TO IVY	*	159.0	-207.8	114.3	-217.4	*	46.	258.	AG	619.	18.4	0.0	9.8		
70. OFF RAMP TO IVY	*	114.3	-217.4	130.3	-101.8	*	117.	8.	AG	619.	18.4	0.0	9.8		
71. OFF RAMP TO IVY	*	130.3	-101.8	189.2	-95.4	*	59.	84.	AG	619.	18.4	0.0	9.8		
72. ON RAMP TO 250 SB	*	134.2	-43.6	112.7	-101.0	*	61.	201.	AG	439.	18.4	0.0	9.8		
73. ON RAMP TO 250 SB	*	112.7	-101.0	98.4	-210.2	*	110.	187.	AG	439.	18.4	0.0	9.8		
74. ON RAMP TO 250 SB	*	98.4	-210.2	123.9	-313.0	*	106.	166.	AG	439.	18.4	0.0	9.8		
75. ON RAMP TO 250 SB	*	123.9	-313.0	106.4	-393.5	*	82.	192.	AG	439.	18.4	0.0	9.8		
76. IVY EB	*	292.8	-201.4	437.9	-292.3	*	171.	122.	AG	686.	19.2	0.0	13.4		
77. IVY EB	*	437.9	-292.3	626.0	-360.8	*	200.	110.	AG	686.	19.2	0.0	13.4		
78. IVY EB	*	626.0	-360.8	1014.9	-485.2	*	408.	108.	AG	686.	19.2	0.0	13.4		
79. IVY ROAD EB	*	-569.5	265.6	-442.0	225.8	*	134.	107.	AG	731.	19.2	0.0	9.8		
80. IVY ROAD EB	*	-442.0	225.8	-257.1	187.5	*	189.	102.	AG	731.	19.2	0.0	9.8		
81. IVY ROAD EB	*	-257.1	187.5	-65.8	131.7	*	199.	106.	AG	731.	19.2	0.0	9.8		
82. IVY ROAD EB	*	-65.8	131.7	135.0	-29.3	*	257.	129.	AG	731.	19.2	0.0	9.8		
83. IVY EB	*	134.7	-30.7	237.1	-136.9	*	148.	136.	AG	911.	19.2	0.0	13.4		
84. IVY EB	*	237.1	-136.9	290.5	-197.1	*	80.	138.	AG	911.	19.2	0.0	13.4		
85. IVY WB	*	1011.5	-469.7	807.8	-395.2	*	217.	290.	AG	785.	19.2	0.0	13.4		
86. IVY WB	*	807.8	-395.2	430.3	-254.8	*	403.	290.	AG	785.	19.2	0.0	13.4		

87. IVY WB	*	430.3	-254.8	222.8	-93.4	*	263.	308.	AG	785.	19.2	0.0	13.4
88. IVY WB	*	222.8	-93.4	87.5	45.7	*	194.	316.	AG	837.	19.2	0.0	9.8
89. IVY WB	*	87.5	45.7	-4.5	119.0	*	118.	309.	AG	837.	19.2	0.0	9.8
90. IVY WB	*	-4.5	119.0	-52.9	140.1	*	53.	294.	AG	837.	19.2	0.0	9.8
91. IVY WB	*	-52.9	140.1	-291.4	209.7	*	248.	286.	AG	837.	19.2	0.0	9.8
92. IVY WB	*	-291.4	209.7	-560.9	278.0	*	278.	284.	AG	837.	19.2	0.0	9.8
93. 250 REALIGNMENT	*	40.3	-734.3	112.3	-402.6	*	339.	12.	AG	4958.	19.2	0.0	20.7
94. 250 REALIGNMENT	*	112.3	-402.6	179.4	-202.7	*	211.	19.	AG	4958.	19.2	0.0	20.7
95. 250 REALIGNMENT	*	179.4	-202.7	215.4	-102.1	*	107.	20.	AG	4958.	19.2	0.0	20.7

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/13/ 0
TIME : 12:58:19

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)
96. 250 REALIGN	*	214.1	-92.1	267.5	58.1	*	159.	20.	AG	3513.	19.2	0.0	20.7		
97. OLD IVY ROAD	*	943.2	-328.1	871.2	-284.7	*	84.	301.	AG	555.	18.2	0.0	13.4		
98. OLD IVY ROAD	*	871.2	-284.7	697.3	-248.6	*	178.	282.	AG	555.	18.2	0.0	13.4		
99. OLD IVY ROAD	*	697.3	-248.6	606.6	-171.6	*	119.	310.	AG	555.	18.2	0.0	13.4		
100. OLD IVY ROAD	*	606.6	-171.6	524.7	-84.7	*	119.	317.	AG	555.	18.2	0.0	13.4		
101. OLD IVY ROAD	*	524.7	-84.7	465.0	-42.5	*	73.	305.	AG	555.	18.2	0.0	13.4		
102. OLD IVY ROAD	*	465.0	-42.5	212.9	45.7	*	267.	289.	AG	555.	18.2	0.0	13.4		
103. OLD IVY ROAD	*	212.9	45.7	93.7	94.2	*	129.	292.	AG	555.	18.2	0.0	13.4		
104. OLD IVY ROAD	*	93.7	94.2	19.1	168.7	*	105.	315.	AG	555.	18.2	0.0	13.4		
105. OLD IVY ROAD	*	19.1	168.7	-76.5	311.5	*	172.	326.	AG	555.	18.2	0.0	13.4		
106. OLD IVY ROAD	*	-76.5	311.5	-138.6	376.1	*	90.	316.	AG	555.	18.2	0.0	13.4		
107. RAMP G	*	421.4	370.8	283.8	233.2	*	195.	225.	AG	66.	18.2	0.0	9.8		
108. RAMP G	*	283.8	233.2	87.8	108.9	*	232.	238.	AG	66.	18.2	0.0	9.8		
109. BYPASS NB	*	845.3	997.7	727.4	1147.1	*	190.	322.	AG	692.	20.3	0.0	13.4		
110. BYPASS NB	*	727.4	1147.1	656.2	1313.7	*	181.	337.	AG	692.	20.3	0.0	13.4		
111. BYPASS NB	*	656.2	1313.7	634.6	1464.1	*	152.	352.	AG	692.	20.3	0.0	13.4		
112. BYPASS SB	*	609.4	1462.3	621.1	1322.7	*	140.	175.	AG	826.	20.3	0.0	13.4		
113. BYPASS SB	*	621.1	1322.7	702.2	1134.5	*	205.	157.	AG	826.	20.3	0.0	13.4		
114. BYPASS SB	*	702.2	1134.5	823.7	977.0	*	199.	142.	AG	826.	20.3	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/13/ 0
TIME : 12:58:19

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

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. R-18	*	676.1	899.9	1.8	*
2. R-19	*	1077.6	916.8	1.8	*
3. R-20	*	769.2	699.1	1.8	*
4. R-21	*	474.1	510.5	1.8	*

5. R-22	*	592.6	18.3	1.8	*
6. R-23	*	14.6	-9.5	1.8	*
7. R-24	*	1106.6	765.7	1.8	*
8. R-25	*	1123.5	486.3	1.8	*
9. R-26	*	1488.8	812.8	1.8	*

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD 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
0.	3.1	3.0	3.0	3.0	3.2	3.2	3.0	3.4	3.0
10.	3.1	3.0	3.0	3.0	3.2	3.2	3.0	3.3	3.0
20.	3.1	3.0	3.0	3.0	3.0	3.2	3.0	3.4	3.0
30.	3.2	3.0	3.0	3.0	3.1	3.2	3.0	3.4	3.0
40.	3.2	3.0	3.1	3.0	3.1	3.2	3.0	3.4	3.0
50.	3.1	3.0	3.1	3.0	3.1	3.4	3.0	3.4	3.0
60.	3.0	3.0	3.1	3.0	3.1	3.6	3.0	3.4	3.0
70.	3.0	3.0	3.1	3.2	3.0	3.5	3.1	3.3	3.1
80.	3.1	3.0	3.4	3.9	3.0	3.6	3.3	3.1	3.4
90.	3.1	3.1	3.5	3.6	3.0	3.4	3.4	3.0	3.6
100.	3.3	3.2	3.5	3.6	3.0	3.5	3.5	3.0	3.6
110.	3.2	3.3	3.5	3.4	3.0	3.6	3.4	3.0	3.6
120.	3.1	3.2	3.4	3.5	3.0	3.5	3.4	3.0	3.6
130.	3.2	3.2	3.5	3.4	3.0	3.4	3.4	3.0	3.5
140.	3.2	3.2	3.5	3.5	3.0	3.4	3.4	3.0	3.5
150.	3.2	3.2	3.5	3.5	3.0	3.4	3.4	3.0	3.5
160.	3.2	3.2	3.4	3.5	3.0	3.4	3.3	3.0	3.5
170.	3.2	3.2	3.3	3.5	3.0	3.5	3.4	3.0	3.5
180.	3.2	3.2	3.6	3.6	3.0	3.2	3.3	3.0	3.5
190.	3.2	3.2	3.6	3.5	3.1	3.1	3.4	3.0	3.5
200.	3.3	3.2	3.4	3.8	3.0	3.0	3.4	3.0	3.5
210.	3.0	3.2	3.7	3.4	3.1	3.0	3.4	3.0	3.5
220.	3.0	3.2	3.3	3.0	3.3	3.0	3.4	3.0	3.6
230.	3.0	3.1	3.0	3.0	3.2	3.0	3.6	3.0	3.7
240.	3.0	3.1	3.0	3.0	3.2	3.0	3.3	3.0	3.7
250.	3.0	3.1	3.0	3.0	3.3	3.0	3.0	3.0	3.4
260.	3.0	3.0	3.0	3.0	3.3	3.0	3.0	3.2	3.1
270.	3.0	3.1	3.0	3.0	3.2	3.0	3.0	3.3	3.0
280.	3.0	3.1	3.0	3.0	3.3	3.0	3.0	3.3	3.0
290.	3.0	3.1	3.0	3.0	3.2	3.0	3.1	3.4	3.0
300.	3.0	3.0	3.0	3.0	3.2	3.0	3.0	3.3	3.0
310.	3.0	3.0	3.0	3.0	3.2	3.2	3.0	3.4	3.0
320.	3.0	3.0	3.0	3.0	3.2	3.2	3.0	3.4	3.0
330.	3.0	3.0	3.0	3.0	3.2	3.2	3.0	3.4	3.0
340.	3.0	3.0	3.0	3.0	3.2	3.1	3.0	3.4	3.0
350.	3.0	3.0	3.0	3.0	3.2	3.2	3.0	3.3	3.0
MAX	3.3	3.3	3.7	3.9	3.3	3.6	3.6	3.4	3.7
DEGR.	200	110	210	80	280	110	230	0	230

THE HIGHEST CONCENTRATION OF 3.90 PPM OCCURRED AT RECEPTOR REC4 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/13/ 0
TIME : 12:58:19

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 200	REC2 110	REC3 210	REC4 80	REC5 280	REC6 110	REC7 230	REC8 0	REC9 230
1	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
3	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
5	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
7	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
9	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
11	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
13	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
15	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
17	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
19	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
21	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
23	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	0.1	0.0	0.0	0.0	0.0
25	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0
27	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
28	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
29	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.3
30	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3
31	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.2	0.1
32	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0
33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	0.1	0.0	0.0	0.0	0.1	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
36	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
38	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
40	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
42	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
44	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

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD CONDITIONS

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 200	REC2 110	REC3 210	REC4 80	REC5 280	REC6 110	REC7 230	REC8 0	REC9 230
46	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
48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	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
55	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
57	0.0	0.1	0.0	0.1	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
59	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
61	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
63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	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
67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
88	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
94	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
96	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0
97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2015 BUILD CONDITIONS

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 200	REC2 110	REC3 210	REC4 80	REC5 280	REC6 110	REC7 230	REC8 0	REC9 230

99	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
103	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
104	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
109	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
111	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
112	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
113	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
114	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

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

Run Began on 7/30/2012 at 10:42:46

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NO-Build 2040 CONDITIONS - R18 through R26

DATE : 07/30/ 0
TIME : 10:42:46

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. OFF RAMP TO IVY	*	134.2	-387.1	181.3	-354.4	*	57.	55.	AG	484.	14.5	0.0	9.8		
2. OFF RAMP TO IVY	*	181.3	-354.4	279.3	-275.5	*	126.	51.	AG	484.	14.5	0.0	9.8		
3. OFF RAMP TO IVY	*	279.3	-275.5	296.8	-203.0	*	75.	14.	AG	484.	14.5	0.0	9.8		
4. ON RAMP TO 250 NB	*	258.6	-169.5	279.3	-222.9	*	57.	159.	AG	634.	14.5	0.0	9.8		
5. ON RAMP TO 250 NB	*	279.3	-222.9	245.0	-304.2	*	88.	203.	AG	634.	14.5	0.0	9.8		
6. ON RAMP TO 250 NB	*	245.0	-304.2	184.5	-314.6	*	61.	260.	AG	634.	14.5	0.0	9.8		
7. ON RAMP TO 250 NB	*	184.5	-314.6	175.7	-287.5	*	28.	342.	AG	634.	14.5	0.0	9.8		
8. ON RAMP TO 250 NB	*	175.7	-287.5	178.1	-256.4	*	31.	4.	AG	634.	14.5	0.0	9.8		
9. ON RAMP TO 250 NB	*	178.1	-256.4	182.1	-216.6	*	40.	6.	AG	634.	14.5	0.0	9.8		
10. ON RAMP TO 250 NB	*	182.1	-216.6	213.1	-139.3	*	83.	22.	AG	634.	14.5	0.0	9.8		
11. OFF RAMP TO IVY	*	207.6	-87.5	159.0	-207.8	*	130.	202.	AG	726.	14.5	0.0	9.8		
12. OFF RAMP TO IVY	*	159.0	-207.8	114.3	-217.4	*	46.	258.	AG	726.	14.5	0.0	9.8		
13. OFF RAMP TO IVY	*	114.3	-217.4	130.3	-101.8	*	117.	8.	AG	726.	14.5	0.0	9.8		
14. OFF RAMP TO IVY	*	130.3	-101.8	189.2	-95.4	*	59.	84.	AG	726.	14.5	0.0	9.8		
15. ON RAMP TO 250 SB	*	134.2	-43.6	112.7	-101.0	*	61.	201.	AG	554.	14.5	0.0	9.8		
16. ON RAMP TO 250 SB	*	112.7	-101.0	98.4	-210.2	*	110.	187.	AG	554.	14.5	0.0	9.8		
17. ON RAMP TO 250 SB	*	98.4	-210.2	123.9	-313.0	*	106.	166.	AG	554.	14.5	0.0	9.8		
18. ON RAMP TO 250 SB	*	123.9	-313.0	106.4	-393.5	*	82.	192.	AG	554.	14.5	0.0	9.8		
19. IVY EB	*	292.8	-201.4	437.9	-292.3	*	171.	122.	AG	599.	15.1	0.0	13.4		
20. IVY EB	*	437.9	-292.3	626.0	-360.8	*	200.	110.	AG	599.	15.1	0.0	13.4		
21. IVY EB	*	626.0	-360.8	1014.9	-485.2	*	408.	108.	AG	599.	15.1	0.0	13.4		
22. IVY ROAD EB	*	-569.5	265.6	-442.0	225.8	*	134.	107.	AG	968.	15.1	0.0	9.8		
23. IVY ROAD EB	*	-442.0	225.8	-257.1	187.5	*	189.	102.	AG	968.	15.1	0.0	9.8		
24. IVY ROAD EB	*	-257.1	187.5	-65.8	131.7	*	199.	106.	AG	968.	15.1	0.0	9.8		
25. IVY ROAD EB	*	-65.8	131.7	135.0	-29.3	*	257.	129.	AG	968.	15.1	0.0	9.8		
26. IVY EB	*	134.7	-30.7	237.1	-136.9	*	148.	136.	AG	771.	15.1	0.0	13.4		
27. IVY EB	*	237.1	-136.9	290.5	-197.1	*	80.	138.	AG	771.	15.1	0.0	13.4		
28. IVY WB	*	1011.5	-469.7	807.8	-395.2	*	217.	290.	AG	686.	15.1	0.0	13.4		
29. IVY WB	*	807.8	-395.2	430.3	-254.8	*	403.	290.	AG	686.	15.1	0.0	13.4		
30. IVY WB	*	430.3	-254.8	222.8	-93.4	*	263.	308.	AG	686.	15.1	0.0	13.4		
31. IVY WB	*	222.8	-93.4	87.5	45.7	*	194.	316.	AG	1108.	15.1	0.0	9.8		
32. IVY WB	*	87.5	45.7	-4.5	119.0	*	118.	309.	AG	1108.	15.1	0.0	9.8		
33. IVY WB	*	-4.5	119.0	-52.9	140.1	*	53.	294.	AG	1108.	15.1	0.0	9.8		
34. IVY WB	*	-52.9	140.1	-291.4	209.7	*	248.	286.	AG	1108.	15.1	0.0	9.8		
35. IVY WB	*	-291.4	209.7	-560.9	278.0	*	278.	284.	AG	1108.	15.1	0.0	9.8		
36. 250 ALIGNMENT	*	40.3	-734.3	112.3	-402.6	*	339.	12.	AG	6916.	16.0	0.0	20.7		
37. 250 ALIGNMENT	*	112.3	-402.6	179.4	-202.7	*	211.	19.	AG	6916.	16.0	0.0	20.7		

38. 250 ALIGNMENT	*	179.4	-202.7	215.4	-102.1	*	107.	20.	AG	6916.	16.0	0.0	20.7
39. 250 REALIGN	*	214.1	-92.1	267.5	58.1	*	159.	20.	AG	7249.	16.0	0.0	20.7
40. OLD IVY ROAD	*	943.2	-328.1	871.2	-284.7	*	84.	301.	AG	587.	14.3	0.0	13.4
41. OLD IVY ROAD	*	871.2	-284.7	697.3	-248.6	*	178.	282.	AG	587.	14.3	0.0	13.4
42. OLD IVY ROAD	*	697.3	-248.6	606.6	-171.6	*	119.	310.	AG	587.	14.3	0.0	13.4
43. OLD IVY ROAD	*	606.6	-171.6	524.7	-84.7	*	119.	317.	AG	587.	14.3	0.0	13.4
44. OLD IVY ROAD	*	524.7	-84.7	465.0	-42.5	*	73.	305.	AG	587.	14.3	0.0	13.4

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

DATE : 07/30/ 0
TIME : 10:42:46

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. OLD IVY ROAD	*	465.0	-42.5	212.9	45.7	*	267.	289.	AG	587.	14.3	0.0	13.4		
46. OLD IVY ROAD	*	212.9	45.7	93.7	94.2	*	129.	292.	AG	587.	14.3	0.0	13.4		
47. OLD IVY ROAD	*	93.7	94.2	19.1	168.7	*	105.	315.	AG	587.	14.3	0.0	13.4		
48. OLD IVY ROAD	*	19.1	168.7	-76.5	311.5	*	172.	326.	AG	587.	14.3	0.0	13.4		
49. OLD IVY ROAD	*	-76.5	311.5	-138.6	376.1	*	90.	316.	AG	587.	14.3	0.0	13.4		
50. 250 NB	*	267.6	62.2	310.9	169.2	*	115.	22.	AG	3380.	16.0	0.0	13.4		
51. 250 NB	*	310.9	169.2	378.9	282.6	*	132.	31.	AG	3380.	16.0	0.0	13.4		
52. 250 NB	*	378.9	282.6	447.0	389.6	*	127.	32.	AG	3380.	16.0	0.0	13.4		
53. 250 NB	*	447.0	389.6	491.3	447.9	*	73.	37.	AG	3380.	16.0	0.0	13.4		
54. 250 NB	*	491.3	447.9	609.0	525.7	*	141.	57.	AG	3380.	16.0	0.0	13.4		
55. 250 NB	*	609.0	525.7	719.3	597.0	*	131.	57.	AG	3380.	16.0	0.0	13.4		
56. 250 NB	*	719.3	597.0	780.8	618.6	*	65.	71.	AG	3380.	16.0	0.0	13.4		
57. 250 NB	*	780.8	618.6	820.8	627.3	*	41.	78.	AG	3380.	16.0	0.0	13.4		
58. 250 NB	*	820.1	626.8	1082.2	669.4	*	266.	81.	AG	3380.	16.0	0.0	13.4		
59. 250 NB	*	1082.2	669.4	1250.9	695.6	*	171.	81.	AG	3380.	16.0	0.0	13.4		
60. 250 NB	*	1250.9	695.6	1475.2	728.4	*	227.	82.	AG	3380.	16.0	0.0	13.4		
61. 250 NB	*	1475.2	728.4	1665.2	766.0	*	194.	79.	AG	3380.	16.0	0.0	13.4		
62. 250 NB	*	1665.2	766.0	2110.6	885.6	*	461.	75.	AG	3380.	16.0	0.0	13.4		
63. SB 250	*	2105.7	900.3	1832.2	826.6	*	283.	255.	AG	3869.	16.0	0.0	10.0		
64. SB 250	*	1832.2	826.6	1524.3	751.3	*	317.	256.	AG	3869.	16.0	0.0	10.0		
65. SB 250	*	1524.3	751.3	1388.4	730.0	*	138.	261.	AG	3869.	16.0	0.0	10.0		
66. SB 250	*	1388.4	730.0	1191.9	703.8	*	198.	262.	AG	3869.	16.0	0.0	10.0		
67. SB 250	*	1191.9	703.8	934.8	664.5	*	260.	261.	AG	3869.	16.0	0.0	10.0		
68. SB 250	*	934.8	664.5	816.9	643.2	*	120.	260.	AG	3869.	16.0	0.0	10.0		
69. SB 250	*	815.8	640.9	726.8	618.2	*	92.	256.	AG	3869.	16.0	0.0	13.4		
70. SB 250	*	726.8	618.2	587.5	531.2	*	164.	238.	AG	3869.	16.0	0.0	13.4		
71. SB 250	*	587.5	531.2	509.4	479.8	*	93.	237.	AG	3869.	16.0	0.0	13.4		
72. SB 250	*	509.4	479.8	482.7	457.1	*	35.	230.	AG	3869.	16.0	0.0	13.4		
73. SB 250	*	482.7	457.1	461.0	430.4	*	34.	219.	AG	3869.	16.0	0.0	13.4		
74. SB 250	*	461.0	430.4	403.7	349.3	*	99.	215.	AG	3869.	16.0	0.0	13.4		
75. SB 250	*	403.7	349.3	307.8	203.1	*	175.	213.	AG	3869.	16.0	0.0	13.4		
76. SB 250	*	307.8	203.1	249.5	62.7	*	152.	203.	AG	3869.	16.0	0.0	13.4		
77. SANDRIDGE ROAD	*	924.4	501.7	928.0	531.6	*	30.	7.	AG	529.	14.3	0.0	13.4		
78. SANDRIDGE ROAD	*	928.0	531.6	936.8	554.9	*	25.	21.	AG	529.	14.3	0.0	13.4		
79. SANDRIDGE ROAD	*	936.8	554.9	951.8	586.5	*	35.	25.	AG	529.	14.3	0.0	13.4		
80. SANDRIDGE ROAD	*	951.8	586.5	952.8	610.8	*	24.	2.	AG	529.	14.3	0.0	13.4		
81. SANDRIDGE ROAD	*	952.8	610.8	948.7	637.7	*	27.	351.	AG	529.	14.3	0.0	13.4		
82. SANDRIDGE ROAD	*	1314.2	-2.7	1244.8	71.8	*	102.	317.	AG	529.	14.3	0.0	13.4		
83. SANDRIDGE ROAD	*	1244.8	71.8	1044.8	154.6	*	216.	292.	AG	529.	14.3	0.0	13.4		
84. SANDRIDGE ROAD	*	1044.8	154.6	982.8	211.5	*	84.	313.	AG	529.	14.3	0.0	13.4		
85. SANDRIDGE ROAD	*	982.8	211.5	936.8	304.4	*	104.	334.	AG	529.	14.3	0.0	13.4		
86. SANDRIDGE ROAD	*	936.8	304.4	924.3	501.9	*	198.	356.	AG	529.	14.3	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

DATE : 07/30/ 0
TIME : 10:42:46

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-18	676.1	899.9	1.8
2. R-19	1077.6	916.8	1.8
3. R-20	769.2	699.1	1.8
4. R-21	474.1	510.5	1.8
5. R-22	592.6	18.3	1.8
6. R-23	14.6	-9.5	1.8
7. R-24	1106.6	765.7	1.8
8. R-25	1123.5	486.3	1.8
9. R-26	1488.8	812.8	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 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
0.	3.0	3.0	3.0	3.0	3.4	3.3	3.0	3.6	3.0
10.	3.0	3.0	3.0	3.0	3.4	3.4	3.0	3.6	3.0
20.	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.6	3.0
30.	3.0	3.0	3.0	3.0	3.4	3.3	3.0	3.6	3.0
40.	3.0	3.0	3.0	3.0	3.4	3.5	3.0	3.6	3.0
50.	3.0	3.0	3.0	3.0	3.5	5.0	3.0	3.8	3.0
60.	3.0	3.0	3.0	3.3	3.3	4.8	3.0	4.0	3.0
70.	3.0	3.0	3.0	6.2	3.0	4.1	3.0	3.4	3.0
80.	3.0	3.0	3.8	6.4	3.0	4.1	3.5	3.0	3.7
90.	3.3	3.2	5.1	4.8	3.0	4.2	4.6	3.0	4.7
100.	3.6	3.7	4.8	4.6	3.0	4.0	4.6	3.0	4.6
110.	3.7	3.7	4.5	4.5	3.0	3.8	4.4	3.0	4.4
120.	3.5	3.8	4.3	4.5	3.0	4.1	4.3	3.0	4.3
130.	3.6	3.6	4.1	4.4	3.0	3.7	4.2	3.0	4.3
140.	3.5	3.6	4.1	4.4	3.0	3.8	4.1	3.0	4.1
150.	3.6	3.5	4.2	4.4	3.0	3.8	4.1	3.0	4.1
160.	3.4	3.6	4.1	4.5	3.0	3.8	4.1	3.0	4.1
170.	3.4	3.5	4.1	4.6	3.1	3.9	4.1	3.0	4.1
180.	3.5	3.6	4.1	4.7	3.1	3.4	4.1	3.0	4.1
190.	3.5	3.5	4.2	5.3	3.1	3.0	4.1	3.0	4.1
200.	4.5	3.6	4.5	7.0	3.1	3.0	4.1	3.0	4.1

210.	*	4.0	3.8	5.4	5.2	3.1	3.0	4.2	3.0	4.3
220.	*	3.0	4.2	6.3	3.1	3.5	3.0	4.5	3.1	4.4
230.	*	3.0	4.6	4.9	3.0	3.7	3.0	4.7	3.3	4.6
240.	*	3.0	3.1	3.1	3.0	3.5	3.0	5.4	3.3	4.9
250.	*	3.0	3.0	3.0	3.0	3.5	3.0	4.3	3.3	5.2
260.	*	3.0	3.0	3.0	3.0	3.7	3.0	3.0	3.4	3.7
270.	*	3.0	3.0	3.0	3.0	3.7	3.0	3.0	3.4	3.0
280.	*	3.0	3.0	3.0	3.0	3.6	3.0	3.0	3.5	3.0
290.	*	3.0	3.0	3.0	3.0	3.4	3.0	3.0	3.7	3.0
300.	*	3.0	3.0	3.0	3.0	3.5	3.2	3.0	3.7	3.0
310.	*	3.0	3.0	3.0	3.0	3.4	3.2	3.0	3.6	3.0
320.	*	3.0	3.0	3.0	3.0	3.4	3.2	3.0	3.6	3.0
330.	*	3.0	3.0	3.0	3.0	3.4	3.3	3.0	3.6	3.0
340.	*	3.0	3.0	3.0	3.0	3.5	3.3	3.0	3.6	3.0
350.	*	3.0	3.0	3.0	3.0	3.4	3.5	3.0	3.6	3.0
MAX	*	4.5	4.6	6.3	7.0	3.7	5.0	5.4	4.0	5.2
DEGR.	*	200	230	220	200	230	50	240	60	250

THE HIGHEST CONCENTRATION OF 7.00 PPM OCCURRED AT RECEPTOR REC4 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

DATE : 07/30/ 0
TIME : 10:42:46

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
LINK #	200	230	220	200	230	50	240	60	250
1	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
3	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
5	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
7	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
9	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
11	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
13	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
15	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
17	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
19	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
21	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
23	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
25	0.0	0.0	0.0	0.0	0.0	0.1	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
27	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
29	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
31	*	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	0.1	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
34	*	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
36	*	0.2	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0
37	*	0.1	0.0	0.1	0.3	0.4	0.0	0.0	0.0	0.0
38	*	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0
39	*	0.1	0.0	0.2	0.3	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
41	*	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
43	*	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	0.1	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

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 CONDITIONS

	*	CO/LINK (PPM)								
	*	ANGLE (DEGREES)								
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9
LINK #	*	200	230	220	200	230	50	240	60	250
46	*	0.0	0.0	0.0	0.0	0.0	0.1	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
48	*	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
50	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
51	*	0.1	0.1	0.1	0.3	0.0	0.2	0.0	0.0	0.0
52	*	0.1	0.1	0.1	0.7	0.0	0.2	0.1	0.0	0.0
53	*	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
54	*	0.2	0.1	0.3	0.0	0.0	0.1	0.1	0.0	0.1
55	*	0.0	0.2	0.6	0.0	0.0	0.1	0.1	0.0	0.1
56	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
57	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
58	*	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.3
59	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
60	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
61	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
62	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
63	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
64	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
65	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
66	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
67	*	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4
68	*	0.0	0.1	0.0	0.0	0.0	0.1	0.4	0.0	0.1
69	*	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0
70	*	0.0	0.2	1.1	0.0	0.0	0.1	0.1	0.0	0.1
71	*	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1
72	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
74	*	0.1	0.1	0.1	1.0	0.0	0.1	0.1	0.0	0.0
75	*	0.1	0.1	0.2	0.5	0.0	0.3	0.1	0.0	0.0
76	*	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
77	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

86 * 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 7/30/2012 at 10:43:57

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS - R18 through R26

DATE : 07/30/ 0
TIME : 10:43:57

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. ON RAMP TO 29 SB	920.5	655.0	796.9	636.8	125.	262.	AG	106.	14.3	0.0	9.8		
2. ON RAMP TO 29 SB	796.9	636.8	724.3	613.0	76.	252.	AG	106.	14.3	0.0	9.8		
3. ON RAMP TO 29 SB	724.3	613.0	599.6	530.2	150.	236.	AG	106.	14.3	0.0	9.8		
4. ON RAMP TO 29 SB	599.6	530.2	486.2	455.4	136.	237.	AG	106.	14.3	0.0	9.8		
5. ON RAMP TO 29 SB	486.2	455.4	408.0	342.0	138.	215.	AG	106.	14.3	0.0	9.8		
6. ON RAMP TO 29 SB	408.0	342.0	335.4	233.2	131.	214.	AG	106.	14.3	0.0	9.8		
7. ON RAMP TO 29 SB	335.4	233.2	301.4	176.5	66.	211.	AG	106.	14.3	0.0	9.8		
8. ON RAMP TO 29 SB	301.4	176.5	262.9	69.9	113.	200.	AG	106.	14.3	0.0	9.8		
9. OFF RAMP TO SANDRIDG	313.9	33.6	340.0	113.0	84.	18.	AG	59.	14.3	0.0	9.8		
10. OFF RAMP TO SANDRIDG	340.0	113.0	393.3	204.8	106.	30.	AG	59.	14.3	0.0	9.8		
11. OFF RAMP TO SANDRIDG	393.3	204.8	459.0	277.4	98.	42.	AG	59.	14.3	0.0	9.8		
12. OFF RAMP TO SANDRIDG	459.0	277.4	658.6	406.7	238.	57.	AG	59.	14.3	0.0	9.8		
13. OFF RAMP TO SANDRIDG	658.6	406.7	791.2	467.9	146.	65.	AG	59.	14.3	0.0	9.8		
14. OFF RAMP TO SANDRIDG	791.2	467.9	911.4	511.0	128.	70.	AG	59.	14.3	0.0	9.8		
15. ON RAMP TO 250	932.9	515.5	1152.9	600.5	236.	69.	AG	150.	14.3	0.0	9.8		
16. ON RAMP TO 250	1152.9	600.5	1343.4	664.0	201.	72.	AG	150.	14.3	0.0	9.8		
17. ON RAMP TO 250	1343.4	664.0	1465.8	708.2	130.	70.	AG	150.	14.3	0.0	9.8		
18. ON RAMP TO 250	1465.8	708.2	1698.3	767.2	240.	76.	AG	150.	14.3	0.0	9.8		
19. 250 OFF TO SANDRIDGE	1659.7	788.7	1533.9	753.6	131.	254.	AG	319.	14.3	0.0	9.8		
20. 250 OFF TO SANDRIDGE	1533.9	753.6	1421.6	727.5	115.	257.	AG	319.	14.3	0.0	9.8		
21. 250 OFF TO SANDRIDGE	1421.6	727.5	1259.5	704.8	164.	262.	AG	319.	14.3	0.0	9.8		
22. 250 OFF TO SANDRIDGE	1259.5	704.8	1010.0	669.7	252.	262.	AG	319.	14.3	0.0	9.8		
23. 250 OFF TO SANDRIDGE	1010.0	669.7	929.5	658.4	81.	262.	AG	319.	14.3	0.0	9.8		
24. NB 250 BYPASS	279.9	48.4	368.3	216.2	190.	28.	AG	2384.	16.0	0.0	13.4		
25. NB 250 BYPASS	368.3	216.2	599.6	436.1	319.	46.	AG	2384.	16.0	0.0	13.4		
26. NB 250 BYPASS	599.6	436.1	776.5	522.3	197.	64.	AG	2384.	16.0	0.0	13.4		
27. NB 250 BYPASS	776.5	522.3	917.1	563.1	146.	74.	AG	2384.	16.0	0.0	13.4		
28. NB 250 BYPASS	917.1	563.1	1123.4	626.6	216.	73.	AG	2384.	16.0	0.0	13.4		
29. NB 250 BYPASS	1123.4	626.6	1658.6	767.2	553.	75.	AG	2384.	16.0	0.0	13.4		
30. 250 BYPASS SB	1647.2	776.3	1266.3	669.7	396.	254.	AG	2524.	16.0	0.0	13.4		
31. 250 BYPASS SB	1266.3	669.7	765.1	542.7	517.	256.	AG	2524.	16.0	0.0	13.4		
32. 250 BYPASS SB	765.1	542.7	515.7	393.1	291.	239.	AG	2524.	16.0	0.0	13.4		
33. 250 BYPASS SB	515.7	393.1	443.1	327.3	98.	228.	AG	2524.	16.0	0.0	13.4		
34. 250 BYPASS SB	443.1	327.3	266.3	57.4	323.	213.	AG	2524.	16.0	0.0	13.4		
35. SANDRIDGE ROAD	925.5	508.2	924.2	659.1	151.	360.	AG	631.	15.1	0.0	13.4		
36. NB RAMP	424.5	271.6	659.8	442.1	291.	54.	AG	1080.	16.0	0.0	13.4		

37. NB RAMP	*	659.8	442.1	821.6	536.3	*	187.	60.	AG	1080.	16.0	0.0	13.4	
38. NB RAMP	*	821.6	536.3	886.3	614.2	*	101.	40.	AG	1080.	16.0	0.0	13.4	
39. NB RAMP	*	886.3	614.2	926.0	689.2	*	85.	28.	AG	1080.	16.0	0.0	13.4	
40. NB RAMP	*	926.0	689.2	933.3	705.4	*	18.	24.	AG	1080.	16.0	0.0	13.4	
41. NB RAMP	*	933.3	705.4	945.1	783.3	*	79.	9.	AG	1080.	16.0	0.0	13.4	
42. NB RAMP	*	945.1	783.3	928.9	899.5	*	117.	352.	AG	1080.	16.0	0.0	13.4	
43. NB RAMP	*	928.9	899.5	845.1	998.0	*	129.	320.	AG	1080.	16.0	0.0	13.4	
44. SB RAMP	*	826.0	977.4	867.1	892.2	*	95.	154.	AG	1290.	16.0	0.0	13.4	

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:43:57

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 RAMP	*	867.1	892.2	887.7	802.4	*	92.	167.	AG	1290.	16.0	0.0	13.4		
46. SB RAMP	*	887.7	802.4	870.1	703.9	*	100.	190.	AG	1290.	16.0	0.0	13.4		
47. SB RAMP	*	870.1	703.9	820.1	627.4	*	91.	213.	AG	1290.	16.0	0.0	13.4		
48. SB RAMP	*	820.1	627.4	749.5	564.2	*	95.	228.	AG	1290.	16.0	0.0	13.4		
49. SB RAMP	*	749.5	564.2	618.6	489.2	*	151.	240.	AG	1290.	16.0	0.0	13.4		
50. L. SANDRIDGE ROAD	*	1312.7	-4.9	1164.2	108.3	*	187.	307.	AG	656.	15.1	0.0	13.4		
51. L. SANDRIDGE ROAD	*	1164.2	108.3	984.8	209.8	*	206.	300.	AG	656.	15.1	0.0	13.4		
52. L. SANDRIDGE ROAD	*	984.8	209.8	937.7	309.8	*	111.	335.	AG	656.	15.1	0.0	13.4		
53. L. SANDRIDGE ROAD	*	937.7	309.8	923.0	501.0	*	192.	356.	AG	656.	15.1	0.0	13.4		
54. L. SANDRIDGE ROAD	*	924.4	659.0	923.7	807.4	*	148.	360.	AG	290.	15.1	0.0	13.4		
55. L. SANDRIDGE ROAD	*	923.7	807.4	889.2	897.5	*	96.	339.	AG	290.	15.1	0.0	13.4		
56. L. SANDRIDGE ROAD	*	889.2	897.5	839.1	985.6	*	101.	330.	AG	290.	15.1	0.0	13.4		
57. 250 EAST OF PROJECT	*	1650.6	769.4	2222.2	922.4	*	592.	75.	AG	4872.	16.0	0.0	20.7		
58. OFF RAMP TO IVY	*	134.2	-387.1	181.3	-354.4	*	57.	55.	AG	528.	14.3	0.0	9.8		
59. OFF RAMP TO IVY	*	181.3	-354.4	279.3	-275.5	*	126.	51.	AG	528.	14.3	0.0	9.8		
60. OFF RAMP TO IVY	*	279.3	-275.5	296.8	-203.0	*	75.	14.	AG	528.	14.3	0.0	9.8		
61. ON RAMP TO 250 NB	*	258.6	-169.5	279.3	-222.9	*	57.	159.	AG	581.	14.5	0.0	9.8		
62. ON RAMP TO 250 NB	*	279.3	-222.9	245.0	-304.2	*	88.	203.	AG	581.	14.5	0.0	9.8		
63. ON RAMP TO 250 NB	*	245.0	-304.2	184.5	-314.6	*	61.	260.	AG	581.	14.5	0.0	9.8		
64. ON RAMP TO 250 NB	*	184.5	-314.6	175.7	-287.5	*	28.	342.	AG	581.	14.5	0.0	9.8		
65. ON RAMP TO 250 NB	*	175.7	-287.5	178.1	-256.4	*	31.	4.	AG	581.	14.5	0.0	9.8		
66. ON RAMP TO 250 NB	*	178.1	-256.4	182.1	-216.6	*	40.	6.	AG	581.	14.5	0.0	9.8		
67. ON RAMP TO 250 NB	*	182.1	-216.6	213.1	-139.3	*	83.	22.	AG	581.	14.5	0.0	9.8		
68. OFF RAMP TO IVY	*	207.6	-87.5	159.0	-207.8	*	130.	202.	AG	665.	14.5	0.0	9.8		
69. OFF RAMP TO IVY	*	159.0	-207.8	114.3	-217.4	*	46.	258.	AG	665.	14.5	0.0	9.8		
70. OFF RAMP TO IVY	*	114.3	-217.4	130.3	-101.8	*	117.	8.	AG	665.	14.5	0.0	9.8		
71. OFF RAMP TO IVY	*	130.3	-101.8	189.2	-95.4	*	59.	84.	AG	665.	14.5	0.0	9.8		
72. ON RAMP TO 250 SB	*	134.2	-43.6	112.7	-101.0	*	61.	201.	AG	604.	14.5	0.0	9.8		
73. ON RAMP TO 250 SB	*	112.7	-101.0	98.4	-210.2	*	110.	187.	AG	604.	14.5	0.0	9.8		
74. ON RAMP TO 250 SB	*	98.4	-210.2	123.9	-313.0	*	106.	166.	AG	604.	14.5	0.0	9.8		
75. ON RAMP TO 250 SB	*	123.9	-313.0	106.4	-393.5	*	82.	192.	AG	604.	14.5	0.0	9.8		
76. IVY EB	*	292.8	-201.4	437.9	-292.3	*	171.	122.	AG	547.	15.1	0.0	13.4		
77. IVY EB	*	437.9	-292.3	626.0	-360.8	*	200.	110.	AG	547.	15.1	0.0	13.4		
78. IVY EB	*	626.0	-360.8	1014.9	-485.2	*	408.	108.	AG	547.	15.1	0.0	13.4		
79. IVY ROAD EB	*	-569.5	265.6	-442.0	225.8	*	134.	107.	AG	980.	15.1	0.0	9.8		
80. IVY ROAD EB	*	-442.0	225.8	-257.1	187.5	*	189.	102.	AG	980.	15.1	0.0	9.8		
81. IVY ROAD EB	*	-257.1	187.5	-65.8	131.7	*	199.	106.	AG	980.	15.1	0.0	9.8		
82. IVY ROAD EB	*	-65.8	131.7	135.0	-29.3	*	257.	129.	AG	980.	15.1	0.0	9.8		
83. IVY EB	*	134.7	-30.7	237.1	-136.9	*	148.	136.	AG	980.	15.1	0.0	13.4		
84. IVY EB	*	237.1	-136.9	290.5	-197.1	*	80.	138.	AG	980.	15.1	0.0	13.4		
85. IVY WB	*	1011.5	-469.7	807.8	-395.2	*	217.	290.	AG	627.	15.1	0.0	13.4		
86. IVY WB	*	807.8	-395.2	430.3	-254.8	*	403.	290.	AG	627.	15.1	0.0	13.4		

87. IVY WB	*	430.3	-254.8	222.8	-93.4	*	263.	308.	AG	627.	15.1	0.0	13.4
88. IVY WB	*	222.8	-93.4	87.5	45.7	*	194.	316.	AG	1121.	15.1	0.0	9.8
89. IVY WB	*	87.5	45.7	-4.5	119.0	*	118.	309.	AG	1121.	15.1	0.0	9.8
90. IVY WB	*	-4.5	119.0	-52.9	140.1	*	53.	294.	AG	1121.	15.1	0.0	9.8
91. IVY WB	*	-52.9	140.1	-291.4	209.7	*	248.	286.	AG	1121.	15.1	0.0	9.8
92. IVY WB	*	-291.4	209.7	-560.9	278.0	*	278.	284.	AG	1121.	15.1	0.0	9.8
93. 250 REALIGNMENT	*	40.3	-734.3	112.3	-402.6	*	339.	12.	AG	7131.	15.1	0.0	20.7
94. 250 REALIGNMENT	*	112.3	-402.6	179.4	-202.7	*	211.	19.	AG	7131.	15.1	0.0	20.7
95. 250 REALIGNMENT	*	179.4	-202.7	215.4	-102.1	*	107.	20.	AG	7131.	15.1	0.0	20.7

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:43:57

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
96. 250 REALIGN	*	214.1	-92.1	267.5	58.1	*	159.	20.	AG	5450.	15.1	0.0	20.7		
97. OLD IVY ROAD	*	943.2	-328.1	871.2	-284.7	*	84.	301.	AG	573.	14.3	0.0	13.4		
98. OLD IVY ROAD	*	871.2	-284.7	697.3	-248.6	*	178.	282.	AG	573.	14.3	0.0	13.4		
99. OLD IVY ROAD	*	697.3	-248.6	606.6	-171.6	*	119.	310.	AG	573.	14.3	0.0	13.4		
100. OLD IVY ROAD	*	606.6	-171.6	524.7	-84.7	*	119.	317.	AG	573.	14.3	0.0	13.4		
101. OLD IVY ROAD	*	524.7	-84.7	465.0	-42.5	*	73.	305.	AG	573.	14.3	0.0	13.4		
102. OLD IVY ROAD	*	465.0	-42.5	212.9	45.7	*	267.	289.	AG	573.	14.3	0.0	13.4		
103. OLD IVY ROAD	*	212.9	45.7	93.7	94.2	*	129.	292.	AG	573.	14.3	0.0	13.4		
104. OLD IVY ROAD	*	93.7	94.2	19.1	168.7	*	105.	315.	AG	573.	14.3	0.0	13.4		
105. OLD IVY ROAD	*	19.1	168.7	-76.5	311.5	*	172.	326.	AG	573.	14.3	0.0	13.4		
106. OLD IVY ROAD	*	-76.5	311.5	-138.6	376.1	*	90.	316.	AG	573.	14.3	0.0	13.4		
107. RAMP G	*	421.4	370.8	283.8	233.2	*	195.	225.	AG	106.	14.3	0.0	9.8		
108. RAMP G	*	283.8	233.2	87.8	108.9	*	232.	238.	AG	106.	14.3	0.0	9.8		
109. BYPASS NB	*	845.3	997.7	727.4	1147.1	*	190.	322.	AG	1080.	16.0	0.0	13.4		
110. BYPASS NB	*	727.4	1147.1	656.2	1313.7	*	181.	337.	AG	1080.	16.0	0.0	13.4		
111. BYPASS NB	*	656.2	1313.7	634.6	1464.1	*	152.	352.	AG	1080.	16.0	0.0	13.4		
112. BYPASS SB	*	609.4	1462.3	621.1	1322.7	*	140.	175.	AG	1290.	16.0	0.0	13.4		
113. BYPASS SB	*	621.1	1322.7	702.2	1134.5	*	205.	157.	AG	1290.	16.0	0.0	13.4		
114. BYPASS SB	*	702.2	1134.5	823.7	977.0	*	199.	142.	AG	1290.	16.0	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:43:57

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. R-18	*	676.1	899.9	1.8	*
2. R-19	*	1077.6	916.8	1.8	*
3. R-20	*	769.2	699.1	1.8	*
4. R-21	*	474.1	510.5	1.8	*

5. R-22	*	592.6	18.3	1.8	*
6. R-23	*	14.6	-9.5	1.8	*
7. R-24	*	1106.6	765.7	1.8	*
8. R-25	*	1123.5	486.3	1.8	*
9. R-26	*	1488.8	812.8	1.8	*

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD 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
0.	3.4	3.0	3.2	3.0	3.5	3.3	3.0	3.5	3.0
10.	3.3	3.0	3.3	3.0	3.4	3.4	3.0	3.6	3.0
20.	3.2	3.0	3.2	3.0	3.5	3.4	3.0	3.6	3.0
30.	3.2	3.0	3.2	3.1	3.3	3.4	3.0	3.6	3.0
40.	3.2	3.0	3.2	3.0	3.3	3.3	3.0	3.6	3.0
50.	3.2	3.0	3.3	3.0	3.3	4.2	3.0	3.8	3.0
60.	3.1	3.0	3.3	3.1	3.2	4.8	3.0	3.9	3.0
70.	3.2	3.0	3.3	3.5	3.0	4.0	3.0	3.4	3.0
80.	3.2	3.0	3.7	4.8	3.0	4.1	3.4	3.0	3.6
90.	3.4	3.3	4.0	4.4	3.0	4.0	3.9	3.0	4.2
100.	3.5	3.5	3.9	3.8	3.0	3.8	3.8	3.0	4.1
110.	3.6	3.5	3.9	3.8	3.0	3.8	3.6	3.0	4.0
120.	3.6	3.4	4.0	3.7	3.0	4.2	3.6	3.0	3.8
130.	3.4	3.4	3.9	3.6	3.0	3.6	3.6	3.0	3.8
140.	3.5	3.4	3.7	3.7	3.0	3.8	3.6	3.0	3.7
150.	3.4	3.4	3.8	3.7	3.0	3.8	3.6	3.0	3.7
160.	3.3	3.4	3.8	3.7	3.0	3.8	3.6	3.0	3.7
170.	3.4	3.4	3.8	3.7	3.1	3.8	3.6	3.0	3.7
180.	3.4	3.4	3.9	3.7	3.1	3.4	3.5	3.0	3.7
190.	3.5	3.4	3.8	3.9	3.1	3.0	3.6	3.0	3.7
200.	4.2	3.3	3.9	4.8	3.1	3.0	3.6	3.0	3.8
210.	3.5	3.6	4.8	3.7	3.1	3.0	3.6	3.0	3.8
220.	3.0	4.6	4.3	3.0	3.4	3.0	3.9	3.1	4.0
230.	3.0	3.5	3.0	3.0	3.6	3.0	4.5	3.3	4.4
240.	3.0	3.3	3.0	3.0	3.5	3.0	4.0	3.3	4.4
250.	3.0	3.2	3.0	3.0	3.5	3.0	3.2	3.4	4.0
260.	3.0	3.2	3.0	3.0	3.5	3.0	3.2	3.6	3.0
270.	3.0	3.2	3.0	3.0	3.6	3.0	3.2	3.7	3.0
280.	3.0	3.2	3.0	3.0	3.4	3.0	3.2	3.9	3.0
290.	3.0	3.3	3.0	3.0	3.4	3.0	3.2	4.0	3.0
300.	3.0	3.3	3.0	3.0	3.4	3.2	3.2	3.8	3.0
310.	3.0	3.2	3.0	3.0	3.4	3.2	3.4	3.7	3.0
320.	3.0	3.0	3.0	3.0	3.4	3.2	3.3	3.7	3.0
330.	3.0	3.0	3.0	3.0	3.4	3.3	3.0	3.9	3.0
340.	3.0	3.0	3.0	3.0	3.4	3.3	3.0	3.6	3.0
350.	3.2	3.0	3.3	3.0	3.5	3.5	3.0	3.5	3.0
MAX	4.2	4.6	4.8	4.8	3.6	4.8	4.5	4.0	4.4
DEGR.	200	220	210	80	270	60	230	290	230

THE HIGHEST CONCENTRATION OF 4.80 PPM OCCURRED AT RECEPTOR REC6 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:43:57

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 200	REC2 220	REC3 210	REC4 80	REC5 270	REC6 60	REC7 230	REC8 290	REC9 230
1	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
3	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
5	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
7	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
9	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
11	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
13	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
15	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
17	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
19	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
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
22	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
24	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
25	0.2	0.1	0.2	0.0	0.0	0.2	0.1	0.0	0.0
26	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0
27	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.0
28	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.0
29	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.5
30	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.5
31	0.0	0.1	0.0	0.5	0.0	0.1	0.3	0.3	0.1
32	0.1	0.2	0.4	0.1	0.0	0.1	0.1	0.0	0.0
33	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	0.1	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
36	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0
37	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
38	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
39	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
41	0.0	0.1	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
43	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
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PAGE 7

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 200	REC2 220	REC3 210	REC4 80	REC5 270	REC6 60	REC7 230	REC8 290	REC9 230
46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0
49	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	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
55	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
57	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0
58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	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
61	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
63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	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
67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0
83	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1
94	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1
95	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
96	0.1	0.1	0.1	0.0	0.3	0.0	0.1	0.0	0.0
97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 200	REC2 220	REC3 210	REC4 80	REC5 270	REC6 60	REC7 230	REC8 290	REC9 230

99	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
103	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
104	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
109	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
111	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
112	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
113	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
114	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

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

Run Began on 7/30/2012 at 10:31:31

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS - R15 through R17

DATE : 07/30/ 0
TIME : 10:31:31

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. BARRACKS ROAD	242.7	2363.9	817.5	1978.5	692.	124.	AG	656.	21.5	0.0	13.4		
2. BARRACKS ROAD	817.5	1978.5	995.1	1852.8	218.	125.	AG	656.	21.5	0.0	13.4		
3. BARRACKS ROAD	995.1	1852.8	1032.0	1802.5	62.	144.	AG	656.	21.5	0.0	13.4		
4. BARRACKS ROAD	1032.0	1802.5	1058.8	1737.2	71.	158.	AG	656.	21.5	0.0	13.4		
5. BARRACKS ROAD	1058.8	1737.2	1070.5	1660.1	78.	171.	AG	656.	21.5	0.0	13.4		
6. BARRACKS ROAD	1070.5	1660.1	1119.1	1574.7	98.	150.	AG	656.	21.5	0.0	13.4		
7. BARRACKS ROAD	1119.1	1574.7	1161.0	1542.8	53.	127.	AG	656.	21.5	0.0	13.4		
8. BARRACKS ROAD	1161.0	1542.8	1318.5	1418.8	200.	128.	AG	656.	21.5	0.0	13.4		
9. BARRACKS ROAD	1318.5	1418.8	1400.6	1373.6	94.	119.	AG	656.	21.5	0.0	13.4		
10. BARRACKS ROAD	1400.6	1373.6	1476.0	1378.6	76.	86.	AG	656.	21.5	0.0	13.4		
11. BARRACKS ROAD	1476.0	1378.6	1574.9	1376.9	99.	91.	AG	656.	21.5	0.0	13.4		
12. BARRACKS ROAD	1574.9	1376.9	1667.0	1346.8	97.	108.	AG	656.	21.5	0.0	13.4		
13. BARRACKS ROAD	1667.0	1346.8	1705.6	1281.4	76.	149.	AG	656.	21.5	0.0	13.4		

PAGE 2

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS

DATE : 07/30/ 0
TIME : 10:31:31

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-15	1071.5	2394.3	1.8
2. R-16	991.5	2288.0	1.8
3. R-17	523.7	1791.2	1.8

PAGE 3

JOB: CHARLOTTESVILLE BYPASS PROJECT 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
0.	3.0	3.0	3.1
10.	3.0	3.0	3.1
20.	3.0	3.0	3.1
30.	3.0	3.0	3.1
40.	3.0	3.0	3.1
50.	3.0	3.0	3.1
60.	3.0	3.0	3.0
70.	3.0	3.0	3.1
80.	3.0	3.0	3.0
90.	3.0	3.0	3.0
100.	3.0	3.0	3.0
110.	3.0	3.0	3.0
120.	3.0	3.0	3.0
130.	3.0	3.0	3.0
140.	3.0	3.0	3.0
150.	3.0	3.0	3.0
160.	3.0	3.0	3.0
170.	3.0	3.0	3.0
180.	3.0	3.0	3.0
190.	3.0	3.1	3.0
200.	3.0	3.1	3.0
210.	3.0	3.0	3.0
220.	3.0	3.1	3.0
230.	3.0	3.1	3.0
240.	3.0	3.1	3.0
250.	3.1	3.1	3.0
260.	3.0	3.1	3.0
270.	3.0	3.1	3.0
280.	3.0	3.0	3.0
290.	3.0	3.0	3.0
300.	3.0	3.0	3.0
310.	3.0	3.0	3.0
320.	3.0	3.0	3.0
330.	3.0	3.0	3.0
340.	3.0	3.0	3.1
350.	3.0	3.0	3.1
MAX	3.1	3.1	3.1
DEGR.	250	270	350

THE HIGHEST CONCENTRATION OF 3.10 PPM OCCURRED AT RECEPTOR REC3 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: EXISTING 2011 CONDITIONS

DATE : 07/30/ 0
TIME : 10:31:31

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING

THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 250	REC2 270	REC3 350
1	0.1	0.1	0.1
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	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 7/30/2012 at 10:32:09

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 NO-BUILD CONDITIONS - R15 through R17

DATE : 07/30/ 0
TIME : 10:32:09

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. BARRACKS ROAD	242.7	2363.9	817.5	1978.5	692.	124.	AG	822.	18.2	0.0	13.4		
2. BARRACKS ROAD	817.5	1978.5	995.1	1852.8	218.	125.	AG	822.	18.2	0.0	13.4		
3. BARRACKS ROAD	995.1	1852.8	1032.0	1802.5	62.	144.	AG	822.	18.2	0.0	13.4		
4. BARRACKS ROAD	1032.0	1802.5	1058.8	1737.2	71.	158.	AG	822.	18.2	0.0	13.4		
5. BARRACKS ROAD	1058.8	1737.2	1070.5	1660.1	78.	171.	AG	822.	18.2	0.0	13.4		
6. BARRACKS ROAD	1070.5	1660.1	1119.1	1574.7	98.	150.	AG	822.	18.2	0.0	13.4		
7. BARRACKS ROAD	1119.1	1574.7	1161.0	1542.8	53.	127.	AG	822.	18.2	0.0	13.4		
8. BARRACKS ROAD	1161.0	1542.8	1318.5	1418.8	200.	128.	AG	822.	18.2	0.0	13.4		
9. BARRACKS ROAD	1318.5	1418.8	1400.6	1373.6	94.	119.	AG	822.	18.2	0.0	13.4		
10. BARRACKS ROAD	1400.6	1373.6	1476.0	1378.6	76.	86.	AG	822.	18.2	0.0	13.4		
11. BARRACKS ROAD	1476.0	1378.6	1574.9	1376.9	99.	91.	AG	822.	18.2	0.0	13.4		
12. BARRACKS ROAD	1574.9	1376.9	1667.0	1346.8	97.	108.	AG	822.	18.2	0.0	13.4		
13. BARRACKS ROAD	1667.0	1346.8	1705.6	1281.4	76.	149.	AG	822.	18.2	0.0	13.4		

PAGE 2

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:32:09

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-15	1071.5	2394.3	1.8
2. R-16	991.5	2288.0	1.8
3. R-17	523.7	1791.2	1.8

PAGE 3

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD 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
0.	3.0	3.0	3.1
10.	3.0	3.0	3.1
20.	3.0	3.0	3.1
30.	3.0	3.0	3.1
40.	3.0	3.0	3.1
50.	3.0	3.0	3.1
60.	3.0	3.0	3.0
70.	3.0	3.0	3.1
80.	3.0	3.0	3.0
90.	3.0	3.0	3.0
100.	3.0	3.0	3.0
110.	3.0	3.0	3.0
120.	3.0	3.0	3.0
130.	3.0	3.0	3.0
140.	3.0	3.0	3.0
150.	3.0	3.0	3.0
160.	3.0	3.0	3.0
170.	3.0	3.0	3.0
180.	3.0	3.0	3.0
190.	3.0	3.1	3.0
200.	3.0	3.1	3.0
210.	3.0	3.0	3.0
220.	3.0	3.1	3.0
230.	3.0	3.1	3.0
240.	3.0	3.1	3.0
250.	3.1	3.1	3.0
260.	3.1	3.1	3.0
270.	3.0	3.1	3.0
280.	3.0	3.0	3.0
290.	3.0	3.0	3.0
300.	3.0	3.0	3.0
310.	3.0	3.0	3.0
320.	3.0	3.0	3.0
330.	3.0	3.0	3.0
340.	3.0	3.0	3.1
350.	3.0	3.0	3.1
MAX	3.1	3.1	3.1
DEGR.	260	270	350

THE HIGHEST CONCENTRATION OF 3.10 PPM OCCURRED AT RECEPTOR REC3 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:32:09

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING

THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 260	REC2 270	REC3 350
1	0.1	0.1	0.1
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	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 7/30/2012 at 10:32:46

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD CONDITIONS - R15 through R17

DATE : 07/30/ 0
TIME : 10:32:46

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. BYPASS NB	*	845.7	997.7	726.0	1142.1	*	188.	320.	AG	692.	20.3	0.0	13.4		
2. BYPASS NB	*	726.0	1142.1	651.8	1311.3	*	185.	336.	AG	692.	20.3	0.0	13.4		
3. BYPASS NB	*	651.8	1311.3	627.1	1619.3	*	309.	355.	AG	692.	20.3	0.0	13.4		
4. BYPASS NB	*	627.1	1619.3	646.1	1824.6	*	206.	5.	AG	692.	20.3	0.0	13.4		
5. BYPASS NB	*	646.1	1824.6	688.0	1967.1	*	149.	16.	AG	692.	20.3	0.0	13.4		
6. BYPASS NB	*	688.0	1967.1	764.0	2119.2	*	170.	27.	AG	692.	20.3	0.0	13.4		
7. BYPASS NB	*	764.0	2119.2	807.7	2191.4	*	84.	31.	AG	692.	20.3	0.0	13.4		
8. BYPASS SB	*	788.7	2200.9	689.9	2020.4	*	206.	209.	AG	826.	20.3	0.0	13.4		
9. BYPASS SB	*	689.9	2020.4	625.2	1826.5	*	204.	198.	AG	826.	20.3	0.0	13.4		
10. BYPASS SB	*	625.2	1826.5	608.1	1604.1	*	223.	184.	AG	826.	20.3	0.0	13.4		
11. BYPASS SB	*	608.1	1604.1	615.7	1332.2	*	272.	178.	AG	826.	20.3	0.0	13.4		
12. BYPASS SB	*	615.7	1332.2	653.7	1223.9	*	115.	161.	AG	826.	20.3	0.0	13.4		
13. BYPASS SB	*	653.7	1223.9	708.9	1130.7	*	108.	149.	AG	826.	20.3	0.0	13.4		
14. BYPASS SB	*	708.9	1130.7	824.8	978.7	*	191.	143.	AG	826.	20.3	0.0	13.4		
15. BYPASS NB	*	809.1	2191.3	899.6	2322.0	*	159.	35.	AG	692.	20.3	0.0	13.4		
16. BYPASS NB	*	899.6	2322.0	980.0	2442.6	*	145.	34.	AG	692.	20.3	0.0	13.4		
17. BYPASS NB	*	980.0	2442.6	1043.7	2563.3	*	136.	28.	AG	692.	20.3	0.0	13.4		
18. BYPASS NB	*	1043.7	2563.3	1105.7	2695.6	*	146.	25.	AG	692.	20.3	0.0	13.4		
19. BYPASS NB	*	1105.7	2695.6	1159.3	2818.0	*	134.	24.	AG	692.	20.3	0.0	13.4		
20. BYPASS NB	*	1159.3	2818.0	1231.4	2985.5	*	182.	23.	AG	692.	20.3	0.0	13.4		
21. BYPASS NB	*	1231.4	2985.5	1305.1	3143.0	*	174.	25.	AG	692.	20.3	0.0	13.4		
22. BYPASS NB	*	1305.1	3143.0	1352.0	3228.5	*	98.	29.	AG	692.	20.3	0.0	13.4		
23. BYPASS NB	*	1352.0	3228.5	1424.1	3315.6	*	113.	40.	AG	692.	20.3	0.0	13.4		
24. BYPASS NB	*	1424.1	3315.6	1479.3	3364.2	*	74.	49.	AG	692.	20.3	0.0	13.4		
25. BYPASS SB	*	1459.2	3387.7	1390.5	3329.0	*	90.	229.	AG	826.	20.3	0.0	13.4		
26. BYPASS SB	*	1390.5	3329.0	1335.2	3250.3	*	96.	215.	AG	826.	20.3	0.0	13.4		
27. BYPASS SB	*	1335.2	3250.3	1285.0	3164.8	*	99.	210.	AG	826.	20.3	0.0	13.4		
28. BYPASS SB	*	1285.0	3164.8	1099.0	2759.3	*	446.	205.	AG	826.	20.3	0.0	13.4		
29. BYPASS SB	*	1099.0	2759.3	1038.7	2626.9	*	145.	204.	AG	826.	20.3	0.0	13.4		
30. BYPASS SB	*	1038.7	2626.9	970.0	2487.9	*	155.	206.	AG	826.	20.3	0.0	13.4		
31. BYPASS SB	*	970.0	2487.9	909.6	2385.6	*	119.	211.	AG	826.	20.3	0.0	13.4		
32. BYPASS SB	*	909.6	2385.6	789.0	2201.3	*	220.	213.	AG	826.	20.3	0.0	13.4		
33. BARRACKS ROAD	*	242.7	2363.9	817.5	1978.5	*	692.	124.	AG	836.	18.2	0.0	13.4		
34. BARRACKS ROAD	*	817.5	1978.5	995.1	1852.8	*	218.	125.	AG	836.	18.2	0.0	13.4		
35. BARRACKS ROAD	*	995.1	1852.8	1032.0	1802.5	*	62.	144.	AG	836.	18.2	0.0	13.4		
36. BARRACKS ROAD	*	1032.0	1802.5	1058.8	1737.2	*	71.	158.	AG	836.	18.2	0.0	13.4		

37. BARRACKS ROAD	*	1058.8	1737.2	1070.5	1660.1	*	78.	171.	AG	836.	18.2	0.0	13.4	
38. BARRACKS ROAD	*	1070.5	1660.1	1119.1	1574.7	*	98.	150.	AG	836.	18.2	0.0	13.4	
39. BARRACKS ROAD	*	1119.1	1574.7	1161.0	1542.8	*	53.	127.	AG	836.	18.2	0.0	13.4	
40. BARRACKS ROAD	*	1161.0	1542.8	1318.5	1418.8	*	200.	128.	AG	836.	18.2	0.0	13.4	
41. BARRACKS ROAD	*	1318.5	1418.8	1400.6	1373.6	*	94.	119.	AG	836.	18.2	0.0	13.4	
42. BARRACKS ROAD	*	1400.6	1373.6	1476.0	1378.6	*	76.	86.	AG	836.	18.2	0.0	13.4	
43. BARRACKS ROAD	*	1476.0	1378.6	1574.9	1376.9	*	99.	91.	AG	836.	18.2	0.0	13.4	
44. BARRACKS ROAD	*	1574.9	1376.9	1667.0	1346.8	*	97.	108.	AG	836.	18.2	0.0	13.4	

PAGE 2

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:32:46

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. BARRACKS ROAD	*	1667.0	1346.8	1705.6	1281.4	*	76.	149.	AG	836.	18.2	0.0	13.4		

PAGE 3

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:32:46

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-15	1071.5	2394.3	1.8
2. R-16	991.5	2288.0	1.8
3. R-17	523.7	1791.2	1.8

PAGE 4

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD 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
0.	3.2	3.2	3.1
10.	3.4	3.5	3.1
20.	3.0	3.1	3.1

30.	*	3.0	3.0	3.3
40.	*	3.0	3.0	3.5
50.	*	3.0	3.0	3.4
60.	*	3.0	3.0	3.3
70.	*	3.0	3.0	3.4
80.	*	3.0	3.0	3.2
90.	*	3.0	3.0	3.2
100.	*	3.0	3.0	3.2
110.	*	3.0	3.0	3.2
120.	*	3.0	3.0	3.2
130.	*	3.0	3.0	3.3
140.	*	3.0	3.0	3.3
150.	*	3.0	3.0	3.3
160.	*	3.0	3.0	3.4
170.	*	3.0	3.0	3.1
180.	*	3.0	3.0	3.0
190.	*	3.0	3.1	3.0
200.	*	3.0	3.1	3.0
210.	*	3.0	3.0	3.0
220.	*	3.1	3.2	3.0
230.	*	3.2	3.3	3.0
240.	*	3.2	3.4	3.0
250.	*	3.3	3.3	3.0
260.	*	3.3	3.3	3.0
270.	*	3.2	3.3	3.0
280.	*	3.2	3.2	3.0
290.	*	3.2	3.3	3.0
300.	*	3.2	3.2	3.0
310.	*	3.2	3.2	3.0
320.	*	3.2	3.3	3.0
330.	*	3.2	3.2	3.0
340.	*	3.2	3.2	3.1
350.	*	3.4	3.2	3.1
MAX	*	3.4	3.5	3.5
DEGR.	*	10	10	40

THE HIGHEST CONCENTRATION OF 3.50 PPM OCCURRED AT RECEPTOR REC3 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:32:46

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

		CO/LINK (PPM) ANGLE (DEGREES)		
LINK #	*	REC1 10	REC2 10	REC3 40
1	*	0.0	0.0	0.0
2	*	0.0	0.0	0.0
3	*	0.0	0.0	0.0
4	*	0.0	0.0	0.0
5	*	0.0	0.0	0.0
6	*	0.0	0.0	0.1
7	*	0.0	0.0	0.0
8	*	0.0	0.0	0.1
9	*	0.0	0.0	0.2
10	*	0.0	0.0	0.0
11	*	0.0	0.0	0.0

12	*	0.0	0.0	0.0
13	*	0.0	0.0	0.0
14	*	0.0	0.0	0.0
15	*	0.0	0.0	0.0
16	*	0.0	0.0	0.0
17	*	0.0	0.1	0.0
18	*	0.1	0.1	0.0
19	*	0.1	0.0	0.0
20	*	0.1	0.0	0.0
21	*	0.0	0.0	0.0
22	*	0.0	0.0	0.0
23	*	0.0	0.0	0.0
24	*	0.0	0.0	0.0
25	*	0.0	0.0	0.0
26	*	0.0	0.0	0.0
27	*	0.0	0.0	0.0
28	*	0.1	0.1	0.0
29	*	0.0	0.1	0.0
30	*	0.0	0.1	0.0
31	*	0.0	0.0	0.0
32	*	0.0	0.0	0.0
33	*	0.0	0.0	0.1
34	*	0.0	0.0	0.0
35	*	0.0	0.0	0.0
36	*	0.0	0.0	0.0
37	*	0.0	0.0	0.0
38	*	0.0	0.0	0.0
39	*	0.0	0.0	0.0
40	*	0.0	0.0	0.0
41	*	0.0	0.0	0.0
42	*	0.0	0.0	0.0
43	*	0.0	0.0	0.0
44	*	0.0	0.0	0.0
45	*	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 7/30/2012 at 10:35:11

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS - R15 through R17

DATE : 07/30/ 0
TIME : 10:35:11

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. BARRACKS ROAD	242.7	2363.9	817.5	1978.5	692.	124.	AG	1653.	14.3	0.0	13.4		
2. BARRACKS ROAD	817.5	1978.5	995.1	1852.8	218.	125.	AG	1653.	14.3	0.0	13.4		
3. BARRACKS ROAD	995.1	1852.8	1032.0	1802.5	62.	144.	AG	1653.	14.3	0.0	13.4		
4. BARRACKS ROAD	1032.0	1802.5	1058.8	1737.2	71.	158.	AG	1653.	14.3	0.0	13.4		
5. BARRACKS ROAD	1058.8	1737.2	1070.5	1660.1	78.	171.	AG	1653.	14.3	0.0	13.4		
6. BARRACKS ROAD	1070.5	1660.1	1119.1	1574.7	98.	150.	AG	1653.	14.3	0.0	13.4		
7. BARRACKS ROAD	1119.1	1574.7	1161.0	1542.8	53.	127.	AG	1653.	14.3	0.0	13.4		
8. BARRACKS ROAD	1161.0	1542.8	1318.5	1418.8	200.	128.	AG	1653.	14.3	0.0	13.4		
9. BARRACKS ROAD	1318.5	1418.8	1400.6	1373.6	94.	119.	AG	1653.	14.3	0.0	13.4		
10. BARRACKS ROAD	1400.6	1373.6	1476.0	1378.6	76.	86.	AG	1653.	14.3	0.0	13.4		
11. BARRACKS ROAD	1476.0	1378.6	1574.9	1376.9	99.	91.	AG	1653.	14.3	0.0	13.4		
12. BARRACKS ROAD	1574.9	1376.9	1667.0	1346.8	97.	108.	AG	1653.	14.3	0.0	13.4		
13. BARRACKS ROAD	1667.0	1346.8	1705.6	1281.4	76.	149.	AG	1653.	14.3	0.0	13.4		

PAGE 2

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:35:11

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-15	1071.5	2394.3	1.8
2. R-16	991.5	2288.0	1.8
3. R-17	523.7	1791.2	1.8

PAGE 3

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 NOBUILD 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
0.	3.0	3.0	3.1
10.	3.0	3.0	3.1
20.	3.0	3.0	3.1
30.	3.0	3.0	3.1
40.	3.0	3.0	3.1
50.	3.0	3.0	3.1
60.	3.0	3.0	3.1
70.	3.0	3.0	3.1
80.	3.0	3.0	3.1
90.	3.0	3.0	3.0
100.	3.0	3.0	3.0
110.	3.0	3.0	3.1
120.	3.0	3.0	3.0
130.	3.0	3.0	3.0
140.	3.0	3.0	3.0
150.	3.0	3.0	3.0
160.	3.0	3.0	3.0
170.	3.0	3.0	3.0
180.	3.0	3.1	3.0
190.	3.1	3.1	3.0
200.	3.1	3.1	3.0
210.	3.0	3.0	3.0
220.	3.1	3.1	3.0
230.	3.1	3.1	3.0
240.	3.1	3.1	3.0
250.	3.1	3.1	3.0
260.	3.1	3.1	3.0
270.	3.0	3.1	3.0
280.	3.0	3.0	3.0
290.	3.0	3.0	3.0
300.	3.0	3.0	3.0
310.	3.0	3.0	3.0
320.	3.0	3.0	3.0
330.	3.0	3.0	3.0
340.	3.0	3.0	3.1
350.	3.0	3.0	3.1
MAX	3.1	3.1	3.1
DEGR.	260	270	350

THE HIGHEST CONCENTRATION OF 3.10 PPM OCCURRED AT RECEPTOR REC3 .

PAGE 4

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:35:11

RECEPTOR - LINK MATRIX FOR THE ANGLE PRODUCING

THE MAXIMUM CONCENTRATION FOR EACH RECEPTOR

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 260	REC2 270	REC3 350
1	0.1	0.1	0.1
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	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 7/30/2012 at 10:35:48

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS - R15 through R17

DATE : 07/30/ 0
TIME : 10:35:48

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. BYPASS NB	*	845.7	997.7	726.0	1142.1	*	188.	320.	AG	1080.	16.0	0.0	13.4		
2. BYPASS NB	*	726.0	1142.1	651.8	1311.3	*	185.	336.	AG	1080.	16.0	0.0	13.4		
3. BYPASS NB	*	651.8	1311.3	627.1	1619.3	*	309.	355.	AG	1080.	16.0	0.0	13.4		
4. BYPASS NB	*	627.1	1619.3	646.1	1824.6	*	206.	5.	AG	1080.	16.0	0.0	13.4		
5. BYPASS NB	*	646.1	1824.6	688.0	1967.1	*	149.	16.	AG	1080.	16.0	0.0	13.4		
6. BYPASS NB	*	688.0	1967.1	764.0	2119.2	*	170.	27.	AG	1080.	16.0	0.0	13.4		
7. BYPASS NB	*	764.0	2119.2	807.7	2191.4	*	84.	31.	AG	1080.	16.0	0.0	13.4		
8. BYPASS SB	*	788.7	2200.9	689.9	2020.4	*	206.	209.	AG	1290.	16.0	0.0	13.4		
9. BYPASS SB	*	689.9	2020.4	625.2	1826.5	*	204.	198.	AG	1290.	16.0	0.0	13.4		
10. BYPASS SB	*	625.2	1826.5	608.1	1604.1	*	223.	184.	AG	1290.	16.0	0.0	13.4		
11. BYPASS SB	*	608.1	1604.1	615.7	1332.2	*	272.	178.	AG	1290.	16.0	0.0	13.4		
12. BYPASS SB	*	615.7	1332.2	653.7	1223.9	*	115.	161.	AG	1290.	16.0	0.0	13.4		
13. BYPASS SB	*	653.7	1223.9	708.9	1130.7	*	108.	149.	AG	1290.	16.0	0.0	13.4		
14. BYPASS SB	*	708.9	1130.7	824.8	978.7	*	191.	143.	AG	1290.	16.0	0.0	13.4		
15. BYPASS NB	*	809.1	2191.3	899.6	2322.0	*	159.	35.	AG	1080.	16.0	0.0	13.4		
16. BYPASS NB	*	899.6	2322.0	980.0	2442.6	*	145.	34.	AG	1080.	16.0	0.0	13.4		
17. BYPASS NB	*	980.0	2442.6	1043.7	2563.3	*	136.	28.	AG	1080.	16.0	0.0	13.4		
18. BYPASS NB	*	1043.7	2563.3	1105.7	2695.6	*	146.	25.	AG	1080.	16.0	0.0	13.4		
19. BYPASS NB	*	1105.7	2695.6	1159.3	2818.0	*	134.	24.	AG	1080.	16.0	0.0	13.4		
20. BYPASS NB	*	1159.3	2818.0	1231.4	2985.5	*	182.	23.	AG	1080.	16.0	0.0	13.4		
21. BYPASS NB	*	1231.4	2985.5	1305.1	3143.0	*	174.	25.	AG	1080.	16.0	0.0	13.4		
22. BYPASS NB	*	1305.1	3143.0	1352.0	3228.5	*	98.	29.	AG	1080.	16.0	0.0	13.4		
23. BYPASS NB	*	1352.0	3228.5	1424.1	3315.6	*	113.	40.	AG	1080.	16.0	0.0	13.4		
24. BYPASS NB	*	1424.1	3315.6	1479.3	3364.2	*	74.	49.	AG	1080.	16.0	0.0	13.4		
25. BYPASS SB	*	1459.2	3387.7	1390.5	3329.0	*	90.	229.	AG	1290.	16.0	0.0	13.4		
26. BYPASS SB	*	1390.5	3329.0	1335.2	3250.3	*	96.	215.	AG	1290.	16.0	0.0	13.4		
27. BYPASS SB	*	1335.2	3250.3	1285.0	3164.8	*	99.	210.	AG	1290.	16.0	0.0	13.4		
28. BYPASS SB	*	1285.0	3164.8	1099.0	2759.3	*	446.	205.	AG	1290.	16.0	0.0	13.4		
29. BYPASS SB	*	1099.0	2759.3	1038.7	2626.9	*	145.	204.	AG	1290.	16.0	0.0	13.4		
30. BYPASS SB	*	1038.7	2626.9	970.0	2487.9	*	155.	206.	AG	1290.	16.0	0.0	13.4		
31. BYPASS SB	*	970.0	2487.9	909.6	2385.6	*	119.	211.	AG	1290.	16.0	0.0	13.4		
32. BYPASS SB	*	909.6	2385.6	789.0	2201.3	*	220.	213.	AG	1290.	16.0	0.0	13.4		
33. BARRACKS ROAD	*	242.7	2363.9	817.5	1978.5	*	692.	124.	AG	1675.	14.3	0.0	13.4		
34. BARRACKS ROAD	*	817.5	1978.5	995.1	1852.8	*	218.	125.	AG	1675.	14.3	0.0	13.4		
35. BARRACKS ROAD	*	995.1	1852.8	1032.0	1802.5	*	62.	144.	AG	1675.	14.3	0.0	13.4		
36. BARRACKS ROAD	*	1032.0	1802.5	1058.8	1737.2	*	71.	158.	AG	1675.	14.3	0.0	13.4		

37. BARRACKS ROAD	*	1058.8	1737.2	1070.5	1660.1	*	78.	171.	AG	1675.	14.3	0.0	13.4
38. BARRACKS ROAD	*	1070.5	1660.1	1119.1	1574.7	*	98.	150.	AG	1675.	14.3	0.0	13.4
39. BARRACKS ROAD	*	1119.1	1574.7	1161.0	1542.8	*	53.	127.	AG	1675.	14.3	0.0	13.4
40. BARRACKS ROAD	*	1161.0	1542.8	1318.5	1418.8	*	200.	128.	AG	1675.	14.3	0.0	13.4
41. BARRACKS ROAD	*	1318.5	1418.8	1400.6	1373.6	*	94.	119.	AG	1675.	14.3	0.0	13.4
42. BARRACKS ROAD	*	1400.6	1373.6	1476.0	1378.6	*	76.	86.	AG	1675.	14.3	0.0	13.4
43. BARRACKS ROAD	*	1476.0	1378.6	1574.9	1376.9	*	99.	91.	AG	1675.	14.3	0.0	13.4
44. BARRACKS ROAD	*	1574.9	1376.9	1667.0	1346.8	*	97.	108.	AG	1675.	14.3	0.0	13.4

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:35:48

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M)				*	LENGTH	BRG	TYPE	VPH	EF	H	W	V/C	QUEUE
	*	X1	Y1	X2	Y2	*	(M)	(DEG)			(G/MI)	(M)	(M)		(VEH)
45. BARRACKS ROAD	*	1667.0	1346.8	1705.6	1281.4	*	76.	149.	AG	1675.	14.3	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:35:48

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-15	1071.5	2394.3	1.8
2. R-16	991.5	2288.0	1.8
3. R-17	523.7	1791.2	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD 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
0.	3.4	3.3	3.1
10.	3.5	3.5	3.1
20.	3.1	3.4	3.1

30.	*	3.0	3.0	3.4
40.	*	3.0	3.0	3.6
50.	*	3.0	3.0	3.5
60.	*	3.0	3.0	3.5
70.	*	3.0	3.0	3.4
80.	*	3.0	3.0	3.4
90.	*	3.0	3.0	3.3
100.	*	3.0	3.0	3.3
110.	*	3.0	3.0	3.4
120.	*	3.0	3.0	3.3
130.	*	3.0	3.0	3.3
140.	*	3.0	3.0	3.3
150.	*	3.0	3.0	3.5
160.	*	3.0	3.0	3.6
170.	*	3.0	3.0	3.3
180.	*	3.0	3.1	3.0
190.	*	3.1	3.1	3.0
200.	*	3.1	3.1	3.0
210.	*	3.0	3.3	3.0
220.	*	3.3	3.4	3.0
230.	*	3.5	3.5	3.0
240.	*	3.5	3.5	3.0
250.	*	3.5	3.4	3.0
260.	*	3.4	3.5	3.0
270.	*	3.3	3.5	3.0
280.	*	3.2	3.3	3.0
290.	*	3.2	3.3	3.0
300.	*	3.3	3.3	3.0
310.	*	3.3	3.2	3.0
320.	*	3.2	3.3	3.0
330.	*	3.3	3.3	3.0
340.	*	3.4	3.4	3.1
350.	*	3.4	3.3	3.1
MAX	*	3.5	3.5	3.6
DEGR.	*	250	270	160

THE HIGHEST CONCENTRATION OF 3.60 PPM OCCURRED AT RECEPTOR REC3 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:35:48

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

		CO/LINK (PPM) ANGLE (DEGREES)		
LINK #	*	REC1 250	REC2 270	REC3 160
1	*	0.0	0.0	0.0
2	*	0.0	0.0	0.1
3	*	0.0	0.0	0.2
4	*	0.0	0.0	0.0
5	*	0.0	0.0	0.0
6	*	0.0	0.0	0.0
7	*	0.0	0.0	0.0
8	*	0.0	0.0	0.0
9	*	0.0	0.0	0.0
10	*	0.0	0.0	0.1
11	*	0.0	0.0	0.2

12	*	0.0	0.0	0.0
13	*	0.0	0.0	0.0
14	*	0.0	0.0	0.0
15	*	0.1	0.2	0.0
16	*	0.1	0.0	0.0
17	*	0.0	0.0	0.0
18	*	0.0	0.0	0.0
19	*	0.0	0.0	0.0
20	*	0.0	0.0	0.0
21	*	0.0	0.0	0.0
22	*	0.0	0.0	0.0
23	*	0.0	0.0	0.0
24	*	0.0	0.0	0.0
25	*	0.0	0.0	0.0
26	*	0.0	0.0	0.0
27	*	0.0	0.0	0.0
28	*	0.0	0.0	0.0
29	*	0.0	0.0	0.0
30	*	0.0	0.0	0.0
31	*	0.0	0.0	0.0
32	*	0.2	0.2	0.0
33	*	0.1	0.1	0.0
34	*	0.0	0.0	0.0
35	*	0.0	0.0	0.0
36	*	0.0	0.0	0.0
37	*	0.0	0.0	0.0
38	*	0.0	0.0	0.0
39	*	0.0	0.0	0.0
40	*	0.0	0.0	0.0
41	*	0.0	0.0	0.0
42	*	0.0	0.0	0.0
43	*	0.0	0.0	0.0
44	*	0.0	0.0	0.0
45	*	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 7/30/2012 at 10:27:04

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 BUILD CONDITIONS - R9 through R14

DATE : 07/30/ 0
TIME : 10:27:04

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 = 11. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. EARLYSVILLE ROAD	*	3195.9	3694.7	3177.6	3780.1	*	87.	348.	AG	1048.	21.5	0.0	13.4		
2. EARLYSVILLE ROAD	*	3177.6	3780.1	3177.6	3886.8	*	107.	360.	AG	1048.	21.5	0.0	13.4		
3. EARLYSVILLE ROAD	*	3177.6	3886.8	3183.7	4060.5	*	174.	2.	AG	1048.	21.5	0.0	13.4		
4. EARLYSVILLE ROAD	*	3183.7	4060.5	3180.7	4173.4	*	113.	358.	AG	1048.	21.5	0.0	13.4		
5. EARLYSVILLE ROAD	*	3180.7	4173.4	3168.5	4310.5	*	138.	355.	AG	1048.	21.5	0.0	13.4		
6. EARLYSVILLE ROAD	*	3168.5	4310.5	3165.4	4374.6	*	64.	357.	AG	1048.	21.5	0.0	13.4		
7. EARLYSVILLE ROAD	*	3165.4	4374.6	3113.6	4502.6	*	138.	338.	AG	1048.	21.5	0.0	13.4		
8. LAMBS ROAD	*	2326.0	3285.7	2360.2	4137.1	*	852.	2.	AG	428.	21.5	0.0	13.4		
9. HYDRAULIC NB	*	2527.7	2851.6	2615.0	3002.7	*	175.	30.	AG	1150.	21.5	0.0	13.4		
10. HYDRAULIC NB	*	2615.0	3002.7	2707.5	3156.4	*	179.	31.	AG	1150.	21.5	0.0	13.4		
11. HYDRAULIC NB	*	2707.5	3156.4	2772.6	3260.6	*	123.	32.	AG	1150.	21.5	0.0	13.4		
12. HYDRAULIC NB	*	2772.6	3260.6	2837.8	3334.9	*	99.	41.	AG	1150.	21.5	0.0	13.4		
13. HYDRAULIC NB	*	2837.8	3334.9	2930.2	3437.8	*	138.	42.	AG	1150.	21.5	0.0	13.4		
14. HYDRAULIC NB	*	2930.2	3437.8	3017.5	3527.7	*	125.	44.	AG	1150.	21.5	0.0	13.4		
15. HYDRAULIC NB	*	3017.5	3527.7	3084.0	3591.5	*	92.	46.	AG	1150.	21.5	0.0	13.4		
16. HYDRAULIC NB	*	3084.0	3591.5	3147.8	3643.6	*	82.	51.	AG	1150.	21.5	0.0	13.4		
17. HYDRAULIC NB	*	3147.8	3643.6	3199.9	3684.0	*	66.	52.	AG	1150.	21.5	0.0	13.4		
18. HYDRAULIC SB	*	3189.5	3690.5	3068.3	3603.2	*	149.	234.	AG	1005.	21.5	0.0	13.4		
19. HYDRAULIC SB	*	3068.3	3603.2	3025.3	3555.0	*	65.	222.	AG	1005.	21.5	0.0	13.4		
20. HYDRAULIC SB	*	3025.3	3555.0	2859.9	3384.4	*	238.	224.	AG	1005.	21.5	0.0	13.4		
21. HYDRAULIC SB	*	2859.9	3384.4	2785.6	3293.2	*	118.	219.	AG	1005.	21.5	0.0	13.4		
22. HYDRAULIC SB	*	2785.6	3293.2	2742.7	3238.5	*	70.	218.	AG	1005.	21.5	0.0	13.4		
23. HYDRAULIC SB	*	2742.7	3238.5	2714.0	3187.7	*	58.	209.	AG	1005.	21.5	0.0	13.4		
24. HYDRAULIC SB	*	2714.0	3187.7	2519.9	2864.6	*	377.	211.	AG	1005.	21.5	0.0	13.4		
25. RIO EB TO BERKMAR	*	3196.0	3681.4	3362.7	3798.6	*	204.	55.	AG	813.	21.5	0.0	13.4		
26. RIO EB TO BERKMAR	*	3362.7	3798.6	3515.1	3896.3	*	181.	57.	AG	813.	21.5	0.0	13.4		
27. RIO EB TO BERKMAR	*	3515.1	3896.3	3664.9	3991.4	*	177.	58.	AG	813.	21.5	0.0	13.4		
28. RIO EB TO BERKMAR	*	3664.9	3991.4	3790.0	4074.8	*	150.	56.	AG	813.	21.5	0.0	13.4		
29. RIO EB TO BERKMAR	*	3790.0	4074.8	3874.7	4120.4	*	96.	62.	AG	813.	21.5	0.0	13.4		
30. RIO EB TO BERKMAR	*	3874.7	4120.4	3938.5	4139.9	*	67.	73.	AG	813.	21.5	0.0	13.4		
31. RIO EB TO BERKMAR	*	3938.5	4139.9	3984.1	4146.4	*	46.	82.	AG	813.	21.5	0.0	13.4		
32. RIO EB TO BERKMAR	*	3984.1	4146.4	4029.7	4145.1	*	46.	92.	AG	813.	21.5	0.0	13.4		
33. RIO EB TO BERKMAR	*	4029.7	4145.1	4074.0	4141.2	*	44.	95.	AG	813.	21.5	0.0	13.4		
34. RIO EB TO BERKMAR	*	4074.0	4141.2	4127.4	4123.0	*	56.	109.	AG	813.	21.5	0.0	13.4		
35. RIO EB TO BERKMAR	*	4127.4	4123.0	4179.5	4082.6	*	66.	128.	AG	813.	21.5	0.0	13.4		
36. RIO EB TO BERKMAR	*	4179.5	4082.6	4328.0	3960.2	*	192.	129.	AG	813.	21.5	0.0	13.4		
37. RIO EB TO BERKMAR	*	4328.0	3960.2	4520.8	3771.3	*	270.	134.	AG	813.	21.5	0.0	13.4		

38. RIO WB TO EARLYSVILL*	4527.3	3776.5	4361.8	3943.2 *	235.	315.	AG	931.	21.5	0.0	13.4		
39. RIO WB TO EARLYSVILL*	4361.8	3943.2	4282.4	4018.8 *	110.	314.	AG	931.	21.5	0.0	13.4		
40. RIO WB TO EARLYSVILL*	4282.4	4018.8	4217.3	4073.5 *	85.	310.	AG	931.	21.5	0.0	13.4		
41. RIO WB TO EARLYSVILL*	4217.3	4073.5	4159.9	4120.4 *	74.	309.	AG	931.	21.5	0.0	13.4		
42. RIO WB TO EARLYSVILL*	4159.9	4120.4	4089.6	4154.3 *	78.	296.	AG	931.	21.5	0.0	13.4		
43. RIO WB TO EARLYSVILL*	4089.6	4154.3	4046.6	4162.1 *	44.	280.	AG	931.	21.5	0.0	13.4		
44. RIO WB TO EARLYSVILL*	4046.6	4162.1	3989.3	4164.7 *	57.	273.	AG	931.	21.5	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:27:04

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. RIO WB TO EARLYSVILL*	3989.3	4164.7	3951.5	4156.9 *	39.	258.	AG	931.	21.5	0.0	13.4		
46. RIO WB TO EARLYSVILL*	3951.5	4156.9	3874.7	4134.7 *	80.	254.	AG	931.	21.5	0.0	13.4		
47. RIO WB TO EARLYSVILL*	3874.7	4134.7	3825.2	4115.2 *	53.	248.	AG	931.	21.5	0.0	13.4		
48. RIO WB TO EARLYSVILL*	3825.2	4115.2	3753.5	4070.9 *	84.	238.	AG	931.	21.5	0.0	13.4		
49. RIO WB TO EARLYSVILL*	3753.5	4070.9	3572.4	3953.6 *	216.	237.	AG	931.	21.5	0.0	13.4		
50. RIO WB TO EARLYSVILL*	3572.4	3953.6	3366.6	3820.8 *	245.	237.	AG	931.	21.5	0.0	13.4		
51. RIO WB TO EARLYSVILL*	3366.6	3820.8	3324.9	3796.0 *	49.	239.	AG	931.	21.5	0.0	13.4		
52. RIO WB TO EARLYSVILL*	3324.9	3796.0	3194.7	3695.7 *	164.	232.	AG	931.	21.5	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:27:04

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR *	COORDINATES (M) X	Y	Z *
1. R-9 *	3297.1	4167.2	1.8 *
2. R-10 *	3076.3	4011.4	1.8 *
3. R-11 *	2627.9	3776.4	1.8 *
4. R-12 *	2553.0	3510.5	1.8 *
5. R-13 *	2282.2	3726.8	1.8 *
6. R-14 *	1464.3	3224.1	1.8 *

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 BUILD 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
0.	3.0	3.0	3.0	3.0	3.0	3.0
10.	3.0	3.1	3.0	3.0	3.1	3.0
20.	3.0	3.1	3.0	3.0	3.1	3.0
30.	3.0	3.2	3.0	3.0	3.1	3.0
40.	3.0	3.1	3.0	3.0	3.1	3.0
50.	3.0	3.1	3.0	3.0	3.1	3.0
60.	3.0	3.1	3.0	3.0	3.1	3.0
70.	3.0	3.1	3.0	3.0	3.1	3.0
80.	3.0	3.1	3.0	3.0	3.1	3.0
90.	3.0	3.1	3.0	3.1	3.1	3.0
100.	3.0	3.1	3.0	3.1	3.1	3.0
110.	3.1	3.2	3.0	3.1	3.1	3.0
120.	3.1	3.1	3.0	3.1	3.1	3.0
130.	3.0	3.1	3.0	3.1	3.1	3.0
140.	3.1	3.3	3.0	3.0	3.1	3.0
150.	3.1	3.2	3.0	3.1	3.1	3.0
160.	3.1	3.2	3.0	3.2	3.1	3.0
170.	3.0	3.1	3.0	3.2	3.1	3.0
180.	3.0	3.0	3.1	3.1	3.0	3.0
190.	3.0	3.1	3.0	3.0	3.0	3.0
200.	3.2	3.0	3.0	3.0	3.0	3.0
210.	3.1	3.0	3.0	3.0	3.0	3.0
220.	3.1	3.0	3.0	3.0	3.0	3.0
230.	3.2	3.0	3.0	3.0	3.0	3.0
240.	3.1	3.0	3.0	3.0	3.0	3.0
250.	3.1	3.0	3.0	3.0	3.0	3.0
260.	3.1	3.0	3.0	3.0	3.0	3.0
270.	3.1	3.0	3.0	3.0	3.0	3.0
280.	3.1	3.0	3.0	3.0	3.0	3.0
290.	3.1	3.0	3.0	3.0	3.0	3.0
300.	3.1	3.0	3.0	3.0	3.0	3.0
310.	3.1	3.0	3.0	3.0	3.0	3.0
320.	3.2	3.0	3.0	3.0	3.0	3.0
330.	3.2	3.0	3.0	3.0	3.0	3.0
340.	3.0	3.0	3.0	3.0	3.0	3.0
350.	3.0	3.0	3.0	3.0	3.0	3.0
MAX	3.2	3.3	3.1	3.2	3.1	3.0
DEGR.	200	140	180	160	170	0

THE HIGHEST CONCENTRATION OF 3.30 PPM OCCURRED AT RECEPTOR REC2 .

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:27:04

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 200	REC2 140	REC3 180	REC4 160	REC5 170	REC6 0
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.1	0.1	0.0	0.0	0.0	0.0

3	*	0.1	0.1	0.0	0.0	0.0	0.0
4	*	0.0	0.0	0.0	0.0	0.0	0.0
5	*	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
7	*	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.1	0.0
9	*	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.1	0.0	0.0
11	*	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
13	*	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
15	*	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
17	*	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
19	*	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
21	*	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
23	*	0.0	0.0	0.0	0.0	0.0	0.0
24	*	0.0	0.0	0.1	0.1	0.0	0.0
25	*	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
27	*	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
29	*	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
31	*	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
33	*	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
35	*	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
37	*	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
39	*	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
41	*	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
43	*	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
45	*	0.0	0.0	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS

RUN: EXISTING 2011 BUILD CONDITIONS

		CO/LINK (PPM) ANGLE (DEGREES)					
	*	REC1	REC2	REC3	REC4	REC5	REC6
LINK #	*	200	140	180	160	170	0
46	*	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
48	*	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
50	*	0.0	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.0	0.1	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 7/30/2012 at 10:28:01

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 NO-BUILD CONDITIONS - R9 through R14

DATE : 07/30/ 0
TIME : 10:28:01

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. EARLYSVILLE ROAD	*	3195.9	3694.7	3177.6	3780.1	*	87.	348.	AG	1059.	18.2	0.0	13.4		
2. EARLYSVILLE ROAD	*	3177.6	3780.1	3177.6	3886.8	*	107.	360.	AG	1059.	18.2	0.0	13.4		
3. EARLYSVILLE ROAD	*	3177.6	3886.8	3183.7	4060.5	*	174.	2.	AG	1059.	18.2	0.0	13.4		
4. EARLYSVILLE ROAD	*	3183.7	4060.5	3180.7	4173.4	*	113.	358.	AG	1059.	18.2	0.0	13.4		
5. EARLYSVILLE ROAD	*	3180.7	4173.4	3168.5	4310.5	*	138.	355.	AG	1059.	18.2	0.0	13.4		
6. EARLYSVILLE ROAD	*	3168.5	4310.5	3165.4	4374.6	*	64.	357.	AG	1059.	18.2	0.0	13.4		
7. EARLYSVILLE ROAD	*	3165.4	4374.6	3113.6	4502.6	*	138.	338.	AG	1059.	18.2	0.0	13.4		
8. LAMBS ROAD	*	2326.0	3285.7	2360.2	4137.1	*	852.	2.	AG	507.	18.2	0.0	13.4		
9. HYDRAULIC NB	*	2527.7	2851.6	2615.0	3002.7	*	175.	30.	AG	1167.	18.2	0.0	13.4		
10. HYDRAULIC NB	*	2615.0	3002.7	2707.5	3156.4	*	179.	31.	AG	1167.	18.2	0.0	13.4		
11. HYDRAULIC NB	*	2707.5	3156.4	2772.6	3260.6	*	123.	32.	AG	1167.	18.2	0.0	13.4		
12. HYDRAULIC NB	*	2772.6	3260.6	2837.8	3334.9	*	99.	41.	AG	1167.	18.2	0.0	13.4		
13. HYDRAULIC NB	*	2837.8	3334.9	2930.2	3437.8	*	138.	42.	AG	1167.	18.2	0.0	13.4		
14. HYDRAULIC NB	*	2930.2	3437.8	3017.5	3527.7	*	125.	44.	AG	1167.	18.2	0.0	13.4		
15. HYDRAULIC NB	*	3017.5	3527.7	3084.0	3591.5	*	92.	46.	AG	1167.	18.2	0.0	13.4		
16. HYDRAULIC NB	*	3084.0	3591.5	3147.8	3643.6	*	82.	51.	AG	1167.	18.2	0.0	13.4		
17. HYDRAULIC NB	*	3147.8	3643.6	3199.9	3684.0	*	66.	52.	AG	1167.	18.2	0.0	13.4		
18. HYDRAULIC SB	*	3189.5	3690.5	3068.3	3603.2	*	149.	234.	AG	1019.	18.2	0.0	13.4		
19. HYDRAULIC SB	*	3068.3	3603.2	3025.3	3555.0	*	65.	222.	AG	1019.	18.2	0.0	13.4		
20. HYDRAULIC SB	*	3025.3	3555.0	2859.9	3384.4	*	238.	224.	AG	1019.	18.2	0.0	13.4		
21. HYDRAULIC SB	*	2859.9	3384.4	2785.6	3293.2	*	118.	219.	AG	1019.	18.2	0.0	13.4		
22. HYDRAULIC SB	*	2785.6	3293.2	2742.7	3238.5	*	70.	218.	AG	1019.	18.2	0.0	13.4		
23. HYDRAULIC SB	*	2742.7	3238.5	2714.0	3187.7	*	58.	209.	AG	1019.	18.2	0.0	13.4		
24. HYDRAULIC SB	*	2714.0	3187.7	2519.9	2864.6	*	377.	211.	AG	1019.	18.2	0.0	13.4		
25. RIO EB TO BERKMAR	*	3196.0	3681.4	3362.7	3798.6	*	204.	55.	AG	783.	18.2	0.0	13.4		
26. RIO EB TO BERKMAR	*	3362.7	3798.6	3515.1	3896.3	*	181.	57.	AG	783.	18.2	0.0	13.4		
27. RIO EB TO BERKMAR	*	3515.1	3896.3	3664.9	3991.4	*	177.	58.	AG	783.	18.2	0.0	13.4		
28. RIO EB TO BERKMAR	*	3664.9	3991.4	3790.0	4074.8	*	150.	56.	AG	783.	18.2	0.0	13.4		
29. RIO EB TO BERKMAR	*	3790.0	4074.8	3874.7	4120.4	*	96.	62.	AG	783.	18.2	0.0	13.4		
30. RIO EB TO BERKMAR	*	3874.7	4120.4	3938.5	4139.9	*	67.	73.	AG	783.	18.2	0.0	13.4		
31. RIO EB TO BERKMAR	*	3938.5	4139.9	3984.1	4146.4	*	46.	82.	AG	783.	18.2	0.0	13.4		
32. RIO EB TO BERKMAR	*	3984.1	4146.4	4029.7	4145.1	*	46.	92.	AG	783.	18.2	0.0	13.4		
33. RIO EB TO BERKMAR	*	4029.7	4145.1	4074.0	4141.2	*	44.	95.	AG	783.	18.2	0.0	13.4		
34. RIO EB TO BERKMAR	*	4074.0	4141.2	4127.4	4123.0	*	56.	109.	AG	783.	18.2	0.0	13.4		
35. RIO EB TO BERKMAR	*	4127.4	4123.0	4179.5	4082.6	*	66.	128.	AG	783.	18.2	0.0	13.4		
36. RIO EB TO BERKMAR	*	4179.5	4082.6	4328.0	3960.2	*	192.	129.	AG	783.	18.2	0.0	13.4		

37. RIO EB TO BERKMAR	*	4328.0	3960.2	4520.8	3771.3	*	270.	134.	AG	783.	18.2	0.0 13.4
38. RIO WB TO EARLYSVILL	*	4527.3	3776.5	4361.8	3943.2	*	235.	315.	AG	897.	18.2	0.0 13.4
39. RIO WB TO EARLYSVILL	*	4361.8	3943.2	4282.4	4018.8	*	110.	314.	AG	897.	18.2	0.0 13.4
40. RIO WB TO EARLYSVILL	*	4282.4	4018.8	4217.3	4073.5	*	85.	310.	AG	897.	18.2	0.0 13.4
41. RIO WB TO EARLYSVILL	*	4217.3	4073.5	4159.9	4120.4	*	74.	309.	AG	897.	18.2	0.0 13.4
42. RIO WB TO EARLYSVILL	*	4159.9	4120.4	4089.6	4154.3	*	78.	296.	AG	897.	18.2	0.0 13.4
43. RIO WB TO EARLYSVILL	*	4089.6	4154.3	4046.6	4162.1	*	44.	280.	AG	897.	18.2	0.0 13.4
44. RIO WB TO EARLYSVILL	*	4046.6	4162.1	3989.3	4164.7	*	57.	273.	AG	897.	18.2	0.0 13.4

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:28:01

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. RIO WB TO EARLYSVILL	*	3989.3	4164.7	3951.5	4156.9	*	39.	258.	AG	897.	18.2	0.0	13.4		
46. RIO WB TO EARLYSVILL	*	3951.5	4156.9	3874.7	4134.7	*	80.	254.	AG	897.	18.2	0.0	13.4		
47. RIO WB TO EARLYSVILL	*	3874.7	4134.7	3825.2	4115.2	*	53.	248.	AG	897.	18.2	0.0	13.4		
48. RIO WB TO EARLYSVILL	*	3825.2	4115.2	3753.5	4070.9	*	84.	238.	AG	897.	18.2	0.0	13.4		
49. RIO WB TO EARLYSVILL	*	3753.5	4070.9	3572.4	3953.6	*	216.	237.	AG	897.	18.2	0.0	13.4		
50. RIO WB TO EARLYSVILL	*	3572.4	3953.6	3366.6	3820.8	*	245.	237.	AG	897.	18.2	0.0	13.4		
51. RIO WB TO EARLYSVILL	*	3366.6	3820.8	3324.9	3796.0	*	49.	239.	AG	897.	18.2	0.0	13.4		
52. RIO WB TO EARLYSVILL	*	3324.9	3796.0	3194.7	3695.7	*	164.	232.	AG	897.	18.2	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:28:01

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. R-9	*	3297.1	4167.2	1.8	*
2. R-10	*	3076.3	4011.4	1.8	*
3. R-11	*	2627.9	3776.4	1.8	*
4. R-12	*	2553.0	3510.5	1.8	*
5. R-13	*	2282.2	3726.8	1.8	*
6. R-14	*	1464.3	3224.1	1.8	*

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD 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
0.	3.0	3.0	3.0	3.0	3.0	3.0
10.	3.0	3.1	3.0	3.0	3.1	3.0
20.	3.0	3.1	3.0	3.0	3.2	3.0
30.	3.0	3.2	3.0	3.0	3.1	3.0
40.	3.0	3.2	3.0	3.0	3.1	3.0
50.	3.0	3.2	3.0	3.0	3.1	3.0
60.	3.0	3.1	3.0	3.0	3.1	3.0
70.	3.0	3.1	3.0	3.0	3.1	3.0
80.	3.0	3.1	3.0	3.0	3.1	3.0
90.	3.0	3.3	3.0	3.2	3.1	3.0
100.	3.0	3.3	3.0	3.1	3.1	3.0
110.	3.1	3.4	3.0	3.2	3.1	3.0
120.	3.1	3.4	3.0	3.2	3.1	3.0
130.	3.1	3.2	3.2	3.2	3.1	3.0
140.	3.1	3.4	3.1	3.2	3.1	3.0
150.	3.2	3.4	3.1	3.1	3.2	3.0
160.	3.2	3.2	3.0	3.2	3.1	3.0
170.	3.0	3.1	3.0	3.2	3.1	3.0
180.	3.2	3.0	3.1	3.2	3.0	3.0
190.	3.1	3.2	3.0	3.0	3.0	3.0
200.	3.3	3.0	3.0	3.0	3.0	3.0
210.	3.2	3.0	3.0	3.0	3.0	3.0
220.	3.2	3.0	3.0	3.0	3.0	3.0
230.	3.2	3.0	3.0	3.0	3.0	3.0
240.	3.1	3.0	3.0	3.0	3.0	3.0
250.	3.1	3.0	3.0	3.0	3.0	3.0
260.	3.1	3.0	3.0	3.0	3.0	3.0
270.	3.1	3.0	3.0	3.0	3.0	3.0
280.	3.1	3.0	3.0	3.0	3.0	3.0
290.	3.1	3.0	3.0	3.0	3.0	3.0
300.	3.2	3.0	3.0	3.0	3.0	3.0
310.	3.2	3.0	3.0	3.1	3.0	3.0
320.	3.2	3.0	3.0	3.1	3.0	3.0
330.	3.2	3.0	3.0	3.1	3.0	3.0
340.	3.0	3.0	3.0	3.0	3.0	3.0
350.	3.0	3.0	3.0	3.0	3.0	3.0
MAX	3.3	3.4	3.2	3.2	3.2	3.0
DEGR.	200	110	130	90	20	0

THE HIGHEST CONCENTRATION OF 3.40 PPM OCCURRED AT RECEPTOR REC2 .

PAGE 5

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:28:01

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1	REC2	REC3	REC4	REC5	REC6
	200	110	130	90	20	0
1	0.0	0.0	0.0	0.0	0.0	0.0

2	*	0.1	0.0	0.0	0.0	0.0	0.0
3	*	0.1	0.2	0.0	0.0	0.0	0.0
4	*	0.0	0.0	0.0	0.0	0.0	0.0
5	*	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
7	*	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.0	0.0	0.2	0.0
9	*	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
11	*	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
13	*	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.1	0.1	0.0	0.0
15	*	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
17	*	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.1	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.1	0.1	0.0	0.0
21	*	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
23	*	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
25	*	0.0	0.0	0.0	0.0	0.0	0.0
26	*	0.0	0.1	0.0	0.0	0.0	0.0
27	*	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
29	*	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
31	*	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
33	*	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
35	*	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
37	*	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
39	*	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
41	*	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
43	*	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
45	*	0.0	0.0	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS

LINK #	*	CO/LINK (PPM) ANGLE (DEGREES) REC1 200	REC2 110	REC3 130	REC4 90	REC5 20	REC6 0
46	*	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
48	*	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
50	*	0.0	0.1	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.0	0.0	0.0
52	*	0.0	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

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

Run Began on 7/30/2012 at 10:28:47

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS - R9 through R14

DATE : 07/30/ 0
TIME : 10:28:47

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. BYPASS NORTHBOUND	*	1034.3	2539.2	1141.0	2783.1	*	266.	24.	AG	692.	20.3	0.0	13.4		
2. BYPASS NORTHBOUND	*	1141.0	2783.1	1232.5	2990.4	*	227.	24.	AG	692.	20.3	0.0	13.4		
3. BYPASS NORTHBOUND	*	1232.5	2990.4	1290.4	3133.7	*	155.	22.	AG	692.	20.3	0.0	13.4		
4. BYPASS NORTHBOUND	*	1290.4	3133.7	1369.7	3240.4	*	133.	37.	AG	692.	20.3	0.0	13.4		
5. BYPASS NORTHBOUND	*	1369.7	3240.4	1452.0	3325.8	*	119.	44.	AG	692.	20.3	0.0	13.4		
6. BYPASS NORTHBOUND	*	1452.0	3325.8	1555.7	3395.9	*	125.	56.	AG	692.	20.3	0.0	13.4		
7. BYPASS NORTHBOUND	*	1555.7	3395.9	1665.4	3441.6	*	119.	67.	AG	692.	20.3	0.0	13.4		
8. BYPASS NORTHBOUND	*	1665.4	3441.6	1759.9	3459.9	*	96.	79.	AG	692.	20.3	0.0	13.4		
9. BYPASS NORTHBOUND	*	1759.9	3459.9	1891.0	3472.1	*	132.	85.	AG	692.	20.3	0.0	13.4		
10. BYPASS NORTHBOUND	*	1891.0	3472.1	2019.1	3475.2	*	128.	89.	AG	692.	20.3	0.0	13.4		
11. BYPASS NORTHBOUND	*	2019.1	3475.2	2150.2	3499.6	*	133.	79.	AG	692.	20.3	0.0	13.4		
12. BYPASS NORTHBOUND	*	2150.2	3499.6	2250.8	3539.2	*	108.	69.	AG	692.	20.3	0.0	13.4		
13. BYPASS NORTHBOUND	*	2250.8	3539.2	2354.4	3572.7	*	109.	72.	AG	692.	20.3	0.0	13.4		
14. BYPASS NORTHBOUND	*	2354.4	3572.7	2488.6	3606.3	*	138.	76.	AG	692.	20.3	0.0	13.4		
15. BYPASS NORTHBOUND	*	2488.6	3606.3	2567.9	3624.6	*	81.	77.	AG	692.	20.3	0.0	13.4		
16. BYPASS NORTHBOUND	*	2567.9	3624.6	2674.6	3633.7	*	107.	85.	AG	692.	20.3	0.0	13.4		
17. BYPASS NORTHBOUND	*	2674.6	3633.7	2793.5	3658.1	*	121.	78.	AG	692.	20.3	0.0	13.4		
18. BYPASS NORTHBOUND	*	2793.5	3658.1	2866.6	3685.5	*	78.	69.	AG	692.	20.3	0.0	13.4		
19. BYPASS NORTHBOUND	*	2866.6	3685.5	2921.5	3709.9	*	60.	66.	AG	692.	20.3	0.0	13.4		
20. BYPASS NORTHBOUND	*	2921.5	3709.9	2985.5	3746.5	*	74.	60.	AG	692.	20.3	0.0	13.4		
21. BYPASS NORTHBOUND	*	2985.5	3746.5	3083.1	3825.8	*	126.	51.	AG	692.	20.3	0.0	13.4		
22. BYPASS NORTHBOUND	*	3083.1	3825.8	3171.5	3902.0	*	117.	49.	AG	692.	20.3	0.0	13.4		
23. BYPASS NORTHBOUND	*	3171.5	3902.0	3229.4	3956.9	*	80.	47.	AG	692.	20.3	0.0	13.4		
24. BYPASS NORTHBOUND	*	3229.4	3956.9	3308.7	4011.8	*	96.	55.	AG	692.	20.3	0.0	13.4		
25. BYPASS NORTHBOUND	*	3308.7	4011.8	3400.2	4066.6	*	107.	59.	AG	692.	20.3	0.0	13.4		
26. BYPASS NORTHBOUND	*	3400.2	4066.6	3503.8	4124.6	*	119.	61.	AG	692.	20.3	0.0	13.4		
27. BYPASS NORTHBOUND	*	3503.8	4124.6	3601.4	4176.4	*	110.	62.	AG	692.	20.3	0.0	13.4		
28. BYPASS NORTHBOUND	*	3601.4	4176.4	3692.8	4231.3	*	107.	59.	AG	692.	20.3	0.0	13.4		
29. BYPASS NORTHBOUND	*	3692.8	4231.3	3808.7	4301.4	*	135.	59.	AG	692.	20.3	0.0	13.4		
30. BYPASS NORTHBOUND	*	3808.7	4301.4	3872.7	4347.1	*	79.	54.	AG	692.	20.3	0.0	13.4		
31. BYPASS NORTHBOUND	*	3872.7	4347.1	3976.4	4453.8	*	149.	44.	AG	692.	20.3	0.0	13.4		
32. BYPASS NORTHBOUND	*	3976.4	4453.8	4037.4	4530.1	*	98.	39.	AG	692.	20.3	0.0	13.4		
33. BYPASS SOUTHBOUND	*	3991.6	4557.5	3833.1	4380.7	*	237.	222.	AG	826.	20.3	0.0	13.4		
34. BYPASS SOUTHBOUND	*	3833.1	4380.7	3784.3	4325.8	*	73.	222.	AG	826.	20.3	0.0	13.4		
35. BYPASS SOUTHBOUND	*	3784.3	4325.8	3711.1	4270.9	*	91.	233.	AG	826.	20.3	0.0	13.4		
36. BYPASS SOUTHBOUND	*	3711.1	4270.9	3601.4	4197.7	*	132.	236.	AG	826.	20.3	0.0	13.4		

37. BYPASS SOUTHBOUND	*	3601.4	4197.7	3448.9	4118.5	*	172.	243.	AG	826.	20.3	0.0	13.4
38. BYPASS SOUTHBOUND	*	3448.9	4118.5	3339.2	4051.4	*	129.	239.	AG	826.	20.3	0.0	13.4
39. BYPASS SOUTHBOUND	*	3339.2	4051.4	3247.7	3990.4	*	110.	236.	AG	826.	20.3	0.0	13.4
40. BYPASS SOUTHBOUND	*	3247.7	3990.4	3165.4	3914.2	*	112.	227.	AG	826.	20.3	0.0	13.4
41. BYPASS SOUTHBOUND	*	3165.4	3914.2	3083.1	3841.0	*	110.	228.	AG	826.	20.3	0.0	13.4
42. BYPASS SOUTHBOUND	*	3083.1	3841.0	3003.8	3774.0	*	104.	230.	AG	826.	20.3	0.0	13.4
43. BYPASS SOUTHBOUND	*	3003.8	3774.0	2945.9	3737.4	*	68.	238.	AG	826.	20.3	0.0	13.4
44. BYPASS SOUTHBOUND	*	2945.9	3737.4	2860.5	3694.7	*	95.	243.	AG	826.	20.3	0.0	13.4

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:28:47

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. BYPASS SOUTHBOUND	*	2860.5	3694.7	2775.2	3664.2	*	91.	250.	AG	826.	20.3	0.0	13.4		
46. BYPASS SOUTHBOUND	*	2775.2	3664.2	2702.0	3649.0	*	75.	258.	AG	826.	20.3	0.0	13.4		
47. BYPASS SOUTHBOUND	*	2702.0	3649.0	2619.7	3636.8	*	83.	262.	AG	826.	20.3	0.0	13.4		
48. BYPASS SOUTHBOUND	*	2619.7	3636.8	2534.3	3630.7	*	86.	266.	AG	826.	20.3	0.0	13.4		
49. BYPASS SOUTHBOUND	*	2534.3	3630.7	2421.5	3609.3	*	115.	259.	AG	826.	20.3	0.0	13.4		
50. BYPASS SOUTHBOUND	*	2421.5	3609.3	2256.9	3560.5	*	172.	253.	AG	826.	20.3	0.0	13.4		
51. BYPASS SOUTHBOUND	*	2256.9	3560.5	2147.1	3530.1	*	114.	255.	AG	826.	20.3	0.0	13.4		
52. BYPASS SOUTHBOUND	*	2147.1	3530.1	2077.0	3524.0	*	70.	265.	AG	826.	20.3	0.0	13.4		
53. BYPASS SOUTHBOUND	*	2077.0	3524.0	1964.2	3517.9	*	113.	267.	AG	826.	20.3	0.0	13.4		
54. BYPASS SOUTHBOUND	*	1964.2	3517.9	1842.2	3517.9	*	122.	270.	AG	826.	20.3	0.0	13.4		
55. BYPASS SOUTHBOUND	*	1842.2	3517.9	1753.8	3505.7	*	89.	262.	AG	826.	20.3	0.0	13.4		
56. BYPASS SOUTHBOUND	*	1753.8	3505.7	1653.2	3481.3	*	104.	256.	AG	826.	20.3	0.0	13.4		
57. BYPASS SOUTHBOUND	*	1653.2	3481.3	1534.3	3423.4	*	132.	244.	AG	826.	20.3	0.0	13.4		
58. BYPASS SOUTHBOUND	*	1534.3	3423.4	1482.5	3392.9	*	60.	240.	AG	826.	20.3	0.0	13.4		
59. BYPASS SOUTHBOUND	*	1482.5	3392.9	1427.6	3347.1	*	71.	230.	AG	826.	20.3	0.0	13.4		
60. BYPASS SOUTHBOUND	*	1427.6	3347.1	1378.8	3298.4	*	69.	225.	AG	826.	20.3	0.0	13.4		
61. BYPASS SOUTHBOUND	*	1378.8	3298.4	1320.9	3222.1	*	96.	217.	AG	826.	20.3	0.0	13.4		
62. BYPASS SOUTHBOUND	*	1320.9	3222.1	1269.1	3133.7	*	102.	210.	AG	826.	20.3	0.0	13.4		
63. BYPASS SOUTHBOUND	*	1269.1	3133.7	1217.2	3027.0	*	119.	206.	AG	826.	20.3	0.0	13.4		
64. BYPASS SOUTHBOUND	*	1217.2	3027.0	1156.3	2880.7	*	158.	203.	AG	826.	20.3	0.0	13.4		
65. BYPASS SOUTHBOUND	*	1156.3	2880.7	1003.8	2554.5	*	360.	205.	AG	826.	20.3	0.0	13.4		
66. EARLYSVILLE ROAD	*	3195.9	3694.7	3177.6	3780.1	*	87.	348.	AG	801.	18.2	0.0	13.4		
67. EARLYSVILLE ROAD	*	3177.6	3780.1	3177.6	3886.8	*	107.	360.	AG	801.	18.2	0.0	13.4		
68. EARLYSVILLE ROAD	*	3177.6	3886.8	3183.7	4060.5	*	174.	2.	AG	801.	18.2	0.0	13.4		
69. EARLYSVILLE ROAD	*	3183.7	4060.5	3180.7	4173.4	*	113.	358.	AG	801.	18.2	0.0	13.4		
70. EARLYSVILLE ROAD	*	3180.7	4173.4	3168.5	4310.5	*	138.	355.	AG	801.	18.2	0.0	13.4		
71. EARLYSVILLE ROAD	*	3168.5	4310.5	3165.4	4374.6	*	64.	357.	AG	801.	18.2	0.0	13.4		
72. EARLYSVILLE ROAD	*	3165.4	4374.6	3113.6	4502.6	*	138.	338.	AG	801.	18.2	0.0	13.4		
73. LAMBS ROAD	*	2326.0	3285.7	2360.2	4137.1	*	852.	2.	AG	466.	18.2	0.0	13.4		
74. HYDRAULIC NB	*	2527.7	2851.6	2615.0	3002.7	*	175.	30.	AG	1000.	18.2	0.0	13.4		
75. HYDRAULIC NB	*	2615.0	3002.7	2707.5	3156.4	*	179.	31.	AG	1000.	18.2	0.0	13.4		
76. HYDRAULIC NB	*	2707.5	3156.4	2772.6	3260.6	*	123.	32.	AG	1000.	18.2	0.0	13.4		
77. HYDRAULIC NB	*	2772.6	3260.6	2837.8	3334.9	*	99.	41.	AG	1000.	18.2	0.0	13.4		
78. HYDRAULIC NB	*	2837.8	3334.9	2930.2	3437.8	*	138.	42.	AG	1000.	18.2	0.0	13.4		
79. HYDRAULIC NB	*	2930.2	3437.8	3017.5	3527.7	*	125.	44.	AG	1000.	18.2	0.0	13.4		
80. HYDRAULIC NB	*	3017.5	3527.7	3084.0	3591.5	*	92.	46.	AG	1000.	18.2	0.0	13.4		
81. HYDRAULIC NB	*	3084.0	3591.5	3147.8	3643.6	*	82.	51.	AG	1000.	18.2	0.0	13.4		
82. HYDRAULIC NB	*	3147.8	3643.6	3199.9	3684.0	*	66.	52.	AG	1000.	18.2	0.0	13.4		
83. HYDRAULIC SB	*	3189.5	3690.5	3068.3	3603.2	*	149.	234.	AG	874.	18.2	0.0	13.4		
84. HYDRAULIC SB	*	3068.3	3603.2	3025.3	3555.0	*	65.	222.	AG	874.	18.2	0.0	13.4		
85. HYDRAULIC SB	*	3025.3	3555.0	2859.9	3384.4	*	238.	224.	AG	874.	18.2	0.0	13.4		
86. HYDRAULIC SB	*	2859.9	3384.4	2785.6	3293.2	*	118.	219.	AG	874.	18.2	0.0	13.4		

87.	HYDRAULIC SB	*	2785.6	3293.2	2742.7	3238.5	*	70.	218.	AG	874.	18.2	0.0 13.4
88.	HYDRAULIC SB	*	2742.7	3238.5	2714.0	3187.7	*	58.	209.	AG	874.	18.2	0.0 13.4
89.	HYDRAULIC SB	*	2714.0	3187.7	2519.9	2864.6	*	377.	211.	AG	874.	18.2	0.0 13.4
90.	RIO EB TO BERKMAR	*	3196.0	3681.4	3362.7	3798.6	*	204.	55.	AG	711.	18.2	0.0 13.4
91.	RIO EB TO BERKMAR	*	3362.7	3798.6	3515.1	3896.3	*	181.	57.	AG	711.	18.2	0.0 13.4
92.	RIO EB TO BERKMAR	*	3515.1	3896.3	3664.9	3991.4	*	177.	58.	AG	711.	18.2	0.0 13.4
93.	RIO EB TO BERKMAR	*	3664.9	3991.4	3790.0	4074.8	*	150.	56.	AG	711.	18.2	0.0 13.4
94.	RIO EB TO BERKMAR	*	3790.0	4074.8	3874.7	4120.4	*	96.	62.	AG	711.	18.2	0.0 13.4
95.	RIO EB TO BERKMAR	*	3874.7	4120.4	3938.5	4139.9	*	67.	73.	AG	711.	18.2	0.0 13.4

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:28:47

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
96. RIO EB TO BERKMAR	*	3938.5	4139.9	3984.1	4146.4	*	46.	82.	AG	711.	18.2	0.0	13.4		
97. RIO EB TO BERKMAR	*	3984.1	4146.4	4029.7	4145.1	*	46.	92.	AG	711.	18.2	0.0	13.4		
98. RIO EB TO BERKMAR	*	4029.7	4145.1	4074.0	4141.2	*	44.	95.	AG	711.	18.2	0.0	13.4		
99. RIO EB TO BERKMAR	*	4074.0	4141.2	4127.4	4123.0	*	56.	109.	AG	711.	18.2	0.0	13.4		
100. RIO EB TO BERKMAR	*	4127.4	4123.0	4179.5	4082.6	*	66.	128.	AG	711.	18.2	0.0	13.4		
101. RIO EB TO BERKMAR	*	4179.5	4082.6	4328.0	3960.2	*	192.	129.	AG	711.	18.2	0.0	13.4		
102. RIO EB TO BERKMAR	*	4328.0	3960.2	4520.8	3771.3	*	270.	134.	AG	711.	18.2	0.0	13.4		
103. RIO WB TO EARLYSVILL	*	4527.3	3776.5	4361.8	3943.2	*	235.	315.	AG	814.	18.2	0.0	13.4		
104. RIO WB TO EARLYSVILL	*	4361.8	3943.2	4282.4	4018.8	*	110.	314.	AG	814.	18.2	0.0	13.4		
105. RIO WB TO EARLYSVILL	*	4282.4	4018.8	4217.3	4073.5	*	85.	310.	AG	814.	18.2	0.0	13.4		
106. RIO WB TO EARLYSVILL	*	4217.3	4073.5	4159.9	4120.4	*	74.	309.	AG	814.	18.2	0.0	13.4		
107. RIO WB TO EARLYSVILL	*	4159.9	4120.4	4089.6	4154.3	*	78.	296.	AG	814.	18.2	0.0	13.4		
108. RIO WB TO EARLYSVILL	*	4089.6	4154.3	4046.6	4162.1	*	44.	280.	AG	814.	18.2	0.0	13.4		
109. RIO WB TO EARLYSVILL	*	4046.6	4162.1	3989.3	4164.7	*	57.	273.	AG	814.	18.2	0.0	13.4		
110. RIO WB TO EARLYSVILL	*	3989.3	4164.7	3951.5	4156.9	*	39.	258.	AG	814.	18.2	0.0	13.4		
111. RIO WB TO EARLYSVILL	*	3951.5	4156.9	3874.7	4134.7	*	80.	254.	AG	814.	18.2	0.0	13.4		
112. RIO WB TO EARLYSVILL	*	3874.7	4134.7	3825.2	4115.2	*	53.	248.	AG	814.	18.2	0.0	13.4		
113. RIO WB TO EARLYSVILL	*	3825.2	4115.2	3753.5	4070.9	*	84.	238.	AG	814.	18.2	0.0	13.4		
114. RIO WB TO EARLYSVILL	*	3753.5	4070.9	3572.4	3953.6	*	216.	237.	AG	814.	18.2	0.0	13.4		
115. RIO WB TO EARLYSVILL	*	3572.4	3953.6	3366.6	3820.8	*	245.	237.	AG	814.	18.2	0.0	13.4		
116. RIO WB TO EARLYSVILL	*	3366.6	3820.8	3324.9	3796.0	*	49.	239.	AG	814.	18.2	0.0	13.4		
117. RIO WB TO EARLYSVILL	*	3324.9	3796.0	3194.7	3695.7	*	164.	232.	AG	814.	18.2	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:28:47

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-9	3297.1	4167.2	1.8

2. R-10	*	3076.3	4011.4	1.8	*
3. R-11	*	2627.9	3776.4	1.8	*
4. R-12	*	2553.0	3510.5	1.8	*
5. R-13	*	2282.2	3726.8	1.8	*
6. R-14	*	1464.3	3224.1	1.8	*

PAGE 5

JOB: CHARLOTTESVILLE BYPASS RUN: OPENING YEAR 2015 BUILD 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
0.	3.0	3.0	3.0	3.2	3.0	3.2
10.	3.0	3.1	3.0	3.2	3.1	3.2
20.	3.0	3.1	3.0	3.2	3.1	3.3
30.	3.0	3.1	3.0	3.3	3.1	3.3
40.	3.0	3.1	3.0	3.2	3.1	3.2
50.	3.0	3.1	3.0	3.3	3.1	3.1
60.	3.0	3.1	3.0	3.4	3.1	3.0
70.	3.0	3.2	3.0	3.0	3.1	3.0
80.	3.1	3.5	3.0	3.0	3.1	3.0
90.	3.2	3.5	3.1	3.2	3.1	3.0
100.	3.2	3.4	3.1	3.1	3.1	3.0
110.	3.4	3.4	3.1	3.1	3.4	3.0
120.	3.3	3.3	3.2	3.1	3.2	3.0
130.	3.2	3.3	3.4	3.1	3.4	3.0
140.	3.3	3.6	3.3	3.0	3.3	3.0
150.	3.3	3.4	3.3	3.1	3.3	3.0
160.	3.4	3.3	3.2	3.2	3.3	3.0
170.	3.2	3.3	3.2	3.2	3.3	3.0
180.	3.3	3.2	3.3	3.2	3.2	3.0
190.	3.2	3.3	3.2	3.0	3.1	3.0
200.	3.4	3.2	3.2	3.0	3.2	3.0
210.	3.4	3.1	3.2	3.0	3.2	3.0
220.	3.1	3.0	3.3	3.0	3.2	3.3
230.	3.1	3.0	3.3	3.0	3.1	3.3
240.	3.1	3.0	3.1	3.0	3.1	3.3
250.	3.1	3.0	3.0	3.0	3.0	3.2
260.	3.1	3.0	3.0	3.0	3.0	3.2
270.	3.1	3.0	3.0	3.1	3.0	3.3
280.	3.1	3.0	3.0	3.3	3.0	3.3
290.	3.1	3.0	3.0	3.2	3.0	3.2
300.	3.1	3.0	3.0	3.2	3.0	3.2
310.	3.1	3.0	3.0	3.3	3.0	3.3
320.	3.2	3.0	3.0	3.3	3.0	3.2
330.	3.1	3.0	3.0	3.3	3.0	3.2
340.	3.0	3.0	3.0	3.2	3.0	3.2
350.	3.0	3.0	3.0	3.3	3.0	3.2
MAX	3.4	3.6	3.4	3.4	3.4	3.3
DEGR.	110	140	130	60	110	310

THE HIGHEST CONCENTRATION OF 3.60 PPM OCCURRED AT RECEPTOR REC2 .

PAGE 6

JOB: CHARLOTTESVILLE BYPASS
RUN: OPENING YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:28:47

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 110	REC2 140	REC3 130	REC4 60	REC5 110	REC6 310
1	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
3	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
5	0.0	0.0	0.0	0.0	0.0	0.1
6	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
8	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
10	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
12	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
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.1	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.1	0.1	0.0	0.0
18	0.0	0.0	0.0	0.1	0.0	0.0
19	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
21	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.1	0.0	0.0	0.0	0.0
23	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
25	0.0	0.0	0.0	0.0	0.0	0.0
26	0.1	0.0	0.0	0.0	0.0	0.0
27	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
29	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
31	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
33	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
35	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
37	0.1	0.0	0.0	0.0	0.0	0.0
38	0.1	0.0	0.0	0.0	0.0	0.0
39	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
41	0.0	0.1	0.0	0.0	0.0	0.0
42	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
44	0.0	0.0	0.0	0.1	0.0	0.0
45	0.0	0.0	0.0	0.1	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS
RUN: OPENING YEAR 2015 BUILD CONDITIONS

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 110	REC2 140	REC3 130	REC4 60	REC5 110	REC6 310
46	0.0	0.0	0.1	0.0	0.0	0.0
47	0.0	0.0	0.0	0.0	0.0	0.0
48	0.0	0.0	0.0	0.0	0.1	0.0
49	0.0	0.0	0.0	0.0	0.1	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0
51	0.0	0.0	0.0	0.0	0.0	0.0
52	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
54	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
56	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
58	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
60	0.0	0.0	0.0	0.0	0.0	0.1
61	0.0	0.0	0.0	0.0	0.0	0.1
62	0.0	0.0	0.0	0.0	0.0	0.0
63	0.0	0.0	0.0	0.0	0.0	0.0
64	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
66	0.0	0.0	0.0	0.0	0.0	0.0
67	0.0	0.1	0.0	0.0	0.0	0.0
68	0.0	0.1	0.0	0.0	0.0	0.0
69	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0
71	0.0	0.0	0.0	0.0	0.0	0.0
72	0.0	0.0	0.0	0.0	0.0	0.0
73	0.0	0.0	0.0	0.0	0.1	0.0
74	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0
76	0.0	0.0	0.0	0.0	0.0	0.0
77	0.0	0.0	0.0	0.0	0.0	0.0
78	0.0	0.0	0.0	0.0	0.0	0.0
79	0.0	0.0	0.1	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0
81	0.0	0.0	0.0	0.0	0.0	0.0
82	0.0	0.0	0.0	0.0	0.0	0.0
83	0.0	0.0	0.0	0.0	0.0	0.0
84	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.1	0.0	0.0	0.0
86	0.0	0.0	0.0	0.0	0.0	0.0
87	0.0	0.0	0.0	0.0	0.0	0.0
88	0.0	0.0	0.0	0.0	0.0	0.0
89	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.1	0.0	0.0	0.0	0.0
91	0.0	0.0	0.0	0.0	0.0	0.0
92	0.0	0.0	0.0	0.0	0.0	0.0
93	0.0	0.0	0.0	0.0	0.0	0.0
94	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0
96	0.0	0.0	0.0	0.0	0.0	0.0
97	0.0	0.0	0.0	0.0	0.0	0.0
98	0.0	0.0	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS

RUN: OPENING YEAR 2015 BUILD CONDITIONS

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 110	REC2 140	REC3 130	REC4 60	REC5 110	REC6 310

99	*	0.0	0.0	0.0	0.0	0.0	0.0
100	*	0.0	0.0	0.0	0.0	0.0	0.0
101	*	0.0	0.0	0.0	0.0	0.0	0.0
102	*	0.0	0.0	0.0	0.0	0.0	0.0
103	*	0.0	0.0	0.0	0.0	0.0	0.0
104	*	0.0	0.0	0.0	0.0	0.0	0.0
105	*	0.0	0.0	0.0	0.0	0.0	0.0
106	*	0.0	0.0	0.0	0.0	0.0	0.0
107	*	0.0	0.0	0.0	0.0	0.0	0.0
108	*	0.0	0.0	0.0	0.0	0.0	0.0
109	*	0.0	0.0	0.0	0.0	0.0	0.0
110	*	0.0	0.0	0.0	0.0	0.0	0.0
111	*	0.0	0.0	0.0	0.0	0.0	0.0
112	*	0.0	0.0	0.0	0.0	0.0	0.0
113	*	0.0	0.0	0.0	0.0	0.0	0.0
114	*	0.1	0.0	0.0	0.0	0.0	0.0
115	*	0.0	0.0	0.0	0.0	0.0	0.0
116	*	0.0	0.0	0.0	0.0	0.0	0.0
117	*	0.0	0.1	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 7/30/2012 at 10:29:37

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS - R9 through R14

DATE : 07/30/ 0
TIME : 10:29:37

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. EARLYSVILLE ROAD	*	3195.9	3694.7	3177.6	3780.1	*	87.	348.	AG	1113.	14.3	0.0	13.4		
2. EARLYSVILLE ROAD	*	3177.6	3780.1	3177.6	3886.8	*	107.	360.	AG	1113.	14.3	0.0	13.4		
3. EARLYSVILLE ROAD	*	3177.6	3886.8	3183.7	4060.5	*	174.	2.	AG	1113.	14.3	0.0	13.4		
4. EARLYSVILLE ROAD	*	3183.7	4060.5	3180.7	4173.4	*	113.	358.	AG	1113.	14.3	0.0	13.4		
5. EARLYSVILLE ROAD	*	3180.7	4173.4	3168.5	4310.5	*	138.	355.	AG	1113.	14.3	0.0	13.4		
6. EARLYSVILLE ROAD	*	3168.5	4310.5	3165.4	4374.6	*	64.	357.	AG	1113.	14.3	0.0	13.4		
7. EARLYSVILLE ROAD	*	3165.4	4374.6	3113.6	4502.6	*	138.	338.	AG	1113.	14.3	0.0	13.4		
8. LAMBS ROAD	*	2326.0	3285.7	2360.2	4137.1	*	852.	2.	AG	899.	14.3	0.0	13.4		
9. HYDRAULIC NB	*	2527.7	2851.6	2615.0	3002.7	*	175.	30.	AG	1250.	14.3	0.0	13.4		
10. HYDRAULIC NB	*	2615.0	3002.7	2707.5	3156.4	*	179.	31.	AG	1250.	14.3	0.0	13.4		
11. HYDRAULIC NB	*	2707.5	3156.4	2772.6	3260.6	*	123.	32.	AG	1250.	14.3	0.0	13.4		
12. HYDRAULIC NB	*	2772.6	3260.6	2837.8	3334.9	*	99.	41.	AG	1250.	14.3	0.0	13.4		
13. HYDRAULIC NB	*	2837.8	3334.9	2930.2	3437.8	*	138.	42.	AG	1250.	14.3	0.0	13.4		
14. HYDRAULIC NB	*	2930.2	3437.8	3017.5	3527.7	*	125.	44.	AG	1250.	14.3	0.0	13.4		
15. HYDRAULIC NB	*	3017.5	3527.7	3084.0	3591.5	*	92.	46.	AG	1250.	14.3	0.0	13.4		
16. HYDRAULIC NB	*	3084.0	3591.5	3147.8	3643.6	*	82.	51.	AG	1250.	14.3	0.0	13.4		
17. HYDRAULIC NB	*	3147.8	3643.6	3199.9	3684.0	*	66.	52.	AG	1250.	14.3	0.0	13.4		
18. HYDRAULIC SB	*	3189.5	3690.5	3068.3	3603.2	*	149.	234.	AG	1092.	14.3	0.0	13.4		
19. HYDRAULIC SB	*	3068.3	3603.2	3025.3	3555.0	*	65.	222.	AG	1092.	14.3	0.0	13.4		
20. HYDRAULIC SB	*	3025.3	3555.0	2859.9	3384.4	*	238.	224.	AG	1092.	14.3	0.0	13.4		
21. HYDRAULIC SB	*	2859.9	3384.4	2785.6	3293.2	*	118.	219.	AG	1092.	14.3	0.0	13.4		
22. HYDRAULIC SB	*	2785.6	3293.2	2742.7	3238.5	*	70.	218.	AG	1092.	14.3	0.0	13.4		
23. HYDRAULIC SB	*	2742.7	3238.5	2714.0	3187.7	*	58.	209.	AG	1092.	14.3	0.0	13.4		
24. HYDRAULIC SB	*	2714.0	3187.7	2519.9	2864.6	*	377.	211.	AG	1092.	14.3	0.0	13.4		
25. RIO EB TO BERKMAR	*	3196.0	3681.4	3362.7	3798.6	*	204.	55.	AG	629.	14.3	0.0	13.4		
26. RIO EB TO BERKMAR	*	3362.7	3798.6	3515.1	3896.3	*	181.	57.	AG	629.	14.3	0.0	13.4		
27. RIO EB TO BERKMAR	*	3515.1	3896.3	3664.9	3991.4	*	177.	58.	AG	629.	14.3	0.0	13.4		
28. RIO EB TO BERKMAR	*	3664.9	3991.4	3790.0	4074.8	*	150.	56.	AG	629.	14.3	0.0	13.4		
29. RIO EB TO BERKMAR	*	3790.0	4074.8	3874.7	4120.4	*	96.	62.	AG	629.	14.3	0.0	13.4		
30. RIO EB TO BERKMAR	*	3874.7	4120.4	3938.5	4139.9	*	67.	73.	AG	629.	14.3	0.0	13.4		
31. RIO EB TO BERKMAR	*	3938.5	4139.9	3984.1	4146.4	*	46.	82.	AG	629.	14.3	0.0	13.4		
32. RIO EB TO BERKMAR	*	3984.1	4146.4	4029.7	4145.1	*	46.	92.	AG	629.	14.3	0.0	13.4		
33. RIO EB TO BERKMAR	*	4029.7	4145.1	4074.0	4141.2	*	44.	95.	AG	629.	14.3	0.0	13.4		
34. RIO EB TO BERKMAR	*	4074.0	4141.2	4127.4	4123.0	*	56.	109.	AG	629.	14.3	0.0	13.4		
35. RIO EB TO BERKMAR	*	4127.4	4123.0	4179.5	4082.6	*	66.	128.	AG	629.	14.3	0.0	13.4		
36. RIO EB TO BERKMAR	*	4179.5	4082.6	4328.0	3960.2	*	192.	129.	AG	629.	14.3	0.0	13.4		

37. RIO EB TO BERKMAR	*	4328.0	3960.2	4520.8	3771.3	*	270.	134.	AG	629.	14.3	0.0 13.4
38. RIO WB TO EARLYSVILL	*	4527.3	3776.5	4361.8	3943.2	*	235.	315.	AG	720.	14.3	0.0 13.4
39. RIO WB TO EARLYSVILL	*	4361.8	3943.2	4282.4	4018.8	*	110.	314.	AG	720.	14.3	0.0 13.4
40. RIO WB TO EARLYSVILL	*	4282.4	4018.8	4217.3	4073.5	*	85.	310.	AG	720.	14.3	0.0 13.4
41. RIO WB TO EARLYSVILL	*	4217.3	4073.5	4159.9	4120.4	*	74.	309.	AG	720.	14.3	0.0 13.4
42. RIO WB TO EARLYSVILL	*	4159.9	4120.4	4089.6	4154.3	*	78.	296.	AG	720.	14.3	0.0 13.4
43. RIO WB TO EARLYSVILL	*	4089.6	4154.3	4046.6	4162.1	*	44.	280.	AG	720.	14.3	0.0 13.4
44. RIO WB TO EARLYSVILL	*	4046.6	4162.1	3989.3	4164.7	*	57.	273.	AG	720.	14.3	0.0 13.4

PAGE 2

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:29:37

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)		VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
45. RIO WB TO EARLYSVILL	*	3989.3	4164.7	3951.5	4156.9	*	39.	258.	AG	720.	14.3	0.0	13.4		
46. RIO WB TO EARLYSVILL	*	3951.5	4156.9	3874.7	4134.7	*	80.	254.	AG	720.	14.3	0.0	13.4		
47. RIO WB TO EARLYSVILL	*	3874.7	4134.7	3825.2	4115.2	*	53.	248.	AG	720.	14.3	0.0	13.4		
48. RIO WB TO EARLYSVILL	*	3825.2	4115.2	3753.5	4070.9	*	84.	238.	AG	720.	14.3	0.0	13.4		
49. RIO WB TO EARLYSVILL	*	3753.5	4070.9	3572.4	3953.6	*	216.	237.	AG	720.	14.3	0.0	13.4		
50. RIO WB TO EARLYSVILL	*	3572.4	3953.6	3366.6	3820.8	*	245.	237.	AG	720.	14.3	0.0	13.4		
51. RIO WB TO EARLYSVILL	*	3366.6	3820.8	3324.9	3796.0	*	49.	239.	AG	720.	14.3	0.0	13.4		
52. RIO WB TO EARLYSVILL	*	3324.9	3796.0	3194.7	3695.7	*	164.	232.	AG	720.	14.3	0.0	13.4		

PAGE 3

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:29:37

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-9	3297.1	4167.2	1.8
2. R-10	3076.3	4011.4	1.8
3. R-11	2627.9	3776.4	1.8
4. R-12	2553.0	3510.5	1.8
5. R-13	2282.2	3726.8	1.8
6. R-14	1464.3	3224.1	1.8

PAGE 4

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NOBUILD 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
0.	3.0	3.0	3.0	3.0	3.0	3.0
10.	3.0	3.1	3.0	3.0	3.1	3.0
20.	3.0	3.1	3.0	3.0	3.2	3.0
30.	3.0	3.2	3.0	3.0	3.2	3.0
40.	3.0	3.1	3.0	3.0	3.2	3.0
50.	3.0	3.1	3.0	3.0	3.2	3.0
60.	3.0	3.1	3.0	3.0	3.1	3.0
70.	3.0	3.1	3.0	3.0	3.1	3.0
80.	3.0	3.1	3.0	3.0	3.1	3.0
90.	3.0	3.1	3.0	3.2	3.1	3.0
100.	3.0	3.1	3.0	3.1	3.1	3.0
110.	3.0	3.1	3.0	3.1	3.1	3.0
120.	3.0	3.1	3.0	3.1	3.2	3.0
130.	3.0	3.1	3.1	3.1	3.1	3.0
140.	3.0	3.2	3.1	3.0	3.2	3.0
150.	3.0	3.1	3.0	3.1	3.2	3.0
160.	3.0	3.2	3.0	3.2	3.2	3.0
170.	3.0	3.1	3.0	3.2	3.2	3.0
180.	3.0	3.0	3.1	3.2	3.0	3.0
190.	3.0	3.1	3.0	3.0	3.0	3.0
200.	3.2	3.0	3.0	3.0	3.0	3.0
210.	3.1	3.0	3.0	3.0	3.0	3.0
220.	3.1	3.0	3.1	3.0	3.0	3.0
230.	3.1	3.0	3.1	3.1	3.0	3.0
240.	3.1	3.0	3.1	3.1	3.0	3.0
250.	3.1	3.0	3.1	3.1	3.0	3.0
260.	3.1	3.0	3.1	3.1	3.0	3.0
270.	3.1	3.0	3.1	3.1	3.0	3.0
280.	3.1	3.0	3.1	3.1	3.0	3.0
290.	3.1	3.0	3.1	3.1	3.0	3.0
300.	3.1	3.0	3.1	3.1	3.0	3.0
310.	3.1	3.0	3.1	3.1	3.0	3.0
320.	3.2	3.0	3.0	3.1	3.0	3.0
330.	3.1	3.0	3.0	3.1	3.0	3.0
340.	3.0	3.0	3.0	3.1	3.0	3.0
350.	3.0	3.0	3.0	3.0	3.0	3.0
MAX	3.2	3.2	3.1	3.2	3.2	3.0
DEGR.	200	30	310	90	20	0

THE HIGHEST CONCENTRATION OF 3.20 PPM OCCURRED AT RECEPTOR REC5 .

PAGE 5

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:29:37

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1	REC2	REC3	REC4	REC5	REC6
	200	30	310	90	20	0
1	0.0	0.0	0.0	0.0	0.0	0.0

2	*	0.1	0.0	0.0	0.0	0.0	0.0
3	*	0.1	0.0	0.0	0.0	0.0	0.0
4	*	0.0	0.1	0.0	0.0	0.0	0.0
5	*	0.0	0.1	0.0	0.0	0.0	0.0
6	*	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.0	0.0	0.1	0.0	0.2	0.0
9	*	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
11	*	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
13	*	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.1	0.0	0.0
15	*	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
17	*	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
19	*	0.0	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.1	0.0	0.0
21	*	0.0	0.0	0.0	0.0	0.0	0.0
22	*	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
24	*	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
26	*	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
28	*	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
30	*	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
32	*	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
34	*	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
36	*	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
38	*	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
40	*	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
42	*	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
44	*	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

JOB: CHARLOTTESVILLE BYPASS

RUN: DESIGN YEAR 2040 NOBUILD CONDITIONS

		CO/LINK (PPM) ANGLE (DEGREES)					
	*	REC1	REC2	REC3	REC4	REC5	REC6
LINK #	*	200	30	310	90	20	0
46	*	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
48	*	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
50	*	0.0	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.0	0.0	0.0
52	*	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 7/30/2012 at 10:30:18

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS - R9 through R14

DATE : 07/30/ 0
TIME : 10:30:18

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. BYPASS NORTHBOUND	*	1034.3	2539.2	1141.0	2783.1	*	266.	24.	AG	1080.	16.0	0.0	13.4		
2. BYPASS NORTHBOUND	*	1141.0	2783.1	1232.5	2990.4	*	227.	24.	AG	1080.	16.0	0.0	13.4		
3. BYPASS NORTHBOUND	*	1232.5	2990.4	1290.4	3133.7	*	155.	22.	AG	1080.	16.0	0.0	13.4		
4. BYPASS NORTHBOUND	*	1290.4	3133.7	1369.7	3240.4	*	133.	37.	AG	1080.	16.0	0.0	13.4		
5. BYPASS NORTHBOUND	*	1369.7	3240.4	1452.0	3325.8	*	119.	44.	AG	1080.	16.0	0.0	13.4		
6. BYPASS NORTHBOUND	*	1452.0	3325.8	1555.7	3395.9	*	125.	56.	AG	1080.	16.0	0.0	13.4		
7. BYPASS NORTHBOUND	*	1555.7	3395.9	1665.4	3441.6	*	119.	67.	AG	1080.	16.0	0.0	13.4		
8. BYPASS NORTHBOUND	*	1665.4	3441.6	1759.9	3459.9	*	96.	79.	AG	1080.	16.0	0.0	13.4		
9. BYPASS NORTHBOUND	*	1759.9	3459.9	1891.0	3472.1	*	132.	85.	AG	1080.	16.0	0.0	13.4		
10. BYPASS NORTHBOUND	*	1891.0	3472.1	2019.1	3475.2	*	128.	89.	AG	1080.	16.0	0.0	13.4		
11. BYPASS NORTHBOUND	*	2019.1	3475.2	2150.2	3499.6	*	133.	79.	AG	1080.	16.0	0.0	13.4		
12. BYPASS NORTHBOUND	*	2150.2	3499.6	2250.8	3539.2	*	108.	69.	AG	1080.	16.0	0.0	13.4		
13. BYPASS NORTHBOUND	*	2250.8	3539.2	2354.4	3572.7	*	109.	72.	AG	1080.	16.0	0.0	13.4		
14. BYPASS NORTHBOUND	*	2354.4	3572.7	2488.6	3606.3	*	138.	76.	AG	1080.	16.0	0.0	13.4		
15. BYPASS NORTHBOUND	*	2488.6	3606.3	2567.9	3624.6	*	81.	77.	AG	1080.	16.0	0.0	13.4		
16. BYPASS NORTHBOUND	*	2567.9	3624.6	2674.6	3633.7	*	107.	85.	AG	1080.	16.0	0.0	13.4		
17. BYPASS NORTHBOUND	*	2674.6	3633.7	2793.5	3658.1	*	121.	78.	AG	1080.	16.0	0.0	13.4		
18. BYPASS NORTHBOUND	*	2793.5	3658.1	2866.6	3685.5	*	78.	69.	AG	1080.	16.0	0.0	13.4		
19. BYPASS NORTHBOUND	*	2866.6	3685.5	2921.5	3709.9	*	60.	66.	AG	1080.	16.0	0.0	13.4		
20. BYPASS NORTHBOUND	*	2921.5	3709.9	2985.5	3746.5	*	74.	60.	AG	1080.	16.0	0.0	13.4		
21. BYPASS NORTHBOUND	*	2985.5	3746.5	3083.1	3825.8	*	126.	51.	AG	1080.	16.0	0.0	13.4		
22. BYPASS NORTHBOUND	*	3083.1	3825.8	3171.5	3902.0	*	117.	49.	AG	1080.	16.0	0.0	13.4		
23. BYPASS NORTHBOUND	*	3171.5	3902.0	3229.4	3956.9	*	80.	47.	AG	1080.	16.0	0.0	13.4		
24. BYPASS NORTHBOUND	*	3229.4	3956.9	3308.7	4011.8	*	96.	55.	AG	1080.	16.0	0.0	13.4		
25. BYPASS NORTHBOUND	*	3308.7	4011.8	3400.2	4066.6	*	107.	59.	AG	1080.	16.0	0.0	13.4		
26. BYPASS NORTHBOUND	*	3400.2	4066.6	3503.8	4124.6	*	119.	61.	AG	1080.	16.0	0.0	13.4		
27. BYPASS NORTHBOUND	*	3503.8	4124.6	3601.4	4176.4	*	110.	62.	AG	1080.	16.0	0.0	13.4		
28. BYPASS NORTHBOUND	*	3601.4	4176.4	3692.8	4231.3	*	107.	59.	AG	1080.	16.0	0.0	13.4		
29. BYPASS NORTHBOUND	*	3692.8	4231.3	3808.7	4301.4	*	135.	59.	AG	1080.	16.0	0.0	13.4		
30. BYPASS NORTHBOUND	*	3808.7	4301.4	3872.7	4347.1	*	79.	54.	AG	1080.	16.0	0.0	13.4		
31. BYPASS NORTHBOUND	*	3872.7	4347.1	3976.4	4453.8	*	149.	44.	AG	1080.	16.0	0.0	13.4		
32. BYPASS NORTHBOUND	*	3976.4	4453.8	4037.4	4530.1	*	98.	39.	AG	1080.	16.0	0.0	13.4		
33. BYPASS SOUTHBOUND	*	3991.6	4557.5	3833.1	4380.7	*	237.	222.	AG	1290.	16.0	0.0	13.4		
34. BYPASS SOUTHBOUND	*	3833.1	4380.7	3784.3	4325.8	*	73.	222.	AG	1290.	16.0	0.0	13.4		
35. BYPASS SOUTHBOUND	*	3784.3	4325.8	3711.1	4270.9	*	91.	233.	AG	1290.	16.0	0.0	13.4		
36. BYPASS SOUTHBOUND	*	3711.1	4270.9	3601.4	4197.7	*	132.	236.	AG	1290.	16.0	0.0	13.4		

37.	BYPASS SOUTHBOUND	*	3601.4	4197.7	3448.9	4118.5	*	172.	243.	AG	1290.	16.0	0.0	13.4
38.	BYPASS SOUTHBOUND	*	3448.9	4118.5	3339.2	4051.4	*	129.	239.	AG	1290.	16.0	0.0	13.4
39.	BYPASS SOUTHBOUND	*	3339.2	4051.4	3247.7	3990.4	*	110.	236.	AG	1290.	16.0	0.0	13.4
40.	BYPASS SOUTHBOUND	*	3247.7	3990.4	3165.4	3914.2	*	112.	227.	AG	1290.	16.0	0.0	13.4
41.	BYPASS SOUTHBOUND	*	3165.4	3914.2	3083.1	3841.0	*	110.	228.	AG	1290.	16.0	0.0	13.4
42.	BYPASS SOUTHBOUND	*	3083.1	3841.0	3003.8	3774.0	*	104.	230.	AG	1290.	16.0	0.0	13.4
43.	BYPASS SOUTHBOUND	*	3003.8	3774.0	2945.9	3737.4	*	68.	238.	AG	1290.	16.0	0.0	13.4
44.	BYPASS SOUTHBOUND	*	2945.9	3737.4	2860.5	3694.7	*	95.	243.	AG	1290.	16.0	0.0	13.4

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:30:18

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. BYPASS SOUTHBOUND	*	2860.5	3694.7	2775.2	3664.2	*	91.	250.	AG	1290.	16.0	0.0	13.4		
46. BYPASS SOUTHBOUND	*	2775.2	3664.2	2702.0	3649.0	*	75.	258.	AG	1290.	16.0	0.0	13.4		
47. BYPASS SOUTHBOUND	*	2702.0	3649.0	2619.7	3636.8	*	83.	262.	AG	1290.	16.0	0.0	13.4		
48. BYPASS SOUTHBOUND	*	2619.7	3636.8	2534.3	3630.7	*	86.	266.	AG	1290.	16.0	0.0	13.4		
49. BYPASS SOUTHBOUND	*	2534.3	3630.7	2421.5	3609.3	*	115.	259.	AG	1290.	16.0	0.0	13.4		
50. BYPASS SOUTHBOUND	*	2421.5	3609.3	2256.9	3560.5	*	172.	253.	AG	1290.	16.0	0.0	13.4		
51. BYPASS SOUTHBOUND	*	2256.9	3560.5	2147.1	3530.1	*	114.	255.	AG	1290.	16.0	0.0	13.4		
52. BYPASS SOUTHBOUND	*	2147.1	3530.1	2077.0	3524.0	*	70.	265.	AG	1290.	16.0	0.0	13.4		
53. BYPASS SOUTHBOUND	*	2077.0	3524.0	1964.2	3517.9	*	113.	267.	AG	1290.	16.0	0.0	13.4		
54. BYPASS SOUTHBOUND	*	1964.2	3517.9	1842.2	3517.9	*	122.	270.	AG	1290.	16.0	0.0	13.4		
55. BYPASS SOUTHBOUND	*	1842.2	3517.9	1753.8	3505.7	*	89.	262.	AG	1290.	16.0	0.0	13.4		
56. BYPASS SOUTHBOUND	*	1753.8	3505.7	1653.2	3481.3	*	104.	256.	AG	1290.	16.0	0.0	13.4		
57. BYPASS SOUTHBOUND	*	1653.2	3481.3	1534.3	3423.4	*	132.	244.	AG	1290.	16.0	0.0	13.4		
58. BYPASS SOUTHBOUND	*	1534.3	3423.4	1482.5	3392.9	*	60.	240.	AG	1290.	16.0	0.0	13.4		
59. BYPASS SOUTHBOUND	*	1482.5	3392.9	1427.6	3347.1	*	71.	230.	AG	1290.	16.0	0.0	13.4		
60. BYPASS SOUTHBOUND	*	1427.6	3347.1	1378.8	3298.4	*	69.	225.	AG	1290.	16.0	0.0	13.4		
61. BYPASS SOUTHBOUND	*	1378.8	3298.4	1320.9	3222.1	*	96.	217.	AG	1290.	16.0	0.0	13.4		
62. BYPASS SOUTHBOUND	*	1320.9	3222.1	1269.1	3133.7	*	102.	210.	AG	1290.	16.0	0.0	13.4		
63. BYPASS SOUTHBOUND	*	1269.1	3133.7	1217.2	3027.0	*	119.	206.	AG	1290.	16.0	0.0	13.4		
64. BYPASS SOUTHBOUND	*	1217.2	3027.0	1156.3	2880.7	*	158.	203.	AG	1290.	16.0	0.0	13.4		
65. BYPASS SOUTHBOUND	*	1156.3	2880.7	1003.8	2554.5	*	360.	205.	AG	1290.	16.0	0.0	13.4		
66. EARLYSVILLE ROAD	*	3195.9	3694.7	3177.6	3780.1	*	87.	348.	AG	955.	14.3	0.0	13.4		
67. EARLYSVILLE ROAD	*	3177.6	3780.1	3177.6	3886.8	*	107.	360.	AG	955.	14.3	0.0	13.4		
68. EARLYSVILLE ROAD	*	3177.6	3886.8	3183.7	4060.5	*	174.	2.	AG	955.	14.3	0.0	13.4		
69. EARLYSVILLE ROAD	*	3183.7	4060.5	3180.7	4173.4	*	113.	358.	AG	955.	14.3	0.0	13.4		
70. EARLYSVILLE ROAD	*	3180.7	4173.4	3168.5	4310.5	*	138.	355.	AG	955.	14.3	0.0	13.4		
71. EARLYSVILLE ROAD	*	3168.5	4310.5	3165.4	4374.6	*	64.	357.	AG	955.	14.3	0.0	13.4		
72. EARLYSVILLE ROAD	*	3165.4	4374.6	3113.6	4502.6	*	138.	338.	AG	955.	14.3	0.0	13.4		
73. LAMBS ROAD	*	2326.0	3285.7	2360.2	4137.1	*	852.	2.	AG	859.	14.3	0.0	13.4		
74. HYDRAULIC NB	*	2527.7	2851.6	2615.0	3002.7	*	175.	30.	AG	1084.	14.3	0.0	13.4		
75. HYDRAULIC NB	*	2615.0	3002.7	2707.5	3156.4	*	179.	31.	AG	1084.	14.3	0.0	13.4		
76. HYDRAULIC NB	*	2707.5	3156.4	2772.6	3260.6	*	123.	32.	AG	1084.	14.3	0.0	13.4		
77. HYDRAULIC NB	*	2772.6	3260.6	2837.8	3334.9	*	99.	41.	AG	1084.	14.3	0.0	13.4		
78. HYDRAULIC NB	*	2837.8	3334.9	2930.2	3437.8	*	138.	42.	AG	1084.	14.3	0.0	13.4		
79. HYDRAULIC NB	*	2930.2	3437.8	3017.5	3527.7	*	125.	44.	AG	1084.	14.3	0.0	13.4		
80. HYDRAULIC NB	*	3017.5	3527.7	3084.0	3591.5	*	92.	46.	AG	1084.	14.3	0.0	13.4		
81. HYDRAULIC NB	*	3084.0	3591.5	3147.8	3643.6	*	82.	51.	AG	1084.	14.3	0.0	13.4		
82. HYDRAULIC NB	*	3147.8	3643.6	3199.9	3684.0	*	66.	52.	AG	1084.	14.3	0.0	13.4		
83. HYDRAULIC SB	*	3189.5	3690.5	3068.3	3603.2	*	149.	234.	AG	947.	14.3	0.0	13.4		
84. HYDRAULIC SB	*	3068.3	3603.2	3025.3	3555.0	*	65.	222.	AG	947.	14.3	0.0	13.4		
85. HYDRAULIC SB	*	3025.3	3555.0	2859.9	3384.4	*	238.	224.	AG	947.	14.3	0.0	13.4		
86. HYDRAULIC SB	*	2859.9	3384.4	2785.6	3293.2	*	118.	219.	AG	947.	14.3	0.0	13.4		

87. HYDRAULIC SB	*	2785.6	3293.2	2742.7	3238.5	*	70.	218.	AG	947.	14.3	0.0	13.4
88. HYDRAULIC SB	*	2742.7	3238.5	2714.0	3187.7	*	58.	209.	AG	947.	14.3	0.0	13.4
89. HYDRAULIC SB	*	2714.0	3187.7	2519.9	2864.6	*	377.	211.	AG	947.	14.3	0.0	13.4
90. RIO EB TO BERKMAR	*	3196.0	3681.4	3362.7	3798.6	*	204.	55.	AG	557.	14.3	0.0	13.4
91. RIO EB TO BERKMAR	*	3362.7	3798.6	3515.1	3896.3	*	181.	57.	AG	557.	14.3	0.0	13.4
92. RIO EB TO BERKMAR	*	3515.1	3896.3	3664.9	3991.4	*	177.	58.	AG	557.	14.3	0.0	13.4
93. RIO EB TO BERKMAR	*	3664.9	3991.4	3790.0	4074.8	*	150.	56.	AG	557.	14.3	0.0	13.4
94. RIO EB TO BERKMAR	*	3790.0	4074.8	3874.7	4120.4	*	96.	62.	AG	557.	14.3	0.0	13.4
95. RIO EB TO BERKMAR	*	3874.7	4120.4	3938.5	4139.9	*	67.	73.	AG	557.	14.3	0.0	13.4

PAGE 3

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:30:18

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
96. RIO EB TO BERKMAR	*	3938.5	4139.9	3984.1	4146.4	*	46.	82.	AG	557.	14.3	0.0	13.4		
97. RIO EB TO BERKMAR	*	3984.1	4146.4	4029.7	4145.1	*	46.	92.	AG	557.	14.3	0.0	13.4		
98. RIO EB TO BERKMAR	*	4029.7	4145.1	4074.0	4141.2	*	44.	95.	AG	557.	14.3	0.0	13.4		
99. RIO EB TO BERKMAR	*	4074.0	4141.2	4127.4	4123.0	*	56.	109.	AG	557.	14.3	0.0	13.4		
100. RIO EB TO BERKMAR	*	4127.4	4123.0	4179.5	4082.6	*	66.	128.	AG	557.	14.3	0.0	13.4		
101. RIO EB TO BERKMAR	*	4179.5	4082.6	4328.0	3960.2	*	192.	129.	AG	557.	14.3	0.0	13.4		
102. RIO EB TO BERKMAR	*	4328.0	3960.2	4520.8	3771.3	*	270.	134.	AG	557.	14.3	0.0	13.4		
103. RIO WB TO EARLYSVILL	*	4527.3	3776.5	4361.8	3943.2	*	235.	315.	AG	637.	14.3	0.0	13.4		
104. RIO WB TO EARLYSVILL	*	4361.8	3943.2	4282.4	4018.8	*	110.	314.	AG	637.	14.3	0.0	13.4		
105. RIO WB TO EARLYSVILL	*	4282.4	4018.8	4217.3	4073.5	*	85.	310.	AG	637.	14.3	0.0	13.4		
106. RIO WB TO EARLYSVILL	*	4217.3	4073.5	4159.9	4120.4	*	74.	309.	AG	637.	14.3	0.0	13.4		
107. RIO WB TO EARLYSVILL	*	4159.9	4120.4	4089.6	4154.3	*	78.	296.	AG	637.	14.3	0.0	13.4		
108. RIO WB TO EARLYSVILL	*	4089.6	4154.3	4046.6	4162.1	*	44.	280.	AG	637.	14.3	0.0	13.4		
109. RIO WB TO EARLYSVILL	*	4046.6	4162.1	3989.3	4164.7	*	57.	273.	AG	637.	14.3	0.0	13.4		
110. RIO WB TO EARLYSVILL	*	3989.3	4164.7	3951.5	4156.9	*	39.	258.	AG	637.	14.3	0.0	13.4		
111. RIO WB TO EARLYSVILL	*	3951.5	4156.9	3874.7	4134.7	*	80.	254.	AG	637.	14.3	0.0	13.4		
112. RIO WB TO EARLYSVILL	*	3874.7	4134.7	3825.2	4115.2	*	53.	248.	AG	637.	14.3	0.0	13.4		
113. RIO WB TO EARLYSVILL	*	3825.2	4115.2	3753.5	4070.9	*	84.	238.	AG	637.	14.3	0.0	13.4		
114. RIO WB TO EARLYSVILL	*	3753.5	4070.9	3572.4	3953.6	*	216.	237.	AG	637.	14.3	0.0	13.4		
115. RIO WB TO EARLYSVILL	*	3572.4	3953.6	3366.6	3820.8	*	245.	237.	AG	637.	14.3	0.0	13.4		
116. RIO WB TO EARLYSVILL	*	3366.6	3820.8	3324.9	3796.0	*	49.	239.	AG	637.	14.3	0.0	13.4		
117. RIO WB TO EARLYSVILL	*	3324.9	3796.0	3194.7	3695.7	*	164.	232.	AG	637.	14.3	0.0	13.4		

PAGE 4

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:30:18

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-9	3297.1	4167.2	1.8

2. R-10	*	3076.3	4011.4	1.8	*
3. R-11	*	2627.9	3776.4	1.8	*
4. R-12	*	2553.0	3510.5	1.8	*
5. R-13	*	2282.2	3726.8	1.8	*
6. R-14	*	1464.3	3224.1	1.8	*

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD 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
0.	3.0	3.0	3.0	3.2	3.0	3.2
10.	3.0	3.1	3.0	3.3	3.1	3.3
20.	3.0	3.1	3.0	3.2	3.2	3.4
30.	3.0	3.1	3.0	3.3	3.2	3.3
40.	3.0	3.1	3.0	3.3	3.2	3.3
50.	3.0	3.1	3.0	3.3	3.2	3.2
60.	3.1	3.1	3.0	3.4	3.1	3.1
70.	3.0	3.3	3.0	3.0	3.1	3.0
80.	3.4	3.5	3.1	3.0	3.1	3.0
90.	3.3	3.5	3.3	3.1	3.1	3.0
100.	3.4	3.4	3.2	3.1	3.3	3.0
110.	3.3	3.4	3.4	3.1	3.5	3.0
120.	3.3	3.3	3.2	3.1	3.4	3.0
130.	3.3	3.3	3.2	3.1	3.4	3.0
140.	3.3	3.5	3.2	3.0	3.4	3.0
150.	3.2	3.3	3.3	3.1	3.4	3.0
160.	3.3	3.3	3.2	3.1	3.4	3.0
170.	3.2	3.3	3.2	3.2	3.4	3.0
180.	3.3	3.3	3.3	3.1	3.2	3.0
190.	3.2	3.3	3.2	3.0	3.4	3.0
200.	3.4	3.4	3.2	3.0	3.2	3.0
210.	3.4	3.1	3.3	3.0	3.2	3.2
220.	3.1	3.1	3.4	3.0	3.2	3.3
230.	3.1	3.0	3.4	3.1	3.2	3.3
240.	3.1	3.0	3.4	3.1	3.2	3.3
250.	3.1	3.0	3.1	3.1	3.0	3.3
260.	3.1	3.0	3.1	3.1	3.0	3.3
270.	3.1	3.0	3.1	3.5	3.0	3.4
280.	3.1	3.0	3.1	3.4	3.0	3.4
290.	3.1	3.0	3.1	3.5	3.0	3.4
300.	3.1	3.0	3.1	3.4	3.0	3.3
310.	3.1	3.0	3.1	3.4	3.0	3.4
320.	3.1	3.0	3.0	3.4	3.0	3.3
330.	3.1	3.0	3.0	3.4	3.0	3.4
340.	3.0	3.0	3.0	3.3	3.0	3.3
350.	3.0	3.0	3.0	3.3	3.0	3.2
MAX	3.4	3.5	3.4	3.5	3.5	3.4
DEGR.	80	140	110	290	110	20

THE HIGHEST CONCENTRATION OF 3.50 PPM OCCURRED AT RECEPTOR REC4 .

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:30:18

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 80	REC2 140	REC3 110	REC4 290	REC5 110	REC6 20
1	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
3	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
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.2
7	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
9	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
11	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
13	0.0	0.0	0.0	0.1	0.0	0.0
14	0.0	0.0	0.0	0.1	0.0	0.0
15	0.0	0.0	0.0	0.0	0.1	0.0
16	0.0	0.0	0.0	0.0	0.1	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.1	0.0	0.0	0.0
19	0.0	0.0	0.1	0.0	0.0	0.0
20	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
22	0.0	0.1	0.0	0.0	0.0	0.0
23	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
25	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
27	0.0	0.0	0.0	0.0	0.0	0.0
28	0.1	0.0	0.0	0.0	0.0	0.0
29	0.1	0.0	0.0	0.0	0.0	0.0
30	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
32	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
34	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
36	0.1	0.0	0.0	0.0	0.0	0.0
37	0.1	0.0	0.0	0.0	0.0	0.0
38	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
40	0.0	0.1	0.0	0.0	0.0	0.0
41	0.0	0.1	0.0	0.0	0.0	0.0
42	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
44	0.0	0.0	0.1	0.0	0.0	0.0
45	0.0	0.0	0.1	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 80	REC2 140	REC3 110	REC4 290	REC5 110	REC6 20
46	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
48	0.0	0.0	0.0	0.0	0.1	0.0
49	0.0	0.0	0.0	0.0	0.1	0.0
50	0.0	0.0	0.0	0.2	0.0	0.0
51	0.0	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0	0.0
53	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
55	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
57	0.0	0.0	0.0	0.0	0.0	0.1
58	0.0	0.0	0.0	0.0	0.0	0.1
59	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
61	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
63	0.0	0.0	0.0	0.0	0.0	0.0
64	0.0	0.0	0.0	0.0	0.0	0.0
65	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
67	0.0	0.1	0.0	0.0	0.0	0.0
68	0.0	0.1	0.0	0.0	0.0	0.0
69	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0
71	0.0	0.0	0.0	0.0	0.0	0.0
72	0.0	0.0	0.0	0.0	0.0	0.0
73	0.0	0.0	0.0	0.1	0.1	0.0
74	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0
76	0.0	0.0	0.0	0.0	0.0	0.0
77	0.0	0.0	0.0	0.0	0.0	0.0
78	0.0	0.0	0.0	0.0	0.0	0.0
79	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0
81	0.0	0.0	0.0	0.0	0.0	0.0
82	0.0	0.0	0.0	0.0	0.0	0.0
83	0.0	0.0	0.0	0.0	0.0	0.0
84	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0
86	0.0	0.0	0.0	0.0	0.0	0.0
87	0.0	0.0	0.0	0.0	0.0	0.0
88	0.0	0.0	0.0	0.0	0.0	0.0
89	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0
91	0.0	0.0	0.0	0.0	0.0	0.0
92	0.0	0.0	0.0	0.0	0.0	0.0
93	0.0	0.0	0.0	0.0	0.0	0.0
94	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0
96	0.0	0.0	0.0	0.0	0.0	0.0
97	0.0	0.0	0.0	0.0	0.0	0.0
98	0.0	0.0	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS

RUN: DESIGN YEAR 2040 BUILD CONDITIONS

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 80	REC2 140	REC3 110	REC4 290	REC5 110	REC6 20

99	*	0.0	0.0	0.0	0.0	0.0	0.0
100	*	0.0	0.0	0.0	0.0	0.0	0.0
101	*	0.0	0.0	0.0	0.0	0.0	0.0
102	*	0.0	0.0	0.0	0.0	0.0	0.0
103	*	0.0	0.0	0.0	0.0	0.0	0.0
104	*	0.0	0.0	0.0	0.0	0.0	0.0
105	*	0.0	0.0	0.0	0.0	0.0	0.0
106	*	0.0	0.0	0.0	0.0	0.0	0.0
107	*	0.0	0.0	0.0	0.0	0.0	0.0
108	*	0.0	0.0	0.0	0.0	0.0	0.0
109	*	0.0	0.0	0.0	0.0	0.0	0.0
110	*	0.0	0.0	0.0	0.0	0.0	0.0
111	*	0.0	0.0	0.0	0.0	0.0	0.0
112	*	0.0	0.0	0.0	0.0	0.0	0.0
113	*	0.0	0.0	0.0	0.0	0.0	0.0
114	*	0.0	0.0	0.0	0.0	0.0	0.0
115	*	0.0	0.0	0.0	0.0	0.0	0.0
116	*	0.0	0.0	0.0	0.0	0.0	0.0
117	*	0.0	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

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

Run Began on 7/30/2012 at 10:19:46

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 CONDITIONS - R1 through R8

DATE : 07/30/ 0
TIME : 10:19:46

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. 29 NB RIO TO WOOD	4700.1	3720.4	4967.5	4267.0	609.	26.	AG	1865.	22.7	0.0	20.7		
2. 29 NB WOOD TO CARRS	4967.5	4268.9	5242.7	4893.6	683.	24.	AG	1865.	22.7	0.0	20.7		
3. 29 NB CARRS TO POLO	5242.7	4893.6	5348.1	5102.4	234.	27.	AG	1865.	22.7	0.0	20.7		
4. 29 NB CARRS TO POLO	5348.1	5102.4	5549.2	5416.7	373.	33.	AG	1865.	22.7	0.0	20.7		
5. 29 NB CARRS TO POLO	5549.2	5416.7	5777.6	5779.7	429.	32.	AG	1865.	22.7	0.0	20.7		
6. 29 NB BEFORE RAMP	5781.5	5779.7	6035.2	6195.5	487.	31.	AG	1865.	22.7	0.0	20.7		
7. 29 NB BTW RAMPS	6033.3	6191.6	6568.1	7202.7	1144.	28.	AG	1865.	22.7	0.0	20.7		
8. 29 NB S OF HOLLY	6568.1	7202.7	6835.5	7727.8	589.	27.	AG	1865.	22.7	0.0	14.6		
9. 29 NB S OF HOLLY	6835.5	7727.8	6980.0	7987.4	297.	29.	AG	1865.	22.7	0.0	14.6		
10. 29 NB S OF HOLLY	6980.0	7987.4	7081.5	8133.8	178.	35.	AG	1865.	22.7	0.0	14.6		
11. 29 NB S OF HOLLY	7081.5	8133.8	7376.2	8459.8	439.	42.	AG	1865.	22.7	0.0	14.6		
12. 29 SB S OF HOLLY	7356.7	8469.5	7032.7	8100.6	491.	221.	AG	2228.	22.7	0.0	14.6		
13. 29 SB S OF HOLLY	7032.7	8100.6	6946.8	7979.6	148.	215.	AG	2228.	22.7	0.0	14.6		
14. 29 SB S OF HOLLY	6946.8	7979.6	6843.3	7794.2	212.	209.	AG	2228.	22.7	0.0	14.6		
15. 29 SB S OF HOLLY	6843.3	7794.2	6550.6	7216.4	648.	207.	AG	2228.	22.7	0.0	14.6		
16. 29 SB BTWN RAMPS	6548.9	7218.5	6372.0	6880.7	381.	208.	AG	1986.	19.2	0.0	14.6		
17. 29 SB BTWN OR AND OF	6372.4	6882.8	6119.8	6397.3	547.	207.	AG	2228.	22.7	0.0	14.6		
18. 29 SB BTWN OR AND OF	6119.8	6397.3	6003.4	6184.0	243.	209.	AG	2228.	22.7	0.0	14.6		
19. 29 SB BTWN OR AND OF	6003.4	6184.0	5930.8	6070.6	135.	213.	AG	2228.	22.7	0.0	14.6		
20.	5929.2	6072.1	5756.8	5789.2	331.	211.	AG	2228.	22.7	0.0	14.6		
21. 29 SB POLO TO CARRS	5758.3	5789.2	5679.7	5651.6	158.	210.	AG	2228.	22.7	0.0	20.7		
22. 29 SB POLO TO CARRS	5679.7	5651.6	5582.9	5512.4	170.	215.	AG	2228.	22.7	0.0	20.7		
23. 29 SB POLO TO CARRS	5582.9	5512.4	5496.6	5385.4	154.	214.	AG	2228.	22.7	0.0	20.7		
24. 29 SB POLO TO CARRS	5496.6	5385.4	5399.8	5229.6	183.	212.	AG	2228.	22.7	0.0	20.7		
25. 29 SB POLO TO CARRS	5399.8	5229.6	5289.4	5036.0	223.	210.	AG	2228.	22.7	0.0	20.7		
26. 29 SB POLO TO CARRS	5289.4	5036.0	5216.8	4896.8	157.	208.	AG	2228.	22.7	0.0	20.7		
27. 29 SB CARRS TO WOOD	5218.3	4898.3	5091.3	4632.1	295.	206.	AG	2228.	22.7	0.0	20.7		
28. 29 SB CARRS TO WOOD	5091.3	4632.1	4943.0	4284.2	378.	203.	AG	2228.	22.7	0.0	20.7		
29. 29 SB WOOD TO RIO	4946.1	4284.2	4678.3	3729.1	616.	206.	AG	2228.	22.7	0.0	20.7		
30. BERKMAR ROAD	4342.5	3967.6	4404.3	4067.3	117.	32.	AG	794.	21.5	0.0	13.4		
31. BERKMAR ROAD	4404.3	4067.3	4445.0	4147.4	90.	27.	AG	794.	21.5	0.0	13.4		
32. BERKMAR ROAD	4445.0	4147.4	4450.6	4193.7	47.	7.	AG	794.	21.5	0.0	13.4		
33. BERKMAR ROAD	4450.6	4193.7	4461.9	4271.0	78.	8.	AG	794.	21.5	0.0	13.4		
34. BERKMAR ROAD	4461.9	4271.0	4480.1	4327.2	59.	18.	AG	794.	21.5	0.0	13.4		
35. BERKMAR ROAD	4480.1	4327.2	4518.1	4396.0	79.	29.	AG	794.	21.5	0.0	13.4		
36. BERKMAR ROAD	4518.1	4396.0	4595.3	4492.9	124.	39.	AG	794.	21.5	0.0	13.4		
37. BERKMAR ROAD	4595.3	4492.9	4624.8	4532.3	49.	37.	AG	794.	21.5	0.0	13.4		

38. BERKMAR DRIVE	*	4624.8	4531.6	4748.4	4719.8	*	225.	33.	AG	794.	21.5	0.0 13.4
39. BERKMAR DRIVE	*	4748.4	4719.8	4905.8	4983.9	*	307.	31.	AG	794.	21.5	0.0 13.4
40. BERKMAR DRIVE	*	4905.8	4983.9	5046.2	5172.1	*	235.	37.	AG	794.	21.5	0.0 13.4
41. BERKMAR DRIVE	*	5046.2	5172.1	5136.1	5270.4	*	133.	42.	AG	794.	21.5	0.0 13.4
42. BERKMAR DRIVE	*	5136.1	5270.4	5189.5	5365.9	*	109.	29.	AG	794.	21.5	0.0 13.4
43. BERKMAR DRIVE	*	5189.5	5365.9	5240.1	5478.3	*	123.	24.	AG	794.	21.5	0.0 13.4

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 CONDITIONS

DATE : 07/30/ 0
TIME : 10:19:46

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-1	6914.5	7689.1	1.8
2. R-2	7011.4	7593.6	1.8
3. R-3	6739.4	7222.2	1.8
4. R-4	6628.0	7071.0	1.8
5. R-5	6589.5	6876.0	1.8
6. R-6	5401.0	5749.9	1.8
7. R-7	4778.9	5171.5	1.8
8. R-8	4343.2	4637.1	1.8

JOB: CHARLOTTESVILLE BYPASS 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
0.	4.0	3.6	3.8	3.9	3.7	3.0	3.0	3.0
10.	4.1	3.4	3.8	4.0	3.8	3.0	3.0	3.0
20.	3.9	3.4	3.7	4.1	3.6	3.0	3.0	3.0
30.	3.4	3.0	3.2	3.2	3.0	3.0	3.0	3.0
40.	3.0	3.0	3.0	3.0	3.0	3.6	3.2	3.1
50.	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.3
60.	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.4
70.	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.3
80.	3.0	3.0	3.0	3.0	3.0	3.5	3.3	3.3
90.	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.4
100.	3.0	3.0	3.0	3.0	3.0	3.4	3.3	3.3
110.	3.0	3.0	3.0	3.0	3.0	3.4	3.3	3.2
120.	3.0	3.0	3.0	3.0	3.0	3.4	3.5	3.4
130.	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.3
140.	3.0	3.0	3.0	3.0	3.0	3.5	3.4	3.3

150.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.3
160.	*	3.0	3.0	3.0	3.0	3.0	3.6	3.4	3.2
170.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.0
180.	*	3.0	3.0	3.0	3.0	3.0	3.6	3.4	3.0
190.	*	3.0	3.0	3.0	3.0	3.0	3.7	3.1	3.0
200.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.0
210.	*	4.2	3.1	3.4	3.8	3.2	3.1	3.0	3.0
220.	*	4.4	3.6	4.0	4.2	4.0	3.0	3.0	3.0
230.	*	4.2	3.6	3.7	4.0	3.9	3.0	3.0	3.0
240.	*	4.0	3.6	3.7	3.8	3.7	3.0	3.0	3.0
250.	*	3.9	3.6	3.7	3.7	3.6	3.0	3.0	3.0
260.	*	3.9	3.5	3.5	3.7	3.6	3.0	3.0	3.0
270.	*	3.8	3.5	3.7	3.7	3.6	3.0	3.0	3.0
280.	*	3.8	3.4	3.6	3.6	3.5	3.0	3.0	3.0
290.	*	3.8	3.5	3.6	3.6	3.5	3.0	3.0	3.0
300.	*	3.8	3.4	3.6	3.6	3.5	3.0	3.0	3.0
310.	*	3.8	3.5	3.6	3.6	3.5	3.0	3.0	3.0
320.	*	3.8	3.4	3.6	3.7	3.5	3.0	3.0	3.0
330.	*	3.8	3.4	3.6	3.7	3.5	3.0	3.0	3.0
340.	*	3.8	3.5	3.7	3.7	3.5	3.0	3.0	3.0
350.	*	4.0	3.5	3.7	3.8	3.7	3.0	3.0	3.0
MAX	*	4.4	3.6	4.0	4.2	4.0	3.7	3.5	3.4
DEGR.	*	220	250	220	220	220	190	170	60

THE HIGHEST CONCENTRATION OF 4.40 PPM OCCURRED AT RECEPTOR REC1 .

JOB: CHARLOTTESVILLE BYPASS RUN: EXISTING 2011 CONDITIONS

DATE : 07/30/ 0
TIME : 10:19:46

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
LINK #	*	220	250	220	220	220	190	170	60
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
5	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
6	*	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0
7	*	0.2	0.0	0.5	0.5	0.3	0.0	0.0	0.0
8	*	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.1	0.0	0.3	0.4	0.1	0.0	0.0	0.0
18	*	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
19	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
20	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
21	*	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
23	*	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	0.1
25	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
26	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
27	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
29	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
30	*	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
32	*	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
34	*	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
36	*	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
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

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

Run Began on 7/30/2012 at 10:20:52

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS - R1 through R8

DATE : 07/30/ 0
TIME : 10:20:52

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. 29 NB RIO TO WOOD	*	4700.1	3720.4	4967.5	4267.0	*	609.	26.	AG	2079.	19.2	0.0	20.7		
2. 29 NB WOOD TO CARRS	*	4967.5	4268.9	5242.7	4893.6	*	683.	24.	AG	2051.	19.2	0.0	20.7		
3. 29 NB CARRS TO POLO	*	5242.7	4893.6	5348.1	5102.4	*	234.	27.	AG	2045.	19.2	0.0	20.7		
4. 29 NB CARRS TO POLO	*	5348.1	5102.4	5549.2	5416.7	*	373.	33.	AG	2045.	19.2	0.0	20.7		
5. 29 NB CARRS TO POLO	*	5549.2	5416.7	5777.6	5779.7	*	429.	32.	AG	2045.	19.2	0.0	20.7		
6. 29 NB BEFORE RAMP	*	5781.5	5779.7	6035.2	6195.5	*	487.	31.	AG	2028.	19.2	0.0	20.7		
7. 29 NB BTW RAMPS	*	6033.3	6191.6	6568.1	7202.7	*	1144.	28.	AG	2028.	19.2	0.0	20.7		
8. 29 NB S OF HOLLY	*	6568.1	7202.7	6835.5	7727.8	*	589.	27.	AG	2371.	19.2	0.0	14.6		
9. 29 NB S OF HOLLY	*	6835.5	7727.8	6980.0	7987.4	*	297.	29.	AG	2371.	19.2	0.0	14.6		
10. 29 NB S OF HOLLY	*	6980.0	7987.4	7081.5	8133.8	*	178.	35.	AG	2371.	19.2	0.0	14.6		
11. 29 NB S OF HOLLY	*	7081.5	8133.8	7376.2	8459.8	*	439.	42.	AG	2371.	19.2	0.0	14.6		
12. 29 SB S OF HOLLY	*	7356.7	8469.5	7032.7	8100.6	*	491.	221.	AG	1986.	19.2	0.0	14.6		
13. 29 SB S OF HOLLY	*	7032.7	8100.6	6946.8	7979.6	*	148.	215.	AG	1986.	19.2	0.0	14.6		
14. 29 SB S OF HOLLY	*	6946.8	7979.6	6843.3	7794.2	*	212.	209.	AG	1986.	19.2	0.0	14.6		
15. 29 SB S OF HOLLY	*	6843.3	7794.2	6550.6	7216.4	*	648.	207.	AG	1986.	19.2	0.0	14.6		
16. 29 SB BTWN RAMPS	*	6548.9	7218.5	6372.0	6880.7	*	381.	208.	AG	1986.	19.2	0.0	14.6		
17. 29 SB BTWN OR AND OF	*	6372.4	6882.8	6119.8	6397.3	*	547.	207.	AG	2422.	19.2	0.0	14.6		
18. 29 SB BTWN OR AND OF	*	6119.8	6397.3	6003.4	6184.0	*	243.	209.	AG	2422.	19.2	0.0	14.6		
19. 29 SB BTWN OR AND OF	*	6003.4	6184.0	5930.8	6070.6	*	135.	213.	AG	2422.	19.2	0.0	14.6		
20.	*	5929.2	6072.1	5756.8	5789.2	*	331.	211.	AG	2422.	19.2	0.0	14.6		
21. 29 SB POLO TO CARRS	*	5758.3	5789.2	5679.7	5651.6	*	158.	210.	AG	2442.	19.2	0.0	20.7		
22. 29 SB POLO TO CARRS	*	5679.7	5651.6	5582.9	5512.4	*	170.	215.	AG	2442.	19.2	0.0	20.7		
23. 29 SB POLO TO CARRS	*	5582.9	5512.4	5496.6	5385.4	*	154.	214.	AG	2442.	19.2	0.0	20.7		
24. 29 SB POLO TO CARRS	*	5496.6	5385.4	5399.8	5229.6	*	183.	212.	AG	2442.	19.2	0.0	20.7		
25. 29 SB POLO TO CARRS	*	5399.8	5229.6	5289.4	5036.0	*	223.	210.	AG	2442.	19.2	0.0	20.7		
26. 29 SB POLO TO CARRS	*	5289.4	5036.0	5216.8	4896.8	*	157.	208.	AG	2442.	19.2	0.0	20.7		
27. 29 SB CARRS TO WOOD	*	5218.3	4898.3	5091.3	4632.1	*	295.	206.	AG	2449.	19.2	0.0	20.7		
28. 29 SB CARRS TO WOOD	*	5091.3	4632.1	4943.0	4284.2	*	378.	203.	AG	2449.	19.2	0.0	20.7		
29. 29 SB WOOD TO RIO	*	4946.1	4284.2	4678.3	3729.1	*	616.	206.	AG	2483.	19.2	0.0	20.7		
30. BERKMAR ROAD	*	4342.5	3967.6	4404.3	4067.3	*	117.	32.	AG	975.	18.2	0.0	13.4		
31. BERKMAR ROAD	*	4404.3	4067.3	4445.0	4147.4	*	90.	27.	AG	975.	18.2	0.0	13.4		
32. BERKMAR ROAD	*	4445.0	4147.4	4450.6	4193.7	*	47.	7.	AG	975.	18.2	0.0	13.4		
33. BERKMAR ROAD	*	4450.6	4193.7	4461.9	4271.0	*	78.	8.	AG	975.	18.2	0.0	13.4		
34. BERKMAR ROAD	*	4461.9	4271.0	4480.1	4327.2	*	59.	18.	AG	975.	18.2	0.0	13.4		
35. BERKMAR ROAD	*	4480.1	4327.2	4518.1	4396.0	*	79.	29.	AG	975.	18.2	0.0	13.4		
36. BERKMAR ROAD	*	4518.1	4396.0	4595.3	4492.9	*	124.	39.	AG	975.	18.2	0.0	13.4		
37. BERKMAR ROAD	*	4595.3	4492.9	4624.8	4532.3	*	49.	37.	AG	975.	18.2	0.0	13.4		

38. BERKMAR DRIVE	*	4624.8	4531.6	4748.4	4719.8	*	225.	33.	AG	975.	18.2	0.0 13.4
39. BERKMAR DRIVE	*	4748.4	4719.8	4905.8	4983.9	*	307.	31.	AG	975.	18.2	0.0 13.4
40. BERKMAR DRIVE	*	4905.8	4983.9	5046.2	5172.1	*	235.	37.	AG	975.	18.2	0.0 13.4
41. BERKMAR DRIVE	*	5046.2	5172.1	5136.1	5270.4	*	133.	42.	AG	975.	18.2	0.0 13.4
42. BERKMAR DRIVE	*	5136.1	5270.4	5189.5	5365.9	*	109.	29.	AG	975.	18.2	0.0 13.4
43. BERKMAR DRIVE	*	5189.5	5365.9	5240.1	5478.3	*	123.	24.	AG	975.	18.2	0.0 13.4

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:20:52

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. R-1	*	6914.5	7689.1	1.8	*
2. R-2	*	7011.4	7593.6	1.8	*
3. R-3	*	6739.4	7222.2	1.8	*
4. R-4	*	6628.0	7071.0	1.8	*
5. R-5	*	6589.5	6876.0	1.8	*
6. R-6	*	5401.0	5749.9	1.8	*
7. R-7	*	4778.9	5171.5	1.8	*
8. R-8	*	4343.2	4637.1	1.8	*

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD 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
0.	*	3.8	3.5	3.7	3.9	3.7	3.0	3.0	3.0
10.	*	3.9	3.5	3.8	3.9	3.7	3.0	3.0	3.0
20.	*	3.9	3.3	3.6	3.9	3.7	3.0	3.0	3.0
30.	*	3.5	3.0	3.2	3.2	3.0	3.0	3.0	3.0
40.	*	3.0	3.0	3.0	3.0	3.0	3.6	3.1	3.1
50.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.3	3.3
60.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.6	3.4
70.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.3
80.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.3	3.3
90.	*	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.4
100.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.3	3.3
110.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.3	3.2
120.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.5	3.3
130.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.3	3.3
140.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.3

150.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.3
160.	*	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.1
170.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.0
180.	*	3.0	3.0	3.0	3.0	3.0	3.6	3.4	3.0
190.	*	3.0	3.0	3.0	3.0	3.0	3.6	3.1	3.0
200.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.0
210.	*	3.9	3.1	3.3	3.7	3.1	3.1	3.0	3.0
220.	*	4.3	3.6	3.8	4.1	3.8	3.0	3.0	3.0
230.	*	4.0	3.5	3.7	3.9	3.8	3.0	3.0	3.0
240.	*	3.9	3.5	3.7	3.8	3.6	3.0	3.0	3.0
250.	*	3.8	3.5	3.6	3.7	3.6	3.0	3.0	3.0
260.	*	3.7	3.5	3.5	3.6	3.6	3.0	3.0	3.0
270.	*	3.7	3.4	3.6	3.6	3.6	3.0	3.0	3.0
280.	*	3.7	3.4	3.5	3.6	3.5	3.0	3.0	3.0
290.	*	3.7	3.4	3.5	3.6	3.4	3.0	3.0	3.0
300.	*	3.7	3.4	3.5	3.6	3.4	3.0	3.0	3.0
310.	*	3.7	3.5	3.5	3.6	3.4	3.0	3.0	3.0
320.	*	3.8	3.4	3.5	3.6	3.4	3.0	3.0	3.0
330.	*	3.7	3.4	3.5	3.7	3.5	3.0	3.0	3.0
340.	*	3.8	3.5	3.6	3.7	3.5	3.0	3.0	3.0
350.	*	3.8	3.4	3.7	3.7	3.7	3.0	3.0	3.0
MAX	*	4.3	3.6	3.8	4.1	3.8	3.6	3.6	3.4
DEGR.	*	220	220	220	220	230	190	60	60

THE HIGHEST CONCENTRATION OF 4.30 PPM OCCURRED AT RECEPTOR REC1 .

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:20:52

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
LINK #	* 220	220	220	220	230	190	60	60
1	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	* 0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
3	* 0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
4	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
5	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
6	* 0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
7	* 0.2	0.3	0.4	0.5	0.4	0.0	0.0	0.0
8	* 0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	* 0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	* 0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
17	* 0.1	0.2	0.3	0.4	0.3	0.0	0.0	0.0
18	* 0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
19	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
21	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
22	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
23	* 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	0.1
25	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
26	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
27	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
28	*	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
30	*	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
32	*	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
34	*	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
36	*	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
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0

1 CAL3QHC - (DATED 95221)

CAL3QHC PC (32 BIT) VERSION 3.0.0
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Run Began on 7/30/2012 at 10:23:20

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS - R1 through R8

DATE : 07/30/ 0
TIME : 10:23:20

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. 29 NB RIO TO WOOD	*	4700.1	3720.4	4967.5	4267.0	*	609.	26.	AG	1595.	19.2	0.0	20.7		
2. 29 NB WOOD TO CARRS	*	4967.5	4268.9	5242.7	4893.6	*	683.	24.	AG	1575.	19.2	0.0	20.7		
3. 29 NB CARRS TO POLO	*	5242.7	4893.6	5348.1	5102.4	*	234.	27.	AG	1572.	19.2	0.0	20.7		
4. 29 NB CARRS TO POLO	*	5348.1	5102.4	5549.2	5416.7	*	373.	33.	AG	1572.	19.2	0.0	20.7		
5. 29 NB CARRS TO POLO	*	5549.2	5416.7	5777.6	5779.7	*	429.	32.	AG	1572.	19.2	0.0	20.7		
6. 29 NB BEFORE RAMP	*	5781.5	5779.7	6035.2	6195.5	*	487.	31.	AG	1730.	19.2	0.0	20.7		
7. 29 NB BTW RAMPS	*	6033.3	6191.6	6568.1	7202.7	*	1144.	28.	AG	826.	19.2	0.0	20.7		
8. 29 NB S OF HOLLY	*	6568.1	7202.7	6835.5	7727.8	*	589.	27.	AG	2757.	19.2	0.0	14.6		
9. 29 NB S OF HOLLY	*	6835.5	7727.8	6980.0	7987.4	*	297.	29.	AG	2757.	19.2	0.0	14.6		
10. 29 NB S OF HOLLY	*	6980.0	7987.4	7081.5	8133.8	*	178.	35.	AG	2757.	19.2	0.0	14.6		
11. 29 NB S OF HOLLY	*	7081.5	8133.8	7376.2	8459.8	*	439.	42.	AG	2757.	19.2	0.0	14.6		
12. 29 SB S OF HOLLY	*	7356.7	8469.5	7032.7	8100.6	*	491.	221.	AG	2309.	19.2	0.0	14.6		
13. 29 SB S OF HOLLY	*	7032.7	8100.6	6946.8	7979.6	*	148.	215.	AG	2309.	19.2	0.0	14.6		
14. 29 SB S OF HOLLY	*	6946.8	7979.6	6843.3	7794.2	*	212.	209.	AG	2309.	19.2	0.0	14.6		
15. 29 SB S OF HOLLY	*	6843.3	7794.2	6550.6	7216.4	*	648.	207.	AG	2309.	19.2	0.0	14.6		
16. 29 SB BTWN RAMPS	*	6548.9	7218.5	6372.0	6880.7	*	381.	208.	AG	1944.	15.1	0.0	14.6		
17. 29 NB BYPASS ON RAMP	*	6366.7	6885.3	6306.5	6893.7	*	61.	278.	AG	93.	18.4	0.0	9.8		
18. 29 NB BYPASS ON RAMP	*	6306.5	6893.7	6235.6	6885.3	*	71.	263.	AG	93.	18.4	0.0	9.8		
19. 29 NB BYPASS ON RAMP	*	6235.6	6885.3	6159.3	6848.7	*	85.	244.	AG	93.	18.4	0.0	9.8		
20. ON RAMP TO BYPASS	*	6540.5	7225.4	6489.5	7133.9	*	105.	209.	AG	739.	19.2	0.0	10.0		
21. ON RAMP TO BYPASS	*	6489.5	7133.9	6444.5	7062.2	*	85.	212.	AG	739.	19.2	0.0	10.0		
22. ON RAMP TO BYPASS	*	6444.5	7062.2	6361.4	6982.9	*	115.	226.	AG	739.	19.2	0.0	10.0		
23. ON RAMP TO BYPASS	*	6361.4	6982.9	6301.9	6934.1	*	77.	231.	AG	739.	19.2	0.0	10.0		
24. ON RAMP TO BYPASS	*	6301.9	6934.1	6154.0	6855.6	*	167.	242.	AG	739.	19.2	0.0	10.0		
25. 29 SB OFF RAMP FROM	*	5571.8	6147.3	5704.6	6301.4	*	203.	41.	AG	76.	18.4	0.0	10.0		
26. 29 SB OFF RAMP FROM	*	5704.6	6301.4	5785.9	6346.3	*	93.	61.	AG	76.	18.4	0.0	10.0		
27. 29 SB OFF RAMP FROM	*	5785.9	6346.3	5903.6	6333.5	*	118.	96.	AG	76.	18.4	0.0	10.0		
28. 29 SB OFF RAMP FROM	*	5903.6	6333.5	5974.3	6252.2	*	108.	139.	AG	76.	18.4	0.0	10.0		
29. 29 SB OFF RAMP FROM	*	5974.3	6252.2	5974.3	6162.2	*	90.	180.	AG	76.	18.4	0.0	10.0		
30. 29 SB OFF RAMP FROM	*	5974.3	6162.2	5933.6	6085.2	*	87.	208.	AG	76.	18.4	0.0	10.0		
31. OFF RAMP TO 29 NB	*	5571.8	6162.2	5663.9	6282.1	*	151.	38.	AG	621.	18.4	0.0	10.0		
32. OFF RAMP TO 29 NB	*	5663.9	6282.1	5779.5	6367.7	*	144.	53.	AG	621.	18.4	0.0	10.0		
33. OFF RAMP TO 29 NB	*	5779.5	6367.7	5890.8	6399.9	*	116.	74.	AG	621.	18.4	0.0	10.0		
34. OFF RAMP TO 29 NB	*	5890.8	6399.9	6122.0	6414.8	*	232.	86.	AG	621.	18.4	0.0	10.0		
35. OFF RAMP TO 29 NB	*	6122.0	6414.8	6218.3	6427.7	*	97.	82.	AG	621.	18.4	0.0	10.0		
36. OFF RAMP TO 29 NB	*	6218.3	6427.7	6348.9	6487.6	*	144.	65.	AG	621.	18.4	0.0	10.0		
37. OFF RAMP TO 29 NB	*	6348.9	6487.6	6436.7	6564.7	*	117.	49.	AG	621.	18.4	0.0	10.0		

38.	OFF RAMP TO 29 NB	*	6436.7	6564.7	6498.7	6682.4	*	133.	28.	AG	621.	18.4	0.0	10.0
39.	OFF RAMP TO 29 NB	*	6498.7	6682.4	6524.4	6840.8	*	160.	9.	AG	621.	18.4	0.0	10.0
40.	OFF RAMP TO 29 NB	*	6524.4	6840.8	6515.9	6952.1	*	112.	356.	AG	621.	18.4	0.0	10.0
41.	OFF RAMP TO 29 NB	*	6515.9	6952.1	6524.4	7102.0	*	150.	3.	AG	621.	18.4	0.0	10.0
42.	OFF RAMP TO 29 NB	*	6524.4	7102.0	6567.2	7185.5	*	94.	27.	AG	621.	18.4	0.0	10.0
43.	BYPASS NB	*	3831.5	4353.4	3917.1	4426.2	*	112.	50.	AG	692.	20.3	0.0	14.6
44.	BYPASS NB	*	3917.1	4426.2	4096.9	4636.0	*	276.	41.	AG	692.	20.3	0.0	14.6

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:23:20

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. BYPASS NB	*	4096.9	4636.0	4233.9	4743.0	*	174.	52.	AG	692.	20.3	0.0	14.6		
46. BYPASS NB	*	4233.9	4743.0	4392.3	4811.5	*	173.	67.	AG	692.	20.3	0.0	14.6		
47. BYPASS NB	*	4392.3	4811.5	4525.1	4854.3	*	140.	72.	AG	692.	20.3	0.0	14.6		
48. BYPASS NB	*	4525.1	4854.3	4743.4	4978.5	*	251.	60.	AG	692.	20.3	0.0	14.6		
49. BYPASS NB	*	4743.4	4978.5	4863.3	5059.8	*	145.	56.	AG	692.	20.3	0.0	14.6		
50. BYPASS NB	*	4863.3	5059.8	5004.6	5201.1	*	200.	45.	AG	692.	20.3	0.0	14.6		
51. BYPASS NB	*	5004.6	5201.1	5103.0	5359.5	*	186.	32.	AG	692.	20.3	0.0	14.6		
52. BYPASS NB	*	5103.0	5359.5	5171.5	5513.6	*	169.	24.	AG	692.	20.3	0.0	14.6		
53. BYPASS NB	*	5171.5	5513.6	5252.9	5667.8	*	174.	28.	AG	692.	20.3	0.0	14.6		
54. BYPASS NB	*	5252.9	5667.8	5347.1	5826.2	*	184.	31.	AG	692.	20.3	0.0	14.6		
55. BYPASS NB	*	5347.1	5826.2	5556.9	6138.7	*	376.	34.	AG	692.	20.3	0.0	14.6		
56. BYPASS SB	*	6156.2	6858.0	6044.9	6793.7	*	129.	240.	AG	826.	20.3	0.0	14.6		
57. BYPASS SB	*	6044.9	6793.7	5912.2	6682.4	*	173.	230.	AG	826.	20.3	0.0	14.6		
58. BYPASS SB	*	5912.2	6682.4	5818.0	6596.8	*	127.	228.	AG	826.	20.3	0.0	14.6		
59. BYPASS SB	*	5818.0	6596.8	5728.1	6455.5	*	167.	212.	AG	826.	20.3	0.0	14.6		
60. BYPASS SB	*	5728.1	6455.5	5638.2	6275.7	*	201.	207.	AG	826.	20.3	0.0	14.6		
61. BYPASS SB	*	5638.2	6275.7	5514.0	6108.7	*	208.	217.	AG	826.	20.3	0.0	14.6		
62. BYPASS SB	*	5514.0	6108.7	5338.5	5834.7	*	325.	213.	AG	826.	20.3	0.0	14.6		
63. BYPASS SB	*	5338.5	5834.7	5265.7	5740.5	*	119.	218.	AG	826.	20.3	0.0	14.6		
64. BYPASS SB	*	5265.7	5740.5	5201.5	5620.7	*	136.	208.	AG	826.	20.3	0.0	14.6		
65. BYPASS SB	*	5201.5	5620.7	5145.8	5496.5	*	136.	204.	AG	826.	20.3	0.0	14.6		
66. BYPASS SB	*	5145.8	5496.5	5064.5	5325.3	*	190.	205.	AG	826.	20.3	0.0	14.6		
67. BYPASS SB	*	5064.5	5325.3	4974.6	5196.8	*	157.	215.	AG	826.	20.3	0.0	14.6		
68. BYPASS SB	*	4974.6	5196.8	4811.9	5047.0	*	221.	227.	AG	826.	20.3	0.0	14.6		
69. BYPASS SB	*	4811.9	5047.0	4644.9	4944.2	*	196.	238.	AG	826.	20.3	0.0	14.6		
70. BYPASS SB	*	4644.9	4944.2	4499.4	4862.9	*	167.	241.	AG	826.	20.3	0.0	14.6		
71. BYPASS SB	*	4499.4	4862.9	4208.2	4760.1	*	309.	251.	AG	826.	20.3	0.0	14.6		
72. BYPASS SB	*	4208.2	4760.1	4075.5	4674.5	*	158.	237.	AG	826.	20.3	0.0	14.6		
73. BYPASS SB	*	4075.5	4674.5	3938.5	4541.8	*	191.	226.	AG	826.	20.3	0.0	14.6		
74. BYPASS SB	*	3938.5	4541.8	3814.4	4387.7	*	198.	219.	AG	826.	20.3	0.0	14.6		
75. 29 SB BTWN OR AND OF	*	6372.4	6882.8	6119.8	6397.3	*	547.	207.	AG	1667.	19.2	0.0	14.6		
76. 29 SB BTWN OR AND OF	*	6119.8	6397.3	6003.4	6184.0	*	243.	209.	AG	1667.	19.2	0.0	14.6		
77. 29 SB BTWN OR AND OF	*	6003.4	6184.0	5930.8	6070.6	*	135.	213.	AG	1667.	19.2	0.0	14.6		
78.	*	5929.2	6072.1	5756.8	5789.2	*	331.	211.	AG	2066.	19.2	0.0	14.6		
79. 29 SB POLO TO CARRS	*	5758.3	5789.2	5679.7	5651.6	*	158.	210.	AG	1878.	19.2	0.0	20.7		
80. 29 SB POLO TO CARRS	*	5679.7	5651.6	5582.9	5512.4	*	170.	215.	AG	1878.	19.2	0.0	20.7		
81. 29 SB POLO TO CARRS	*	5582.9	5512.4	5496.6	5385.4	*	154.	214.	AG	1878.	19.2	0.0	20.7		
82. 29 SB POLO TO CARRS	*	5496.6	5385.4	5399.8	5229.6	*	183.	212.	AG	1878.	19.2	0.0	20.7		
83. 29 SB POLO TO CARRS	*	5399.8	5229.6	5289.4	5036.0	*	223.	210.	AG	1878.	19.2	0.0	20.7		
84. 29 SB POLO TO CARRS	*	5289.4	5036.0	5216.8	4896.8	*	157.	208.	AG	1878.	19.2	0.0	20.7		
85. 29 SB CARRS TO WOOD	*	5218.3	4898.3	5091.3	4632.1	*	295.	206.	AG	1881.	19.2	0.0	20.7		
86. 29 SB CARRS TO WOOD	*	5091.3	4632.1	4943.0	4284.2	*	378.	203.	AG	1881.	19.2	0.0	20.7		
87. 29 SB WOOD TO RIO	*	4946.1	4284.2	4678.3	3729.1	*	616.	206.	AG	1905.	19.2	0.0	20.7		

88. BERKMAR ROAD	*	4342.5	3967.6	4404.3	4067.3	*	117.	32.	AG	418.	18.2	0.0	13.4
89. BERKMAR ROAD	*	4404.3	4067.3	4445.0	4147.4	*	90.	27.	AG	418.	18.2	0.0	13.4
90. BERKMAR ROAD	*	4445.0	4147.4	4450.6	4193.7	*	47.	7.	AG	418.	18.2	0.0	13.4
91. BERKMAR ROAD	*	4450.6	4193.7	4461.9	4271.0	*	78.	8.	AG	418.	18.2	0.0	13.4
92. BERKMAR ROAD	*	4461.9	4271.0	4480.1	4327.2	*	59.	18.	AG	418.	18.2	0.0	13.4
93. BERKMAR ROAD	*	4480.1	4327.2	4518.1	4396.0	*	79.	29.	AG	418.	18.2	0.0	13.4
94. BERKMAR ROAD	*	4518.1	4396.0	4595.3	4492.9	*	124.	39.	AG	418.	18.2	0.0	13.4
95. BERKMAR ROAD	*	4595.3	4492.9	4624.8	4532.3	*	49.	37.	AG	418.	18.2	0.0	13.4

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:23:20

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
96. BERKMAR DRIVE	*	4624.8	4531.6	4748.4	4719.8	*	225.	33.	AG	418.	18.2	0.0	13.4		
97. BERKMAR DRIVE	*	4748.4	4719.8	4905.8	4983.9	*	307.	31.	AG	418.	18.2	0.0	13.4		
98. BERKMAR DRIVE	*	4905.8	4983.9	5046.2	5172.1	*	235.	37.	AG	418.	18.2	0.0	13.4		
99. BERKMAR DRIVE	*	5046.2	5172.1	5136.1	5270.4	*	133.	42.	AG	418.	18.2	0.0	13.4		
100. BERKMAR DRIVE	*	5136.1	5270.4	5189.5	5365.9	*	109.	29.	AG	418.	18.2	0.0	13.4		
101. BERKMAR DRIVE	*	5189.5	5365.9	5240.1	5478.3	*	123.	24.	AG	418.	18.2	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:23:20

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. R-1	*	6914.5	7689.1	1.8	*
2. R-2	*	7011.4	7593.6	1.8	*
3. R-3	*	6739.4	7222.2	1.8	*
4. R-4	*	6628.0	7071.0	1.8	*
5. R-5	*	6589.5	6876.0	1.8	*
6. R-6	*	5401.0	5749.9	1.8	*
7. R-7	*	4778.9	5171.5	1.8	*
8. R-8	*	4343.2	4637.1	1.8	*

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD 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
0.	4.1	3.6	3.9	4.0	3.6	3.4	3.0	3.2
10.	4.1	3.5	3.8	4.0	3.8	3.4	3.0	3.2
20.	4.0	3.4	3.7	4.2	3.7	3.3	3.0	3.2
30.	3.5	3.0	3.2	3.2	3.1	3.0	3.0	3.2
40.	3.0	3.0	3.0	3.0	3.0	3.4	3.2	3.3
50.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.4
60.	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.1
70.	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.2
80.	3.0	3.0	3.0	3.0	3.0	3.2	3.5	3.2
90.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.2
100.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.2
110.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.2
120.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.1
130.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.2
140.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.2
150.	3.0	3.0	3.0	3.0	3.0	3.3	3.5	3.2
160.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.1
170.	3.0	3.0	3.0	3.0	3.0	3.3	3.5	3.0
180.	3.0	3.0	3.0	3.0	3.0	3.3	3.4	3.0
190.	3.0	3.0	3.0	3.0	3.0	3.5	3.2	3.0
200.	3.0	3.0	3.0	3.1	3.1	3.5	3.2	3.0
210.	3.7	3.0	3.1	3.4	3.2	3.0	3.3	3.0
220.	4.3	3.3	3.4	3.7	3.7	3.2	3.2	3.0
230.	4.2	3.5	3.6	3.6	3.4	3.2	3.1	3.0
240.	4.0	3.6	3.4	3.5	3.4	3.3	3.0	3.0
250.	4.0	3.6	3.4	3.7	3.4	3.2	3.0	3.2
260.	3.9	3.5	3.5	3.5	3.4	3.2	3.0	3.2
270.	3.8	3.5	3.6	3.5	3.5	3.2	3.0	3.2
280.	3.8	3.5	3.7	3.5	3.5	3.2	3.0	3.2
290.	3.8	3.5	3.7	3.5	3.5	3.2	3.0	3.2
300.	3.7	3.4	3.7	3.5	3.5	3.2	3.0	3.2
310.	3.8	3.5	3.7	3.5	3.5	3.2	3.0	3.2
320.	3.9	3.5	3.7	3.5	3.4	3.2	3.0	3.2
330.	3.9	3.5	3.7	3.5	3.5	3.2	3.0	3.2
340.	3.9	3.5	3.7	3.6	3.4	3.3	3.0	3.2
350.	4.0	3.6	3.7	3.9	3.6	3.3	3.0	3.2
MAX	4.3	3.6	3.9	4.2	3.8	3.5	3.5	3.4
DEGR.	220	350	0	20	10	200	170	50

THE HIGHEST CONCENTRATION OF 4.30 PPM OCCURRED AT RECEPTOR REC1 .

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:23:20

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 220	REC2 350	REC3 0	REC4 20	REC5 10	REC6 200	REC7 170	REC8 50
1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0

2	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
3	*	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
5	*	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	0.1
7	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.7	0.0	0.5	0.3	0.5	0.0	0.0	0.0
9	*	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0
10	*	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
13	*	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
14	*	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
15	*	0.4	0.0	0.4	0.2	0.3	0.0	0.0	0.0
16	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	*	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
21	*	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
23	*	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
25	*	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
27	*	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
29	*	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
31	*	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
33	*	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
35	*	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
37	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	*	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

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

		CO/LINK (PPM)							
		ANGLE (DEGREES)							
		REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8
LINK #	*	220	350	0	20	10	200	170	50
46	*	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
48	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
49	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
50	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	*	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
54	*	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
56	*	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

58	*	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
60	*	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
62	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
63	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64	*	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
66	*	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
68	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
69	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
70	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
86	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
87	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
88	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2015 BUILD CONDITIONS

		CO/LINK (PPM)							
		ANGLE (DEGREES)							
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8
LINK #	*	220	350	0	20	10	200	170	50
99	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	*	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 7/30/2012 at 10:24:22

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NO BUILD CONDITIONS - R1 through R8

DATE : 07/30/ 0
TIME : 10:24:22

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. 29 NB RIO TO WOOD	*	4700.1	3720.4	4967.5	4267.0	*	609.	26.	AG	3150.	15.1	0.0	20.7		
2. 29 NB WOOD TO CARRS	*	4967.5	4268.9	5242.7	4893.6	*	683.	24.	AG	2980.	15.1	0.0	20.7		
3. 29 NB CARRS TO POLO	*	5242.7	4893.6	5348.1	5102.4	*	234.	27.	AG	2941.	15.1	0.0	20.7		
4. 29 NB CARRS TO POLO	*	5348.1	5102.4	5549.2	5416.7	*	373.	33.	AG	2941.	15.1	0.0	20.7		
5. 29 NB CARRS TO POLO	*	5549.2	5416.7	5777.6	5779.7	*	429.	32.	AG	2941.	15.1	0.0	20.7		
6. 29 NB BEFORE RAMP	*	5781.5	5779.7	6035.2	6195.5	*	487.	31.	AG	2840.	15.1	0.0	20.7		
7. 29 NB BTW RAMPS	*	6033.3	6191.6	6568.1	7202.7	*	1144.	28.	AG	2840.	15.1	0.0	20.7		
8. 29 NB S OF HOLLY	*	6568.1	7202.7	6835.5	7727.8	*	589.	27.	AG	3088.	15.1	0.0	14.6		
9. 29 NB S OF HOLLY	*	6835.5	7727.8	6980.0	7987.4	*	297.	29.	AG	3088.	15.1	0.0	14.6		
10. 29 NB S OF HOLLY	*	6980.0	7987.4	7081.5	8133.8	*	178.	35.	AG	3088.	15.1	0.0	14.6		
11. 29 NB S OF HOLLY	*	7081.5	8133.8	7376.2	8459.8	*	439.	42.	AG	3088.	15.1	0.0	14.6		
12. 29 SB S OF HOLLY	*	7356.7	8469.5	7032.7	8100.6	*	491.	221.	AG	2586.	15.1	0.0	14.6		
13. 29 SB S OF HOLLY	*	7032.7	8100.6	6946.8	7979.6	*	148.	215.	AG	2586.	15.1	0.0	14.6		
14. 29 SB S OF HOLLY	*	6946.8	7979.6	6843.3	7794.2	*	212.	209.	AG	2586.	15.1	0.0	14.6		
15. 29 SB S OF HOLLY	*	6843.3	7794.2	6550.6	7216.4	*	648.	207.	AG	2586.	15.1	0.0	14.6		
16. 29 SB BTWN RAMPS	*	6548.9	7218.5	6372.0	6880.7	*	381.	208.	AG	3392.	15.1	0.0	14.6		
17. 29 SB BTWN OR AND OF	*	6372.4	6882.8	6119.8	6397.3	*	547.	207.	AG	3392.	15.1	0.0	14.6		
18. 29 SB BTWN OR AND OF	*	6119.8	6397.3	6003.4	6184.0	*	243.	209.	AG	3392.	15.1	0.0	14.6		
19. 29 SB BTWN OR AND OF	*	6003.4	6184.0	5930.8	6070.6	*	135.	213.	AG	3392.	15.1	0.0	14.6		
20.	*	5929.2	6072.1	5756.8	5789.2	*	331.	211.	AG	3392.	15.1	0.0	14.6		
21. 29 SB POLO TO CARRS	*	5758.3	5789.2	5679.7	5651.6	*	158.	210.	AG	3512.	15.1	0.0	20.7		
22. 29 SB POLO TO CARRS	*	5679.7	5651.6	5582.9	5512.4	*	170.	215.	AG	3512.	15.1	0.0	20.7		
23. 29 SB POLO TO CARRS	*	5582.9	5512.4	5496.6	5385.4	*	154.	214.	AG	3512.	15.1	0.0	20.7		
24. 29 SB POLO TO CARRS	*	5496.6	5385.4	5399.8	5229.6	*	183.	212.	AG	3512.	15.1	0.0	20.7		
25. 29 SB POLO TO CARRS	*	5399.8	5229.6	5289.4	5036.0	*	223.	210.	AG	3512.	15.1	0.0	20.7		
26. 29 SB POLO TO CARRS	*	5289.4	5036.0	5216.8	4896.8	*	157.	208.	AG	3512.	15.1	0.0	20.7		
27. 29 SB CARRS TO WOOD	*	5218.3	4898.3	5091.3	4632.1	*	295.	206.	AG	3559.	15.1	0.0	20.7		
28. 29 SB CARRS TO WOOD	*	5091.3	4632.1	4943.0	4284.2	*	378.	203.	AG	3559.	15.1	0.0	20.7		
29. 29 SB WOOD TO RIO	*	4946.1	4284.2	4678.3	3729.1	*	616.	206.	AG	3762.	15.1	0.0	20.7		
30. BERKMAR ROAD	*	4342.5	3967.6	4404.3	4067.3	*	117.	32.	AG	1876.	14.3	0.0	13.4		
31. BERKMAR ROAD	*	4404.3	4067.3	4445.0	4147.4	*	90.	27.	AG	1876.	14.3	0.0	13.4		
32. BERKMAR ROAD	*	4445.0	4147.4	4450.6	4193.7	*	47.	7.	AG	1876.	14.3	0.0	13.4		
33. BERKMAR ROAD	*	4450.6	4193.7	4461.9	4271.0	*	78.	8.	AG	1876.	14.3	0.0	13.4		
34. BERKMAR ROAD	*	4461.9	4271.0	4480.1	4327.2	*	59.	18.	AG	1876.	14.3	0.0	13.4		
35. BERKMAR ROAD	*	4480.1	4327.2	4518.1	4396.0	*	79.	29.	AG	1876.	14.3	0.0	13.4		
36. BERKMAR ROAD	*	4518.1	4396.0	4595.3	4492.9	*	124.	39.	AG	1876.	14.3	0.0	13.4		
37. BERKMAR ROAD	*	4595.3	4492.9	4624.8	4532.3	*	49.	37.	AG	1876.	14.3	0.0	13.4		

38. BERKMAR DRIVE	*	4624.8	4531.6	4748.4	4719.8 *	225.	33.	AG	1876.	14.3	0.0	13.4
39. BERKMAR DRIVE	*	4748.4	4719.8	4905.8	4983.9 *	307.	31.	AG	1876.	14.3	0.0	13.4
40. BERKMAR DRIVE	*	4905.8	4983.9	5046.2	5172.1 *	235.	37.	AG	1876.	14.3	0.0	13.4
41. BERKMAR DRIVE	*	5046.2	5172.1	5136.1	5270.4 *	133.	42.	AG	1876.	14.3	0.0	13.4
42. BERKMAR DRIVE	*	5136.1	5270.4	5189.5	5365.9 *	109.	29.	AG	1876.	14.3	0.0	13.4
43. BERKMAR DRIVE	*	5189.5	5365.9	5240.1	5478.3 *	123.	24.	AG	1876.	14.3	0.0	13.4

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NO BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:24:22

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-1	6914.5	7689.1	1.8
2. R-2	7011.4	7593.6	1.8
3. R-3	6739.4	7222.2	1.8
4. R-4	6628.0	7071.0	1.8
5. R-5	6589.5	6876.0	1.8
6. R-6	5401.0	5749.9	1.8
7. R-7	4778.9	5171.5	1.8
8. R-8	4343.2	4637.1	1.8

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NO BUILD 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
0.	3.9	3.5	3.7	3.9	3.7	3.0	3.0	3.0
10.	3.9	3.5	3.8	3.9	3.7	3.0	3.0	3.0
20.	3.9	3.4	3.6	4.0	3.7	3.0	3.0	3.0
30.	3.5	3.0	3.2	3.2	3.0	3.0	3.0	3.0
40.	3.0	3.0	3.0	3.0	3.0	3.6	3.1	3.1
50.	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.4
60.	3.0	3.0	3.0	3.0	3.0	3.5	3.6	3.5
70.	3.0	3.0	3.0	3.0	3.0	3.5	3.6	3.3
80.	3.0	3.0	3.0	3.0	3.0	3.5	3.3	3.3
90.	3.0	3.0	3.0	3.0	3.0	3.4	3.5	3.4
100.	3.0	3.0	3.0	3.0	3.0	3.4	3.3	3.3
110.	3.0	3.0	3.0	3.0	3.0	3.4	3.3	3.4
120.	3.0	3.0	3.0	3.0	3.0	3.4	3.5	3.6
130.	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.3
140.	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.4

150.	*	3.0	3.0	3.0	3.0	3.0	3.4	3.4	3.4
160.	*	3.0	3.0	3.0	3.0	3.0	3.6	3.6	3.4
170.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.6	3.1
180.	*	3.0	3.0	3.0	3.0	3.0	3.6	3.4	3.0
190.	*	3.0	3.0	3.0	3.0	3.0	3.7	3.1	3.0
200.	*	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.0
210.	*	4.3	3.1	3.6	3.8	3.3	3.5	3.0	3.0
220.	*	4.5	3.6	4.2	4.3	4.0	3.0	3.0	3.0
230.	*	4.0	3.6	3.8	4.0	3.9	3.0	3.0	3.0
240.	*	3.9	3.5	3.8	3.9	3.7	3.0	3.0	3.0
250.	*	3.9	3.5	3.8	3.8	3.6	3.0	3.0	3.0
260.	*	3.7	3.5	3.6	3.8	3.6	3.0	3.0	3.0
270.	*	3.7	3.4	3.7	3.8	3.6	3.0	3.0	3.0
280.	*	3.7	3.4	3.5	3.7	3.6	3.0	3.0	3.0
290.	*	3.7	3.4	3.5	3.6	3.6	3.0	3.0	3.0
300.	*	3.7	3.4	3.5	3.7	3.6	3.0	3.0	3.0
310.	*	3.7	3.5	3.5	3.6	3.6	3.0	3.0	3.0
320.	*	3.8	3.4	3.6	3.7	3.6	3.0	3.0	3.0
330.	*	3.7	3.4	3.5	3.7	3.6	3.0	3.0	3.0
340.	*	3.8	3.5	3.7	3.7	3.6	3.0	3.0	3.0
350.	*	3.9	3.4	3.7	3.7	3.7	3.0	3.0	3.0
MAX	*	4.5	3.6	4.2	4.3	4.0	3.7	3.6	3.6
DEGR.	*	220	230	220	220	220	190	170	120

THE HIGHEST CONCENTRATION OF 4.50 PPM OCCURRED AT RECEPTOR REC1 .

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 NO BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:24:22

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
LINK #	* 220	230	220	220	220	190	170	120
1	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
2	* 0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
3	* 0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
4	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	* 0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
6	* 0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0
7	* 0.2	0.1	0.5	0.6	0.3	0.0	0.0	0.0
8	* 0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
9	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	* 0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
16	* 0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
17	* 0.1	0.0	0.4	0.4	0.1	0.0	0.0	0.0
18	* 0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
19	* 0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
20	* 0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
21	* 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
23	* 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
25	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
26	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
27	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
29	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
30	*	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
32	*	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
34	*	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
36	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
37	*	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
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1 CAL3QHC - (DATED 95221)

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

Run Began on 7/30/2012 at 10:25:17

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS - R1 through R8

DATE : 07/30/ 0
TIME : 10:25:17

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 = 11. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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. 29 NB RIO TO WOOD	*	4700.1	3720.4	4967.5	4267.0	*	609.	26.	AG	2666.	15.1	0.0	20.7		
2. 29 NB WOOD TO CARRS	*	4967.5	4268.9	5242.7	4893.6	*	683.	24.	AG	2504.	15.1	0.0	20.7		
3. 29 NB CARRS TO POLO	*	5242.7	4893.6	5348.1	5102.4	*	234.	27.	AG	2468.	15.1	0.0	20.7		
4. 29 NB CARRS TO POLO	*	5348.1	5102.4	5549.2	5416.7	*	373.	33.	AG	2468.	15.1	0.0	20.7		
5. 29 NB CARRS TO POLO	*	5549.2	5416.7	5777.6	5779.7	*	429.	32.	AG	2468.	15.1	0.0	20.7		
6. 29 NB BEFORE RAMP	*	5781.5	5779.7	6035.2	6195.5	*	487.	31.	AG	2542.	15.1	0.0	20.7		
7. 29 NB BTW RAMPS	*	6033.3	6191.6	6568.1	7202.7	*	1144.	28.	AG	2542.	15.1	0.0	20.7		
8. 29 NB S OF HOLLY	*	6568.1	7202.7	6835.5	7727.8	*	589.	27.	AG	3474.	15.1	0.0	14.6		
9. 29 NB S OF HOLLY	*	6835.5	7727.8	6980.0	7987.4	*	297.	29.	AG	3474.	15.1	0.0	14.6		
10. 29 NB S OF HOLLY	*	6980.0	7987.4	7081.5	8133.8	*	178.	35.	AG	3474.	15.1	0.0	14.6		
11. 29 NB S OF HOLLY	*	7081.5	8133.8	7376.2	8459.8	*	439.	42.	AG	3474.	15.1	0.0	14.6		
12. 29 SB S OF HOLLY	*	7356.7	8469.5	7032.7	8100.6	*	491.	221.	AG	2909.	15.1	0.0	14.6		
13. 29 SB S OF HOLLY	*	7032.7	8100.6	6946.8	7979.6	*	148.	215.	AG	2909.	15.1	0.0	14.6		
14. 29 SB S OF HOLLY	*	6946.8	7979.6	6843.3	7794.2	*	212.	209.	AG	2909.	15.1	0.0	14.6		
15. 29 SB S OF HOLLY	*	6843.3	7794.2	6550.6	7216.4	*	648.	207.	AG	2909.	15.1	0.0	14.6		
16. 29 SB BTWN RAMPS	*	6548.9	7218.5	6372.0	6880.7	*	381.	208.	AG	2183.	15.1	0.0	14.6		
17. 29 NB BYPASS ON RAMP	*	6366.7	6885.3	6306.5	6893.7	*	61.	278.	AG	424.	14.5	0.0	9.8		
18. 29 NB BYPASS ON RAMP	*	6306.5	6893.7	6235.6	6885.3	*	71.	263.	AG	424.	14.5	0.0	9.8		
19. 29 NB BYPASS ON RAMP	*	6235.6	6885.3	6159.3	6848.7	*	85.	244.	AG	424.	14.5	0.0	9.8		
20. ON RAMP TO BYPASS	*	6540.5	7225.4	6489.5	7133.9	*	105.	209.	AG	865.	15.1	0.0	10.0		
21. ON RAMP TO BYPASS	*	6489.5	7133.9	6444.5	7062.2	*	85.	212.	AG	865.	15.1	0.0	10.0		
22. ON RAMP TO BYPASS	*	6444.5	7062.2	6361.4	6982.9	*	115.	226.	AG	865.	15.1	0.0	10.0		
23. ON RAMP TO BYPASS	*	6361.4	6982.9	6301.9	6934.1	*	77.	231.	AG	865.	15.1	0.0	10.0		
24. ON RAMP TO BYPASS	*	6301.9	6934.1	6154.0	6855.6	*	167.	242.	AG	865.	15.1	0.0	10.0		
25. 29 SB OFF RAMP FROM	*	5571.8	6147.3	5704.6	6301.4	*	203.	41.	AG	347.	14.5	0.0	10.0		
26. 29 SB OFF RAMP FROM	*	5704.6	6301.4	5785.9	6346.3	*	93.	61.	AG	347.	14.5	0.0	10.0		
27. 29 SB OFF RAMP FROM	*	5785.9	6346.3	5903.6	6333.5	*	118.	96.	AG	347.	14.5	0.0	10.0		
28. 29 SB OFF RAMP FROM	*	5903.6	6333.5	5974.3	6252.2	*	108.	139.	AG	347.	14.5	0.0	10.0		
29. 29 SB OFF RAMP FROM	*	5974.3	6252.2	5974.3	6162.2	*	90.	180.	AG	347.	14.5	0.0	10.0		
30. 29 SB OFF RAMP FROM	*	5974.3	6162.2	5933.6	6085.2	*	87.	208.	AG	347.	14.5	0.0	10.0		
31. OFF RAMP TO 29 NB	*	5571.8	6162.2	5663.9	6282.1	*	151.	38.	AG	732.	14.5	0.0	10.0		
32. OFF RAMP TO 29 NB	*	5663.9	6282.1	5779.5	6367.7	*	144.	53.	AG	732.	14.5	0.0	10.0		
33. OFF RAMP TO 29 NB	*	5779.5	6367.7	5890.8	6399.9	*	116.	74.	AG	732.	14.5	0.0	10.0		
34. OFF RAMP TO 29 NB	*	5890.8	6399.9	6122.0	6414.8	*	232.	86.	AG	732.	14.5	0.0	10.0		
35. OFF RAMP TO 29 NB	*	6122.0	6414.8	6218.3	6427.7	*	97.	82.	AG	732.	14.5	0.0	10.0		
36. OFF RAMP TO 29 NB	*	6218.3	6427.7	6348.9	6487.6	*	144.	65.	AG	732.	14.5	0.0	10.0		
37. OFF RAMP TO 29 NB	*	6348.9	6487.6	6436.7	6564.7	*	117.	49.	AG	732.	14.5	0.0	10.0		

38.	OFF RAMP TO 29 NB	*	6436.7	6564.7	6498.7	6682.4	*	133.	28.	AG	732.	14.5	0.0	10.0
39.	OFF RAMP TO 29 NB	*	6498.7	6682.4	6524.4	6840.8	*	160.	9.	AG	732.	14.5	0.0	10.0
40.	OFF RAMP TO 29 NB	*	6524.4	6840.8	6515.9	6952.1	*	112.	356.	AG	732.	14.5	0.0	10.0
41.	OFF RAMP TO 29 NB	*	6515.9	6952.1	6524.4	7102.0	*	150.	3.	AG	732.	14.5	0.0	10.0
42.	OFF RAMP TO 29 NB	*	6524.4	7102.0	6567.2	7185.5	*	94.	27.	AG	732.	14.5	0.0	10.0
43.	BYPASS NB	*	3831.5	4353.4	3917.1	4426.2	*	112.	50.	AG	1080.	16.0	0.0	14.6
44.	BYPASS NB	*	3917.1	4426.2	4096.9	4636.0	*	276.	41.	AG	1080.	16.0	0.0	14.6

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:25:17

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. BYPASS NB	*	4096.9	4636.0	4233.9	4743.0	*	174.	52.	AG	1080.	16.0	0.0	14.6		
46. BYPASS NB	*	4233.9	4743.0	4392.3	4811.5	*	173.	67.	AG	1080.	16.0	0.0	14.6		
47. BYPASS NB	*	4392.3	4811.5	4525.1	4854.3	*	140.	72.	AG	1080.	16.0	0.0	14.6		
48. BYPASS NB	*	4525.1	4854.3	4743.4	4978.5	*	251.	60.	AG	1080.	16.0	0.0	14.6		
49. BYPASS NB	*	4743.4	4978.5	4863.3	5059.8	*	145.	56.	AG	1080.	16.0	0.0	14.6		
50. BYPASS NB	*	4863.3	5059.8	5004.6	5201.1	*	200.	45.	AG	1080.	16.0	0.0	14.6		
51. BYPASS NB	*	5004.6	5201.1	5103.0	5359.5	*	186.	32.	AG	1080.	16.0	0.0	14.6		
52. BYPASS NB	*	5103.0	5359.5	5171.5	5513.6	*	169.	24.	AG	1080.	16.0	0.0	14.6		
53. BYPASS NB	*	5171.5	5513.6	5252.9	5667.8	*	174.	28.	AG	1080.	16.0	0.0	14.6		
54. BYPASS NB	*	5252.9	5667.8	5347.1	5826.2	*	184.	31.	AG	1080.	16.0	0.0	14.6		
55. BYPASS NB	*	5347.1	5826.2	5556.9	6138.7	*	376.	34.	AG	1080.	16.0	0.0	14.6		
56. BYPASS SB	*	6156.2	6858.0	6044.9	6793.7	*	129.	240.	AG	1290.	16.0	0.0	14.6		
57. BYPASS SB	*	6044.9	6793.7	5912.2	6682.4	*	173.	230.	AG	1290.	16.0	0.0	14.6		
58. BYPASS SB	*	5912.2	6682.4	5818.0	6596.8	*	127.	228.	AG	1290.	16.0	0.0	14.6		
59. BYPASS SB	*	5818.0	6596.8	5728.1	6455.5	*	167.	212.	AG	1290.	16.0	0.0	14.6		
60. BYPASS SB	*	5728.1	6455.5	5638.2	6275.7	*	201.	207.	AG	1290.	16.0	0.0	14.6		
61. BYPASS SB	*	5638.2	6275.7	5514.0	6108.7	*	208.	217.	AG	1290.	16.0	0.0	14.6		
62. BYPASS SB	*	5514.0	6108.7	5338.5	5834.7	*	325.	213.	AG	1290.	16.0	0.0	14.6		
63. BYPASS SB	*	5338.5	5834.7	5265.7	5740.5	*	119.	218.	AG	1290.	16.0	0.0	14.6		
64. BYPASS SB	*	5265.7	5740.5	5201.5	5620.7	*	136.	208.	AG	1290.	16.0	0.0	14.6		
65. BYPASS SB	*	5201.5	5620.7	5145.8	5496.5	*	136.	204.	AG	1290.	16.0	0.0	14.6		
66. BYPASS SB	*	5145.8	5496.5	5064.5	5325.3	*	190.	205.	AG	1290.	16.0	0.0	14.6		
67. BYPASS SB	*	5064.5	5325.3	4974.6	5196.8	*	157.	215.	AG	1290.	16.0	0.0	14.6		
68. BYPASS SB	*	4974.6	5196.8	4811.9	5047.0	*	221.	227.	AG	1290.	16.0	0.0	14.6		
69. BYPASS SB	*	4811.9	5047.0	4644.9	4944.2	*	196.	238.	AG	1290.	16.0	0.0	14.6		
70. BYPASS SB	*	4644.9	4944.2	4499.4	4862.9	*	167.	241.	AG	1290.	16.0	0.0	14.6		
71. BYPASS SB	*	4499.4	4862.9	4208.2	4760.1	*	309.	251.	AG	1290.	16.0	0.0	14.6		
72. BYPASS SB	*	4208.2	4760.1	4075.5	4674.5	*	158.	237.	AG	1290.	16.0	0.0	14.6		
73. BYPASS SB	*	4075.5	4674.5	3938.5	4541.8	*	191.	226.	AG	1290.	16.0	0.0	14.6		
74. BYPASS SB	*	3938.5	4541.8	3814.4	4387.7	*	198.	219.	AG	1290.	16.0	0.0	14.6		
75. 29 SB BTWN OR AND OF	*	6372.4	6882.8	6119.8	6397.3	*	547.	207.	AG	2183.	15.1	0.0	14.6		
76. 29 SB BTWN OR AND OF	*	6119.8	6397.3	6003.4	6184.0	*	243.	209.	AG	2183.	15.1	0.0	14.6		
77. 29 SB BTWN OR AND OF	*	6003.4	6184.0	5930.8	6070.6	*	135.	213.	AG	2183.	15.1	0.0	14.6		
78.	*	5929.2	6072.1	5756.8	5789.2	*	331.	211.	AG	3036.	16.0	0.0	14.6		
79. 29 SB POLO TO CARRS	*	5758.3	5789.2	5679.7	5651.6	*	158.	210.	AG	2948.	15.1	0.0	20.7		
80. 29 SB POLO TO CARRS	*	5679.7	5651.6	5582.9	5512.4	*	170.	215.	AG	2948.	15.1	0.0	20.7		
81. 29 SB POLO TO CARRS	*	5582.9	5512.4	5496.6	5385.4	*	154.	214.	AG	2948.	15.1	0.0	20.7		
82. 29 SB POLO TO CARRS	*	5496.6	5385.4	5399.8	5229.6	*	183.	212.	AG	2948.	15.1	0.0	20.7		
83. 29 SB POLO TO CARRS	*	5399.8	5229.6	5289.4	5036.0	*	223.	210.	AG	2948.	15.1	0.0	20.7		
84. 29 SB POLO TO CARRS	*	5289.4	5036.0	5216.8	4896.8	*	157.	208.	AG	2948.	15.1	0.0	20.7		
85. 29 SB CARRS TO WOOD	*	5218.3	4898.3	5091.3	4632.1	*	295.	206.	AG	2990.	15.1	0.0	20.7		
86. 29 SB CARRS TO WOOD	*	5091.3	4632.1	4943.0	4284.2	*	378.	203.	AG	2990.	15.1	0.0	20.7		
87. 29 SB WOOD TO RIO	*	4946.1	4284.2	4678.3	3729.1	*	616.	206.	AG	3183.	15.1	0.0	20.7		

88.	BERKMAR ROAD	*	4342.5	3967.6	4404.3	4067.3	*	117.	32.	AG	805.	14.3	0.0 13.4
89.	BERKMAR ROAD	*	4404.3	4067.3	4445.0	4147.4	*	90.	27.	AG	805.	14.3	0.0 13.4
90.	BERKMAR ROAD	*	4445.0	4147.4	4450.6	4193.7	*	47.	7.	AG	805.	14.3	0.0 13.4
91.	BERKMAR ROAD	*	4450.6	4193.7	4461.9	4271.0	*	78.	8.	AG	805.	14.3	0.0 13.4
92.	BERKMAR ROAD	*	4461.9	4271.0	4480.1	4327.2	*	59.	18.	AG	805.	14.3	0.0 13.4
93.	BERKMAR ROAD	*	4480.1	4327.2	4518.1	4396.0	*	79.	29.	AG	805.	14.3	0.0 13.4
94.	BERKMAR ROAD	*	4518.1	4396.0	4595.3	4492.9	*	124.	39.	AG	805.	14.3	0.0 13.4
95.	BERKMAR ROAD	*	4595.3	4492.9	4624.8	4532.3	*	49.	37.	AG	805.	14.3	0.0 13.4

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:25:17

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
96. BERKMAR DRIVE	*	4624.8	4531.6	4748.4	4719.8	*	225.	33.	AG	805.	14.3	0.0	13.4		
97. BERKMAR DRIVE	*	4748.4	4719.8	4905.8	4983.9	*	307.	31.	AG	805.	14.3	0.0	13.4		
98. BERKMAR DRIVE	*	4905.8	4983.9	5046.2	5172.1	*	235.	37.	AG	805.	14.3	0.0	13.4		
99. BERKMAR DRIVE	*	5046.2	5172.1	5136.1	5270.4	*	133.	42.	AG	805.	14.3	0.0	13.4		
100. BERKMAR DRIVE	*	5136.1	5270.4	5189.5	5365.9	*	109.	29.	AG	805.	14.3	0.0	13.4		
101. BERKMAR DRIVE	*	5189.5	5365.9	5240.1	5478.3	*	123.	24.	AG	805.	14.3	0.0	13.4		

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:25:17

ADDITIONAL QUEUE LINK PARAMETERS

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

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R-1	6914.5	7689.1	1.8
2. R-2	7011.4	7593.6	1.8
3. R-3	6739.4	7222.2	1.8
4. R-4	6628.0	7071.0	1.8
5. R-5	6589.5	6876.0	1.8
6. R-6	5401.0	5749.9	1.8
7. R-7	4778.9	5171.5	1.8
8. R-8	4343.2	4637.1	1.8

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD 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
0.	4.1	3.6	3.9	4.0	3.7	3.4	3.0	3.2
10.	4.1	3.5	3.8	4.0	3.8	3.4	3.0	3.2
20.	4.0	3.4	3.7	4.2	3.7	3.4	3.0	3.2
30.	3.5	3.0	3.2	3.2	3.1	3.0	3.0	3.2
40.	3.0	3.0	3.0	3.0	3.0	3.6	3.5	3.4
50.	3.0	3.0	3.0	3.0	3.0	3.4	3.5	3.6
60.	3.0	3.0	3.0	3.0	3.0	3.5	3.8	3.3
70.	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.3
80.	3.0	3.0	3.0	3.0	3.0	3.5	3.7	3.2
90.	3.0	3.0	3.0	3.0	3.0	3.3	3.5	3.4
100.	3.0	3.0	3.0	3.0	3.0	3.4	3.6	3.2
110.	3.0	3.0	3.0	3.0	3.0	3.4	3.6	3.2
120.	3.0	3.0	3.0	3.0	3.0	3.4	3.8	3.3
130.	3.0	3.0	3.0	3.0	3.0	3.4	3.6	3.2
140.	3.0	3.0	3.0	3.0	3.0	3.4	3.6	3.2
150.	3.0	3.0	3.0	3.0	3.0	3.4	3.6	3.2
160.	3.0	3.0	3.0	3.0	3.0	3.3	3.6	3.2
170.	3.0	3.0	3.0	3.0	3.0	3.5	3.7	3.0
180.	3.0	3.0	3.0	3.0	3.0	3.4	3.7	3.0
190.	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.0
200.	3.0	3.0	3.0	3.1	3.1	3.5	3.3	3.0
210.	3.9	3.1	3.2	3.6	3.3	3.1	3.3	3.0
220.	4.4	3.5	3.6	4.2	3.8	3.6	3.4	3.0
230.	4.2	3.5	3.8	3.9	3.6	3.3	3.2	3.0
240.	4.0	3.6	3.7	3.7	3.6	3.4	3.0	3.0
250.	3.9	3.6	3.6	3.9	3.6	3.4	3.0	3.2
260.	3.9	3.5	3.6	3.7	3.8	3.3	3.0	3.2
270.	3.8	3.5	3.6	3.7	3.7	3.3	3.0	3.3
280.	3.8	3.5	3.7	3.7	3.6	3.4	3.0	3.2
290.	3.8	3.5	3.6	3.7	3.5	3.4	3.0	3.2
300.	3.7	3.4	3.7	3.7	3.5	3.4	3.0	3.2
310.	3.8	3.5	3.7	3.7	3.6	3.4	3.0	3.3
320.	3.9	3.5	3.7	3.7	3.5	3.3	3.0	3.2
330.	3.9	3.5	3.7	3.8	3.7	3.2	3.0	3.2
340.	3.9	3.5	3.7	3.7	3.6	3.4	3.0	3.2
350.	4.0	3.6	3.7	3.9	3.7	3.4	3.0	3.2
MAX	4.4	3.6	3.9	4.2	3.8	3.6	3.8	3.6
DEGR.	220	350	0	220	260	220	120	50

THE HIGHEST CONCENTRATION OF 4.40 PPM OCCURRED AT RECEPTOR REC1 .

PAGE 6

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

DATE : 07/30/ 0
TIME : 10:25:17

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC1 220	REC2 350	REC3 0	REC4 220	REC5 260	REC6 220	REC7 120	REC8 50
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
6	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
7	*	0.2	0.0	0.0	0.5	0.3	0.0	0.0	0.0
8	*	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.0
9	*	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
10	*	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0
16	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	*	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
21	*	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
23	*	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
25	*	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
27	*	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
29	*	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
31	*	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
33	*	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
35	*	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
37	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	*	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

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

		CO/LINK (PPM)							
		ANGLE (DEGREES)							
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8
LINK #	*	220	350	0	220	260	220	120	50
46	*	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
48	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
49	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
51	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
52	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
53	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
54	*	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
56	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
57	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0

58	*	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
60	*	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
62	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
63	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64	*	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
66	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
67	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
68	*	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
69	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
70	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
73	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	*	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0
76	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
77	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
79	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
85	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
86	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0

JOB: CHARLOTTESVILLE BYPASS RUN: DESIGN YEAR 2040 BUILD CONDITIONS

		CO/LINK (PPM)							
		ANGLE (DEGREES)							
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8
LINK #	*	220	350	0	220	260	220	120	50
99	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	*	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 7/09/2012 at 13:52:36

JOB: Charlottesville Bypass Project RUN: Existing 2011 Conditions - Rio Road / Route 29

DATE : 07/09/ 0
TIME : 13:52:36

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 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 approach link	*	-114.6	-129.0	-71.5	-71.0	*	72.	37.	AG	2938.	22.7	0.0	20.7		
2. nb approach link	*	-71.5	-71.0	133.2	221.9	*	357.	35.	AG	2938.	22.7	0.0	20.7		
3. nb dec link	*	132.6	222.4	158.8	262.4	*	48.	33.	AG	3559.	22.7	0.0	20.7		
4. nb dec link	*	158.8	262.4	239.8	442.0	*	197.	24.	AG	3559.	22.7	0.0	20.7		
5. nb dec link	*	239.8	442.0	262.4	489.1	*	52.	26.	AG	3559.	22.7	0.0	20.7		
6. nb dec link	*	262.4	489.1	323.0	602.5	*	129.	28.	AG	3559.	22.7	0.0	20.7		
7. sb approach link	*	295.3	607.1	146.0	285.5	*	355.	205.	AG	2388.	22.7	0.0	20.7		
8. sb approach link	*	146.0	285.5	122.9	246.5	*	45.	211.	AG	2388.	22.7	0.0	20.7		
9. sb dec link	*	122.9	245.5	90.6	194.7	*	60.	212.	AG	2083.	22.7	0.0	20.7		
10. sb dec link	*	90.6	194.7	-132.6	-112.6	*	380.	216.	AG	2083.	22.7	0.0	20.7		
11. wb approach link	*	303.9	-126.1	244.2	-7.6	*	133.	333.	AG	1470.	21.5	0.0	13.4		
12. wb approach link	*	244.2	-7.6	133.1	233.7	*	266.	335.	AG	1470.	21.5	0.0	13.4		
13. wb dec link	*	132.6	233.2	110.8	288.8	*	60.	339.	AG	760.	21.5	0.0	13.4		
14. wb dec link	*	110.8	288.8	89.1	324.0	*	41.	328.	AG	760.	21.5	0.0	13.4		
15. wb dec link	*	89.1	324.0	55.7	361.0	*	50.	318.	AG	760.	21.5	0.0	13.4		
16. wb dec link	*	55.7	361.0	33.0	377.7	*	28.	306.	AG	760.	21.5	0.0	13.4		
17. wb dec link	*	33.0	377.7	-119.3	528.2	*	214.	315.	AG	760.	21.5	0.0	13.4		
18. eb approach link	*	-126.3	521.2	31.2	365.6	*	221.	135.	AG	796.	21.5	0.0	13.4		
19. eb approach link	*	31.2	365.6	64.1	334.2	*	45.	134.	AG	796.	21.5	0.0	13.4		
20. eb approach link	*	64.1	334.2	96.0	286.9	*	57.	146.	AG	796.	21.5	0.0	13.4		
21. eb approach link	*	96.0	286.9	123.8	228.6	*	65.	155.	AG	796.	21.5	0.0	13.4		
22. eb dec link	*	123.8	227.6	158.5	136.9	*	97.	159.	AG	1190.	21.5	0.0	13.4		
23. eb dec link	*	158.5	136.9	237.7	-30.7	*	185.	155.	AG	1190.	21.5	0.0	13.4		
24. eb dec link	*	237.7	-30.7	288.6	-133.1	*	114.	154.	AG	1190.	21.5	0.0	13.4		
25. nb left que	*	104.2	195.9	94.8	182.7	*	16.	216.	AG	695.	100.0	0.0	7.3	0.28	2.7
26. nb thru que	*	112.0	191.2	40.3	91.4	*	123.	216.	AG	935.	100.0	0.0	14.6	0.29	20.5
27. nb right que	*	138.3	171.8	112.4	186.8	*	30.	300.	AG	234.	100.0	0.0	3.7	0.28	5.0
28. nb right que	*	131.4	175.8	101.4	176.9	*	30.	272.	AG	234.	100.0	0.0	3.7	0.28	5.0
29. nb right que	*	117.4	176.3	91.8	160.6	*	30.	239.	AG	234.	100.0	0.0	3.7	0.28	5.0
30. nb right que	*	109.4	171.4	92.2	146.9	*	30.	215.	AG	234.	100.0	0.0	3.7	0.28	5.0

31. sb left que	*	148.8	273.4	176.2	333.9	*	66.	24.	AG	523.	100.0	0.0	7.3	0.33	11.1
32. sb thru que	*	141.9	278.3	160.9	322.4	*	48.	23.	AG	585.	100.0	0.0	14.6	0.11	8.0
33. sb right	*	119.1	290.2	131.0	291.2	*	12.	85.	AG	146.	100.0	0.0	3.7	0.11	2.0
34. sb right	*	133.8	291.5	141.8	300.3	*	12.	42.	AG	146.	100.0	0.0	3.7	0.11	2.0
35. sb right	*	140.6	299.0	145.4	309.9	*	12.	24.	AG	146.	100.0	0.0	3.7	0.11	2.0
36. wb left que	*	140.1	205.3	156.0	167.7	*	41.	157.	AG	674.	100.0	0.0	7.3	0.50	6.8
37. wb thru que	*	146.8	208.1	173.4	145.8	*	68.	157.	AG	631.	100.0	0.0	7.3	0.55	11.3
38. wb right	*	150.2	209.4	711.3	-1091.2	*	1417.	157.	AG	318.	100.0	0.0	3.7	2.85	236.1
39. eb left que	*	113.9	264.3	97.0	298.0	*	38.	333.	AG	691.	100.0	0.0	7.3	0.61	6.3
40. eb left que	*	98.6	294.9	77.3	326.0	*	38.	326.	AG	691.	100.0	0.0	7.3	0.61	6.3
41. eb left que	*	82.3	318.7	58.5	348.0	*	38.	321.	AG	691.	100.0	0.0	7.3	0.61	6.3
42. eb thru que	*	109.0	261.5	84.2	305.4	*	50.	331.	AG	653.	100.0	0.0	7.3	0.47	8.4
43. eb thru que	*	90.6	294.1	63.5	336.5	*	50.	327.	AG	653.	100.0	0.0	7.3	0.47	8.4
44. eb thru que	*	70.9	324.9	38.8	363.7	*	50.	320.	AG	653.	100.0	0.0	7.3	0.47	8.4

JOB: Charlottesville Bypass Project RUN: Existing 2011 Conditions

DATE : 07/09/ 0
TIME : 13:52:36

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
45. eb right	*	105.1	259.4	89.1	288.7	*	33.	331.	AG	326.	100.0	0.0	3.7	0.70	5.6
46. eb right	*	83.6	298.8	63.7	325.6	*	33.	323.	AG	326.	100.0	0.0	3.7	0.70	5.6

JOB: Charlottesville Bypass Project RUN: Existing 2011 Conditions

DATE : 07/09/ 0
TIME : 13:52:36

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
25. nb left que	*	180	165	2.0	119	3433	141.30	2	3
26. nb thru que	*	180	111	2.0	2657	6408	141.30	2	3
27. nb right que	*	180	111	2.0	162	1583	141.30	2	3
28. nb right que	*	180	111	2.0	162	1583	141.30	2	3
29. nb right que	*	180	111	2.0	162	1583	141.30	2	3
30. nb right que	*	180	111	2.0	162	1583	141.30	2	3

31. sb left que	*	180	125	2.0	638	3433	140.30	2	3
32. sb thru que	*	180	70	2.0	1648	6408	140.30	2	3
33. sb right	*	180	70	2.0	102	1583	140.30	2	3
34. sb right	*	180	70	2.0	102	1583	140.30	2	3
35. sb right	*	180	70	2.0	102	1583	140.30	2	3
36. wb left que	*	180	160	2.0	306	3433	141.30	2	3
37. wb thru que	*	180	151	2.0	539	3539	140.30	2	3
38. wb right	*	180	151	2.0	625	1583	141.30	2	3
39. eb left que	*	180	164	2.0	277	3433	141.30	2	3
40. eb left que	*	180	164	2.0	277	3433	141.30	2	3
41. eb left que	*	180	164	2.0	277	3433	141.30	2	3
42. eb thru que	*	180	155	2.0	390	3539	141.30	2	3
43. eb thru que	*	180	155	2.0	390	3539	141.30	2	3
44. eb thru que	*	180	155	2.0	390	3539	141.30	2	3
45. eb right	*	180	155	2.0	129	1583	141.30	2	3
46. eb right	*	180	155	2.0	129	1583	141.30	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. B-1	-1.1	3.0	1.8
2. B-2	35.7	52.8	1.8
3. B-3	85.4	121.4	1.8
4. B-4	123.0	162.3	1.8
5. B-5	149.9	126.3	1.8
6. B-6	181.5	57.4	1.8
7. B-7	221.4	-30.9	1.8
8. B-8	259.5	-6.5	1.8
9. B-9	217.5	81.8	1.8
10. B-10	182.8	156.6	1.8
11. B-11	160.5	224.5	1.8
12. B-12	186.9	284.5	1.8
13. B-13	223.2	359.6	1.8
14. B-14	264.9	448.5	1.8
15. B-15	206.9	470.5	1.8
16. B-16	185.9	424.9	1.8
17. B-17	160.5	364.6	1.8
18. B-18	124.3	304.2	1.8
19. B-19	88.5	345.1	1.8
20. B-20	23.8	402.1	1.8
21. B-21	-25.7	451.6	1.8
22. B-22	-58.1	433.5	1.8
23. B-23	5.4	373.9	1.8

JOB: Charlottesville Bypass Project RUN: Existing 2011 Conditions

DATE : 07/09/ 0
TIME : 13:52:36

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
24. B-24	60.3	311.2	1.8
25. B-25	97.6	238.2	1.8
26. B-26	54.6	170.6	1.8
27. B-27	-5.2	88.2	1.8
28. B-28	-53.4	21.2	1.8

JOB: Charlottesville Bypass Project 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	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	5.8	6.5	8.6	7.7	7.4	6.0	5.2	3.5	3.8	4.4	6.9	6.6	6.3	6.0	3.0	3.0	3.0	3.0	3.0	3.0
10.	6.3	7.8	9.2	8.3	7.4	5.3	4.9	3.2	3.6	4.3	6.7	6.6	6.1	5.5	3.1	3.1	3.1	3.1	3.0	3.0
20.	7.3	8.5	9.5	8.1	6.6	4.8	4.4	3.0	3.1	3.6	5.9	5.9	5.2	4.8	3.4	3.5	3.8	3.6	3.0	3.0
30.	7.3	7.6	7.8	7.3	5.6	4.5	4.4	3.0	3.0	3.1	4.3	4.3	3.9	3.9	4.1	4.4	4.8	4.5	3.2	3.0
40.	5.4	5.4	5.6	6.0	5.0	4.4	4.4	3.0	3.0	3.0	3.2	3.3	3.3	3.2	4.9	5.2	5.7	5.3	3.7	3.0
50.	3.7	3.9	4.3	5.6	4.8	4.3	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.4	5.5	5.9	5.7	4.1	3.2
60.	3.4	3.4	4.0	5.4	4.7	4.4	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.4	5.5	5.6	5.9	4.1	3.5
70.	3.3	3.3	3.8	5.3	4.5	4.4	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.3	5.4	5.4	6.3	4.1	3.7
80.	3.3	3.3	3.6	5.0	4.4	4.3	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.2	5.2	5.3	6.5	4.1	3.7
90.	3.3	3.3	3.5	4.8	4.5	4.4	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.2	5.2	5.2	6.5	4.2	3.7
100.	3.3	3.3	3.6	4.6	4.5	4.5	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.1	5.2	6.4	4.2	3.7
110.	3.3	3.4	3.6	4.5	4.5	4.5	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.1	5.1	5.2	6.4	4.6	3.8
120.	3.1	3.3	3.6	4.3	4.6	4.7	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.1	5.2	6.5	4.6	3.7
130.	3.1	3.1	3.7	4.2	4.8	4.8	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.1	5.2	6.1	4.5	4.9
140.	3.1	3.1	3.5	4.4	4.9	4.7	4.4	3.2	3.3	3.2	3.2	3.0	3.0	3.0	5.1	5.1	5.4	6.1	5.1	6.5
150.	3.1	3.1	3.2	4.1	4.5	4.4	3.9	3.6	4.0	4.1	3.8	3.1	3.0	3.0	5.1	5.2	5.7	6.4	5.9	7.2
160.	3.0	3.0	3.1	3.5	3.9	3.6	3.5	4.5	4.9	5.1	4.8	3.4	3.1	3.1	5.4	5.4	6.3	7.0	7.2	6.8
170.	3.0	3.0	3.0	3.0	3.2	3.2	3.1	4.9	5.3	5.6	5.6	3.8	3.3	3.1	5.7	5.7	7.2	7.0	8.0	5.2
180.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.9	5.3	5.2	6.1	4.0	3.4	3.2	6.1	6.3	7.6	6.9	8.1	4.7
190.	3.1	3.0	3.0	3.0	3.0	3.0	3.0	4.9	5.0	5.2	6.4	4.4	3.7	3.5	6.3	6.5	7.3	6.9	8.0	4.2
200.	3.3	3.2	3.2	3.1	3.0	3.0	3.0	4.7	4.9	5.2	6.6	5.1	4.8	4.8	5.8	5.8	6.8	7.1	7.5	3.9
210.	3.9	3.9	4.0	3.9	3.0	3.0	3.0	4.7	4.8	5.1	7.3	6.7	6.6	6.3	5.0	5.0	5.4	6.8	6.8	3.7
220.	5.0	4.9	5.4	5.2	3.4	3.0	3.0	4.6	4.7	5.8	8.8	7.9	7.8	7.0	3.8	3.9	4.6	5.6	6.4	3.7

230.	*	5.8	5.7	6.7	6.4	3.9	3.2	3.0	4.5	4.9	6.5	8.9	7.8	7.8	6.9	3.3	3.5	4.1	5.5	6.3
3.7																				
240.	*	5.9	5.8	7.3	7.0	4.2	3.4	3.0	4.4	5.1	7.2	7.5	7.2	7.0	6.2	3.1	3.3	4.3	5.4	6.1
3.7																				
250.	*	5.7	5.6	7.4	7.1	4.5	3.6	3.2	4.8	5.3	7.4	6.7	7.3	6.8	5.9	3.1	3.1	4.0	5.6	5.9
3.7																				
260.	*	5.6	5.5	7.4	7.0	4.7	3.7	3.3	4.9	5.4	7.8	6.2	7.5	6.1	5.7	3.2	3.2	3.7	5.8	5.5
3.8																				
270.	*	5.4	5.3	7.1	6.8	4.7	3.7	3.4	5.0	5.5	8.0	6.0	8.0	5.8	5.7	3.2	3.2	3.6	5.9	5.3
3.8																				
280.	*	5.2	5.1	7.0	6.9	4.8	3.8	3.5	5.1	5.6	8.4	5.8	8.0	5.7	5.4	3.0	3.2	3.3	6.0	4.9
4.0																				
290.	*	5.2	5.1	6.8	7.0	4.7	3.9	3.5	5.2	5.8	8.6	6.3	8.4	5.7	5.4	3.0	3.0	3.2	6.0	4.6
4.0																				
300.	*	5.2	5.1	6.9	7.2	4.9	4.0	3.6	5.3	5.9	8.5	6.6	7.7	5.5	5.4	3.0	3.0	3.2	5.6	4.2
4.0																				
310.	*	5.2	5.1	6.9	7.4	5.1	4.1	3.7	5.5	6.2	8.4	7.6	7.2	5.4	5.4	3.0	3.0	3.0	4.7	3.7
3.7																				
320.	*	5.2	5.1	6.9	7.3	5.1	4.2	3.8	5.9	6.6	8.7	7.4	6.8	5.5	5.4	3.0	3.0	3.0	3.5	3.3
3.4																				
330.	*	5.2	5.1	7.0	7.5	5.9	4.7	4.3	5.4	6.7	7.3	6.9	6.7	5.6	5.6	3.0	3.0	3.0	3.0	3.0
3.1																				
340.	*	5.4	5.4	7.4	7.4	6.3	5.7	5.1	4.7	5.2	5.8	6.3	6.6	5.8	5.8	3.0	3.0	3.0	3.0	3.0
3.0																				
350.	*	5.6	5.8	8.0	7.3	7.0	6.4	5.5	3.6	4.2	4.9	6.7	6.6	6.0	5.9	3.0	3.0	3.0	3.0	3.0
3.0																				
MAX	*	7.3	8.5	9.5	8.3	7.4	6.4	5.5	5.9	6.7	8.7	8.9	8.4	7.8	7.0	6.3	6.5	7.6	7.1	8.1
7.2																				
DEGR.	*	20	20	20	10	0	350	350	320	330	320	230	290	220	220	190	190	180	200	180
150																				

JOB: Charlottesville Bypass Project 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) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
0.	*	3.0	3.7	3.8	6.1	6.2	3.5	3.0	3.0
10.	*	3.0	3.7	3.8	6.5	5.9	4.0	3.2	3.1
20.	*	3.0	3.7	3.7	6.9	6.3	4.6	4.0	3.3
30.	*	3.0	3.7	3.7	7.1	6.9	5.9	5.2	4.8
40.	*	3.0	3.7	3.7	7.7	7.4	6.3	6.6	6.3
50.	*	3.0	3.7	3.9	7.7	7.3	7.0	7.5	7.2
60.	*	3.2	3.9	4.2	7.9	6.6	7.1	7.6	6.4
70.	*	3.4	4.1	4.3	7.7	6.2	7.7	7.3	6.0
80.	*	3.5	4.2	4.5	7.9	5.9	8.0	6.7	5.7
90.	*	3.5	4.2	4.5	8.1	5.9	8.0	6.0	5.5
100.	*	3.5	4.2	5.3	8.2	5.9	7.5	5.6	5.3
110.	*	3.5	4.5	5.5	8.6	6.3	7.2	5.5	5.2
120.	*	3.8	4.5	6.6	7.7	6.8	7.1	5.4	5.2

130.	*	4.4	5.0	6.7	7.4	7.3	7.1	5.2	5.2
140.	*	5.5	4.5	5.8	6.6	7.4	6.9	5.1	5.1
150.	*	5.7	3.9	4.8	5.7	7.3	6.6	5.2	5.1
160.	*	4.8	3.6	4.1	5.0	6.9	6.6	5.2	5.2
170.	*	4.4	3.5	3.7	4.4	6.8	6.7	5.3	5.4
180.	*	4.3	3.2	3.6	4.2	7.1	6.7	5.6	5.6
190.	*	4.0	3.2	3.5	4.0	7.0	6.6	5.7	5.5
200.	*	3.7	3.0	3.2	3.8	6.6	6.4	5.8	5.4
210.	*	3.7	3.0	3.0	3.3	5.4	5.5	5.1	4.7
220.	*	3.7	3.0	3.0	3.0	4.1	4.2	4.0	3.8
230.	*	3.7	3.0	3.0	3.0	3.2	3.3	3.3	3.2
240.	*	3.7	3.0	3.0	3.0	3.0	3.1	3.1	3.1
250.	*	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	*	3.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	*	3.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	*	3.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	*	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	*	3.9	3.0	3.1	3.0	3.0	3.0	3.0	3.0
310.	*	3.6	3.1	3.4	3.2	3.0	3.0	3.0	3.0
320.	*	3.3	3.4	3.7	3.7	3.4	3.0	3.0	3.0
330.	*	3.1	3.6	3.9	4.2	4.2	3.0	3.0	3.0
340.	*	3.0	3.8	4.0	4.7	5.5	3.2	3.0	3.0
350.	*	3.0	3.8	3.8	5.4	6.1	3.5	3.0	3.0
MAX	*	5.7	5.0	6.7	8.6	7.4	8.0	7.6	7.2
DEGR.	*	150	130	130	110	40	90	60	50

THE HIGHEST CONCENTRATION OF 9.50 PPM OCCURRED AT RECEPTOR REC3 .

JOB: Charlottesville Bypass Project RUN: Existing 2011 Conditions

DATE : 07/09/ 0
TIME : 13:52:36

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	20	20	20	10	0	350	350	320	330	320	230	290	220	220	190	190	180	200	180	150
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.4	2.1	1.6	0.8	0.2	0.1	0.1	0.2	0.2	0.3	1.8	0.0	0.5	0.2	0.2	0.2	0.1	0.8	0.5	0.2
3	0.1	0.1	0.3	0.6	0.4	0.2	0.1	0.0	0.2	0.3	0.1	0.0	0.2	0.1	0.1	0.2	0.3	0.0	0.0	0.1
4	0.1	0.2	0.4	0.5	0.4	0.2	0.2	0.0	0.1	0.0	0.0	1.9	2.0	2.0	0.9	0.7	0.7	0.0	0.0	0.0
5	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0
6	0.1	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	0.0	0.0	0.0	0.0
7	0.2	0.2	0.4	0.5	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.7	0.3	0.7	1.2	1.1	1.2	0.0	0.0	0.0
8	0.0	0.1	0.2	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.1
9	0.1	0.1	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.4	0.2	

0.1	10	*	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.0	0.3	0.2	0.1	0.1	0.0	0.5	0.2
0.0	11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	12	*	0.0	0.0	0.1	0.3	0.4	0.5	0.5	1.0	0.8	0.9	0.6	0.0	0.1	0.0	0.1	0.1	0.2	0.0	0.0
0.2	13	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3
0.1	16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	17	*	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	0.0	0.0	0.0	0.0
0.2	18	*	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	0.0	0.0	0.0	0.0
0.1	19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	20	*	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	0.0	0.2
0.1	21	*	0.0	0.0	0.1	0.1	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	0.1
0.1	22	*	0.0	0.0	0.1	0.4	0.8	0.2	0.1	0.1	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
0.1	23	*	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
0.1	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	0.0
0.0	25	*	0.0	0.1	0.2	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	26	*	0.6	1.6	1.4	0.0	0.0	0.0	0.0	0.2	0.1	0.0	1.1	0.0	0.3	0.1	0.1	0.1	0.1	0.5	0.4
0.1	27	*	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	28	*	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	29	*	0.0	0.0	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	0.0	0.0
0.0	30	*	0.0	0.0	0.2	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	0.0	0.0
0.0	31	*	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.3	0.1	0.1	0.2	0.6	0.0	0.0
0.0	32	*	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.1	0.1	0.2	0.5	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	0.1	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	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	0.0
0.0	36	*	0.0	0.0	0.1	0.2	0.6	0.2	0.1	0.1	0.2	0.6	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0
0.1	37	*	0.0	0.0	0.0	0.1	0.6	0.3	0.1	0.1	0.4	1.2	0.3	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0
0.1	38	*	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.6	0.6	0.7	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0
0.2	39	*	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.6	0.3
0.1	40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.0
0.2	41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2

```
 0.3
     42  *   0.1   0.1   0.1   0.0   0.0   0.1   0.0   0.0   0.1   0.2   0.0   0.1   0.1   0.1   0.0   0.0   0.0   0.4   0.6
 0.2
     43  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.6
 0.3
     44  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.1   0.1   0.0   0.2   0.0   0.0   0.0   0.0   0.0   0.0   0.0
 0.6
     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   0.1   0.1
 0.0
□                                                                                                                    PAGE  8
     JOB: Charlottesville Bypass Project                          RUN: Existing 2011 Conditions

         *    CO/LINK  (PPM)
         *    ANGLE (DEGREES)
         *  REC1  REC2  REC3  REC4  REC5  REC6  REC7  REC8  REC9  REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19
REC20
   LINK # *    20    20    20    10     0   350   350   320   330   320   230   290   220   220   190   190   180   200   180
 150

-------*-----------------------------------------------------------------------------------------------------------------------
--
     46  *   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   0.0   0.1
 0.1
□                                                                                                                    PAGE  9
     JOB: Charlottesville Bypass Project                          RUN: Existing 2011 Conditions

     DATE : 07/09/   0
     TIME : 13:52:36


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

         *    CO/LINK  (PPM)
         *    ANGLE (DEGREES)
         *  REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28
   LINK # *   150   130   130   110    40    90    60    50
   -------*-------------------------------------------------
       1  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
       2  *   0.2   0.1   0.1   0.0   0.0   1.0   1.1   1.0
       3  *   0.1   0.1   0.2   0.2   0.0   0.0   0.1   0.1
       4  *   0.0   0.1   0.1   0.4   0.9   0.0   0.0   0.1
       5  *   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0
       6  *   0.0   0.0   0.0   0.0   0.1   0.0   0.0   0.0
       7  *   0.0   0.1   0.1   0.2   0.8   0.0   0.0   0.1
       8  *   0.0   0.1   0.1   0.2   0.7   0.0   0.0   0.0
       9  *   0.1   0.0   0.1   0.0   0.1   0.0   0.0   0.1
      10  *   0.1   0.0   0.0   0.0   0.0   1.3   1.6   1.8
      11  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
      12  *   0.1   0.1   0.1   0.0   0.0   0.2   0.1   0.1
      13  *   0.0   0.0   0.0   0.1   0.2   0.0   0.0   0.0
      14  *   0.0   0.0   0.1   0.2   0.0   0.0   0.0   0.0
      15  *   0.0   0.0   0.1   0.0   0.0   0.0   0.0   0.0
      16  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0
      17  *   0.5   0.1   0.0   0.0   0.0   0.0   0.0   0.0
      18  *   0.3   0.3   0.1   0.0   0.0   0.0   0.0   0.0
      19  *   0.1   0.1   0.2   0.0   0.0   0.0   0.0   0.0
      20  *   0.0   0.0   0.1   0.4   0.0   0.0   0.0   0.0
      21  *   0.0   0.0   0.0   0.1   0.3   0.0   0.0   0.0
      22  *   0.0   0.0   0.0   0.0   0.0   0.2   0.1   0.1
      23  *   0.1   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
      25  *   0.0   0.0   0.0   0.0   0.0   0.1   0.0   0.0
      26  *   0.1   0.0   0.0   0.0   0.0   1.2   1.3   0.6
```

27	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
29	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
30	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
31	*	0.0	0.1	0.1	0.2	0.3	0.0	0.0	0.0
32	*	0.0	0.1	0.1	0.2	0.4	0.0	0.0	0.0
33	*	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
35	*	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	0.2	0.1	0.1
37	*	0.1	0.0	0.1	0.0	0.0	0.3	0.1	0.1
38	*	0.2	0.0	0.1	0.0	0.0	0.1	0.1	0.0
39	*	0.1	0.1	0.2	0.4	0.3	0.0	0.0	0.0
40	*	0.1	0.1	0.2	0.7	0.0	0.0	0.0	0.0
41	*	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0
42	*	0.1	0.1	0.2	0.7	0.2	0.0	0.0	0.0
43	*	0.1	0.1	0.4	1.0	0.0	0.0	0.0	0.0
44	*	0.2	0.2	0.5	0.0	0.0	0.0	0.0	0.0
45	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

JOB: Charlottesville Bypass Project RUN: Existing 2011 Conditions

		CO/LINK (PPM) ANGLE (DEGREES)							
	*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	150	130	130	110	40	90	60	50
46	*	0.0	0.0	0.1	0.5	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 7/09/2012 at 15:40:08

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions - Rio Road / Route 29

DATE : 07/09/ 0
TIME : 15:40:08

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 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 approach link	*	-114.6	-129.0	-71.5	-71.0	*	72.	37.	AG	2757.	19.2	0.0	20.7		
2. nb approach link	*	-71.5	-71.0	133.2	221.9	*	357.	35.	AG	2757.	19.2	0.0	20.7		
3. nb dec link	*	132.6	222.4	158.8	262.4	*	48.	33.	AG	2874.	19.2	0.0	20.7		
4. nb dec link	*	158.8	262.4	239.8	442.0	*	197.	24.	AG	2874.	19.2	0.0	20.7		
5. nb dec link	*	239.8	442.0	262.4	489.1	*	52.	26.	AG	2874.	19.2	0.0	20.7		
6. nb dec link	*	262.4	489.1	323.0	602.5	*	129.	28.	AG	2874.	19.2	0.0	20.7		
7. sb approach link	*	295.3	607.1	146.0	285.5	*	355.	205.	AG	1869.	19.2	0.0	20.7		
8. sb approach link	*	146.0	285.5	122.9	246.5	*	45.	211.	AG	1869.	19.2	0.0	20.7		
9. sb dec link	*	122.9	245.5	90.6	194.7	*	60.	212.	AG	2017.	19.2	0.0	20.7		
10. sb dec link	*	90.6	194.7	-132.6	-112.6	*	380.	216.	AG	2017.	19.2	0.0	20.7		
11. wb approach link	*	303.9	-126.1	244.2	-7.6	*	133.	333.	AG	1537.	18.2	0.0	13.4		
12. wb approach link	*	244.2	-7.6	133.1	233.7	*	266.	335.	AG	1537.	18.2	0.0	13.4		
13. wb dec link	*	132.6	233.2	110.8	288.8	*	60.	339.	AG	1019.	18.2	0.0	13.4		
14. wb dec link	*	110.8	288.8	89.1	324.0	*	41.	328.	AG	1019.	18.2	0.0	13.4		
15. wb dec link	*	89.1	324.0	55.7	361.0	*	50.	318.	AG	1019.	18.2	0.0	13.4		
16. wb dec link	*	55.7	361.0	33.0	377.7	*	28.	306.	AG	1019.	18.2	0.0	13.4		
17. wb dec link	*	33.0	377.7	-119.3	528.2	*	214.	315.	AG	1019.	18.2	0.0	13.4		
18. eb approach link	*	-126.3	521.2	31.2	365.6	*	221.	135.	AG	749.	18.2	0.0	13.4		
19. eb approach link	*	31.2	365.6	64.1	334.2	*	45.	134.	AG	749.	18.2	0.0	13.4		
20. eb approach link	*	64.1	334.2	96.0	286.9	*	57.	146.	AG	749.	18.2	0.0	13.4		
21. eb approach link	*	96.0	286.9	123.8	228.6	*	65.	155.	AG	749.	18.2	0.0	13.4		
22. eb dec link	*	123.8	227.6	158.5	136.9	*	97.	159.	AG	1284.	18.2	0.0	13.4		
23. eb dec link	*	158.5	136.9	237.7	-30.7	*	185.	155.	AG	1284.	18.2	0.0	13.4		
24. eb dec link	*	237.7	-30.7	288.6	-133.1	*	114.	154.	AG	1284.	18.2	0.0	13.4		
25. nb left que	*	104.2	195.9	92.9	180.1	*	19.	216.	AG	572.	100.0	0.0	7.3	0.31	3.2
26. nb thru que	*	112.0	191.2	48.7	103.1	*	108.	216.	AG	796.	100.0	0.0	14.6	0.26	18.1
27. nb right que	*	138.3	171.8	84.2	203.2	*	63.	300.	AG	199.	100.0	0.0	3.7	0.60	10.4
28. nb right que	*	131.4	175.8	68.9	178.0	*	63.	272.	AG	199.	100.0	0.0	3.7	0.60	10.4
29. nb right que	*	117.4	176.3	64.1	143.7	*	63.	239.	AG	199.	100.0	0.0	3.7	0.60	10.4
30. nb right que	*	109.4	171.4	73.5	120.2	*	63.	215.	AG	199.	100.0	0.0	3.7	0.60	10.4

31. sb left que	*	148.8	273.4	171.2	322.9	*	54.	24.	AG	457.	100.0	0.0	7.3	0.29	9.1
32. sb thru que	*	141.9	278.3	159.6	319.3	*	45.	23.	AG	565.	100.0	0.0	14.6	0.10	7.4
33. sb right	*	119.1	290.2	125.4	290.8	*	6.	85.	AG	141.	100.0	0.0	3.7	0.06	1.1
34. sb right	*	133.8	291.5	138.1	296.2	*	6.	42.	AG	141.	100.0	0.0	3.7	0.06	1.1
35. sb right	*	140.6	299.0	143.2	304.8	*	6.	24.	AG	141.	100.0	0.0	3.7	0.06	1.1
36. wb left que	*	140.1	205.3	166.5	143.0	*	68.	157.	AG	527.	100.0	0.0	7.3	0.57	11.3
37. wb thru que	*	146.8	208.1	171.8	149.5	*	64.	157.	AG	489.	100.0	0.0	7.3	0.39	10.6
38. wb right	*	150.2	209.4	363.1	-284.1	*	537.	157.	AG	244.	100.0	0.0	3.7	1.43	89.6
39. eb left que	*	113.9	264.3	105.5	281.1	*	19.	333.	AG	579.	100.0	0.0	7.3	0.36	3.1
40. eb left que	*	98.6	294.9	88.0	310.4	*	19.	326.	AG	579.	100.0	0.0	7.3	0.36	3.1
41. eb left que	*	82.3	318.7	70.4	333.3	*	19.	321.	AG	579.	100.0	0.0	7.3	0.36	3.1
42. eb thru que	*	109.0	261.5	80.0	312.8	*	59.	331.	AG	541.	100.0	0.0	7.3	0.55	9.8
43. eb thru que	*	90.6	294.1	58.9	343.7	*	59.	327.	AG	541.	100.0	0.0	7.3	0.55	9.8
44. eb thru que	*	70.9	324.9	33.4	370.3	*	59.	320.	AG	541.	100.0	0.0	7.3	0.55	9.8

PAGE 2

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions

DATE : 07/09/ 0
TIME : 15:40:08

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
45. eb right	*	105.1	259.4	85.0	296.2	*	42.	331.	AG	270.	100.0	0.0	3.7	0.84	7.0
46. eb right	*	83.6	298.8	58.6	332.4	*	42.	323.	AG	270.	100.0	0.0	3.7	0.84	7.0

PAGE 3

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions

DATE : 07/09/ 0
TIME : 15:40:08

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
25. nb left que	*	180	164	2.0	143	3433	117.08	2	3
26. nb thru que	*	180	114	2.0	2285	6408	117.08	2	3
27. nb right que	*	180	114	2.0	329	1583	117.08	2	3
28. nb right que	*	180	114	2.0	329	1583	117.08	2	3
29. nb right que	*	180	114	2.0	329	1583	117.08	2	3
30. nb right que	*	180	114	2.0	329	1583	117.08	2	3

31. sb left que	*	180	131	2.0	498	3433	117.08	2	3
32. sb thru que	*	180	81	2.0	1324	6408	117.08	2	3
33. sb right	*	180	81	2.0	47	1583	117.08	2	3
34. sb right	*	180	81	2.0	47	1583	117.08	2	3
35. sb right	*	180	81	2.0	47	1583	117.08	2	3
36. wb left que	*	180	151	2.0	538	3433	117.08	2	3
37. wb thru que	*	180	140	2.0	547	3539	117.08	2	3
38. wb right	*	180	140	2.0	452	1583	117.08	2	3
39. eb left que	*	180	166	2.0	137	3433	117.08	2	3
40. eb left que	*	180	166	2.0	137	3433	117.08	2	3
41. eb left que	*	180	166	2.0	137	3433	117.08	2	3
42. eb thru que	*	180	155	2.0	457	3539	117.08	2	3
43. eb thru que	*	180	155	2.0	457	3539	117.08	2	3
44. eb thru que	*	180	155	2.0	457	3539	117.08	2	3
45. eb right	*	180	155	2.0	155	1583	117.08	2	3
46. eb right	*	180	155	2.0	155	1583	117.08	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. B-1	-1.1	3.0	1.8
2. B-2	35.7	52.8	1.8
3. B-3	85.4	121.4	1.8
4. B-4	123.0	162.3	1.8
5. B-5	149.9	126.3	1.8
6. B-6	181.5	57.4	1.8
7. B-7	221.4	-30.9	1.8
8. B-8	259.5	-6.5	1.8
9. B-9	217.5	81.8	1.8
10. B-10	182.8	156.6	1.8
11. B-11	160.5	224.5	1.8
12. B-12	186.9	284.5	1.8
13. B-13	223.2	359.6	1.8
14. B-14	264.9	448.5	1.8
15. B-15	206.9	470.5	1.8
16. B-16	185.9	424.9	1.8
17. B-17	160.5	364.6	1.8
18. B-18	124.3	304.2	1.8
19. B-19	88.5	345.1	1.8
20. B-20	23.8	402.1	1.8
21. B-21	-25.7	451.6	1.8
22. B-22	-58.1	433.5	1.8
23. B-23	5.4	373.9	1.8

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions

DATE : 07/09/ 0
TIME : 15:40:08

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
24. B-24	60.3	311.2	1.8
25. B-25	97.6	238.2	1.8
26. B-26	54.6	170.6	1.8
27. B-27	-5.2	88.2	1.8
28. B-28	-53.4	21.2	1.8

JOB: Charlottesville Bypass Project RUN: No-Build 2015 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	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	5.2	5.6	7.9	6.6	6.5	5.7	4.7	3.3	3.5	4.0	5.9	5.3	5.3	4.9	3.0	3.0	3.0	3.0	3.0	3.0
10.	5.5	6.3	8.5	6.7	6.9	5.1	4.7	3.0	3.3	3.8	5.8	5.5	5.1	4.8	3.0	3.1	3.1	3.1	3.0	3.0
20.	6.2	7.1	8.4	6.7	6.3	4.5	4.3	3.0	3.0	3.4	4.9	4.9	4.5	4.2	3.2	3.4	3.5	3.4	3.0	3.0
30.	6.1	7.0	6.9	6.3	5.5	4.2	4.2	3.0	3.0	3.0	4.0	3.9	3.7	3.5	3.7	4.0	4.1	4.1	3.2	3.0
40.	4.8	5.0	5.2	5.2	5.0	4.2	4.1	3.0	3.0	3.0	3.2	3.2	3.1	3.1	4.3	4.4	4.7	4.5	3.4	3.0
50.	3.7	3.8	4.1	5.1	4.7	4.2	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.8	4.9	4.9	3.7	3.2
60.	3.4	3.5	4.0	5.1	4.4	4.2	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.7	4.7	5.0	3.8	3.3
70.	3.3	3.3	3.8	5.1	4.2	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.6	4.6	5.3	3.7	3.5
80.	3.3	3.3	3.7	4.9	4.2	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.4	4.5	5.6	3.7	3.4
90.	3.3	3.3	3.4	4.9	4.2	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.5	4.5	5.7	3.7	3.4
100.	3.2	3.3	3.5	4.7	4.2	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.4	5.7	3.9	3.4
110.	3.3	3.3	3.5	4.7	4.3	4.2	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.4	5.7	4.1	3.4
120.	3.1	3.3	3.5	4.4	4.5	4.5	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.4	5.6	4.2	3.6
130.	3.0	3.1	3.5	4.2	4.6	4.5	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.4	5.5	4.2	4.4
140.	3.0	3.0	3.4	4.1	4.6	4.5	4.2	3.1	3.3	3.2	3.0	3.0	3.0	3.0	4.4	4.4	4.5	5.2	4.4	6.1
150.	3.0	3.0	3.1	3.9	4.2	4.1	3.7	3.5	3.8	3.9	3.7	3.0	3.0	3.0	4.4	4.4	4.6	5.5	5.3	6.8
160.	3.0	3.0	3.0	3.3	3.7	3.5	3.3	4.1	4.4	4.7	4.5	3.2	3.0	3.0	4.6	4.6	5.1	5.9	6.3	6.3
170.	3.0	3.0	3.0	3.0	3.1	3.1	3.0	4.6	4.9	5.1	5.2	3.6	3.1	3.0	4.7	4.8	6.1	6.0	7.0	4.9
180.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.7	4.9	4.9	5.9	3.7	3.3	3.2	5.0	5.4	6.4	6.1	6.8	4.5
190.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.7	4.8	5.9	4.1	3.6	3.4	5.3	5.8	6.3	6.6	6.8	4.1
200.	3.2	3.2	3.2	3.1	3.0	3.0	3.0	4.4	4.7	4.7	5.9	4.5	4.4	4.4	5.1	5.2	5.8	6.3	6.4	3.9
210.	3.7	3.7	3.8	3.6	3.0	3.0	3.0	4.5	4.4	4.7	6.8	6.0	5.8	5.5	4.1	4.3	5.0	5.9	5.8	3.7
220.	4.6	4.6	4.8	4.8	3.4	3.0	3.0	4.5	4.4	5.1	7.8	7.0	6.4	5.9	3.6	3.5	4.0	4.9	5.5	3.7

230.	*	5.2	5.2	5.7	5.8	3.7	3.0	3.0	4.2	4.4	5.8	7.8	6.8	6.4	5.5	3.2	3.5	3.9	4.6	5.6
3.7																				
240.	*	5.4	5.2	6.1	6.5	3.9	3.3	3.0	4.2	4.7	6.6	7.0	5.8	5.8	5.1	3.1	3.2	4.0	4.7	5.5
3.7																				
250.	*	5.2	5.1	6.4	6.5	4.0	3.6	3.1	4.3	4.8	7.2	6.1	5.9	5.5	4.9	3.1	3.1	3.7	4.7	5.1
3.7																				
260.	*	5.1	5.0	6.6	6.5	4.2	3.5	3.3	4.5	4.9	7.7	5.7	6.2	5.2	4.9	3.2	3.2	3.6	5.2	5.0
3.8																				
270.	*	4.9	4.8	6.5	6.5	4.5	3.5	3.3	4.6	5.0	8.0	5.4	6.7	4.9	4.8	3.1	3.2	3.4	5.4	4.7
3.9																				
280.	*	4.8	4.7	6.6	6.6	4.7	3.6	3.3	4.7	5.1	7.9	5.2	7.0	5.0	4.7	3.0	3.2	3.3	5.4	4.7
3.9																				
290.	*	4.8	4.7	6.5	6.6	4.6	3.7	3.3	4.9	5.5	8.2	5.5	7.1	4.9	4.7	3.0	3.1	3.2	5.3	4.3
4.0																				
300.	*	4.8	4.7	6.6	6.8	4.7	3.8	3.4	5.0	5.5	7.8	5.6	6.7	4.7	4.7	3.0	3.0	3.2	5.1	4.3
4.0																				
310.	*	4.8	4.7	6.8	6.8	4.9	4.0	3.5	5.2	6.2	7.6	6.4	6.2	4.7	4.6	3.0	3.0	3.0	4.4	3.8
3.8																				
320.	*	4.8	4.7	6.7	6.7	4.7	4.1	3.6	5.6	5.9	7.4	6.5	5.7	4.7	4.7	3.0	3.0	3.0	3.5	3.4
3.4																				
330.	*	4.8	4.7	6.8	7.1	5.0	4.6	4.3	5.0	5.5	6.1	5.8	5.5	4.8	4.8	3.0	3.0	3.0	3.0	3.0
3.1																				
340.	*	4.9	4.8	7.1	6.8	5.5	5.2	4.8	4.2	4.7	4.9	5.3	5.4	4.9	4.9	3.0	3.0	3.0	3.0	3.0
3.0																				
350.	*	5.1	5.1	7.7	6.8	6.5	5.8	5.0	3.5	4.0	4.4	5.6	5.3	5.1	4.9	3.0	3.0	3.0	3.0	3.0
3.0																				
MAX	*	6.2	7.1	8.5	7.1	6.9	5.8	5.0	5.6	6.2	8.2	7.8	7.1	6.4	5.9	5.3	5.8	6.4	6.6	7.0
6.8																				
DEGR.	*	20	20	10	330	10	350	350	320	310	290	220	290	220	220	190	190	180	190	170
150																				

JOB: Charlottesville Bypass Project RUN: No-Build 2015 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) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
0.	*	3.0	3.6	3.8	5.5	5.5	3.3	3.0	3.0
10.	*	3.0	3.6	3.7	5.8	5.1	3.7	3.2	3.0
20.	*	3.0	3.6	3.6	6.0	5.4	4.2	3.5	3.3
30.	*	3.0	3.6	3.6	6.2	6.0	4.9	4.4	4.2
40.	*	3.0	3.6	3.6	6.4	6.4	5.7	5.7	5.3
50.	*	3.0	3.6	3.8	6.4	6.2	6.2	7.0	6.2
60.	*	3.2	3.8	4.0	6.4	5.9	6.4	6.7	5.9
70.	*	3.2	3.8	4.2	6.2	5.5	7.3	6.3	5.4
80.	*	3.3	3.9	4.4	6.6	5.2	7.6	5.6	5.2
90.	*	3.3	4.0	4.5	6.9	5.1	7.6	5.1	5.0
100.	*	3.3	4.0	4.8	7.1	5.1	6.8	5.0	4.9
110.	*	3.3	4.1	5.3	7.3	5.7	6.7	5.0	4.8
120.	*	3.4	4.2	5.8	6.7	6.1	6.7	4.9	4.8

130.	*	3.9	4.1	5.9	6.4	6.5	6.7	4.8	4.7
140.	*	4.8	4.1	5.4	5.7	6.7	6.4	4.6	4.6
150.	*	4.8	3.6	4.5	5.1	6.6	6.0	4.6	4.7
160.	*	4.4	3.4	3.7	4.6	6.0	6.0	4.7	4.7
170.	*	4.3	3.4	3.6	4.2	6.3	6.0	4.9	4.9
180.	*	4.1	3.2	3.5	4.0	6.7	5.9	5.0	5.0
190.	*	3.9	3.1	3.3	3.8	6.6	5.7	5.2	5.1
200.	*	3.7	3.0	3.1	3.5	6.1	5.6	5.1	5.0
210.	*	3.7	3.0	3.0	3.2	5.0	4.9	4.6	4.4
220.	*	3.7	3.0	3.0	3.0	3.8	3.9	3.9	3.7
230.	*	3.7	3.0	3.0	3.0	3.1	3.2	3.2	3.2
240.	*	3.7	3.0	3.0	3.0	3.0	3.1	3.1	3.1
250.	*	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	*	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	*	3.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	*	3.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	*	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	*	3.8	3.0	3.1	3.0	3.0	3.0	3.0	3.0
310.	*	3.6	3.1	3.3	3.2	3.0	3.0	3.0	3.0
320.	*	3.3	3.3	3.7	3.7	3.4	3.0	3.0	3.0
330.	*	3.1	3.7	3.9	4.2	4.1	3.0	3.0	3.0
340.	*	3.0	3.7	3.9	4.7	4.8	3.2	3.0	3.0
350.	*	3.0	3.7	3.8	5.2	5.4	3.3	3.0	3.0
MAX	*	4.8	4.2	5.9	7.3	6.7	7.6	7.0	6.2
DEGR.	*	140	120	130	110	140	90	50	50

THE HIGHEST CONCENTRATION OF 8.50 PPM OCCURRED AT RECEPTOR REC3 .

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions

DATE : 07/09/ 0
TIME : 15:40:08

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	20	20	10	330	10	350	350	320	310	290	220	290	220	220	190	190	180	190	170	150
1	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	0.0	0.0	0.0	0.0
2	1.9	1.7	1.4	1.0	0.0	0.1	0.0	0.2	0.3	0.4	1.2	0.0	0.4	0.2	0.1	0.2	0.1	0.6	0.3	0.1
3	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1
4	0.1	0.1	0.1	0.0	0.4	0.1	0.1	0.0	0.0	0.0	0.0	1.3	1.3	1.4	0.6	0.5	0.5	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.1	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.4	0.2	0.4	0.8	0.7	0.8	0.0	0.0	0.0
8	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1
9	0.1	0.1	0.3	0.4	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.3	0.2	

0.1	10	*	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.0	0.2	0.1	0.0	0.1	0.0	0.2	0.1
0.0	11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	12	*	0.0	0.0	0.0	0.0	0.4	0.4	0.5	0.9	0.9	0.8	0.5	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1
0.1	13	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.1
0.1	14	*	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	0.0	0.3
0.1	15	*	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	0.0	0.2
0.1	16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	17	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.3	18	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0
0.1	20	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.1	21	*	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	0.2	0.1
0.0	22	*	0.0	0.0	0.0	0.0	0.6	0.2	0.0	0.1	0.1	0.4	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
0.1	23	*	0.0	0.0	0.0	0.0	0.1	0.6	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
0.1	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	0.0
0.0	25	*	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	26	*	0.4	1.0	1.6	1.0	0.0	0.0	0.0	0.2	0.3	0.4	0.8	0.0	0.2	0.1	0.1	0.1	0.1	0.4	0.2
0.1	27	*	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	28	*	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	29	*	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	30	*	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	31	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.1	0.1	0.2	0.4	0.0	0.0
0.0	32	*	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.1	0.1	0.2	0.5	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	0.1	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	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	0.0
0.0	36	*	0.0	0.0	0.0	0.0	0.8	0.3	0.1	0.1	0.2	0.9	0.5	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
0.1	37	*	0.0	0.0	0.0	0.0	0.6	0.2	0.1	0.1	0.1	1.1	0.4	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
0.1	38	*	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
0.1	39	*	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	0.3	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1

0.1																				
42 *	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.6	
0.2																				
43 *	0.0	0.0	0.1	0.1	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	0.3	
0.3																				
44 *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.7																				
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	0.1	
0.1																				

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions

	*	CO/LINK (PPM)																		
	*	ANGLE (DEGREES)																		
	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19
REC20																				
LINK #	*	20	20	10	330	10	350	350	320	310	290	220	290	220	220	190	190	180	190	170
150																				

--

46 *	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	0.0	0.0	
0.1																				

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions

DATE : 07/09/ 0
TIME : 15:40:08

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

	*	CO/LINK (PPM)							
	*	ANGLE (DEGREES)							
	*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	140	120	130	110	140	90	50	50
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.1	0.0	0.0	0.0	0.7	0.8	0.7	0.8
3	*	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0
4	*	0.1	0.1	0.1	0.2	0.0	0.0	0.1	0.1
5	*	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
7	*	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0
8	*	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0
9	*	0.0	0.0	0.0	0.0	0.8	0.0	0.1	0.0
10	*	0.0	0.0	0.0	0.0	0.0	1.0	1.3	1.5
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.1	0.0	0.1	0.0	0.5	0.2	0.1	0.1
13	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0
15	*	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
16	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	*	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
18	*	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0
19	*	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
20	*	0.0	0.0	0.1	0.3	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
22	*	0.0	0.0	0.0	0.0	0.4	0.2	0.1	0.1
23	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
24	*	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	0.1	0.1	0.0
26	*	0.0	0.0	0.0	0.0	0.1	1.0	0.8	0.4

27	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
29	*	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0
30	*	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
31	*	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
32	*	0.1	0.1	0.1	0.2	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
34	*	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
36	*	0.0	0.0	0.0	0.0	0.4	0.3	0.1	0.1
37	*	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.1
38	*	0.1	0.0	0.0	0.0	0.3	0.1	0.0	0.0
39	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.0
41	*	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
42	*	0.1	0.0	0.2	0.9	0.0	0.0	0.0	0.0
43	*	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0
44	*	0.2	0.2	0.5	0.0	0.0	0.0	0.0	0.0
45	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0

JOB: Charlottesville Bypass Project RUN: No-Build 2015 Conditions

		CO/LINK (PPM)							
		ANGLE (DEGREES)							
		REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	140	120	130	110	140	90	50	50
46	*	0.0	0.0	0.1	0.4	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 7/10/2012 at 8:45:26

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS - Rio Road / Route 29

DATE : 07/10/ 0
TIME : 08:45:26

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 APPROACH LINK	*	-114.6	-129.0	-71.5	-71.0	*	72.	37.	AG	2108.	19.2	0.0	20.7		
2. NB APPROACH LINK	*	-71.5	-71.0	133.2	221.9	*	357.	35.	AG	2108.	19.2	0.0	20.7		
3. NB DEC LINK	*	132.6	222.4	158.8	262.4	*	48.	33.	AG	2215.	19.2	0.0	20.7		
4. NB DEC LINK	*	158.8	262.4	239.8	442.0	*	197.	24.	AG	2215.	19.2	0.0	20.7		
5. NB DEC LINK	*	239.8	442.0	262.4	489.1	*	52.	26.	AG	2215.	19.2	0.0	20.7		
6. NB DEC LINK	*	262.4	489.1	323.0	602.5	*	129.	28.	AG	2215.	19.2	0.0	20.7		
7. SB APPROACH LINK	*	295.3	607.1	146.0	285.5	*	355.	205.	AG	1429.	19.2	0.0	20.7		
8. SB APPROACH LINK	*	146.0	285.5	122.9	246.5	*	45.	211.	AG	1429.	19.2	0.0	20.7		
9. SB DEC LINK	*	122.9	245.5	90.6	194.7	*	60.	212.	AG	1553.	19.2	0.0	20.7		
10. SB DEC LINK	*	90.6	194.7	-132.6	-112.6	*	380.	216.	AG	1553.	19.2	0.0	20.7		
11. WB APPROACH LINK	*	303.9	-126.1	244.2	-7.6	*	133.	333.	AG	1424.	18.2	0.0	13.4		
12. WB APPROACH LINK	*	244.2	-7.6	133.1	233.7	*	266.	335.	AG	1424.	18.2	0.0	13.4		
13. WB DEC LINK	*	132.6	233.2	110.8	288.8	*	60.	339.	AG	650.	18.2	0.0	13.4		
14. WB DEC LINK	*	110.8	288.8	89.1	324.0	*	41.	328.	AG	650.	18.2	0.0	13.4		
15. WB DEC LINK	*	89.1	324.0	55.7	361.0	*	50.	318.	AG	650.	18.2	0.0	13.4		
16. WB DEC LINK	*	55.7	361.0	33.0	377.7	*	28.	306.	AG	650.	18.2	0.0	13.4		
17. WB DEC LINK	*	33.0	377.7	-119.3	528.2	*	214.	315.	AG	650.	18.2	0.0	13.4		
18. EB APPROACH LINK	*	-126.3	521.2	31.2	365.6	*	221.	135.	AG	654.	18.2	0.0	13.4		
19. EB APPROACH LINK	*	31.2	365.6	64.1	334.2	*	45.	134.	AG	654.	18.2	0.0	13.4		
20. EB APPROACH LINK	*	64.1	334.2	96.0	286.9	*	57.	146.	AG	654.	18.2	0.0	13.4		
21. EB APPROACH LINK	*	96.0	286.9	123.8	228.6	*	65.	155.	AG	654.	18.2	0.0	13.4		
22. EB DEC LINK	*	123.8	227.6	158.5	136.9	*	97.	159.	AG	1197.	18.2	0.0	13.4		
23. EB DEC LINK	*	158.5	136.9	237.7	-30.7	*	185.	155.	AG	1197.	18.2	0.0	13.4		
24. EB DEC LINK	*	237.7	-30.7	288.6	-133.1	*	114.	154.	AG	1197.	18.2	0.0	13.4		
25. NB LEFT QUE	*	104.2	195.9	95.7	184.0	*	15.	216.	AG	579.	100.0	0.0	7.3	0.28	2.4
26. NB THRU QUE	*	112.0	191.2	61.8	121.4	*	86.	216.	AG	851.	100.0	0.0	14.6	0.22	14.3
27. NB RIGHT QUE	*	138.3	171.8	83.9	203.3	*	63.	300.	AG	213.	100.0	0.0	3.7	0.65	10.5
28. NB RIGHT QUE	*	131.4	175.8	68.6	178.0	*	63.	272.	AG	213.	100.0	0.0	3.7	0.65	10.5
29. NB RIGHT QUE	*	117.4	176.3	63.8	143.5	*	63.	239.	AG	213.	100.0	0.0	3.7	0.65	10.5
30. NB RIGHT QUE	*	109.4	171.4	73.3	119.9	*	63.	215.	AG	213.	100.0	0.0	3.7	0.65	10.5

31. SB LEFT QUE	*	148.8	273.4	168.5	317.0	*	48.	24.	AG	443.	100.0	0.0	7.3	0.24	8.0
32. SB THRU QUE	*	141.9	278.3	154.8	308.2	*	33.	23.	AG	579.	100.0	0.0	14.6	0.07	5.4
33. SB RIGHT	*	119.1	290.2	123.8	290.6	*	5.	85.	AG	145.	100.0	0.0	3.7	0.04	0.8
34. SB RIGHT	*	133.8	291.5	137.0	295.0	*	5.	42.	AG	145.	100.0	0.0	3.7	0.04	0.8
35. SB RIGHT	*	140.6	299.0	142.5	303.3	*	5.	24.	AG	145.	100.0	0.0	3.7	0.04	0.8
36. WB LEFT QUE	*	140.1	205.3	164.0	148.8	*	61.	157.	AG	520.	100.0	0.0	7.3	0.48	10.2
37. WB THRU QUE	*	146.8	208.1	169.4	155.1	*	58.	157.	AG	475.	100.0	0.0	7.3	0.32	9.6
38. WB RIGHT	*	150.2	209.4	278.2	-87.3	*	323.	157.	AG	237.	100.0	0.0	3.7	1.20	53.9
39. EB LEFT QUE	*	113.9	264.3	107.6	276.9	*	14.	333.	AG	579.	100.0	0.0	7.3	0.27	2.4
40. EB LEFT QUE	*	98.6	294.9	90.6	306.5	*	14.	326.	AG	579.	100.0	0.0	7.3	0.27	2.4
41. EB LEFT QUE	*	82.3	318.7	73.4	329.6	*	14.	321.	AG	579.	100.0	0.0	7.3	0.27	2.4
42. EB THRU QUE	*	109.0	261.5	81.8	309.7	*	55.	331.	AG	534.	100.0	0.0	7.3	0.48	9.2
43. EB THRU QUE	*	90.6	294.1	60.8	340.7	*	55.	327.	AG	534.	100.0	0.0	7.3	0.48	9.2
44. EB THRU QUE	*	70.9	324.9	35.7	367.6	*	55.	320.	AG	534.	100.0	0.0	7.3	0.48	9.2

PAGE 2

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS

DATE : 07/10/ 0
TIME : 08:45:26

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
45. EB RIGHT	*	105.1	259.4	90.9	285.4	*	30.	331.	AG	267.	100.0	0.0	3.7	0.57	4.9
46. EB RIGHT	*	83.6	298.8	66.0	322.5	*	30.	323.	AG	267.	100.0	0.0	3.7	0.57	4.9

PAGE 3

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS

DATE : 07/10/ 0
TIME : 08:45:26

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
25. NB LEFT QUE	*	180	166	2.0	107	3433	117.08	2	3
26. NB THRU QUE	*	180	122	2.0	1692	6408	117.08	2	3
27. NB RIGHT QUE	*	180	122	2.0	309	1583	117.08	2	3
28. NB RIGHT QUE	*	180	122	2.0	309	1583	117.08	2	3
29. NB RIGHT QUE	*	180	122	2.0	309	1583	117.08	2	3
30. NB RIGHT QUE	*	180	122	2.0	309	1583	117.08	2	3

31. SB LEFT QUE	*	180	127	2.0	453	3433	117.08	2	3
32. SB THRU QUE	*	180	83	2.0	942	6408	117.08	2	3
33. SB RIGHT	*	180	83	2.0	34	1583	117.08	2	3
34. SB RIGHT	*	180	83	2.0	34	1583	117.08	2	3
35. SB RIGHT	*	180	83	2.0	34	1583	117.08	2	3
36. WB LEFT QUE	*	180	149	2.0	495	3433	117.08	2	3
37. WB THRU QUE	*	180	136	2.0	509	3539	117.08	2	3
38. WB RIGHT	*	180	136	2.0	420	1583	117.08	2	3
39. EB LEFT QUE	*	180	166	2.0	103	3433	117.08	2	3
40. EB LEFT QUE	*	180	166	2.0	103	3433	117.08	2	3
41. EB LEFT QUE	*	180	166	2.0	103	3433	117.08	2	3
42. EB THRU QUE	*	180	153	2.0	435	3539	117.08	2	3
43. EB THRU QUE	*	180	153	2.0	435	3539	117.08	2	3
44. EB THRU QUE	*	180	153	2.0	435	3539	117.08	2	3
45. EB RIGHT	*	180	153	2.0	116	1583	117.08	2	3
46. EB RIGHT	*	180	153	2.0	116	1583	117.08	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. B-1	-1.1	3.0	1.8
2. B-2	35.7	52.8	1.8
3. B-3	85.4	121.4	1.8
4. B-4	123.0	162.3	1.8
5. B-5	149.9	126.3	1.8
6. B-6	181.5	57.4	1.8
7. B-7	221.4	-30.9	1.8
8. B-8	259.5	-6.5	1.8
9. B-9	217.5	81.8	1.8
10. B-10	182.8	156.6	1.8
11. B-11	160.5	224.5	1.8
12. B-12	186.9	284.5	1.8
13. B-13	223.2	359.6	1.8
14. B-14	264.9	448.5	1.8
15. B-15	206.9	470.5	1.8
16. B-16	185.9	424.9	1.8
17. B-17	160.5	364.6	1.8
18. B-18	124.3	304.2	1.8
19. B-19	88.5	345.1	1.8
20. B-20	23.8	402.1	1.8
21. B-21	-25.7	451.6	1.8
22. B-22	-58.1	433.5	1.8
23. B-23	5.4	373.9	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS

DATE : 07/10/ 0
TIME : 08:45:26

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
24. B-24	60.3	311.2	1.8
25. B-25	97.6	238.2	1.8
26. B-26	54.6	170.6	1.8
27. B-27	-5.2	88.2	1.8
28. B-28	-53.4	21.2	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 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	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	4.7	4.8	7.8	6.2	6.3	4.9	4.5	3.2	3.3	3.8	5.3	4.8	4.7	4.6	3.0	3.0	3.0	3.0	3.0	3.0
10.	5.0	5.2	7.9	6.1	6.4	4.6	4.5	3.0	3.3	3.6	5.0	4.9	4.6	4.3	3.0	3.0	3.1	3.0	3.0	3.0
20.	5.5	6.0	7.7	6.4	5.7	4.3	4.2	3.0	3.0	3.3	4.5	4.4	4.1	3.9	3.2	3.3	3.4	3.2	3.0	3.0
30.	5.3	5.9	6.6	5.9	5.0	4.2	4.1	3.0	3.0	3.0	3.6	3.7	3.6	3.4	3.6	3.7	4.0	3.7	3.1	3.0
40.	4.4	4.6	5.0	5.2	4.6	4.1	4.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	4.0	4.1	4.5	4.1	3.3	3.0
50.	3.7	3.7	4.1	5.0	4.4	4.1	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.1	4.3	4.4	4.3	3.5	3.2
60.	3.3	3.4	3.9	5.1	4.2	4.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.2	4.2	4.4	4.2	3.7	3.2
70.	3.3	3.3	3.7	5.1	4.1	4.1	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.2	4.2	4.2	4.4	3.5	3.3
80.	3.3	3.3	3.6	4.9	4.1	4.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.2	4.2	4.2	4.7	3.5	3.3
90.	3.3	3.3	3.4	4.7	4.2	4.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.1	4.1	4.2	5.2	3.5	3.3
100.	3.2	3.3	3.5	4.4	4.2	4.2	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.2	5.3	3.6	3.3
110.	3.2	3.3	3.5	4.3	4.2	4.2	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.2	5.4	3.7	3.3
120.	3.0	3.2	3.5	4.2	4.3	4.3	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.2	5.4	3.9	3.5
130.	3.0	3.0	3.4	4.1	4.4	4.4	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.1	4.0	4.2	5.2	4.1	3.9
140.	3.0	3.0	3.4	4.1	4.5	4.3	3.9	3.1	3.3	3.2	3.0	3.0	3.0	3.0	4.0	4.0	4.2	4.9	3.9	5.1
150.	3.0	3.0	3.0	3.8	4.2	3.9	3.5	3.4	3.7	3.8	3.6	3.0	3.0	3.0	4.2	4.2	4.2	5.0	5.0	6.1
160.	3.0	3.0	3.0	3.1	3.7	3.4	3.2	3.8	4.3	4.5	4.3	3.2	3.0	3.0	4.2	4.2	4.5	5.3	5.5	5.2
170.	3.0	3.0	3.0	3.0	3.1	3.1	3.0	4.3	4.7	5.0	5.2	3.5	3.1	3.0	4.2	4.4	5.3	5.4	6.5	4.5
180.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.8	4.8	5.6	3.7	3.3	3.1	4.5	4.9	5.8	5.6	6.3	4.1
190.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.6	4.8	5.8	4.0	3.6	3.3	5.0	5.1	5.7	6.2	6.0	3.7
200.	3.1	3.1	3.1	3.1	3.0	3.0	3.0	4.4	4.5	4.5	5.8	4.3	4.1	4.1	4.4	4.8	5.3	5.8	5.7	3.6
210.	3.5	3.6	3.7	3.5	3.0	3.0	3.0	4.3	4.4	4.5	6.4	5.5	5.3	4.8	3.9	3.9	4.6	5.4	5.5	3.5
220.	4.2	4.2	4.3	4.3	3.2	3.0	3.0	4.2	4.3	4.6	7.1	6.2	5.6	5.0	3.4	3.4	3.7	4.5	5.1	3.5

230.	*	4.7	4.7	4.6	5.1	3.6	3.0	3.0	4.2	4.3	4.9	7.4	5.8	5.6	4.7	3.2	3.3	3.8	4.4	5.1
3.5																				
240.	*	4.8	4.8	4.8	5.8	3.6	3.3	3.0	4.2	4.5	5.3	6.4	5.4	4.9	4.7	3.1	3.2	3.7	4.4	4.8
3.5																				
250.	*	4.7	4.7	5.0	6.1	3.8	3.3	3.0	4.2	4.6	5.9	5.8	5.4	4.8	4.5	3.0	3.1	3.6	4.5	4.6
3.5																				
260.	*	4.5	4.5	5.2	6.3	3.8	3.4	3.3	4.4	4.6	6.6	5.1	5.8	4.6	4.4	3.0	3.0	3.4	4.7	4.5
3.5																				
270.	*	4.5	4.4	5.7	6.3	4.2	3.4	3.2	4.5	4.6	7.1	4.9	6.2	4.5	4.3	3.0	3.2	3.2	4.9	4.4
3.6																				
280.	*	4.4	4.3	5.9	6.3	4.4	3.4	3.3	4.5	4.8	7.7	4.9	6.3	4.4	4.3	3.0	3.1	3.3	4.9	4.3
3.7																				
290.	*	4.4	4.3	6.2	6.3	4.5	3.5	3.3	4.7	5.0	7.7	4.9	6.2	4.4	4.3	3.0	3.0	3.2	4.8	4.1
3.7																				
300.	*	4.4	4.3	6.3	6.6	4.6	3.5	3.3	4.9	5.4	7.5	5.2	5.8	4.3	4.3	3.0	3.0	3.1	4.6	4.0
3.8																				
310.	*	4.4	4.3	6.5	6.5	4.9	3.8	3.4	5.0	5.7	7.3	5.6	5.5	4.3	4.3	3.0	3.0	3.0	4.1	3.6
3.6																				
320.	*	4.4	4.3	6.5	6.3	4.6	3.9	3.6	5.3	5.6	6.7	5.8	4.9	4.3	4.3	3.0	3.0	3.0	3.4	3.2
3.3																				
330.	*	4.4	4.3	6.6	6.5	4.9	4.6	3.9	4.8	5.1	5.9	4.9	4.8	4.4	4.3	3.0	3.0	3.0	3.0	3.0
3.1																				
340.	*	4.5	4.4	6.8	6.1	5.2	4.8	4.5	4.1	4.3	4.6	4.9	4.7	4.5	4.4	3.0	3.0	3.0	3.0	3.0
3.0																				
350.	*	4.5	4.5	7.4	6.3	5.8	5.2	4.7	3.4	3.8	4.3	5.2	4.7	4.5	4.5	3.0	3.0	3.0	3.0	3.0
3.0																				
MAX	*	5.5	6.0	7.9	6.6	6.4	5.2	4.7	5.3	5.7	7.7	7.4	6.3	5.6	5.0	5.0	5.1	5.8	6.2	6.5
6.1																				
DEGR.	*	20	20	10	300	10	350	350	320	310	280	230	280	230	220	190	190	180	190	170
150																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 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) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
0.	*	3.0	3.5	3.5	4.9	5.2	3.3	3.0	3.0
10.	*	3.0	3.5	3.5	5.3	5.0	3.3	3.2	3.0
20.	*	3.0	3.5	3.5	5.5	4.8	3.7	3.5	3.1
30.	*	3.0	3.5	3.5	5.6	5.4	4.5	3.9	3.9
40.	*	3.0	3.5	3.5	5.8	5.7	5.2	4.9	4.9
50.	*	3.0	3.5	3.7	6.0	5.5	5.6	6.1	5.4
60.	*	3.0	3.5	3.7	5.9	5.2	6.1	5.9	5.3
70.	*	3.2	3.7	3.9	5.8	4.9	6.8	5.5	4.9
80.	*	3.2	3.7	3.8	5.9	4.6	7.0	4.9	4.8
90.	*	3.3	3.7	4.0	6.3	4.6	7.1	4.7	4.7
100.	*	3.2	3.7	4.3	6.4	4.8	6.5	4.6	4.3
110.	*	3.2	3.8	4.9	6.7	5.2	6.3	4.6	4.3
120.	*	3.2	3.9	5.1	6.5	5.6	6.2	4.4	4.3

130.	*	3.7	3.9	5.2	5.6	6.0	6.2	4.3	4.4
140.	*	4.2	3.9	4.8	5.2	6.2	6.1	4.3	4.3
150.	*	4.4	3.5	4.3	4.8	6.1	5.7	4.3	4.3
160.	*	4.0	3.3	3.5	4.6	5.8	5.5	4.4	4.4
170.	*	3.9	3.2	3.4	3.9	5.8	5.2	4.4	4.5
180.	*	3.8	3.2	3.3	3.8	6.2	5.0	4.5	4.5
190.	*	3.7	3.1	3.2	3.6	6.1	4.8	4.7	4.6
200.	*	3.5	3.0	3.1	3.4	5.5	4.7	4.7	4.5
210.	*	3.5	3.0	3.0	3.2	4.3	4.5	4.2	4.1
220.	*	3.5	3.0	3.0	3.0	3.6	3.7	3.6	3.4
230.	*	3.5	3.0	3.0	3.0	3.1	3.2	3.2	3.2
240.	*	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0
250.	*	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	*	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	*	3.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	*	3.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	*	3.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	*	3.6	3.0	3.1	3.0	3.0	3.0	3.0	3.0
310.	*	3.4	3.1	3.3	3.2	3.0	3.0	3.0	3.0
320.	*	3.2	3.3	3.5	3.6	3.4	3.0	3.0	3.0
330.	*	3.0	3.5	3.6	3.8	3.9	3.0	3.0	3.0
340.	*	3.0	3.5	3.7	4.4	4.5	3.1	3.0	3.0
350.	*	3.0	3.5	3.6	4.6	5.0	3.1	3.0	3.0
MAX	*	4.4	3.9	5.2	6.7	6.2	7.1	6.1	5.4
DEGR.	*	150	120	130	110	180	90	50	50

THE HIGHEST CONCENTRATION OF 7.90 PPM OCCURRED AT RECEPTOR REC3 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS

DATE : 07/10/ 0
TIME : 08:45:26

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

	* CO/LINK (PPM) ANGLE (DEGREES)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
LINK #	*	20	20	10	300	10	350	350	320	310	280	230	280	230	220	190	190	180	190	170	150
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	1.5	1.3	1.1	0.7	0.0	0.1	0.0	0.1	0.2	0.3	1.1	0.0	0.1	0.1	0.1	0.1	0.1	0.5	0.2	0.1
3	*	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1
4	*	0.1	0.1	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0	1.0	1.2	1.1	0.5	0.4	0.4	0.0	0.0	0.0
5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.6	0.6	0.6	0.0	0.0	0.0
8	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.0
9	*	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.1	0.1

0.1	10 *	0.4	0.3	0.2	0.3	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1
0.0	11 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	12 *	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	0.8	0.7	0.5	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1
0.1	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	0.2	0.1
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
0.0	15 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.1	16 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	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	0.0
0.2	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	0.0
0.0	19 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	20 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.1	21 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
0.0	22 *	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
0.1	23 *	0.0	0.0	0.0	0.0	0.1	0.6	0.6	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
0.1	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	0.0
0.0	25 *	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	26 *	0.3	0.7	1.7	1.4	0.0	0.0	0.0	0.2	0.3	0.6	0.9	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.2
0.1	27 *	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	28 *	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	29 *	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	30 *	0.0	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	31 *	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.1	0.1	0.1	0.3	0.0	0.0
0.0	32 *	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.1	0.1	0.1	0.3	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	0.1	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	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	0.0
0.0	36 *	0.0	0.0	0.0	0.0	0.8	0.2	0.1	0.1	0.1	0.8	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
0.1	37 *	0.0	0.0	0.0	0.0	0.5	0.2	0.1	0.1	0.1	0.8	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
0.1	38 *	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
0.1	39 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
0.0	40 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

42 *	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.6	0.1
43 *	0.0	0.0	0.1	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	0.3	0.2
44 *	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	0.0	0.0	0.3
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	0.1	0.6

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS

LINK #	* CO/LINK (PPM) ANGLE (DEGREES) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
*	20	20	10	300	10	350	350	320	310	280	230	280	230	220	190	190	180	190	170	150
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	0.0	0.1

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS

DATE : 07/10/ 0
TIME : 08:45:26

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

LINK #	* CO/LINK (PPM) ANGLE (DEGREES) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
*	150	120	130	110	180	90	50	50
1 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 *	0.1	0.0	0.0	0.0	0.6	0.6	0.5	0.6
3 *	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0
4 *	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.1
5 *	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
7 *	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
8 *	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
9 *	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.0
10 *	0.0	0.0	0.0	0.0	0.2	0.8	1.0	1.1
11 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12 *	0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.1
13 *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
14 *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
15 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
16 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17 *	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
18 *	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0
19 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
20 *	0.0	0.0	0.1	0.3	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
22 *	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
23 *	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
25 *	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
26 *	0.1	0.0	0.0	0.0	1.0	1.1	0.6	0.3

27	*	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0
29	*	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0
30	*	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0
31	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
32	*	0.0	0.0	0.1	0.2	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
34	*	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
36	*	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
37	*	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
38	*	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
39	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
42	*	0.1	0.0	0.2	0.8	0.0	0.0	0.0	0.0
43	*	0.1	0.1	0.3	0.8	0.0	0.0	0.0	0.0
44	*	0.2	0.1	0.5	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

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2015 CONDITIONS

		CO/LINK (PPM) ANGLE (DEGREES)							
	*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	150	120	130	110	180	90	50	50
46	*	0.0	0.0	0.1	0.4	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 7/10/2012 at 9:40:00

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS - Rio Road / Route 29

DATE : 07/10/ 0
TIME : 09:40:00

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 APPROACH LINK	*	-114.6	-129.0	-71.5	-71.0	*	72.	37.	AG	4177.	15.1	0.0	20.7		
2. NB APPROACH LINK	*	-71.5	-71.0	133.2	221.9	*	357.	35.	AG	4177.	15.1	0.0	20.7		
3. NB DEC LINK	*	132.6	222.4	158.8	262.4	*	48.	33.	AG	4177.	15.1	0.0	20.7		
4. NB DEC LINK	*	158.8	262.4	239.8	442.0	*	197.	24.	AG	4177.	15.1	0.0	20.7		
5. NB DEC LINK	*	239.8	442.0	262.4	489.1	*	52.	26.	AG	4177.	15.1	0.0	20.7		
6. NB DEC LINK	*	262.4	489.1	323.0	602.5	*	129.	28.	AG	4177.	15.1	0.0	20.7		
7. SB APPROACH LINK	*	295.3	607.1	146.0	285.5	*	355.	205.	AG	2717.	15.1	0.0	20.7		
8. SB APPROACH LINK	*	146.0	285.5	122.9	246.5	*	45.	211.	AG	2717.	15.1	0.0	20.7		
9. SB DEC LINK	*	122.9	245.5	90.6	194.7	*	60.	212.	AG	3053.	15.1	0.0	20.7		
10. SB DEC LINK	*	90.6	194.7	-132.6	-112.6	*	380.	216.	AG	3053.	15.1	0.0	20.7		
11. WB APPROACH LINK	*	303.9	-126.1	244.2	-7.6	*	133.	333.	AG	1988.	14.3	0.0	13.4		
12. WB APPROACH LINK	*	244.2	-7.6	133.1	233.7	*	266.	335.	AG	1988.	14.3	0.0	13.4		
13. WB DEC LINK	*	132.6	233.2	110.8	288.8	*	60.	339.	AG	568.	14.3	0.0	13.4		
14. WB DEC LINK	*	110.8	288.8	89.1	324.0	*	41.	328.	AG	568.	14.3	0.0	13.4		
15. WB DEC LINK	*	89.1	324.0	55.7	361.0	*	50.	318.	AG	568.	14.3	0.0	13.4		
16. WB DEC LINK	*	55.7	361.0	33.0	377.7	*	28.	306.	AG	568.	14.3	0.0	13.4		
17. WB DEC LINK	*	33.0	377.7	-119.3	528.2	*	214.	315.	AG	568.	14.3	0.0	13.4		
18. EB APPROACH LINK	*	-126.3	521.2	31.2	365.6	*	221.	135.	AG	577.	14.3	0.0	13.4		
19. EB APPROACH LINK	*	31.2	365.6	64.1	334.2	*	45.	134.	AG	577.	14.3	0.0	13.4		
20. EB APPROACH LINK	*	64.1	334.2	96.0	286.9	*	57.	146.	AG	577.	14.3	0.0	13.4		
21. EB APPROACH LINK	*	96.0	286.9	123.8	228.6	*	65.	155.	AG	577.	14.3	0.0	13.4		
22. EB DEC LINK	*	123.8	227.6	158.5	136.9	*	97.	159.	AG	1661.	14.3	0.0	13.4		
23. EB DEC LINK	*	158.5	136.9	237.7	-30.7	*	185.	155.	AG	1661.	14.3	0.0	13.4		
24. EB DEC LINK	*	237.7	-30.7	288.6	-133.1	*	114.	154.	AG	1661.	14.3	0.0	13.4		
25. NB LEFT QUE	*	104.2	195.9	94.6	182.5	*	17.	216.	AG	457.	100.0	0.0	7.3	0.29	2.8
26. NB THRU QUE	*	112.0	191.2	19.5	62.4	*	159.	216.	AG	609.	100.0	0.0	14.6	0.37	26.4
27. NB RIGHT QUE	*	138.3	171.8	-20.3	263.7	*	183.	300.	AG	152.	100.0	0.0	3.7	1.03	30.5
28. NB RIGHT QUE	*	131.4	175.8	-51.8	182.3	*	183.	272.	AG	152.	100.0	0.0	3.7	1.03	30.5
29. NB RIGHT QUE	*	117.4	176.3	-38.9	80.6	*	183.	239.	AG	152.	100.0	0.0	3.7	1.03	30.5
30. NB RIGHT QUE	*	109.4	171.4	4.2	21.3	*	183.	215.	AG	152.	100.0	0.0	3.7	1.03	30.5

31. SB LEFT QUE	*	148.8	273.4	181.3	345.2	*	79.	24.	AG	371.	100.0	0.0	7.3	0.44	13.1
32. SB THRU QUE	*	141.9	278.3	167.7	338.2	*	65.	23.	AG	437.	100.0	0.0	14.6	0.14	10.9
33. SB RIGHT	*	119.1	290.2	123.2	290.6	*	4.	85.	AG	109.	100.0	0.0	3.7	0.04	0.7
34. SB RIGHT	*	133.8	291.5	136.5	294.5	*	4.	42.	AG	109.	100.0	0.0	3.7	0.04	0.7
35. SB RIGHT	*	140.6	299.0	142.3	302.7	*	4.	24.	AG	109.	100.0	0.0	3.7	0.04	0.7
36. WB LEFT QUE	*	140.1	205.3	185.2	98.8	*	116.	157.	AG	407.	100.0	0.0	7.3	0.85	19.3
37. WB THRU QUE	*	146.8	208.1	165.3	164.7	*	47.	157.	AG	377.	100.0	0.0	7.3	0.26	7.9
38. WB RIGHT	*	150.2	209.4	546.9	-710.1	*	1001.	157.	AG	188.	100.0	0.0	3.7	1.79	166.9
39. EB LEFT QUE	*	113.9	264.3	108.2	275.8	*	13.	333.	AG	473.	100.0	0.0	7.3	0.47	2.1
40. EB LEFT QUE	*	98.6	294.9	91.4	305.5	*	13.	326.	AG	473.	100.0	0.0	7.3	0.47	2.1
41. EB LEFT QUE	*	82.3	318.7	74.2	328.7	*	13.	321.	AG	473.	100.0	0.0	7.3	0.47	2.1
42. EB THRU QUE	*	109.0	261.5	85.5	303.1	*	48.	331.	AG	443.	100.0	0.0	7.3	0.57	8.0
43. EB THRU QUE	*	90.6	294.1	64.9	334.3	*	48.	327.	AG	443.	100.0	0.0	7.3	0.57	8.0
44. EB THRU QUE	*	70.9	324.9	40.5	361.7	*	48.	320.	AG	443.	100.0	0.0	7.3	0.57	8.0

PAGE 2

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:40:00

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
45. EB RIGHT	*	105.1	259.4	85.7	294.9	*	40.	331.	AG	222.	100.0	0.0	3.7	0.92	6.7
46. EB RIGHT	*	83.6	298.8	59.5	331.2	*	40.	323.	AG	222.	100.0	0.0	3.7	0.92	6.7

PAGE 3

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:40:00

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
25. NB LEFT QUE	*	180	165	2.0	120	3433	92.91	2	3
26. NB THRU QUE	*	180	110	2.0	3460	6408	92.91	2	3
27. NB RIGHT QUE	*	180	110	2.0	597	1583	92.91	2	3
28. NB RIGHT QUE	*	180	110	2.0	597	1583	92.91	2	3
29. NB RIGHT QUE	*	180	110	2.0	597	1583	92.91	2	3
30. NB RIGHT QUE	*	180	110	2.0	597	1583	92.91	2	3

31. SB LEFT QUE	*	180	134	2.0	706	3433	92.91	2	3
32. SB THRU QUE	*	180	79	2.0	1980	6408	92.91	2	3
33. SB RIGHT	*	180	79	2.0	31	1583	92.91	2	3
34. SB RIGHT	*	180	79	2.0	31	1583	92.91	2	3
35. SB RIGHT	*	180	79	2.0	31	1583	92.91	2	3
36. WB LEFT QUE	*	180	147	2.0	944	3433	92.91	2	3
37. WB THRU QUE	*	180	136	2.0	417	3539	92.91	2	3
38. WB RIGHT	*	180	136	2.0	627	1583	92.91	2	3
39. EB LEFT QUE	*	180	171	2.0	90	3433	92.91	2	3
40. EB LEFT QUE	*	180	171	2.0	90	3433	92.91	2	3
41. EB LEFT QUE	*	180	171	2.0	90	3433	92.91	2	3
42. EB THRU QUE	*	180	160	2.0	358	3539	92.91	2	3
43. EB THRU QUE	*	180	160	2.0	358	3539	92.91	2	3
44. EB THRU QUE	*	180	160	2.0	358	3539	92.91	2	3
45. EB RIGHT	*	180	160	2.0	129	1583	92.91	2	3
46. EB RIGHT	*	180	160	2.0	129	1583	92.91	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. B-1	-1.1	3.0	1.8
2. B-2	35.7	52.8	1.8
3. B-3	85.4	121.4	1.8
4. B-4	123.0	162.3	1.8
5. B-5	149.9	126.3	1.8
6. B-6	181.5	57.4	1.8
7. B-7	221.4	-30.9	1.8
8. B-8	259.5	-6.5	1.8
9. B-9	217.5	81.8	1.8
10. B-10	182.8	156.6	1.8
11. B-11	160.5	224.5	1.8
12. B-12	186.9	284.5	1.8
13. B-13	223.2	359.6	1.8
14. B-14	264.9	448.5	1.8
15. B-15	206.9	470.5	1.8
16. B-16	185.9	424.9	1.8
17. B-17	160.5	364.6	1.8
18. B-18	124.3	304.2	1.8
19. B-19	88.5	345.1	1.8
20. B-20	23.8	402.1	1.8
21. B-21	-25.7	451.6	1.8
22. B-22	-58.1	433.5	1.8
23. B-23	5.4	373.9	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:40:00

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
24. B-24	60.3	311.2	1.8
25. B-25	97.6	238.2	1.8
26. B-26	54.6	170.6	1.8
27. B-27	-5.2	88.2	1.8
28. B-28	-53.4	21.2	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 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	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	5.9	7.5	7.6	6.5	6.4	5.9	4.8	3.3	3.6	4.1	6.2	5.9	5.6	5.2	3.0	3.0	3.0	3.0	3.0	3.0
10.	6.6	8.1	8.0	6.7	6.6	5.2	4.6	3.2	3.3	4.0	6.0	6.0	5.4	5.0	3.0	3.1	3.1	3.1	3.0	3.0
20.	7.3	8.4	7.9	6.8	5.9	4.6	4.2	3.0	3.0	3.5	5.3	5.1	4.7	4.4	3.2	3.4	3.5	3.4	3.0	3.0
30.	7.3	7.5	6.8	6.2	5.2	4.2	4.2	3.0	3.0	3.0	4.0	4.1	3.9	3.5	3.8	4.1	4.5	4.3	3.2	3.0
40.	5.3	5.1	5.1	5.1	4.8	4.2	4.1	3.0	3.0	3.0	3.2	3.3	3.2	3.2	4.4	4.7	5.0	5.0	3.6	3.0
50.	3.7	3.9	4.0	4.6	4.8	4.2	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.9	5.0	5.1	5.4	3.8	3.2
60.	3.4	3.4	3.8	4.6	4.8	4.2	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.8	4.9	4.9	5.5	3.9	3.4
70.	3.3	3.4	3.7	4.6	4.8	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.8	4.8	4.9	5.7	3.9	3.5
80.	3.2	3.3	3.7	4.4	4.8	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.6	4.7	5.5	3.8	3.6
90.	3.3	3.3	3.7	4.5	4.8	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.7	4.6	4.7	5.5	3.9	3.4
100.	3.2	3.3	3.7	4.5	4.8	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.6	4.6	5.5	4.1	3.5
110.	3.3	3.3	3.6	4.6	4.9	4.3	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.6	4.7	5.5	4.2	3.7
120.	3.1	3.3	3.5	4.6	4.9	4.4	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.6	4.8	5.5	4.2	3.7
130.	3.1	3.1	3.5	4.5	4.8	4.4	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.6	4.8	5.4	4.2	4.1
140.	3.0	3.1	3.4	4.3	4.8	4.5	4.2	3.1	3.3	3.2	3.0	3.0	3.0	3.0	4.6	4.6	5.1	5.1	4.1	5.2
150.	3.0	3.0	3.1	4.0	4.2	4.2	3.7	3.5	3.7	3.9	3.7	3.0	3.0	3.0	4.6	4.6	5.3	5.4	5.1	5.4
160.	3.0	3.0	3.0	3.4	3.7	3.5	3.3	4.1	4.3	4.7	4.6	3.2	3.1	3.0	4.8	4.9	6.0	5.9	5.9	5.0
170.	3.0	3.0	3.0	3.0	3.1	3.1	3.0	4.5	4.8	5.3	5.0	3.7	3.1	3.1	4.9	5.1	6.5	5.9	6.1	4.6
180.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.8	5.3	5.5	3.7	3.3	3.2	5.4	5.7	6.9	5.9	5.9	4.1
190.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.6	5.3	5.5	4.1	3.6	3.6	5.5	5.8	6.6	6.4	5.9	3.8
200.	3.3	3.2	3.3	3.1	3.0	3.0	3.0	4.3	4.6	5.3	5.6	4.6	4.4	4.5	5.2	5.4	6.0	6.2	5.4	3.6
210.	3.9	4.0	4.3	4.0	3.0	3.0	3.0	4.4	4.3	5.0	6.5	6.0	5.9	5.8	4.3	4.5	4.7	5.7	5.0	3.3
220.	4.8	5.1	5.8	5.2	3.4	3.0	3.0	4.4	4.3	5.5	7.7	7.3	6.6	6.2	3.4	3.4	3.9	4.6	4.6	3.3

230.	*	5.7	5.9	7.1	6.4	3.8	3.1	3.0	4.2	4.5	5.8	7.9	7.1	6.8	5.7	3.1	3.2	3.4	4.3	4.6
3.3																				
240.	*	5.8	6.1	7.4	6.7	4.3	3.4	3.0	4.2	4.7	6.3	7.3	6.5	6.4	5.2	3.0	3.1	3.6	4.3	4.4
3.4																				
250.	*	5.6	5.9	7.3	6.6	4.5	3.6	3.1	4.5	4.8	6.6	6.5	6.3	5.8	5.1	3.0	3.1	3.3	4.2	4.2
3.4																				
260.	*	5.5	5.8	7.0	6.5	4.7	3.7	3.3	4.6	4.9	6.6	6.1	6.1	5.5	5.0	3.0	3.0	3.3	4.4	4.0
3.4																				
270.	*	5.3	5.5	6.8	6.4	4.7	3.8	3.4	4.7	5.1	6.7	5.6	6.3	5.1	5.0	3.0	3.0	3.1	4.3	3.9
3.5																				
280.	*	5.1	5.5	6.7	6.5	4.8	3.9	3.4	4.8	5.4	7.0	5.4	6.3	4.9	4.9	3.0	3.0	3.0	4.5	3.8
3.5																				
290.	*	5.1	5.6	6.6	6.4	4.7	4.0	3.5	4.9	5.7	7.1	5.5	6.3	5.0	4.9	3.0	3.0	3.2	4.3	3.8
3.5																				
300.	*	5.1	6.1	6.7	6.6	4.8	4.1	3.6	5.0	6.0	7.2	5.7	6.2	5.0	4.9	3.0	3.0	3.0	4.2	3.6
3.5																				
310.	*	5.1	6.4	6.7	6.8	5.0	4.2	3.6	5.2	6.1	6.9	5.7	5.9	4.9	4.9	3.0	3.0	3.0	3.8	3.4
3.3																				
320.	*	5.1	6.5	6.7	6.6	4.9	4.1	3.6	5.3	6.1	6.5	5.6	6.0	5.0	4.9	3.0	3.0	3.0	3.2	3.1
3.2																				
330.	*	5.1	6.7	6.8	6.6	4.9	4.3	4.1	5.1	5.3	5.7	5.5	6.0	5.1	5.1	3.0	3.0	3.0	3.0	3.0
3.0																				
340.	*	5.3	7.0	6.9	6.1	5.3	5.2	4.7	4.2	4.8	4.9	5.5	6.0	5.2	5.2	3.0	3.0	3.0	3.0	3.0
3.0																				
350.	*	5.6	7.3	7.4	6.2	6.0	5.8	5.0	3.5	4.0	4.3	5.8	6.1	5.3	5.3	3.0	3.0	3.0	3.0	3.0
3.0																				
MAX	*	7.3	8.4	8.0	6.8	6.6	5.9	5.0	5.3	6.1	7.2	7.9	7.3	6.8	6.2	5.5	5.8	6.9	6.4	6.1
5.4																				
DEGR.	*	20	20	10	20	10	0	350	320	320	300	230	220	230	220	190	190	180	190	170
150																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 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) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
0.	*	3.0	3.3	3.4	4.5	4.6	3.6	3.4	3.0
10.	*	3.0	3.3	3.3	4.8	4.6	3.7	3.4	3.1
20.	*	3.0	3.3	3.3	4.9	4.9	4.2	4.0	3.4
30.	*	3.0	3.3	3.3	5.3	5.9	5.2	5.2	4.5
40.	*	3.0	3.3	3.3	5.6	6.4	6.0	6.3	5.9
50.	*	3.0	3.3	3.5	5.9	6.2	6.7	7.2	6.9
60.	*	3.2	3.5	3.7	5.9	5.6	6.8	7.2	6.5
70.	*	3.2	3.5	3.8	5.7	5.5	7.3	6.9	6.1
80.	*	3.4	3.6	3.9	5.8	5.4	7.6	6.7	5.7
90.	*	3.5	3.6	4.0	6.0	5.1	7.3	6.4	5.5
100.	*	3.4	3.6	4.3	6.0	5.3	6.8	6.2	5.2
110.	*	3.4	3.7	4.6	6.0	5.6	6.8	6.3	5.2
120.	*	3.5	4.0	4.9	5.8	6.3	6.6	6.0	5.2

130.	*	3.7	4.1	4.8	5.8	6.4	6.6	5.8	5.2
140.	*	4.4	4.1	4.4	5.5	6.6	6.4	5.5	5.0
150.	*	4.4	3.8	4.2	5.1	6.7	6.1	5.2	5.0
160.	*	4.0	3.4	3.9	4.5	6.1	6.1	5.2	5.1
170.	*	4.0	3.5	3.8	4.3	6.2	6.4	5.4	5.2
180.	*	3.9	3.2	3.7	4.5	6.6	6.7	5.4	5.4
190.	*	3.6	3.1	3.4	4.3	6.7	6.8	5.7	5.5
200.	*	3.3	3.0	3.2	4.0	6.7	6.7	5.6	5.4
210.	*	3.3	3.0	3.0	3.4	5.7	5.6	5.0	4.6
220.	*	3.3	3.0	3.0	3.1	4.3	4.3	4.0	3.8
230.	*	3.3	3.0	3.0	3.1	3.4	3.4	3.3	3.2
240.	*	3.3	3.0	3.0	3.0	3.2	3.1	3.1	3.1
250.	*	3.3	3.0	3.0	3.0	3.2	3.0	3.1	3.0
260.	*	3.4	3.0	3.0	3.0	3.1	3.1	3.2	3.0
270.	*	3.4	3.0	3.0	3.0	3.1	3.2	3.3	3.0
280.	*	3.5	3.0	3.0	3.0	3.1	3.4	3.3	3.0
290.	*	3.5	3.0	3.0	3.0	3.0	3.4	3.3	3.0
300.	*	3.4	3.0	3.0	3.0	3.0	3.4	3.3	3.0
310.	*	3.3	3.1	3.1	3.1	3.0	3.4	3.2	3.0
320.	*	3.1	3.2	3.3	3.4	3.1	3.4	3.2	3.0
330.	*	3.0	3.3	3.5	3.6	3.5	3.4	3.3	3.0
340.	*	3.0	3.3	3.5	4.0	4.2	3.4	3.2	3.0
350.	*	3.0	3.4	3.5	4.1	4.5	3.5	3.4	3.0
MAX	*	4.4	4.1	4.9	6.0	6.7	7.6	7.2	6.9
DEGR.	*	140	140	120	110	150	80	50	50

THE HIGHEST CONCENTRATION OF 8.40 PPM OCCURRED AT RECEPTOR REC2 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:40:00

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

LINK #	* CO/LINK (PPM) ANGLE (DEGREES) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	* 20	20	10	20	10	0	350	320	320	300	230	220	230	220	190	190	180	190	170	150
1	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	* 2.3	2.0	1.7	0.4	0.0	0.0	0.1	0.2	0.3	0.5	1.7	0.9	0.2	0.2	0.2	0.2	0.1	0.7	0.4	0.2
3	* 0.0	0.1	0.1	0.5	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.8	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
4	* 0.1	0.2	0.1	0.6	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.7	1.7	1.6	0.7	0.6	0.6	0.0	0.0	0.0
5	* 0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
6	* 0.0	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	0.0	0.0	0.0	0.0	0.0	0.0
7	* 0.1	0.2	0.2	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.9	0.8	0.9	0.0	0.0	0.0
8	* 0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.3	0.1	0.1
9	* 0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.4	0.2	

0.1	10	*	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.7	0.4	0.2	0.2	0.1	0.1	0.0	0.2	0.1
0.0	11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	12	*	0.0	0.0	0.0	0.3	0.4	0.5	0.5	0.9	0.9	0.8	0.5	0.2	0.0	0.0	0.1	0.1	0.2	0.1	0.1
0.1	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	0.2	0.0
0.0	14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.0	15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.1	16	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	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	0.0
0.1	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	0.0
0.0	19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	20	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
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	0.1	0.1
0.0	22	*	0.0	0.0	0.0	0.4	0.7	0.1	0.0	0.1	0.2	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
0.1	23	*	0.0	0.0	0.0	0.0	0.1	0.7	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
0.1	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	0.0
0.0	25	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	26	*	0.7	1.4	1.2	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.8	0.4	0.1	0.1	0.1	0.1	0.1	0.4	0.2
0.1	27	*	0.0	0.0	0.1	0.2	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	28	*	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	29	*	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	30	*	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	31	*	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.2	0.4	0.0	0.0
0.0	32	*	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.2	0.8	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	0.1	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	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	0.0
0.0	36	*	0.0	0.0	0.0	0.2	0.6	0.5	0.1	0.1	0.6	0.7	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1
0.1	37	*	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
0.0	38	*	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
0.1	39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
0.0	40	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
0.0	41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

0.1																				
42 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.4	
0.1																				
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	0.2	
0.2																				
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	0.0	
0.4																				
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	0.1	
0.0																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS

*	CO/LINK (PPM)																			
*	ANGLE (DEGREES)																			
*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
LINK # *	20	20	10	20	10	0	350	320	320	300	230	220	230	220	190	190	180	190	170	150
-------*																				--
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	0.0	0.1

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:40:00

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

*	CO/LINK (PPM)							
*	ANGLE (DEGREES)							
*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK # *	140	140	120	110	150	80	50	50
-------*								
1 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 *	0.1	0.1	0.0	0.0	0.9	1.0	0.8	0.9
3 *	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1
4 *	0.1	0.0	0.2	0.3	0.0	0.0	0.1	0.1
5 *	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
7 *	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0
8 *	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0
9 *	0.0	0.1	0.0	0.0	1.1	0.1	0.1	0.0
10 *	0.0	0.0	0.0	0.0	0.0	1.3	1.6	1.7
11 *	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
12 *	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.1
13 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14 *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
15 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
16 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17 *	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18 *	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
19 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
20 *	0.0	0.0	0.0	0.2	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
22 *	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.1
23 *	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
24 *	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	0.1	0.0	0.0
26 *	0.0	0.1	0.0	0.0	0.1	0.7	0.6	0.6

27	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0
29	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1
30	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
31	*	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
32	*	0.1	0.0	0.1	0.2	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
34	*	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
36	*	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.1
37	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
38	*	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
42	*	0.1	0.1	0.1	0.4	0.0	0.0	0.0	0.0
43	*	0.1	0.1	0.2	0.7	0.0	0.0	0.0	0.0
44	*	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0
45	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: No-BUILD 2040 CONDITIONS

LINK #	*	CO/LINK (PPM) ANGLE (DEGREES) REC21 140	REC22 140	REC23 120	REC24 110	REC25 150	REC26 80	REC27 50	REC28 50
46	*	0.0	0.0	0.1	0.3	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 7/10/2012 at 9:56:34

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS - Rio Road / Route 29

DATE : 07/10/ 0
TIME : 09:56:34

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 APPROACH LINK	*	-114.6	-129.0	-71.5	-71.0	*	72.	37.	AG	3526.	15.1	0.0	20.7		
2. NB APPROACH LINK	*	-71.5	-71.0	133.2	221.9	*	357.	35.	AG	3526.	15.1	0.0	20.7		
3. NB DEC LINK	*	132.6	222.4	158.8	262.4	*	48.	33.	AG	3518.	15.1	0.0	20.7		
4. NB DEC LINK	*	158.8	262.4	239.8	442.0	*	197.	24.	AG	3518.	15.1	0.0	20.7		
5. NB DEC LINK	*	239.8	442.0	262.4	489.1	*	52.	26.	AG	3518.	15.1	0.0	20.7		
6. NB DEC LINK	*	262.4	489.1	323.0	602.5	*	129.	28.	AG	3518.	15.1	0.0	20.7		
7. SB APPROACH LINK	*	295.3	607.1	146.0	285.5	*	355.	205.	AG	2276.	15.1	0.0	20.7		
8. SB APPROACH LINK	*	146.0	285.5	122.9	246.5	*	45.	211.	AG	2276.	15.1	0.0	20.7		
9. SB DEC LINK	*	122.9	245.5	90.6	194.7	*	60.	212.	AG	2592.	15.1	0.0	20.7		
10. SB DEC LINK	*	90.6	194.7	-132.6	-112.6	*	380.	216.	AG	2592.	15.1	0.0	20.7		
11. WB APPROACH LINK	*	303.9	-126.1	244.2	-7.6	*	133.	333.	AG	1876.	14.3	0.0	13.4		
12. WB APPROACH LINK	*	244.2	-7.6	133.1	233.7	*	266.	335.	AG	1876.	14.3	0.0	13.4		
13. WB DEC LINK	*	132.6	233.2	110.8	288.8	*	60.	339.	AG	477.	14.3	0.0	13.4		
14. WB DEC LINK	*	110.8	288.8	89.1	324.0	*	41.	328.	AG	477.	14.3	0.0	13.4		
15. WB DEC LINK	*	89.1	324.0	55.7	361.0	*	50.	318.	AG	477.	14.3	0.0	13.4		
16. WB DEC LINK	*	55.7	361.0	33.0	377.7	*	28.	306.	AG	477.	14.3	0.0	13.4		
17. WB DEC LINK	*	33.0	377.7	-119.3	528.2	*	214.	315.	AG	477.	14.3	0.0	13.4		
18. EB APPROACH LINK	*	-126.3	521.2	31.2	365.6	*	221.	135.	AG	483.	14.3	0.0	13.4		
19. EB APPROACH LINK	*	31.2	365.6	64.1	334.2	*	45.	134.	AG	483.	14.3	0.0	13.4		
20. EB APPROACH LINK	*	64.1	334.2	96.0	286.9	*	57.	146.	AG	483.	14.3	0.0	13.4		
21. EB APPROACH LINK	*	96.0	286.9	123.8	228.6	*	65.	155.	AG	483.	14.3	0.0	13.4		
22. EB DEC LINK	*	123.8	227.6	158.5	136.9	*	97.	159.	AG	1574.	14.3	0.0	13.4		
23. EB DEC LINK	*	158.5	136.9	237.7	-30.7	*	185.	155.	AG	1574.	14.3	0.0	13.4		
24. EB DEC LINK	*	237.7	-30.7	288.6	-133.1	*	114.	154.	AG	1574.	14.3	0.0	13.4		
25. NB LEFT QUE	*	104.2	195.9	96.9	185.7	*	13.	216.	AG	462.	100.0	0.0	7.3	0.26	2.1
26. NB THRU QUE	*	112.0	191.2	32.4	80.4	*	136.	216.	AG	637.	100.0	0.0	14.6	0.33	22.7
27. NB RIGHT QUE	*	138.3	171.8	-108.8	315.0	*	286.	300.	AG	159.	100.0	0.0	3.7	1.09	47.6
28. NB RIGHT QUE	*	131.4	175.8	-154.0	186.0	*	286.	272.	AG	159.	100.0	0.0	3.7	1.09	47.6
29. NB RIGHT QUE	*	117.4	176.3	-126.1	27.1	*	286.	239.	AG	159.	100.0	0.0	3.7	1.09	47.6
30. NB RIGHT QUE	*	109.4	171.4	-54.5	-62.5	*	286.	215.	AG	159.	100.0	0.0	3.7	1.09	47.6

31. SB LEFT QUE	*	148.8	273.4	178.9	339.8	*	73.	24.	AG	363.	100.0	0.0	7.3	0.39	12.2
32. SB THRU QUE	*	141.9	278.3	162.5	326.2	*	52.	23.	AG	437.	100.0	0.0	14.6	0.11	8.7
33. SB RIGHT	*	119.1	290.2	122.0	290.5	*	3.	85.	AG	109.	100.0	0.0	3.7	0.03	0.5
34. SB RIGHT	*	133.8	291.5	135.7	293.6	*	3.	42.	AG	109.	100.0	0.0	3.7	0.03	0.5
35. SB RIGHT	*	140.6	299.0	141.8	301.6	*	3.	24.	AG	109.	100.0	0.0	3.7	0.03	0.5
36. WB LEFT QUE	*	140.1	205.3	183.0	104.0	*	110.	157.	AG	402.	100.0	0.0	7.3	0.77	18.3
37. WB THRU QUE	*	146.8	208.1	162.6	171.0	*	40.	157.	AG	368.	100.0	0.0	7.3	0.22	6.7
38. WB RIGHT	*	150.2	209.4	479.4	-553.6	*	831.	157.	AG	184.	100.0	0.0	3.7	1.59	138.5
39. EB LEFT QUE	*	113.9	264.3	109.7	272.8	*	9.	333.	AG	476.	100.0	0.0	7.3	0.43	1.6
40. EB LEFT QUE	*	98.6	294.9	93.3	302.7	*	9.	326.	AG	476.	100.0	0.0	7.3	0.43	1.6
41. EB LEFT QUE	*	82.3	318.7	76.3	326.0	*	9.	321.	AG	476.	100.0	0.0	7.3	0.43	1.6
42. EB THRU QUE	*	109.0	261.5	88.2	298.4	*	42.	331.	AG	443.	100.0	0.0	7.3	0.51	7.1
43. EB THRU QUE	*	90.6	294.1	67.8	329.8	*	42.	327.	AG	443.	100.0	0.0	7.3	0.51	7.1
44. EB THRU QUE	*	70.9	324.9	43.9	357.6	*	42.	320.	AG	443.	100.0	0.0	7.3	0.51	7.1

PAGE 2

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:56:34

LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	LENGTH (M)	BRG TYPE (DEG)		VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
45. EB RIGHT	*	105.1	259.4	92.7	282.1	*	26.	331.	AG	222.	100.0	0.0	3.7	0.69	4.3
46. EB RIGHT	*	83.6	298.8	68.2	319.6	*	26.	323.	AG	222.	100.0	0.0	3.7	0.69	4.3

PAGE 3

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:56:34

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
25. NB LEFT QUE	*	180	167	2.0	90	3433	92.91	2	3
26. NB THRU QUE	*	180	115	2.0	2850	6408	92.91	2	3
27. NB RIGHT QUE	*	180	115	2.0	586	1583	92.91	2	3
28. NB RIGHT QUE	*	180	115	2.0	586	1583	92.91	2	3
29. NB RIGHT QUE	*	180	115	2.0	586	1583	92.91	2	3
30. NB RIGHT QUE	*	180	115	2.0	586	1583	92.91	2	3

31. SB LEFT QUE	*	180	131	2.0	669	3433	92.91	2	3
32. SB THRU QUE	*	180	79	2.0	1585	6408	92.91	2	3
33. SB RIGHT	*	180	79	2.0	22	1583	92.91	2	3
34. SB RIGHT	*	180	79	2.0	22	1583	92.91	2	3
35. SB RIGHT	*	180	79	2.0	22	1583	92.91	2	3
36. WB LEFT QUE	*	180	145	2.0	910	3433	92.91	2	3
37. WB THRU QUE	*	180	133	2.0	365	3539	92.91	2	3
38. WB RIGHT	*	180	133	2.0	601	1583	92.91	2	3
39. EB LEFT QUE	*	180	172	2.0	67	3433	92.91	2	3
40. EB LEFT QUE	*	180	172	2.0	67	3433	92.91	2	3
41. EB LEFT QUE	*	180	172	2.0	67	3433	92.91	2	3
42. EB THRU QUE	*	180	160	2.0	319	3539	92.91	2	3
43. EB THRU QUE	*	180	160	2.0	319	3539	92.91	2	3
44. EB THRU QUE	*	180	160	2.0	319	3539	92.91	2	3
45. EB RIGHT	*	180	160	2.0	97	1583	92.91	2	3
46. EB RIGHT	*	180	160	2.0	97	1583	92.91	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. B-1	-1.1	3.0	1.8
2. B-2	35.7	52.8	1.8
3. B-3	85.4	121.4	1.8
4. B-4	123.0	162.3	1.8
5. B-5	149.9	126.3	1.8
6. B-6	181.5	57.4	1.8
7. B-7	221.4	-30.9	1.8
8. B-8	259.5	-6.5	1.8
9. B-9	217.5	81.8	1.8
10. B-10	182.8	156.6	1.8
11. B-11	160.5	224.5	1.8
12. B-12	186.9	284.5	1.8
13. B-13	223.2	359.6	1.8
14. B-14	264.9	448.5	1.8
15. B-15	206.9	470.5	1.8
16. B-16	185.9	424.9	1.8
17. B-17	160.5	364.6	1.8
18. B-18	124.3	304.2	1.8
19. B-19	88.5	345.1	1.8
20. B-20	23.8	402.1	1.8
21. B-21	-25.7	451.6	1.8
22. B-22	-58.1	433.5	1.8
23. B-23	5.4	373.9	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:56:34

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
24. B-24	60.3	311.2	1.8
25. B-25	97.6	238.2	1.8
26. B-26	54.6	170.6	1.8
27. B-27	-5.2	88.2	1.8
28. B-28	-53.4	21.2	1.8

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 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	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	5.9	6.7	7.4	5.9	6.1	5.6	4.6	3.3	3.5	4.0	5.6	5.4	5.1	4.9	3.0	3.0	3.0	3.0	3.0	3.0
10.	6.2	7.5	7.7	6.2	6.3	4.9	4.5	3.0	3.3	3.8	5.7	5.4	5.0	4.6	3.0	3.1	3.1	3.1	3.0	3.0
20.	7.0	7.8	7.7	6.4	5.7	4.6	4.2	3.0	3.0	3.4	4.9	4.9	4.5	4.1	3.2	3.3	3.5	3.3	3.0	3.0
30.	6.6	7.0	6.4	5.7	5.1	4.2	4.1	3.0	3.0	3.0	3.8	3.8	3.6	3.4	3.7	3.9	4.1	3.9	3.2	3.0
40.	5.1	5.0	5.0	5.0	4.8	4.1	4.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	4.2	4.4	4.6	4.4	3.4	3.0
50.	3.7	3.8	3.9	4.6	4.8	4.1	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.5	4.8	4.8	3.7	3.2
60.	3.4	3.4	3.8	4.6	4.8	4.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.7	4.7	5.1	3.8	3.2
70.	3.2	3.4	3.6	4.5	4.7	4.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.5	4.5	5.3	3.7	3.5
80.	3.2	3.3	3.7	4.4	4.8	4.1	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.5	5.3	3.7	3.4
90.	3.2	3.3	3.6	4.3	4.8	4.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.4	5.3	3.8	3.4
100.	3.2	3.3	3.6	4.3	4.8	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.4	5.3	4.0	3.4
110.	3.3	3.3	3.6	4.3	4.7	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.3	4.4	4.4	5.2	4.1	3.5
120.	3.1	3.3	3.5	4.6	4.7	4.4	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.4	5.2	4.2	3.5
130.	3.1	3.1	3.4	4.5	4.6	4.3	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	4.5	5.1	4.2	3.9
140.	3.0	3.1	3.4	4.3	4.6	4.3	4.1	3.1	3.3	3.2	3.0	3.0	3.0	3.0	4.4	4.4	4.6	4.9	4.1	4.6
150.	3.0	3.0	3.1	4.0	4.2	4.0	3.7	3.5	3.7	3.8	3.6	3.0	3.0	3.0	4.4	4.4	4.8	5.1	4.7	4.9
160.	3.0	3.0	3.0	3.2	3.7	3.5	3.3	4.0	4.3	4.7	4.3	3.2	3.0	3.0	4.5	4.6	5.2	5.4	5.4	4.6
170.	3.0	3.0	3.0	3.0	3.1	3.1	3.0	4.5	4.7	5.1	4.9	3.7	3.1	3.0	4.7	4.9	5.9	5.4	5.8	4.1
180.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.5	4.7	5.2	5.3	3.6	3.3	3.1	5.0	5.3	6.4	5.5	5.7	3.9
190.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.6	5.2	5.4	3.8	3.5	3.4	5.1	5.6	6.0	5.9	5.9	3.8
200.	3.4	3.3	3.3	3.1	3.0	3.0	3.0	4.3	4.5	5.0	5.2	4.4	4.4	4.2	4.9	5.1	5.6	6.0	5.4	3.6
210.	4.0	3.9	4.1	3.7	3.0	3.0	3.0	4.3	4.3	5.0	6.4	5.7	5.7	5.2	4.0	4.2	4.4	5.3	4.8	3.4
220.	5.0	5.0	5.5	4.9	3.4	3.0	3.0	4.2	4.3	5.2	7.4	6.9	6.3	5.7	3.3	3.4	3.5	4.6	4.5	3.4

230.	*	5.7	5.7	6.5	6.0	3.8	3.1	3.0	4.2	4.2	5.7	7.6	6.6	6.1	5.3	3.1	3.2	3.2	4.1	4.2
3.3																				
240.	*	5.9	5.6	6.9	6.4	4.1	3.3	3.0	4.2	4.5	5.9	6.8	5.9	5.7	4.9	3.0	3.1	3.3	4.0	4.1
3.3																				
250.	*	5.7	5.5	7.0	6.5	4.3	3.7	3.1	4.4	4.7	6.2	6.0	5.8	5.3	4.8	3.0	3.1	3.2	4.1	4.0
3.3																				
260.	*	5.5	5.5	6.8	6.3	4.5	3.6	3.3	4.5	4.9	6.3	5.9	5.9	5.0	4.7	3.0	3.0	3.1	4.2	3.9
3.3																				
270.	*	5.3	5.2	6.6	6.3	4.5	3.8	3.3	4.6	5.2	6.6	5.4	5.8	4.8	4.6	3.0	3.0	3.1	4.0	3.8
3.3																				
280.	*	5.2	5.1	6.6	6.3	4.6	3.9	3.3	4.6	5.3	6.4	5.2	5.8	4.6	4.6	3.0	3.0	3.0	4.0	3.7
3.3																				
290.	*	5.3	5.1	6.6	6.3	4.6	4.0	3.3	4.8	5.5	6.7	5.4	5.9	4.7	4.6	3.0	3.0	3.0	3.9	3.7
3.5																				
300.	*	5.3	5.1	6.5	6.3	4.7	4.1	3.4	4.9	6.0	6.7	5.2	5.8	4.7	4.6	3.0	3.0	3.0	3.8	3.5
3.4																				
310.	*	5.3	5.1	6.4	6.5	4.8	4.2	3.5	5.1	5.9	6.5	5.3	5.6	4.6	4.6	3.0	3.0	3.0	3.7	3.3
3.3																				
320.	*	5.3	5.2	6.6	6.3	4.6	4.0	3.6	5.3	5.8	6.2	5.0	5.6	4.7	4.6	3.0	3.0	3.0	3.1	3.1
3.1																				
330.	*	5.3	5.3	6.6	6.2	4.8	4.3	4.2	4.9	5.1	5.5	5.2	5.5	4.7	4.7	3.0	3.0	3.0	3.0	3.0
3.0																				
340.	*	5.4	5.6	6.7	5.9	5.0	4.8	4.7	4.1	4.5	4.5	5.1	5.4	4.8	4.8	3.0	3.0	3.0	3.0	3.0
3.0																				
350.	*	5.6	6.3	7.1	5.8	5.7	5.6	4.6	3.5	3.9	4.1	5.6	5.5	5.0	4.9	3.0	3.0	3.0	3.0	3.0
3.0																				
MAX	*	7.0	7.8	7.7	6.5	6.3	5.6	4.7	5.3	6.0	6.7	7.6	6.9	6.3	5.7	5.1	5.6	6.4	6.0	5.9
4.9																				
DEGR.	*	20	20	10	310	10	350	340	320	300	290	230	220	220	220	190	190	180	200	190
150																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 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) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
0.	3.0	3.3	3.3	4.2	4.4	3.6	3.5	3.2
10.	3.0	3.3	3.3	4.3	4.3	3.7	3.5	3.2
20.	3.0	3.3	3.3	4.2	4.6	4.0	3.7	3.5
30.	3.0	3.3	3.3	4.5	5.3	4.9	4.8	4.3
40.	3.0	3.3	3.3	5.0	5.8	5.6	6.0	5.5
50.	3.0	3.3	3.5	5.3	5.8	6.3	6.9	6.4
60.	3.2	3.5	3.7	5.6	5.3	6.3	6.7	5.9
70.	3.2	3.5	3.8	5.4	5.0	6.8	6.5	5.6
80.	3.3	3.6	3.8	5.4	4.8	7.2	6.3	5.2
90.	3.3	3.6	3.7	5.6	4.9	6.8	5.9	5.1
100.	3.2	3.6	4.1	5.8	4.9	6.6	5.5	4.9
110.	3.3	3.6	4.3	5.6	5.4	6.5	5.3	4.9
120.	3.4	3.8	4.6	5.4	5.9	6.4	5.1	4.9

130.	*	3.6	3.7	4.2	5.3	6.2	6.4	4.9	4.8
140.	*	4.1	4.0	4.2	5.2	6.3	6.2	4.9	4.8
150.	*	4.2	3.7	4.3	4.9	6.4	6.0	4.8	4.8
160.	*	3.8	3.5	3.8	4.4	5.8	6.0	4.9	4.8
170.	*	3.8	3.5	3.7	4.3	6.1	6.1	5.0	5.0
180.	*	3.6	3.3	3.6	4.4	6.4	6.3	5.1	5.1
190.	*	3.6	3.2	3.4	4.2	6.4	6.3	5.4	5.2
200.	*	3.3	3.0	3.2	3.9	6.0	6.2	5.3	5.0
210.	*	3.3	3.0	3.1	3.4	5.4	5.3	4.6	4.4
220.	*	3.3	3.0	3.1	3.2	4.1	4.1	3.9	3.7
230.	*	3.3	3.0	3.1	3.2	3.4	3.3	3.3	3.2
240.	*	3.3	3.0	3.0	3.1	3.2	3.2	3.3	3.1
250.	*	3.3	3.0	3.0	3.1	3.2	3.0	3.3	3.0
260.	*	3.3	3.0	3.0	3.1	3.2	3.1	3.4	3.0
270.	*	3.3	3.0	3.0	3.1	3.2	3.3	3.3	3.1
280.	*	3.3	3.0	3.0	3.0	3.2	3.4	3.3	3.1
290.	*	3.3	3.0	3.0	3.0	3.1	3.5	3.3	3.1
300.	*	3.3	3.0	3.0	3.0	3.0	3.4	3.3	3.1
310.	*	3.3	3.1	3.1	3.1	3.0	3.5	3.4	3.1
320.	*	3.1	3.2	3.3	3.3	3.0	3.5	3.4	3.1
330.	*	3.0	3.3	3.3	3.6	3.3	3.4	3.4	3.1
340.	*	3.0	3.3	3.3	3.7	3.9	3.4	3.4	3.1
350.	*	3.0	3.3	3.3	3.8	4.4	3.5	3.5	3.2
MAX	*	4.2	4.0	4.6	5.8	6.4	7.2	6.9	6.4
DEGR.	*	150	140	120	100	150	80	50	50

THE HIGHEST CONCENTRATION OF 7.80 PPM OCCURRED AT RECEPTOR REC2 .

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:56:34

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	20	20	10	310	10	350	340	320	300	290	230	220	220	220	190	190	180	200	190	150
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.0	1.7	1.5	0.9	0.0	0.1	0.1	0.2	0.3	0.4	1.4	0.8	0.4	0.2	0.1	0.2	0.1	0.6	0.4	0.1
3	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.7	0.2	0.1	0.1	0.1	0.2	0.0	0.0	0.1
4	0.1	0.1	0.1	0.0	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.6	1.3	1.3	0.6	0.5	0.5	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.1	0.2	0.1	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.8	0.7	0.8	0.0	0.0	0.0
8	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1
9	0.1	0.1	0.3	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.3	0.1	

0.1	10 *	0.5	0.4	0.2	0.3	0.0	0.0	0.0	0.1	0.2	0.2	0.6	0.4	0.2	0.1	0.0	0.1	0.0	0.4	0.3
0.0	11 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	12 *	0.0	0.0	0.0	0.0	0.4	0.4	0.3	0.8	0.8	0.7	0.5	0.1	0.0	0.0	0.1	0.1	0.2	0.0	0.0
0.1	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	0.1	0.0
0.0	14 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.0	15 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.0	16 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	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	0.0
0.1	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	0.0
0.0	19 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	20 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
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	0.1	0.0
0.0	22 *	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0
0.1	23 *	0.0	0.0	0.0	0.0	0.1	0.6	0.5	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
0.1	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	0.0
0.0	25 *	0.0	0.0	0.1	0.2	0.0	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
0.0	26 *	0.5	1.4	1.3	1.0	0.0	0.0	0.1	0.1	0.3	0.3	0.8	0.4	0.2	0.1	0.1	0.1	0.1	0.4	0.3
0.1	27 *	0.0	0.1	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
0.0	28 *	0.0	0.1	0.1	0.3	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	29 *	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
0.0	30 *	0.6	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
0.0	31 *	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.2	0.4	0.0	0.0
0.0	32 *	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.5	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	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	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	0.0
0.0	36 *	0.0	0.0	0.0	0.0	0.6	0.5	0.2	0.1	0.3	0.7	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0
0.1	37 *	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
0.0	38 *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
0.1	39 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
0.0	40 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.0	41 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

```
 0.0
      42  *   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   0.3   0.2
 0.1
      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   0.5
 0.2
      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   0.0
 0.3
      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   0.1   0.0
 0.0
```


JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS

```
          *    CO/LINK  (PPM)
          *    ANGLE (DEGREES)
          *  REC1  REC2  REC3  REC4  REC5  REC6  REC7  REC8  REC9  REC10 REC11 REC12 REC13 REC14 REC15 REC16 REC17 REC18 REC19
REC20
   LINK # *    20    20    10   310    10   350   340   320   300   290   230   220   220   220   190   190   180   200   190
 150

-------*-------------------------------------------------------------------------------------------------------------------------
--
      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   0.1
 0.0
```


JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS

DATE : 07/10/ 0
TIME : 09:56:34

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC21 150	REC22 140	REC23 120	REC24 100	REC25 150	REC26 80	REC27 50	REC28 50
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.1	0.1	0.0	0.0	0.7	0.8	0.7	0.8
3	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0
4	0.0	0.0	0.2	0.3	0.0	0.0	0.1	0.1
5	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
7	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.0
8	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
9	0.1	0.1	0.0	0.0	0.9	0.1	0.1	0.0
10	0.0	0.0	0.0	0.0	0.0	1.1	1.3	1.5
11	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
12	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.1
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.2	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
22	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.1
23	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
24	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	0.1	0.0	0.0
26	0.1	0.1	0.0	0.0	0.2	0.7	0.7	0.5

27	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
28	*	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0
29	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1
30	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
31	*	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0
32	*	0.0	0.0	0.1	0.2	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
34	*	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
36	*	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.1
37	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
38	*	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	*	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
41	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	*	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
43	*	0.1	0.1	0.1	0.8	0.0	0.0	0.0	0.0
44	*	0.1	0.1	0.4	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

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: BUILD 2040 CONDITIONS

LINK #	*	CO/LINK (PPM) ANGLE (DEGREES) REC21 150	REC22 140	REC23 120	REC24 100	REC25 150	REC26 80	REC27 50	REC28 50
46	*	0.0	0.0	0.0	0.4	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 7/10/2012 at 13:54:39

JOB: Charlottesville Bypass Project RUN: Existing 2011 - Hydraulic Road & US 29

DATE : 07/10/ 0
TIME : 13:54:39

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 29 approach	*	-144.7	-206.4	-63.8	-76.6	*	153.	32.	AG	2695.	22.7	0.0	17.1		
2. nb 29 approach	*	-63.8	-76.6	11.8	43.7	*	142.	32.	AG	2695.	22.7	0.0	17.1		
3. nb 29 approach	*	11.8	43.7	52.6	111.6	*	79.	31.	AG	2695.	22.7	0.0	17.1		
4. nb 29 dec	*	52.6	111.6	71.3	140.8	*	35.	33.	AG	2985.	22.7	0.0	17.1		
5. nb 29 dec	*	71.3	140.8	171.6	282.4	*	174.	35.	AG	2985.	22.7	0.0	17.1		
6. nb 29 dec	*	171.6	282.4	292.5	455.1	*	211.	35.	AG	2985.	22.7	0.0	17.1		
7. sb 29 approach	*	277.0	464.1	191.0	346.4	*	146.	216.	AG	2845.	22.7	0.0	17.1		
8. sb 29 approach	*	191.0	346.4	41.6	139.5	*	255.	216.	AG	2845.	22.7	0.0	17.1		
9. sb 29 dec	*	42.2	139.5	18.9	110.4	*	37.	219.	AG	2495.	22.7	0.0	17.1		
10. sb 29 dec	*	18.9	110.4	-98.8	-81.1	*	225.	212.	AG	2495.	22.7	0.0	17.1		
11. sb 29 dec	*	-98.8	-81.1	-163.4	-191.0	*	127.	210.	AG	2495.	22.7	0.0	17.1		
12. wb hydraulic app	*	205.9	-136.8	150.0	-69.7	*	87.	320.	AG	1780.	21.5	0.0	13.4		
13. wb hydraulic app	*	150.0	-69.7	114.6	-20.8	*	60.	324.	AG	1780.	21.5	0.0	13.4		
14. wb hydraulic app	*	114.6	-20.8	104.8	-4.5	*	19.	329.	AG	1780.	21.5	0.0	13.4		
15. wb hydraulic app	*	104.8	-4.5	85.7	40.7	*	49.	337.	AG	1780.	21.5	0.0	13.4		
16. wb hydraulic app	*	85.7	40.7	53.1	128.8	*	94.	340.	AG	1780.	21.5	0.0	13.4		
17. wb hydraulic dec	*	53.6	127.8	15.3	222.9	*	103.	338.	AG	1550.	21.5	0.0	13.4		
18. wb hydraulic dec	*	15.3	222.9	-13.1	277.9	*	62.	333.	AG	1550.	21.5	0.0	13.4		
19. wb hydraulic dec	*	-13.1	277.9	-37.3	310.0	*	40.	323.	AG	1550.	21.5	0.0	13.4		
20. wb hydraulic dec	*	-37.3	310.0	-103.9	385.0	*	100.	318.	AG	1550.	21.5	0.0	13.4		
21. eb hydraulic app	*	-112.3	377.6	-35.0	293.2	*	114.	138.	AG	1235.	21.5	0.0	13.4		
22. eb hydraulic app	*	-35.0	293.2	-22.9	276.9	*	20.	143.	AG	1235.	21.5	0.0	13.4		
23. eb hydraulic app	*	-22.9	276.9	-2.8	240.6	*	41.	151.	AG	1235.	21.5	0.0	13.4		
24. eb hydraulic app	*	-2.8	240.6	44.2	119.4	*	130.	159.	AG	1235.	21.5	0.0	13.4		
25. eb hydraulic dec	*	44.7	119.4	81.5	17.4	*	108.	160.	AG	1525.	21.5	0.0	13.4		
26. eb hydraulic dec	*	81.5	17.4	101.5	-25.5	*	47.	155.	AG	1525.	21.5	0.0	13.4		
27. eb hydraulic dec	*	101.5	-25.5	136.5	-76.3	*	62.	145.	AG	1525.	21.5	0.0	13.4		
28. eb hydraulic dec	*	136.5	-76.3	193.8	-147.1	*	91.	141.	AG	1525.	21.5	0.0	13.4		
29. nb left que	*	34.9	101.7	-1.4	41.7	*	70.	211.	AG	606.	100.0	0.0	7.3	0.48	11.7
30. nb thru right que	*	43.8	97.1	-20.1	-6.7	*	122.	212.	AG	657.	100.0	0.0	11.0	0.35	20.3
31. wb left que	*	59.8	93.2	76.3	51.9	*	44.	158.	AG	267.	100.0	0.0	3.7	0.44	7.4
32. wb thru que	*	63.5	95.6	95.0	16.5	*	85.	158.	AG	598.	100.0	0.0	7.3	0.54	14.2
33. wb right que	*	69.4	97.4	105.3	3.4	*	101.	159.	AG	598.	100.0	0.0	7.3	0.81	

16.8	34. sb left que	*	57.5	149.9	109.6	217.3	*	85.	38.	AG	598.	100.0	0.0	7.3 0.56
14.2	35. sb thru que	*	52.1	154.6	114.6	240.7	*	106.	36.	AG	644.	100.0	0.0	11.0 0.30
17.7	36. sb right que	*	41.5	167.8	83.2	167.8	*	42.	90.	AG	215.	100.0	0.0	3.7 0.38
6.9	37. sb right que	*	49.0	167.8	88.2	181.9	*	42.	70.	AG	215.	100.0	0.0	3.7 0.38
6.9	38. sb right que	*	55.4	170.1	80.4	203.4	*	42.	37.	AG	215.	100.0	0.0	3.7 0.38
6.9	39. eb left que	*	35.5	154.1	19.0	196.9	*	46.	339.	AG	276.	100.0	0.0	3.7 0.48
7.6	40. eb thru que	*	32.4	151.7	6.3	221.4	*	74.	339.	AG	606.	100.0	0.0	7.3 0.49
12.4	41. eb right que	*	29.6	149.4	-111.6	514.6	*	392.	339.	AG	303.	100.0	0.0	3.7 1.29
65.3														

JOB: Charlottesville Bypass Project RUN: Existing 2011 - Hydraulic Road & US 29

DATE : 07/10/ 0
TIME : 13:54:39

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
29. nb left que	*	180	144	2.0	585	3433	141.30	2	3
30. nb thru right que	*	180	104	2.0	2110	5019	141.30	2	3
31. wb left que	*	180	127	2.0	210	1770	141.30	2	3
32. wb thru que	*	180	142	2.0	720	3539	141.30	2	3
33. wb right que	*	180	142	2.0	850	2787	141.30	2	3
34. sb left que	*	180	142	2.0	720	3433	141.30	2	3
35. sb thru que	*	180	102	2.0	1880	5085	141.30	2	3
36. sb right que	*	180	102	2.0	245	1583	141.30	2	3
37. sb right que	*	180	102	2.0	245	1583	141.30	2	3
38. sb right que	*	180	102	2.0	245	1583	141.30	2	3
39. eb left que	*	180	131	2.0	210	1770	141.30	2	3
40. eb thru que	*	180	144	2.0	620	3539	141.30	2	3
41. eb right que	*	180	144	2.0	405	1770	141.30	2	3

RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*
1. A-1	*	-33.0	-56.9	1.8	*
2. A-2	*	1.6	0.6	1.8	*
3. A-3	*	24.2	40.8	1.8	*
4. A-4	*	44.8	63.3	1.8	*
5. A-5	*	58.1	43.4	1.8	*
6. A-6	*	73.2	5.8	1.8	*
7. A-7	*	101.6	-52.2	1.8	*
8. A-8	*	144.8	-33.3	1.8	*
9. A-9	*	112.0	16.8	1.8	*
10. A-10	*	94.3	59.6	1.8	*
11. A-11	*	79.5	103.9	1.8	*
12. A-12	*	91.7	144.9	1.8	*
13. A-13	*	114.2	171.8	1.8	*
14. A-14	*	172.5	254.4	1.8	*
15. A-15	*	130.4	287.3	1.8	*
16. A-16	*	87.2	231.6	1.8	*

17.	A-17	*	68.4	204.3	1.8	*
18.	A-18	*	48.9	179.2	1.8	*
19.	A-19	*	33.4	211.6	1.8	*
20.	A-20	*	11.2	257.0	1.8	*
21.	A-21	*	-23.4	311.6	1.8	*
22.	A-22	*	-41.1	278.0	1.8	*
23.	A-23	*	-19.7	246.3	1.8	*
24.	A-24	*	0.2	196.5	1.8	*
25.	A-25	*	16.0	150.4	1.8	*
26.	A-26	*	-5.4	96.5	1.8	*
27.	A-27	*	-30.4	58.2	1.8	*
28.	A-28	*	-48.9	27.5	1.8	*

JOB: Charlottesville Bypass Project RUN: Existing 2011 - Hydraulic Road & US 29

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	6.1	8.5	9.8	8.2	7.9	8.1	6.4	3.8	4.3	4.8	6.5	7.6	6.4	5.9	3.0	3.0	3.0	3.0	3.0	3.0
10.	7.1	9.2	10.0	8.4	8.2	7.9	5.7	3.5	4.1	4.7	6.1	7.5	6.3	6.0	3.0	3.0	3.0	3.0	3.0	3.0
20.	8.0	9.1	9.5	8.1	8.3	7.4	5.1	3.2	3.5	4.2	5.6	7.1	6.1	5.9	3.2	3.2	3.3	3.2	3.0	3.0
30.	6.9	7.7	8.0	7.4	7.4	6.6	4.4	3.0	3.2	3.5	4.7	6.0	5.3	5.0	4.0	3.9	4.1	4.3	3.1	3.0
40.	5.1	5.6	6.1	6.4	6.5	6.2	4.3	3.0	3.0	3.1	3.7	4.4	4.1	4.0	5.1	5.1	5.6	6.0	3.6	3.1
50.	3.9	4.4	4.8	5.6	6.2	5.8	4.2	3.0	3.0	3.0	3.2	3.4	3.2	3.2	6.1	6.1	7.1	7.5	4.2	3.5
60.	3.6	4.1	4.6	5.7	6.1	5.7	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	6.2	6.3	7.4	8.3	4.6	3.7
70.	3.4	4.2	4.6	5.7	6.0	5.4	4.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.4	7.6	8.3	5.0	3.9
80.	3.3	3.8	4.6	5.7	6.0	5.1	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.7	6.5	7.7	8.4	5.1	3.9
90.	3.3	3.7	4.5	5.7	5.9	4.9	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.6	6.6	7.8	8.3	5.2	4.0
100.	3.4	3.7	4.6	5.7	6.0	4.9	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.6	6.6	7.7	8.3	5.4	4.1
110.	3.2	3.5	4.4	5.7	5.9	4.8	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.5	6.6	7.8	8.3	5.3	4.2
120.	3.0	3.4	4.2	5.7	5.9	4.9	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.5	6.8	7.8	8.3	5.6	4.4
130.	3.0	3.3	4.0	5.7	5.9	5.1	4.4	3.1	3.0	3.0	3.0	3.0	3.0	3.0	5.5	7.0	8.0	8.4	5.6	4.6
140.	3.0	3.0	3.5	5.2	5.3	4.8	3.8	3.4	3.4	3.3	3.1	3.0	3.0	3.0	5.4	7.2	7.9	8.2	5.6	4.8
150.	3.0	3.0	3.2	4.3	4.6	4.0	3.3	3.8	3.9	4.0	3.9	3.1	3.0	3.0	5.5	7.2	8.1	8.7	6.0	5.5

160.	*	3.0	3.0	3.0	3.3	3.6	3.4	3.0	4.3	4.3	5.0	5.3	3.4	3.1	3.0	5.6	7.5	9.0	9.9	7.2
6.9																				
170.	*	3.0	3.0	3.0	3.0	3.1	3.0	3.0	4.3	4.4	6.1	6.7	4.2	3.4	3.0	5.8	8.3	9.7	9.8	7.8
7.5																				
180.	*	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.6	6.9	7.4	4.7	3.8	3.1	6.4	9.0	10.4	9.3	7.9
7.4																				
190.	*	3.1	3.1	3.1	3.0	3.0	3.0	3.0	4.3	4.7	7.2	7.4	5.1	4.1	3.2	7.5	9.8	9.9	8.9	8.0
6.9																				
200.	*	3.3	3.4	3.7	3.4	3.0	3.0	3.0	4.3	5.1	7.2	7.5	5.3	4.6	3.8	8.4	9.5	9.4	8.6	7.4
5.8																				
210.	*	4.0	4.2	5.2	4.4	3.4	3.1	3.0	4.2	5.2	7.1	8.0	6.7	5.6	5.1	8.1	8.0	7.7	7.4	6.6
5.1																				
220.	*	4.9	5.5	6.9	5.9	4.1	3.3	3.0	4.2	5.6	7.5	8.7	7.6	6.5	6.9	6.2	5.9	5.9	6.6	5.8
4.7																				
230.	*	5.6	6.1	7.9	6.8	4.7	3.7	3.1	4.4	5.9	7.9	9.4	7.7	6.9	7.4	4.0	4.3	4.7	5.6	5.4
4.7																				
240.	*	5.6	6.4	7.8	7.1	5.0	3.9	3.3	4.6	6.3	8.2	8.9	7.1	6.8	7.6	3.6	4.1	4.6	5.5	5.6
4.6																				
250.	*	5.6	6.3	7.5	7.2	5.1	4.1	3.6	4.7	6.6	8.8	8.2	6.6	7.0	6.9	3.5	3.8	4.5	5.5	5.4
4.6																				
260.	*	5.4	6.5	7.5	7.1	5.2	4.1	3.6	4.7	6.8	8.9	7.2	6.5	7.7	6.5	3.3	3.8	4.4	5.5	5.3
4.6																				
270.	*	5.1	6.6	7.4	6.9	5.3	4.3	3.7	5.0	7.2	9.0	6.4	6.9	8.3	5.8	3.5	3.8	4.3	5.6	5.3
4.7																				
280.	*	5.1	6.6	7.4	6.8	5.4	4.3	3.7	5.0	7.7	9.0	6.1	7.5	8.0	5.8	3.4	3.6	4.1	5.6	5.3
4.8																				
290.	*	5.1	6.6	7.6	6.8	5.5	4.5	3.8	5.2	8.2	9.2	6.1	8.0	7.9	5.6	3.3	3.8	4.1	5.6	5.3
5.0																				
300.	*	5.1	6.6	7.7	6.8	5.5	4.6	3.9	5.4	8.7	9.0	6.4	8.4	7.7	5.5	3.2	3.7	4.2	5.6	5.3
5.3																				
310.	*	5.1	6.6	7.6	6.8	5.5	4.7	4.0	5.9	8.7	9.0	6.8	8.7	7.5	5.4	3.1	3.5	3.9	5.8	5.4
5.5																				
320.	*	5.0	6.5	7.6	6.8	5.5	4.7	4.2	6.5	8.8	8.4	7.4	8.5	7.2	5.2	3.0	3.2	3.7	5.4	5.2
5.1																				
330.	*	5.2	6.6	7.9	7.4	5.6	5.2	5.2	5.8	8.2	7.9	7.6	8.0	6.8	5.4	3.0	3.1	3.3	4.6	4.4
4.2																				
340.	*	5.2	7.0	8.6	8.0	6.7	6.5	6.5	5.0	6.5	6.6	7.2	7.6	6.7	5.4	3.0	3.0	3.1	3.8	3.7
3.5																				
350.	*	5.6	7.8	9.1	8.3	7.3	7.4	7.4	4.0	4.9	5.3	6.6	7.6	6.7	5.7	3.0	3.0	3.0	3.2	3.2
3.1																				
MAX	*	8.0	9.2	10.0	8.4	8.3	8.1	7.4	6.5	8.8	9.2	9.4	8.7	8.3	7.6	8.4	9.8	10.4	9.9	8.0
7.5																				
DEGR.	*	20	10	10	10	20	0	350	320	320	290	230	310	270	240	200	190	180	160	190
170																				

JOB: Charlottesville Bypass Project RUN: Existing 2011 - Hydraulic Road & US 29

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 * CONCENTRATION
ANGLE * (PPM)
(DEGR)* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28

0.	3.0	4.8	5.3	5.4	6.4	4.0	3.6	3.3
10.	3.0	4.7	5.0	5.7	6.4	4.2	3.7	3.5
20.	3.0	4.6	5.0	5.8	6.4	4.6	4.4	4.1
30.	3.0	4.6	4.9	5.9	6.6	6.1	5.7	5.5
40.	3.0	4.6	4.8	6.1	8.1	7.9	6.9	7.1
50.	3.0	4.7	5.0	6.7	9.4	8.2	7.6	7.8
60.	3.2	5.0	5.5	7.0	10.2	7.3	7.5	7.5
70.	3.5	5.2	5.6	7.2	9.7	6.8	7.7	7.5
80.	3.7	5.3	5.6	7.7	8.7	6.9	7.6	7.0
90.	3.7	5.1	5.8	8.0	7.6	7.4	7.8	6.9
100.	3.6	5.4	6.0	8.5	6.7	7.6	7.2	6.4
110.	3.7	5.6	6.4	8.5	6.1	8.1	7.0	6.1
120.	3.9	5.9	6.7	8.6	6.2	8.0	6.9	6.1
130.	4.0	6.1	7.3	8.3	6.6	7.7	6.4	5.8
140.	4.8	6.5	7.7	8.0	7.3	7.3	5.8	5.4
150.	6.1	6.0	7.1	7.4	7.6	7.0	5.8	5.3
160.	7.5	5.1	5.9	6.2	6.8	6.6	5.9	5.4
170.	7.3	4.1	4.7	5.2	6.1	6.7	5.8	5.5
180.	6.4	3.7	4.1	4.6	6.0	6.6	5.8	5.7
190.	5.7	3.5	3.8	4.4	5.8	6.4	5.9	5.7
200.	5.4	3.3	3.4	3.9	5.4	6.1	5.6	5.6
210.	4.9	3.0	3.0	3.3	4.2	5.0	4.7	4.6
220.	4.9	3.0	3.0	3.0	3.4	3.8	3.7	3.7
230.	4.9	3.0	3.0	3.0	3.0	3.2	3.1	3.1
240.	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
250.	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	5.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	5.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	5.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	5.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0
310.	4.9	3.3	3.1	3.0	3.0	3.0	3.0	3.0
320.	4.4	3.6	3.7	3.3	3.2	3.0	3.0	3.0
330.	4.0	4.2	4.2	4.0	3.8	3.0	3.0	3.0
340.	3.5	4.6	4.8	4.7	4.7	3.3	3.0	3.0
350.	3.2	4.8	5.3	5.3	5.8	3.7	3.3	3.3
MAX	7.5	6.5	7.7	8.6	10.2	8.2	7.8	7.8
DEGR.	160	140	140	120	60	50	90	50

THE HIGHEST CONCENTRATION OF 10.40 PPM OCCURRED AT RECEPTOR REC17.

JOB: Charlottesville Bypass Project RUN: Existing 2011 - Hydraulic Road & US 29

DATE : 07/10/ 0
TIME : 13:54:39

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	20	10	10	10	20	0	350	320	320	290	230	310	270	240	200	190	180	160	190	170
1	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	0.1	0.0	0.0	0.0	0.1	0.0
2	1.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	

3 *	0.3	0.6	2.1	0.9	0.0	0.1	0.1	0.2	0.3	0.6	0.8	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.3	0.1
4 *	0.1	0.1	0.2	0.5	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.6	0.0	0.2
5 *	0.2	0.1	0.2	0.3	0.6	0.3	0.2	0.0	0.0	0.0	0.0	1.6	1.6	1.9	0.7	0.6	0.5	0.2	0.0	0.1
6 *	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7 *	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8 *	0.3	0.2	0.4	0.7	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.8	0.8	0.9	2.1	1.7	1.7	1.5	0.1	0.2
9 *	0.1	0.2	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.2
10 *	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.6	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.4	0.1
11 *	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	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	0.1	0.0	0.0
13 *	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	0.0	0.0	0.0	0.1	0.0	0.0
14 *	0.0	0.0	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	0.0	0.0	0.0	0.0
15 *	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
16 *	0.1	0.0	0.1	0.4	0.7	0.6	0.2	0.2	0.6	1.0	0.8	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.0	0.1
17 *	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.3	0.1	0.1	0.1	0.1	0.2	1.0	0.6
18 *	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	0.0	0.0	0.6
19 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24 *	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.5	0.5
25 *	0.1	0.1	0.2	0.6	0.9	1.0	0.3	0.3	0.5	0.5	0.5	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1
26 *	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
27 *	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	0.1	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	0.1	0.0	0.0
29 *	0.3	0.7	0.6	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.1
30 *	0.8	1.7	1.6	0.4	0.0	0.0	0.1	0.2	0.2	0.5	1.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.4	0.2
31 *	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.1	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
32 *	0.0	0.0	0.0	0.1	0.8	0.7	0.5	0.4	1.1	1.1	0.7	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.0	0.1
33 *	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.6	1.5	0.8	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.0	0.1
34 *	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.7	0.7	0.4	0.4	0.8	0.7	0.5	0.0	0.1

35 *	0.1	0.1	0.2	0.4	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.7	0.7	0.6	0.8	1.4	1.4	1.1	0.0	0.0
36 *	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	0.0	0.0	0.1	0.2	0.3	0.0	0.1
37 *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.3	0.0	0.0
38 *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.4	0.1	0.0	0.0
39 *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.1
40 *	0.1	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.8	0.7
41 *	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.3

JOB: Charlottesville Bypass Project RUN: Existing 2011 - Hydraulic Road & US 29

DATE : 07/10/ 0
TIME : 13:54:39

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC21 160	REC22 140	REC23 140	REC24 120	REC25 60	REC26 50	REC27 90	REC28 50
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3	0.1	0.0	0.1	0.0	0.0	0.0	0.7	0.4
4	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.1
5	0.1	0.2	0.2	0.4	0.8	0.7	0.0	0.3
6	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1
7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
8	0.2	0.3	0.3	0.5	1.3	0.8	0.0	0.3
9	0.1	0.1	0.1	0.0	0.0	0.8	0.0	0.1
10	0.1	0.0	0.0	0.0	0.0	0.8	1.4	1.8
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
16	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1
17	0.2	0.3	0.5	0.6	0.5	0.2	0.0	0.1
18	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
19	0.6	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
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0
24	0.3	0.3	0.8	0.8	0.6	0.2	0.0	0.1
25	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1
26	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
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.5
30	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.4
31	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
32	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.1
33	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.1
34	0.1	0.1	0.2	0.3	0.6	0.4	0.0	0.1

35	*	0.1	0.2	0.2	0.4	1.0	0.4	0.0	0.1
36	*	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0
37	*	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0
38	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
39	*	0.1	0.1	0.1	0.4	0.3	0.0	0.0	0.0
40	*	0.3	0.4	0.8	1.3	1.0	0.1	0.0	0.0
41	*	0.6	0.4	0.7	0.6	0.5	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 7/11/2012 at 10:43:08

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 10:43:08

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 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 29 APPROACH	*	-144.7	-206.4	-63.8	-76.6	*	153.	32.	AG	2253.	19.2	0.0	17.1		
2. NB 29 APPROACH	*	-63.8	-76.6	11.8	43.7	*	142.	32.	AG	2253.	19.2	0.0	17.1		
3. NB 29 APPROACH	*	11.8	43.7	52.6	111.6	*	79.	31.	AG	2253.	19.2	0.0	17.1		
4. NB 29 DEC	*	52.6	111.6	71.3	140.8	*	35.	33.	AG	2809.	19.2	0.0	17.1		
5. NB 29 DEC	*	71.3	140.8	171.6	282.4	*	174.	35.	AG	2809.	19.2	0.0	17.1		
6. NB 29 DEC	*	171.6	282.4	292.5	455.1	*	211.	35.	AG	2809.	19.2	0.0	17.1		
7. SB 29 APPROACH	*	277.0	464.1	191.0	346.4	*	146.	216.	AG	2685.	19.2	0.0	17.1		
8. SB 29 APPROACH	*	191.0	346.4	41.6	139.5	*	255.	216.	AG	2685.	19.2	0.0	17.1		
9. SB 29 DEC	*	42.2	139.5	18.9	110.4	*	37.	219.	AG	2458.	19.2	0.0	17.1		
10. SB 29 DEC	*	18.9	110.4	-98.8	-81.1	*	225.	212.	AG	2458.	19.2	0.0	17.1		
11. SB 29 DEC	*	-98.8	-81.1	-163.4	-191.0	*	127.	210.	AG	2458.	19.2	0.0	17.1		
12. WB HYDRAULIC APP	*	205.9	-136.8	150.0	-69.7	*	87.	320.	AG	1904.	18.2	0.0	13.4		
13. WB HYDRAULIC APP	*	150.0	-69.7	114.6	-20.8	*	60.	324.	AG	1904.	18.2	0.0	13.4		
14. WB HYDRAULIC APP	*	114.6	-20.8	104.8	-4.5	*	19.	329.	AG	1904.	18.2	0.0	13.4		
15. WB HYDRAULIC APP	*	104.8	-4.5	85.7	40.7	*	49.	337.	AG	1904.	18.2	0.0	13.4		
16. WB HYDRAULIC APP	*	85.7	40.7	53.1	128.8	*	94.	340.	AG	1904.	18.2	0.0	13.4		
17. WB HYDRAULIC DEC	*	53.6	127.8	15.3	222.9	*	103.	338.	AG	1814.	18.2	0.0	13.4		
18. WB HYDRAULIC DEC	*	15.3	222.9	-13.1	277.9	*	62.	333.	AG	1814.	18.2	0.0	13.4		
19. WB HYDRAULIC DEC	*	-13.1	277.9	-37.3	310.0	*	40.	323.	AG	1814.	18.2	0.0	13.4		
20. WB HYDRAULIC DEC	*	-37.3	310.0	-103.9	385.0	*	100.	318.	AG	1814.	18.2	0.0	13.4		
21. EB HYDRAULIC APP	*	-112.3	377.6	-35.0	293.2	*	114.	138.	AG	1403.	18.2	0.0	13.4		
22. EB HYDRAULIC APP	*	-35.0	293.2	-22.9	276.9	*	20.	143.	AG	1403.	18.2	0.0	13.4		
23. EB HYDRAULIC APP	*	-22.9	276.9	-2.8	240.6	*	41.	151.	AG	1403.	18.2	0.0	13.4		
24. EB HYDRAULIC APP	*	-2.8	240.6	44.2	119.4	*	130.	159.	AG	1403.	18.2	0.0	13.4		
25. EB HYDRAULIC DEC	*	44.7	119.4	81.5	17.4	*	108.	160.	AG	1574.	18.2	0.0	13.4		
26. EB HYDRAULIC DEC	*	81.5	17.4	101.5	-25.5	*	47.	155.	AG	1574.	18.2	0.0	13.4		
27. EB HYDRAULIC DEC	*	101.5	-25.5	136.5	-76.3	*	62.	145.	AG	1574.	18.2	0.0	13.4		
28. EB HYDRAULIC DEC	*	136.5	-76.3	193.8	-147.1	*	91.	141.	AG	1574.	18.2	0.0	13.4		
29. NB LEFT QUE	*	34.9	101.7	-7.1	32.2	*	81.	211.	AG	506.	100.0	0.0	7.3	0.57	13.5
30. NB THRU RIGHT QUE	*	43.8	97.1	-19.3	-5.5	*	120.	212.	AG	571.	100.0	0.0	11.0	0.36	20.1
31. WB LEFT QUE	*	59.8	93.2	75.9	52.8	*	43.	158.	AG	206.	100.0	0.0	3.7	0.39	7.2
32. WB THRU QUE	*	63.5	95.6	100.5	2.8	*	100.	158.	AG	471.	100.0	0.0	7.3	0.55	16.6
33. WB RIGHT QUE	*	69.4	97.4	101.3	13.9	*	89.	159.	AG	471.	100.0	0.0	7.3	0.63	

14.9	34. SB LEFT QUE	*	57.5	149.9	106.9	213.8	*	81.	38.	AG	506.	100.0	0.0	7.3 0.57
13.5	35. SB THRU QUE	*	52.1	154.6	114.9	241.0	*	107.	36.	AG	571.	100.0	0.0	11.0 0.31
17.8	36. SB RIGHT QUE	*	41.5	167.8	87.3	167.8	*	46.	90.	AG	190.	100.0	0.0	3.7 0.43
7.6	37. SB RIGHT QUE	*	49.0	167.8	92.1	183.3	*	46.	70.	AG	190.	100.0	0.0	3.7 0.43
7.6	38. SB RIGHT QUE	*	55.4	170.1	82.9	206.7	*	46.	37.	AG	190.	100.0	0.0	3.7 0.43
7.6	39. EB LEFT QUE	*	35.5	154.1	19.4	195.9	*	45.	339.	AG	216.	100.0	0.0	3.7 0.42
7.5	40. EB THRU QUE	*	32.4	151.7	3.6	228.6	*	82.	339.	AG	482.	100.0	0.0	7.3 0.48
13.7	41. EB RIGHT QUE	*	29.6	149.4	-124.7	548.6	*	428.	339.	AG	241.	100.0	0.0	3.7 1.27
71.3														

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 10:43:08

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
29. NB LEFT QUE	180	145	2.0	673	3433	117.08	2	3
30. NB THRU RIGHT QUE	180	109	2.0	1990	5014	117.08	2	3
31. WB LEFT QUE	180	118	2.0	221	1770	117.08	2	3
32. WB THRU QUE	180	135	2.0	889	3539	117.08	2	3
33. WB RIGHT QUE	180	135	2.0	794	2787	117.08	2	3
34. SB LEFT QUE	180	145	2.0	668	3433	117.08	2	3
35. SB THRU QUE	180	109	2.0	1765	5085	117.08	2	3
36. SB RIGHT QUE	180	109	2.0	252	1583	117.08	2	3
37. SB RIGHT QUE	180	109	2.0	252	1583	117.08	2	3
38. SB RIGHT QUE	180	109	2.0	252	1583	117.08	2	3
39. EB LEFT QUE	180	124	2.0	217	1770	117.08	2	3
40. EB THRU QUE	180	138	2.0	714	3539	117.08	2	3
41. EB RIGHT QUE	180	138	2.0	472	1770	117.08	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. A-1	-33.0	-56.9	1.8
2. A-2	1.6	0.6	1.8
3. A-3	24.2	40.8	1.8
4. A-4	44.8	63.3	1.8
5. A-5	58.1	43.4	1.8
6. A-6	73.2	5.8	1.8
7. A-7	101.6	-52.2	1.8
8. A-8	144.8	-33.3	1.8
9. A-9	112.0	16.8	1.8
10. A-10	94.3	59.6	1.8
11. A-11	79.5	103.9	1.8
12. A-12	91.7	144.9	1.8
13. A-13	114.2	171.8	1.8
14. A-14	172.5	254.4	1.8
15. A-15	130.4	287.3	1.8
16. A-16	87.2	231.6	1.8

17. A-17	*	68.4	204.3	1.8	*
18. A-18	*	48.9	179.2	1.8	*
19. A-19	*	33.4	211.6	1.8	*
20. A-20	*	11.2	257.0	1.8	*
21. A-21	*	-23.4	311.6	1.8	*
22. A-22	*	-41.1	278.0	1.8	*
23. A-23	*	-19.7	246.3	1.8	*
24. A-24	*	0.2	196.5	1.8	*
25. A-25	*	16.0	150.4	1.8	*
26. A-26	*	-5.4	96.5	1.8	*
27. A-27	*	-30.4	58.2	1.8	*
28. A-28	*	-48.9	27.5	1.8	*

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2015 - HYDRAULIC ROAD & US 29

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	5.3	7.7	8.3	7.5	7.2	7.1	5.8	3.6	3.9	4.5	5.8	6.8	5.7	5.2	3.0	3.0	3.0	3.0	3.0	3.0
10.	6.3	8.1	8.4	7.3	7.2	7.1	5.5	3.4	3.8	4.4	5.5	6.6	5.7	5.4	3.0	3.0	3.0	3.0	3.0	3.0
20.	6.9	7.9	7.9	7.4	7.3	6.7	4.7	3.2	3.5	3.9	5.1	6.3	5.5	5.2	3.2	3.1	3.1	3.1	3.0	3.0
30.	6.1	6.7	7.1	6.6	6.7	6.1	4.2	3.0	3.1	3.5	4.5	5.4	4.8	4.6	3.7	3.7	3.8	3.9	3.1	3.0
40.	4.5	5.2	5.6	5.7	5.9	5.5	4.1	3.0	3.0	3.1	3.6	4.2	3.9	3.7	4.7	4.7	5.2	5.6	3.6	3.1
50.	3.8	4.1	4.5	5.3	5.6	5.4	4.1	3.0	3.0	3.0	3.0	3.3	3.2	3.2	5.4	5.4	6.2	6.7	4.0	3.4
60.	3.5	3.9	4.3	5.3	5.5	5.5	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.5	5.9	6.5	7.3	4.3	3.7
70.	3.3	3.9	4.4	5.3	5.4	5.1	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.3	5.8	6.8	7.5	4.4	3.8
80.	3.3	3.7	4.4	5.3	5.4	4.9	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.2	5.9	7.0	7.5	4.7	3.8
90.	3.3	3.6	4.4	5.4	5.5	4.8	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.1	6.0	7.1	7.4	4.9	3.9
100.	3.4	3.5	4.3	5.5	5.4	4.7	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	6.0	7.1	7.5	5.1	3.9
110.	3.2	3.5	4.0	5.3	5.5	4.6	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.9	5.9	7.0	7.5	5.0	4.0
120.	3.0	3.4	4.2	5.4	5.4	4.7	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.9	6.0	7.0	7.6	5.1	4.2
130.	3.0	3.3	3.9	5.1	5.4	5.0	4.1	3.1	3.0	3.0	3.0	3.0	3.0	3.0	4.9	6.2	7.1	7.5	5.2	4.3
140.	3.0	3.0	3.5	4.9	5.2	4.6	3.7	3.4	3.3	3.2	3.0	3.0	3.0	3.0	4.9	6.3	7.1	7.3	5.3	4.4
150.	3.0	3.0	3.2	4.1	4.4	3.9	3.3	3.8	3.8	3.8	3.8	3.0	3.0	3.0	4.9	6.6	7.4	7.9	5.7	5.4

160.	*	3.0	3.0	3.0	3.3	3.6	3.3	3.0	4.0	4.2	4.6	5.0	3.5	3.1	3.0	5.0	6.6	7.8	8.7	6.4
6.4																				
170.	*	3.0	3.0	3.0	3.0	3.1	3.0	3.0	4.2	4.3	5.7	5.9	4.1	3.3	3.0	5.2	7.3	8.5	8.8	7.2
7.1																				
180.	*	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.2	4.3	6.4	6.5	4.4	3.7	3.0	5.7	8.3	8.9	8.4	7.1
6.8																				
190.	*	3.0	3.0	3.1	3.0	3.0	3.0	3.0	4.2	4.2	6.6	6.7	4.6	3.8	3.2	6.7	8.7	8.8	8.0	7.4
6.4																				
200.	*	3.2	3.3	3.5	3.3	3.0	3.0	3.0	4.1	4.3	6.6	6.6	5.0	4.5	3.5	7.4	8.3	8.2	7.8	6.9
5.8																				
210.	*	3.7	3.9	4.7	4.3	3.2	3.0	3.0	4.1	4.7	6.6	7.1	6.0	5.4	4.8	7.3	7.1	7.1	6.9	6.1
4.8																				
220.	*	4.4	4.8	6.0	5.5	3.8	3.2	3.0	4.1	4.7	6.5	7.8	6.9	6.0	6.2	5.4	5.4	5.5	6.2	5.3
4.5																				
230.	*	4.9	5.3	6.7	6.2	4.3	3.4	3.1	4.1	5.2	6.9	8.1	6.6	6.2	6.7	3.9	4.3	4.3	5.3	5.2
4.5																				
240.	*	4.9	5.4	6.8	6.4	4.6	3.7	3.3	4.3	5.6	7.4	7.7	6.2	6.3	6.7	3.5	4.0	4.2	5.1	5.1
4.6																				
250.	*	4.9	5.5	6.8	6.6	4.7	3.9	3.4	4.4	6.2	7.4	7.0	6.1	6.5	6.2	3.4	3.8	4.2	5.1	5.1
4.6																				
260.	*	4.8	5.7	6.7	6.3	4.8	3.9	3.4	4.5	6.4	7.8	6.4	5.9	7.1	5.9	3.3	3.8	4.2	5.1	5.1
4.6																				
270.	*	4.5	5.8	6.8	6.1	4.9	4.0	3.6	4.6	6.8	7.8	5.7	6.2	7.5	5.3	3.4	3.7	4.1	5.1	5.1
4.6																				
280.	*	4.5	5.8	6.7	6.0	4.9	4.1	3.5	4.6	7.0	7.9	5.8	6.7	7.3	5.3	3.4	3.6	4.1	5.2	5.2
4.7																				
290.	*	4.6	5.8	6.8	6.1	4.9	4.3	3.5	5.0	7.5	8.2	5.7	7.1	7.0	5.2	3.3	3.7	4.1	5.3	5.3
4.9																				
300.	*	4.6	5.9	6.8	6.0	4.9	4.3	3.7	5.2	7.6	8.0	5.9	7.9	6.9	5.1	3.2	3.6	4.2	5.4	5.3
5.2																				
310.	*	4.6	5.8	6.8	6.0	4.9	4.4	3.9	5.3	8.0	7.9	6.2	8.0	6.8	5.0	3.1	3.4	3.9	5.7	5.3
5.4																				
320.	*	4.5	5.7	6.7	6.0	4.9	4.4	4.1	5.9	8.0	7.5	7.1	7.7	6.5	4.8	3.0	3.2	3.7	5.3	5.2
5.0																				
330.	*	4.6	6.0	6.8	6.3	5.3	4.8	4.9	5.5	7.1	7.1	7.0	7.4	6.0	5.0	3.0	3.1	3.2	4.7	4.3
4.1																				
340.	*	4.7	6.4	7.5	7.1	6.1	5.9	6.0	4.6	5.8	5.7	6.5	6.8	6.1	5.0	3.0	3.0	3.1	3.8	3.7
3.5																				
350.	*	5.0	7.2	8.1	7.6	6.8	6.6	6.7	3.7	4.6	4.7	5.9	6.8	5.8	5.1	3.0	3.0	3.0	3.1	3.1
3.1																				
MAX	*	6.9	8.1	8.4	7.6	7.3	7.1	6.7	5.9	8.0	8.2	8.1	8.0	7.5	6.7	7.4	8.7	8.9	8.8	7.4
7.1																				
DEGR.	*	20	10	10	350	20	10	350	320	320	290	230	310	270	230	200	190	180	170	190
170																				

PAGE 4

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2015 - HYDRAULIC ROAD & US 29

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28

0.	*	3.0	4.6	5.2	5.4	5.9	3.8	3.4	3.3
10.	*	3.0	4.6	4.9	5.6	6.0	4.1	3.5	3.4
20.	*	3.0	4.5	4.9	5.7	5.9	4.5	4.1	3.9
30.	*	3.0	4.5	4.8	5.6	6.3	5.5	5.3	5.1
40.	*	3.0	4.5	4.6	5.7	7.5	7.1	6.3	6.4
50.	*	3.0	4.6	4.8	6.3	8.5	7.4	6.6	6.7
60.	*	3.2	4.7	5.1	6.4	9.0	6.5	6.8	6.8
70.	*	3.4	4.8	5.3	6.7	8.6	6.2	6.5	6.8
80.	*	3.4	5.0	5.3	7.2	7.7	6.3	6.9	6.6
90.	*	3.6	4.9	5.5	7.2	6.8	6.6	6.8	6.3
100.	*	3.4	5.1	5.6	7.6	6.2	6.9	6.6	5.9
110.	*	3.5	5.4	6.0	7.8	5.7	7.2	6.3	5.6
120.	*	3.7	5.5	6.5	7.6	5.8	7.2	6.3	5.6
130.	*	3.8	5.7	6.9	7.8	6.0	7.1	6.1	5.2
140.	*	4.3	6.0	7.0	7.2	6.4	6.7	5.4	4.9
150.	*	5.7	5.7	6.6	6.6	6.8	5.9	5.4	4.8
160.	*	7.0	4.7	5.6	5.7	6.0	6.0	5.2	4.8
170.	*	6.7	3.8	4.2	4.6	5.5	6.1	5.2	4.9
180.	*	6.0	3.6	3.9	4.3	5.4	6.1	5.2	5.2
190.	*	5.5	3.4	3.6	4.2	5.3	5.8	5.2	5.2
200.	*	5.1	3.1	3.3	3.6	4.9	5.4	5.1	5.0
210.	*	4.8	3.0	3.0	3.3	4.0	4.5	4.4	4.3
220.	*	4.7	3.0	3.0	3.0	3.3	3.6	3.5	3.5
230.	*	4.7	3.0	3.0	3.0	3.0	3.1	3.1	3.1
240.	*	4.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
250.	*	4.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	*	4.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	*	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	*	4.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	*	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	*	5.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0
310.	*	4.8	3.3	3.1	3.0	3.0	3.0	3.0	3.0
320.	*	4.3	3.6	3.5	3.3	3.0	3.0	3.0	3.0
330.	*	3.8	4.1	4.1	3.9	3.7	3.0	3.0	3.0
340.	*	3.4	4.4	4.7	4.7	4.6	3.3	3.0	3.0
350.	*	3.2	4.6	5.1	5.1	5.5	3.7	3.3	3.2
MAX	*	7.0	6.0	7.0	7.8	9.0	7.4	6.9	6.8
DEGR.	*	160	140	140	110	60	50	80	60

THE HIGHEST CONCENTRATION OF 9.00 PPM OCCURRED AT RECEPTOR REC25.

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 10:43:08

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	20	10	10	350	20	10	350	320	320	290	230	310	270	230	200	190	180	170	190	170
1	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	0.0	0.0	0.1	0.0
2	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	

3	*	0.2	0.4	1.5	1.0	0.0	0.0	0.1	0.2	0.2	0.4	0.5	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1
4	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5	0.0	0.2
5	*	0.1	0.1	0.1	0.0	0.5	0.3	0.1	0.0	0.0	0.0	0.0	1.3	1.3	1.4	0.6	0.4	0.4	0.1	0.0	0.1
6	*	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.2	0.2	0.4	0.2	0.4	0.3	0.2	0.0	0.1	0.0	0.0	0.7	0.6	0.5	1.7	1.4	1.4	1.2	0.1	0.1
9	*	0.1	0.1	0.2	0.4	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.2	0.1
10	*	0.3	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.5	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.4	0.1
11	*	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	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	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	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
16	*	0.1	0.0	0.1	0.1	0.6	0.5	0.2	0.2	0.6	0.9	0.7	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.0	0.1
17	*	0.1	0.1	0.2	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.3	0.1	0.1	0.1	0.1	0.4	1.0	0.6
18	*	0.0	0.0	0.0	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	0.0	0.6
19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	*	0.1	0.1	0.2	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.5	0.5
25	*	0.1	0.1	0.1	0.2	0.8	0.8	0.2	0.2	0.4	0.5	0.4	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.1	0.1
26	*	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
27	*	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0
29	*	0.3	0.7	0.5	0.3	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.1
30	*	0.7	1.4	1.4	0.8	0.0	0.0	0.1	0.1	0.2	0.4	0.8	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.3	0.2
31	*	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
32	*	0.0	0.0	0.0	0.0	0.6	0.7	0.5	0.5	0.9	0.9	0.6	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.0	0.1
33	*	0.0	0.0	0.0	0.0	0.5	0.6	0.4	0.4	1.3	1.2	0.6	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.0	0.1
34	*	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.6	0.3	0.3	0.6	0.6	0.3	0.0	0.1

0.0																				
35	*	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.6	0.6	0.4	0.7	1.3	1.2	0.7	0.0
0.1																				
36	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.3	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	0.1	0.2	0.0	0.0	0.1	0.2	0.2	0.0
0.0																				
38	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.4	0.0	0.0
0.0																				
39	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3
0.1																				
40	*	0.1	0.1	0.1	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.6
0.6																				
41	*	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2
0.2																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 10:43:08

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

		CO/LINK (PPM) ANGLE (DEGREES)							
		REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	160	140	140	110	60	50	80	60
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3	*	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.4
4	*	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.1
5	*	0.1	0.1	0.1	0.3	0.6	0.5	0.0	0.1
6	*	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
7	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
8	*	0.1	0.2	0.2	0.4	1.0	0.7	0.0	0.1
9	*	0.1	0.0	0.1	0.0	0.0	0.7	0.0	0.0
10	*	0.1	0.0	0.0	0.0	0.0	0.7	1.3	1.5
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2
17	*	0.2	0.3	0.5	0.6	0.5	0.2	0.0	0.0
18	*	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
19	*	0.6	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
21	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0
24	*	0.3	0.3	0.7	0.7	0.6	0.2	0.0	0.0
25	*	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.1
26	*	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
28	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	*	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.5
30	*	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.5
31	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
32	*	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1
33	*	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1
34	*	0.1	0.1	0.1	0.3	0.5	0.3	0.0	0.0

35	*	0.1	0.2	0.2	0.4	0.9	0.4	0.0	0.0
36	*	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0
37	*	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0
38	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
39	*	0.0	0.1	0.1	0.3	0.2	0.0	0.0	0.0
40	*	0.3	0.3	0.8	1.0	0.8	0.0	0.0	0.0
41	*	0.4	0.4	0.5	0.5	0.4	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 7/11/2012 at 11:05:21

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:05:21

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 29 APPROACH	*	-144.7	-206.4	-63.8	-76.6	*	153.	32.	AG	1717.	19.2	0.0	17.1		
2. NB 29 APPROACH	*	-63.8	-76.6	11.8	43.7	*	142.	32.	AG	1717.	19.2	0.0	17.1		
3. NB 29 APPROACH	*	11.8	43.7	52.6	111.6	*	79.	31.	AG	1717.	19.2	0.0	17.1		
4. NB 29 DEC	*	52.6	111.6	71.3	140.8	*	35.	33.	AG	2102.	19.2	0.0	17.1		
5. NB 29 DEC	*	71.3	140.8	171.6	282.4	*	174.	35.	AG	2102.	19.2	0.0	17.1		
6. NB 29 DEC	*	171.6	282.4	292.5	455.1	*	211.	35.	AG	2102.	19.2	0.0	17.1		
7. SB 29 APPROACH	*	277.0	464.1	191.0	346.4	*	146.	216.	AG	1999.	19.2	0.0	17.1		
8. SB 29 APPROACH	*	191.0	346.4	41.6	139.5	*	255.	216.	AG	1999.	19.2	0.0	17.1		
9. SB 29 DEC	*	42.2	139.5	18.9	110.4	*	37.	219.	AG	1594.	19.2	0.0	17.1		
10. SB 29 DEC	*	18.9	110.4	-98.8	-81.1	*	225.	212.	AG	1594.	19.2	0.0	17.1		
11. SB 29 DEC	*	-98.8	-81.1	-163.4	-191.0	*	127.	210.	AG	1594.	19.2	0.0	17.1		
12. WB HYDRAULIC APP	*	205.9	-136.8	150.0	-69.7	*	87.	320.	AG	1835.	18.2	0.0	13.4		
13. WB HYDRAULIC APP	*	150.0	-69.7	114.6	-20.8	*	60.	324.	AG	1835.	18.2	0.0	13.4		
14. WB HYDRAULIC APP	*	114.6	-20.8	104.8	-4.5	*	19.	329.	AG	1835.	18.2	0.0	13.4		
15. WB HYDRAULIC APP	*	104.8	-4.5	85.7	40.7	*	49.	337.	AG	1835.	18.2	0.0	13.4		
16. WB HYDRAULIC APP	*	85.7	40.7	53.1	128.8	*	94.	340.	AG	1835.	18.2	0.0	13.4		
17. WB HYDRAULIC DEC	*	53.6	127.8	15.3	222.9	*	103.	338.	AG	1118.	18.2	0.0	13.4		
18. WB HYDRAULIC DEC	*	15.3	222.9	-13.1	277.9	*	62.	333.	AG	1118.	18.2	0.0	13.4		
19. WB HYDRAULIC DEC	*	-13.1	277.9	-37.3	310.0	*	40.	323.	AG	1118.	18.2	0.0	13.4		
20. WB HYDRAULIC DEC	*	-37.3	310.0	-103.9	385.0	*	100.	318.	AG	1118.	18.2	0.0	13.4		
21. EB HYDRAULIC APP	*	-112.3	377.6	-35.0	293.2	*	114.	138.	AG	1097.	18.2	0.0	13.4		
22. EB HYDRAULIC APP	*	-35.0	293.2	-22.9	276.9	*	20.	143.	AG	1097.	18.2	0.0	13.4		
23. EB HYDRAULIC APP	*	-22.9	276.9	-2.8	240.6	*	41.	151.	AG	1097.	18.2	0.0	13.4		
24. EB HYDRAULIC APP	*	-2.8	240.6	44.2	119.4	*	130.	159.	AG	1097.	18.2	0.0	13.4		
25. EB HYDRAULIC DEC	*	44.7	119.4	81.5	17.4	*	108.	160.	AG	1575.	18.2	0.0	13.4		
26. EB HYDRAULIC DEC	*	81.5	17.4	101.5	-25.5	*	47.	155.	AG	1575.	18.2	0.0	13.4		
27. EB HYDRAULIC DEC	*	101.5	-25.5	136.5	-76.3	*	62.	145.	AG	1575.	18.2	0.0	13.4		
28. EB HYDRAULIC DEC	*	136.5	-76.3	193.8	-147.1	*	91.	141.	AG	1575.	18.2	0.0	13.4		
29. NB LEFT QUE	*	34.9	101.7	9.2	59.2	*	50.	211.	AG	520.	100.0	0.0	7.3	0.39	8.3
30. NB THRU RIGHT QUE	*	43.8	97.1	-2.6	21.7	*	89.	212.	AG	633.	100.0	0.0	11.0	0.29	14.8
31. WB LEFT QUE	*	59.8	93.2	74.0	57.7	*	38.	158.	AG	197.	100.0	0.0	3.7	0.33	6.4
32. WB THRU QUE	*	63.5	95.6	96.1	13.7	*	88.	158.	AG	457.	100.0	0.0	7.3	0.46	14.7
33. WB RIGHT QUE	*	69.4	97.4	101.5	13.4	*	90.	159.	AG	457.	100.0	0.0	7.3	0.59	

15.0	34. SB LEFT QUE	*	57.5	149.9	106.3	213.1	*	80.	38.	AG	471.	100.0	0.0	7.3 0.45
13.3	35. SB THRU QUE	*	52.1	154.6	91.2	208.4	*	67.	36.	AG	560.	100.0	0.0	11.0 0.19
11.1	36. SB RIGHT QUE	*	41.5	167.8	71.6	167.8	*	30.	90.	AG	187.	100.0	0.0	3.7 0.28
5.0	37. SB RIGHT QUE	*	49.0	167.8	77.4	178.0	*	30.	70.	AG	187.	100.0	0.0	3.7 0.28
5.0	38. SB RIGHT QUE	*	55.4	170.1	73.5	194.2	*	30.	37.	AG	187.	100.0	0.0	3.7 0.28
5.0	39. EB LEFT QUE	*	35.5	154.1	24.9	181.5	*	29.	339.	AG	218.	100.0	0.0	3.7 0.28
4.9	40. EB THRU QUE	*	32.4	151.7	5.0	224.8	*	78.	339.	AG	478.	100.0	0.0	7.3 0.45
13.0	41. EB RIGHT QUE	*	29.6	149.4	7.3	207.1	*	62.	339.	AG	239.	100.0	0.0	3.7 0.79
10.3														

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:05:21

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
29. NB LEFT QUE	180	149	2.0	400	3433	117.08	2	3
30. NB THRU RIGHT QUE	180	121	2.0	1317	4979	117.08	2	3
31. WB LEFT QUE	180	113	2.0	203	1770	117.08	2	3
32. WB THRU QUE	180	131	2.0	808	3539	117.08	2	3
33. WB RIGHT QUE	180	131	2.0	824	2787	117.08	2	3
34. SB LEFT QUE	180	135	2.0	710	3433	117.08	2	3
35. SB THRU QUE	180	107	2.0	1120	5085	117.08	2	3
36. SB RIGHT QUE	180	107	2.0	169	1583	117.08	2	3
37. SB RIGHT QUE	180	107	2.0	169	1583	117.08	2	3
38. SB RIGHT QUE	180	107	2.0	169	1583	117.08	2	3
39. EB LEFT QUE	180	125	2.0	141	1770	117.08	2	3
40. EB THRU QUE	180	137	2.0	685	3539	117.08	2	3
41. EB RIGHT QUE	180	137	2.0	271	1583	117.08	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. A-1	-33.0	-56.9	1.8
2. A-2	1.6	0.6	1.8
3. A-3	24.2	40.8	1.8
4. A-4	44.8	63.3	1.8
5. A-5	58.1	43.4	1.8
6. A-6	73.2	5.8	1.8
7. A-7	101.6	-52.2	1.8
8. A-8	144.8	-33.3	1.8
9. A-9	112.0	16.8	1.8
10. A-10	94.3	59.6	1.8
11. A-11	79.5	103.9	1.8
12. A-12	91.7	144.9	1.8
13. A-13	114.2	171.8	1.8
14. A-14	172.5	254.4	1.8
15. A-15	130.4	287.3	1.8
16. A-16	87.2	231.6	1.8

17. A-17	*	68.4	204.3	1.8	*
18. A-18	*	48.9	179.2	1.8	*
19. A-19	*	33.4	211.6	1.8	*
20. A-20	*	11.2	257.0	1.8	*
21. A-21	*	-23.4	311.6	1.8	*
22. A-22	*	-41.1	278.0	1.8	*
23. A-23	*	-19.7	246.3	1.8	*
24. A-24	*	0.2	196.5	1.8	*
25. A-25	*	16.0	150.4	1.8	*
26. A-26	*	-5.4	96.5	1.8	*
27. A-27	*	-30.4	58.2	1.8	*
28. A-28	*	-48.9	27.5	1.8	*

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2015 - HYDRAULIC ROAD & US 29

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	4.4	6.2	7.7	6.9	6.4	6.7	5.7	3.3	3.6	4.0	5.1	5.7	4.7	4.7	3.0	3.0	3.0	3.0	3.0	3.0
10.	5.1	6.8	7.7	6.5	6.8	6.7	5.0	3.4	3.6	3.9	4.9	5.5	4.8	4.7	3.0	3.0	3.0	3.0	3.0	3.0
20.	5.7	7.2	7.4	6.6	6.8	6.3	4.6	3.1	3.4	3.7	4.6	5.3	4.7	4.7	3.2	3.1	3.1	3.1	3.0	3.0
30.	5.6	6.1	6.5	6.1	6.2	6.0	4.0	3.0	3.1	3.4	4.0	4.7	4.3	4.2	3.6	3.5	3.6	3.7	3.0	3.0
40.	4.2	4.9	5.1	5.5	5.7	5.5	4.1	3.0	3.0	3.0	3.4	3.9	3.7	3.5	4.3	4.2	4.4	4.7	3.3	3.0
50.	3.5	3.9	4.5	5.3	5.4	5.3	4.1	3.0	3.0	3.0	3.0	3.3	3.2	3.1	4.8	4.7	4.9	5.7	3.7	3.2
60.	3.5	3.8	4.3	5.3	5.4	5.2	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.8	4.8	5.1	6.2	3.9	3.4
70.	3.2	3.9	4.3	5.2	5.3	4.8	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.7	4.6	5.3	6.6	3.9	3.5
80.	3.3	3.6	4.2	5.3	5.4	4.6	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.7	4.5	5.7	6.8	4.0	3.5
90.	3.3	3.6	4.3	5.3	5.3	4.5	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.6	4.4	5.9	6.6	4.1	3.6
100.	3.4	3.5	4.3	5.3	5.3	4.4	4.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	6.0	6.8	4.4	3.5
110.	3.2	3.5	3.9	5.3	5.4	4.4	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.3	6.1	6.7	4.6	3.7
120.	3.0	3.4	4.1	5.1	5.3	4.7	4.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.4	6.1	6.8	4.7	3.9
130.	3.0	3.3	3.8	5.0	5.2	4.9	4.0	3.1	3.0	3.0	3.0	3.0	3.0	3.0	4.4	4.5	6.1	6.9	4.8	4.0
140.	3.0	3.0	3.5	4.8	5.1	4.6	3.7	3.3	3.3	3.2	3.0	3.0	3.0	3.0	4.4	4.7	6.2	6.8	4.9	4.1
150.	3.0	3.0	3.2	4.1	4.3	3.9	3.3	3.8	3.7	3.6	3.8	3.0	3.0	3.0	4.4	5.0	6.2	7.1	5.2	4.8

160.	*	3.0	3.0	3.0	3.3	3.6	3.3	3.0	4.0	4.2	4.5	4.9	3.4	3.1	3.0	4.6	5.3	6.9	7.8	6.1
5.5																				
170.	*	3.0	3.0	3.0	3.0	3.1	3.0	3.0	4.2	4.3	5.4	5.8	4.0	3.3	3.0	4.7	6.0	7.6	8.0	6.3
6.4																				
180.	*	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.2	4.3	6.2	6.4	4.3	3.7	3.0	5.0	7.0	8.2	7.3	6.4
6.0																				
190.	*	3.0	3.0	3.1	3.0	3.0	3.0	3.0	4.2	4.2	6.3	6.7	4.6	3.8	3.1	5.6	7.3	8.1	7.1	6.1
5.2																				
200.	*	3.1	3.2	3.3	3.2	3.0	3.0	3.0	4.1	4.2	6.4	6.5	4.7	4.2	3.5	6.2	7.4	7.1	6.6	6.0
4.7																				
210.	*	3.6	3.7	4.2	3.8	3.2	3.0	3.0	4.1	4.3	6.4	6.8	5.6	4.8	4.2	6.0	6.2	6.3	6.0	5.2
4.0																				
220.	*	4.0	4.3	5.0	4.6	3.6	3.1	3.0	4.1	4.3	6.4	7.3	6.2	5.5	5.2	4.4	4.8	4.8	5.1	4.8
3.9																				
230.	*	4.3	4.6	5.5	5.3	3.9	3.4	3.1	4.1	4.4	6.6	7.7	5.8	5.8	5.9	3.8	3.9	4.0	5.0	4.6
3.9																				
240.	*	4.4	4.5	5.8	5.5	4.1	3.5	3.2	4.3	4.8	6.9	7.2	5.7	5.5	5.4	3.3	3.7	4.0	4.7	4.7
3.8																				
250.	*	4.4	4.4	5.9	5.7	4.1	3.7	3.2	4.3	5.3	6.8	6.6	5.2	5.7	5.2	3.3	3.6	3.9	4.8	4.7
3.9																				
260.	*	4.3	4.3	5.9	5.7	4.3	3.5	3.4	4.5	5.7	7.3	6.0	5.1	6.5	4.7	3.1	3.5	3.9	4.8	4.6
3.9																				
270.	*	4.1	4.2	5.9	5.7	4.4	3.6	3.2	4.3	6.1	7.5	5.3	5.5	6.5	4.6	3.0	3.3	3.9	4.8	4.5
3.9																				
280.	*	4.2	4.2	5.8	5.7	4.5	3.7	3.3	4.5	6.6	7.6	5.2	6.0	6.4	4.4	3.2	3.3	3.8	4.7	4.5
4.0																				
290.	*	4.1	4.2	5.7	5.8	4.6	3.7	3.3	4.5	7.1	7.9	5.0	6.2	6.2	4.6	3.2	3.3	3.6	4.7	4.4
4.2																				
300.	*	4.2	4.2	5.7	5.7	4.7	4.0	3.4	5.0	7.4	7.8	5.3	6.8	6.0	4.4	3.0	3.4	3.7	4.6	4.4
4.3																				
310.	*	4.2	4.2	5.8	5.8	4.7	4.2	3.5	5.0	7.5	7.5	5.4	6.8	5.7	4.4	3.0	3.2	3.6	4.7	4.4
4.2																				
320.	*	4.2	4.3	6.0	5.9	4.8	4.1	3.9	5.4	7.6	7.2	5.6	6.5	5.3	4.4	3.0	3.0	3.4	4.4	4.1
4.1																				
330.	*	4.2	4.4	6.3	5.9	4.8	4.5	4.5	5.3	6.7	6.4	6.0	6.0	5.2	4.4	3.0	3.0	3.0	4.0	3.8
3.5																				
340.	*	4.2	4.7	6.7	6.2	5.6	5.3	5.7	4.2	5.1	5.0	5.6	6.0	4.9	4.5	3.0	3.0	3.0	3.2	3.2
3.1																				
350.	*	4.3	5.4	7.4	6.7	6.0	6.1	6.4	3.7	4.2	4.5	5.4	5.8	4.8	4.6	3.0	3.0	3.0	3.0	3.0
3.0																				
MAX	*	5.7	7.2	7.7	6.9	6.8	6.7	6.4	5.4	7.6	7.9	7.7	6.8	6.5	5.9	6.2	7.4	8.2	8.0	6.4
6.4																				
DEGR.	*	20	20	0	0	10	0	350	320	320	290	230	300	270	230	200	200	180	170	180
170																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2015 - HYDRAULIC ROAD & US 29

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 * CONCENTRATION
ANGLE * (PPM)
(DEGR)* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28

0.	*	3.0	3.8	3.9	4.1	5.1	3.5	3.0	3.0
10.	*	3.0	3.8	4.0	4.5	5.4	3.8	3.2	3.2
20.	*	3.0	3.8	3.9	4.7	5.3	4.2	3.7	3.5
30.	*	3.0	3.8	3.9	4.9	5.7	5.1	4.7	4.5
40.	*	3.0	3.8	3.9	5.4	6.6	5.7	5.4	5.7
50.	*	3.0	3.7	4.1	5.5	7.5	5.9	5.7	6.0
60.	*	3.2	3.9	4.3	5.8	7.8	5.5	6.0	6.0
70.	*	3.2	4.1	4.5	6.0	7.6	5.3	6.1	6.0
80.	*	3.4	4.3	4.3	6.2	6.8	5.6	6.2	5.6
90.	*	3.3	4.3	4.3	6.4	5.9	6.0	6.0	5.4
100.	*	3.4	4.2	4.5	6.6	5.3	6.3	5.7	4.9
110.	*	3.4	4.4	4.8	7.1	5.1	6.5	5.2	4.5
120.	*	3.4	4.6	5.0	6.9	5.1	6.7	5.2	4.5
130.	*	3.6	4.9	5.4	6.8	5.4	6.7	5.1	4.2
140.	*	4.0	5.2	6.0	6.7	5.9	6.2	4.5	4.1
150.	*	4.8	4.9	5.7	6.0	6.4	5.3	4.4	4.2
160.	*	5.6	4.5	5.0	4.9	5.6	5.2	4.3	4.2
170.	*	5.2	3.5	4.1	4.3	5.1	5.0	4.3	4.3
180.	*	4.5	3.3	3.5	3.9	4.8	4.8	4.4	4.4
190.	*	4.3	3.2	3.4	3.7	4.5	4.8	4.4	4.5
200.	*	3.9	3.0	3.3	3.5	4.2	4.6	4.4	4.4
210.	*	3.9	3.0	3.0	3.1	3.7	4.0	3.9	3.8
220.	*	3.8	3.0	3.0	3.0	3.1	3.4	3.3	3.3
230.	*	3.8	3.0	3.0	3.0	3.0	3.1	3.1	3.0
240.	*	3.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
250.	*	3.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	*	3.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	*	3.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	*	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	*	4.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	*	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
310.	*	3.8	3.1	3.1	3.0	3.0	3.0	3.0	3.0
320.	*	3.4	3.4	3.3	3.1	3.0	3.0	3.0	3.0
330.	*	3.1	3.8	3.8	3.3	3.4	3.0	3.0	3.0
340.	*	3.0	3.8	4.0	3.7	4.0	3.1	3.0	3.0
350.	*	3.0	3.9	3.9	4.1	4.6	3.2	3.0	3.0
MAX	*	5.6	5.2	6.0	7.1	7.8	6.7	6.2	6.0
DEGR.	*	160	140	140	110	60	120	80	70

THE HIGHEST CONCENTRATION OF 8.20 PPM OCCURRED AT RECEPTOR REC17.

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:05:21

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

LINK #	CO/LINK (PPM) / ANGLE (DEGREES)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	ANGLE	20	20	0	0	10	0	350	320	320	290	230	300	270	230	200	200	180	170	180	170
1	CO	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	0.1	0.0	0.0	0.0	0.0
2	CO	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	

0.0	3	*	0.2	0.5	1.1	0.7	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
0.1	4	*	0.0	0.1	0.0	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.1
0.1	5	*	0.1	0.2	0.0	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	1.0	0.9	1.1	0.4	0.2	0.3	0.0	0.0
0.0	6	*	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	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	0.0	0.0	0.0	0.0	0.0
0.0	8	*	0.2	0.3	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.5	0.5	0.4	1.3	0.9	1.0	0.9	0.2
0.1	9	*	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2
0.1	10	*	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.1
0.1	11	*	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	0.0	0.0	0.0
0.0	12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	14	*	0.0	0.0	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	0.0	0.0	0.0
0.0	15	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
0.0	16	*	0.1	0.1	0.0	0.2	0.6	0.5	0.2	0.2	0.5	0.8	0.7	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.1
0.1	17	*	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.3	0.6
0.4	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	0.0
0.4	19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	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	0.0
0.0	22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	24	*	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.3
0.4	25	*	0.1	0.1	0.0	0.4	0.8	0.9	0.2	0.2	0.4	0.5	0.4	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.1
0.1	26	*	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	27	*	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	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	0.0
0.0	29	*	0.1	0.3	0.7	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1
0.1	30	*	0.4	1.3	1.7	0.7	0.0	0.0	0.1	0.2	0.2	0.5	0.8	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.3
0.2	31	*	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	32	*	0.0	0.0	0.0	0.0	0.5	0.6	0.4	0.4	0.9	0.9	0.6	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.1
0.1	33	*	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.4	1.2	1.2	0.6	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.1
0.1	34	*	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.5	0.3	0.3	0.4	0.6	0.2	0.0

0.0																				
35 *	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.6	0.6	0.3	0.2	1.0	1.2	0.7	0.1	
0.1																				
36 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.3	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	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.0	
0.0																				
38 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.0	0.0	
0.0																				
39 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	
0.1																				
40 *	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.4	
0.6																				
41 *	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	
0.2																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2015 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:05:21

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC21 160	REC22 140	REC23 140	REC24 110	REC25 60	REC26 120	REC27 80	REC28 70
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
3	0.1	0.0	0.0	0.0	0.0	0.4	0.4	0.3
4	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
5	0.0	0.1	0.1	0.3	0.4	0.0	0.0	0.0
6	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
8	0.1	0.2	0.2	0.3	0.8	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.9
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
16	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.2
17	0.1	0.2	0.3	0.4	0.3	0.0	0.0	0.0
18	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0
19	0.4	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
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
24	0.2	0.3	0.6	0.5	0.4	0.0	0.0	0.0
25	0.1	0.0	0.1	0.0	0.0	0.3	0.2	0.2
26	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
28	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	0.6	0.4	0.1
30	0.1	0.0	0.0	0.0	0.0	0.7	0.7	0.7
31	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
32	0.1	0.1	0.1	0.0	0.0	0.3	0.2	0.2
33	0.1	0.1	0.1	0.0	0.0	0.3	0.2	0.2
34	0.1	0.1	0.1	0.3	0.4	0.0	0.0	0.0

35	*	0.1	0.1	0.2	0.4	0.7	0.0	0.0	0.0
36	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
37	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
38	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
39	*	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0
40	*	0.3	0.3	0.7	1.0	0.8	0.0	0.0	0.0
41	*	0.1	0.1	0.1	0.5	0.4	0.0	0.0	0.0

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

Run Began on 7/11/2012 at 11:19:56

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:19:56

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 29 APPROACH	*	-144.7	-206.4	-63.8	-76.6	*	153.	32.	AG	3897.	15.1	0.0	17.1		
2. NB 29 APPROACH	*	-63.8	-76.6	11.8	43.7	*	142.	32.	AG	3897.	15.1	0.0	17.1		
3. NB 29 APPROACH	*	11.8	43.7	52.6	111.6	*	79.	31.	AG	3897.	15.1	0.0	17.1		
4. NB 29 DEC	*	52.6	111.6	71.3	140.8	*	35.	33.	AG	3791.	15.1	0.0	17.1		
5. NB 29 DEC	*	71.3	140.8	171.6	282.4	*	174.	35.	AG	3791.	15.1	0.0	17.1		
6. NB 29 DEC	*	171.6	282.4	292.5	455.1	*	211.	35.	AG	3791.	15.1	0.0	17.1		
7. SB 29 APPROACH	*	277.0	464.1	191.0	346.4	*	146.	216.	AG	3661.	15.1	0.0	17.1		
8. SB 29 APPROACH	*	191.0	346.4	41.6	139.5	*	255.	216.	AG	3661.	15.1	0.0	17.1		
9. SB 29 DEC	*	42.2	139.5	18.9	110.4	*	37.	219.	AG	3563.	15.1	0.0	17.1		
10. SB 29 DEC	*	18.9	110.4	-98.8	-81.1	*	225.	212.	AG	3563.	15.1	0.0	17.1		
11. SB 29 DEC	*	-98.8	-81.1	-163.4	-191.0	*	127.	210.	AG	3563.	15.1	0.0	17.1		
12. WB HYDRAULIC APP	*	205.9	-136.8	150.0	-69.7	*	87.	320.	AG	2164.	14.3	0.0	13.4		
13. WB HYDRAULIC APP	*	150.0	-69.7	114.6	-20.8	*	60.	324.	AG	2164.	14.3	0.0	13.4		
14. WB HYDRAULIC APP	*	114.6	-20.8	104.8	-4.5	*	19.	329.	AG	2164.	14.3	0.0	13.4		
15. WB HYDRAULIC APP	*	104.8	-4.5	85.7	40.7	*	49.	337.	AG	2164.	14.3	0.0	13.4		
16. WB HYDRAULIC APP	*	85.7	40.7	53.1	128.8	*	94.	340.	AG	2164.	14.3	0.0	13.4		
17. WB HYDRAULIC DEC	*	53.6	127.8	15.3	222.9	*	103.	338.	AG	2778.	14.3	0.0	13.4		
18. WB HYDRAULIC DEC	*	15.3	222.9	-13.1	277.9	*	62.	333.	AG	2778.	14.3	0.0	13.4		
19. WB HYDRAULIC DEC	*	-13.1	277.9	-37.3	310.0	*	40.	323.	AG	2778.	14.3	0.0	13.4		
20. WB HYDRAULIC DEC	*	-37.3	310.0	-103.9	385.0	*	100.	318.	AG	2778.	14.3	0.0	13.4		
21. EB HYDRAULIC APP	*	-112.3	377.6	-35.0	293.2	*	114.	138.	AG	2241.	14.3	0.0	13.4		
22. EB HYDRAULIC APP	*	-35.0	293.2	-22.9	276.9	*	20.	143.	AG	2241.	14.3	0.0	13.4		
23. EB HYDRAULIC APP	*	-22.9	276.9	-2.8	240.6	*	41.	151.	AG	2241.	14.3	0.0	13.4		
24. EB HYDRAULIC APP	*	-2.8	240.6	44.2	119.4	*	130.	159.	AG	2241.	14.3	0.0	13.4		
25. EB HYDRAULIC DEC	*	44.7	119.4	81.5	17.4	*	108.	160.	AG	1831.	14.3	0.0	13.4		
26. EB HYDRAULIC DEC	*	81.5	17.4	101.5	-25.5	*	47.	155.	AG	1831.	14.3	0.0	13.4		
27. EB HYDRAULIC DEC	*	101.5	-25.5	136.5	-76.3	*	62.	145.	AG	1831.	14.3	0.0	13.4		
28. EB HYDRAULIC DEC	*	136.5	-76.3	193.8	-147.1	*	91.	141.	AG	1831.	14.3	0.0	13.4		
29. NB LEFT QUE	*	34.9	101.7	-36.5	-16.2	*	138.	211.	AG	385.	100.0	0.0	7.3	0.84	23.0
30. NB THRU RIGHT QUE	*	43.8	97.1	-37.3	-34.8	*	155.	212.	AG	428.	100.0	0.0	11.0	0.44	25.8
31. WB LEFT QUE	*	59.8	93.2	77.1	49.9	*	47.	158.	AG	179.	100.0	0.0	3.7	0.47	7.8
32. WB THRU QUE	*	63.5	95.6	110.6	-22.6	*	127.	158.	AG	382.	100.0	0.0	7.3	0.74	21.2
33. WB RIGHT QUE	*	69.4	97.4	103.9	7.2	*	97.	159.	AG	382.	100.0	0.0	7.3	0.71	

16.1	34. SB LEFT QUE	*	57.5	149.9	112.2	220.6	*	89.	38.	AG	425.	100.0	0.0	7.3 0.87
14.9	35. SB THRU QUE	*	52.1	154.6	147.9	286.5	*	163.	36.	AG	486.	100.0	0.0	11.0 0.51
27.2	36. SB RIGHT QUE	*	41.5	167.8	144.8	167.8	*	103.	90.	AG	162.	100.0	0.0	3.7 0.95
17.2	37. SB RIGHT QUE	*	49.0	167.8	146.3	202.8	*	103.	70.	AG	162.	100.0	0.0	3.7 0.95
17.2	38. SB RIGHT QUE	*	55.4	170.1	117.4	252.8	*	103.	37.	AG	162.	100.0	0.0	3.7 0.95
17.2	39. EB LEFT QUE	*	35.5	154.1	7.3	227.1	*	78.	339.	AG	151.	100.0	0.0	3.7 0.66
13.0	40. EB THRU QUE	*	32.4	151.7	-2.7	245.5	*	100.	339.	AG	346.	100.0	0.0	7.3 0.49
16.7	41. EB RIGHT QUE	*	29.6	149.4	-503.3	1528.2	*	1478.	339.	AG	173.	100.0	0.0	3.7 1.96
246.4														

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:19:56

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
29. NB LEFT QUE	180	139	2.0	1190	3433	92.91	2	3
30. NB THRU RIGHT QUE	180	103	2.0	2707	5034	92.91	2	3
31. WB LEFT QUE	180	129	2.0	217	1770	92.91	2	3
32. WB THRU QUE	180	138	2.0	1106	3539	92.91	2	3
33. WB RIGHT QUE	180	138	2.0	841	2787	92.91	2	3
34. SB LEFT QUE	180	155	2.0	692	3433	92.09	2	3
35. SB THRU QUE	180	118	2.0	2487	5085	92.09	2	3
36. SB RIGHT QUE	180	118	2.0	482	1583	92.09	2	3
37. SB RIGHT QUE	180	118	2.0	482	1583	92.09	2	3
38. SB RIGHT QUE	180	118	2.0	482	1583	92.09	2	3
39. EB LEFT QUE	180	110	2.0	427	1770	92.09	2	3
40. EB THRU QUE	180	126	2.0	955	3539	92.09	2	3
41. EB RIGHT QUE	180	126	2.0	859	1583	92.09	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. A-1	-33.0	-56.9	1.8
2. A-2	1.6	0.6	1.8
3. A-3	24.2	40.8	1.8
4. A-4	44.8	63.3	1.8
5. A-5	58.1	43.4	1.8
6. A-6	73.2	5.8	1.8
7. A-7	101.6	-52.2	1.8
8. A-8	144.8	-33.3	1.8
9. A-9	112.0	16.8	1.8
10. A-10	94.3	59.6	1.8
11. A-11	79.5	103.9	1.8
12. A-12	91.7	144.9	1.8
13. A-13	114.2	171.8	1.8
14. A-14	172.5	254.4	1.8
15. A-15	130.4	287.3	1.8
16. A-16	87.2	231.6	1.8

17.	A-17	*	68.4	204.3	1.8	*
18.	A-18	*	48.9	179.2	1.8	*
19.	A-19	*	33.4	211.6	1.8	*
20.	A-20	*	11.2	257.0	1.8	*
21.	A-21	*	-23.4	311.6	1.8	*
22.	A-22	*	-41.1	278.0	1.8	*
23.	A-23	*	-19.7	246.3	1.8	*
24.	A-24	*	0.2	196.5	1.8	*
25.	A-25	*	16.0	150.4	1.8	*
26.	A-26	*	-5.4	96.5	1.8	*
27.	A-27	*	-30.4	58.2	1.8	*
28.	A-28	*	-48.9	27.5	1.8	*

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2040 - HYDRAULIC ROAD & US 29

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	6.8	7.8	8.6	7.8	6.8	6.8	6.2	3.7	3.9	4.8	5.9	7.0	6.4	5.4	3.0	3.0	3.0	3.0	3.0	3.0
10.	7.6	8.3	8.6	7.6	7.4	7.0	5.6	3.5	3.8	4.6	6.0	7.3	6.4	5.5	3.0	3.0	3.0	3.0	3.0	3.0
20.	7.9	8.0	8.9	7.7	7.1	6.5	5.0	3.2	3.5	3.9	5.5	6.8	6.0	5.3	3.2	3.2	3.2	3.2	3.0	3.0
30.	6.9	6.8	7.4	6.7	6.3	5.6	4.2	3.0	3.1	3.5	4.7	6.0	5.3	4.8	3.8	4.0	4.3	4.2	3.1	3.0
40.	4.7	5.1	5.6	5.6	5.6	5.3	4.1	3.0	3.0	3.1	3.7	4.6	4.1	3.7	4.9	5.3	5.9	5.8	3.7	3.1
50.	3.7	4.1	4.4	4.9	5.2	5.1	4.0	3.0	3.0	3.0	3.0	3.6	3.3	3.2	5.7	6.4	6.9	7.0	4.2	3.4
60.	3.5	3.8	4.3	4.9	5.2	5.1	4.0	3.0	3.0	3.0	3.0	3.2	3.0	3.0	5.8	6.8	7.3	7.5	4.7	3.7
70.	3.4	3.7	4.3	4.9	5.1	5.0	4.0	3.0	3.0	3.0	3.0	3.1	3.0	3.0	5.5	6.8	7.4	7.5	4.9	3.9
80.	3.3	3.7	4.3	4.9	5.1	4.9	4.0	3.0	3.0	3.0	3.0	3.0	3.2	3.0	5.6	6.5	7.1	7.5	4.9	4.0
90.	3.3	3.5	4.1	5.0	5.0	5.0	4.0	3.0	3.0	3.0	3.0	3.0	3.3	3.0	5.7	6.3	7.1	7.5	5.0	4.1
100.	3.3	3.6	4.1	5.0	5.1	4.9	4.1	3.0	3.0	3.0	3.0	3.0	3.5	3.0	5.9	6.3	7.0	7.3	5.1	4.1
110.	3.2	3.5	4.0	4.9	5.2	4.8	4.3	3.0	3.0	3.0	3.0	3.0	3.6	3.0	5.9	6.4	7.0	7.2	5.2	4.2
120.	3.0	3.4	4.2	4.9	5.4	4.8	4.2	3.0	3.0	3.0	3.0	3.0	3.6	3.0	6.0	6.5	7.1	7.3	5.2	4.4
130.	3.0	3.2	3.9	5.1	5.4	4.9	4.0	3.1	3.0	3.0	3.0	3.0	3.6	3.0	6.1	6.7	7.2	7.3	5.2	4.5
140.	3.0	3.0	3.5	4.9	5.1	4.6	3.6	3.2	3.3	3.1	3.0	3.0	3.5	3.0	6.1	6.9	7.0	7.1	5.2	4.6
150.	3.0	3.0	3.1	4.2	4.4	3.9	3.2	3.7	3.7	3.7	3.7	3.0	3.5	3.0	6.1	6.9	7.2	7.4	5.6	5.4

160.	*	3.0	3.0	3.0	3.4	3.5	3.3	3.0	4.0	4.2	4.7	4.7	3.5	3.5	3.0	6.3	7.1	7.6	8.3	6.3
170.	*	3.0	3.0	3.0	3.0	3.1	3.0	3.0	4.1	4.5	5.4	5.4	4.0	3.9	3.0	6.4	7.5	8.4	8.8	6.9
180.	*	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.1	4.6	6.2	6.0	4.2	4.0	3.0	7.2	8.2	8.6	8.6	7.2
190.	*	3.1	3.0	3.1	3.0	3.0	3.0	3.0	4.1	4.7	6.1	6.2	4.6	4.3	3.2	8.0	8.6	8.7	8.6	7.4
200.	*	3.3	3.4	3.7	3.4	3.0	3.0	3.0	4.0	5.0	6.1	6.1	5.0	4.6	3.5	8.7	8.6	8.3	8.2	7.1
210.	*	3.9	4.4	5.3	4.5	3.4	3.0	3.0	3.9	5.2	5.9	6.8	6.3	5.7	5.1	7.8	7.4	7.1	7.2	6.3
220.	*	4.8	5.7	6.8	5.8	4.1	3.3	3.0	4.0	5.3	6.4	7.8	7.1	6.7	6.5	5.6	5.5	5.6	6.1	5.5
230.	*	5.5	6.6	7.8	6.7	4.8	3.7	3.1	4.1	5.8	7.1	8.2	7.2	7.0	7.1	4.0	4.1	4.3	5.2	5.4
240.	*	5.5	6.7	7.6	6.7	5.1	4.0	3.3	4.3	6.3	7.3	7.8	6.5	7.1	7.0	3.5	3.9	4.2	5.2	5.4
250.	*	5.4	6.8	7.4	6.7	5.2	4.3	3.6	4.5	6.5	7.4	7.2	6.2	7.1	6.4	3.5	4.0	4.2	5.2	5.4
260.	*	5.3	6.8	7.1	6.4	5.1	4.3	3.6	4.4	6.6	7.6	6.4	6.2	7.4	6.4	3.4	3.9	4.2	5.2	5.3
270.	*	5.0	6.6	7.0	6.2	5.1	4.4	3.8	4.7	6.7	7.6	6.1	6.3	7.7	6.2	3.6	3.9	4.2	5.3	5.3
280.	*	4.9	6.4	6.8	6.1	5.1	4.4	3.7	5.0	6.9	7.3	5.8	7.0	7.4	6.1	3.4	3.7	4.2	5.3	5.4
290.	*	4.9	6.4	6.8	6.1	5.1	4.3	3.9	5.2	7.1	7.5	5.9	7.1	7.2	5.8	3.3	3.7	4.2	5.4	5.7
300.	*	5.0	6.4	6.8	6.1	5.0	4.4	3.9	5.3	7.1	7.3	6.1	7.7	7.2	5.8	3.2	3.7	4.2	5.5	5.8
310.	*	5.0	6.4	6.7	6.1	4.9	4.3	4.0	5.6	7.1	7.3	6.2	8.0	7.2	5.5	3.1	3.5	4.2	5.9	6.1
320.	*	5.0	6.4	6.7	6.0	4.9	4.2	4.0	5.8	7.3	7.2	7.1	7.7	6.7	5.3	3.1	3.2	3.9	5.3	5.9
330.	*	5.1	6.5	6.8	6.6	5.4	4.9	4.9	5.3	7.2	6.9	7.3	7.4	6.4	5.3	3.1	3.1	3.5	5.0	5.0
340.	*	5.6	7.0	7.5	7.3	6.4	6.2	6.0	4.7	5.8	5.8	6.6	6.8	6.5	5.2	3.0	3.1	3.1	4.0	3.8
350.	*	6.1	7.5	8.2	7.6	6.8	6.6	6.5	3.7	4.5	5.3	6.0	6.9	6.5	5.2	3.0	3.0	3.0	3.2	3.2
MAX	*	7.9	8.3	8.9	7.8	7.4	7.0	6.5	5.8	7.3	7.6	8.2	8.0	7.7	7.1	8.7	8.6	8.7	8.8	7.4
DEGR.	*	20	10	20	0	10	10	350	320	320	270	230	310	270	230	200	190	190	170	190

PAGE 4

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2040 - HYDRAULIC ROAD & US 29

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 * CONCENTRATION
ANGLE * (PPM)
(DEGR)* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28

0.	*	3.0	4.9	5.2	5.5	5.8	4.0	3.6	3.3
10.	*	3.0	4.8	5.1	5.8	5.8	4.1	3.5	3.6
20.	*	3.0	4.7	5.0	5.7	5.6	4.6	4.2	4.0
30.	*	3.0	4.7	4.9	5.7	6.2	5.8	5.4	5.2
40.	*	3.0	4.6	4.8	5.9	7.3	7.4	6.9	6.6
50.	*	3.0	4.7	5.0	6.6	8.6	8.0	7.1	7.0
60.	*	3.2	4.8	5.3	6.8	8.9	7.0	6.8	6.8
70.	*	3.5	5.2	5.6	7.1	8.6	6.4	6.8	6.8
80.	*	3.4	5.4	5.7	7.2	7.7	6.3	6.8	6.9
90.	*	3.7	5.4	6.0	7.3	6.9	6.5	6.7	6.6
100.	*	3.6	5.4	6.3	7.6	6.2	6.8	6.6	6.3
110.	*	3.7	5.6	6.9	7.6	6.0	6.8	6.4	6.2
120.	*	3.8	5.8	7.3	7.4	6.0	7.1	6.4	6.2
130.	*	3.9	6.1	7.2	7.5	6.4	7.0	6.2	5.9
140.	*	4.4	6.1	7.3	7.0	6.5	6.7	5.8	5.8
150.	*	5.9	5.8	6.3	6.6	6.8	6.1	5.9	5.9
160.	*	7.3	4.7	5.6	5.5	6.1	6.2	6.0	5.8
170.	*	7.0	3.8	4.4	4.7	5.6	6.3	6.1	5.7
180.	*	6.2	3.8	4.0	4.6	5.6	6.6	6.1	5.7
190.	*	5.9	3.5	3.9	4.5	5.7	6.5	6.0	5.6
200.	*	5.4	3.3	3.3	3.9	5.3	6.2	5.6	5.4
210.	*	5.0	3.0	3.0	3.3	4.3	5.1	4.5	4.5
220.	*	4.9	3.0	3.0	3.0	3.3	3.8	3.6	3.7
230.	*	4.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1
240.	*	4.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
250.	*	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	*	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	*	5.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	*	5.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	*	5.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	*	5.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0
310.	*	4.9	3.3	3.2	3.0	3.0	3.0	3.0	3.0
320.	*	4.3	3.7	3.6	3.2	3.1	3.0	3.0	3.0
330.	*	3.7	4.4	4.4	4.1	3.8	3.0	3.0	3.0
340.	*	3.5	4.9	5.1	4.8	4.8	3.3	3.1	3.1
350.	*	3.2	4.9	5.3	5.4	5.5	3.9	3.3	3.3
MAX	*	7.3	6.1	7.3	7.6	8.9	8.0	7.1	7.0
DEGR.	*	160	140	120	110	60	50	50	50

THE HIGHEST CONCENTRATION OF 8.90 PPM OCCURRED AT RECEPTOR REC25.

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:19:56

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

LINK #	* CO/LINK (PPM) ANGLE (DEGREES)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	*	20	10	20	0	10	10	350	320	320	270	230	310	270	230	200	190	190	170	190	180
1	*	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	0.1	0.0	0.0	0.0	0.1	0.0
2	*	1.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.3	

0.2	3 *	0.3	0.6	1.7	1.2	0.1	0.0	0.1	0.2	0.3	0.5	0.7	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.2
0.2	4 *	0.1	0.1	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5	0.0
0.0	5 *	0.1	0.1	0.4	0.1	0.4	0.4	0.1	0.0	0.0	0.0	0.0	1.4	1.3	1.5	0.6	0.5	0.2	0.1	0.0
0.0	6 *	0.1	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	0.0	0.0	0.0	0.0	0.0
0.0	7 *	0.0	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	0.0	0.0	0.0	0.0	0.0
0.0	8 *	0.2	0.2	0.6	0.4	0.5	0.4	0.2	0.0	0.1	0.0	0.0	0.7	0.7	0.6	1.8	1.5	1.4	1.3	0.1
0.1	9 *	0.1	0.2	0.2	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2
0.1	10 *	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.5	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.4
0.3	11 *	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	0.0	0.0	0.0
0.0	12 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	13 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	14 *	0.0	0.0	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	0.0	0.0	0.0
0.0	15 *	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	16 *	0.1	0.0	0.2	0.2	0.5	0.4	0.2	0.2	0.5	0.7	0.7	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.0
0.0	17 *	0.1	0.2	0.2	0.4	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.4	0.3	0.1	0.1	0.1	0.3	0.5	1.2
0.4	18 *	0.0	0.0	0.0	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	0.0
1.0	19 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.1	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	22 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	23 *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	24 *	0.1	0.2	0.1	0.3	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.6
0.7	25 *	0.1	0.0	0.2	0.4	0.8	0.7	0.2	0.2	0.4	0.4	0.4	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.0
0.1	26 *	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	27 *	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	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	0.0
0.0	29 *	0.5	0.5	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2
0.1	30 *	1.0	1.1	0.8	0.5	0.0	0.0	0.0	0.1	0.1	0.4	0.7	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.3
0.2	31 *	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	32 *	0.0	0.0	0.0	0.0	0.4	0.6	0.6	0.5	0.7	0.7	0.5	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.0
0.0	33 *	0.0	0.0	0.0	0.0	0.2	0.5	0.3	0.4	1.0	0.9	0.5	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0
0.0	34 *	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.5	0.3	0.3	0.5	0.4	0.2	0.0

0.0																				
35	*	0.1	0.1	0.3	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.5	0.5	0.4	1.3	1.1	0.9	0.6	0.0
0.0																				
36	*	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.1	0.1	0.1	0.1	0.3	0.0
0.0																				
37	*	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.0
0.0																				
38	*	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.0	0.0
0.0																				
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2
0.2																				
40	*	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.5
0.7																				
41	*	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
0.2																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: NoBuild 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 11:19:56

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

	*	CO/LINK (PPM) ANGLE (DEGREES)							
	*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	160	140	120	110	60	50	50	50
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.4
4	*	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.1
5	*	0.1	0.1	0.3	0.4	0.6	0.6	0.4	0.3
6	*	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1
7	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
8	*	0.1	0.2	0.3	0.5	1.1	0.7	0.4	0.2
9	*	0.1	0.0	0.0	0.0	0.0	0.8	0.2	0.1
10	*	0.1	0.0	0.0	0.0	0.0	0.8	1.4	1.7
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
17	*	0.3	0.3	0.3	0.7	0.6	0.3	0.1	0.1
18	*	0.6	0.3	0.5	0.0	0.0	0.0	0.0	0.0
19	*	0.7	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
21	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.3	0.4	0.4	0.0	0.0	0.0	0.0	0.0
24	*	0.3	0.4	0.6	0.9	0.7	0.2	0.1	0.1
25	*	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
26	*	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
28	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	*	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3
30	*	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2
31	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
33	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
34	*	0.0	0.1	0.2	0.3	0.4	0.3	0.1	0.1

35	*	0.1	0.1	0.3	0.3	0.8	0.4	0.2	0.1
36	*	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.0
37	*	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0
38	*	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0
39	*	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0
40	*	0.3	0.4	0.7	0.7	0.6	0.0	0.0	0.0
41	*	0.3	0.3	0.3	0.3	0.3	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 7/11/2012 at 12:20:20

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 12:20:20

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 3.0 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 29 APPROACH	*	-144.7	-206.4	-63.8	-76.6	*	153.	32.	AG	2949.	15.1	0.0	17.1		
2. NB 29 APPROACH	*	-63.8	-76.6	11.8	43.7	*	142.	32.	AG	2949.	15.1	0.0	17.1		
3. NB 29 APPROACH	*	11.8	43.7	52.6	111.6	*	79.	31.	AG	2949.	15.1	0.0	17.1		
4. NB 29 DEC	*	52.6	111.6	71.3	140.8	*	35.	33.	AG	3370.	15.1	0.0	17.1		
5. NB 29 DEC	*	71.3	140.8	171.6	282.4	*	174.	35.	AG	3370.	15.1	0.0	17.1		
6. NB 29 DEC	*	171.6	282.4	292.5	455.1	*	211.	35.	AG	3370.	15.1	0.0	17.1		
7. SB 29 APPROACH	*	277.0	464.1	191.0	346.4	*	146.	216.	AG	2974.	15.1	0.0	17.1		
8. SB 29 APPROACH	*	191.0	346.4	41.6	139.5	*	255.	216.	AG	2974.	15.1	0.0	17.1		
9. SB 29 DEC	*	42.2	139.5	18.9	110.4	*	37.	219.	AG	2700.	15.1	0.0	17.1		
10. SB 29 DEC	*	18.9	110.4	-98.8	-81.1	*	225.	212.	AG	2700.	15.1	0.0	17.1		
11. SB 29 DEC	*	-98.8	-81.1	-163.4	-191.0	*	127.	210.	AG	2700.	15.1	0.0	17.1		
12. WB HYDRAULIC APP	*	205.9	-136.8	150.0	-69.7	*	87.	320.	AG	2157.	14.3	0.0	13.4		
13. WB HYDRAULIC APP	*	150.0	-69.7	114.6	-20.8	*	60.	324.	AG	2157.	14.3	0.0	13.4		
14. WB HYDRAULIC APP	*	114.6	-20.8	104.8	-4.5	*	19.	329.	AG	2157.	14.3	0.0	13.4		
15. WB HYDRAULIC APP	*	104.8	-4.5	85.7	40.7	*	49.	337.	AG	2157.	14.3	0.0	13.4		
16. WB HYDRAULIC APP	*	85.7	40.7	53.1	128.8	*	94.	340.	AG	2157.	14.3	0.0	13.4		
17. WB HYDRAULIC DEC	*	53.6	127.8	15.3	222.9	*	103.	338.	AG	1860.	14.3	0.0	13.4		
18. WB HYDRAULIC DEC	*	15.3	222.9	-13.1	277.9	*	62.	333.	AG	1860.	14.3	0.0	13.4		
19. WB HYDRAULIC DEC	*	-13.1	277.9	-37.3	310.0	*	40.	323.	AG	1860.	14.3	0.0	13.4		
20. WB HYDRAULIC DEC	*	-37.3	310.0	-103.9	385.0	*	100.	318.	AG	1860.	14.3	0.0	13.4		
21. EB HYDRAULIC APP	*	-112.3	377.6	-35.0	293.2	*	114.	138.	AG	1936.	14.3	0.0	13.4		
22. EB HYDRAULIC APP	*	-35.0	293.2	-22.9	276.9	*	20.	143.	AG	1936.	14.3	0.0	13.4		
23. EB HYDRAULIC APP	*	-22.9	276.9	-2.8	240.6	*	41.	151.	AG	1936.	14.3	0.0	13.4		
24. EB HYDRAULIC APP	*	-2.8	240.6	44.2	119.4	*	130.	159.	AG	1936.	14.3	0.0	13.4		
25. EB HYDRAULIC DEC	*	44.7	119.4	81.5	17.4	*	108.	160.	AG	1829.	14.3	0.0	13.4		
26. EB HYDRAULIC DEC	*	81.5	17.4	101.5	-25.5	*	47.	155.	AG	1829.	14.3	0.0	13.4		
27. EB HYDRAULIC DEC	*	101.5	-25.5	136.5	-76.3	*	62.	145.	AG	1829.	14.3	0.0	13.4		
28. EB HYDRAULIC DEC	*	136.5	-76.3	193.8	-147.1	*	91.	141.	AG	1829.	14.3	0.0	13.4		
29. NB LEFT QUE	*	34.9	101.7	-19.6	11.6	*	105.	211.	AG	393.	100.0	0.0	7.3	0.69	17.6
30. NB THRU RIGHT QUE	*	43.8	97.1	-25.1	-14.9	*	131.	212.	AG	478.	100.0	0.0	11.0	0.40	21.9
31. WB LEFT QUE	*	59.8	93.2	74.1	57.4	*	39.	158.	AG	162.	100.0	0.0	3.7	0.34	6.4
32. WB THRU QUE	*	63.5	95.6	108.8	-18.0	*	122.	158.	AG	366.	100.0	0.0	7.3	0.64	20.4
33. WB RIGHT QUE	*	69.4	97.4	102.6	10.5	*	93.	159.	AG	366.	100.0	0.0	7.3	0.62	

15.5	34. SB LEFT QUE	*	57.5	149.9	110.6	218.6	*	87.	38.	AG	406.	100.0	0.0	7.3 0.66
14.5	35. SB THRU QUE	*	52.1	154.6	125.9	256.2	*	126.	36.	AG	498.	100.0	0.0	11.0 0.40
20.9	36. SB RIGHT QUE	*	41.5	167.8	122.2	167.8	*	81.	90.	AG	166.	100.0	0.0	3.7 0.83
13.4	37. SB RIGHT QUE	*	49.0	167.8	124.9	195.1	*	81.	70.	AG	166.	100.0	0.0	3.7 0.83
13.4	38. SB RIGHT QUE	*	55.4	170.1	103.8	234.6	*	81.	37.	AG	166.	100.0	0.0	3.7 0.83
13.4	39. EB LEFT QUE	*	35.5	154.1	13.2	212.0	*	62.	339.	AG	147.	100.0	0.0	3.7 0.51
10.3	40. EB THRU QUE	*	32.4	151.7	-3.0	246.2	*	101.	339.	AG	349.	100.0	0.0	7.3 0.50
16.8	41. EB RIGHT QUE	*	29.6	149.4	-248.4	868.7	*	771.	339.	AG	174.	100.0	0.0	3.7 1.47
128.5														

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 12:20:20

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
29. NB LEFT QUE	180	142	2.0	890	3433	92.91	2	3
30. NB THRU RIGHT QUE	180	115	2.0	2059	5024	92.91	2	3
31. WB LEFT QUE	180	117	2.0	198	1770	92.91	2	3
32. WB THRU QUE	180	132	2.0	1112	3539	92.91	2	3
33. WB RIGHT QUE	180	132	2.0	847	2787	92.91	2	3
34. SB LEFT QUE	180	148	2.0	705	3433	92.09	2	3
35. SB THRU QUE	180	121	2.0	1869	5085	92.09	2	3
36. SB RIGHT QUE	180	121	2.0	400	1583	92.09	2	3
37. SB RIGHT QUE	180	121	2.0	400	1583	92.09	2	3
38. SB RIGHT QUE	180	121	2.0	400	1583	92.09	2	3
39. EB LEFT QUE	180	107	2.0	348	1770	92.09	2	3
40. EB THRU QUE	180	127	2.0	955	3539	92.09	2	3
41. EB RIGHT QUE	180	127	2.0	633	1583	92.09	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. A-1	-33.0	-56.9	1.8
2. A-2	1.6	0.6	1.8
3. A-3	24.2	40.8	1.8
4. A-4	44.8	63.3	1.8
5. A-5	58.1	43.4	1.8
6. A-6	73.2	5.8	1.8
7. A-7	101.6	-52.2	1.8
8. A-8	144.8	-33.3	1.8
9. A-9	112.0	16.8	1.8
10. A-10	94.3	59.6	1.8
11. A-11	79.5	103.9	1.8
12. A-12	91.7	144.9	1.8
13. A-13	114.2	171.8	1.8
14. A-14	172.5	254.4	1.8
15. A-15	130.4	287.3	1.8
16. A-16	87.2	231.6	1.8

17. A-17	*	68.4	204.3	1.8	*
18. A-18	*	48.9	179.2	1.8	*
19. A-19	*	33.4	211.6	1.8	*
20. A-20	*	11.2	257.0	1.8	*
21. A-21	*	-23.4	311.6	1.8	*
22. A-22	*	-41.1	278.0	1.8	*
23. A-23	*	-19.7	246.3	1.8	*
24. A-24	*	0.2	196.5	1.8	*
25. A-25	*	16.0	150.4	1.8	*
26. A-26	*	-5.4	96.5	1.8	*
27. A-27	*	-30.4	58.2	1.8	*
28. A-28	*	-48.9	27.5	1.8	*

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2040 - HYDRAULIC ROAD & US 29

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-350.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	5.4	7.3	7.7	7.0	6.5	6.5	5.8	3.6	3.9	4.6	5.6	6.7	5.8	5.0	3.0	3.0	3.0	3.0	3.0	3.0
10.	6.4	7.6	7.9	7.2	7.0	6.4	5.4	3.4	3.7	4.2	5.5	6.7	5.8	5.2	3.0	3.0	3.0	3.0	3.0	3.0
20.	7.0	7.4	7.8	7.2	6.6	6.1	4.8	3.2	3.5	3.9	5.3	6.4	5.5	5.1	3.2	3.1	3.1	3.1	3.0	3.0
30.	6.1	6.4	6.6	6.1	6.2	5.6	4.2	3.0	3.1	3.5	4.4	5.5	4.9	4.6	3.7	3.7	3.8	3.9	3.1	3.0
40.	4.5	4.8	5.4	5.2	5.4	5.2	4.1	3.0	3.0	3.1	3.6	4.3	3.9	3.7	4.5	4.7	5.1	5.5	3.5	3.1
50.	3.7	3.9	4.3	4.9	5.1	5.1	4.0	3.0	3.0	3.0	3.0	3.4	3.2	3.2	5.3	5.5	6.3	6.7	4.1	3.2
60.	3.5	3.8	4.2	4.9	5.0	5.1	4.0	3.0	3.0	3.0	3.0	3.1	3.0	3.0	5.3	5.8	6.7	7.0	4.3	3.6
70.	3.3	3.7	4.3	4.9	5.0	4.9	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.1	5.9	6.8	6.9	4.6	3.8
80.	3.2	3.6	4.2	4.9	5.0	4.8	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.0	6.0	6.7	7.1	4.6	3.8
90.	3.3	3.5	4.1	4.8	5.0	4.8	4.0	3.0	3.0	3.0	3.0	3.0	3.1	3.0	4.9	6.0	6.7	7.0	4.7	3.8
100.	3.3	3.6	4.1	4.8	5.0	4.7	4.1	3.0	3.0	3.0	3.0	3.0	3.1	3.0	4.8	5.9	6.5	6.9	4.9	3.8
110.	3.2	3.4	4.0	4.9	5.1	4.7	4.3	3.0	3.0	3.0	3.0	3.0	3.3	3.0	4.8	6.0	6.5	7.0	4.9	4.1
120.	3.0	3.4	4.2	4.8	5.2	4.7	4.2	3.0	3.0	3.0	3.0	3.0	3.4	3.0	4.7	6.2	6.8	7.0	5.0	4.2
130.	3.0	3.2	3.9	5.1	5.3	4.8	4.0	3.1	3.0	3.0	3.0	3.0	3.5	3.0	4.8	6.3	6.7	6.9	5.0	4.3
140.	3.0	3.0	3.5	4.7	5.0	4.6	3.6	3.2	3.3	3.1	3.0	3.0	3.5	3.0	4.8	6.5	6.7	6.9	5.0	4.5
150.	3.0	3.0	3.1	4.1	4.4	3.9	3.2	3.7	3.7	3.7	3.7	3.0	3.5	3.0	4.8	6.5	6.7	6.9	5.4	5.2

160.	*	3.0	3.0	3.0	3.3	3.4	3.3	3.0	4.0	4.1	4.7	4.7	3.5	3.5	3.0	4.9	6.8	7.3	7.7	5.8
5.8																				
170.	*	3.0	3.0	3.0	3.0	3.1	3.0	3.0	4.0	4.4	5.3	5.4	4.0	3.8	3.0	5.0	7.3	7.9	8.1	6.4
6.7																				
180.	*	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.1	4.5	6.0	5.9	4.2	4.0	3.0	5.8	7.8	8.2	7.6	6.4
6.4																				
190.	*	3.0	3.0	3.1	3.0	3.0	3.0	3.0	4.1	4.6	6.0	6.0	4.4	4.3	3.1	6.7	8.0	8.3	7.4	6.7
6.1																				
200.	*	3.2	3.3	3.5	3.4	3.0	3.0	3.0	4.0	4.8	6.0	6.0	4.8	4.6	3.5	7.6	7.9	7.7	7.5	6.5
5.7																				
210.	*	3.8	3.9	4.7	4.3	3.2	3.0	3.0	3.9	4.9	5.9	6.4	5.7	5.3	4.7	7.2	6.6	6.3	6.5	5.6
5.1																				
220.	*	4.4	4.9	6.1	5.2	3.8	3.2	3.0	4.0	4.9	6.0	7.3	6.5	6.3	6.0	5.2	5.0	5.1	5.4	5.2
5.0																				
230.	*	4.8	5.5	6.8	6.0	4.2	3.4	3.1	4.1	5.4	6.4	7.6	6.5	6.4	6.8	3.7	4.0	4.2	4.8	5.1
4.8																				
240.	*	4.9	5.8	6.9	6.1	4.6	3.6	3.3	4.2	5.8	7.0	7.3	6.1	6.6	6.4	3.5	3.8	4.1	4.8	5.0
4.7																				
250.	*	4.9	5.7	6.9	6.2	4.7	3.8	3.3	4.4	6.1	6.8	6.8	5.8	6.7	6.3	3.5	3.7	4.1	4.9	5.1
4.5																				
260.	*	4.7	5.7	6.6	6.0	4.9	3.9	3.4	4.3	6.2	7.1	6.0	5.7	6.9	5.9	3.3	3.7	4.1	4.8	4.9
4.4																				
270.	*	4.6	5.6	6.5	5.9	4.8	4.1	3.5	4.5	6.4	7.2	5.7	5.8	7.3	5.4	3.4	3.7	4.1	4.9	4.9
4.4																				
280.	*	4.5	5.7	6.4	5.8	4.7	4.2	3.5	4.7	6.6	7.3	5.6	6.3	7.0	5.1	3.3	3.6	4.0	4.9	5.0
4.4																				
290.	*	4.5	5.8	6.3	5.8	4.7	4.2	3.5	4.9	6.9	7.1	5.5	6.8	6.8	5.1	3.3	3.6	4.0	5.1	5.1
4.6																				
300.	*	4.5	5.9	6.3	5.8	4.7	4.2	3.7	5.3	6.9	7.3	5.5	7.0	6.7	4.8	3.1	3.6	3.9	5.1	5.1
4.9																				
310.	*	4.5	6.0	6.3	5.7	4.7	4.2	3.8	5.4	6.9	7.1	5.9	7.6	6.7	4.8	3.1	3.4	3.9	5.1	5.3
5.0																				
320.	*	4.5	6.0	6.2	5.7	4.8	4.0	3.9	5.4	7.2	6.7	6.3	7.2	6.2	4.8	3.1	3.2	3.7	5.1	5.1
4.6																				
330.	*	4.6	6.1	6.4	6.2	5.1	4.7	4.6	5.3	6.4	6.6	6.6	7.0	6.2	4.8	3.0	3.1	3.2	4.4	4.3
4.0																				
340.	*	4.6	6.5	7.1	6.8	5.9	5.4	5.9	4.6	5.2	5.5	5.9	6.5	6.1	4.9	3.0	3.0	3.1	3.5	3.5
3.4																				
350.	*	4.9	7.0	7.4	7.1	6.4	6.2	6.3	3.6	4.5	4.9	5.6	6.5	6.1	5.0	3.0	3.0	3.0	3.0	3.2
3.1																				
------*																				
-																				
MAX	*	7.0	7.6	7.9	7.2	7.0	6.5	6.3	5.4	7.2	7.3	7.6	7.6	7.3	6.8	7.6	8.0	8.3	8.1	6.7
6.7																				
DEGR.	*	20	10	10	10	10	0	350	310	320	280	230	310	270	230	200	190	190	170	190
170																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2040 - HYDRAULIC ROAD & US 29

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 * CONCENTRATION
ANGLE * (PPM)
(DEGR)* REC21 REC22 REC23 REC24 REC25 REC26 REC27 REC28

0.	3.0	4.5	4.8	5.2	5.4	3.9	3.4	3.2
10.	3.0	4.5	4.7	5.4	5.5	3.9	3.5	3.3
20.	3.0	4.3	4.6	5.2	5.3	4.3	4.0	3.8
30.	3.0	4.2	4.6	5.2	5.8	5.5	4.8	4.8
40.	3.0	4.4	4.5	5.5	6.8	6.7	6.0	6.0
50.	3.0	4.3	4.7	5.8	7.9	6.8	6.4	6.4
60.	3.2	4.4	4.9	6.3	8.4	6.2	6.1	6.2
70.	3.4	4.6	5.2	6.5	8.0	5.8	6.2	6.1
80.	3.4	4.9	5.3	6.7	7.2	5.8	6.3	6.3
90.	3.5	4.9	5.5	6.8	6.3	6.0	6.2	6.1
100.	3.4	4.9	5.8	7.1	5.7	6.3	6.1	5.8
110.	3.5	5.1	6.3	7.0	5.4	6.4	6.0	5.7
120.	3.7	5.3	6.8	7.1	5.5	6.4	6.0	5.6
130.	3.8	5.5	6.8	6.9	5.8	6.4	5.8	5.2
140.	4.3	5.7	6.7	6.5	6.2	6.3	5.4	4.9
150.	5.3	5.4	5.9	6.2	6.5	5.6	5.4	4.8
160.	6.6	4.6	5.3	5.0	5.7	5.6	5.5	4.8
170.	6.0	3.7	4.1	4.4	5.1	5.8	5.4	4.8
180.	5.7	3.6	3.9	4.3	5.2	5.8	5.3	5.0
190.	5.0	3.4	3.6	4.0	5.2	5.7	5.1	5.0
200.	4.8	3.0	3.3	3.6	4.8	5.4	4.9	4.7
210.	4.6	3.0	3.0	3.3	4.0	4.4	4.3	4.1
220.	4.4	3.0	3.0	3.0	3.2	3.6	3.5	3.4
230.	4.5	3.0	3.0	3.0	3.0	3.1	3.1	3.1
240.	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0
250.	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0
260.	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0
270.	4.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0
280.	4.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
290.	4.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
300.	4.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0
310.	4.4	3.2	3.1	3.0	3.0	3.0	3.0	3.0
320.	4.0	3.6	3.5	3.2	3.1	3.0	3.0	3.0
330.	3.7	4.1	4.1	3.8	3.7	3.0	3.0	3.0
340.	3.4	4.4	4.6	4.5	4.4	3.3	3.1	3.0
350.	3.2	4.6	4.9	5.2	5.2	3.8	3.3	3.2
MAX	6.6	5.7	6.8	7.1	8.4	6.8	6.4	6.4
DEGR.	160	140	120	120	60	50	50	50

THE HIGHEST CONCENTRATION OF 8.40 PPM OCCURRED AT RECEPTOR REC25.

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 12:20:20

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	20	10	10	10	10	0	350	310	320	280	230	310	270	230	200	190	190	170	190	170
1	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	0.0	0.0	0.1	0.0
2	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	

0.1	3	*	0.2	0.5	1.5	0.7	0.1	0.1	0.1	0.2	0.2	0.4	0.6	0.0	0.0	0.1	0.1	0.1	0.3	0.2	0.2
0.2	4	*	0.1	0.1	0.1	0.4	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.0
0.1	5	*	0.1	0.1	0.1	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	1.2	1.2	1.4	0.5	0.4	0.2	0.1	0.0
0.0	6	*	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	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	0.0	0.0	0.0	0.0	0.0
0.0	8	*	0.2	0.2	0.3	0.5	0.4	0.3	0.2	0.0	0.1	0.0	0.0	0.6	0.6	0.4	1.5	1.2	1.2	1.0	0.1
0.1	9	*	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2
0.1	10	*	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.3
0.1	11	*	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	0.0	0.0	0.0
0.0	12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	13	*	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	0.0	0.0	0.0	0.0	0.0
0.0	14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	15	*	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	16	*	0.1	0.0	0.1	0.3	0.5	0.5	0.2	0.1	0.5	0.7	0.7	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.0
0.1	17	*	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.3	0.2	0.1	0.0	0.1	0.2	0.4	0.8
0.5	18	*	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	0.0	0.0
0.5	19	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	22	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	23	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	24	*	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.5
0.5	25	*	0.1	0.0	0.1	0.5	0.8	0.8	0.2	0.2	0.4	0.4	0.4	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.0
0.1	26	*	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
0.0	27	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	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	0.0
0.0	29	*	0.3	0.5	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2
0.1	30	*	0.8	1.2	1.2	0.3	0.0	0.0	0.0	0.2	0.1	0.4	0.7	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.3
0.1	31	*	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.2	0.1	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	0.4	0.5	0.5	0.5	0.7	0.7	0.4	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.0
0.1	33	*	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.2	1.0	0.9	0.5	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0
0.1	34	*	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.4	0.3	0.3	0.5	0.4	0.2	0.0

0.0																				
35	*	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.6	0.5	0.4	1.0	1.1	0.9	0.6	0.0
0.1																				
36	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.1	0.1	0.1	0.1	0.3	0.0
0.0																				
37	*	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.0
0.0																				
38	*	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.3	0.0	0.0
0.0																				
39	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2
0.1																				
40	*	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.5
0.5																				
41	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
0.2																				

JOB: CHARLOTTESVILLE BYPASS PROJECT RUN: Build 2040 - HYDRAULIC ROAD & US 29

DATE : 07/11/ 0
TIME : 12:20:20

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

	*	CO/LINK (PPM)							
	*	ANGLE (DEGREES)							
	*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
LINK #	*	160	140	120	120	60	50	50	50
1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	*	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3
4	*	0.1	0.1	0.0	0.1	0.0	0.2	0.2	0.1
5	*	0.0	0.1	0.3	0.3	0.6	0.5	0.3	0.2
6	*	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	*	0.1	0.2	0.3	0.4	0.9	0.6	0.3	0.2
9	*	0.1	0.0	0.0	0.0	0.0	0.6	0.2	0.1
10	*	0.1	0.0	0.0	0.0	0.0	0.6	1.1	1.3
11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	*	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
17	*	0.2	0.2	0.2	0.5	0.4	0.2	0.1	0.0
18	*	0.4	0.2	0.4	0.0	0.0	0.0	0.0	0.0
19	*	0.5	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
21	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	*	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	*	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0
24	*	0.3	0.3	0.5	0.8	0.6	0.2	0.1	0.1
25	*	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
26	*	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
28	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	*	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3
30	*	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3
31	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
33	*	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
34	*	0.0	0.1	0.2	0.2	0.4	0.2	0.1	0.1

35	*	0.1	0.1	0.3	0.3	0.8	0.3	0.2	0.1
36	*	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0
37	*	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0
38	*	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
39	*	0.0	0.1	0.0	0.2	0.2	0.0	0.0	0.0
40	*	0.3	0.4	0.7	0.7	0.6	0.0	0.0	0.0
41	*	0.3	0.3	0.3	0.4	0.3	0.0	0.0	0.0

APPENDIX C
TRAFFIC SUMMARY / SYNCHRO REPORTS

Table 2 - Route 29 Bypass - Average Daily Traffic (ADT) Summary

	Segment	Link Description	2011 Existing		2015 No-Build		2015 Build		2040 No-Build		2040 Build	
			ADT	% Trucks	ADT	% Trucks	ADT	% Trucks	ADT	% Trucks	ADT	% Trucks
Route 29 Bypass Corridor	67	Route 250 Bypass WB (btwn Hydraulic Rd & Emmet St)	11,500	2.0%	12,314	0.02	11,927	2.0%	16,364	0.02	15,977	0.02
	68	Route 250 Bypass EB (btwn Hydraulic Rd & Emmet St)	11,500	2.0%	12,314	0.02	11,927	2.0%	16,364	0.02	15,977	0.02
	69	Route 250 Bypass WB (btwn Emmet St & Barracks Rd)	19,000	3.0%	20,717	0.03	13,026	3.0%	29,329	0.03	20,315	0.03
	70	Route 250 Bypass EB (btwn Emmet St & Barracks Rd)	19,000	3.0%	20,717	0.03	13,026	3.0%	29,329	0.03	20,315	0.03
	77	L. Sandbridge Rd NB, south of 29	500	3.0%	503	3.0%	1,236	3.0%	3,028	3.0%	3,761	3.0%
	78	L. Sandbridge Rd SB, south of 29	500	3.0%	503	3.0%	1,236	3.0%	3,028	3.0%	3,761	3.0%
	109	Route 250 Bypass WB (btwn Barracks Rd & Prop Route 29 Bypass)	24,000	3.0%	25,888	3.0%	17,122	3.0%	35,325	3.0%	26,559	3.0%
	110	Route 250 Bypass EB (btwn Bararcks Rd & Prop Route 29 Bypass)	24,000	3.0%	25,888	3.0%	17,122	3.0%	35,325	3.0%	26,559	3.0%
	111	29 NB south of the Bypass (between Fontaine and Ivy)	21,000	7.0%	23,115	7.0%	24,162	7.0%	33,702	7.0%	34,750	7.0%
	112	29 SB south of the Bypass (between Fontaine and Ivy)	21,000	7.0%	23,115	7.0%	24,162	7.0%	33,702	7.0%	34,750	7.0%
	113	Ivy Rd EB (btwn Rt 250 Bypass & Alderman Rd)	8,000	1.0%	7,711	1.0%	7,171	1.0%	6,261	1.0%	5,721	1.0%
	114	Ivy Rd WB (btwn Rt 250 Bypass & Alderman Rd)	8,000	1.0%	7,711	1.0%	7,171	1.0%	6,261	1.0%	5,721	1.0%
	115	Ivy Rd WB (btwn Rt 846 & Golf Course Dr)	7,000	2.0%	7,518	2.0%	7,638	2.0%	10,118	2.0%	10,238	2.0%
	116	Ivy Rd EB (btwn Rt 846 & Golf Course Dr)	7,000	2.0%	7,518	2.0%	7,638	2.0%	10,118	2.0%	10,238	2.0%
	117	Old Ivy Rd EB (btwn Crestwood Rd & Harvest Dr)	2,750	1.0%	2,773	1.0%	2,703	1.0%	2,860	1.0%	2,790	1.0%
	118	Old Ivy Rd WB (btwn Crestwood Rd & Harvest Dr)	2,750	1.0%	2,773	1.0%	2,703	1.0%	2,860	1.0%	2,790	1.0%
	119	Proposed Bypass NB (South Terminus to North Terminus)					8,900	3.0%			13,899	3.0%
	120	Proposed Bypass SB (North Terminus to South Terminus)					8,900	3.0%			13,899	3.0%
	152	AB-AC: Off-Ramp from 29 NB to L. Sandridge Rd (diamond)					557	3.0%			762	3.0%
	163	AB-AJ: 29 NB to Proposed Bypass NB (flyover)					8,144	3.0%			10,135	3.0%
	153	AC-AD: On-Ramp from L. Sandridge Rd to 250 NB (diamond)					394	3.0%			1,930	3.0%
	154	AA-AD: 250 Bypass NB (thru lanes) from 29 NB Bypass diverge to On-Ramp from L. Sandridge Rd					16,920	3.0%			24,537	3.0%
	157	AE-AH: 250 Bypass SB (thru lanes) from Off-Ramp to L. Sandridge Rd to 29 SB Bypass merge					16,498	3.0%			23,047	3.0%
	158	AH-AG: 250 Bypass SB (thru lanes) from 29 SB Bypass merge to On-Ramp from L. Sandridge Rd					24,901	3.0%			34,301	3.0%
	155	AE-AF: Off-Ramp from 250 SB to L. Sandridge Rd (diamond)					799	3.0%			3,435	3.0%
	156	AF-AG: On-Ramp from L. Sandridge Rd to 29 SB (diamond)					708	3.0%			1,144	3.0%
	164	AI-AH: Proposed Bypass SB to 29 SB (flyover)					8,403	3.0%			11,254	3.0%
	151	AA-AB: 250 NB to Split					8,701	3.0%			10,897	3.0%
	159	AC-AF: L. Sandridge Rd NB, between Ramps					1,112	3.0%			3,066	3.0%
	160	AF-AC: L. Sandridge Rd SB, between Ramps					946	3.0%			4,238	3.0%
	161	AF-AJ: L. Sandridge Rd NB ramp to Proposed Bypass NB					843	3.0%			3,728	3.0%
	162	AI-AF: Proposed Bypass SB ramp to L. Sandridge Rd SB					586	3.0%			2,609	3.0%
	109	Route 250 SB/WB Mainline (btwn Ivy Rd & Barracks Rd) - Ex & NB	24,000	3.0%	25,888	3.0%			35,325	3.0%		
	151	Route 250 SB/WB Mainline (btwn Ivy Rd & 29 Bypass) - Build					25,609	3.0%			35,445	3.0%
	110	Route 250 NB/EB Mainline (btwn Ivy Rd & L. Sandridge Rd) - Ex & NB	24,000	3.0%	25,888	3.0%			35,325	3.0%		
	110	Route 250 NB/EB Mainline (btwn L. Sandridge Rd & Barracks Rd) - Ex & NB	24,000	3.0%	25,888	3.0%			35,325	3.0%		
	158	Route 250 NB/EB Mainline (btwn Ivy Rd & 29 Bypass) - Build					25,621	3.0%			35,434	3.0%
	191	Route 250 SB Off-Ramp (loop) to Ivy Rd	6,315	1.0%	6,341	1.0%	5,706	1.0%	6,631	1.0%	6,073	1.0%
	192	Route 250 SB On-Ramp from Ivy Rd	3,353	1.0%	3,612	1.0%	4,011	1.0%	5,058	1.0%	5,516	1.0%
	193	Route 250 NB Off-Ramp to Ivy Rd	3,353	1.0%	3,612	1.0%	4,010	1.0%	5,057	1.0%	5,516	1.0%
	194	Route 250 NB On-Ramp (loop) from Ivy Rd	6,314	1.0%	6,341	1.0%	5,706	1.0%	6,631	1.0%	6,073	1.0%
	119	Proposed Bypass NB (South Terminus to North Terminus)					8,900	3.0%			13,899	3.0%
	120	Proposed Bypass SB (North Terminus to South Terminus)					8,900	3.0%			13,899	3.0%
	136	Ramp 136: Prop Bypass NB to US 29 SB					972	3.0%			4,464	3.0%
	135	Ramp 135: Prop Bypass NB to US 29 NB					7,993	3.0%			9,424	3.0%
	133	Ramp 133: US 29 SB to Prop Bypass SB					7,965	3.0%			9,321	3.0%
	134	Ramp 134: US 29 NB to Prop Bypass SB (left-exit ramp)					1,003	3.0%			4,565	3.0%
	2	29 NB, north of Prop Bypass (south of Hollymead)	24,000	3.0%	25,547	3.0%	29,704	3.0%	33,272	3.0%	37,429	3.0%
	1	29 SB, north of Prop Bypass (south of Hollymead)	24,000	3.0%	25,547	3.0%	29,704	3.0%	33,272	3.0%	37,429	3.0%
	3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%
	4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%
	130	29 Seminole Tr between ramps (NB)					8,900	3.0%			13,899	3.0%
	131	29 Seminole Tr between ramps (SB)					21,441	3.0%			28,085	3.0%
Existing Route 29	109	29/250: Prop Bypass to Barracks Road (SB)	24,000	3.0%	25,888	3.0%	17,122	3.0%	35,325	3.0%	26,559	3.0%
	70	29/250: Barracks Road to Emmet Street (NB)	19,000	3.0%	20,717	3.0%	13,026	3.0%	29,329	3.0%	20,315	3.0%
	69	29/250: Barracks Road to Emmet Street (SB)	19,000	3.0%	20,717	3.0%	13,026	3.0%	29,329	3.0%	20,315	3.0%
	21	29 Seminole Tr: US 250 to Angus Rd (NB)	26,000	3.0%	28,827	3.0%	18,671	3.0%	42,939	3.0%	32,783	3.0%
	22	29 Seminole Tr: US 250 to Angus Rd (SB)	26,000	3.0%	28,827	3.0%	18,671	3.0%	42,939	3.0%	32,783	3.0%
	19	29 Seminole Tr: Angus Rd to Hydraulic Rd (NB)	26,000	3.0%	28,609	3.0%	18,506	3.0%	41,646	3.0%	31,544	3.0%
	20	29 Seminole Tr: Angus Rd to Hydraulic Rd (SB)	26,000	3.0%	28,609	3.0%	18,506	3.0%	41,646	3.0%	31,544	3.0%
	17	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (NB)	28,500	3.0%	30,692	3.0%	22,902	3.0%	41,642	3.0%	33,852	3.0%
	18	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (SB)	28,500	3.0%	30,692	3.0%	22,902	3.0%	41,642	3.0%	33,852	3.0%
	15	29 Seminole Tr: Greenbrier Dr to Dominion Dr (NB)	28,500	3.0%	30,780	3.0%	20,063	3.0%	42,180	3.0%	31,463	3.0%
	16	29 Seminole Tr: Greenbrier Dr to Dominion Dr (SB)	28,500	3.0%	30,780	3.0%	20,063	3.0%	42,180	3.0%	31,463	3.0%
	13	29 Seminole Tr: Dominion Dr to Berkmar Dr (NB)	28,500	3.0%	30,446	3.0%	19,519	3.0%	40,158	3.0%	29,231	3.0%
	14	29 Seminole Tr: Dominion Dr to Berkmar Dr (SB)	28,500	3.0%	30,446	3.0%	19,519	3.0%	40,158	3.0%	29,231	3.0%
	11	29 Seminole Tr: Berkmar Dr to Rio Rd (NB)	24,000	3.0%	25,498	3.0%	18,108	3.0%	32,973	3.0%	25,583	3.0%
	12	29 Seminole Tr: Berkmar Dr to Rio Rd (SB)	24,000	3.0%	25,498	3.0%	18,108	3.0%	32,973	3.0%	25,583	3.0%
	9	29 Seminole Tr: Rio Rd to Woodbrook Dr (NB)	24,000	3.0%	26,753	3.0%	20,522	3.0%	40,528	3.0%	34,297	3.0%
	10	29 Seminole Tr: Rio Rd to Woodbrook Dr (SB)	24,000	3.0%	26,753	3.0%	20,522	3.0%	40,528	3.0%	34,297	3.0%
	7	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (NB)	24,000	3.0%	26,389	3.0%	20,267	3.0%	38,339	3.0%	32,217	3.0%
	8	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (SB)	24,000	3.0%	26,389	3.0%	20,267	3.0%	38,339	3.0%	32,217	3.0%
	5	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (NB)	24,000	3.0%	26,307	3.0%	20,230	3.0%	37,832	3.0%	31,755	3.0%
	6	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (SB)	24,000	3.0%	26,307	3.0%	20,230	3.0%	37,832	3.0%	31,755	3.0%
	3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%
	4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	24,000	3.0%	26,089	3.0%	22,255	3.0%	36,539	3.0%	32,705	3.0%

ROUTE 29 BYPASS EA - AIR QUALITY ANALYSIS

AM Peak Hour - Baseline Conditions						
Intersection	Baseline AM Peak Hour					Intersection LOS (Delay)
	EB	WB	NB	SB	Total	
Hydraulic Road & Route 29	1,225	1,460	1,690	2,400	**6,775**	**E (63.8)**
Greenbrier Drive & Route 29	239	289	1,972	2,319	**4,819**	**C (32.1)**
Rio Drive & Route 29	557	945	1,427	2,534	**5,463**	**D (48.1)**
Hilton Heights Road & Route 29	208	64	1,382	2,782	**4,436**	**C (27.6)**

PM Peak Hour - Baseline Conditions						
Intersection	Baseline PM Peak Hour					Intersection LOS (Delay)
	EB	WB	NB	SB	Total	
Hydraulic Road & Route 29	1,235	1,780	2,695	2,845	**8,555**	**F (106.8)**
Greenbrier Drive & Route 29	537	365	3,015	2,737	**6,654**	**D (44.7)**
Rio Drive & Route 29	796	1,470	2,938	2,388	**7,592**	**F (129.7)**
Hilton Heights Road & Route 29	654	123	2,823	1,769	**5,369**	**D (47.2)**

ROUTE 29 BYPASS EA - AIR QUALITY ANALYSIS

AM Peak Hour - 2015 Conditions												
Intersection	2015 No-Build AM Peak Hour					Intersection LOS (Delay)	2015 Build AM Peak Hour					Intersection LOS (Delay)
	EB	WB	NB	SB	Total		EB	WB	NB	SB	Total	
Hydraulic Road & Route 29	1,389	1,512	1,821	2,584	**7,306**	**E (72.0)**	1,077	1,493	1,166	1,909	**5,645**	**D (52.7)**
Greenbrier Drive & Route 29	260	277	2,073	2,644	**5,254**	**D (35.2)**	405	353	1,557	1,765	**4,080**	**D (39.2)**
Rio Drive & Route 29	538	1,014	1,546	2,409	**5,507**	**D (50.6)**	470	939	1,184	1,844	**4,437**	**D (47.9)**
Hilton Heights Road & Route 29	189	66	1,406	2,755	**4,416**	**C (27.2)**	189	67	1,092	2,138	**3,486**	**C (26.2)**

PM Peak Hour - 2015 Conditions												
Intersection	2015 No-Build PM Peak Hour					Intersection LOS (Delay)	2015 Build PM Peak Hour					Intersection LOS (Delay)
	EB	WB	NB	SB	Total		EB	WB	NB	SB	Total	
Hydraulic Road & Route 29	1,403	1,904	2,663	2,685	**8,655**	**F (115.4)**	1,097	1,835	1,717	1,999	**6,648**	**E (69.0)**
Greenbrier Drive & Route 29	588	353	2,776	2,769	**6,486**	**D (54.6)**	908	446	2,078	1,828	**5,260**	**E (60.6)**
Rio Drive & Route 29	749	1,537	2,757	1,869	**6,912**	**F (97.5)**	654	1,424	2,108	1,429	**5,615**	**E (69.1)**
Hilton Heights Road & Route 29	593	129	2,884	1,805	**5,411**	**D (45.6)**	588	129	2,212	1,387	**4,316**	**D (44.5)**

ROUTE 29 BYPASS EA - AIR QUALITY ANALYSIS

AM Peak Hour - 2040 Conditions

Intersection	2040 No-Build AM Peak Hour					Intersection LOS (Delay)	Rank	2040 Build AM Peak Hour					Intersection LOS (Delay)	Rank
	EB	WB	NB	SB	Total			EB	WB	NB	SB	Total		
Hydraulic Road & Route 29	2,220	1,774	2,667	3,521	**10,182**	**F (189.9)**	**1**	1,907	1,761	2,008	2,845	**8,521**	**F (111.5)**	**1**
Greenbrier Drive & Route 29	399	229	2,809	3,617	**7,054**	**D (43.0)**	**3**	511	303	2,289	2,745	**5,848**	**D (45.8)**	**3**
Rio Drive & Route 29	417	1,321	2,358	3,527	**7,623**	**E (77.8)**	**2**	350	1,250	1,995	2,962	**6,557**	**E (61.3)**	**2**
Hilton Heights Road & Route 29	89	86	1,994	3,896	**6,065**	**C (30.1)**	**4**	89	86	1,684	3,277	**5,136**	**C (24.3)**	**4**

PM Peak Hour - 2040 Conditions

Intersection	2040 No-Build PM Peak Hour					Intersection LOS (Delay)	Rank	2040 Build PM Peak Hour					Intersection LOS (Delay)	Rank
	EB	WB	NB	SB	Total			EB	WB	NB	SB	Total		
Hydraulic Road & Route 29	2,241	2,164	3,897	3,661	**11,963**	**F (279.8)**	**1**	1,936	2,157	2,949	2,974	**10,016**	**F (180.9)**	**1**
Greenbrier Drive & Route 29	835	292	3,769	3,798	**8,694**	**F (120.9)**	**3**	1,155	384	3,067	2,860	**7,466**	**F (115.3)**	**3**
Rio Drive & Route 29	577	1,988	4,177	2,717	**9,459**	**F (220.1)**	**2**	483	1,876	3,526	2,276	**8,161**	**F (176.3)**	**2**
Hilton Heights Road & Route 29	289	169	4,234	2,611	**7,303**	**E (68.6)**	**4**	285	170	3,562	2,193	**6,210**	**D (43.6)**	**4**

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	695	420	170	615	675	445	1145	100	485	1755	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5024	0	3433	5085	1583
Flt Permitted	0.162			0.095			0.950			0.950		
Satd. Flow (perm)	302	3539	1583	177	3539	2787	3433	5024	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			287			538		9				92
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	120	755	457	185	668	734	484	1245	109	527	1908	174
Lane Group Flow (vph)	120	755	457	185	668	734	484	1354	0	527	1908	174
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	18.0	46.0	46.0	21.0	49.0	49.0	33.0	73.0	0.0	40.0	80.0	80.0
Total Split (%)	10.0%	25.6%	25.6%	11.7%	27.2%	27.2%	18.3%	40.6%	0.0%	22.2%	44.4%	44.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	49.7	39.0	39.0	56.3	42.3	42.3	26.0	67.9		31.1	73.0	73.0
Actuated g/C Ratio	0.28	0.22	0.22	0.31	0.24	0.24	0.14	0.38		0.17	0.41	0.41
v/c Ratio	0.70	0.98	0.80	1.03	0.80	0.69	0.98	0.71		0.89	0.93	0.25
Control Delay	66.3	97.8	36.0	123.3	73.6	19.6	109.9	50.3		90.2	59.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	66.3	97.8	36.0	123.3	73.6	19.6	109.9	50.3		90.2	59.6	17.1
LOS	E	F	D	F	E	B	F	D		F	E	B
Approach Delay		73.8			54.4			66.0			62.9	
Approach LOS		E			D			E			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 63.8	Intersection LOS: E
Intersection Capacity Utilization 98.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	63	99	174	100	15	153	1631	188	69	2206	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1827	0	3433	7431	0	1770	6408	1583
Flt Permitted	0.677			0.449			0.950			0.950		
Satd. Flow (perm)	1261	1863	1583	836	1827	0	3433	7431	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		4			24				32
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	84	68	108	189	109	16	166	1773	204	75	2398	48
Lane Group Flow (vph)	84	68	108	189	125	0	166	1977	0	75	2398	48
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0		11.0	23.0		11.0	23.0	23.0
Total Split (s)	18.0	25.0	25.0	31.0	38.0	0.0	23.0	100.0	0.0	24.0	101.0	101.0
Total Split (%)	10.0%	13.9%	13.9%	17.2%	21.1%	0.0%	12.8%	55.6%	0.0%	13.3%	56.1%	56.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	22.3	11.9	11.9	40.0	22.6		14.0	106.0		13.0	105.1	105.1
Actuated g/C Ratio	0.12	0.07	0.07	0.22	0.13		0.08	0.59		0.07	0.58	0.58
v/c Ratio	0.45	0.55	0.52	0.64	0.54		0.62	0.45		0.59	0.64	0.05
Control Delay	64.5	97.3	21.4	70.3	78.9		90.5	21.8		98.2	27.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	64.5	97.3	21.4	70.3	78.9		90.5	21.8		98.2	27.0	8.7
LOS	E	F	C	E	E		F	C		F	C	A
Approach Delay		55.2			73.7			27.1			28.8	
Approach LOS		E			E			C			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 32.1	Intersection LOS: C
Intersection Capacity Utilization 70.1%	ICU Level of Service C
Analysis Period (min) 15	

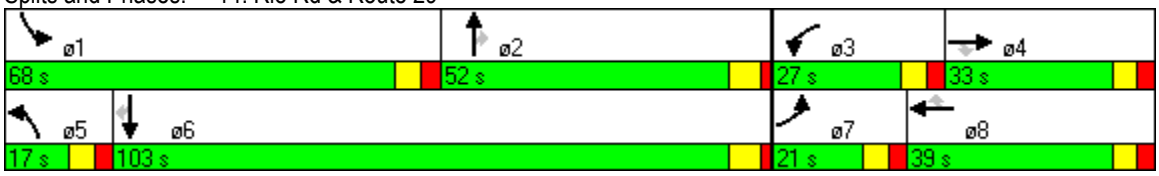
Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	319	82	250	320	375	95	1198	134	418	2027	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			408			146			71
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	170	347	89	272	348	408	103	1302	146	454	2203	97
Lane Group Flow (vph)	170	347	89	272	348	408	103	1302	146	454	2203	97
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	20.0	20.0	11.0	20.0	20.0	11.0	20.0	20.0	11.0	20.0	20.0
Total Split (s)	21.0	33.0	33.0	27.0	39.0	39.0	17.0	52.0	52.0	68.0	103.0	103.0
Total Split (%)	11.7%	18.3%	18.3%	15.0%	21.7%	21.7%	9.4%	28.9%	28.9%	37.8%	57.2%	57.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.0	22.4	22.4	18.3	27.7	27.7	9.8	59.9	59.9	51.4	101.5	101.5
Actuated g/C Ratio	0.07	0.12	0.12	0.10	0.15	0.15	0.05	0.33	0.33	0.29	0.56	0.56
v/c Ratio	0.69	0.79	0.32	0.78	0.64	0.69	0.55	0.61	0.23	0.90	0.61	0.11
Control Delay	95.9	89.6	14.7	94.5	76.7	11.9	94.1	53.7	7.7	82.7	27.6	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.9	89.6	14.7	94.5	76.7	11.9	94.1	53.7	7.7	82.7	27.6	6.9
LOS	F	F	B	F	E	B	F	D	A	F	C	A
Approach Delay		80.4			55.7			52.0			36.0	
Approach LOS		F			E			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 48.1	Intersection LOS: D
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 14: Rio Rd & Route 29

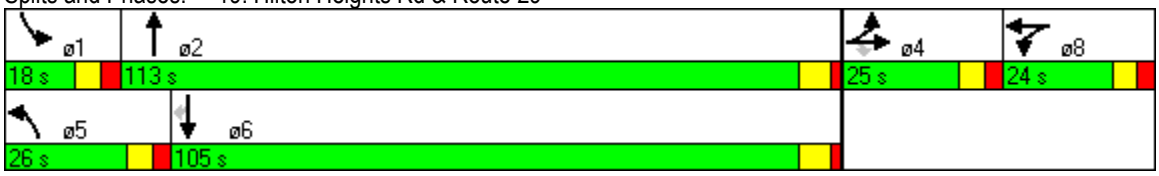


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	6	71	34	11	19	193	1114	75	44	2451	287
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1694	1583	0	1742	0	3433	6344	0	1770	6408	1583
Flt Permitted	0.950	0.957			0.974		0.950			0.950		
Satd. Flow (perm)	1681	1694	1583	0	1742	0	3433	6344	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			77		9			14				181
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	142	7	77	37	12	21	210	1211	82	48	2664	312
Lane Group Flow (vph)	74	75	77	0	70	0	210	1293	0	48	2664	312
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	23.0		11.0	23.0	23.0
Total Split (s)	25.0	25.0	25.0	24.0	24.0	0.0	26.0	113.0	0.0	18.0	105.0	105.0
Total Split (%)	13.9%	13.9%	13.9%	13.3%	13.3%	0.0%	14.4%	62.8%	0.0%	10.0%	58.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	13.2	13.2	13.2		11.7		16.0	120.1		9.7	111.1	111.1
Actuated g/C Ratio	0.07	0.07	0.07		0.06		0.09	0.67		0.05	0.62	0.62
v/c Ratio	0.60	0.60	0.41		0.58		0.69	0.31		0.50	0.67	0.30
Control Delay	99.8	100.1	20.5		88.7		91.1	13.9		100.1	24.9	8.1
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	99.8	100.1	20.5		88.7		91.1	13.9		100.1	24.9	8.1
LOS	F	F	C		F		F	B		F	C	A
Approach Delay		72.9			88.7			24.7			24.3	
Approach LOS		E			F			C			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 68.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	620	405	210	720	850	585	1925	185	720	1880	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.88	0.97	0.91	0.91	0.97	0.91	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5019	0	3433	5085	1583
Flt Permitted	0.125			0.118			0.950			0.950		
Satd. Flow (perm)	233	3539	1583	220	3539	2787	3433	5019	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			309			539		10				132
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Lane Group Flow (vph)	228	674	440	228	783	924	636	2293	0	783	2043	266
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	20.0	39.0	39.0	22.0	41.0	41.0	39.0	78.0	0.0	41.0	80.0	80.0
Total Split (%)	11.1%	21.7%	21.7%	12.2%	22.8%	22.8%	21.7%	43.3%	0.0%	22.8%	44.4%	44.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	45.0	32.0	32.0	49.0	34.0	34.0	32.0	71.0		34.0	73.0	73.0
Actuated g/C Ratio	0.25	0.18	0.18	0.27	0.19	0.19	0.18	0.39		0.19	0.41	0.41
v/c Ratio	1.35	1.07	0.82	1.21	1.17	0.96	1.04	1.15		1.21	0.99	0.37
Control Delay	230.0	123.8	34.2	175.0	153.1	49.7	117.2	123.4		166.1	70.2	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	230.0	123.8	34.2	175.0	153.1	49.7	117.2	123.4		166.1	70.2	19.6
LOS	F	F	C	F	F	D	F	F		F	E	B
Approach Delay		112.5			106.3			122.1			90.1	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 106.8	Intersection LOS: F
Intersection Capacity Utilization 116.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	131	207	206	129	30	379	2454	182	45	2573	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.81	0.81	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850		0.971			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1809	0	3433	7469	0	1770	6408	1583
Flt Permitted	0.284			0.492			0.950			0.950		
Satd. Flow (perm)	529	1863	1583	916	1809	0	3433	7469	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185		5			17				68
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Lane Group Flow (vph)	216	142	225	224	173	0	412	2865	0	49	2797	129
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	20.0	20.0	11.0	20.0		11.0	20.0		11.0	20.0	20.0
Total Split (s)	27.0	29.0	29.0	25.0	27.0	0.0	32.0	109.0	0.0	17.0	94.0	94.0
Total Split (%)	15.0%	16.1%	16.1%	13.9%	15.0%	0.0%	17.8%	60.6%	0.0%	9.4%	52.2%	52.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	40.4	20.8	20.8	37.2	19.2		24.3	106.9		9.0	89.0	89.0
Actuated g/C Ratio	0.22	0.12	0.12	0.21	0.11		0.14	0.59		0.05	0.49	0.49
v/c Ratio	0.85	0.66	0.65	0.81	0.88		0.89	0.65		0.55	0.88	0.16
Control Delay	86.2	91.1	25.4	81.8	114.4		97.8	25.6		106.0	45.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	86.2	91.1	25.4	81.8	114.4		97.8	25.6		106.0	45.5	12.7
LOS	F	F	C	F	F		F	C		F	D	B
Approach Delay		63.9			96.0			34.7			45.1	
Approach LOS		E			F			C			D	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 44.7	Intersection LOS: D
Intersection Capacity Utilization 91.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	277	390	129	306	539	625	119	2657	162	638	1648	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.86	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			400			98			111
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Lane Group Flow (vph)	301	424	140	333	586	679	129	2888	176	693	1791	111
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	20.0	20.0	11.0	20.0	20.0	11.0	20.0	20.0	11.0	20.0	20.0
Total Split (s)	19.0	28.0	28.0	23.0	32.0	32.0	18.0	71.0	71.0	58.0	111.0	111.0
Total Split (%)	10.6%	15.6%	15.6%	12.8%	17.8%	17.8%	10.0%	39.4%	39.4%	32.2%	61.7%	61.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	12.0	21.0	21.0	16.0	25.0	25.0	10.5	64.0	64.0	51.0	104.5	104.5
Actuated g/C Ratio	0.07	0.12	0.12	0.09	0.14	0.14	0.06	0.36	0.36	0.28	0.58	0.58
v/c Ratio	1.31	1.03	0.49	1.09	1.19	1.20	0.65	1.27	0.28	1.38	0.48	0.12
Control Delay	228.1	126.4	24.6	150.3	167.1	131.6	97.9	170.2	19.0	229.2	22.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	228.1	126.4	24.6	150.3	167.1	131.6	97.9	170.2	19.0	229.2	22.6	2.8
LOS	F	F	C	F	F	F	F	F	B	F	C	A
Approach Delay		145.3			148.5			158.9			76.9	
Approach LOS		F			F			F			E	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.38	
Intersection Signal Delay: 129.7	Intersection LOS: F
Intersection Capacity Utilization 120.0%	ICU Level of Service H
Analysis Period (min) 15	

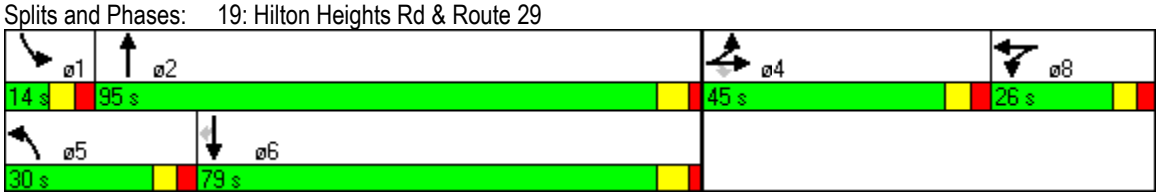
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	456	36	162	82	24	17	284	2381	158	36	1568	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.86	0.86	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850		0.982			0.991				0.850
Flt Protected	0.950	0.959			0.968		0.950			0.950		
Satd. Flow (prot)	1681	1697	1583	0	1771	0	3433	6350	0	1770	6408	1583
Flt Permitted	0.950	0.959			0.968		0.950			0.950		
Satd. Flow (perm)	1681	1697	1583	0	1771	0	3433	6350	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137		3			11				123
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Lane Group Flow (vph)	268	267	176	0	133	0	309	2760	0	39	1704	179
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	45.0	45.0	45.0	26.0	26.0	0.0	30.0	95.0	0.0	14.0	79.0	79.0
Total Split (%)	25.0%	25.0%	25.0%	14.4%	14.4%	0.0%	16.7%	52.8%	0.0%	7.8%	43.9%	43.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	33.0	33.0	33.0		17.0		20.6	97.1		7.5	81.4	81.4
Actuated g/C Ratio	0.18	0.18	0.18		0.09		0.11	0.54		0.04	0.45	0.45
v/c Ratio	0.87	0.86	0.44		0.78		0.79	0.80		0.53	0.59	0.23
Control Delay	97.5	95.8	19.3		106.9		92.1	37.9		108.9	39.1	11.9
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	97.5	95.8	19.3		106.9		92.1	37.9		108.9	39.1	11.9
LOS	F	F	B		F		F	D		F	D	B
Approach Delay		77.5			106.9			43.3			38.0	
Approach LOS		E			F			D			D	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 47.2	Intersection LOS: D
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	752	488	150	667	695	504	1231	86	486	1887	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.88	0.97	0.91	0.91	0.97	0.91	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5034	0	3433	5085	1583
Flt Permitted	0.100			0.103			0.950			0.950		
Satd. Flow (perm)	186	3539	1583	192	3539	2787	3433	5034	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			300			573		7				113
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Lane Group Flow (vph)	162	817	530	163	725	755	548	1431	0	528	2051	229
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	19.0	47.0	47.0	18.0	46.0	46.0	35.0	71.0	0.0	44.0	80.0	80.0
Total Split (%)	10.6%	26.1%	26.1%	10.0%	25.6%	25.6%	19.4%	39.4%	0.0%	24.4%	44.4%	44.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	52.0	40.0	40.0	50.0	39.0	39.0	28.0	68.7		32.3	73.0	73.0
Actuated g/C Ratio	0.29	0.22	0.22	0.28	0.22	0.22	0.16	0.38		0.18	0.41	0.41
v/c Ratio	1.02	1.04	0.91	1.09	0.95	0.72	1.03	0.74		0.86	0.99	0.32
Control Delay	123.2	108.7	49.0	143.2	90.3	19.2	117.9	51.2		85.6	71.1	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	123.2	108.7	49.0	143.2	90.3	19.2	117.9	51.2		85.6	71.1	19.1
LOS	F	F	D	F	F	B	F	D		F	E	B
Approach Delay		89.3			62.9			69.7			69.6	
Approach LOS		F			E			E			E	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 72.0	Intersection LOS: E
Intersection Capacity Utilization 103.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	65	66	126	124	27	118	1826	129	117	2443	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.81	0.81	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850		0.973			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1812	0	3433	7469	0	1770	6408	1583
Flt Permitted	0.368			0.711			0.950			0.950		
Satd. Flow (perm)	685	1863	1583	1324	1812	0	3433	7469	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			72		5			14				57
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Lane Group Flow (vph)	140	71	72	137	164	0	128	2125	0	127	2655	91
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	23.0	34.0	34.0	23.0	34.0	0.0	18.0	93.0	0.0	30.0	105.0	105.0
Total Split (%)	12.8%	18.9%	18.9%	12.8%	18.9%	0.0%	10.0%	51.7%	0.0%	16.7%	58.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	36.1	21.0	21.0	35.7	20.8		11.2	98.2		17.9	104.9	104.9
Actuated g/C Ratio	0.20	0.12	0.12	0.20	0.12		0.06	0.55		0.10	0.58	0.58
v/c Ratio	0.61	0.33	0.29	0.46	0.77		0.60	0.52		0.72	0.71	0.10
Control Delay	67.7	75.7	15.9	60.7	96.8		94.2	27.4		100.7	28.9	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.7	75.7	15.9	60.7	96.8		94.2	27.4		100.7	28.9	8.1
LOS	E	E	B	E	F		F	C		F	C	A
Approach Delay		56.5			80.4			31.2			31.4	
Approach LOS		E			F			C			C	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 35.2	Intersection LOS: D
Intersection Capacity Utilization 77.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	337	102	399	310	305	114	1206	226	353	2003	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.86	1.00	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111			332			246			39
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Lane Group Flow (vph)	108	366	111	434	337	332	124	1311	246	384	2177	58
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	17.0	31.0	31.0	36.0	50.0	50.0	18.0	54.0	54.0	59.0	95.0	95.0
Total Split (%)	9.4%	17.2%	17.2%	20.0%	27.8%	27.8%	10.0%	30.0%	30.0%	32.8%	52.8%	52.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	9.5	22.3	22.3	26.6	39.4	39.4	10.6	59.3	59.3	43.7	92.5	92.5
Actuated g/C Ratio	0.05	0.12	0.12	0.15	0.22	0.22	0.06	0.33	0.33	0.24	0.51	0.51
v/c Ratio	0.59	0.83	0.38	0.85	0.43	0.55	0.62	0.62	0.36	0.89	0.66	0.07
Control Delay	96.9	93.6	14.4	91.4	62.0	8.5	96.1	54.1	6.8	88.9	34.1	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.9	93.6	14.4	91.4	62.0	8.5	96.1	54.1	6.8	88.9	34.1	10.2
LOS	F	F	B	F	E	A	F	D	A	F	C	B
Approach Delay		79.2			57.5			50.3			41.6	
Approach LOS		E			E			D			D	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 50.6	Intersection LOS: D
Intersection Capacity Utilization 81.1%	ICU Level of Service D
Analysis Period (min) 15	

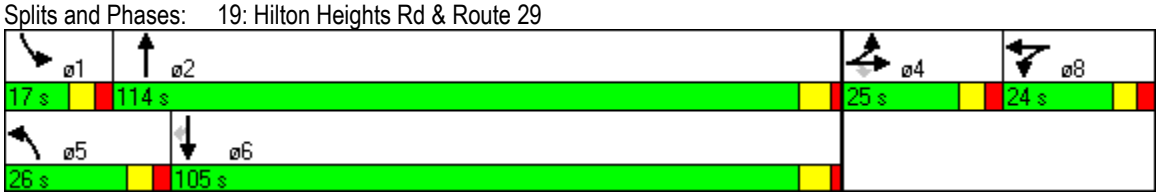
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	6	74	39	10	17	198	1123	85	40	2480	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.86	0.86	1.00	0.86	1.00
Ped Bike Factor												
Frt			0.850		0.966			0.989				0.850
Flt Protected	0.950	0.958			0.971		0.950			0.950		
Satd. Flow (prot)	1681	1695	1583	0	1747	0	3433	6337	0	1770	6408	1583
Flt Permitted	0.950	0.958			0.971		0.950			0.950		
Satd. Flow (perm)	1681	1695	1583	0	1747	0	3433	6337	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		8			16				146
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Lane Group Flow (vph)	63	62	80	0	71	0	215	1313	0	43	2696	255
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	25.0	25.0	25.0	24.0	24.0	0.0	26.0	114.0	0.0	17.0	105.0	105.0
Total Split (%)	13.9%	13.9%	13.9%	13.3%	13.3%	0.0%	14.4%	63.3%	0.0%	9.4%	58.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	12.1	12.1	12.1		11.9		16.4	121.3		9.3	111.6	111.6
Actuated g/C Ratio	0.07	0.07	0.07		0.07		0.09	0.67		0.05	0.62	0.62
v/c Ratio	0.56	0.54	0.44		0.58		0.69	0.31		0.47	0.68	0.25
Control Delay	99.0	97.9	21.5		89.8		90.6	13.4		98.7	24.8	7.9
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	99.0	97.9	21.5		89.8		90.6	13.4		98.7	24.8	7.9
LOS	F	F	C		F		F	B		F	C	A
Approach Delay		68.4			89.8			24.2			24.4	
Approach LOS		E			F			C			C	

Intersection Summary	
Area Type:	Other

Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 69.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	217	714	472	221	889	794	673	1798	192	668	1765	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5014	0	3433	5085	1583
Flt Permitted	0.105			0.098			0.950			0.950		
Satd. Flow (perm)	196	3539	1583	183	3539	2787	3433	5014	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			314			547		11				135
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	236	776	513	240	966	863	732	1954	209	726	1918	274
Lane Group Flow (vph)	236	776	513	240	966	863	732	2163	0	726	1918	274
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	21.0	45.0	45.0	24.0	48.0	48.0	38.0	73.0	0.0	38.0	73.0	73.0
Total Split (%)	11.7%	25.0%	25.0%	13.3%	26.7%	26.7%	21.1%	40.6%	0.0%	21.1%	40.6%	40.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	52.0	38.0	38.0	58.0	41.0	41.0	31.0	66.0		31.0	66.0	66.0
Actuated g/C Ratio	0.29	0.21	0.21	0.32	0.23	0.23	0.17	0.37		0.17	0.37	0.37
v/c Ratio	1.32	1.04	0.88	1.15	1.20	0.82	1.24	1.17		1.23	1.03	0.41
Control Delay	216.2	110.2	43.4	153.5	157.8	30.4	179.1	132.4		175.5	83.3	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	216.2	110.2	43.4	153.5	157.8	30.4	179.1	132.4		175.5	83.3	22.6
LOS	F	F	D	F	F	C	F	F		F	F	C
Approach Delay		104.2			104.2			144.2			100.6	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.32	
Intersection Signal Delay: 115.4	Intersection LOS: F
Intersection Capacity Utilization 118.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	307	146	135	138	167	48	296	2354	126	74	2475	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1801	0	3433	7484	0	1770	6408	1583
Flt Permitted	0.134			0.656			0.950			0.950		
Satd. Flow (perm)	250	1863	1583	1222	1801	0	3433	7484	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147		7			10				122
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	334	159	147	150	182	52	322	2559	137	80	2690	239
Lane Group Flow (vph)	334	159	147	150	234	0	322	2696	0	80	2690	239
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	37.0	44.0	44.0	23.0	30.0	0.0	25.0	91.0	0.0	22.0	88.0	88.0
Total Split (%)	20.6%	24.4%	24.4%	12.8%	16.7%	0.0%	13.9%	50.6%	0.0%	12.2%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	60.0	38.3	38.3	37.7	23.0		18.0	86.3		12.7	81.0	81.0
Actuated g/C Ratio	0.33	0.21	0.21	0.21	0.13		0.10	0.48		0.07	0.45	0.45
v/c Ratio	0.99	0.40	0.32	0.50	0.99		0.94	0.75		0.64	0.93	0.31
Control Delay	101.3	65.0	9.8	51.8	129.9		114.1	39.8		103.8	54.0	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	101.3	65.0	9.8	51.8	129.9		114.1	39.8		103.8	54.0	15.9
LOS	F	E	A	D	F		F	D		F	D	B
Approach Delay		71.2			99.4			47.7			52.3	
Approach LOS		E			F			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 54.6	Intersection LOS: D
Intersection Capacity Utilization 96.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	457	155	538	547	452	143	2285	329	498	1324	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			383			225			51
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	149	497	168	585	595	491	155	2484	358	541	1439	51
Lane Group Flow (vph)	149	497	168	585	595	491	155	2484	358	541	1439	51
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	17.0	28.0	28.0	32.0	43.0	43.0	20.0	68.0	68.0	52.0	100.0	100.0
Total Split (%)	9.4%	15.6%	15.6%	17.8%	23.9%	23.9%	11.1%	37.8%	37.8%	28.9%	55.6%	55.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	10.0	21.0	21.0	25.0	36.0	36.0	12.2	61.0	61.0	45.0	93.8	93.8
Actuated g/C Ratio	0.06	0.12	0.12	0.14	0.20	0.20	0.07	0.34	0.34	0.25	0.52	0.52
v/c Ratio	0.78	1.20	0.55	1.23	0.84	0.79	0.67	1.14	0.52	1.22	0.43	0.06
Control Delay	109.8	175.4	23.4	179.6	80.9	25.1	96.2	122.8	19.6	172.3	27.2	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.8	175.4	23.4	179.6	80.9	25.1	96.2	122.8	19.6	172.3	27.2	5.0
LOS	F	F	C	F	F	C	F	F	B	F	C	A
Approach Delay		132.0			99.1			109.1			65.3	
Approach LOS		F			F			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 97.5	Intersection LOS: F
Intersection Capacity Utilization 112.0%	ICU Level of Service H
Analysis Period (min) 15	

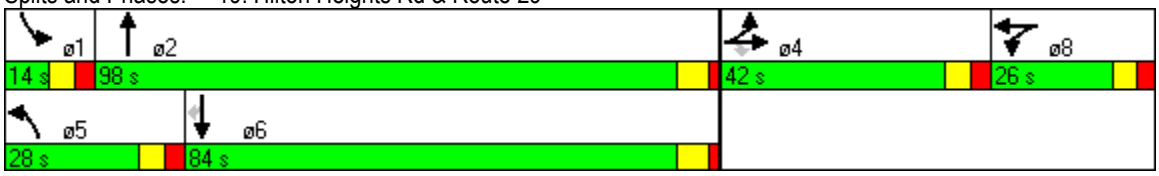
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	417	33	143	87	23	19	253	2465	166	39	1614	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1697	1583	0	1765	0	3433	6350	0	1770	6408	1583
Flt Permitted	0.950	0.959			0.967		0.950			0.950		
Satd. Flow (perm)	1681	1697	1583	0	1765	0	3433	6350	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129		4			11				115
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	453	36	155	95	25	21	275	2679	180	42	1754	165
Lane Group Flow (vph)	245	244	155	0	141	0	275	2859	0	42	1754	165
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	42.0	42.0	42.0	26.0	26.0	0.0	28.0	98.0	0.0	14.0	84.0	84.0
Total Split (%)	23.3%	23.3%	23.3%	14.4%	14.4%	0.0%	15.6%	54.4%	0.0%	7.8%	46.7%	46.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	30.4	30.4	30.4		17.5		18.8	99.2		7.5	85.3	85.3
Actuated g/C Ratio	0.17	0.17	0.17		0.10		0.10	0.55		0.04	0.47	0.47
v/c Ratio	0.86	0.85	0.41		0.81		0.77	0.82		0.57	0.58	0.20
Control Delay	99.6	97.9	17.5		107.8		92.8	37.1		111.8	36.4	10.7
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	99.6	97.9	17.5		107.8		92.8	37.1		111.8	36.4	10.7
LOS	F	F	B		F		F	D		F	D	B
Approach Delay		79.2			107.8			42.0			35.9	
Approach LOS		E			F			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 45.6	Intersection LOS: D
Intersection Capacity Utilization 75.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29

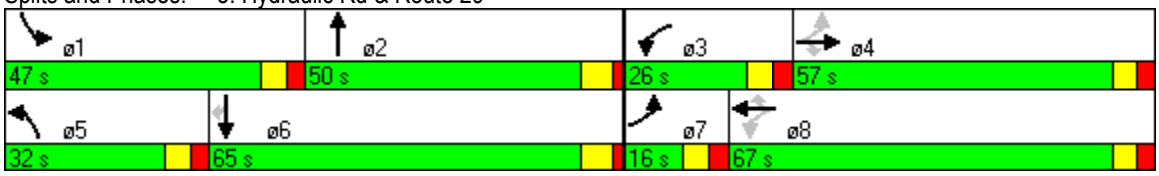


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	714	274	143	648	702	305	775	86	535	1233	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5009	0	3433	5085	1583
Flt Permitted	0.223			0.089			0.950			0.950		
Satd. Flow (perm)	415	3539	1583	166	3539	2787	3433	5009	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			255			763		10				101
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	97	776	298	155	704	763	332	842	93	582	1340	153
Lane Group Flow (vph)	97	776	298	155	704	763	332	935	0	582	1340	153
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	16.0	57.0	57.0	26.0	67.0	67.0	32.0	50.0	0.0	47.0	65.0	65.0
Total Split (%)	8.9%	31.7%	31.7%	14.4%	37.2%	37.2%	17.8%	27.8%	0.0%	26.1%	36.1%	36.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	54.4	45.5	45.5	67.4	52.5	52.5	22.0	55.4		35.3	68.6	68.6
Actuated g/C Ratio	0.30	0.25	0.25	0.37	0.29	0.29	0.12	0.31		0.20	0.38	0.38
v/c Ratio	0.51	0.87	0.50	0.76	0.68	0.56	0.79	0.60		0.86	0.69	0.23
Control Delay	45.7	75.2	12.4	65.0	59.5	4.2	90.7	56.2		83.7	50.6	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	45.7	75.2	12.4	65.0	59.5	4.2	90.7	56.2		83.7	50.6	16.0
LOS	D	E	B	E	E	A	F	E		F	D	B
Approach Delay		56.8			34.0			65.3			57.3	
Approach LOS		E			C			E			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 52.7	Intersection LOS: D
Intersection Capacity Utilization 83.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	134	149	149	191	13	229	1150	178	72	1621	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1846	0	3433	7393	0	1770	6408	1583
Flt Permitted	0.325			0.404			0.950			0.950		
Satd. Flow (perm)	605	1863	1583	753	1846	0	3433	7393	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162		2			28				57
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	133	146	162	162	208	14	249	1250	193	78	1762	78
Lane Group Flow (vph)	133	146	162	162	222	0	249	1443	0	78	1762	78
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	22.0	40.0	40.0	27.0	45.0	0.0	31.0	87.0	0.0	26.0	82.0	82.0
Total Split (%)	12.2%	22.2%	22.2%	15.0%	25.0%	0.0%	17.2%	48.3%	0.0%	14.4%	45.6%	45.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	37.3	23.1	23.1	44.5	26.7		18.3	97.8		13.3	92.8	92.8
Actuated g/C Ratio	0.21	0.13	0.13	0.25	0.15		0.10	0.54		0.07	0.52	0.52
v/c Ratio	0.61	0.61	0.47	0.57	0.80		0.71	0.36		0.60	0.53	0.09
Control Delay	64.0	84.5	13.0	60.1	94.1		89.7	24.2		98.4	31.1	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	64.0	84.5	13.0	60.1	94.1		89.7	24.2		98.4	31.1	9.5
LOS	E	F	B	E	F		F	C		F	C	A
Approach Delay		52.1			79.8			33.8			32.9	
Approach LOS		D			E			C			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 39.2	Intersection LOS: D
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	319	77	369	292	278	87	887	210	324	1480	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84			302			228			38
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	80	347	84	401	317	302	95	964	228	352	1609	43
Lane Group Flow (vph)	80	347	84	401	317	302	95	964	228	352	1609	43
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	15.0	34.0	34.0	38.0	57.0	57.0	16.0	47.0	47.0	61.0	92.0	92.0
Total Split (%)	8.3%	18.9%	18.9%	21.1%	31.7%	31.7%	8.9%	26.1%	26.1%	33.9%	51.1%	51.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	7.8	22.6	22.6	26.0	40.8	40.8	9.5	62.1	62.1	41.3	93.9	93.9
Actuated g/C Ratio	0.04	0.13	0.13	0.14	0.23	0.23	0.05	0.34	0.34	0.23	0.52	0.52
v/c Ratio	0.54	0.78	0.31	0.81	0.39	0.51	0.52	0.44	0.33	0.87	0.48	0.05
Control Delay	97.8	88.7	15.0	87.6	59.6	7.9	93.6	48.5	7.0	87.1	29.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.8	88.7	15.0	87.6	59.6	7.9	93.6	48.5	7.0	87.1	29.0	8.0
LOS	F	F	B	F	E	A	F	D	A	F	C	A
Approach Delay		78.0			55.3			44.5			38.7	
Approach LOS		E			E			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 47.9	Intersection LOS: D
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

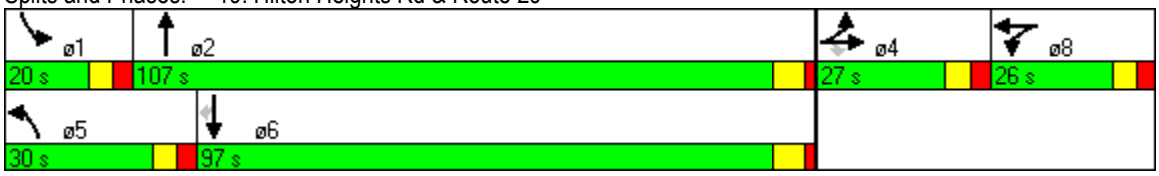
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	7	72	37	13	17	188	823	81	40	1862	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1695	1583	0	1751	0	3433	6325	0	1770	6408	1583
Flt Permitted	0.950	0.958			0.973		0.950			0.950		
Satd. Flow (perm)	1681	1695	1583	0	1751	0	3433	6325	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78		7			20				178
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	120	8	78	40	14	18	204	895	88	43	2024	257
Lane Group Flow (vph)	64	64	78	0	72	0	204	983	0	43	2024	257
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	27.0	27.0	27.0	26.0	26.0	0.0	30.0	107.0	0.0	20.0	97.0	97.0
Total Split (%)	15.0%	15.0%	15.0%	14.4%	14.4%	0.0%	16.7%	59.4%	0.0%	11.1%	53.9%	53.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	12.2	12.2	12.2		12.1		16.0	120.5		9.8	111.7	111.7
Actuated g/C Ratio	0.07	0.07	0.07		0.07		0.09	0.67		0.05	0.62	0.62
v/c Ratio	0.56	0.56	0.43		0.58		0.67	0.23		0.45	0.51	0.24
Control Delay	99.0	98.5	21.6		91.0		90.1	12.8		95.9	20.5	6.1
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	99.0	98.5	21.6		91.0		90.1	12.8		95.9	20.5	6.1
LOS	F	F	C		F		F	B		F	C	A
Approach Delay		69.5			91.0			26.1			20.3	
Approach LOS		E			F			C			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 60.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29

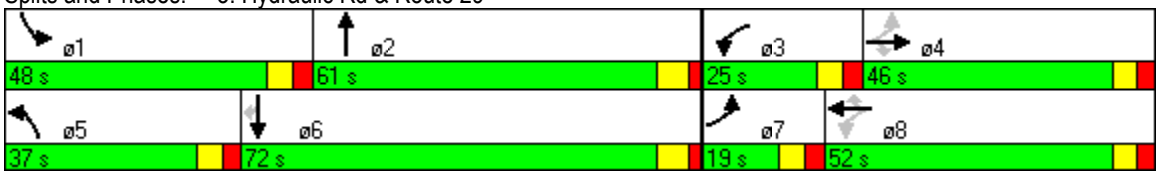


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	685	271	203	808	824	400	1137	180	710	1120	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	4979	0	3433	5085	1583
Flt Permitted	0.103			0.089			0.950			0.950		
Satd. Flow (perm)	192	3539	1583	166	3539	2787	3433	4979	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			242			672		17				142
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	153	745	295	221	878	896	435	1236	196	772	1217	184
Lane Group Flow (vph)	153	745	295	221	878	896	435	1432	0	772	1217	184
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	19.0	46.0	46.0	25.0	52.0	52.0	37.0	61.0	0.0	48.0	72.0	72.0
Total Split (%)	10.6%	25.6%	25.6%	13.9%	28.9%	28.9%	20.6%	33.9%	0.0%	26.7%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	51.0	39.0	39.0	63.0	45.0	45.0	27.0	54.0		41.0	68.0	68.0
Actuated g/C Ratio	0.28	0.22	0.22	0.35	0.25	0.25	0.15	0.30		0.23	0.38	0.38
v/c Ratio	0.96	0.97	0.55	1.01	0.99	0.75	0.84	0.95		0.99	0.63	0.27
Control Delay	107.0	95.0	16.8	114.0	94.4	18.9	89.8	74.7		97.2	48.0	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	107.0	95.0	16.8	114.0	94.4	18.9	89.8	74.7		97.2	48.0	11.3
LOS	F	F	B	F	F	B	F	E		F	D	B
Approach Delay		77.2			62.7			78.2			62.4	
Approach LOS		E			E			E			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 69.0	Intersection LOS: E
Intersection Capacity Utilization 99.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

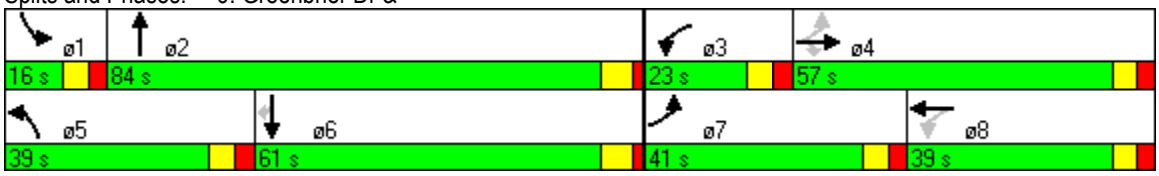


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	338	267	303	147	274	25	553	1400	125	38	1574	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1840	0	3433	7454	0	1770	6408	1583
Flt Permitted	0.103			0.582			0.950			0.950		
Satd. Flow (perm)	192	1863	1583	1084	1840	0	3433	7454	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			329		2			16				149
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	367	290	329	160	298	27	601	1522	136	41	1711	235
Lane Group Flow (vph)	367	290	329	160	325	0	601	1658	0	41	1711	235
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	41.0	57.0	57.0	23.0	39.0	0.0	39.0	84.0	0.0	16.0	61.0	61.0
Total Split (%)	22.8%	31.7%	31.7%	12.8%	21.7%	0.0%	21.7%	46.7%	0.0%	8.9%	33.9%	33.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	73.0	51.4	51.4	46.6	32.0		32.0	80.4		8.2	54.0	54.0
Actuated g/C Ratio	0.41	0.29	0.29	0.26	0.18		0.18	0.45		0.05	0.30	0.30
v/c Ratio	0.98	0.55	0.48	0.48	0.99		0.99	0.50		0.51	0.89	0.41
Control Delay	95.4	59.4	6.9	42.4	117.9		105.2	36.2		104.9	67.0	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	95.4	59.4	6.9	42.4	117.9		105.2	36.2		104.9	67.0	19.9
LOS	F	E	A	D	F		F	D		F	E	B
Approach Delay		55.3			93.0			54.6			62.2	
Approach LOS		E			F			D			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 60.6	Intersection LOS: E
Intersection Capacity Utilization 96.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	103	435	116	495	509	420	107	1692	309	453	942	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126			444			267			37
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	112	473	126	538	553	457	116	1839	336	492	1024	37
Lane Group Flow (vph)	112	473	126	538	553	457	116	1839	336	492	1024	37
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	17.0	30.0	30.0	34.0	47.0	47.0	18.0	60.0	60.0	56.0	98.0	98.0
Total Split (%)	9.4%	16.7%	16.7%	18.9%	26.1%	26.1%	10.0%	33.3%	33.3%	31.1%	54.4%	54.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	9.6	23.0	23.0	27.0	40.4	40.4	10.3	53.0	53.0	49.0	91.7	91.7
Actuated g/C Ratio	0.05	0.13	0.13	0.15	0.22	0.22	0.06	0.29	0.29	0.27	0.51	0.51
v/c Ratio	0.61	1.05	0.40	1.04	0.70	0.65	0.59	0.97	0.51	1.02	0.31	0.04
Control Delay	97.8	127.7	14.0	123.0	69.7	10.3	95.4	77.7	14.1	108.9	26.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.8	127.7	14.0	123.0	69.7	10.3	95.4	77.7	14.1	108.9	26.2	6.0
LOS	F	F	B	F	E	B	F	E	B	F	C	A
Approach Delay		102.9			70.7			69.3			51.9	
Approach LOS		F			E			E			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 69.1	Intersection LOS: E
Intersection Capacity Utilization 99.1%	ICU Level of Service F
Analysis Period (min) 15	

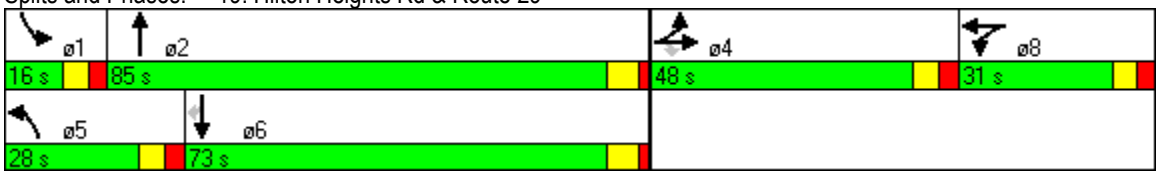
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	408	42	138	82	29	18	246	1808	158	38	1198	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1701	1583	0	1771	0	3433	6331	0	1770	6408	1583
Flt Permitted	0.950	0.961			0.969		0.950			0.950		
Satd. Flow (perm)	1681	1701	1583	0	1771	0	3433	6331	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130		4			14				140
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	443	46	150	89	32	20	267	1965	172	41	1302	164
Lane Group Flow (vph)	244	245	150	0	141	0	267	2137	0	41	1302	164
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	48.0	48.0	48.0	31.0	31.0	0.0	28.0	85.0	0.0	16.0	73.0	73.0
Total Split (%)	26.7%	26.7%	26.7%	17.2%	17.2%	0.0%	15.6%	47.2%	0.0%	8.9%	40.6%	40.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	31.8	31.8	31.8		18.8		18.6	95.3		8.7	82.8	82.8
Actuated g/C Ratio	0.18	0.18	0.18		0.10		0.10	0.53		0.05	0.46	0.46
v/c Ratio	0.82	0.82	0.39		0.75		0.75	0.64		0.48	0.44	0.20
Control Delay	92.5	91.7	15.3		98.9		91.9	33.4		101.1	35.3	8.1
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	92.5	91.7	15.3		98.9		91.9	33.4		101.1	35.3	8.1
LOS	F	F	B		F		F	C		F	D	A
Approach Delay		74.1			98.9			39.9			34.2	
Approach LOS		E			F			D			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 44.5	Intersection LOS: D
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	326	989	905	137	888	749	872	1723	72	478	2617	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5055	0	3433	5085	1583
Flt Permitted	0.093			0.111			0.950			0.950		
Satd. Flow (perm)	173	3539	1583	207	3539	2787	3433	5055	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			296			499		4				156
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	354	1075	984	149	965	814	948	1873	78	520	2845	463
Lane Group Flow (vph)	354	1075	984	149	965	814	948	1951	0	520	2845	463
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	25.0	55.0	55.0	13.0	43.0	43.0	38.0	78.0	0.0	34.0	74.0	74.0
Total Split (%)	13.9%	30.6%	30.6%	7.2%	23.9%	23.9%	21.1%	43.3%	0.0%	18.9%	41.1%	41.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	61.0	48.0	48.0	42.0	36.0	36.0	31.0	71.0		27.0	67.0	67.0
Actuated g/C Ratio	0.34	0.27	0.27	0.23	0.20	0.20	0.17	0.39		0.15	0.37	0.37
v/c Ratio	1.62	1.14	1.54	1.49	1.36	0.85	1.60	0.98		1.01	1.50	0.67
Control Delay	334.9	132.5	279.3	300.7	222.9	35.7	322.7	68.5		115.9	267.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	334.9	132.5	279.3	300.7	222.9	35.7	322.7	68.5		115.9	267.5	36.0
LOS	F	F	F	F	F	D	F	E		F	F	D
Approach Delay		222.1			149.9			151.6			218.9	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.62	
Intersection Signal Delay: 189.9	Intersection LOS: F
Intersection Capacity Utilization 141.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	202	90	107	94	115	20	205	2499	105	93	3381	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1822	0	3433	7499	0	1770	6408	1583
Flt Permitted	0.293			0.694			0.950			0.950		
Satd. Flow (perm)	546	1863	1583	1293	1822	0	3433	7499	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		4			9				80
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	220	98	116	102	125	22	223	2716	114	101	3675	155
Lane Group Flow (vph)	220	98	116	102	147	0	223	2830	0	101	3675	155
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	19.0	109.0	0.0	25.0	115.0	115.0
Total Split (%)	12.8%	12.8%	12.8%	12.8%	12.8%	0.0%	10.6%	60.6%	0.0%	13.9%	63.9%	63.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	34.3	18.3	18.3	29.2	15.7		12.3	105.4		14.9	108.0	108.0
Actuated g/C Ratio	0.19	0.10	0.10	0.16	0.09		0.07	0.59		0.08	0.60	0.60
v/c Ratio	1.03	0.52	0.44	0.42	0.90		0.95	0.64		0.69	0.96	0.16
Control Delay	131.5	88.0	16.8	64.6	125.6		128.4	25.9		103.2	41.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	131.5	88.0	16.8	64.6	125.6		128.4	25.9		103.2	41.2	7.8
LOS	F	F	B	E	F		F	C		F	D	A
Approach Delay		91.0			100.6			33.4			41.5	
Approach LOS		F			F			C			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 43.0	Intersection LOS: D
Intersection Capacity Utilization 96.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	267	85	679	232	410	97	1849	412	496	2996	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			55			446			321			19
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	71	290	92	738	252	446	105	2010	448	539	3257	38
Lane Group Flow (vph)	71	290	92	738	252	446	105	2010	448	539	3257	38
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	15.0	23.0	23.0	42.0	50.0	50.0	13.0	58.0	58.0	57.0	102.0	102.0
Total Split (%)	8.3%	12.8%	12.8%	23.3%	27.8%	27.8%	7.2%	32.2%	32.2%	31.7%	56.7%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	7.7	16.0	16.0	35.0	43.3	43.3	6.0	51.0	51.0	50.0	95.0	95.0
Actuated g/C Ratio	0.04	0.09	0.09	0.19	0.24	0.24	0.03	0.28	0.28	0.28	0.53	0.53
v/c Ratio	0.48	0.92	0.48	1.10	0.30	0.62	0.92	1.11	0.66	1.10	0.96	0.05
Control Delay	95.2	113.8	42.9	131.1	57.1	8.4	148.4	114.5	20.3	127.2	49.7	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.2	113.8	42.9	131.1	57.1	8.4	148.4	114.5	20.3	127.2	49.7	12.1
LOS	F	F	D	F	E	A	F	F	C	F	D	B
Approach Delay		96.5			80.0			99.4			60.3	
Approach LOS		F			F			F			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 77.8	Intersection LOS: E
Intersection Capacity Utilization 104.4%	ICU Level of Service G
Analysis Period (min) 15	

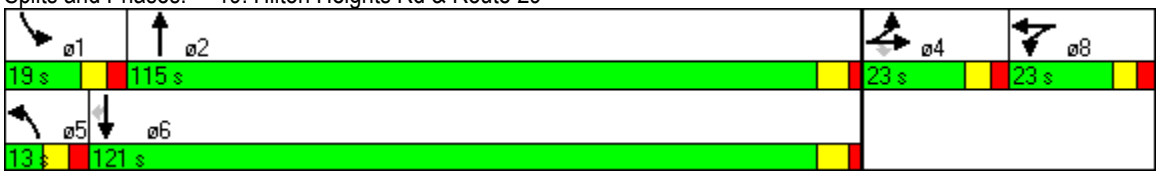
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	2	37	58	5	23	105	1767	122	50	3737	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1692	1583	0	1736	0	3433	6344	0	1770	6408	1583
Flt Permitted	0.950	0.956			0.967		0.950			0.950		
Satd. Flow (perm)	1681	1692	1583	0	1736	0	3433	6344	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			40		8			14				56
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	54	2	40	63	5	25	114	1921	133	54	4062	118
Lane Group Flow (vph)	28	28	40	0	93	0	114	2054	0	54	4062	118
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	13.0	115.0	0.0	19.0	121.0	121.0
Total Split (%)	12.8%	12.8%	12.8%	12.8%	12.8%	0.0%	7.2%	63.9%	0.0%	10.6%	67.2%	67.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	8.5	8.5	8.5		14.2		11.0	124.2		10.4	120.9	120.9
Actuated g/C Ratio	0.05	0.05	0.05		0.08		0.06	0.69		0.06	0.67	0.67
v/c Ratio	0.35	0.35	0.36		0.65		0.55	0.47		0.53	0.94	0.11
Control Delay	94.5	94.2	29.2		93.0		90.1	15.1		100.2	33.4	6.7
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	94.5	94.2	29.2		93.0		90.1	15.1		100.2	33.4	6.7
LOS	F	F	C		F		F	B		F	C	A
Approach Delay		67.2			93.0			19.1			33.5	
Approach LOS		E			F			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 30.1	Intersection LOS: C
Intersection Capacity Utilization 79.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29

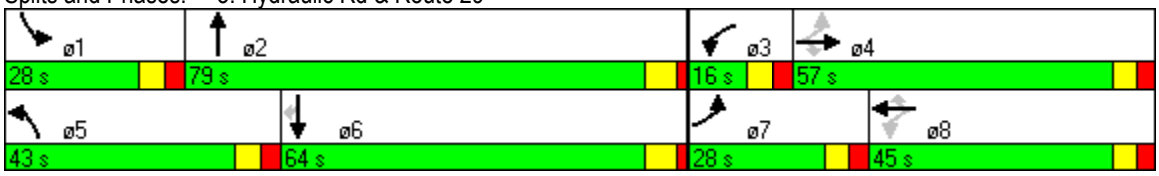


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	427	955	859	217	1106	841	1190	2523	184	692	2487	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5034	0	3433	5085	1583
Flt Permitted	0.089			0.105			0.950			0.950		
Satd. Flow (perm)	166	3539	1583	196	3539	2787	3433	5034	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			334			406		8				170
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	464	1038	934	236	1202	914	1293	2742	200	752	2703	524
Lane Group Flow (vph)	464	1038	934	236	1202	914	1293	2942	0	752	2703	524
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	28.0	57.0	57.0	16.0	45.0	45.0	43.0	79.0	0.0	28.0	64.0	64.0
Total Split (%)	15.6%	31.7%	31.7%	8.9%	25.0%	25.0%	23.9%	43.9%	0.0%	15.6%	35.6%	35.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	66.0	50.0	50.0	47.0	38.0	38.0	36.0	72.0		21.0	57.0	57.0
Actuated g/C Ratio	0.37	0.28	0.28	0.26	0.21	0.21	0.20	0.40		0.12	0.32	0.32
v/c Ratio	1.87	1.06	1.37	1.82	1.61	1.01	1.88	1.46		1.88	1.68	0.85
Control Delay	437.6	105.2	205.9	423.1	321.8	69.2	437.7	247.1		440.8	344.5	52.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	437.6	105.2	205.9	423.1	321.8	69.2	437.7	247.1		440.8	344.5	52.2
LOS	F	F	F	F	F	E	F	F		F	F	D
Approach Delay		207.1			233.8			305.3			324.2	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.88	
Intersection Signal Delay: 279.8	Intersection LOS: F
Intersection Capacity Utilization 159.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	483	131	221	108	148	36	477	3194	98	56	3397	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1809	0	3433	7514	0	1770	6408	1583
Flt Permitted	0.167			0.666			0.950			0.950		
Satd. Flow (perm)	311	1863	1583	1241	1809	0	3433	7514	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			205		5			6				137
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	525	142	240	117	161	39	518	3472	107	61	3692	375
Lane Group Flow (vph)	525	142	240	117	200	0	518	3579	0	61	3692	375
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	42.0	42.0	42.0	24.0	24.0	0.0	28.0	98.0	0.0	16.0	86.0	86.0
Total Split (%)	23.3%	23.3%	23.3%	13.3%	13.3%	0.0%	15.6%	54.4%	0.0%	8.9%	47.8%	47.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	59.0	38.3	38.3	30.7	17.0		21.0	91.3		8.7	79.0	79.0
Actuated g/C Ratio	0.33	0.21	0.21	0.17	0.09		0.12	0.51		0.05	0.44	0.44
v/c Ratio	1.36	0.36	0.48	0.46	1.14		1.29	0.94		0.71	1.31	0.49
Control Delay	220.2	64.3	15.2	52.3	177.3		206.9	47.7		122.5	183.6	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	220.2	64.3	15.2	52.3	177.3		206.9	47.7		122.5	183.6	24.2
LOS	F	E	B	D	F		F	D		F	F	C
Approach Delay		141.6			131.2			67.8			168.2	
Approach LOS		F			F			E			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.36	
Intersection Signal Delay: 120.9	Intersection LOS: F
Intersection Capacity Utilization 122.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	358	129	944	417	627	120	3460	597	706	1980	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110			364			279			25
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	98	389	140	1026	453	682	130	3761	649	767	2152	34
Lane Group Flow (vph)	98	389	140	1026	453	682	130	3761	649	767	2152	34
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	12.0	23.0	23.0	36.0	47.0	47.0	19.0	72.0	72.0	49.0	102.0	102.0
Total Split (%)	6.7%	12.8%	12.8%	20.0%	26.1%	26.1%	10.6%	40.0%	40.0%	27.2%	56.7%	56.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.0	16.0	16.0	29.0	40.0	40.0	11.1	65.0	65.0	42.0	95.9	95.9
Actuated g/C Ratio	0.03	0.09	0.09	0.16	0.22	0.22	0.06	0.36	0.36	0.23	0.53	0.53
v/c Ratio	1.03	1.23	0.58	1.86	0.58	1.07	0.61	1.63	0.87	1.86	0.63	0.04
Control Delay	180.9	192.7	31.0	428.7	65.8	86.3	94.9	319.4	42.7	429.9	30.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	180.9	192.7	31.0	428.7	65.8	86.3	94.9	319.4	42.7	429.9	30.7	9.0
LOS	F	F	C	F	E	F	F	F	D	F	C	A
Approach Delay		154.7			244.6			273.4			134.2	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.86	
Intersection Signal Delay: 220.1	Intersection LOS: F
Intersection Capacity Utilization 149.4%	ICU Level of Service H
Analysis Period (min) 15	

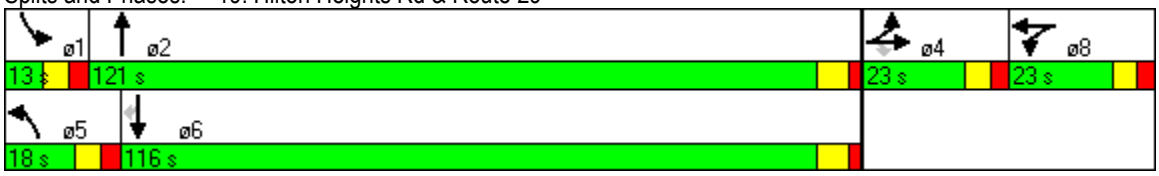
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	15	63	127	11	31	115	3885	234	61	2473	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1695	1583	0	1751	0	3433	6350	0	1770	6408	1583
Flt Permitted	0.950	0.958			0.964		0.950			0.950		
Satd. Flow (perm)	1681	1695	1583	0	1751	0	3433	6350	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68		5			13				56
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	229	16	68	138	12	34	125	4223	254	66	2688	84
Lane Group Flow (vph)	121	124	68	0	184	0	125	4477	0	66	2688	84
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	18.0	121.0	0.0	13.0	116.0	116.0
Total Split (%)	12.8%	12.8%	12.8%	12.8%	12.8%	0.0%	10.0%	67.2%	0.0%	7.2%	64.4%	64.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	15.4	15.4	15.4		16.6		10.4	114.0		6.0	109.6	109.6
Actuated g/C Ratio	0.09	0.09	0.09		0.09		0.06	0.63		0.03	0.61	0.61
v/c Ratio	0.85	0.86	0.34		1.11		0.63	1.11		1.12	0.69	0.09
Control Delay	122.1	123.4	19.6		169.7		97.0	86.5		224.7	25.0	5.9
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.1	123.4	19.6		169.7		97.0	86.5		224.7	25.0	5.9
LOS	F	F	B		F		F	F		F	C	A
Approach Delay		100.3			169.7			86.8			29.1	
Approach LOS		F			F			F			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 68.6	Intersection LOS: E
Intersection Capacity Utilization 88.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	258	984	665	126	890	745	655	1285	68	494	1997	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5045	0	3433	5085	1583
Flt Permitted	0.085			0.100			0.950			0.950		
Satd. Flow (perm)	158	3539	1583	186	3539	2787	3433	5045	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			327			532		5				152
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	280	1070	723	137	967	810	712	1397	74	537	2171	385
Lane Group Flow (vph)	280	1070	723	137	967	810	712	1471	0	537	2171	385
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	25.0	58.0	58.0	14.0	47.0	47.0	36.0	69.0	0.0	39.0	72.0	72.0
Total Split (%)	13.9%	32.2%	32.2%	7.8%	26.1%	26.1%	20.0%	38.3%	0.0%	21.7%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	65.0	51.0	51.0	47.0	40.0	40.0	29.0	63.1		30.9	65.0	65.0
Actuated g/C Ratio	0.36	0.28	0.28	0.26	0.22	0.22	0.16	0.35		0.17	0.36	0.36
v/c Ratio	1.28	1.07	1.06	1.25	1.23	0.78	1.29	0.83		0.91	1.18	0.58
Control Delay	200.1	107.6	83.4	204.0	170.0	27.8	198.5	58.5		93.4	137.0	30.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	200.1	107.6	83.4	204.0	170.0	27.8	198.5	58.5		93.4	137.0	30.8
LOS	F	F	F	F	F	C	F	E		F	F	C
Approach Delay		111.6			112.3			104.2			116.2	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 111.5	Intersection LOS: F
Intersection Capacity Utilization 119.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	114	197	118	172	13	331	1812	146	72	2544	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1844	0	3433	7461	0	1770	6408	1583
Flt Permitted	0.205			0.677			0.950			0.950		
Satd. Flow (perm)	382	1863	1583	1261	1844	0	3433	7461	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			200		2			17				73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	217	124	214	128	187	14	360	1970	159	78	2765	140
Lane Group Flow (vph)	217	124	214	128	201	0	360	2129	0	78	2765	140
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	28.0	35.0	35.0	23.0	30.0	0.0	29.0	100.0	0.0	22.0	93.0	93.0
Total Split (%)	15.6%	19.4%	19.4%	12.8%	16.7%	0.0%	16.1%	55.6%	0.0%	12.2%	51.7%	51.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	48.4	28.2	28.2	36.3	22.0		21.5	97.0		12.5	88.0	88.0
Actuated g/C Ratio	0.27	0.16	0.16	0.20	0.12		0.12	0.54		0.07	0.49	0.49
v/c Ratio	0.83	0.42	0.51	0.43	0.89		0.88	0.53		0.63	0.88	0.17
Control Delay	79.7	73.6	14.6	56.0	112.1		100.0	27.6		103.1	46.0	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	79.7	73.6	14.6	56.0	112.1		100.0	27.6		103.1	46.0	13.1
LOS	E	E	B	E	F		F	C		F	D	B
Approach Delay		53.2			90.3			38.0			46.0	
Approach LOS		D			F			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 45.8	Intersection LOS: D
Intersection Capacity Utilization 90.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	236	65	658	205	387	75	1517	403	473	2463	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			421			371			16
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	53	257	71	715	223	421	82	1649	438	514	2677	28
Lane Group Flow (vph)	53	257	71	715	223	421	82	1649	438	514	2677	28
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	13.0	23.0	23.0	44.0	54.0	54.0	15.0	54.0	54.0	59.0	98.0	98.0
Total Split (%)	7.2%	12.8%	12.8%	24.4%	30.0%	30.0%	8.3%	30.0%	30.0%	32.8%	54.4%	54.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	6.0	15.6	15.6	37.0	49.2	49.2	7.8	47.0	47.0	52.4	91.6	91.6
Actuated g/C Ratio	0.03	0.09	0.09	0.21	0.27	0.27	0.04	0.26	0.26	0.29	0.51	0.51
v/c Ratio	0.46	0.84	0.35	1.01	0.23	0.57	0.55	0.99	0.64	1.00	0.82	0.03
Control Delay	98.8	103.2	19.5	106.1	52.2	7.4	98.4	84.1	14.3	101.4	40.1	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.8	103.2	19.5	106.1	52.2	7.4	98.4	84.1	14.3	101.4	40.1	12.4
LOS	F	F	B	F	D	A	F	F	B	F	D	B
Approach Delay		87.0			66.7			70.6			49.6	
Approach LOS		F			E			E			D	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 61.3	Intersection LOS: E
Intersection Capacity Utilization 96.8%	ICU Level of Service F
Analysis Period (min) 15	

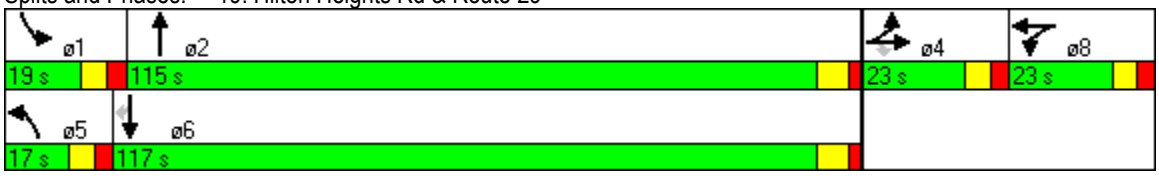
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	3	36	57	5	24	101	1463	120	51	3118	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1694	1583	0	1735	0	3433	6337	0	1770	6408	1583
Flt Permitted	0.950	0.957			0.968		0.950			0.950		
Satd. Flow (perm)	1681	1694	1583	0	1735	0	3433	6337	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39		9			18				62
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	54	3	39	62	5	26	110	1590	130	55	3389	117
Lane Group Flow (vph)	29	28	39	0	93	0	110	1720	0	55	3389	117
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	17.0	115.0	0.0	19.0	117.0	117.0
Total Split (%)	12.8%	12.8%	12.8%	12.8%	12.8%	0.0%	9.4%	63.9%	0.0%	10.6%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	8.6	8.6	8.6		14.1		10.4	124.2		10.4	121.5	121.5
Actuated g/C Ratio	0.05	0.05	0.05		0.08		0.06	0.69		0.06	0.68	0.68
v/c Ratio	0.36	0.35	0.35		0.65		0.56	0.39		0.53	0.78	0.11
Control Delay	94.7	93.7	29.4		92.2		93.4	13.9		100.7	23.6	6.4
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	94.7	93.7	29.4		92.2		93.4	13.9		100.7	23.6	6.4
LOS	F	F	C		F		F	B		F	C	A
Approach Delay		67.9			92.2			18.7			24.3	
Approach LOS		E			F			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 70.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29

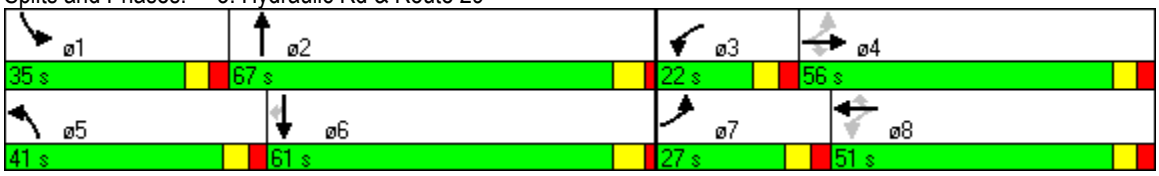


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	348	955	633	198	1112	847	890	1890	169	705	1869	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	290		290	200		300	270		0	550		0
Storage Lanes	1		1	1		2	2		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	3539	1583	1770	3539	2787	3433	5024	0	3433	5085	1583
Flt Permitted	0.082			0.091			0.950			0.950		
Satd. Flow (perm)	153	3539	1583	170	3539	2787	3433	5024	0	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			326			498		9				184
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		754			785			270			850	
Travel Time (s)		17.1			17.8			6.1			19.3	
Adj. Flow (vph)	378	1038	688	215	1209	921	967	2054	184	766	2032	435
Lane Group Flow (vph)	378	1038	688	215	1209	921	967	2238	0	766	2032	435
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8						6
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	23.0		11.0	23.0	23.0
Total Split (s)	27.0	56.0	56.0	22.0	51.0	51.0	41.0	67.0	0.0	35.0	61.0	61.0
Total Split (%)	15.0%	31.1%	31.1%	12.2%	28.3%	28.3%	22.8%	37.2%	0.0%	19.4%	33.9%	33.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	69.0	49.0	49.0	59.0	44.0	44.0	34.0	60.0		28.0	54.0	54.0
Actuated g/C Ratio	0.38	0.27	0.27	0.33	0.24	0.24	0.19	0.33		0.16	0.30	0.30
v/c Ratio	1.59	1.08	1.03	1.14	1.40	0.87	1.49	1.33		1.43	1.33	0.72
Control Delay	319.5	112.2	75.0	152.5	233.0	39.1	275.7	198.2		255.6	200.6	39.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	319.5	112.2	75.0	152.5	233.0	39.1	275.7	198.2		255.6	200.6	39.1
LOS	F	F	E	F	F	D	F	F		F	F	D
Approach Delay		137.3			149.5			221.6			191.9	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.59	
Intersection Signal Delay: 180.9	Intersection LOS: F
Intersection Capacity Utilization 134.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Hydraulic Rd & Route 29

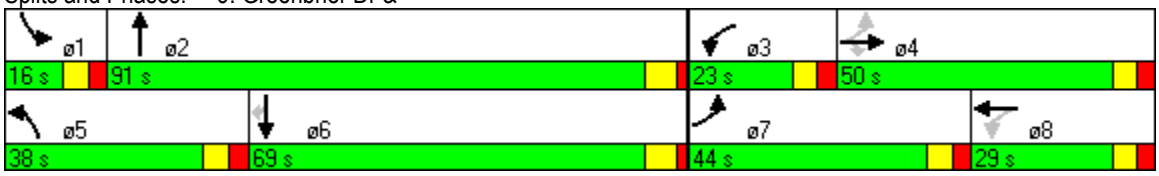


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	530	226	399	124	235	25	749	2212	106	39	2475	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		300	460		0	450		0	250		250
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1770	1863	1583	1770	1837	0	3433	7491	0	1770	6408	1583
Flt Permitted	0.138			0.606			0.950			0.950		
Satd. Flow (perm)	257	1863	1583	1129	1837	0	3433	7491	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			317		2			9				161
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		778			674			928			924	
Travel Time (s)		17.7			15.3			21.1			21.0	
Adj. Flow (vph)	576	246	434	135	255	27	814	2404	115	42	2690	376
Lane Group Flow (vph)	576	246	434	135	282	0	814	2519	0	42	2690	376
Turn Type	pm+pt		Perm	pm+pt			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	24.0	24.0
Total Split (s)	44.0	50.0	50.0	23.0	29.0	0.0	38.0	91.0	0.0	16.0	69.0	69.0
Total Split (%)	24.4%	27.8%	27.8%	12.8%	16.1%	0.0%	21.1%	50.6%	0.0%	8.9%	38.3%	38.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	66.0	45.0	45.0	36.0	22.0		31.0	87.4		8.2	62.0	62.0
Actuated g/C Ratio	0.37	0.25	0.25	0.20	0.12		0.17	0.49		0.05	0.34	0.34
v/c Ratio	1.42	0.53	0.68	0.49	1.25		1.38	0.69		0.52	1.22	0.58
Control Delay	244.4	63.7	22.2	48.4	202.0		231.5	37.6		105.5	151.4	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	244.4	63.7	22.2	48.4	202.0		231.5	37.6		105.5	151.4	30.4
LOS	F	E	C	D	F		F	D		F	F	C
Approach Delay		132.2			152.3			84.9			136.1	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.42	
Intersection Signal Delay: 115.3	Intersection LOS: F
Intersection Capacity Utilization 123.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 9: Greenbrier Dr &



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	319	97	910	365	601	90	2850	586	669	1585	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	300		250	320		0	500		350	350		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	6408	1583	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90			407			318			23
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		987			1083			1085			865	
Travel Time (s)		22.4			24.6			24.7			19.7	
Adj. Flow (vph)	73	347	105	989	397	653	98	3098	637	727	1723	24
Lane Group Flow (vph)	73	347	105	989	397	653	98	3098	637	727	1723	24
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	11.0	23.0	23.0
Total Split (s)	11.0	23.0	23.0	38.0	50.0	50.0	16.0	67.0	67.0	52.0	103.0	103.0
Total Split (%)	6.1%	12.8%	12.8%	21.1%	27.8%	27.8%	8.9%	37.2%	37.2%	28.9%	57.2%	57.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	4.0	16.0	16.0	31.0	43.0	43.0	8.7	60.0	60.0	45.0	96.3	96.3
Actuated g/C Ratio	0.02	0.09	0.09	0.17	0.24	0.24	0.05	0.33	0.33	0.25	0.54	0.54
v/c Ratio	0.96	1.10	0.47	1.67	0.47	0.95	0.59	1.45	0.86	1.64	0.50	0.03
Control Delay	175.6	152.1	25.9	351.5	60.9	48.4	98.4	246.7	40.0	337.9	27.3	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	175.6	152.1	25.9	351.5	60.9	48.4	98.4	246.7	40.0	337.9	27.3	7.0
LOS	F	F	C	F	E	D	F	F	D	F	C	A
Approach Delay		130.1			197.8			208.6			118.4	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.67	
Intersection Signal Delay: 176.3	Intersection LOS: F
Intersection Capacity Utilization 136.5%	ICU Level of Service H
Analysis Period (min) 15	

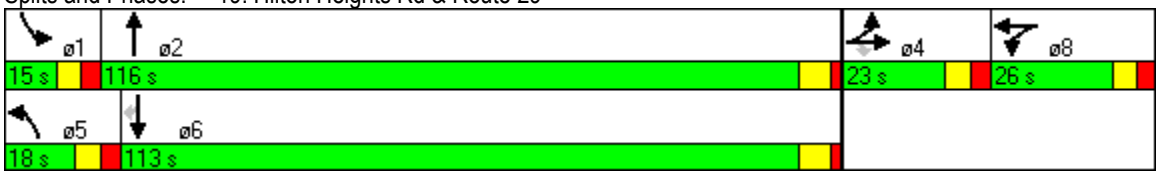
Splits and Phases: 14: Rio Rd & Route 29

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	207	18	60	125	13	32	111	3221	230	63	2053	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		180	0		0	350		0	200		230
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	1681	1699	1583	0	1751	0	3433	6344	0	1770	6408	1583
Flt Permitted	0.950	0.960			0.965		0.950			0.950		
Satd. Flow (perm)	1681	1699	1583	0	1751	0	3433	6344	0	1770	6408	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65		5			15				64
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		873			897			1000			870	
Travel Time (s)		19.8			20.4			22.7			19.8	
Adj. Flow (vph)	225	20	65	136	14	35	121	3501	250	68	2232	84
Lane Group Flow (vph)	121	124	65	0	185	0	121	3751	0	68	2232	84
Turn Type	Split		Perm	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4									6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		11.0	24.0		11.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	26.0	26.0	0.0	18.0	116.0	0.0	15.0	113.0	113.0
Total Split (%)	12.8%	12.8%	12.8%	14.4%	14.4%	0.0%	10.0%	64.4%	0.0%	8.3%	62.8%	62.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	2.0		3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	15.4	15.4	15.4		19.6		10.4	109.0		8.0	106.6	106.6
Actuated g/C Ratio	0.09	0.09	0.09		0.11		0.06	0.61		0.04	0.59	0.59
v/c Ratio	0.85	0.86	0.33		0.95		0.61	0.97		0.86	0.59	0.09
Control Delay	122.1	123.1	19.9		127.5		96.3	43.6		149.8	23.8	5.2
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.1	123.1	19.9		127.5		96.3	43.6		149.8	23.8	5.2
LOS	F	F	B		F		F	D		F	C	A
Approach Delay		101.1			127.5			45.3			26.7	
Approach LOS		F			F			D			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 43.6	Intersection LOS: D
Intersection Capacity Utilization 80.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 19: Hilton Heights Rd & Route 29



Charlottesville Bypass Traffic - Northern Terminus Area

Segment	Link Description	Diurnal Curve	2011 Existing		*AM Peak Hour*						*PM Peak Hour*					
			ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
119	Proposed Bypass NB (South Terminus to North Terminus)	K2														
120	Proposed Bypass SB (North Terminus to South Terminus)	K1														
136	Ramp 136: Prop Bypass NB to US 29 SB	K2														
135	Ramp 135: Prop Bypass NB to US 29 NB	K2														
133	Ramp 133: US 29 SB to Prop Bypass SB	K1														
134	Ramp 134: US 29 NB to Prop Bypass SB (left-exit ramp)	K1														
2	29 NB, north of Prop Bypass (south of Hollymead)	K1	24,000	3.0%	6.2%	1,480	44	1,436	11	33	9.3%	2,228	67	2,161	17	50
1	29 SB, north of Prop Bypass (south of Hollymead)	K2	24,000	3.0%	7.2%	1,728	52	1,676	13	39	7.8%	1,865	56	1,809	14	42
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	K2	24,000	3.0%	7.2%	1,728	52	1,676	13	39	7.8%	1,865	56	1,809	14	42
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	K1	24,000	3.0%	6.2%	1,480	44	1,436	11	33	9.3%	2,228	67	2,161	17	50
130	29 Seminole Tr between ramps (NB)	K1														
131	29 Seminole Tr between ramps (SB)	K2														

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Northern Terminus Area

Segment	Link Description	2015 No-Build		*AM Peak Hour*						*PM Peak Hour*					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
119	Proposed Bypass NB (South Terminus to North Terminus)														
120	Proposed Bypass SB (North Terminus to South Terminus)														
136	Ramp 136: Prop Bypass NB to US 29 SB														
135	Ramp 135: Prop Bypass NB to US 29 NB														
133	Ramp 133: US 29 SB to Prop Bypass SB														
134	Ramp 134: US 29 NB to Prop Bypass SB (left-exit ramp)														
2	29 NB, north of Prop Bypass (south of Hollymead)	25,547	3.0%	6.2%	1,576	47	1,529	12	35	9.3%	2,371	71	2,300	18	53
1	29 SB, north of Prop Bypass (south of Hollymead)	25,547	3.0%	7.2%	1,840	55	1,785	14	41	7.8%	1,986	60	1,926	15	45
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	26,089	3.0%	7.2%	1,879	56	1,823	14	42	7.8%	2,028	61	1,967	15	46
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	26,089	3.0%	6.2%	1,609	48	1,561	12	36	9.3%	2,422	73	2,349	18	55
130	29 Seminole Tr between ramps (NB)														
131	29 Seminole Tr between ramps (SB)														

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Northern Terminus Area

Segment	Link Description	2015 Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
119	Proposed Bypass NB (South Terminus to North Terminus)	8,900	3.0%	7.2%	641	19	622	5	14	7.8%	692	21	671	5	16
120	Proposed Bypass SB (North Terminus to South Terminus)	8,900	3.0%	6.2%	549	16	533	4	12	9.3%	826	25	801	6	19
136	Ramp 136: Prop Bypass NB to US 29 SB	972	3.0%	7.2%	70	2	68	1	1	7.8%	76	2	74	1	1
135	Ramp 135: Prop Bypass NB to US 29 NB	7,993	3.0%	7.2%	576	17	559	4	13	7.8%	621	19	602	5	14
133	Ramp 133: US 29 SB to Prop Bypass SB	7,965	3.0%	6.2%	491	15	476	4	11	9.3%	739	22	717	6	16
134	Ramp 134: US 29 NB to Prop Bypass SB (left-exit ramp)	1,003	3.0%	6.2%	62	2	60	0	2	9.3%	93	3	90	1	2
2	29 NB, north of Prop Bypass (south of Hollymead)	29,704	3.0%	6.2%	1,832	55	1,777	14	41	9.3%	2,757	83	2,674	21	62
1	29 SB, north of Prop Bypass (south of Hollymead)	29,704	3.0%	7.2%	2,139	64	2,075	16	48	7.8%	2,309	69	2,240	17	52
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	22,255	3.0%	7.2%	1,603	48	1,555	12	36	7.8%	1,730	52	1,678	13	39
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	22,255	3.0%	6.2%	1,373	41	1,332	10	31	9.3%	2,066	62	2,004	15	47
130	29 Seminole Tr between ramps (NB)	8,900	3.0%	6.2%	549	16	533	4	12	9.3%	826	25	801	6	19
131	29 Seminole Tr between ramps (SB)	21,441	3.0%	7.2%	1,544	46	1,498	12	34	7.8%	1,667	50	1,617	13	37

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Northern Terminus Area

Segment	Link Description	2040 No-Build		*AM Peak Hour*						*PM Peak Hour*					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
119	Proposed Bypass NB (South Terminus to North Terminus)														
120	Proposed Bypass SB (North Terminus to South Terminus)														
136	Ramp 136: Prop Bypass NB to US 29 SB														
135	Ramp 135: Prop Bypass NB to US 29 NB														
133	Ramp 133: US 29 SB to Prop Bypass SB														
134	Ramp 134: US 29 NB to Prop Bypass SB (left-exit ramp)														
2	29 NB, north of Prop Bypass (south of Hollymead)	33,272	3.0%	6.2%	2,052	62	1,990	15	47	9.3%	3,088	93	2,995	23	70
1	29 SB, north of Prop Bypass (south of Hollymead)	33,272	3.0%	7.2%	2,396	72	2,324	18	54	7.8%	2,586	78	2,508	19	59
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	36,539	3.0%	7.2%	2,631	79	2,552	20	59	7.8%	2,840	85	2,755	21	64
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	36,539	3.0%	6.2%	2,254	68	2,186	17	51	9.3%	3,392	102	3,290	25	77
130	29 Seminole Tr between ramps (NB)														
131	29 Seminole Tr between ramps (SB)														

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Northern Terminus Area

Segment	Link Description	2040 Build		*AM Peak Hour*						*PM Peak Hour*					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
119	Proposed Bypass NB (South Terminus to North Terminus)	13,899	3.0%	7.2%	1,001	30	971	8	22	7.8%	1,080	32	1,048	8	24
120	Proposed Bypass SB (North Terminus to South Terminus)	13,899	3.0%	6.2%	857	26	831	6	20	9.3%	1,290	39	1,251	10	29
136	Ramp 136: Prop Bypass NB to US 29 SB	4,464	3.0%	7.2%	321	10	311	2	8	7.8%	347	10	337	3	7
135	Ramp 135: Prop Bypass NB to US 29 NB	9,424	3.0%	7.2%	679	20	659	5	15	7.8%	732	22	710	5	17
133	Ramp 133: US 29 SB to Prop Bypass SB	9,321	3.0%	6.2%	575	17	558	4	13	9.3%	865	26	839	6	20
134	Ramp 134: US 29 NB to Prop Bypass SB (left-exit ramp)	4,565	3.0%	6.2%	282	8	274	2	6	9.3%	424	13	411	3	10
2	29 NB, north of Prop Bypass (south of Hollymead)	37,429	3.0%	6.2%	2,309	69	2,240	17	52	9.3%	3,474	104	3,370	26	78
1	29 SB, north of Prop Bypass (south of Hollymead)	37,429	3.0%	7.2%	2,696	81	2,615	20	61	7.8%	2,909	87	2,822	22	65
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	32,705	3.0%	7.2%	2,355	71	2,284	18	53	7.8%	2,542	76	2,466	19	57
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	32,705	3.0%	6.2%	2,017	61	1,956	15	46	9.3%	3,036	91	2,945	23	68
130	29 Seminole Tr between ramps (NB)	13,899	3.0%	6.2%	857	26	831	6	20	9.3%	1,290	39	1,251	10	29
131	29 Seminole Tr between ramps (SB)	28,085	3.0%	7.2%	2,023	61	1,962	15	46	7.8%	2,183	65	2,118	16	49

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Southern Terminus Area

Segment	Link Description	Diurnal Curve	2011 Existing		AM Peak Hour						PM Peak Hour					
			ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
67	Route 250 Bypass WB (btwn Hydraulic Rd & Emmet St)	K8	11,500	0.02	0	857	17	840	4	13	0	1,030	21	1,009	5	16
68	Route 250 Bypass EB (btwn Hydraulic Rd & Emmet St)	K7	11,500	0.02	0	1,028	21	1,007	5	16	0	957	19	938	5	14
69	Route 250 Bypass WB (btwn Emmet St & Barracks Rd)	K6	19,000	0.03	0	1,419	43	1,376	11	32	0	2,081	62	2,019	16	46
70	Route 250 Bypass EB (btwn Emmet St & Barracks Rd)	K5	19,000	0.03	0	1,923	58	1,865	14	44	0	1,818	55	1,763	14	41
77	L. Sandbridge Rd NB, south of 29	K9	500	3.0%	12.9%	65	2	63	0	2	6.0%	30	1	29	0	1
78	L. Sandbridge Rd SB, south of 29	K10	500	3.0%	5.1%	26	1	25	0	1	11.5%	57	2	55	0	2
109	Route 250 Bypass WB (btwn Barracks Rd & Prop Route 29 Bypass)	K6	24,000	3.0%	7.5%	1,793	54	1,739	13	41	11.0%	2,629	79	2,550	20	59
110	Route 250 Bypass EB (btwn Bararcks Rd & Prop Route 29 Bypass)	K5	24,000	3.0%	10.1%	2,429	73	2,356	18	55	9.6%	2,296	69	2,227	17	52
111	29 NB south of the Bypass (between Fontaine and Ivy)	K5	21,000	7.0%	10.1%	2,126	149	1,977	37	112	9.6%	2,009	141	1,868	35	106
112	29 SB south of the Bypass (between Fontaine and Ivy)	K6	21,000	7.0%	7.5%	1,569	110	1,459	27	83	11.0%	2,300	161	2,139	40	121
113	Ivy Rd EB (btwn Rt 250 Bypass & Alderman Rd)	K5	8,000	1.0%	10.1%	810	8	802	2	6	9.6%	765	8	757	2	6
114	Ivy Rd WB (btwn Rt 250 Bypass & Alderman Rd)	K6	8,000	1.0%	7.5%	598	6	592	1	5	11.0%	876	9	867	2	7
115	Ivy Rd WB (btwn Rt 846 & Golf Course Dr)	K6	7,000	2.0%	7.5%	523	10	513	3	7	11.0%	767	15	752	4	11
116	Ivy Rd EB (btwn Rt 846 & Golf Course Dr)	K5	7,000	2.0%	10.1%	709	14	695	4	10	9.6%	670	13	657	3	10
117	Old Ivy Rd EB (btwn Crestwood Rd & Harvest Dr)	K5	2,750	1.0%	10.1%	278	3	275	1	2	9.6%	263	3	260	1	2
118	Old Ivy Rd WB (btwn Crestwood Rd & Harvest Dr)	K6	2,750	1.0%	7.5%	205	2	203	1	1	11.0%	301	3	298	1	2
119	Proposed Bypass NB (South Terminus to North Terminus)	K2														
120	Proposed Bypass SB (North Terminus to South Terminus)	K1														
152	AB-AC: Off-Ramp from 29 NB to L. Sandridge Rd (diamond)	K2														
163	AB-AJ: 29 NB to Proposed Bypass NB (flyover)	K2														
153	AC-AD: On-Ramp from L. Sandridge Rd to 250 NB (diamond)	K2														
154	AA-AD: 250 Bypass NB (thru lanes) from 29 NB Bypass diverge to On-Ramp from L. S	K5														
157	AE-AH: 250 Bypass SB (thru lanes) from Off-Ramp to L. Sandridge Rd to 29 SB Bypas	K6														
158	AH-AG: 250 Bypass SB (thru lanes) from 29 SB Bypass merge to On-Ramp from L. Sa	K6														
155	AE-AF: Off-Ramp from 250 SB to L. Sandridge Rd (diamond)	K1														
156	AF-AG: On-Ramp from L. Sandridge Rd to 29 SB (diamond)	K1														
164	AI-AH: Proposed Bypass SB to 29 SB (flyover)	K1														
151	AA-AB: 250 NB to Split	K2														
159	AC-AF: L. Sandridge Rd NB, between Ramps	K2														
160	AF-AC: L. Sandridge Rd SB, between Ramps	K1														
161	AF-AJ: L. Sandridge Rd NB ramp to Proposed Bypass NB	K2														
162	AI-AF: Proposed Bypass SB ramp to L. Sandridge Rd SB	K1														
109	Route 250 SB/WB Mainline (btwn Ivy Rd & Barracks Rd) - Ex & NB	K6	24,000	3.0%	7.5%	1,793	54	1,739	13	41	11.0%	2,629	79	2,550	20	59
	Route 250 SB/WB Mainline (btwn Ivy Rd & 29 Bypass) - Build	K2														
110	Route 250 NB/EB Mainline (btwn Ivy Rd & L. Sandridge Rd) - Ex & NB	K5	24,000	3.0%	10.1%	2,429	73	2,356	18	55	9.6%	2,296	69	2,227	17	52
110	Route 250 NB/EB Mainline (btwn L. Sandridge Rd & Barracks Rd) - Ex & NB	K5	24,000	3.0%	10.1%	2,429	73	2,356	18	55	9.6%	2,296	69	2,227	17	52
	Route 250 NB/EB Mainline (btwn Ivy Rd & 29 Bypass) - Build	K6														
191	Route 250 SB Off-Ramp (loop) to Ivy Rd	K6	6,315	1.0%	7.5%	472	5	467	1	4	11.0%	692	7	685	2	5
192	Route 250 SB On-Ramp from Ivy Rd	K6	3,353	1.0%	7.5%	250	3	248	1	2	11.0%	367	4	363	1	3
193	Route 250 NB Off-Ramp to Ivy Rd	K5	3,353	1.0%	10.1%	339	3	336	1	2	9.6%	321	3	318	1	2
194	Route 250 NB On-Ramp (loop) from Ivy Rd	K5	6,314	1.0%	10.1%	639	6	633	2	4	9.6%	604	6	598	2	4

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Southern Terminus Area

Segment	Link Description	2015 No-Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
67	Route 250 Bypass WB (btwn Hydraulic Rd & Emmet St)	12,314	0.02	0	918	18	900	5	13	0	1,103	22	1,081	6	16
68	Route 250 Bypass EB (btwn Hydraulic Rd & Emmet St)	12,314	0.02	0	1,101	22	1,079	6	16	0	1,024	20	1,004	5	15
69	Route 250 Bypass WB (btwn Emmet St & Barracks Rd)	20,717	0.03	0	1,547	46	1,501	12	34	0	2,269	68	2,201	17	51
70	Route 250 Bypass EB (btwn Emmet St & Barracks Rd)	20,717	0.03	0	2,097	63	2,034	16	47	0	1,982	59	1,923	15	44
77	L. Sandbridge Rd NB, south of 29	503	3.0%	12.9%	65	2	63	0	2	6.0%	30	1	29	0	1
78	L. Sandbridge Rd SB, south of 29	503	3.0%	5.1%	26	1	25	0	1	11.5%	58	2	56	0	2
109	Route 250 Bypass WB (btwn Barracks Rd & Prop Route 29 Bypass)	25,888	3.0%	7.5%	1,934	58	1,876	15	43	11.0%	2,835	85	2,750	21	64
110	Route 250 Bypass EB (btwn Bararcks Rd & Prop Route 29 Bypass)	25,888	3.0%	10.1%	2,620	79	2,541	20	59	9.6%	2,477	74	2,403	19	55
111	29 NB south of the Bypass (between Fontaine and Ivy)	23,115	7.0%	10.1%	2,340	164	2,176	41	123	9.6%	2,212	155	2,057	39	116
112	29 SB south of the Bypass (between Fontaine and Ivy)	23,115	7.0%	7.5%	1,727	121	1,606	30	91	11.0%	2,532	177	2,355	44	133
113	Ivy Rd EB (btwn Rt 250 Bypass & Alderman Rd)	7,711	1.0%	10.1%	780	8	772	2	6	9.6%	738	7	731	2	5
114	Ivy Rd WB (btwn Rt 250 Bypass & Alderman Rd)	7,711	1.0%	7.5%	576	6	570	1	5	11.0%	845	8	837	2	6
115	Ivy Rd WB (btwn Rt 846 & Golf Course Dr)	7,518	2.0%	7.5%	562	11	551	3	8	11.0%	823	16	807	4	12
116	Ivy Rd EB (btwn Rt 846 & Golf Course Dr)	7,518	2.0%	10.1%	761	15	746	4	11	9.6%	719	14	705	4	10
117	Old Ivy Rd EB (btwn Crestwood Rd & Harvest Dr)	2,773	1.0%	10.1%	281	3	278	1	2	9.6%	265	3	262	1	2
118	Old Ivy Rd WB (btwn Crestwood Rd & Harvest Dr)	2,773	1.0%	7.5%	207	2	205	1	1	11.0%	304	3	301	1	2
119	Proposed Bypass NB (South Terminus to North Terminus)														
120	Proposed Bypass SB (North Terminus to South Terminus)														
152	AB-AC: Off-Ramp from 29 NB to L. Sandridge Rd (diamond)														
163	AB-AJ: 29 NB to Proposed Bypass NB (flyover)														
153	AC-AD: On-Ramp from L. Sandridge Rd to 250 NB (diamond)														
154	AA-AD: 250 Bypass NB (thru lanes) from 29 NB Bypass diverge to On-Ramp from L. S														
157	AE-AH: 250 Bypass SB (thru lanes) from Off-Ramp to L. Sandridge Rd to 29 SB Bypas														
158	AH-AG: 250 Bypass SB (thru lanes) from 29 SB Bypass merge to On-Ramp from L. Sa														
155	AE-AF: Off-Ramp from 250 SB to L. Sandridge Rd (diamond)														
156	AF-AG: On-Ramp from L. Sandridge Rd to 29 SB (diamond)														
164	AI-AH: Proposed Bypass SB to 29 SB (flyover)														
151	AA-AB: 250 NB to Split														
159	AC-AF: L. Sandridge Rd NB, between Ramps														
160	AF-AC: L. Sandridge Rd SB, between Ramps														
161	AF-AJ: L. Sandridge Rd NB ramp to Proposed Bypass NB														
162	AI-AF: Proposed Bypass SB ramp to L. Sandridge Rd SB														
109	Route 250 SB/WB Mainline (btwn Ivy Rd & Barracks Rd) - Ex & NB	25,888	3.0%	7.5%	1,934	58	1,876	15	43	11.0%	2,835	85	2,750	21	64
	Route 250 SB/WB Mainline (btwn Ivy Rd & 29 Bypass) - Build														
110	Route 250 NB/EB Mainline (btwn Ivy Rd & L. Sandridge Rd) - Ex & NB	25,888	3.0%	10.1%	2,620	79	2,541	20	59	9.6%	2,477	74	2,403	19	55
110	Route 250 NB/EB Mainline (btwn L. Sandridge Rd & Barracks Rd) - Ex & NB	25,888	3.0%	10.1%	2,620	79	2,541	20	59	9.6%	2,477	74	2,403	19	55
	Route 250 NB/EB Mainline (btwn Ivy Rd & 29 Bypass) - Build														
191	Route 250 SB Off-Ramp (loop) to Ivy Rd	6,341	1.0%	7.5%	474	5	469	1	4	11.0%	695	7	688	2	5
192	Route 250 SB On-Ramp from Ivy Rd	3,612	1.0%	7.5%	270	3	267	1	2	11.0%	396	4	392	1	3
193	Route 250 NB Off-Ramp to Ivy Rd	3,612	1.0%	10.1%	366	4	362	1	3	9.6%	346	3	343	1	2
194	Route 250 NB On-Ramp (loop) from Ivy Rd	6,341	1.0%	10.1%	642	6	636	2	4	9.6%	607	6	601	2	4

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Southern Terminus Area

Segment	Link Description	2015 Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
67	Route 250 Bypass WB (btwn Hydraulic Rd & Emmet St)	11,927	0.02	0	889	18	871	4	14	0	1,069	21	1,048	5	16
68	Route 250 Bypass EB (btwn Hydraulic Rd & Emmet St)	11,927	0.02	0	1,066	21	1,045	5	16	0	992	20	972	5	15
69	Route 250 Bypass WB (btwn Emmet St & Barracks Rd)	13,026	0.03	0	973	29	944	7	22	0	1,427	43	1,384	11	32
70	Route 250 Bypass EB (btwn Emmet St & Barracks Rd)	13,026	0.03	0	1,318	40	1,278	10	30	0	1,246	37	1,209	9	28
77	L. Sandbridge Rd NB, south of 29	1,236	3.0%	12.9%	160	5	155	1	4	6.0%	74	2	72	1	1
78	L. Sandbridge Rd SB, south of 29	1,236	3.0%	5.1%	63	2	61	0	2	11.5%	142	4	138	1	3
109	Route 250 Bypass WB (btwn Barracks Rd & Prop Route 29 Bypass)	17,122	3.0%	7.5%	1,279	38	1,241	10	28	11.0%	1,875	56	1,819	14	42
110	Route 250 Bypass EB (btwn Bararcks Rd & Prop Route 29 Bypass)	17,122	3.0%	10.1%	1,733	52	1,681	13	39	9.6%	1,638	49	1,589	12	37
111	29 NB south of the Bypass (between Fontaine and Ivy)	24,162	7.0%	10.1%	2,446	171	2,275	43	128	9.6%	2,312	162	2,150	40	122
112	29 SB south of the Bypass (between Fontaine and Ivy)	24,162	7.0%	7.5%	1,805	126	1,679	32	94	11.0%	2,646	185	2,461	46	139
113	Ivy Rd EB (btwn Rt 250 Bypass & Alderman Rd)	7,171	1.0%	10.1%	726	7	719	2	5	9.6%	686	7	679	2	5
114	Ivy Rd WB (btwn Rt 250 Bypass & Alderman Rd)	7,171	1.0%	7.5%	536	5	531	1	4	11.0%	785	8	777	2	6
115	Ivy Rd WB (btwn Rt 846 & Golf Course Dr)	7,638	2.0%	7.5%	571	11	560	3	8	11.0%	837	17	820	4	13
116	Ivy Rd EB (btwn Rt 846 & Golf Course Dr)	7,638	2.0%	10.1%	773	15	758	4	11	9.6%	731	15	716	4	11
117	Old Ivy Rd EB (btwn Crestwood Rd & Harvest Dr)	2,703	1.0%	10.1%	274	3	271	1	2	9.6%	259	3	256	1	2
118	Old Ivy Rd WB (btwn Crestwood Rd & Harvest Dr)	2,703	1.0%	7.5%	202	2	200	1	1	11.0%	296	3	293	1	2
119	Proposed Bypass NB (South Terminus to North Terminus)	8,900	3.0%	7.2%	641	19	622	5	14	7.8%	692	21	671	5	16
120	Proposed Bypass SB (North Terminus to South Terminus)	8,900	3.0%	6.2%	549	16	533	4	12	9.3%	826	25	801	6	19
152	AB-AC: Off-Ramp from 29 NB to L. Sandridge Rd (diamond)	557	3.0%	7.2%	40	1	39	0	1	7.8%	43	1	42	0	1
163	AB-AJ: 29 NB to Proposed Bypass NB (flyover)	8,144	3.0%	7.2%	587	18	569	4	14	7.8%	633	19	614	5	14
153	AC-AD: On-Ramp from L. Sandridge Rd to 250 NB (diamond)	394	3.0%	7.2%	28	1	27	0	1	7.8%	31	1	30	0	1
154	AA-AD: 250 Bypass NB (thru lanes) from 29 NB Bypass diverge to On-Ramp from L. S	16,920	3.0%	10.1%	1,713	51	1,662	13	38	9.6%	1,619	49	1,570	12	37
157	AE-AH: 250 Bypass SB (thru lanes) from Off-Ramp to L. Sandridge Rd to 29 SB Bypas	16,498	3.0%	7.5%	1,232	37	1,195	9	28	11.0%	1,807	54	1,753	14	40
158	AH-AG: 250 Bypass SB (thru lanes) from 29 SB Bypass merge to On-Ramp from L. Sa	24,901	3.0%	7.5%	1,860	56	1,804	14	42	11.0%	2,727	82	2,645	20	62
155	AE-AF: Off-Ramp from 250 SB to L. Sandridge Rd (diamond)	799	3.0%	6.2%	49	1	48	0	1	9.3%	74	2	72	1	1
156	AF-AG: On-Ramp from L. Sandridge Rd to 29 SB (diamond)	708	3.0%	6.2%	44	1	43	0	1	9.3%	66	2	64	0	2
164	AI-AH: Proposed Bypass SB to 29 SB (flyover)	8,403	3.0%	6.2%	518	16	502	4	12	9.3%	780	23	757	6	17
151	AA-AB: 250 NB to Split	8,701	3.0%	7.2%	627	19	608	5	14	7.8%	676	20	656	5	15
159	AC-AF: L. Sandridge Rd NB, between Ramps	1,112	3.0%	7.2%	80	2	78	1	1	7.8%	86	3	83	1	2
160	AF-AC: L. Sandridge Rd SB, between Ramps	946	3.0%	6.2%	58	2	56	0	2	9.3%	88	3	85	1	2
161	AF-AJ: L. Sandridge Rd NB ramp to Proposed Bypass NB	843	3.0%	7.2%	61	2	59	0	2	7.8%	66	2	64	0	2
162	AI-AF: Proposed Bypass SB ramp to L. Sandridge Rd SB	586	3.0%	6.2%	36	1	35	0	1	9.3%	54	2	52	0	2
109	Route 250 SB/WB Mainline (btwn Ivy Rd & Barracks Rd) - Ex & NB														
	Route 250 SB/WB Mainline (btwn Ivy Rd & 29 Bypass) - Build	25,609	3.0%	7.2%	1,844	55	1,789	14	41	7.8%	1,990	60	1,930	15	45
110	Route 250 NB/EB Mainline (btwn Ivy Rd & L. Sandridge Rd) - Ex & NB														
110	Route 250 NB/EB Mainline (btwn L. Sandridge Rd & Barracks Rd) - Ex & NB														
	Route 250 NB/EB Mainline (btwn Ivy Rd & 29 Bypass) - Build	25,621	3.0%	7.5%	1,914	57	1,857	14	43	11.0%	2,806	84	2,722	21	63
191	Route 250 SB Off-Ramp (loop) to Ivy Rd	5,706	1.0%	7.5%	426	4	422	1	3	11.0%	625	6	619	2	4
192	Route 250 SB On-Ramp from Ivy Rd	4,011	1.0%	7.5%	300	3	297	1	2	11.0%	439	4	435	1	3
193	Route 250 NB Off-Ramp to Ivy Rd	4,010	1.0%	10.1%	406	4	402	1	3	9.6%	384	4	380	1	3
194	Route 250 NB On-Ramp (loop) from Ivy Rd	5,706	1.0%	10.1%	578	6	572	1	5	9.6%	546	5	541	1	4

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Southern Terminus Area

Segment	Link Description	2040 No-Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
67	Route 250 Bypass WB (btwn Hydraulic Rd & Emmet St)	16,364	0.02	0	1,220	24	1,196	6	18	0	1,466	29	1,437	7	22
68	Route 250 Bypass EB (btwn Hydraulic Rd & Emmet St)	16,364	0.02	0	1,463	29	1,434	7	22	0	1,361	27	1,334	7	20
69	Route 250 Bypass WB (btwn Emmet St & Barracks Rd)	29,329	0.03	0	2,191	66	2,125	16	50	0	3,212	96	3,116	24	72
70	Route 250 Bypass EB (btwn Emmet St & Barracks Rd)	29,329	0.03	0	2,969	89	2,880	22	67	0	2,806	84	2,722	21	63
77	L. Sandbridge Rd NB, south of 29	3,028	3.0%	12.9%	391	12	379	3	9	6.0%	181	5	176	1	4
78	L. Sandbridge Rd SB, south of 29	3,028	3.0%	5.1%	155	5	150	1	4	11.5%	348	10	338	3	7
109	Route 250 Bypass WB (btwn Barracks Rd & Prop Route 29 Bypass)	35,325	3.0%	7.5%	2,639	79	2,560	20	59	11.0%	3,869	116	3,753	29	87
110	Route 250 Bypass EB (btwn Bararcks Rd & Prop Route 29 Bypass)	35,325	3.0%	10.1%	3,576	107	3,469	27	80	9.6%	3,380	101	3,279	25	76
111	29 NB south of the Bypass (between Fontaine and Ivy)	33,702	7.0%	10.1%	3,411	239	3,172	60	179	9.6%	3,225	226	2,999	56	170
112	29 SB south of the Bypass (between Fontaine and Ivy)	33,702	7.0%	7.5%	2,517	176	2,341	44	132	11.0%	3,691	258	3,433	65	193
113	Ivy Rd EB (btwn Rt 250 Bypass & Alderman Rd)	6,261	1.0%	10.1%	634	6	628	2	4	9.6%	599	6	593	1	5
114	Ivy Rd WB (btwn Rt 250 Bypass & Alderman Rd)	6,261	1.0%	7.5%	468	5	463	1	4	11.0%	686	7	679	2	5
115	Ivy Rd WB (btwn Rt 846 & Golf Course Dr)	10,118	2.0%	7.5%	756	15	741	4	11	11.0%	1,108	22	1,086	6	16
116	Ivy Rd EB (btwn Rt 846 & Golf Course Dr)	10,118	2.0%	10.1%	1,024	20	1,004	5	15	9.6%	968	19	949	5	14
117	Old Ivy Rd EB (btwn Crestwood Rd & Harvest Dr)	2,860	1.0%	10.1%	289	3	286	1	2	9.6%	274	3	271	1	2
118	Old Ivy Rd WB (btwn Crestwood Rd & Harvest Dr)	2,860	1.0%	7.5%	214	2	212	1	1	11.0%	313	3	310	1	2
119	Proposed Bypass NB (South Terminus to North Terminus)														
120	Proposed Bypass SB (North Terminus to South Terminus)														
152	AB-AC: Off-Ramp from 29 NB to L. Sandridge Rd (diamond)														
163	AB-AJ: 29 NB to Proposed Bypass NB (flyover)														
153	AC-AD: On-Ramp from L. Sandridge Rd to 250 NB (diamond)														
154	AA-AD: 250 Bypass NB (thru lanes) from 29 NB Bypass diverge to On-Ramp from L. S														
157	AE-AH: 250 Bypass SB (thru lanes) from Off-Ramp to L. Sandridge Rd to 29 SB Bypas														
158	AH-AG: 250 Bypass SB (thru lanes) from 29 SB Bypass merge to On-Ramp from L. Sa														
155	AE-AF: Off-Ramp from 250 SB to L. Sandridge Rd (diamond)														
156	AF-AG: On-Ramp from L. Sandridge Rd to 29 SB (diamond)														
164	AI-AH: Proposed Bypass SB to 29 SB (flyover)														
151	AA-AB: 250 NB to Split														
159	AC-AF: L. Sandridge Rd NB, between Ramps														
160	AF-AC: L. Sandridge Rd SB, between Ramps														
161	AF-AJ: L. Sandridge Rd NB ramp to Proposed Bypass NB														
162	AI-AF: Proposed Bypass SB ramp to L. Sandridge Rd SB														
109	Route 250 SB/WB Mainline (btwn Ivy Rd & Barracks Rd) - Ex & NB	35,325	3.0%	7.5%	2,639	79	2,560	20	59	11.0%	3,869	116	3,753	29	87
	Route 250 SB/WB Mainline (btwn Ivy Rd & 29 Bypass) - Build														
110	Route 250 NB/EB Mainline (btwn Ivy Rd & L. Sandridge Rd) - Ex & NB	35,325	3.0%	10.1%	3,576	107	3,469	27	80	9.6%	3,380	101	3,279	25	76
110	Route 250 NB/EB Mainline (btwn L. Sandridge Rd & Barracks Rd) - Ex & NB	35,325	3.0%	10.1%	3,576	107	3,469	27	80	9.6%	3,380	101	3,279	25	76
	Route 250 NB/EB Mainline (btwn Ivy Rd & 29 Bypass) - Build														
191	Route 250 SB Off-Ramp (loop) to Ivy Rd	6,631	1.0%	7.5%	495	5	490	1	4	11.0%	726	7	719	2	5
192	Route 250 SB On-Ramp from Ivy Rd	5,058	1.0%	7.5%	378	4	374	1	3	11.0%	554	6	548	1	5
193	Route 250 NB Off-Ramp to Ivy Rd	5,057	1.0%	10.1%	512	5	507	1	4	9.6%	484	5	479	1	4
194	Route 250 NB On-Ramp (loop) from Ivy Rd	6,631	1.0%	10.1%	671	7	664	2	5	9.6%	634	6	628	2	4

MT = Medium Truck (2 axles with 6 wheels)
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AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Southern Terminus Area

Segment	Link Description	2040 Build		AM Peak Hour						PM Peak Hour				
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	cars	MT	HT
67	Route 250 Bypass WB (btwn Hydraulic Rd & Emmet St)	15,977	0.02	0	1,191	24	1,167	6	18	0	1,431	1,402	7	22
68	Route 250 Bypass EB (btwn Hydraulic Rd & Emmet St)	15,977	0.02	0	1,428	29	1,399	7	22	0	1,329	1,302	7	20
69	Route 250 Bypass WB (btwn Emmet St & Barracks Rd)	20,315	0.03	0	1,517	46	1,471	11	35	0	2,225	2,158	17	50
70	Route 250 Bypass EB (btwn Emmet St & Barracks Rd)	20,315	0.03	0	2,056	62	1,994	15	47	0	1,944	1,886	15	43
77	L. Sandbridge Rd NB, south of 29	3,761	3.0%	12.9%	486	15	471	4	11	6.0%	224	217	2	5
78	L. Sandbridge Rd SB, south of 29	3,761	3.0%	5.1%	193	6	187	1	5	11.5%	432	419	3	10
109	Route 250 Bypass WB (btwn Barracks Rd & Prop Route 29 Bypass)	26,559	3.0%	7.5%	1,984	60	1,924	15	45	11.0%	2,909	2,822	22	65
110	Route 250 Bypass EB (btwn Bararcks Rd & Prop Route 29 Bypass)	26,559	3.0%	10.1%	2,688	81	2,607	20	61	9.6%	2,541	2,465	19	57
111	29 NB south of the Bypass (between Fontaine and Ivy)	34,750	7.0%	10.1%	3,517	246	3,271	62	184	9.6%	3,325	3,092	58	175
112	29 SB south of the Bypass (between Fontaine and Ivy)	34,750	7.0%	7.5%	2,596	182	2,414	45	137	11.0%	3,806	3,540	67	199
113	Ivy Rd EB (btwn Rt 250 Bypass & Alderman Rd)	5,721	1.0%	10.1%	579	6	573	1	5	9.6%	547	542	1	4
114	Ivy Rd WB (btwn Rt 250 Bypass & Alderman Rd)	5,721	1.0%	7.5%	427	4	423	1	3	11.0%	627	621	2	4
115	Ivy Rd WB (btwn Rt 846 & Golf Course Dr)	10,238	2.0%	7.5%	765	15	750	4	11	11.0%	1,121	1,099	6	16
116	Ivy Rd EB (btwn Rt 846 & Golf Course Dr)	10,238	2.0%	10.1%	1,036	21	1,015	5	16	9.6%	980	960	5	15
117	Old Ivy Rd EB (btwn Crestwood Rd & Harvest Dr)	2,790	1.0%	10.1%	282	3	279	1	2	9.6%	267	264	1	2
118	Old Ivy Rd WB (btwn Crestwood Rd & Harvest Dr)	2,790	1.0%	7.5%	208	2	206	1	1	11.0%	306	303	1	2
119	Proposed Bypass NB (South Terminus to North Terminus)	13,899	3.0%	7.2%	1,001	30	971	8	22	7.8%	1,080	1,048	8	24
120	Proposed Bypass SB (North Terminus to South Terminus)	13,899	3.0%	6.2%	857	26	831	6	20	9.3%	1,290	1,251	10	29
152	AB-AC: Off-Ramp from 29 NB to L. Sandridge Rd (diamond)	762	3.0%	7.2%	55	2	53	0	2	7.8%	59	57	0	2
163	AB-AJ: 29 NB to Proposed Bypass NB (flyover)	10,135	3.0%	7.2%	730	22	708	5	17	7.8%	788	764	6	18
153	AC-AD: On-Ramp from L. Sandridge Rd to 250 NB (diamond)	1,930	3.0%	7.2%	139	4	135	1	3	7.8%	150	146	1	4
154	AA-AD: 250 Bypass NB (thru lanes) from 29 NB Bypass diverge to On-Ramp from L. S	24,537	3.0%	10.1%	2,484	75	2,409	19	56	9.6%	2,348	2,278	18	52
157	AE-AH: 250 Bypass SB (thru lanes) from Off-Ramp to L. Sandridge Rd to 29 SB Bypas	23,047	3.0%	7.5%	1,721	52	1,669	13	39	11.0%	2,524	2,448	19	57
158	AH-AG: 250 Bypass SB (thru lanes) from 29 SB Bypass merge to On-Ramp from L. Sa	34,301	3.0%	7.5%	2,562	77	2,485	19	58	11.0%	3,757	3,644	28	85
155	AE-AF: Off-Ramp from 250 SB to L. Sandridge Rd (diamond)	3,435	3.0%	6.2%	212	6	206	2	4	9.3%	319	309	2	8
156	AF-AG: On-Ramp from L. Sandridge Rd to 29 SB (diamond)	1,144	3.0%	6.2%	71	2	69	1	1	9.3%	106	103	1	2
164	AI-AH: Proposed Bypass SB to 29 SB (flyover)	11,254	3.0%	6.2%	694	21	673	5	16	9.3%	1,045	1,014	8	23
151	AA-AB: 250 NB to Split	10,897	3.0%	7.2%	785	24	761	6	18	7.8%	847	822	6	19
159	AC-AF: L. Sandridge Rd NB, between Ramps	3,066	3.0%	7.2%	221	7	214	2	5	7.8%	238	231	2	5
160	AF-AC: L. Sandridge Rd SB, between Ramps	4,238	3.0%	6.2%	261	8	253	2	6	9.3%	393	381	3	9
161	AF-AJ: L. Sandridge Rd NB ramp to Proposed Bypass NB	3,728	3.0%	7.2%	268	8	260	2	6	7.8%	290	281	2	7
162	AI-AF: Proposed Bypass SB ramp to L. Sandridge Rd SB	2,609	3.0%	6.2%	161	5	156	1	4	9.3%	242	235	2	5
109	Route 250 SB/WB Mainline (btwn Ivy Rd & Barracks Rd) - Ex & NB													
	Route 250 SB/WB Mainline (btwn Ivy Rd & 29 Bypass) - Build	35,445	3.0%	7.2%	2,553	77	2,476	19	58	7.8%	2,755	2,672	21	62
110	Route 250 NB/EB Mainline (btwn Ivy Rd & L. Sandridge Rd) - Ex & NB													
110	Route 250 NB/EB Mainline (btwn L. Sandridge Rd & Barracks Rd) - Ex & NB													
	Route 250 NB/EB Mainline (btwn Ivy Rd & 29 Bypass) - Build	35,434	3.0%	7.5%	2,647	79	2,568	20	59	11.0%	3,881	3,765	29	87
191	Route 250 SB Off-Ramp (loop) to Ivy Rd	6,073	1.0%	7.5%	454	5	449	1	4	11.0%	665	658	2	5
192	Route 250 SB On-Ramp from Ivy Rd	5,516	1.0%	7.5%	412	4	408	1	3	11.0%	604	598	2	4
193	Route 250 NB Off-Ramp to Ivy Rd	5,516	1.0%	10.1%	558	6	552	1	5	9.6%	528	523	1	4
194	Route 250 NB On-Ramp (loop) from Ivy Rd	6,073	1.0%	10.1%	615	6	609	2	4	9.6%	581	575	1	5

MT = Medium Truck (2 axles with 6 wheels)
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Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Cross Streets

Segment	Link Description	Diurnal Curve	2011 Existing		*AM Peak Hour*						*PM Peak Hour*					
			ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
84	Barracks Road EB (Btwn Garth Rd & Georgetown Rd)	K5	3,200	1.0%	10.1%	324	3	321	1	2	9.6%	306	3	303	1	2
83	Barracks Road WB (Btwn Garth Rd & Georgetown Rd)	K6	3,200	1.0%	7.5%	239	2	237	1	1	11.0%	350	4	347	1	3
99	Lambs Road NB (Btwn Hydraulic Rd & Ivy Ridge Rd)	K10	2,450	1.0%	5.1%	126	1	125	0	1	11.5%	282	3	279	1	2
100	Lambs Road SB (Btwn Hydraulic Rd & Ivy Ridge Rd)	K9	2,450	1.0%	12.9%	316	3	313	1	2	6.0%	146	1	145	0	1
	Roslyn Ridge Rd [NOT IN MODEL]		160	1.0%	10.0%	16	0	16	0	0	10.0%	16	0	16	0	0
105	Earlysville Rd NB (Btwn Hydraulic Rd & Woodland Rd)	K10	6,000	1.0%	5.1%	308	3	305	1	2	11.5%	690	7	683	2	5
106	Earlysville Rd SB (Btwn Hydraulic Rd & Woodland Rd)	K9	6,000	1.0%	12.9%	775	8	767	2	6	6.0%	358	4	354	1	3
	Woodburn Road [NOT IN MODEL]		840	1.0%	10.0%	84	1	83	0	1	10.0%	84	1	83	0	1
	Parallel Routes															
41	Berkmar Drive NB (Btwn Woodbrook Dr & Hilton Heights Rd)	K10	4,550	3.0%	5.1%	233	7	226	2	5	11.5%	523	16	507	4	12
42	Berkmar Drive SB (Btwn Woodbrook Dr & Hilton Heights Rd)	K9	4,550	3.0%	12.9%	588	18	570	4	14	6.0%	271	8	263	2	6
45	Berkmar Drive SB (btwn Woodbrook Dr & Rio Road)	K9	9,500	3.0%	12.9%	1,227	37	1,190	9	28	6.0%	567	17	550	4	13
46	Berkmar Drive NB (btwn Woodbrook Dr & Rio Road)	K10	9,500	1.0%	5.1%	487	5	482	1	4	11.5%	1,092	11	1,081	3	8
51	Rio Road EB (btwn 4 Seasons Dr & Berkmar Dr)	K5	8,500	1.0%	10.1%	860	9	851	2	7	9.6%	813	8	805	2	6
52	Rio Road WB (btwn 4 Seasons Dr & Berkmar Dr)	K6	8,500	1.0%	7.5%	635	6	629	2	4	11.0%	931	9	922	2	7
101	Hydraulic Road SB (Btwn Earlysville Rd & Lambs Rd)	K5	10,500	1.0%	10.1%	1,063	11	1,052	3	8	9.6%	1,005	10	995	3	7
102	Hydraulic Road NB (Btwn Earlysville Rd & Lambs Rd)	K6	10,500	1.0%	7.5%	784	8	776	2	6	11.0%	1,150	12	1,139	3	9
103	Rio Rd EB (Btwn Earlysville Rd & 4 Seasons Dr)	K5	8,500	1.0%	10.1%	860	9	851	2	7	9.6%	813	8	805	2	6
104	Rio Rd WB (Btwn Earlysville Rd & 4 Seasons Dr)	K6	8,500	1.0%	7.5%	635	6	629	2	4	11.0%	931	9	922	2	7

MT = Medium Truck (2 axles with 6 wheels)
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Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Cross Streets

Segment	Link Description	2015 No-Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
84	Barracks Road EB (Btwn Garth Rd & Georgetown Rd)	4,005	1.0%	10.1%	405	4	401	1	3	9.6%	383	4	379	1	3
83	Barracks Road WB (Btwn Garth Rd & Georgetown Rd)	4,005	1.0%	7.5%	299	3	296	1	2	11.0%	439	4	435	1	3
99	Lambs Road NB (Btwn Hydraulic Rd & Ivy Ridge Rd)	2,903	1.0%	5.1%	149	1	148	0	1	11.5%	334	3	331	1	2
100	Lambs Road SB (Btwn Hydraulic Rd & Ivy Ridge Rd)	2,903	1.0%	12.9%	375	4	371	1	3	6.0%	173	2	171	0	2
	Roslyn Ridge Rd [NOT IN MODEL]	160	1.0%	10.0%	16	0	16	0	0	10.0%	16	0	16	0	0
105	Earlysville Rd NB (Btwn Hydraulic Rd & Woodland Rd)	6,063	1.0%	5.1%	311	3	308	1	2	11.5%	697	7	690	2	5
106	Earlysville Rd SB (Btwn Hydraulic Rd & Woodland Rd)	6,063	1.0%	12.9%	783	8	775	2	6	6.0%	362	4	358	1	3
	Woodburn Road [NOT IN MODEL]	840	1.0%	10.0%	84	1	83	0	1	10.0%	84	1	83	0	1
	Parallel Routes														
39	Berkmar Drive Extended NB (btwn Hilton Heights Rd & Rio Mills Rd)	10,661	3.0%	5.1%	547	16	531	4	12	11.5%	1,226	37	1,189	9	28
40	Berkmar Drive Extended SB (btwn Hilton Heights Rd & Rio Mills Rd)	10,661	3.0%	12.9%	1,377	41	1,336	10	31	6.0%	636	19	617	5	14
41	Berkmar Drive NB (Btwn Woodbrook Dr & Hilton Heights Rd)	5,583	3.0%	5.1%	286	9	277	2	7	11.5%	642	19	623	5	14
42	Berkmar Drive SB (Btwn Woodbrook Dr & Hilton Heights Rd)	5,583	3.0%	12.9%	721	22	699	5	17	6.0%	333	10	323	2	8
45	Berkmar Drive SB (btwn Woodbrook Dr & Rio Road)	9,726	3.0%	12.9%	1,256	38	1,218	9	29	6.0%	580	17	563	4	13
46	Berkmar Drive NB (btwn Woodbrook Dr & Rio Road)	9,726	1.0%	5.1%	499	5	494	1	4	11.5%	1,118	11	1,107	3	8
51	Rio Road EB (btwn 4 Seasons Dr & Berkmar Dr)	8,184	1.0%	10.1%	828	8	820	2	6	9.6%	783	8	775	2	6
52	Rio Road WB (btwn 4 Seasons Dr & Berkmar Dr)	8,184	1.0%	7.5%	611	6	605	2	4	11.0%	896	9	887	2	7
101	Hydraulic Road SB (Btwn Earlysville Rd & Lambs Rd)	10,652	1.0%	10.1%	1,078	11	1,067	3	8	9.6%	1,019	10	1,009	3	7
102	Hydraulic Road NB (Btwn Earlysville Rd & Lambs Rd)	10,652	1.0%	7.5%	796	8	788	2	6	11.0%	1,167	12	1,155	3	9
103	Rio Rd EB (Btwn Earlysville Rd & 4 Seasons Dr)	8,191	1.0%	10.1%	829	8	821	2	6	9.6%	784	8	776	2	6
104	Rio Rd WB (Btwn Earlysville Rd & 4 Seasons Dr)	8,191	1.0%	7.5%	612	6	606	2	4	11.0%	897	9	888	2	7

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AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Cross Streets

Segment	Link Description	2015 Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
84	Barracks Road EB (Btwn Garth Rd & Georgetown Rd)	4,114	1.0%	10.1%	416	4	412	1	3	9.6%	394	4	390	1	3
83	Barracks Road WB (Btwn Garth Rd & Georgetown Rd)	4,114	1.0%	7.5%	307	3	304	1	2	11.0%	451	5	446	1	4
99	Lambs Road NB (Btwn Hydraulic Rd & Ivy Ridge Rd)	2,670	1.0%	5.1%	137	1	136	0	1	11.5%	307	3	304	1	2
100	Lambs Road SB (Btwn Hydraulic Rd & Ivy Ridge Rd)	2,670	1.0%	12.9%	345	3	342	1	2	6.0%	159	2	157	0	2
	Roslyn Ridge Rd [NOT IN MODEL]	160	1.0%	10.0%	16	0	16	0	0	10.0%	16	0	16	0	0
105	Earlysville Rd NB (Btwn Hydraulic Rd & Woodland Rd)	5,158	1.0%	5.1%	264	3	261	1	2	11.5%	593	6	587	1	5
106	Earlysville Rd SB (Btwn Hydraulic Rd & Woodland Rd)	5,158	1.0%	12.9%	666	7	659	2	5	6.0%	308	3	305	1	2
	Woodburn Road [NOT IN MODEL]	840	1.0%	10.0%	84	1	83	0	1	10.0%	84	1	83	0	1
	Parallel Routes														
39	Berkmar Drive Extended NB (btwn Hilton Heights Rd & Rio Mills Rd)	4,465	3.0%	5.1%	229	7	222	2	5	11.5%	513	15	498	4	11
40	Berkmar Drive Extended SB (btwn Hilton Heights Rd & Rio Mills Rd)	4,465	3.0%	12.9%	577	17	560	4	13	6.0%	266	8	258	2	6
41	Berkmar Drive NB (Btwn Woodbrook Dr & Hilton Heights Rd)	2,395	3.0%	5.1%	123	4	119	1	3	11.5%	275	8	267	2	6
42	Berkmar Drive SB (Btwn Woodbrook Dr & Hilton Heights Rd)	2,395	3.0%	12.9%	309	9	300	2	7	6.0%	143	4	139	1	3
45	Berkmar Drive SB (btwn Woodbrook Dr & Rio Road)	3,718	3.0%	12.9%	480	14	466	4	10	6.0%	222	7	215	2	5
46	Berkmar Drive NB (btwn Woodbrook Dr & Rio Road)	3,718	3.0%	5.1%	191	6	185	1	5	11.5%	427	13	414	3	10
51	Rio Road EB (btwn 4 Seasons Dr & Berkmar Dr)	7,431	1.0%	10.1%	752	8	744	2	6	9.6%	711	7	704	2	5
52	Rio Road WB (btwn 4 Seasons Dr & Berkmar Dr)	7,431	1.0%	7.5%	555	6	549	1	5	11.0%	814	8	806	2	6
101	Hydraulic Road SB (Btwn Earlysville Rd & Lambs Rd)	9,132	1.0%	10.1%	924	9	915	2	7	9.6%	874	9	865	2	7
102	Hydraulic Road NB (Btwn Earlysville Rd & Lambs Rd)	9,132	1.0%	7.5%	682	7	675	2	5	11.0%	1,000	10	990	3	7
103	Rio Rd EB (Btwn Earlysville Rd & 4 Seasons Dr)	7,442	1.0%	10.1%	753	8	745	2	6	9.6%	712	7	705	2	5
104	Rio Rd WB (Btwn Earlysville Rd & 4 Seasons Dr)	7,442	1.0%	7.5%	556	6	550	1	5	11.0%	815	8	807	2	6

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AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Blue Text indicates segments added (2012-07-11)

Charlottesville Bypass Traffic - Cross Streets

Segment	Link Description	2040 No-Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
84	Barracks Road EB (Btwn Garth Rd & Georgetown Rd)	8,055	1.0%	10.1%	815	8	807	2	6	9.6%	771	8	763	2	6
83	Barracks Road WB (Btwn Garth Rd & Georgetown Rd)	8,055	1.0%	7.5%	602	6	596	2	4	11.0%	882	9	873	2	7
99	Lambs Road NB (Btwn Hydraulic Rd & Ivy Ridge Rd)	5,153	1.0%	5.1%	264	3	261	1	2	11.5%	592	6	586	1	5
100	Lambs Road SB (Btwn Hydraulic Rd & Ivy Ridge Rd)	5,153	1.0%	12.9%	666	7	659	2	5	6.0%	307	3	304	1	2
	Roslyn Ridge Rd [NOT IN MODEL]	160	1.0%	10.0%	16	0	16	0	0	10.0%	16	0	16	0	0
105	Earlysville Rd NB (Btwn Hydraulic Rd & Woodland Rd)	6,375	1.0%	5.1%	327	3	324	1	2	11.5%	733	7	726	2	5
106	Earlysville Rd SB (Btwn Hydraulic Rd & Woodland Rd)	6,375	1.0%	12.9%	823	8	815	2	6	6.0%	380	4	376	1	3
	Woodburn Road [NOT IN MODEL]	840	1.0%	10.0%	84	1	83	0	1	10.0%	84	1	83	0	1
	Parallel Routes														
39	Berkmar Drive Extended NB (btwn Hilton Heights Rd & Rio Mills Rd)	10,661	3.0%	5.1%	547	16	531	4	12	11.5%	1,226	37	1,189	9	28
40	Berkmar Drive Extended SB (btwn Hilton Heights Rd & Rio Mills Rd)	10,661	3.0%	12.9%	1,377	41	1,336	10	31	6.0%	636	19	617	5	14
41	Berkmar Drive NB (Btwn Woodbrook Dr & Hilton Heights Rd)	10,745	3.0%	5.1%	551	17	534	4	13	11.5%	1,235	37	1,198	9	28
42	Berkmar Drive SB (Btwn Woodbrook Dr & Hilton Heights Rd)	10,745	3.0%	12.9%	1,388	42	1,346	10	32	6.0%	641	19	622	5	14
45	Berkmar Drive SB (btwn Woodbrook Dr & Rio Road)	10,839	3.0%	12.9%	1,400	42	1,358	11	31	6.0%	646	19	627	5	14
46	Berkmar Drive NB (btwn Woodbrook Dr & Rio Road)	10,839	1.0%	5.1%	556	6	550	1	5	11.5%	1,246	12	1,234	3	9
51	Rio Road EB (btwn 4 Seasons Dr & Berkmar Dr)	6,571	1.0%	10.1%	665	7	658	2	5	9.6%	629	6	623	2	4
52	Rio Road WB (btwn 4 Seasons Dr & Berkmar Dr)	6,571	1.0%	7.5%	491	5	486	1	4	11.0%	720	7	713	2	5
101	Hydraulic Road SB (Btwn Earlysville Rd & Lambs Rd)	11,415	1.0%	10.1%	1,155	12	1,143	3	9	9.6%	1,092	11	1,081	3	8
102	Hydraulic Road NB (Btwn Earlysville Rd & Lambs Rd)	11,415	1.0%	7.5%	853	9	844	2	7	11.0%	1,250	13	1,238	3	10
103	Rio Rd EB (Btwn Earlysville Rd & 4 Seasons Dr)	6,616	1.0%	10.1%	670	7	663	2	5	9.6%	633	6	627	2	4
104	Rio Rd WB (Btwn Earlysville Rd & 4 Seasons Dr)	6,616	1.0%	7.5%	494	5	489	1	4	11.0%	725	7	718	2	5

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Charlottesville Bypass Traffic - Cross Streets

Segment	Link Description	2040 Build		AM Peak Hour						PM Peak Hour					
		ADT	% T	% of ADT	Total Vol	Total Truck	cars	MT	HT	% of ADT	Total Vol	Total Truck	cars	MT	HT
84	Barracks Road EB (Btwn Garth Rd & Georgetown Rd)	8,164	1.0%	10.1%	826	8	818	2	6	9.6%	781	8	773	2	6
83	Barracks Road WB (Btwn Garth Rd & Georgetown Rd)	8,164	1.0%	7.5%	610	6	604	2	4	11.0%	894	9	885	2	7
99	Lambs Road NB (Btwn Hydraulic Rd & Ivy Ridge Rd)	4,920	1.0%	5.1%	252	3	249	1	2	11.5%	566	6	560	1	5
100	Lambs Road SB (Btwn Hydraulic Rd & Ivy Ridge Rd)	4,920	1.0%	12.9%	636	6	630	2	4	6.0%	293	3	290	1	2
	Roslyn Ridge Rd [NOT IN MODEL]	160	1.0%	10.0%	16	0	16	0	0	10.0%	16	0	16	0	0
105	Earlysville Rd NB (Btwn Hydraulic Rd & Woodland Rd)	5,471	1.0%	5.1%	281	3	278	1	2	11.5%	629	6	623	2	4
106	Earlysville Rd SB (Btwn Hydraulic Rd & Woodland Rd)	5,471	1.0%	12.9%	707	7	700	2	5	6.0%	326	3	323	1	2
	Woodburn Road [NOT IN MODEL]	840	1.0%	10.0%	84	1	83	0	1	10.0%	84	1	83	0	1
	Parallel Routes														
39	Berkmar Drive Extended NB (btwn Hilton Heights Rd & Rio Mills Rd)	4,465	3.0%	5.1%	229	7	222	2	5	11.5%	513	15	498	4	11
40	Berkmar Drive Extended SB (btwn Hilton Heights Rd & Rio Mills Rd)	4,465	3.0%	12.9%	577	17	560	4	13	6.0%	266	8	258	2	6
41	Berkmar Drive NB (Btwn Woodbrook Dr & Hilton Heights Rd)	4,610	3.0%	5.1%	236	7	229	2	5	11.5%	530	16	514	4	12
42	Berkmar Drive SB (Btwn Woodbrook Dr & Hilton Heights Rd)	4,610	3.0%	12.9%	595	18	577	4	14	6.0%	275	8	267	2	6
45	Berkmar Drive SB (btwn Woodbrook Dr & Rio Road)	4,830	3.0%	12.9%	624	19	605	5	14	6.0%	288	9	279	2	7
46	Berkmar Drive NB (btwn Woodbrook Dr & Rio Road)	4,830	3.0%	5.1%	248	7	241	2	5	11.5%	555	17	538	4	13
51	Rio Road EB (btwn 4 Seasons Dr & Berkmar Dr)	5,819	1.0%	10.1%	589	6	583	1	5	9.6%	557	6	551	1	5
52	Rio Road WB (btwn 4 Seasons Dr & Berkmar Dr)	5,819	1.0%	7.5%	435	4	431	1	3	11.0%	637	6	631	2	4
101	Hydraulic Road SB (Btwn Earlysville Rd & Lambs Rd)	9,895	1.0%	10.1%	1,002	10	992	3	7	9.6%	947	9	938	2	7
102	Hydraulic Road NB (Btwn Earlysville Rd & Lambs Rd)	9,895	1.0%	7.5%	739	7	732	2	5	11.0%	1,084	11	1,073	3	8
103	Rio Rd EB (Btwn Earlysville Rd & 4 Seasons Dr)	5,867	1.0%	10.1%	594	6	588	1	5	9.6%	561	6	555	1	5
104	Rio Rd WB (Btwn Earlysville Rd & 4 Seasons Dr)	5,867	1.0%	7.5%	438	4	434	1	3	11.0%	643	6	637	2	4

MT = Medium Truck (2 axles with 6 wheels)
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Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

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Charlottesville Bypass Traffic - Existing Route 29

Segment	Link Description	Diurnal Curve	2011 Existing								
				AM Peak Hour				PM Peak Hour			
			ADT	Total Vol	cars	MT	HT	Total Vol	cars	MT	HT
110	29/250: Prop Bypass to Barracks Road (NB)	K5	24,000	2,429	2,356	18	55	2,296	2,227	17	52
109	29/250: Prop Bypass to Barracks Road (SB)	K6	24,000	1,793	1,739	13	41	2,629	2,550	20	59
70	29/250: Barracks Road to Emmet Street (NB)	K5	19,000	1,923	1,865	14	44	1,818	1,763	14	41
69	29/250: Barracks Road to Emmet Street (SB)	K6	19,000	1,419	1,376	11	32	2,081	2,019	16	46
21	29 Seminole Tr: US 250 to Angus Rd (NB)	K2	26,000	1,872	1,816	14	42	2,021	1,960	15	46
22	29 Seminole Tr: US 250 to Angus Rd (SB)	K1	26,000	1,604	1,556	12	36	2,413	2,341	18	54
19	29 Seminole Tr: Angus Rd to Hydraulic Rd (NB)	K2	26,000	1,872	1,816	14	42	2,021	1,960	15	46
20	29 Seminole Tr: Angus Rd to Hydraulic Rd (SB)	K1	26,000	1,604	1,556	12	36	2,413	2,341	18	54
17	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (NB)	K2	28,500	2,052	1,990	15	47	2,215	2,149	17	49
18	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (SB)	K1	28,500	1,758	1,705	13	40	2,645	2,566	20	59
15	29 Seminole Tr: Greenbrier Dr to Dominion Dr (NB)	K2	28,500	2,052	1,990	15	47	2,215	2,149	17	49
16	29 Seminole Tr: Greenbrier Dr to Dominion Dr (SB)	K1	28,500	1,758	1,705	13	40	2,645	2,566	20	59
13	29 Seminole Tr: Dominion Dr to Berkmar Dr (NB)	K2	28,500	2,052	1,990	15	47	2,215	2,149	17	49
14	29 Seminole Tr: Dominion Dr to Berkmar Dr (SB)	K1	28,500	1,758	1,705	13	40	2,645	2,566	20	59
11	29 Seminole Tr: Berkmar Dr to Rio Rd (NB)	K2	24,000	1,728	1,676	13	39	1,865	1,809	14	42
12	29 Seminole Tr: Berkmar Dr to Rio Rd (SB)	K1	24,000	1,480	1,436	11	33	2,228	2,161	17	50
9	29 Seminole Tr: Rio Rd to Woodbrook Dr (NB)	K2	24,000	1,728	1,676	13	39	1,865	1,809	14	42
10	29 Seminole Tr: Rio Rd to Woodbrook Dr (SB)	K1	24,000	1,480	1,436	11	33	2,228	2,161	17	50
7	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (NB)	K2	24,000	1,728	1,676	13	39	1,865	1,809	14	42
8	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (SB)	K1	24,000	1,480	1,436	11	33	2,228	2,161	17	50
5	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (NB)	K2	24,000	1,728	1,676	13	39	1,865	1,809	14	42
6	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (SB)	K1	24,000	1,480	1,436	11	33	2,228	2,161	17	50
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	K2	24,000	1,728	1,676	13	39	1,865	1,809	14	42
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	K1	24,000	1,480	1,436	11	33	2,228	2,161	17	50

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Existing Route 29

Segment	Link Description	2015 No-Build								
			AM Peak Hour				*PM Peak Hour*			
		ADT	Total Vol	cars	MT	HT	Total Vol	cars	MT	HT
110	29/250: Prop Bypass to Barracks Road (NB)	25,888	2,620	2,541	20	59	2,477	2,403	19	55
109	29/250: Prop Bypass to Barracks Road (SB)	25,888	1,934	1,876	15	43	2,835	2,750	21	64
70	29/250: Barracks Road to Emmet Street (NB)	20,717	2,097	2,034	16	47	1,982	1,923	15	44
69	29/250: Barracks Road to Emmet Street (SB)	20,717	1,547	1,501	12	34	2,269	2,201	17	51
21	29 Seminole Tr: US 250 to Angus Rd (NB)	28,827	2,076	2,014	16	46	2,241	2,174	17	50
22	29 Seminole Tr: US 250 to Angus Rd (SB)	28,827	1,778	1,725	13	40	2,676	2,596	20	60
19	29 Seminole Tr: Angus Rd to Hydraulic Rd (NB)	28,609	2,060	1,998	15	47	2,224	2,157	17	50
20	29 Seminole Tr: Angus Rd to Hydraulic Rd (SB)	28,609	1,765	1,712	13	40	2,655	2,575	20	60
17	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (NB)	30,692	2,210	2,144	17	49	2,386	2,314	18	54
18	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (SB)	30,692	1,893	1,836	14	43	2,849	2,764	21	64
15	29 Seminole Tr: Greenbrier Dr to Dominion Dr (NB)	30,780	2,217	2,150	17	50	2,392	2,320	18	54
16	29 Seminole Tr: Greenbrier Dr to Dominion Dr (SB)	30,780	1,899	1,842	14	43	2,857	2,771	21	65
13	29 Seminole Tr: Dominion Dr to Berkmar Dr (NB)	30,446	2,193	2,127	16	50	2,366	2,295	18	53
14	29 Seminole Tr: Dominion Dr to Berkmar Dr (SB)	30,446	1,878	1,822	14	42	2,826	2,741	21	64
11	29 Seminole Tr: Berkmar Dr to Rio Rd (NB)	25,498	1,836	1,781	14	41	1,982	1,923	15	44
12	29 Seminole Tr: Berkmar Dr to Rio Rd (SB)	25,498	1,573	1,526	12	35	2,367	2,296	18	53
9	29 Seminole Tr: Rio Rd to Woodbrook Dr (NB)	26,753	1,927	1,869	14	44	2,079	2,017	16	46
10	29 Seminole Tr: Rio Rd to Woodbrook Dr (SB)	26,753	1,650	1,601	12	38	2,483	2,409	19	55
7	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (NB)	26,389	1,900	1,843	14	43	2,051	1,989	15	47
8	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (SB)	26,389	1,628	1,579	12	37	2,449	2,376	18	55
5	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (NB)	26,307	1,895	1,838	14	43	2,045	1,984	15	46
6	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (SB)	26,307	1,623	1,574	12	37	2,442	2,369	18	55
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	26,089	1,879	1,823	14	42	2,028	1,967	15	46
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	26,089	1,609	1,561	12	36	2,422	2,349	18	55

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Existing Route 29

Segment	Link Description	2015 Build								
			AM Peak Hour				PM Peak Hour			
		ADT	Total Vol	cars	MT	HT	Total Vol	cars	MT	HT
110	29/250: Prop Bypass to Barracks Road (NB)	17,122	1,733	1,681	13	39	1,638	1,589	12	37
109	29/250: Prop Bypass to Barracks Road (SB)	17,122	1,279	1,241	10	28	1,875	1,819	14	42
70	29/250: Barracks Road to Emmet Street (NB)	13,026	1,318	1,278	10	30	1,246	1,209	9	28
69	29/250: Barracks Road to Emmet Street (SB)	13,026	973	944	7	22	1,427	1,384	11	32
21	29 Seminole Tr: US 250 to Angus Rd (NB)	18,671	1,345	1,305	10	30	1,451	1,407	11	33
22	29 Seminole Tr: US 250 to Angus Rd (SB)	18,671	1,152	1,117	9	26	1,733	1,681	13	39
19	29 Seminole Tr: Angus Rd to Hydraulic Rd (NB)	18,506	1,333	1,293	10	30	1,438	1,395	11	32
20	29 Seminole Tr: Angus Rd to Hydraulic Rd (SB)	18,506	1,142	1,108	9	25	1,718	1,666	13	39
17	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (NB)	22,902	1,649	1,600	12	37	1,780	1,727	13	40
18	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (SB)	22,902	1,413	1,371	11	31	2,126	2,062	16	48
15	29 Seminole Tr: Greenbrier Dr to Dominion Dr (NB)	20,063	1,445	1,402	11	32	1,559	1,512	12	35
16	29 Seminole Tr: Greenbrier Dr to Dominion Dr (SB)	20,063	1,238	1,201	9	28	1,862	1,806	14	42
13	29 Seminole Tr: Dominion Dr to Berkmar Dr (NB)	19,519	1,406	1,364	11	31	1,517	1,471	11	35
14	29 Seminole Tr: Dominion Dr to Berkmar Dr (SB)	19,519	1,204	1,168	9	27	1,812	1,758	14	40
11	29 Seminole Tr: Berkmar Dr to Rio Rd (NB)	18,108	1,304	1,265	10	29	1,407	1,365	11	31
12	29 Seminole Tr: Berkmar Dr to Rio Rd (SB)	18,108	1,117	1,083	8	26	1,681	1,631	13	37
9	29 Seminole Tr: Rio Rd to Woodbrook Dr (NB)	20,522	1,478	1,434	11	33	1,595	1,547	12	36
10	29 Seminole Tr: Rio Rd to Woodbrook Dr (SB)	20,522	1,266	1,228	9	29	1,905	1,848	14	43
7	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (NB)	20,267	1,460	1,416	11	33	1,575	1,528	12	35
8	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (SB)	20,267	1,250	1,213	9	29	1,881	1,825	14	42
5	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (NB)	20,230	1,457	1,413	11	33	1,572	1,525	12	35
6	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (SB)	20,230	1,248	1,211	9	28	1,878	1,822	14	42
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	22,255	1,603	1,555	12	36	1,730	1,678	13	39
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	22,255	1,373	1,332	10	31	2,066	2,004	15	47

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Existing Route 29

Segment	Link Description	2040 No-Build								
			AM Peak Hour				PM Peak Hour			
		ADT	Total Vol	cars	MT	HT	Total Vol	cars	MT	HT
110	29/250: Prop Bypass to Barracks Road (NB)	35,325	3,576	3,469	27	80	3,380	3,279	25	76
109	29/250: Prop Bypass to Barracks Road (SB)	35,325	2,639	2,560	20	59	3,869	3,753	29	87
70	29/250: Barracks Road to Emmet Street (NB)	29,329	2,969	2,880	22	67	2,806	2,722	21	63
69	29/250: Barracks Road to Emmet Street (SB)	29,329	2,191	2,125	16	50	3,212	3,116	24	72
21	29 Seminole Tr: US 250 to Angus Rd (NB)	42,939	3,092	2,999	23	70	3,337	3,237	25	75
22	29 Seminole Tr: US 250 to Angus Rd (SB)	42,939	2,649	2,570	20	59	3,986	3,866	30	90
19	29 Seminole Tr: Angus Rd to Hydraulic Rd (NB)	41,646	2,999	2,909	22	68	3,237	3,140	24	73
20	29 Seminole Tr: Angus Rd to Hydraulic Rd (SB)	41,646	2,569	2,492	19	58	3,866	3,750	29	87
17	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (NB)	41,642	2,999	2,909	22	68	3,237	3,140	24	73
18	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (SB)	41,642	2,569	2,492	19	58	3,865	3,749	29	87
15	29 Seminole Tr: Greenbrier Dr to Dominion Dr (NB)	42,180	3,038	2,947	23	68	3,278	3,180	25	73
16	29 Seminole Tr: Greenbrier Dr to Dominion Dr (SB)	42,180	2,602	2,524	20	58	3,915	3,798	29	88
13	29 Seminole Tr: Dominion Dr to Berkmar Dr (NB)	40,158	2,892	2,805	22	65	3,121	3,027	23	71
14	29 Seminole Tr: Dominion Dr to Berkmar Dr (SB)	40,158	2,477	2,403	19	55	3,727	3,615	28	84
11	29 Seminole Tr: Berkmar Dr to Rio Rd (NB)	32,973	2,375	2,304	18	53	2,563	2,486	19	58
12	29 Seminole Tr: Berkmar Dr to Rio Rd (SB)	32,973	2,034	1,973	15	46	3,061	2,969	23	69
9	29 Seminole Tr: Rio Rd to Woodbrook Dr (NB)	40,528	2,919	2,831	22	66	3,150	3,056	24	71
10	29 Seminole Tr: Rio Rd to Woodbrook Dr (SB)	40,528	2,500	2,425	19	56	3,762	3,649	28	85
7	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (NB)	38,339	2,761	2,678	21	62	2,980	2,891	22	67
8	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (SB)	38,339	2,365	2,294	18	53	3,559	3,452	27	80
5	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (NB)	37,832	2,725	2,643	20	62	2,941	2,853	22	66
6	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (SB)	37,832	2,334	2,264	18	52	3,512	3,407	26	79
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	36,539	2,631	2,552	20	59	2,840	2,755	21	64
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	36,539	2,254	2,186	17	51	3,392	3,290	25	77

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

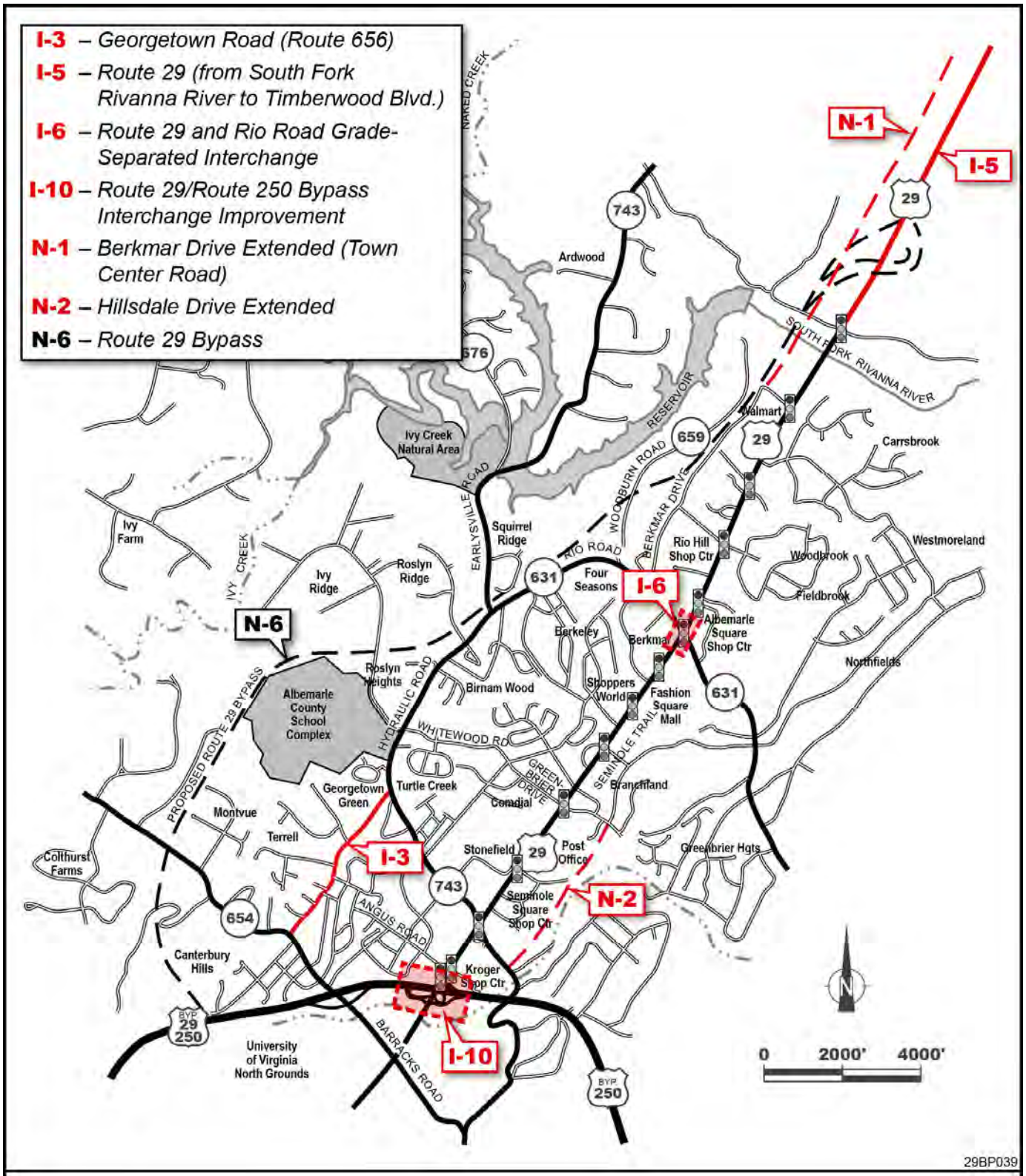
AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM

Charlottesville Bypass Traffic - Existing Route 29

Segment	Link Description	2040 Build								
			AM Peak Hour				*PM Peak Hour*			
		ADT	Total Vol	cars	MT	HT	Total Vol	cars	MT	HT
110	29/250: Prop Bypass to Barracks Road (NB)	26,559	2,688	2,607	20	61	2,541	2,465	19	57
109	29/250: Prop Bypass to Barracks Road (SB)	26,559	1,984	1,924	15	45	2,909	2,822	22	65
70	29/250: Barracks Road to Emmet Street (NB)	20,315	2,056	1,994	15	47	1,944	1,886	15	43
69	29/250: Barracks Road to Emmet Street (SB)	20,315	1,517	1,471	11	35	2,225	2,158	17	50
21	29 Seminole Tr: US 250 to Angus Rd (NB)	32,783	2,361	2,290	18	53	2,548	2,472	19	57
22	29 Seminole Tr: US 250 to Angus Rd (SB)	32,783	2,022	1,961	15	46	3,043	2,952	23	68
19	29 Seminole Tr: Angus Rd to Hydraulic Rd (NB)	31,544	2,272	2,204	17	51	2,452	2,378	18	56
20	29 Seminole Tr: Angus Rd to Hydraulic Rd (SB)	31,544	1,946	1,888	15	43	2,928	2,840	22	66
17	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (NB)	33,852	2,438	2,365	18	55	2,631	2,552	20	59
18	29 Seminole Tr: Hydraulic Rd to Greenbrier Dr (SB)	33,852	2,088	2,025	16	47	3,142	3,048	24	70
15	29 Seminole Tr: Greenbrier Dr to Dominion Dr (NB)	31,463	2,266	2,198	17	51	2,445	2,372	18	55
16	29 Seminole Tr: Greenbrier Dr to Dominion Dr (SB)	31,463	1,941	1,883	15	43	2,920	2,832	22	66
13	29 Seminole Tr: Dominion Dr to Berkmar Dr (NB)	29,231	2,105	2,042	16	47	2,272	2,204	17	51
14	29 Seminole Tr: Dominion Dr to Berkmar Dr (SB)	29,231	1,803	1,749	14	40	2,713	2,632	20	61
11	29 Seminole Tr: Berkmar Dr to Rio Rd (NB)	25,583	1,842	1,787	14	41	1,988	1,928	15	45
12	29 Seminole Tr: Berkmar Dr to Rio Rd (SB)	25,583	1,578	1,531	12	35	2,375	2,304	18	53
9	29 Seminole Tr: Rio Rd to Woodbrook Dr (NB)	34,297	2,470	2,396	19	55	2,666	2,586	20	60
10	29 Seminole Tr: Rio Rd to Woodbrook Dr (SB)	34,297	2,116	2,053	16	47	3,183	3,088	24	71
7	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (NB)	32,217	2,320	2,250	17	53	2,504	2,429	19	56
8	29 Seminole Tr: Woodbrook to Carrsbrook/Hilton Hghts (SB)	32,217	1,987	1,927	15	45	2,990	2,900	22	68
5	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (NB)	31,755	2,287	2,218	17	52	2,468	2,394	19	55
6	29 Seminole Tr: Carrsbrook/Hilton Hghts to Polo Grounds (SB)	31,755	1,959	1,900	15	44	2,948	2,860	22	66
3	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (NB)	32,705	2,355	2,284	18	53	2,542	2,466	19	57
4	29 Seminole Tr: Polo Grounds Rd to Prop. Bypass (SB)	32,705	2,017	1,956	15	46	3,036	2,945	23	68

MT = Medium Truck (2 axles with 6 wheels)
HT = Heavy Truck (3 or more axles)
Assume 25% of trucks are MT, and the rest are HT

AM Peak Hour is 8:00 AM to 9:00 AM
PM Peak Hour is 5:00 PM to 6:00 PM



N-1, I-3 = Identifying Number in UnJAM2035, Road Projects other than Route 29 Bypass Assumed for Year 2040 No-Build

N-6 = Identifying Number in UnJAM2035 for Route 29 Bypass

= Existing Traffic Signal

Source: Base map adapted from ADC map of Albemarle County; UnJAM2035.

CLRP Road Projects in Vicinity of Route 29 Bypass

Route 29 Bypass

Project: 0029-002-844, P 101

Albemarle County, Virginia

APPENDIX D
LIST OF ASSUMPTIONS

Assumptions Used For Air Quality Analysis

1. For the CAL3QHC models' meteorology condition along the proposed Route 29 Bypass corridor, Wind Stability Class E was used to represent a stable atmosphere as well as low wind speeds. Class E conditions are typically associated with "rural" settings and are consistent with the Consultant Guide. Wind direction was modeled from all directions using a 10-degree increment angle (0-360 degrees).

2. For the CAL3QHC models' meteorology condition along the existing Route 29 corridor, Wind Stability Class D was used to represent a neutral stability as well as low wind speeds. Class D conditions are typically associated with urban settings and were applied to the two signalized intersection CO hot-spot analyses. Wind direction was modeled from all directions using a 10-degree increment angle (0-360 degrees).

3. The site characteristic (surface roughness) along existing Route 29 was modeled as an "urban" land environment using a 175 cm coefficient, which typically is a measure of the height of obstacles to the wind flow. This coefficient was applied to the two signalized intersections along the existing Route 29 corridor and was used for each analysis condition.

4. The site characteristic (surface roughness) along the proposed Route 29 Bypass corridor was modeled as a "rural" land environment using an 11 cm coefficient. This coefficient was applied to the proposed Route 29 Bypass corridor and was used for each analysis location. Both surface roughness coefficients are in accordance with the Consultant Guide.

5. For all queue link parameters, an "average" driver behavior was used for existing, no-build and build scenarios.

6. Based on the Consultant Guide, a background CO concentration of 3.0 ppm was assumed and added to the CO concentrations predicted by the computer modeling effort for existing, no-build and build conditions. The project study area is located between Richmond and Roanoke with both Cities reporting background concentrations of 3.0 ppm. Additionally, 0.7 persistence factor was used to project 8-hour CO concentrations, as stipulated in VDOT and EPA guidance.

7. FHWA's EMIT model speed look-up table was used to calculate CO emission rates for Charlottesville City and Albemarle County for each analysis year. For the air study, the projected worst-case emission rates were used. Since the Charlottesville City emission rates were higher, those emission rates were applied to all parts of the corridor for each analysis year to ensure worst-case CO concentrations were projected.

8. File of age distribution of vehicle registrations for 2011 were provided by VDOT for Albemarle County and the City of Charlottesville. Since the area is in attainment for all criteria pollutants, regional conformity requirements do not apply. As such, VMT fractions by vehicle class were based on the national model defaults for each calendar year. In addition, were data was not available, assumed defaults were used as worst-case assumptions.

9. The two worst-case signalized intersections were selected based on worst-case traffic volumes and level-of-service. If the two worst-case signalized intersections projected CO concentrations are below the National Ambient Air Quality Standards (NAAQS) for CO, than it is assumed that all other parts of the corridor will also remain below the thresholds.

10. It should be noted that as part of another transportation improvement project, the proposed design elements at the Rio Road / US Route 29 intersection include a grade separated interchange. However, to assume a worst-case modeling condition, the existing footprint was modeled for each analysis scenario. In addition, the intersection was modeled as a signalized intersection using SYNCHRO model outputs for all dispersion modeling. It can be assumed that any improvement tied to the grade separation project will only further improve air quality and CO concentrations by removing all queuing and idling vehicles associated with a signalized intersection and move those vehicles through under free-flow conditions. Therefore, the modeling presented in this study is considered a worst-case condition.

APPENDIX E
REFERENCES

Reference Materials Used For Air Quality Analysis

Claggett, Michael, Ph.D. "The Easy Mobile Inventory Tool – EMIT." (Principal Author and Designer), Air Quality Modeling Specialist, FHWA Resource Center, 604 West San Mateo Road, Santa Fe, New Mexico 87505, and Jeffery Houk, Air Quality Modeling Specialist, FHWA Resource Center, 12300 West Dakota Avenue, Suite 340, Lakewood Colorado 80228, dated November 2, 2006.

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APPENDIX F
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