Air Quality Technical Report

Durham-Orange Light Rail Transit Project

OurTransit FUTURE

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List of Acronyms and Abbreviation

Acronym/Abbreviation	Definition
ATIM	Averaging time
CAMPO	Capital Area Metropolitan Planning Organizations
CAA	Clean Air Act
CO	Carbon monoxide
DEIS	Draft Environmental Impact Statement
DCHC	Durham-Chapel Hill-Carrboro
D-O	Durham-Orange
D-O LRT	Durham-Orange Light Rail Transit
DTCC	Durham Technical Community College
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
I-40	Interstate 40
LPA	Locally Preferred Alternative
LRT	Light rail transit
MOVES	Motor Vehicle Emission Simulator
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NC	North Carolina
NCCU	North Carolina Central University
NCDAQ	North Carolina Division of Air Quality
NCDENR	North Carolina Department of Natural Resources
NCRR	North Carolina Railroad
NHC	New Hope Creek
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
O_3	Ozone
Pb	Lead

PM	Particulate matter
ppm	Parts per million
ROMF	Rail operations maintenance facility
SIP	State Implementation Plan
SO_2	Sulfur dioxide
TCR	Transportation Conformity Rule
U	Wind Speed
UNC	University of North Carolina
US	United States
USDOT	United States Department of Transportation
VA	Veteran Affairs
VOC	Volatile organic compounds
Z_0	Surface roughness

1. Introduction

Triangle Transit, in cooperation with the Federal Transit Administration (FTA), has prepared a Draft Environmental Impact Statement (DEIS) to evaluate a potential high-capacity transit improvement in the Triangle region, within the Durham-Orange (D-O) Corridor, between Chapel Hill and Durham. This technical appendix focuses on the potential effects for air quality in the region and at specific intersection locations throughout the study corridor.

This *Air Quality Technical Report* provides a detailed technical appendix to the assessment of air quality impacts presented in the *Durham-Orange Light Rail Transit Project DEIS, chapter 4.9*. The air quality analysis has been developed in accordance with the Environmental Protection Agency (EPA) guidance and all applicable state, federal, and local regulations.

1.1 Description of the Study Corridor

The D-O Corridor is located within the Triangle region. It extends roughly 17 miles from southwest Chapel Hill to east Durham, and includes several educational, medical, and other key activity centers which generate a large number of trips each day. The land uses in the D-O Corridor are supported by a network of major highways including NC 54, I-40, US 15-501, Erwin Road, and NC 147. Additional detail regarding the study corridor is included in the Durham-Orange Light Rail Transit (D-O LRT) Project DEIS, chapters 1 and 2.

1.2 Alternatives Considered

- No-Build Alternative
- Light Rail Alternatives

In addition to the Light Rail Alternatives, the DEIS considers a No-Build Alternative comprised of the existing and programmed transportation network improvements without the planned rail improvements and associated bus network modifications. Additional detail regarding the alternatives considered is included in the *Durham-Orange Light Rail Transit Project DEIS, chapter 2*.

1.2.1 No-Build Alternative

The No-Build Alternative includes the existing and planned transportation programs and projects scheduled to be built and implemented before forecast year 2040 and contained in the 2040 Metropolitan Transportation Plan (MTP), excluding only the proposed Light Rail Alternatives, rail transit improvements and related bus transit modifications that would be associated with the proposed D-O LRT Project.

1.2.2 Light Rail Alternatives

Through the Alternatives Analysis and Scoping process, a majority of the proposed D-O LRT Project alignment was identified. However, there are a few areas where different alternatives were retained for further evaluation. As a result, multiple alignments crossing Little Creek and New Hope Creek are evaluated in the DEIS.

- Four potential crossings of Little Creek between Hamilton Road and the proposed Leigh Village Station (Alternatives C1, C1A, C2, and C2A)

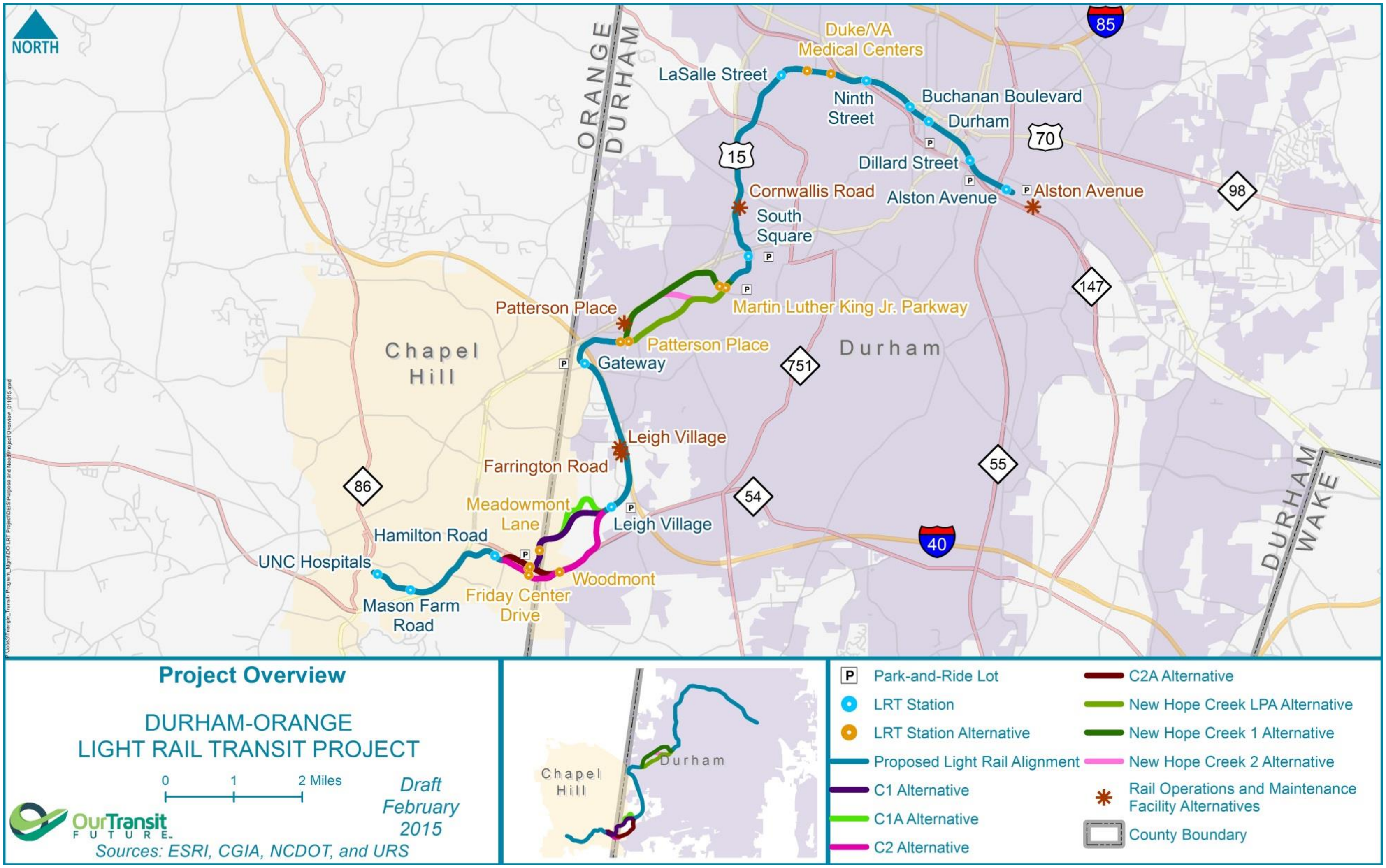
- Three potential crossings of New Hope Creek and Sandy Creek between Patterson Place and South Square (Alternatives NHC LPA, NHC 1, and NHC 2)
- Station alternatives at Duke/VA Medical Centers (i.e., Duke Eye Center and Trent/Flowers Drive)
- Five proposed locations for the rail operations maintenance facility (ROMF) (i.e., Leigh Village ROMF, Farrington Road ROMF, Patterson Place ROMF, Cornwallis Road ROMF, and Alston Avenue ROMF)

The Light Rail Alternatives would generally follow North Carolina (NC) Highway 54 (NC 54), Interstate 40 (I-40), United States (US) 15-501, and the North Carolina Railroad (NCRR) Corridor in downtown Durham and east Durham. The alignment would begin in Chapel Hill at UNC Hospitals, parallel Fordham Boulevard, proceed eastward adjacent to NC 54, travel north along I-40, parallel US 15-501 before it would turn east toward Duke University and run within Erwin Road, and then follow the NCRR Corridor that parallels NC Highway 147 (NC 147) through downtown Durham, before reaching its eastern terminus in Durham near Alston Avenue. The alignment would consist of at-grade alignment, fill and cut sections, and elevated structures. A total of 17 stations are planned, and up to 5,100 parking spaces would be provided along the Light Rail Alternatives. In addition, a ROMF would be constructed to accommodate the D-O LRT fleet (initially 16 vehicles, with the ability to accommodate up to 26 vehicles without needing expansion).

Bus routes would be modified to feed into the D-O LRT stations, and headways would be adjusted to provide more frequent bus service and minimize transfer waiting times. These services would also connect light rail passengers with other area transportation hubs, including park-and-ride lots and transfer centers.

The proposed light rail alignment, including alternatives, is illustrated in Figure 1-1.

Figure 1-1: Proposed Light Rail Alignment



2. Legal and Regulatory Framework

The Clean Air Act (42 USC § 7401 et seq.) (CAA), enacted in 1970 and amended several times, is the overarching federal statute regulating air quality in the United States. Regulations have been promulgated by the EPA to implement the CAA (40 CFR § 51 et seq.), including the Federal Transportation Conformity Rule (40 CFR § 93 et. seq.), which requires that transportation projects conform to state-level air quality plans.

2.1 Air Quality Standards

The CAA establishes two types of national air quality standards. Primary standards are limits set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are limits set to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The EPA classifies urban environments as being either in "attainment" or "nonattainment." An urban area that exceeds the National Ambient Air Quality Standards (NAAQS) for one or more pollutants is said to be in nonattainment of the NAAQS. The EPA has established primary and secondary NAAQS for six air pollutants (also known as criteria pollutants): carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), particulate matter (PM) and lead (Pb). The designation of an area is determined on a pollutant-by-pollutant basis.

Nonattainment area - an area considered to have air quality worse than the national standards.

Attainment area - an area considered to have air quality as clean as or cleaner than the national standards.

Maintenance area - an area previously designated as a nonattainment area, but now meets the national standards.

The following provides additional detail about the six criteria pollutants:

- **Particulate matter** - includes the very fine dust, soot, smoke, and droplets that are formed from chemical reactions and produced when fuels such as coal, wood, or oil are burned. Two different types of particulate matter are routinely sampled nationally and in North Carolina:
  - **Particulate matter (PM_{10})** – particles with an average diameter less than or equal to 10 micrometers (0.00004 inches), regulated by both EPA and North Carolina standards
  - **Fine particulate matter ($PM_{2.5}$)** – particles with an average diameter less than or equal to 2.5 micrometers (0.00001 inches), regulated by EPA and North Carolina since 1999
- **Ground-level ozone (O_3)** - forms when hydrocarbons (or volatile organic compounds [VOC]) and nitrogen oxides (NO_x) chemically react in the presence of sunlight and high temperatures.
- **Carbon monoxide (CO)** - largely results from fuel combustion. The most likely areas to have excessive CO concentrations are larger cities where there are more cars that travel on congested streets.
- **Sulfur oxides (e.g., sulfur dioxide [SO_2])** - colorless, corrosive, and harmful gases with a pungent odor. SO_2 is mainly produced by combustion of fossil fuels containing sulfur as well as the manufacture of sulfuric acid.
- **Nitrogen oxides (NO_x)** - produced primarily from the burning of fossil fuels such as coal, oil, and gasoline, and are the result of oxidation of atmospheric nitrogen and nitrogen compounds in the fuel. The primary combustion product is NO, which reacts with hydrocarbons, ozone, and other

atmospheric compounds to form NO_2. NO_x compounds play an important role in the formation of ground-level ozone.

- **Lead (Pb)** – toxic heavy metal that occurs in the atmosphere as small particles. The primary source of lead is emissions resulting from coal combustion and the sandblasting of highway bridges, overpasses, and water tanks. In the past, the combustion of gasoline containing lead as an additive was a major source, but leaded gasoline is now outlawed in the United States.

The State of North Carolina has also established air quality standards that are either the same or more stringent than the corresponding federal standards. For more information on National and North Carolina Ambient Air Quality Standards, see *2011 Ambient Air Quality Report*, Table 3.1 (North Carolina Department of Environment and Natural Resources [NCDENR] 2013).

An attainment area can be further categorized as a maintenance area for attainment, which means that the urban area has exceeded NAAQS levels for one or more pollutants in the past. Efforts in these maintenance areas must be made in order to maintain the status quo and not exceed the NAAQS. Nonattainment areas are classified in severity by pollutant depending on the extent to which the levels of air pollution exceed the NAAQS.

In accordance with 40 CFR § 93.116, a Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) project must not cause or contribute to any new localized CO, PM_{10}, and/or $PM_{2.5}$ violation or increase the frequency or severity of any existing CO, PM_{10}, and/or $PM_{2.5}$ violations. In addition, any such project may not delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas. This criterion is satisfied if it is demonstrated that 1) during the time frame of the transportation plan no new local violations will be created and the severity or number of existing violations will not be increased as a result of the project and 2) the project has been included in a regional emissions analysis that meets applicable requirements (40 CFR § 93.118 and/or § 93.119).

2.2 Project-Level Conformity Determination

The CAA requires each state to develop a plan to ensure that transportation projects in that state will meet federal air quality standards. This is known as a State Implementation Plan (SIP), and the process for demonstrating that projects comply with the SIP is known as “transportation conformity.” The United States Department of Transportation (USDOT) is required to ensure that transportation projects conform to the state’s air quality plan in nonattainment and maintenance areas. Conformity to a SIP requires that a proposed project not cause a violation in or delay timely attainment of the NAAQS requirements. As a division of USDOT, the FTA is required to make a transportation conformity determination each time it approves a plan, program, or project in a nonattainment or maintenance area.

Transportation conformity is regulated under North Carolina Administrative Code, Title 15A, chapter 2, section .2000 (15A NCAC 02D .2000) and requires planned transportation projects to be included in the Metropolitan Transportation Plan (MTP) that covers the area of the project. The proposed D-O LRT Project is an element of the Capital Area Metropolitan Planning Organizations (CAMPO) and Durham-Chapel Hill-Carrboro (DCHC) Metropolitan Planning Organization (MPO) 2040 MTP, and is included in the conformity document. Therefore, the Light Rail Alternative is included in a transportation program that conforms to the SIP.

The two documents that demonstrate transportation conformity are as follows:

- *CAMPO and DCHC MPO - 2040 Metropolitan Transportation Plans* – May 8, 2013
- *Research Triangle Region Conformity Determination Report* – May 8, 2013

The transit and roadway improvements encompassing the Light Rail Alternative were included in the conformity analysis. The conformity report concluded that the CAMPO and DCHC MPO Transportation Plans conform to the purpose of the North Carolina SIP and therefore should not cause or contribute to a violation of the NAAQS.

All FHWA and/or FTA projects included in a conforming transportation plan are required to perform modeling to ensure that the project will not cause or contribute to violations of the NAAQS (40 CFR 93.114-93.116).

3. Methodology

An air quality analysis was performed to estimate the maximum localized 1-hour and 8-hour carbon monoxide (CO) concentrations caused by vehicular traffic associated with the No-Build and Light Rail Alternatives. Concentrations of CO were determined in accordance with the guidance documents and regulations listed below.

3.1 Intersection Selection

The following process, consistent with the *Guidelines for Modeling Carbon Monoxide from Roadway Intersections* (EPA, 1992), was used to identify appropriate intersections to be modeled within the project study area. A modeling analysis is performed on intersections projected to experience changes in traffic volumes in forecast year 2040 as a result of implementation of the light rail alternatives that are 1) in a nonattainment or maintenance area, and 2) are signalized or will be signalized in the future.

As defined in the guidance, the following steps are used to select the intersections:

Step 1: Intersections, in Durham County only, projected to experience changes in traffic volumes in 2040 as a result of project implementation (2040 Light Rail Build Alternative) were identified. Intersections in Orange County were not included because the county is in attainment and is not in maintenance.

Step 2: Results of the traffic operations analysis were analyzed to select the intersections to be modeled in the microscale air quality analysis. Intersections were selected using the screening procedure described below:

- Initially, the three intersections with the highest traffic volumes were modeled for the Build Alternative in 2040 (design year).
- Then, the three intersections with the worst traffic **level of service (LOS)** and highest traffic delay were modeled for the Build Alternative in 2040 (design year).

Traffic volume and LOS/delay information for the intersections in Durham County were obtained from the Traffic Simulation Reports for the Project. The results of the screening procedure are included in appendix A. Based upon review of the capacity screening analyses and the interagency consultation process, Table 3-1 and Figure 3-1 illustrate the intersections that were identified for modeling using CAL3QHC Version 2.0 for 2012 and 2040.

Level of Service (LOS)
LOS is a letter-grade description of vehicle delay through an intersection. Levels of service are ranked from best "A" (free flow) to worst "F" (jammed conditions).

Figure 3-1: Intersections Selected for Modeling

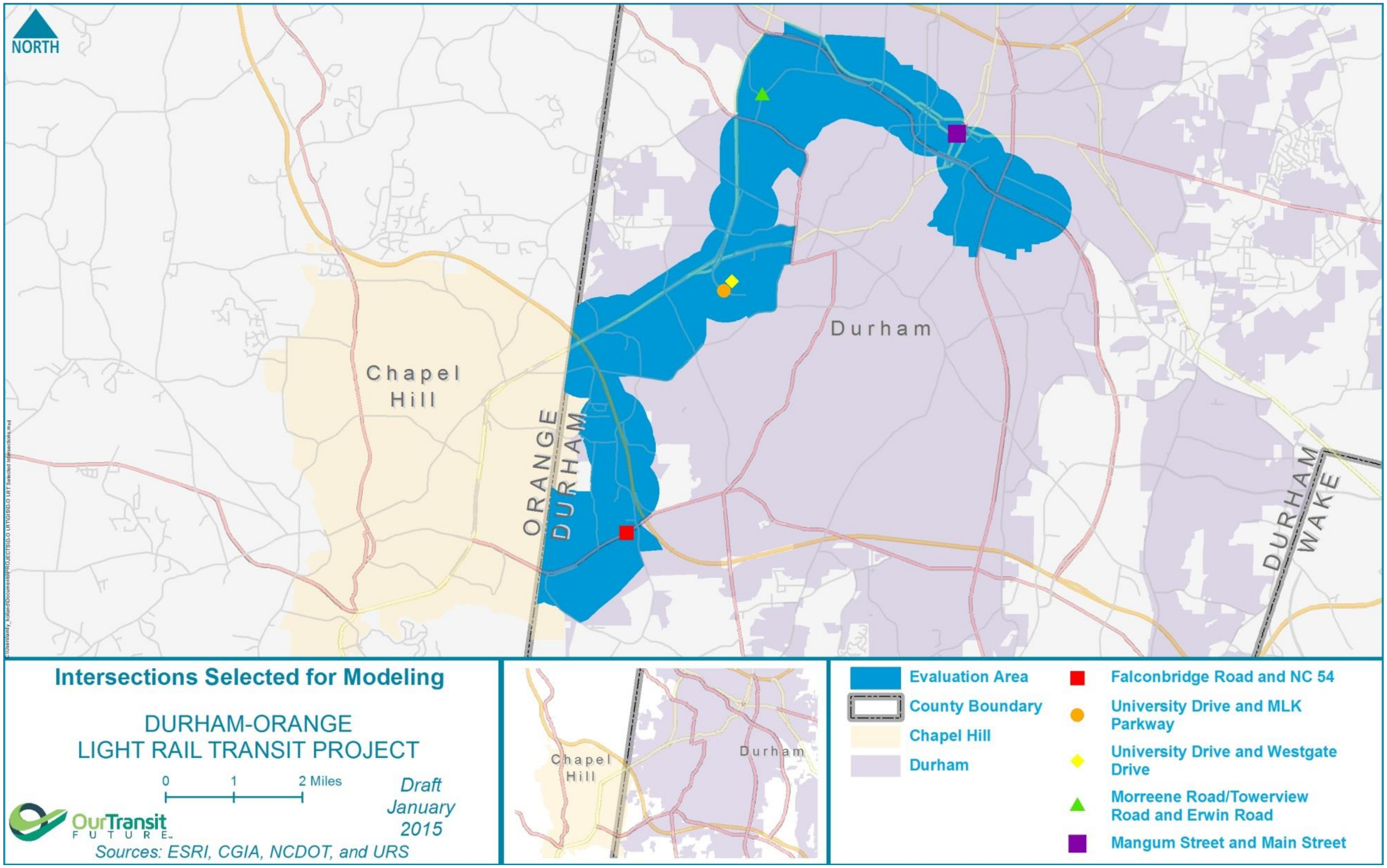


Table 3-1: Intersections Identified for Modeling

Intersection	Selection Criterion
Falconbridge Road and NC 54	Volume and Delay
University Drive and Martin Luther King Jr. Parkway	Volume
University Drive and Westgate Drive	Volume
Mangum Street and Main Street	Delay
Morreene Road/Towerview Road and Erwin Road	Delay

Source: AECOM 2015

3.2 Emission Estimation

CAA regulations require the use of the latest emissions model in transportation conformity determinations. On October 7, 2014, the EPA approved the Motor Vehicle Emission Simulator 2014 (MOVES2014) model as the approved emission model for transportation conformity. MOVES2014 was used to estimate emissions at the selected intersections following the guidance found in Using MOVES in Project Level Carbon Monoxide Analyses (EPA 2010).

The MOVES emission factor model was used to provide input to the microscale model (CAL3QHC Version 2.0) for estimating CO concentrations along roadways. According to 40 CFR part 51, appendix W, section 5.2.3, the latest version of the MOBILE model should be used for emissions input to intersection models. MOVES2014 is the latest update to the MOBILE model for use by state and local governments to meet CCA requirements. MOBILE6.2 was used for the regional transportation conformity demonstration as part of the 2040 MTP, which included the D-O LRT Project, since the demonstration was performed before the end of the MOBILE6.2 grace period of March 2, 2013.

MOVES contains a database of county-level information including vehicle types, vehicle age distribution, road types, fuel types, and meteorology. The MOVES database was updated with data provided by the NCENR North Carolina Division of Air Quality (NCDAQ) for the years 2012 and 2040 for Durham County. The MOVES inputs used in this analysis are summarized below.

- ***Month – January*** - Following the 1992 CO Guideline and the 2010 CO MOVES Guidance, the month of January was selected.
- ***Hour – 8:00 to 8:59 am*** - MOVES requires a specific hour to be chosen for project-level modeling; since only one hour is being modeled for this analysis and all project data is being provided for that hour, the eight o'clock hour was selected to represent peak hour data.
- ***Geographic Bounds – Durham County*** – Durham County is the only county in the project corridor that is in maintenance for CO. Neither of the counties in the project corridor is in nonattainment.
- ***Road Type – Urban Unrestricted Access*** - This road type describes an urban/suburban road with intersections (non-freeway), and is representative of all selected intersections.
- ***Pollutants and Processes -*** Following the 2010 CO MOVES Guidance, Running Exhaust, and Crankcase Running Exhaust emission processes for CO were selected.
- ***Meteorology Data*** - The January average hourly temperature and humidity for the project area were provided in the NCDAQ MOVES database. The latest year of available data (2014) was used for the future year modeling.

- ***Age Distribution*** - The distribution of vehicle fractions by age for the calendar year (2012 and 2040) and vehicle type were provided in the NCDAQ MOVES database.
- ***Fuel Supply and Formulation*** - The EPA recommends that the MOVES default fuel supply and formulation data be used for project-level CO analyses.
- ***Inspection and Maintenance (I/M)*** - The I/M program information was provided in the NCDAQ MOVES database.
- ***Links*** - Each intersection to be modeled was broken into free-flow and queue links. Each free-flow link's speed (mph) and grade (percent) was input into the MOVES database. Only one queue link was entered for all intersections since the emission rate will be the same for all queue links.
- ***Link Source Type*** - This portion of the database includes the fraction of the link traffic volume which is represented by each vehicle type. The source type distribution for this project-level analysis was developed from the distribution of the regional fleet.

The MOVES input and output files used to generate the various emission factors for 2012 and 2040 are included in appendix B. The goal of the MOVES runs is to produce a grams/vehicle-mile and grams/vehicle-hour emission rates; therefore, the exact length or volume of each link is not required. However, the emission rates do vary by speed and road grade. The emission factors can be found in the CO Emission Factor tables in appendix B for free-flow and idle links.

3.3 Dispersion Modeling

The CAL3QHC version 2.0 model is the EPA preferred model for estimating CO concentrations at intersections (40 CFR 51 appendix W). The CAL3QHC version 2.0 model was used to estimate CO concentrations at the selected intersections following the guidance found in *Guideline for Modeling Carbon Monoxide from Roadway Intersections* (EPA 1992).

3.3.1 Microscale Air Quality Guidance

Guidance in the following documents was used for microscale carbon monoxide modeling for various intersections within the project study area.

- US EPA Office of Air Quality Planning and Standards, EPA-454/R-92-005, (November 1992), *Guidelines for Modeling Carbon Monoxide from Roadway Intersections*.
- US EPA Office of Transportation and Air Quality, EPA-420/B-15-028, (March 2015), *Using MOVES2014 in Project-Level Carbon Monoxide Analyses*.
- All applicable federal, State, and local regulations, including:
    - 40 CFR 93 (Determining Conformity of Federal Actions to State or Federal Implementation Plans)
    - 15 North Carolina Administrative Code 2D.1600 (General Conformity), 2D.2000 (Transportation Conformity)

In accordance with 40 CFR 93.105(c)(1)(i), Interagency Consultation Procedures, the NCDAQ of NCDENR was consulted prior to initiating the microscale assessment and employing the planned project methodology.

3.3.2 Modeling Procedure

Mobile source dispersion models are the basic analytical tools used to estimate pollutant concentrations from the emissions generated by motor vehicles under given conditions of traffic, roadway geometry, and meteorology. CAL3QHC Version 2.0 is a line-source dispersion model that predicts pollutant concentrations near congested intersections and heavily traveled roadways. CAL3QHC Version 2.0 input variables include: calculated free flow and idle emission factors, roadway geometries, traffic volumes, site characteristics, background pollutant concentrations, signal timing, and meteorological conditions. CAL3QHC Version 2.0 predicts inert pollutant concentrations, averaged over a 1-hour period near roadways. This model was used to predict concentrations at identified study area intersections.

The use of peak hour baseline and project-generated traffic conditions would also result in conservative predictions of pollutant levels and project impacts. Peak hour traffic represents the highest hourly traffic during the study period.

CAL3QHC Version 2.0 was used to model study area intersections for the existing condition (2012) and the expected Build year of the project (2040). The results were compared to the 1-hour and 8-hour NAAQS for CO to determine whether the receptors would experience air quality impacts. The existing maximum CO concentrations at each modeled intersection are listed in Table 4-1.

3.3.2.1 Traffic Volumes

The traffic volumes for the intersections identified for modeling were obtained from the Traffic Simulation Reports for the project. Excerpts from these reports are included in appendix C.

3.3.2.2 Modeled Receptors

For each of the intersections selected for detailed study in this air quality analysis, receptor locations were identified in accordance with the *Guidelines for Modeling Carbon Monoxide from Roadway Intersections* (EPA, 1992). Receptors in the model were placed at least 3 meters from the edge and along both sides of all roads comprising each intersection starting at the queue line. Receptors were then placed at 25 meter intervals along the length of the queue. All receptors were modeled at a height of 1.8 meters (6 feet) to approximate breathing height.

3.3.2.3 Background Concentrations and Persistence Factors

For the project study area, the latest background hourly average CO concentration and the persistence factor to be used for modeling purposes were provided by the NCDAQ. The use of these background concentrations represents a worst-case scenario that conservatively results in the highest predicted 1-hour CO concentration. The background concentration provided by NCDAQ was 1.9 parts per million (ppm) for 1-hour averages and 1.4 ppm for 8-hour averages. The persistence factor used was 0.79.

3.3.2.4 Other CAL3QHC Version 2.0 Model Input

Table 3-2 details the CAL3QHC Version 2.0 inputs that were used to predict CO concentrations for this project. Appendix D includes the CAL3QHC Version 2.0 input and output files for the 2012 and 2040 intersection CO analysis as well as the sketch for each modeled intersection.

Table 3-2: CAL3QHC Version 2.0 Model Inputs

Meteorological Variables	Unit of Measurement
Settling/Deposition Velocities	0/0 centimeters per second (cm/sec)
Surface Roughness (Z_0)	108 cm (suburban area)
Wind Speed (U)	1.0 meters per second (m/sec)
Averaging Time (ATIM)	60 minutes
Mixing Height	1,000 m
Ambient Concentrations	1.9/1.4 ppm
Stability Class	D
Site Variables	**Receptor Location**
Receptor Height	6 feet
Receptor Locations	Various locations described above
Links	All links at-grade. Approach and departure free-flow links. Left-turn, right-turn, and through queue links.
Traffic Variables	**Unit of Measurement**
Traffic Speed	Various
Traffic Volumes	Projected 2040 a.m. and/or p.m. peak traffic volumes and turning movements

Source: AECOM 2015; EPA 1992; NCDAQ 2015

4. Affected Environment

This section discusses the existing NAAQS compliance attainment status for the six criteria pollutants within Durham and Orange Counties. The affected environment section also reviews the model results for the existing CO concentrations.

4.1 National Ambient Air Quality Standards

As described in section 2, the federal CAA of 1970 and 1990, as amended (42 USC Sections 7401-7671q), was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA established primary and secondary NAAQS for six air pollutants: CO, NO_2, SO_2, O_3, PM and Pb. For ozone, North Carolina adopted the national 8-hour standard on April 1, 1999. The most recent NAAQS were obtained from EPA's website and are listed in Table 4-1.

The EPA classifies urban environments as being either in "attainment" or "non-attainment." An urban area that exceeds the NAAQS for one or more pollutants is said to be in "non-attainment" of the NAAQS enforced under the CAA. The designation of an area is determined on a pollutant-by-pollutant basis. Attainment areas can be further categorized as a maintenance area for attainment, which means that the urban area has exceeded NAAQS levels for one or more pollutants in the past. Efforts in these maintenance areas must be made in order to maintain the status quo and not exceed the NAAQS. Non-attainment areas are classified in severity by pollutant depending on the degree of exceedance(s) over the NAAQS.

Table 4-1: State and National Ambient Air Quality Standards

For new or anticipated new standards, References in the Code of Federal Regulations are given.
For standards expressed in parts per million, an equivalent mass per unit volume is also shown.

Pollutant/ (Reference)	Averaging Time	Form	Primary National* (Health Related) Standard	Secondary National** (Welfare Related) Standard
PM-2.5 (40CFR50, App. N)	Annual	annual mean, averaged over 3 years	$12\ \mu g/m^{3}$ [(1)]	$15\ \mu g/m^{3}$ [(1)]
	24-hour	98^{th} percentile, averaged over 3 years	$35\ \mu g/m^{3}$ [(1)]	$35\ \mu g/m^{3}$ [(1)]
PM-10 (40CFR50, App. K)	24-hour	not to be exceeded more than once per year on average over 3 years	$150\ \mu g/m^{3}$ [(1)]	$150\ \mu g/m^{3}$ [(1)]
CO (76 FR 54294)	8-hour	not to be exceeded more than once per year	9 ppm ($10\ mg/m^3$)	--
	1-hour	not to be exceeded more than once per year	35 ppm ($40\ mg/m^3$)	--
O_3 (40CFR50, App. I)	8 hours	annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years	0.075 ppm[(2)] ($157\ \mu g/m^3$)	0.075 ppm[(2)] ($157\ \mu g/m^3$)
SO_2 (75 FR 35520)	3-hour	not to be exceeded more than once per year	--	500 ppb ($1{,}300\ \mu g/m^3$)
	1-hour	99^{th} percentile of 1-hour daily maximum concentrations, averaged over 3 years	75 ppb[(3)]	--
NO_2 (75 FR 6474; 61 FR 52852)	Annual	annual mean	0.053 ppm ($100\ \mu g/m^3$)	0.053 ppm ($100\ \mu g/m^3$)
	1-hour	98^{th} percentile of 1-hour daily maximum concentrations, averaged over 3 years	100 ppb ($188\ \mu g/m^3$)	--
Pb (73 FR 66964)	Rolling 3 month average	not to be exceeded	$0.15\ \mu g/m^{3}$ [(4)]	$0.15\ \mu g/m^{3}$ [(4)]

Source: US EPA NAAQS Website (http://www.epa.gov/air/criteria.html)
*Primary NAAQS: the levels of air quality that the EPA judges necessary, with an adequate margin of safety, to protect the public health.
**Secondary NAAQS: the levels of air quality that the EPA judges necessary to protect the public welfare from any known or anticipated adverse effects.
Notes: ppb = parts per billion, ppm = parts per million, $\mu g/m^3$ = microgram per cubic meter, mg/m^3 = milligram per cubic meter

1. Effective December 14, 2012.
2. Final rule signed March 12, 2008.
3. Final rule signed June 2, 2010.
4. Final rule signed October 15, 2008.

4.2 Existing Air Quality Designation and Conformity Requirements

Durham and Orange Counties are currently classified as attainment for all NAAQS. Durham County is additionally classified as a maintenance area for CO. According to the Transportation Conformity regulations (40 CFR 93 Subpart A), modeling analyses are only required for areas that are in nonattainment or maintenance for a particular pollutant. For this reason, existing CO concentrations are estimated for intersections in Durham County only during the peak traffic period, based on existing traffic volumes and intersection delays.

Durham and Orange Counties are in attainment/maintenance of the 1997 8-hour ozone standard. With the advent of the 2008 8-hour ozone standard, regional NO_x and volatile organic compounds (VOC) emissions analyses for transportation conformity are no longer required for 1997 maintenance areas. Durham and Orange Counties are also in attainment of the 2008 8-hour ozone standard, so no transportation conformity requirements apply.

Durham County is in attainment/maintenance of the 1971 CO NAAQS. North Carolina has a limited maintenance plan for CO and therefore regional CO emissions analyses for transportation conformity are no longer required; however, microscale analyses are still required. The final *Carbon Monoxide (CO) Limited Maintenance Plan for the Charlotte, Raleigh/Durham & Winston-Salem CO Maintenance Areas* is available at the following link (http://ncair.org/planning/co/CO_Limited_Maintenance.shtml).

4.3 Local Air Quality Monitoring Sites

Each year, air quality data is collected from monitoring sites located in North Carolina. Measurements taken at these monitoring stations provide the data necessary to make comparisons to the NAAQS.

There are a limited number of air monitoring sites throughout the state. The EPA AirData website was reviewed to identify the air quality monitoring sites closest to the project area for use in this analysis. The sites closest to the project area and pollutant concentrations monitored are summarized in Table 4-2.

Table 4-2: Representative Ambient Air Quality Data (2013)

Pollutant	Monitor	Averaging Time	Value	NAAQS
Ozone	Durham Armory (Durham County)	8-hour	0.062 ppm	0.075 ppm
CO	East Millbrook Middle School (Wake County)	8-hour	1.2 ppm	9 ppm
		1-hour	1.5 ppm	35 ppm
NO_2	Hattie Avenue (Forsyth County)	1-hour	37 ppb	100 ppb
PM_{10}	Durham Armory (Durham County)	24-hour	24.0 µg/m^3	150 µg/m^3
$PM_{2.5}$	Durham Armory (Durham County)	24-hour	18 µg/m^3	35 µg/m^3
		Annual	7.8 µg/m^3	12 µg/m^3
SO_2	East Millbrook Middle School (Wake County)	1-hour	6 ppb	75 ppb
		24-hour	2 ppb	140 ppb

Source: EPA AirData 2013 values

4.4 Long Range Transportation Planning and Regional Air Quality Conformity

Durham and Orange Counties are not required to complete conformity analyses on their transportation plan with respect to mobile source emission budgets due to the CO Limited Maintenance Plan.

Project level conformity determinations are made on entire projects as defined by the Transportation Conformity Rule (40 CFR 93). The EPA's transportation conformity rule (TCR) (revised May 8, 2012) defines a highway project to consist of all required phases necessary for implementation. On July 1, 2004, the EPA published a final rule in the Federal Register to amend the TCR to include criteria and procedures for the new 8-hour ozone and fine particulate matter ($PM_{2.5}$) NAAQS standards.

In North Carolina, DENR and NCDAQ develop the State Implementation Plan (SIP), which is the document that describes how North Carolina will maintain or achieve compliance with the NAAQS. The transportation conformity regulations are intended to ensure that a state does not undertake federally funded or approved transportation projects, programs, or plans that are inconsistent with the state's obligation to meet and maintain the NAAQS. MPOs must show that expected emissions from their transportation system are within the mobile source emission budgets in the applicable SIP.

Transportation projects must come from conforming transportation plans/programs, and transportation plans/programs must conform to the SIP.

The 2040 MTP sets forth the metropolitan area's long range plan for providing intermodal mobility to its citizens. The plan is based on projected population and employment information for the planning horizon. It integrates all components of surface transportation (e.g., roads, transit, bicyclist and pedestrian provisions, as well as freight movement).

4.5 Existing D-O Corridor Carbon Monoxide Concentrations

The results of the mobile source air quality modeling analysis under existing conditions (2012) are provided in Table 4-3. The values shown are the maximum CO concentrations estimated near each intersection during the peak traffic period.

Five intersections in the D-O Corridor were selected based on their traffic volumes and LOS as explained in section 3.1. One of the selected intersections, Falconbridge Road and NC 54, is not currently signalized and was not modeled for existing conditions.

As shown in Table 4-3, no violations of the 1-hour or 8-hour NAAQS for CO are estimated to occur under existing conditions.

Table 4-3: Existing Maximum Carbon Monoxide Concentrations at Intersections (2012)

Intersection	Maximum CO Concentration (ppm)		Location of Maximum CO Concentration
	1-Hour Average [NAAQS = 35 ppm]	8-Hour Average [NAAQS = 9 ppm]	
University Drive and Martin Luther King Jr. Parkway	3.6	2.7	Receptor 3 – Southeast of University Drive and about 115 feet southwest of Martin Luther King Jr. Parkway
University Drive and Westgate Drive	3.0	2.3	Receptor 2 – Southeast of University Drive and about 120 feet southwest of Westgate Drive
Mangum Street and Main Street	3.4	2.6	Receptor 17 – East of Mangum Street and about 180 feet northeast of Main Street
Morreene Road/Towerview Road and Erwin Road	3.6	2.7	Receptor 31 – West of Erwin Road and about 75 feet northeast of Morreene Road

Source: AECOM 2015

5. Environmental Consequences

This section includes an evaluation of the direct air quality impacts of the No-Build Alternative and the Light Rail Alternatives. Maximum CO concentrations at modeled intersections by alternative are shown in Table 5-1 and described in this section. Where applicable, traffic volume and other differences in input data are described.

5.1 No-Build Alternative

The results of the mobile source air quality modeling analysis under No-Build (2040) conditions are provided in Table 5-1. The No-Build Alternative represents the future without the proposed project and takes into account the impact from other transportation projects that would be undertaken as described in the *Durham-Orange Light Rail Transit Project DEIS*, chapter 2. The values shown are the maximum CO concentrations estimated near each intersection during the peak traffic period and show a decline in CO concentrations from existing conditions. Higher concentration levels under existing conditions can be attributed to an older vehicle fleet with higher emissions. In 2040, modeled CO levels decrease as vehicle emissions decrease based on expected future improvements in inspection and maintenance programs, improved vehicle fuel efficiency, and improvements directed by the SIP.

The No-Build Alternative includes a signal at the intersection of Falconbridge Road and NC 54 (2040 MTP ID 201). This project is included in the 2040 MTP. The other intersections would not change from their existing layouts.

As shown in Table 5-1, no violations of the 1-hour or 8-hour NAAQS for CO are expected under the No-Build condition. Therefore, there would be no air quality impacts under the No-Build Alternative.

5.2 Light Rail Alternatives

Three different Light Rail Alternatives were evaluated for crossing New Hope Creek, which includes the intersections of University Drive with Martin Luther King Jr. Parkway and Westgate Drive. These alternatives are known as the New Hope Creek (NHC) Locally Preferred Alternative (LPA), the New Hope Creek 1 Alternative (NHC 1), and the New Hope Creek 2 Alternative (NHC 2). Configurations of the two selected intersections on University Drive are the same between the NHC LPA and NHC 2 Alternatives.

The results of the mobile source air quality modeling analysis under the proposed Light Rail Alternatives (2040) are provided in Table 5-1. The Light Rail Alternatives represent the future with the proposed project and takes into account the impact from other improvement projects that would be undertaken. The values shown are the maximum CO concentrations estimated near each intersection during the peak traffic period. No violations of the 1-hour or 8-hour NAAQS for CO are expected under the Light Rail Alternatives, the Duke/VA Medical Center Station Alternatives, or the ROMF Alternatives. Therefore, there would be no air quality impacts under the Light Rail Alternative.

The proposed D-O LRT Project is an element of the 2040 MTP, which was found to conform to the purposes of the SIP on May 8, 2013. Therefore, the Light Rail Alternative is included in a transportation program that conforms to the SIP.

Table 5-1: Light Rail Alternative Maximum Carbon Monoxide Concentrations at Intersections by Alternative (2040)

Intersection	1-Hour Average [NAAQS = 35 ppm]		8-Hour Average [NAAQS = 9 ppm]		Location of Maximum Concentration	
	No-Build	LRA	No-Build	LRA	No-Build	LRA
Falconbridge Road and NC 54	2.2	2.2	1.6	1.6	Receptor 6 – South of NC 54 and about 190 feet east of Falconbridge Road	Receptor 6 – South of NC 54 and about 190 feet east of Falconbridge Road
Mangum Street and Main Street	2.0	2.0	1.5	1.5	Receptor 2 – East of Mangum Street and about 115 feet south of Main Street	Receptor 2 – East of Mangum Street and about 115 feet south of Main Street
Morreene Road/Towerview Road and Erwin Road	2.0	2.0	1.5	1.5	Receptor 56 – West of Erwin Road and about 700 feet south of Morreene Road	Receptor 56 – West of Erwin Road and about 700 feet south of Morreene Road

Source: AECOM 2015

Intersection	1-Hour Average [NAAQS = 35 ppm]			8-Hour Average [NAAQS = 9 ppm]			Location of Maximum Concentration		
	No-Build	NHC LPA/ NHC 2	NHC 1	No-Build	NHC LPA/ NHC 2	NHC 1	No-Build	NHC LPA/NHC 2	NHC 1
University Drive and Martin Luther King Jr. Parkway	2.0	2.0	2.0	1.5	1.5	1.5	Receptor 2 – Southeast of University Drive and about 35 feet southwest of Martin Luther King Jr. Parkway	Receptor 2 – Southeast of University Drive and about 50 feet southwest of Martin Luther King Jr. Parkway	Receptor 2 – Southeast of University Drive and about 35 feet southwest of Martin Luther King Jr. Parkway
University Drive and Westgate Drive	2.0	2.0	2.0	1.5	1.5	1.5	Receptor 9 – Southeast of University Drive and about 25 feet northeast of Westgate Drive	Receptor 9 – Southeast of University Drive and about 15 feet northeast of Westgate Drive	Receptor 9 – Southeast of University Drive and about 20 feet northeast of Westgate Drive

Source: AECOM 2015

6. Mitigation

The following sections describe the proposed mitigation for the No-Build and Light Rail Alternatives.

6.1.1 No-Build Alternative

Mitigation includes the enhancement of positive effects as well as the minimization or elimination of negative effects of a project. Under the No-Build Alternative, there would be no impacts to air quality due to the proposed D-O LRT Project. As such, project-related mitigation would not be warranted.

The No-Build Alternative includes other transportation projects that are presumed would be constructed even if the proposed D-O LRT Project is not built. The sponsor(s) of those projects will perform environmental studies to establish mitigation requirements as required by law.

6.1.2 Light Rail Alternatives

Since traffic volumes at the "worst-case" intersections (intersections expected to generate the highest microscale CO concentrations) were not predicted to cause exceedances of the NAAQS, no remaining intersections carrying project-generated vehicular traffic would be expected to cause exceedances of the NAAQS.

Modeled concentrations for the worst intersections affected by the Light Rail Alternatives are well below the NAAQS requirements; therefore, mitigation measures are not warranted.

7. Greenhouse Gas and Climate

The issue of greenhouse gas emissions and their effects on global climate is an important national and global issue, in which FHWA is actively engaged. FHWA has been working with other Federal agencies, including the USEPA and the Department of Energy, to evaluate effective approaches consistent with our national goals. However, no national approach has yet been set in law or regulations, nor has the USEPA established criteria or thresholds for greenhouse gas emissions. Because a national strategy to address greenhouse gas emissions from transportation – and all other sectors – is still being developed, FHWA believes that it is premature to implement policies that attempt to incorporate consideration of greenhouse gas emissions into transportation planning.From a NEPA perspective, it is analytically problematic to conduct a project-level cumulative effects analysis of greenhouse gas emissions on a problem that is global in nature. It is technically unfeasible to accurately model how negligible increases or decreases of CO_2 emissions at a project scale would add or subtract to the carbon emissions from around the world. Given the level of uncertainty involved, the results of such an analysis would not be likely to inform decision-making at the project level, while adding considerable administrative burdens to the NEPA process. The scope of any such analysis, with any results being purely speculative, goes far beyond the disclosure of impacts needed to make sound transportation decisions. FHWA believes this approach meets the stated purpose of NEPA, in accord and with CEQ regulations, to concentrate on the analyses of issues that can be truly meaningful to the project decision, rather than simply amassing data.

Appendices

Appendix A: Traffic Operations Analysis

Traffic Operations Analysis for Durham County Intersections of LOS D or Worse
Build with Improvements at the Highest Peak Hour

Volume Rank	Delay Rank	Intersection Name	Overall Intersection Volume (VPH)	Delay (Seconds)	LOS
14	1	Mangum Street at Main Street	2012	76.3	E
7	2	Morreene Road/Towerview Road and Erwin Road	3225	70.1	E
1	3	Falconbridge Road and NC 54/Raleigh Road	10255	65.9	E
9	4	Anderson Street and Erwin Road	3030	64.6	E
2	5	University Dr. and MLK Pkwy.	5264	61	E
4	6	University Dr. and Shannon Road	3487	57.7	E
3	7	University Dr. and Westgate Dr.	3813	57.5	E
18	8	New EW Street C at N-S Connector Road	1393	53	D
10	9	Main Street and Buchanan Boulevard	2798	51.5	D
15	10	McFarland Drive at Witherspoon Boulevard	1923	48.4	D
6	11	LaSalle Street and Erwin Road	3360	46.8	D
5	12	Main Street and Broad Street	3442	45.4	D
13	13	Anderson Street/15th Street and Main Street	2455	44.5	D
17	14	Farrington Road and Ephesus Church Road	1641	42.1	D
8	15	Cameron Boulevard (751) and Erwin Road	3145	42	D
16	16	Fayetteville Street at Pettigrew Street	1720	39.7	D
12	17	Trent Drive and Erwin Road	2715	38.8	D
11	18	Fulton Street and Erwin Road	2765	35.5	D

Appendix B: MOVES Input and Output Files

MOVES input and output files are included on the following pages. The table below provides definitions of the headers in the input and output files.

Header Definitions

linkID	Unique ID number for each link
countyID	County FIPS code for the link
zoneID	County FIPS code with a zero on the end
roadTypeID	ID number corresponding to the link's road type
linkLength	Length of the link in miles (the exact length of the link is not important for running MOVES)
linkVolume	Number of vehicles per hour on the link (the exact volume of the link is not important for running MOVES)
linkAvgSpeed	Average speed on the link
linkDescription	Description of the link
linkAvgGrade	Average grade (%) of the link
sourceTypeID	ID number corresponding to the type of vehicle
sourceTypeHourFraction	The fraction of an hour that each vehicle type is on the link
AgeID	Vehicle age
AgeFraction	Fraction of vehicles in each age bin

relHumidity	Relative humidity (%)
polProcessID	Pollutant process ID
fuelTypeID	Fuel type ID
IMProgramID	Inspection/Maintenance program ID
begModelYearID	Beginning model year affected by a particular part of the I/M program
endModelYearID	Ending model year affected by a particular part of the I/M program
inspectFreq	Inspection test frequency
testStandardsID	ID of the test standard
complianceFactor	I/M program compliance rate
GramsPerVehMile	Free-flow emission rate in grams/vehicle-mile
GramsPerVehHour	Idle emission rate in grams/vehicle-hour

2012 Links

linkID	countyID	zoneID	roadTypeID	linkLength	linkVolume	linkAvgSpeed	linkDescription	linkAvgGrade
1	37063	370630	5	0.016	1000	0	Queues	0
2	37063	370630	5	0.1875	1000	35	Mangum St and Main St - SBA	2
3	37063	370630	5	0.1875	1000	25	Mangum St and Main St - SBD	2
4	37063	370630	5	0.1875	1000	30	Mangum St and Main St - EBA	0
5	37063	370630	5	0.1875	1000	30	Mangum St and Main St - EBD	0
6	37063	370630	5	0.1875	1000	30	Mangum St and Main St - WBA	0
7	37063	370630	5	0.1875	1000	30	Mangum St and Main St - WBD	0
8	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - NBA	2
9	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - NBD	2
10	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - SBA	2
11	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - SBD	2
12	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - EBA	2
13	37063	370630	5	0.1875	1000	25	Morreene Rd/Towerview Rd and Erwin Rd - EBD	2
14	37063	370630	5	0.1875	1000	25	Morreene Rd/Towerview Rd and Erwin Rd - WBA	2
15	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - WBD	2

NBA	North bound approach
NBD	North bound departure
SBA	South bound approach
SBD	South bound departure
EBA	East bound approach
EBD	East bound departure
WBA	West bound approach
WBD	West bound departure

2012 Links (continued)

linkID	countyID	zoneID	roadTypeID	linkLength	linkVolume	linkAvgSpeed	linkDescription	linkAvgGrade
16	37063	370630	5	0.1875	1000	40	University and MLK - NBA	0
17	37063	370630	5	0.1875	1000	40	University and MLK - NBD	2
18	37063	370630	5	0.1875	1000	40	University and MLK - SBA	-2
19	37063	370630	5	0.1875	1000	40	University and MLK - SBD	0
20	37063	370630	5	0.1875	1000	35	University and MLK - EBA	3
21	37063	370630	5	0.1875	1000	35	University and MLK - EBD	-1
22	37063	370630	5	0.1875	1000	35	University and MLK - WBA	1
23	37063	370630	5	0.1875	1000	35	University and MLK - WBD	-3
24	37063	370630	5	0.1875	1000	30	University and Westgate - NBA	1
25	37063	370630	5	0.1875	1000	30	University and Westgate - NBD	0
26	37063	370630	5	0.1875	1000	35	University and Westgate - SBA	0
27	37063	370630	5	0.1875	1000	35	University and Westgate - SBD	-1
28	37063	370630	5	0.1875	1000	35	University and Westgate - EBA	0
29	37063	370630	5	0.1875	1000	35	University and Westgate - EBD	4
30	37063	370630	5	0.1875	1000	35	University and Westgate - WBA	-4
31	37063	370630	5	0.1875	1000	35	University and Westgate - WBD	0

NBA	North bound approach
NBD	North bound departure
SBA	South bound approach
SBD	South bound departure
EBA	East bound approach
EBD	East bound departure
WBA	West bound approach
WBD	West bound departure

2012 Link Source Types

linkID	sourceTypeID	sourceTypeHourFraction
1	11	0.005931
1	21	0.501558
1	31	0.339018
1	32	0.110884
1	41	0.00075
1	42	0.000228
1	43	0.000819
1	51	0.000154
1	52	0.008361
1	53	0.001695
1	54	0.000278
1	61	0.007997
1	62	0.022326

Note: The above is repeated for each link.

2012 Source Type Age Distribution

SourceTypeID	YearID	AgeID	AgeFraction
11	2012	0	0.044677
11	2012	1	0.031763
11	2012	2	0.028621
11	2012	3	0.066667
11	2012	4	0.069459
11	2012	5	0.094939
11	2012	6	0.077836
11	2012	7	0.066318
11	2012	8	0.059686
11	2012	9	0.071204
11	2012	10	0.058639
11	2012	11	0.040838
11	2012	12	0.045026
11	2012	13	0.02897
11	2012	14	0.027225
11	2012	15	0.021291
11	2012	16	0.020593
11	2012	17	0.021291
11	2012	18	0.012216
11	2012	19	0.010471
11	2012	20	0.00733
11	2012	21	0.008028
11	2012	22	0.00733
11	2012	23	0.004188
11	2012	24	0.002393
11	2012	25	0.001368
11	2012	26	0.000782
11	2012	27	0.000447
11	2012	28	0.000255
11	2012	29	0.000146
11	2012	30	0.070002

SourceTypeID	YearID	AgeID	AgeFraction
31	2012	0	0.026141
31	2012	1	0.029194
31	2012	2	0.023295
31	2012	3	0.022093
31	2012	4	0.045781
31	2012	5	0.057266
31	2012	6	0.059584
31	2012	7	0.055408
31	2012	8	0.062254
31	2012	9	0.058654
31	2012	10	0.047194
31	2012	11	0.054609
31	2012	12	0.057033
31	2012	13	0.049041
31	2012	14	0.046141
31	2012	15	0.045783
31	2012	16	0.030697
31	2012	17	0.030995
31	2012	18	0.032028
31	2012	19	0.019794
31	2012	20	0.016613
31	2012	21	0.014551
31	2012	22	0.013836
31	2012	23	0.015783
31	2012	24	0.018119
31	2012	25	0.020913
31	2012	26	0.023194
31	2012	27	0.021351
31	2012	28	0.001738
31	2012	29	0.000172
31	2012	30	0.000743

2012 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction
21	2012	0	0.052526
21	2012	1	0.044582
21	2012	2	0.047083
21	2012	3	0.042963
21	2012	4	0.058271
21	2012	5	0.069466
21	2012	6	0.065004
21	2012	7	0.066906
21	2012	8	0.064405
21	2012	9	0.063878
21	2012	10	0.061252
21	2012	11	0.05504
21	2012	12	0.057225
21	2012	13	0.047504
21	2012	14	0.038935
21	2012	15	0.033262
21	2012	16	0.024719
21	2012	17	0.024838
21	2012	18	0.017717
21	2012	19	0.013176
21	2012	20	0.010635
21	2012	21	0.007595
21	2012	22	0.005996
21	2012	23	0.004245
21	2012	24	0.003005
21	2012	25	0.002128
21	2012	26	0.001507
21	2012	27	0.001067
21	2012	28	0.000755
21	2012	29	0.000535
21	2012	30	0.013781

SourceTypeID	YearID	AgeID	AgeFraction
32	2012	0	0.029674
32	2012	1	0.03071
32	2012	2	0.024505
32	2012	3	0.024279
32	2012	4	0.049335
32	2012	5	0.059653
32	2012	6	0.062305
32	2012	7	0.056727
32	2012	8	0.061621
32	2012	9	0.057921
32	2012	10	0.045815
32	2012	11	0.053438
32	2012	12	0.056024
32	2012	13	0.04873
32	2012	14	0.044077
32	2012	15	0.044653
32	2012	16	0.029697
32	2012	17	0.030033
32	2012	18	0.030614
32	2012	19	0.018647
32	2012	20	0.016037
32	2012	21	0.014174
32	2012	22	0.013614
32	2012	23	0.015136
32	2012	24	0.017051
32	2012	25	0.019472
32	2012	26	0.021559
32	2012	27	0.019782
32	2012	28	0.002017
32	2012	29	0.000512
32	2012	30	0.002189

2012 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction
41	2012	0	0.056604
41	2012	1	0.034406
41	2012	2	0.031077
41	2012	3	0.040788
41	2012	4	0.07131
41	2012	5	0.093785
41	2012	6	0.092675
41	2012	7	0.073529
41	2012	8	0.057436
41	2012	9	0.054107
41	2012	10	0.034129
41	2012	11	0.047447
41	2012	12	0.060766
41	2012	13	0.049112
41	2012	14	0.031077
41	2012	15	0.032741
41	2012	16	0.026082
41	2012	17	0.023585
41	2012	18	0.016371
41	2012	19	0.006937
41	2012	20	0.006382
41	2012	21	0.014983
41	2012	22	0.013596
41	2012	23	0.010266
41	2012	24	0.007752
41	2012	25	0.005854
41	2012	26	0.00442
41	2012	27	0.002784
41	2012	28	0
41	2012	29	0
41	2012	30	0

SourceTypeID	YearID	AgeID	AgeFraction
43	2012	0	0.060416
43	2012	1	0.043407
43	2012	2	0.034911
43	2012	3	0.043367
43	2012	4	0.080628
43	2012	5	0.080012
43	2012	6	0.086027
43	2012	7	0.067501
43	2012	8	0.055137
43	2012	9	0.051686
43	2012	10	0.034711
43	2012	11	0.04325
43	2012	12	0.04784
43	2012	13	0.04673
43	2012	14	0.026576
43	2012	15	0.035979
43	2012	16	0.0214
43	2012	17	0.021519
43	2012	18	0.018296
43	2012	19	0.008208
43	2012	20	0.01066
43	2012	21	0.010347
43	2012	22	0.011878
43	2012	23	0.010125
43	2012	24	0.008523
43	2012	25	0.007069
43	2012	26	0.00592
43	2012	27	0.00497
43	2012	28	0.004176
43	2012	29	0.003544
43	2012	30	0.015189

2012 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction
42	2012	0	0.056604
42	2012	1	0.034406
42	2012	2	0.031077
42	2012	3	0.040788
42	2012	4	0.07131
42	2012	5	0.093785
42	2012	6	0.092675
42	2012	7	0.073529
42	2012	8	0.057436
42	2012	9	0.054107
42	2012	10	0.034129
42	2012	11	0.047447
42	2012	12	0.060766
42	2012	13	0.049112
42	2012	14	0.031077
42	2012	15	0.032741
42	2012	16	0.026082
42	2012	17	0.023585
42	2012	18	0.016371
42	2012	19	0.006937
42	2012	20	0.006382
42	2012	21	0.014983
42	2012	22	0.013596
42	2012	23	0.010266
42	2012	24	0.007752
42	2012	25	0.005854
42	2012	26	0.00442
42	2012	27	0.002784
42	2012	28	0
42	2012	29	0
42	2012	30	0

SourceTypeID	YearID	AgeID	AgeFraction
51	2012	0	0.06093
51	2012	1	0.043776
51	2012	2	0.035209
51	2012	3	0.043737
51	2012	4	0.081315
51	2012	5	0.080693
51	2012	6	0.086759
51	2012	7	0.068076
51	2012	8	0.055607
51	2012	9	0.052127
51	2012	10	0.035007
51	2012	11	0.043618
51	2012	12	0.048248
51	2012	13	0.047128
51	2012	14	0.026803
51	2012	15	0.036285
51	2012	16	0.021583
51	2012	17	0.021478
51	2012	18	0.017535
51	2012	19	0.008072
51	2012	20	0.010237
51	2012	21	0.010185
51	2012	22	0.011595
51	2012	23	0.009345
51	2012	24	0.007724
51	2012	25	0.006594
51	2012	26	0.005514
51	2012	27	0.004584
51	2012	28	0.003805
51	2012	29	0.003089
51	2012	30	0.013343

2012 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction
52	2012	0	0.060613
52	2012	1	0.043548
52	2012	2	0.035025
52	2012	3	0.043508
52	2012	4	0.08089
52	2012	5	0.080272
52	2012	6	0.086307
52	2012	7	0.067721
52	2012	8	0.055317
52	2012	9	0.051855
52	2012	10	0.034824
52	2012	11	0.043391
52	2012	12	0.047996
52	2012	13	0.046882
52	2012	14	0.026663
52	2012	15	0.036096
52	2012	16	0.02147
52	2012	17	0.021504
52	2012	18	0.018003
52	2012	19	0.008156
52	2012	20	0.0105
52	2012	21	0.010286
52	2012	22	0.011772
52	2012	23	0.009826
52	2012	24	0.008218
52	2012	25	0.006887
52	2012	26	0.005764
52	2012	27	0.004822
52	2012	28	0.004034
52	2012	29	0.00337
52	2012	30	0.01448

SourceTypeID	YearID	AgeID	AgeFraction
54	2012	0	0.059392
54	2012	1	0.042671
54	2012	2	0.03432
54	2012	3	0.042633
54	2012	4	0.079262
54	2012	5	0.078657
54	2012	6	0.08457
54	2012	7	0.066358
54	2012	8	0.054203
54	2012	9	0.050811
54	2012	10	0.034123
54	2012	11	0.042517
54	2012	12	0.04703
54	2012	13	0.045938
54	2012	14	0.026126
54	2012	15	0.035369
54	2012	16	0.021038
54	2012	17	0.021599
54	2012	18	0.019812
54	2012	19	0.008479
54	2012	20	0.011498
54	2012	21	0.010667
54	2012	22	0.012439
54	2012	23	0.011676
54	2012	24	0.010109
54	2012	25	0.008011
54	2012	26	0.006726
54	2012	27	0.005738
54	2012	28	0.004913
54	2012	29	0.004448
54	2012	30	0.018866

2012 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction	SourceTypeID	YearID	AgeID	AgeFraction
53	2012	0	0.06095	61	2012	0	0.060807
53	2012	1	0.043791	61	2012	1	0.043688
53	2012	2	0.03522	61	2012	2	0.035137
53	2012	3	0.043751	61	2012	3	0.043648
53	2012	4	0.081341	61	2012	4	0.08115
53	2012	5	0.08072	61	2012	5	0.08053
53	2012	6	0.086788	61	2012	6	0.086584
53	2012	7	0.068099	61	2012	7	0.067939
53	2012	8	0.055625	61	2012	8	0.055494
53	2012	9	0.052144	61	2012	9	0.052021
53	2012	10	0.035018	61	2012	10	0.034936
53	2012	11	0.043632	61	2012	11	0.04353
53	2012	12	0.048263	61	2012	12	0.04815
53	2012	13	0.047143	61	2012	13	0.047032
53	2012	14	0.026812	61	2012	14	0.026749
53	2012	15	0.036297	61	2012	15	0.036212
53	2012	16	0.02159	61	2012	16	0.021539
53	2012	17	0.021478	61	2012	17	0.021488
53	2012	18	0.017502	61	2012	18	0.017718
53	2012	19	0.008067	61	2012	19	0.008105
53	2012	20	0.010223	61	2012	20	0.010338
53	2012	21	0.010181	61	2012	21	0.010224
53	2012	22	0.011587	61	2012	22	0.011663
53	2012	23	0.009313	61	2012	23	0.009532
53	2012	24	0.007695	61	2012	24	0.007915
53	2012	25	0.006576	61	2012	25	0.006708
53	2012	26	0.005498	61	2012	26	0.005611
53	2012	27	0.004569	61	2012	27	0.004677
53	2012	28	0.003791	61	2012	28	0.003894
53	2012	29	0.003071	61	2012	29	0.003198
53	2012	30	0.013265	61	2012	30	0.013786

2012 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction
62	2012	0	0.060677
62	2012	1	0.043594
62	2012	2	0.035062
62	2012	3	0.043555
62	2012	4	0.080976
62	2012	5	0.080358
62	2012	6	0.086399
62	2012	7	0.067793
62	2012	8	0.055375
62	2012	9	0.05191
62	2012	10	0.034861
62	2012	11	0.043437
62	2012	12	0.048047
62	2012	13	0.046932
62	2012	14	0.026691
62	2012	15	0.036134
62	2012	16	0.021493
62	2012	17	0.021498
62	2012	18	0.017911
62	2012	19	0.008139
62	2012	20	0.010444
62	2012	21	0.010264
62	2012	22	0.011734
62	2012	23	0.009729
62	2012	24	0.008117
62	2012	25	0.006828
62	2012	26	0.005714
62	2012	27	0.004775
62	2012	28	0.003988
62	2012	29	0.003313
62	2012	30	0.014254

2012 Meteorology

monthID	zoneID	hourID	temperature	relHumidity
1	370630	1	42.4	68
1	370630	2	41.6	69
1	370630	3	40.9	68
1	370630	4	40.3	70
1	370630	5	39.4	72
1	370630	6	39.1	73
1	370630	7	38.4	75
1	370630	8	38.5	75
1	370630	9	41.7	71
1	370630	10	45.4	61
1	370630	11	48.3	55
1	370630	12	50.5	51
1	370630	13	52.6	47
1	370630	14	53.5	46
1	370630	15	54.3	46
1	370630	16	53.9	47
1	370630	17	52.4	49
1	370630	18	49.6	55
1	370630	19	47.8	59
1	370630	20	46.8	61
1	370630	21	46.3	62
1	370630	22	45.2	64
1	370630	23	44.5	64
1	370630	24	43.5	65

2012 Inspection/Maintenance Coverage

polProcessID	stateID	countyID	yearID	sourceTypeID	fuelTypeID	IMProgramID	begModelYearID	endModelYearID	inspectFreq	testStandardsID	useIMyn	complianceFactor
101	37	37063	2012	21	1	20	1996	2011	1	51	Y	90.25
101	37	37063	2012	31	1	20	1996	2011	1	51	Y	84.84
101	37	37063	2012	32	1	20	1996	2011	1	51	Y	79.42
102	37	37063	2012	21	1	20	1996	2011	1	51	Y	90.25
102	37	37063	2012	31	1	20	1996	2011	1	51	Y	84.84
102	37	37063	2012	32	1	20	1996	2011	1	51	Y	79.42
201	37	37063	2012	21	1	20	1996	2011	1	51	Y	90.25
201	37	37063	2012	31	1	20	1996	2011	1	51	Y	84.84
201	37	37063	2012	32	1	20	1996	2011	1	51	Y	79.42
202	37	37063	2012	21	1	20	1996	2011	1	51	Y	90.25
202	37	37063	2012	31	1	20	1996	2011	1	51	Y	84.84
202	37	37063	2012	32	1	20	1996	2011	1	51	Y	79.42
301	37	37063	2012	21	1	20	1996	2011	1	51	Y	90.25
301	37	37063	2012	31	1	20	1996	2011	1	51	Y	84.84
301	37	37063	2012	32	1	20	1996	2011	1	51	Y	79.42
302	37	37063	2012	21	1	20	1996	2011	1	51	Y	90.25
302	37	37063	2012	31	1	20	1996	2011	1	51	Y	84.84
302	37	37063	2012	32	1	20	1996	2011	1	51	Y	79.42
112	37	37063	2012	21	1	23	1996	2011	1	43	Y	90.25
112	37	37063	2012	31	1	23	1996	2011	1	43	Y	84.84
112	37	37063	2012	32	1	23	1996	2011	1	43	Y	79.42
113	37	37063	2012	21	1	23	1996	2011	1	43	Y	90.25
113	37	37063	2012	31	1	23	1996	2011	1	43	Y	84.84
113	37	37063	2012	32	1	23	1996	2011	1	43	Y	79.42

2012 CO Emission Factors

movesRunId	yearId	monthId	dayId	hourId	linkId	pollutant	GramsPerVehMile	GramsPerVehHour
1	2012	1	5	9	1	CO	NULL	54.18
1	2012	1	5	9	2	CO	8.34	NULL
1	2012	1	5	9	3	CO	8.98	NULL
1	2012	1	5	9	4	CO	6.65	NULL
1	2012	1	5	9	5	CO	6.65	NULL
1	2012	1	5	9	6	CO	6.65	NULL
1	2012	1	5	9	7	CO	6.65	NULL
1	2012	1	5	9	8	CO	8.34	NULL
1	2012	1	5	9	9	CO	8.34	NULL
1	2012	1	5	9	10	CO	8.34	NULL
1	2012	1	5	9	11	CO	8.34	NULL
1	2012	1	5	9	12	CO	8.34	NULL
1	2012	1	5	9	13	CO	8.98	NULL
1	2012	1	5	9	14	CO	8.98	NULL
1	2012	1	5	9	15	CO	8.34	NULL
1	2012	1	5	9	16	CO	5.64	NULL
1	2012	1	5	9	17	CO	8.16	NULL
1	2012	1	5	9	18	CO	4.19	NULL
1	2012	1	5	9	19	CO	5.64	NULL
1	2012	1	5	9	20	CO	9.75	NULL
1	2012	1	5	9	21	CO	5.30	NULL
1	2012	1	5	9	22	CO	7.09	NULL
1	2012	1	5	9	23	CO	4.09	NULL
1	2012	1	5	9	24	CO	7.50	NULL
1	2012	1	5	9	25	CO	6.65	NULL
1	2012	1	5	9	26	CO	6.08	NULL
1	2012	1	5	9	27	CO	5.30	NULL
1	2012	1	5	9	28	CO	6.08	NULL
1	2012	1	5	9	29	CO	11.58	NULL
1	2012	1	5	9	30	CO	3.60	NULL
1	2012	1	5	9	31	CO	6.08	NULL

2040 Links

linkID	countyID	zoneID	roadTypeID	linkLength	linkVolume	linkAvgSpeed	linkDescription	linkAvgGrade
1	37063	370630	5	0.016	1000	0	Queues	0
2	37063	370630	5	0.1875	1000	35	Mangum St and Main St - SBA	2
3	37063	370630	5	0.1875	1000	25	Mangum St and Main St - SBD	2
4	37063	370630	5	0.1875	1000	30	Mangum St and Main St - EBA	0
5	37063	370630	5	0.1875	1000	30	Mangum St and Main St - EBD	0
6	37063	370630	5	0.1875	1000	30	Mangum St and Main St - WBA	0
7	37063	370630	5	0.1875	1000	30	Mangum St and Main St - WBD	0
8	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - NBA	2
9	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - NBD	2
10	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - SBA	2
11	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - SBD	2
12	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - EBA	2
13	37063	370630	5	0.1875	1000	25	Morreene Rd/Towerview Rd and Erwin Rd - EBD	2
14	37063	370630	5	0.1875	1000	25	Morreene Rd/Towerview Rd and Erwin Rd - WBA	2
15	37063	370630	5	0.1875	1000	35	Morreene Rd/Towerview Rd and Erwin Rd - WBD	2
16	37063	370630	5	0.1875	1000	35	University and MLK - NBA	0
17	37063	370630	5	0.1875	1000	35	University and MLK - NBD	2
18	37063	370630	5	0.1875	1000	55	University and MLK - SBA	-2
19	37063	370630	5	0.1875	1000	55	University and MLK - SBD	0
20	37063	370630	5	0.1875	1000	35	University and MLK - EBA	3
21	37063	370630	5	0.1875	1000	35	University and MLK - EBD	-1
22	37063	370630	5	0.1875	1000	35	University and MLK - WBA	1
23	37063	370630	5	0.1875	1000	35	University and MLK - WBD	-3

NBA	North bound approach
NBD	North bound departure
SBA	South bound approach
SBD	South bound departure
EBA	East bound approach
EBD	East bound departure
WBA	West bound approach

WBD West bound departure

2040 Links (continued)

linkID	countyID	zoneID	roadTypeID	linkLength	linkVolume	linkAvgSpeed	linkDescription	linkAvgGrade
24	37063	370630	5	0.1875	1000	35	University and Westgate - NBA	1
25	37063	370630	5	0.1875	1000	35	University and Westgate - NBD	0
26	37063	370630	5	0.1875	1000	35	University and Westgate - SBA	0
27	37063	370630	5	0.1875	1000	35	University and Westgate - SBD	-1
28	37063	370630	5	0.1875	1000	35	University and Westgate - EBA	0
29	37063	370630	5	0.1875	1000	35	University and Westgate - EBD	4
30	37063	370630	5	0.1875	1000	35	University and Westgate - WBA	-4
31	37063	370630	5	0.1875	1000	35	University and Westgate - WBD	0
32	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - NBA	0
33	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - NBD	0
34	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - SBA	0
35	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - SBD	0
36	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - EBA	0
37	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - EBD	0
38	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - WBA	0
39	37063	370630	5	0.1875	1000	30	Falconbridge Rd and NC 54 - WBD	0

NBA North bound approach
NBD North bound departure
SBA South bound approach
SBD South bound departure
EBA East bound approach
EBD East bound departure
WBA West bound approach
WBD West bound departure

2040 Link Source Types

linkID	sourceTypeID	sourceTypeHourFraction
1	11	0.005931
1	21	0.501558
1	31	0.339018
1	32	0.110884
1	41	0.00075
1	42	0.000228
1	43	0.000819
1	51	0.000154
1	52	0.008361
1	53	0.001695
1	54	0.000278
1	61	0.007997
1	62	0.022326

Note: The above is repeated for each link.

2040 Source Type Age Distribution

SourceTypeID	YearID	AgeID	AgeFraction		SourceTypeID	YearID	AgeID	AgeFraction
11	2040	0	0.054073		31	2040	0	0.031679
11	2040	1	0.04714		31	2040	1	0.027312
11	2040	2	0.031196		31	2040	2	0.032024
11	2040	3	0.026343		31	2040	3	0.023843
11	2040	4	0.068977		31	2040	4	0.022352
11	2040	5	0.067244		31	2040	5	0.04713
11	2040	6	0.093241		31	2040	6	0.05653
11	2040	7	0.079376		31	2040	7	0.058734
11	2040	8	0.069671		31	2040	8	0.055818
11	2040	9	0.053033		31	2040	9	0.062089
11	2040	10	0.064125		31	2040	10	0.056495
11	2040	11	0.0513		31	2040	11	0.048872
11	2040	12	0.039861		31	2040	12	0.051727
11	2040	13	0.040555		31	2040	13	0.053821
11	2040	14	0.025997		31	2040	14	0.046865
11	2040	15	0.027036		31	2040	15	0.042684
11	2040	16	0.018371		31	2040	16	0.042094
11	2040	17	0.016638		31	2040	17	0.029464
11	2040	18	0.016291		31	2040	18	0.02811
11	2040	19	0.010052		31	2040	19	0.02972
11	2040	20	0.009705		31	2040	20	0.018874
11	2040	21	0.006239		31	2040	21	0.014161
11	2040	22	0.005893		31	2040	22	0.013691
11	2040	23	0.004853		31	2040	23	0.012538
11	2040	24	0.003996		31	2040	24	0.011758
11	2040	25	0.003291		31	2040	25	0.011199
11	2040	26	0.00271		31	2040	26	0.010763
11	2040	27	0.002232		31	2040	27	0.010397
11	2040	28	0.001838		31	2040	28	0.010092
11	2040	29	0.001514		31	2040	29	0.009793
11	2040	30	0.057209		31	2040	30	0.029372

2040 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction		SourceTypeID	YearID	AgeID	AgeFraction
21	2040	0	0.057246		32	2040	0	0.033424
21	2040	1	0.05479		32	2040	1	0.031169
21	2040	2	0.046576		32	2040	2	0.033413
21	2040	3	0.050026		32	2040	3	0.025174
21	2040	4	0.042956		32	2040	4	0.024421
21	2040	5	0.057194		32	2040	5	0.050042
21	2040	6	0.067885		32	2040	6	0.059082
21	2040	7	0.063199		32	2040	7	0.060702
21	2040	8	0.064141		32	2040	8	0.057092
21	2040	9	0.061984		32	2040	9	0.060875
21	2040	10	0.060963		32	2040	10	0.055543
21	2040	11	0.057422		32	2040	11	0.047347
21	2040	12	0.050247		32	2040	12	0.050581
21	2040	13	0.051722		32	2040	13	0.052828
21	2040	14	0.042085		32	2040	14	0.046064
21	2040	15	0.034066		32	2040	15	0.040714
21	2040	16	0.028457		32	2040	16	0.040975
21	2040	17	0.020887		32	2040	17	0.028486
21	2040	18	0.020906		32	2040	18	0.027341
21	2040	19	0.014427		32	2040	19	0.028294
21	2040	20	0.010827		32	2040	20	0.017829
21	2040	21	0.008494		32	2040	21	0.013315
21	2040	22	0.006031		32	2040	22	0.013246
21	2040	23	0.004854		32	2040	23	0.011998
21	2040	24	0.003908		32	2040	24	0.011145
21	2040	25	0.003145		32	2040	25	0.010524
21	2040	26	0.002532		32	2040	26	0.010069
21	2040	27	0.002038		32	2040	27	0.009736
21	2040	28	0.001641		32	2040	28	0.009422
21	2040	29	0.001321		32	2040	29	0.009233
21	2040	30	0.008031		32	2040	30	0.029919

2040 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction		SourceTypeID	YearID	AgeID	AgeFraction
41	2040	0	0.056987		43	2040	0	0.048169
41	2040	1	0.054696		43	2040	1	0.065993
41	2040	2	0.039805		43	2040	2	0.045253
41	2040	3	0.031501		43	2040	3	0.037158
41	2040	4	0.044101		43	2040	4	0.042929
41	2040	5	0.063288		43	2040	5	0.076271
41	2040	6	0.093643		43	2040	6	0.082311
41	2040	7	0.083906		43	2040	7	0.078458
41	2040	8	0.071306		43	2040	8	0.068389
41	2040	9	0.050401		43	2040	9	0.049546
41	2040	10	0.050401		43	2040	10	0.047963
41	2040	11	0.033505		43	2040	11	0.035017
41	2040	12	0.046105		43	2040	12	0.041467
41	2040	13	0.055842		43	2040	13	0.045547
41	2040	14	0.045533		43	2040	14	0.039817
41	2040	15	0.028923		43	2040	15	0.024304
41	2040	16	0.032646		43	2040	16	0.032542
41	2040	17	0.024628		43	2040	17	0.020522
41	2040	18	0.021764		43	2040	18	0.020938
41	2040	19	0.014032		43	2040	19	0.016046
41	2040	20	0.006586		43	2040	20	0.008418
41	2040	21	0.0063		43	2040	21	0.005806
41	2040	22	0.011455		43	2040	22	0.009103
41	2040	23	0.008018		43	2040	23	0.007579
41	2040	24	0.005613		43	2040	24	0.006407
41	2040	25	0.003929		43	2040	25	0.00535
41	2040	26	0.00275		43	2040	26	0.004401
41	2040	27	0.001925		43	2040	27	0.003656
41	2040	28	0.001348		43	2040	28	0.003045
41	2040	29	0.000943		43	2040	29	0.002538
41	2040	30	0.008119		43	2040	30	0.025055

2040 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction		SourceTypeID	YearID	AgeID	AgeFraction
42	2040	0	0.056987		51	2040	0	0.048536
42	2040	1	0.054696		51	2040	1	0.066496
42	2040	2	0.039805		51	2040	2	0.045598
42	2040	3	0.031501		51	2040	3	0.037441
42	2040	4	0.044101		51	2040	4	0.043256
42	2040	5	0.063288		51	2040	5	0.076852
42	2040	6	0.093643		51	2040	6	0.082938
42	2040	7	0.083906		51	2040	7	0.079056
42	2040	8	0.071306		51	2040	8	0.06891
42	2040	9	0.050401		51	2040	9	0.049924
42	2040	10	0.050401		51	2040	10	0.048329
42	2040	11	0.033505		51	2040	11	0.035284
42	2040	12	0.046105		51	2040	12	0.041784
42	2040	13	0.055842		51	2040	13	0.045894
42	2040	14	0.045533		51	2040	14	0.040121
42	2040	15	0.028923		51	2040	15	0.024489
42	2040	16	0.032646		51	2040	16	0.03279
42	2040	17	0.024628		51	2040	17	0.020679
42	2040	18	0.021764		51	2040	18	0.02088
42	2040	19	0.014032		51	2040	19	0.015364
42	2040	20	0.006586		51	2040	20	0.008271
42	2040	21	0.0063		51	2040	21	0.00557
42	2040	22	0.011455		51	2040	22	0.008953
42	2040	23	0.008018		51	2040	23	0.007391
42	2040	24	0.005613		51	2040	24	0.005908
42	2040	25	0.003929		51	2040	25	0.004844
42	2040	26	0.00275		51	2040	26	0.004102
42	2040	27	0.001925		51	2040	27	0.003402
42	2040	28	0.001348		51	2040	28	0.002806
42	2040	29	0.000943		51	2040	29	0.00231
42	2040	30	0.008119		51	2040	30	0.021819

2040 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction		SourceTypeID	YearID	AgeID	AgeFraction
52	2040	0	0.048309		54	2040	0	0.047437
52	2040	1	0.066186		54	2040	1	0.064991
52	2040	2	0.045385		54	2040	2	0.044566
52	2040	3	0.037266		54	2040	3	0.036593
52	2040	4	0.043054		54	2040	4	0.042277
52	2040	5	0.076493		54	2040	5	0.075113
52	2040	6	0.082551		54	2040	6	0.081061
52	2040	7	0.078686		54	2040	7	0.077266
52	2040	8	0.068589		54	2040	8	0.067351
52	2040	9	0.049691		54	2040	9	0.048794
52	2040	10	0.048103		54	2040	10	0.047235
52	2040	11	0.03512		54	2040	11	0.034486
52	2040	12	0.041588		54	2040	12	0.040838
52	2040	13	0.04568		54	2040	13	0.044855
52	2040	14	0.039933		54	2040	14	0.039213
52	2040	15	0.024375		54	2040	15	0.023935
52	2040	16	0.032637		54	2040	16	0.032048
52	2040	17	0.020582		54	2040	17	0.020211
52	2040	18	0.020917		54	2040	18	0.021054
52	2040	19	0.015784		54	2040	19	0.017407
52	2040	20	0.008361		54	2040	20	0.00871
52	2040	21	0.005717		54	2040	21	0.006274
52	2040	22	0.009046		54	2040	22	0.009402
52	2040	23	0.007508		54	2040	23	0.00795
52	2040	24	0.006216		54	2040	24	0.007402
52	2040	25	0.005157		54	2040	25	0.006357
52	2040	26	0.004287		54	2040	26	0.004997
52	2040	27	0.003559		54	2040	27	0.004162
52	2040	28	0.002953		54	2040	28	0.003521
52	2040	29	0.002451		54	2040	29	0.002991
52	2040	30	0.023816		54	2040	30	0.031503

2040 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction		SourceTypeID	YearID	AgeID	AgeFraction
53	2040	0	0.04855		61	2040	0	0.048448
53	2040	1	0.066515		61	2040	1	0.066376
53	2040	2	0.045612		61	2040	2	0.045516
53	2040	3	0.037452		61	2040	3	0.037373
53	2040	4	0.043269		61	2040	4	0.043178
53	2040	5	0.076875		61	2040	5	0.076713
53	2040	6	0.082962		61	2040	6	0.082788
53	2040	7	0.079079		61	2040	7	0.078913
53	2040	8	0.06893		61	2040	8	0.068786
53	2040	9	0.049939		61	2040	9	0.049834
53	2040	10	0.048343		61	2040	10	0.048241
53	2040	11	0.035295		61	2040	11	0.035221
53	2040	12	0.041796		61	2040	12	0.041708
53	2040	13	0.045907		61	2040	13	0.045811
53	2040	14	0.040132		61	2040	14	0.040048
53	2040	15	0.024497		61	2040	15	0.024445
53	2040	16	0.0328		61	2040	16	0.032731
53	2040	17	0.020685		61	2040	17	0.020641
53	2040	18	0.020879		61	2040	18	0.020894
53	2040	19	0.015335		61	2040	19	0.015528
53	2040	20	0.008265		61	2040	20	0.008306
53	2040	21	0.005563		61	2040	21	0.005627
53	2040	22	0.008948		61	2040	22	0.008988
53	2040	23	0.007386		61	2040	23	0.007436
53	2040	24	0.005888		61	2040	24	0.006028
53	2040	25	0.004826		61	2040	25	0.004965
53	2040	26	0.004091		61	2040	26	0.004174
53	2040	27	0.003392		61	2040	27	0.003463
53	2040	28	0.002796		61	2040	28	0.002863
53	2040	29	0.002301		61	2040	29	0.002365
53	2040	30	0.021693		61	2040	30	0.022594

2040 Source Type Age Distribution (continued)

SourceTypeID	YearID	AgeID	AgeFraction
62	2040	0	0.048355
62	2040	1	0.066249
62	2040	2	0.045429
62	2040	3	0.037301
62	2040	4	0.043095
62	2040	5	0.076566
62	2040	6	0.08263
62	2040	7	0.078761
62	2040	8	0.068654
62	2040	9	0.049738
62	2040	10	0.048149
62	2040	11	0.035153
62	2040	12	0.041628
62	2040	13	0.045723
62	2040	14	0.039972
62	2040	15	0.024398
62	2040	16	0.032668
62	2040	17	0.020602
62	2040	18	0.020908
62	2040	19	0.015701
62	2040	20	0.008343
62	2040	21	0.005686
62	2040	22	0.009026
62	2040	23	0.007483
62	2040	24	0.006154
62	2040	25	0.005093
62	2040	26	0.004249
62	2040	27	0.003527
62	2040	28	0.002924
62	2040	29	0.002422
62	2040	30	0.023411

2014 Meteorology

monthID	zoneID	hourID	temperature	relHumidity
1	370630	1	32.8	63
1	370630	2	31.9	65
1	370630	3	31.5	65
1	370630	4	30.9	66
1	370630	5	30.1	67
1	370630	6	30.1	68
1	370630	7	30.2	67
1	370630	8	30.1	67
1	370630	9	33.2	62
1	370630	10	36.3	55
1	370630	11	39.3	50
1	370630	12	41.6	46
1	370630	13	43.5	43
1	370630	14	45.4	41
1	370630	15	45.5	40
1	370630	16	45.3	40
1	370630	17	43.8	42
1	370630	18	41.1	47
1	370630	19	39	53
1	370630	20	37.2	56
1	370630	21	35.9	58
1	370630	22	35	59
1	370630	23	34.2	60
1	370630	24	33.5	62

2040 Inspection/Maintenance Coverage

polProcessID	stateID	countyID	yearID	sourceTypeID	fuelTypeID	IMProgramID	begModelYearID	endModelYearID	inspectFreq	testStandardsID	useIMyn	complianceFactor
101	37	37063	2040	21	1	20	1996	2037	1	51	Y	91.2
101	37	37063	2040	31	1	20	1996	2037	1	51	Y	85.73
101	37	37063	2040	32	1	20	1996	2037	1	51	Y	80.26
102	37	37063	2040	21	1	20	1996	2037	1	51	Y	91.2
102	37	37063	2040	31	1	20	1996	2037	1	51	Y	85.73
102	37	37063	2040	32	1	20	1996	2037	1	51	Y	80.26
201	37	37063	2040	21	1	20	1996	2037	1	51	Y	91.2
201	37	37063	2040	31	1	20	1996	2037	1	51	Y	85.73
201	37	37063	2040	32	1	20	1996	2037	1	51	Y	80.26
202	37	37063	2040	21	1	20	1996	2037	1	51	Y	91.2
202	37	37063	2040	31	1	20	1996	2037	1	51	Y	85.73
202	37	37063	2040	32	1	20	1996	2037	1	51	Y	80.26
301	37	37063	2040	21	1	20	1996	2037	1	51	Y	91.2
301	37	37063	2040	31	1	20	1996	2037	1	51	Y	85.73
301	37	37063	2040	32	1	20	1996	2037	1	51	Y	80.26
302	37	37063	2040	21	1	20	1996	2037	1	51	Y	91.2
302	37	37063	2040	31	1	20	1996	2037	1	51	Y	85.73
302	37	37063	2040	32	1	20	1996	2037	1	51	Y	80.26
112	37	37063	2040	21	1	23	1996	2037	1	43	Y	91.2
112	37	37063	2040	31	1	23	1996	2037	1	43	Y	85.73
112	37	37063	2040	32	1	23	1996	2037	1	43	Y	80.26
113	37	37063	2040	21	1	23	1996	2037	1	43	Y	91.2
113	37	37063	2040	31	1	23	1996	2037	1	43	Y	85.73
113	37	37063	2040	32	1	23	1996	2037	1	43	Y	80.26

2040 CO Emission Factors

movesRunId	yearId	monthId	dayId	hourId	linkId	pollutant	GramsPerVehMile	GramsPerVehHour
1	2040	1	5	9	1	CO	NULL	1.31
1	2040	1	5	9	2	CO	1.16	NULL
1	2040	1	5	9	3	CO	1.18	NULL
1	2040	1	5	9	4	CO	0.81	NULL
1	2040	1	5	9	5	CO	0.81	NULL
1	2040	1	5	9	6	CO	0.81	NULL
1	2040	1	5	9	7	CO	0.81	NULL
1	2040	1	5	9	8	CO	1.16	NULL
1	2040	1	5	9	9	CO	1.16	NULL
1	2040	1	5	9	10	CO	1.16	NULL
1	2040	1	5	9	11	CO	1.16	NULL
1	2040	1	5	9	12	CO	1.16	NULL
1	2040	1	5	9	13	CO	1.18	NULL
1	2040	1	5	9	14	CO	1.18	NULL
1	2040	1	5	9	15	CO	1.16	NULL
1	2040	1	5	9	16	CO	0.76	NULL
1	2040	1	5	9	17	CO	1.16	NULL
1	2040	1	5	9	18	CO	0.41	NULL
1	2040	1	5	9	19	CO	0.71	NULL
1	2040	1	5	9	20	CO	1.40	NULL
1	2040	1	5	9	21	CO	0.63	NULL
1	2040	1	5	9	22	CO	0.94	NULL
1	2040	1	5	9	23	CO	0.43	NULL
1	2040	1	5	9	24	CO	0.94	NULL
1	2040	1	5	9	25	CO	0.76	NULL
1	2040	1	5	9	26	CO	0.76	NULL
1	2040	1	5	9	27	CO	0.63	NULL
1	2040	1	5	9	28	CO	0.76	NULL
1	2040	1	5	9	29	CO	1.71	NULL
1	2040	1	5	9	30	CO	0.37	NULL
1	2040	1	5	9	31	CO	0.76	NULL
1	2040	1	5	9	32	CO	0.81	NULL
1	2040	1	5	9	33	CO	0.81	NULL
1	2040	1	5	9	34	CO	0.81	NULL
1	2040	1	5	9	35	CO	0.81	NULL
1	2040	1	5	9	36	CO	0.81	NULL
1	2040	1	5	9	37	CO	0.81	NULL
1	2040	1	5	9	38	CO	0.81	NULL
1	2040	1	5	9	39	CO	0.81	NULL

Appendix C: Synchro Results

2012 AM

2012 PM

2040 No-Build AM

2040 No-Build PM

2040 Build AM

2040 Build PM

2040 Build AM – NHC 1

2040 Build PM – NHC 1

2040 Build AM – NHC 2

2040 Build PM – NHC 2

2012 AM

1. Mangum Street and Main Street
2. Morreene Road/Towerview Road and Erwin Road
3. University Drive and Martin Luther King Jr. Parkway
4. University Drive and Westgate Drive

Lanes, Volumes, Timings
23: Mangum Street 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	161	19	24	176	0	0	0	0	43	809	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.986										0.850
Flt Protected				0.950							0.997	
Satd. Flow (prot)	0	1801	0	1736	1827	0	0	0	0	0	3426	1537
Flt Permitted				0.950							0.997	
Satd. Flow (perm)	0	1801	0	1736	1827	0	0	0	0	0	3426	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		9										97
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	
Lane Group Flow (vph)	0	200	0	27	196	0	0	0	0	0	947	16
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		4		3	8						2	
Permitted Phases										2		2
Total Split (s)		30.0		15.0	45.0					30.0	30.0	30.0
Total Lost Time (s)		3.1		2.6	2.9						2.8	2.8
Act Effct Green (s)		26.9		12.4	42.1						27.2	27.2
Actuated g/C Ratio		0.36		0.17	0.56						0.36	0.36
v/c Ratio		0.31		0.09	0.19						0.76	0.03
Control Delay		18.1		27.6	8.7						25.9	0.1
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		18.1		27.6	8.7						25.9	0.1
LOS		B		C	A						C	A
Approach Delay		18.1			11.0						25.5	
Approach LOS		B			B						C	
Queue Length 50th (ft)		63		11	41						200	0
Queue Length 95th (ft)		112		32	73						271	0
Internal Link Dist (ft)		318			194			229			321	
Turn Bay Length (ft)				120								250
Base Capacity (vph)		651		287	1025						1242	619
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.31		0.09	0.19						0.76	0.03

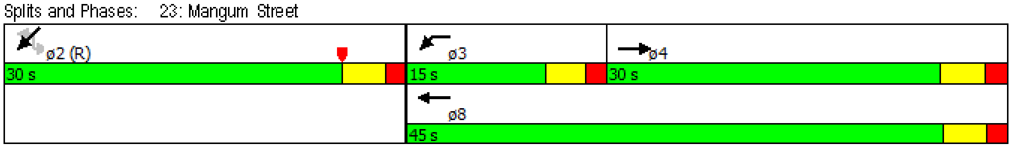
Intersection Summary
Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 26.2 (35%), Referenced to phase 2:SWTL, Start of Yellow
Control Type: Pretimed

Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2040 No-Build AM Peak — Synchro 8 Report
URS - M/A/B — Page 1

Lanes, Volumes, Timings
23: Mangum Street 5/12/2015

Maximum v/c Ratio: 0.76
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 49.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 23: Mangum Street



Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2040 No-Build AM Peak Synchro 8 Report
URS - M/A/B Page 2

Lanes and Geometrics
23: Mangum Street 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor												
Frt		0.986										0.850
Flt Protected				0.950							0.997	
Satd. Flow (prot)	0	1801	0	1736	1827	0	0	0	0	0	3426	1537
Flt Permitted				0.950							0.997	
Satd. Flow (perm)	0	1801	0	1736	1827	0	0	0	0	0	3426	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		9										97
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	

Intersection Summary	
Area Type:	Other

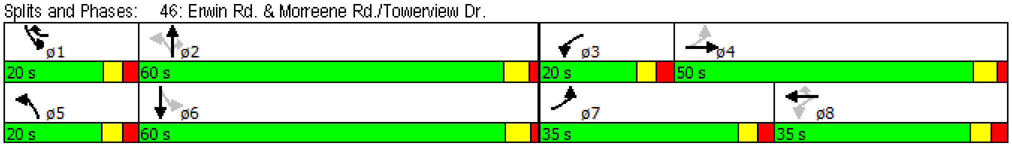
Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2040 No-Build AM Peak Synchro 8 Report
URS - M/A/B Page 3

Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	332	44	18	74	39	48	754	157	73	225	77
Satd. Flow (prot)	1661	1776	0	1661	1748	1486	1661	3207	1435	1718	3196	0
Flt Permitted	0.567			0.282			0.523			0.246		
Satd. Flow (perm)	991	1776	0	493	1748	1486	914	3207	1435	445	3196	0
Satd. Flow (RTOR)		5							167		36	
Lane Group Flow (vph)	177	418	0	20	82	43	53	838	174	81	336	0
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	35.0	50.0		20.0	35.0	20.0	20.0	60.0	60.0	20.0	60.0	
Total Lost Time (s)	3.4	3.4		3.6	3.7	3.3	3.4	3.4	3.4	3.3	3.3	
Act Effct Green (s)	36.9	32.6		25.2	18.3	28.4	65.3	58.4	58.4	66.0	58.7	
Actuated g/C Ratio	0.33	0.29		0.22	0.16	0.25	0.58	0.52	0.52	0.59	0.52	
v/c Ratio	0.41	0.80		0.10	0.29	0.11	0.09	0.50	0.21	0.22	0.20	
Control Delay	30.3	49.8		25.7	44.0	30.7	13.2	22.6	4.6	14.0	16.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.3	49.8		25.7	44.0	30.7	13.2	22.6	4.6	14.0	16.3	
LOS	C	D		C	D	C	B	C	A	B	B	
Approach Delay		44.0			37.5			19.2			15.8	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	96	262		10	54	24	13	194	2	20	56	
Queue Length 95th (ft)	154	440		27	103	53	46	381	50	64	124	
Internal Link Dist (ft)		886			910			926			1131	
Turn Bay Length (ft)	600			110		110	600			600		
Base Capacity (vph)	557	763		320	513	476	670	1669	827	466	1691	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.55		0.06	0.16	0.09	0.08	0.50	0.21	0.17	0.20	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 112.1	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 26.4	Intersection LOS: C
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 46: Erwin Rd. & Morreene Rd./Towerview Dr.



Triangle Transit - Erwin/University 10/22/2013 2011 Existing- AM Peak
URS
Synchro 8 Report
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Lanes and Geometrics
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	9	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	600		40	110		110	600		0	600		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.982				0.850			0.850		0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1661	1776	0	1661	1748	1486	1661	3207	1435	1718	3196	0
Flt Permitted	0.567			0.282			0.523			0.246		
Satd. Flow (perm)	991	1776	0	493	1748	1486	914	3207	1435	445	3196	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		5							167		36	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	

Intersection Summary	
Area Type:	Other

Lanes, Volumes, Timings
1635: University & MLK

3/5/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	195	482	460	61	400	86	545	444	87	125	265	53
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Grade (%)		-2%			0%			3%			1%	
Storage Length (ft)	175		0	200		225	750		150	200		175
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			496			242			176			244
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1019			1104			1157			956	
Travel Time (s)		17.4			18.8			22.5			18.6	
Lane Group Flow (vph)	214	530	506	67	440	95	600	488	96	138	292	58
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Total Split (s)	20.0	40.0	40.0	15.0	35.0	35.0	24.0	40.0	40.0	15.0	31.0	31.0
Total Lost Time (s)	3.3	2.5	2.5	3.3	2.5	2.5	2.9	2.3	2.3	2.9	2.3	2.3
Act Effct Green (s)	16.4	30.5	30.5	11.0	22.6	22.6	25.1	47.9	47.9	12.1	34.9	34.9
Actuated g/C Ratio	0.15	0.28	0.28	0.10	0.21	0.21	0.23	0.44	0.44	0.11	0.32	0.32
v/c Ratio	0.76	0.51	0.61	0.36	0.57	0.18	0.74	0.31	0.12	0.35	0.25	0.08
Control Delay	65.7	35.4	6.5	51.8	41.8	0.7	54.5	18.7	0.6	59.6	22.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	35.4	6.5	51.8	41.8	0.7	54.5	18.7	0.6	59.6	22.4	0.3
LOS	E	D	A	D	D	A	D	B	A	E	C	A
Approach Delay		28.9			36.4			35.4			30.3	
Approach LOS		C			D			D			C	
Stops (vph)	196	432	50	62	382	0	563	250	1	134	188	0
Fuel Used(gal)	6	12	5	2	11	1	16	8	1	4	5	0
CO Emissions (g/hr)	438	820	326	127	754	51	1112	546	57	254	333	28
NOx Emissions (g/hr)	85	160	63	25	147	10	216	106	11	49	65	5
VOC Emissions (g/hr)	102	190	76	29	175	12	258	127	13	59	77	7
Dilemma Vehicles (#)	0	24	0	0	20	0	0	18	0	0	12	0
Queue Length 50th (ft)	146	175	5	45	150	0	219	97	0	51	48	0
Queue Length 95th (ft)	#308	227	144	100	202	0	#374	153	1	94	98	0
Internal Link Dist (ft)		939			1024			1077			876	
Turn Bay Length (ft)	175			200		225	750		150	200		175
Base Capacity (vph)	285	1282	900	198	1100	663	811	1598	814	411	1176	692
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.41	0.56	0.34	0.40	0.14	0.74	0.31	0.12	0.34	0.25	0.08

Baseline

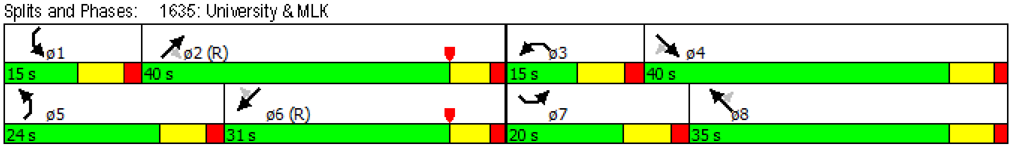
Synchro 8 Report
Page 1

Lanes, Volumes, Timings
1635: University & MLK 3/5/2015

Intersection Summary

Area Type: Other	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 109 (99%), Referenced to phase 2:NET and 6:SWT, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 60.8%	ICU Level of Service B
Analysis Period (min) 60	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1635: University & MLK



Baseline

Synchro 8 Report
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Lanes and Geometrics
1635: University & MLK 3/5/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Grade (%)		-2%			0%			3%			1%	
Storage Length (ft)	175		0	200		225	750		150	200		175
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			496			242			176			244
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1019			1104			1157			956	
Travel Time (s)		17.4			18.8			22.5			18.6	

Intersection Summary	
Area Type:	Other

Baseline Synchro 8 Report
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Lanes, Volumes, Timings
9256: University & Westgate 3/5/2015

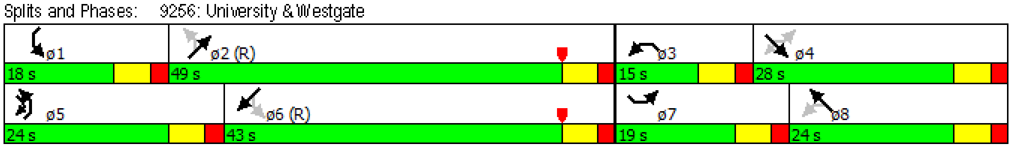
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	57	42	149	12	21	23	84	355	9	41	293	41
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Grade (%)		0%			1%			0%			-4%	
Storage Length (ft)	100		0	0		50	375		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.922			0.996			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1863	1961	1667	1853	1799	0	1863	3711	0	1900	3732	0
Flt Permitted	0.658			0.727			0.491			0.498		
Satd. Flow (perm)	1290	1961	1667	1418	1799	0	963	3711	0	996	3732	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164		25			3			16	
Link Speed (mph)		35			30			35			35	
Link Distance (ft)		831			406			956			1590	
Travel Time (s)		16.2			9.2			18.6			31.0	
Lane Group Flow (vph)	63	46	164	13	48	0	92	400	0	45	367	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	19.0	28.0	24.0	15.0	24.0		24.0	49.0		18.0	43.0	
Total Lost Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Act Effct Green (s)	27.0	18.9	28.1	25.4	18.0		76.7	67.7		75.9	64.9	
Actuated g/C Ratio	0.25	0.17	0.26	0.23	0.16		0.70	0.62		0.69	0.59	
v/c Ratio	0.17	0.14	0.30	0.04	0.15		0.12	0.18		0.06	0.17	
Control Delay	29.8	39.3	5.8	27.7	24.4		7.8	11.5		7.3	12.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.8	39.3	5.8	27.7	24.4		7.8	11.5		7.3	12.1	
LOS	C	D	A	C	C		A	B		A	B	
Approach Delay		17.0			25.1			10.8			11.5	
Approach LOS		B			C			B			B	
Stops (vph)	45	39	19	10	24		33	140		16	172	
Fuel Used (gal)	1	1	1	0	1		1	5		1	6	
CO Emissions (g/hr)	77	66	92	12	37		72	332		49	448	
NOx Emissions (g/hr)	15	13	18	2	7		14	65		10	87	
VOC Emissions (g/hr)	18	15	21	3	8		17	77		11	104	
Dilemma Vehicles (#)	0	2	0	0	0		0	16		0	15	
Queue Length 50th (ft)	33	28	0	7	14		25	58		10	67	
Queue Length 95th (ft)	72	67	63	24	55		m46	m86		30	125	
Internal Link Dist (ft)		751			326			876			1510	
Turn Bay Length (ft)	100						375			100		
Base Capacity (vph)	429	463	695	404	379		863	2285		838	2208	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.10	0.24	0.03	0.13		0.11	0.18		0.05	0.17	

Baseline Synchro 8 Report
Page 1

Lanes, Volumes, Timings
9256: University & Westgate 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 9 (8%), Referenced to phase 2:NETL and 6:SWTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.30	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 41.7%	ICU Level of Service A
Analysis Period (min) 60	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 9256: University & Westgate



Baseline Synchro 8 Report
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Lanes and Geometrics
9256: University & Westgate 3/5/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Grade (%)		0%			1%			0%			-4%	
Storage Length (ft)	100		0	0		50	375		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.922			0.996			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1863	1961	1667	1853	1799	0	1863	3711	0	1900	3732	0
Flt Permitted	0.658			0.727			0.491			0.498		
Satd. Flow (perm)	1290	1961	1667	1418	1799	0	963	3711	0	996	3732	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164		25			3			16	
Link Speed (mph)		35			30			35			35	
Link Distance (ft)		831			406			956			1590	
Travel Time (s)		16.2			9.2			18.6			31.0	

Intersection Summary

Area Type: Other

Baseline

Synchro 8 Report
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2012 PM

1. Mangum Street and Main Street
2. Morreene Road/Towerview Road and Erwin Road
3. University Drive and Martin Luther King Jr. Parkway
4. University Drive and Westgate Drive

Lanes, Volumes, Timings
23: Mangum Street 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	174	32	136	177	0	0	0	0	38	857	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		50
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.979										0.850
Flt Protected				0.950							0.998	
Satd. Flow (prot)	0	1789	0	1736	1827	0	0	0	0	0	3430	1537
Flt Permitted				0.950							0.998	
Satd. Flow (perm)	0	1789	0	1736	1827	0	0	0	0	0	3430	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		11										81
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	
Lane Group Flow (vph)	0	229	0	151	197	0	0	0	0	0	994	21
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		4		3	8						2	
Permitted Phases										2		2
Total Split (s)		30.0		15.0	45.0					45.0	45.0	45.0
Total Lost Time (s)		3.3		3.0	3.2						3.3	3.3
Act Effct Green (s)		26.7		12.0	41.8						41.7	41.7
Actuated g/C Ratio		0.30		0.13	0.46						0.46	0.46
v/c Ratio		0.43		0.65	0.23						0.63	0.03
Control Delay		41.9		61.9	9.8						28.9	2.9
Queue Delay		0.0		79.6	0.0						0.3	0.0
Total Delay		41.9		141.5	9.8						29.2	2.9
LOS		D		F	A						C	A
Approach Delay		41.9			66.9						28.6	
Approach LOS		D			E						C	
Queue Length 50th (ft)		122		89	41						273	0
Queue Length 95th (ft)		192		m#155	m62						347	m4
Internal Link Dist (ft)		318			194			229			321	
Turn Bay Length (ft)				120								50
Base Capacity (vph)		538		231	848						1589	755
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		1		149	0						152	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.43		1.84	0.23						0.69	0.03

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 84 (93%), Referenced to phase 2:SWTL, Start of Yellow
Control Type: Pretimed

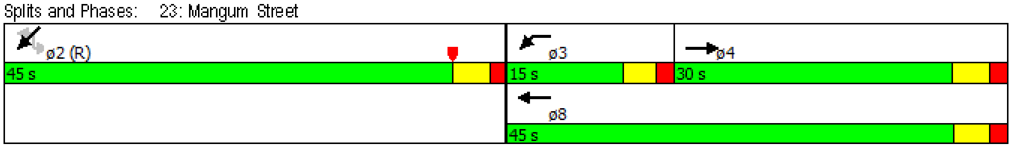
Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2011 Existing PM Peak — Synchro 8 Report
URS - M/A/B — Page 1

Lanes, Volumes, Timings
23: Mangum Street 5/12/2015

Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 38.9	Intersection LOS: D
Intersection Capacity Utilization 54.8%	ICU Level of Service A
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Mangum Street



Lanes and Geometrics
23: Mangum Street 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor												
Frt		0.986										0.850
Flt Protected				0.950							0.997	
Satd. Flow (prot)	0	1801	0	1736	1827	0	0	0	0	0	3426	1537
Flt Permitted				0.950							0.997	
Satd. Flow (perm)	0	1801	0	1736	1827	0	0	0	0	0	3426	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		9										97
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	

Intersection Summary	
Area Type:	Other

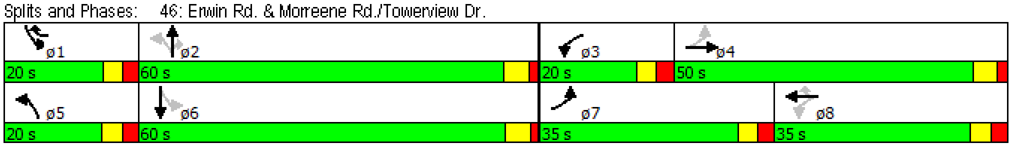
Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2040 No-Build AM Peak Synchro 8 Report
URS - M/A/B Page 3

Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	99	76	138	255	122	67	275	34	99	698	183
Satd. Flow (prot)	1661	1691	0	1661	1748	1486	1661	3207	1435	1718	3219	0
Flt Permitted	0.277			0.398			0.202			0.523		
Satd. Flow (perm)	484	1691	0	696	1748	1486	353	3207	1435	946	3219	0
Satd. Flow (RTOR)		27							139		25	
Lane Group Flow (vph)	117	194	0	153	283	136	74	306	38	110	979	0
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	35.0	50.0		20.0	35.0	20.0	20.0	60.0	60.0	20.0	60.0	
Total Lost Time (s)	3.4	3.4		3.6	3.7	3.3	3.4	3.4	3.4	3.3	3.3	
Act Effct Green (s)	35.7	23.8		37.6	24.6	38.2	66.3	57.0	57.0	68.0	60.2	
Actuated g/C Ratio	0.30	0.20		0.32	0.21	0.33	0.57	0.49	0.49	0.58	0.51	
v/c Ratio	0.44	0.53		0.47	0.77	0.28	0.24	0.20	0.05	0.18	0.59	
Control Delay	32.0	41.6		32.3	58.7	30.9	13.8	19.0	0.1	12.4	23.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.0	41.6		32.3	58.7	30.9	13.8	19.0	0.1	12.4	23.3	
LOS	C	D		C	E	C	B	B	A	B	C	
Approach Delay		38.0			45.0			16.3			22.2	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	61	112		82	201	76	22	66	0	34	268	
Queue Length 95th (ft)	108	198		138	317	132	52	115	0	72	402	
Internal Link Dist (ft)		886			910			926			1131	
Turn Bay Length (ft)	600			110		110	600			600		
Base Capacity (vph)	487	692		370	469	572	397	1558	768	677	1666	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.28		0.41	0.60	0.24	0.19	0.20	0.05	0.16	0.59	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 117.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 63.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 46: Erwin Rd. & Morreene Rd./Towerview Dr.



Lanes and Geometrics
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/12/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	9	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	600		40	110		110	600		0	600		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.935				0.850			0.850		0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1661	1691	0	1661	1748	1486	1661	3207	1435	1718	3219	0
Flt Permitted	0.277			0.398			0.202			0.523		
Satd. Flow (perm)	484	1691	0	696	1748	1486	353	3207	1435	946	3219	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		27							139		25	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	

Intersection Summary	
Area Type:	Other

Triangle Transit - Erwin/University 10/22/2013 2011 Existing- PM Peak Synchro 8 Report
URS Page 2

Lanes, Volumes, Timings
1635: University & MLK 3/5/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	222	545	300	99	259	170	460	501	110	277	560	178
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Grade (%)		-2%			0%			3%			1%	
Storage Length (ft)	175		0	200		225	300		150	200		175
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			321			182			184			190
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		837			1008			1143			959	
Travel Time (s)		14.3			17.2			22.3			18.7	
Lane Group Flow (vph)	238	583	321	106	277	182	492	536	118	296	599	190
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Total Split (s)	20.0	36.0	36.0	17.0	33.0	33.0	19.0	35.0	35.0	17.0	33.0	33.0
Total Lost Time (s)	3.3	2.5	2.5	3.3	2.5	2.5	2.9	2.3	2.3	2.9	2.3	2.3
Act Effct Green (s)	16.5	25.0	25.0	12.7	21.2	21.2	21.2	40.0	40.0	16.2	35.0	35.0
Actuated g/C Ratio	0.16	0.24	0.24	0.12	0.20	0.20	0.20	0.38	0.38	0.15	0.33	0.33
v/c Ratio	0.80	0.65	0.50	0.47	0.37	0.38	0.69	0.38	0.16	0.53	0.48	0.28
Control Delay	67.0	39.3	6.2	50.1	36.5	7.1	44.8	21.7	2.9	43.7	31.6	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.0	39.3	6.2	50.1	36.5	7.1	44.8	21.7	2.9	43.7	31.6	8.3
LOS	E	D	A	D	D	A	D	C	A	D	C	A
Approach Delay		35.8			29.6			29.7			30.8	
Approach LOS		D			C			C			C	
Stops (vph)	215	507	32	96	228	22	455	343	17	271	445	61
Fuel Used(gal)	7	13	3	3	6	2	12	9	1	7	11	2
CO Emissions (g/hr)	469	906	178	192	433	121	836	655	82	470	793	147
NOx Emissions (g/hr)	91	176	35	37	84	23	163	127	16	91	154	29
VOC Emissions (g/hr)	109	210	41	45	100	28	194	152	19	109	184	34
Dilemma Vehicles (#)	0	28	0	0	13	0	0	25	0	0	34	0
Queue Length 50th (ft)	156	187	0	67	84	0	163	125	0	99	161	3
Queue Length 95th (ft)	#333	261	98	136	129	70	#280	209	27	158	266	77
Internal Link Dist (ft)		757			928			1063			879	
Turn Bay Length (ft)	175			200		225	300		150	200		175
Base Capacity (vph)	299	1200	755	243	1082	613	718	1398	739	561	1236	679
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.49	0.43	0.44	0.26	0.30	0.69	0.38	0.16	0.53	0.48	0.28

Baseline Synchro 8 Report
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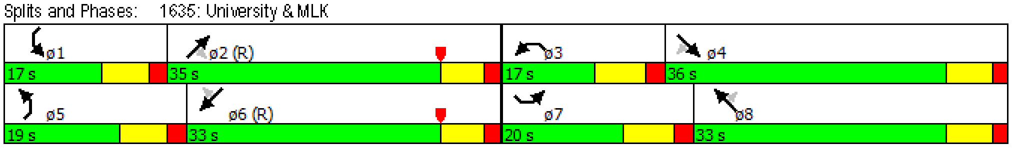
Lanes, Volumes, Timings
1635: University & MLK 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 105	
Actuated Cycle Length: 105	
Offset: 63 (60%), Referenced to phase 2:NET and 6:SWT, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 60	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1635: University & MLK



Lanes and Geometrics
1635: University & MLK 3/5/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-2%			0%			3%			1%	
Storage Length (ft)	175		0	200		225	300		150	200		175
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	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)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1881	3763	1683	1863	3725	1667	3560	3670	1642	3596	3707	1658
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			321			182			184			190
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		837			1008			1143			959	
Travel Time (s)		14.3			17.2			22.3			18.7	

Intersection Summary

Area Type: Other

Baseline

Synchro 8 Report
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Lanes, Volumes, Timings
9256: University & Westgate 3/5/2015

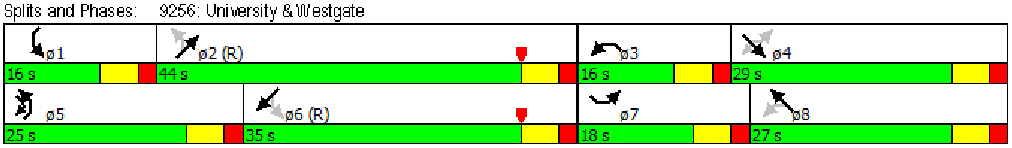
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Volume (vph)	139	88	251	60	79	73	222	440	54	41	293	59
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Grade (%)		0%			1%			0%			-4%	
Storage Length (ft)	100		0	0		50	375		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.928			0.984			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1863	1961	1667	1853	1811	0	1863	3666	0	1900	3705	0
Flt Permitted	0.477			0.547			0.455			0.446		
Satd. Flow (perm)	935	1961	1667	1067	1811	0	892	3666	0	892	3705	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			269		41			15			23	
Link Speed (mph)		35			30			35			35	
Link Distance (ft)		847			406			959			1593	
Travel Time (s)		16.5			9.2			18.7			31.0	
Lane Group Flow (vph)	149	94	269	64	163	0	238	529	0	44	377	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Total Split (s)	18.0	29.0	25.0	16.0	27.0		25.0	44.0		16.0	35.0	
Total Lost Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Act Effct Green (s)	31.0	21.2	33.6	30.8	18.6		66.0	58.2		60.6	49.6	
Actuated g/C Ratio	0.30	0.20	0.32	0.29	0.18		0.63	0.55		0.58	0.47	
v/c Ratio	0.37	0.24	0.38	0.15	0.46		0.34	0.26		0.07	0.21	
Control Delay	28.9	36.1	4.0	24.3	33.1		11.9	13.4		13.5	21.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	36.1	4.0	24.3	33.1		11.9	13.4		13.5	21.0	
LOS	C	D	A	C	C		B	B		B	C	
Approach Delay		17.2			30.6			12.9			20.2	
Approach LOS		B			C			B			C	
Stops (vph)	106	75	22	43	107		92	180		23	214	
Fuel Used(gal)	3	2	2	1	2		3	6		1	8	
CO Emissions (g/hr)	181	128	142	53	154		204	451		56	528	
NOx Emissions (g/hr)	35	25	28	10	30		40	88		11	103	
VOC Emissions (g/hr)	42	30	33	12	36		47	105		13	122	
Dilemma Vehicles (#)	0	4	0	0	0		0	19		0	21	
Queue Length 50th (ft)	72	53	0	30	74		55	66		8	59	
Queue Length 95th (ft)	130	108	66	63	155		m98	m104		58	202	
Internal Link Dist (ft)		767			326			879			1513	
Turn Bay Length (ft)	100						375			100		
Base Capacity (vph)	424	504	830	461	462		773	2040		673	1762	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.19	0.32	0.14	0.35		0.31	0.26		0.07	0.21	

Baseline Synchro 8 Report
Page 1

Lanes, Volumes, Timings
9256: University & Westgate 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 105	
Actuated Cycle Length: 105	
Offset: 82 (78%), Referenced to phase 2:NETL and 6:SWTL, Start of Yellow	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 60	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 9256: University & Westgate



Baseline Synchro 8 Report
Page 2

Lanes and Geometrics
9256: University & Westgate 3/5/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			1%			0%			-4%	
Storage Length (ft)	100		0	0		50	375		0	100		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.850		0.928			0.984			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1863	1961	1667	1853	1811	0	1863	3666	0	1900	3705	0
Flt Permitted	0.477			0.547			0.455			0.446		
Satd. Flow (perm)	935	1961	1667	1067	1811	0	892	3666	0	892	3705	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			269		41			15			23	
Link Speed (mph)		35			30			35			35	
Link Distance (ft)		847			406			959			1593	
Travel Time (s)		16.5			9.2			18.7			31.0	

Intersection Summary

Area Type: Other

Baseline Synchro 8 Report
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2040 No-Build AM

1. Mangum Street and Main Street
2. Morreene Road/Towerview Road and Erwin Road
3. University Drive and Martin Luther King Jr. Parkway
4. University Drive and Westgate Drive
5. Falconbridge Road and NC 54

Lanes, Volumes, Timings
23: Mangum Street 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	202	7	84	240	0	0	0	0	173	1099	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.995										0.850
Flt Protected				0.950							0.993	
Satd. Flow (prot)	0	1818	0	1736	1827	0	0	0	0	0	3412	1537
Flt Permitted				0.950							0.993	
Satd. Flow (perm)	0	1818	0	1736	1827	0	0	0	0	0	3412	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		2										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	
Lane Group Flow (vph)	0	232	0	93	267	0	0	0	0	0	1413	8
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		4		3	8						2	
Permitted Phases										2		2
Total Split (s)		24.0		14.0	38.0					52.0	52.0	52.0
Total Lost Time (s)		5.0		5.0	5.0						5.0	5.0
Act Effct Green (s)		19.0		9.0	33.0						47.0	47.0
Actuated g/C Ratio		0.21		0.10	0.37						0.52	0.52
v/c Ratio		0.60		0.54	0.40						0.79	0.01
Control Delay		45.3		50.3	23.8						15.8	0.0
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		45.3		50.3	23.8						15.9	0.0
LOS		D		D	C						B	A
Approach Delay		45.3			30.7						15.8	
Approach LOS		D			C						B	
Queue Length 50th (ft)		97		52	130						185	0
Queue Length 95th (ft)		171		m88	m189						215	m0
Internal Link Dist (ft)		318			194			229			321	
Turn Bay Length (ft)				120								250
Base Capacity (vph)		385		173	669						1781	866
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						13	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.60		0.54	0.40						0.80	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 36 (40%), Referenced to phase 2:SWTL, Start of Yellow
Control Type: Pretimed

Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2040 No-Build AM Peak Synchro 8 Report
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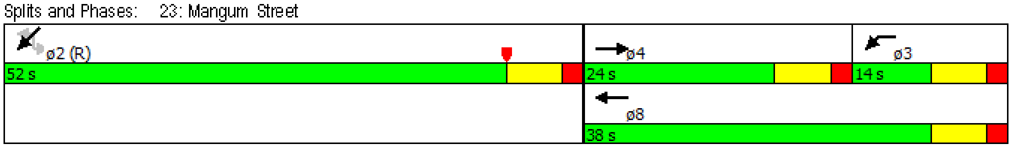
Lanes, Volumes, Timings
23: Mangum Street 5/4/2015

Maximum v/c Ratio: 0.79
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Mangum Street



Lanes and Geometrics
23: Mangum Street 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor												
Frt		0.995										0.850
Flt Protected				0.950							0.993	
Satd. Flow (prot)	0	1818	0	1736	1827	0	0	0	0	0	3412	1537
Flt Permitted				0.950							0.993	
Satd. Flow (perm)	0	1818	0	1736	1827	0	0	0	0	0	3412	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		2										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	

Intersection Summary	
Area Type:	Other

Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2040 No-Build AM Peak
URS - M/A/B

Synchro 8 Report
Page 3

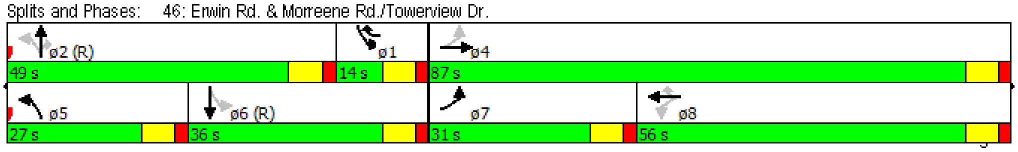
Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	338	728	148	14	165	21	220	801	174	49	233	218
Satd. Flow (prot)	1661	1763	0	1661	1748	1486	1661	3207	1435	1718	3083	0
Flt Permitted	0.519			0.076			0.165			0.246		
Satd. Flow (perm)	907	1763	0	133	1748	1486	288	3207	1435	445	3083	0
Satd. Flow (RTOR)		11							154		144	
Lane Group Flow (vph)	376	973	0	16	183	23	244	890	193	54	501	0
Turn Type	pm+pt	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4			8	1	5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	31.0	87.0		56.0	56.0	14.0	27.0	49.0	49.0	14.0	36.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	82.0	82.0		52.6	52.6	61.6	46.8	46.8	46.8	31.8	31.8	
Actuated g/C Ratio	0.55	0.55		0.35	0.35	0.41	0.31	0.31	0.31	0.21	0.21	
v/c Ratio	0.61	1.01		0.35	0.30	0.04	0.86	0.89	0.35	0.32	0.65	
Control Delay	24.7	63.6		61.9	37.5	14.5	55.4	52.8	11.1	45.1	27.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	24.7	63.6		61.9	37.5	14.5	55.4	52.8	11.1	45.1	27.3	
LOS	C	E		E	D	B	E	D	B	D	C	
Approach Delay		52.8			36.9			47.2			29.0	
Approach LOS		D			D			D			C	
Queue Length 50th (ft)	209	~934		12	132	8	186	440	23	24	52	
Queue Length 95th (ft)	290	#1251		41	200	19	m206	m#479	m25	60	136	
Internal Link Dist (ft)		886			910			926			1131	
Turn Bay Length (ft)	600			110		110	600			600		
Base Capacity (vph)	626	968		46	613	610	290	1000	553	170	767	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.60	1.01		0.35	0.30	0.04	0.84	0.89	0.35	0.32	0.65	

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 45 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 45.8 Intersection LOS: D
Intersection Capacity Utilization 97.8% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 46: Erwin Rd. & Morreene Rd./Towerview Dr.



Lanes and Geometrics
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	9	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	600		40	110		110	600		0	600		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.975				0.850			0.850		0.928	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1661	1763	0	1661	1748	1486	1661	3207	1435	1718	3083	0
Flt Permitted	0.519			0.076			0.165			0.246		
Satd. Flow (perm)	907	1763	0	133	1748	1486	288	3207	1435	445	3083	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		11							154		144	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	

Intersection Summary

Area Type: Other

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

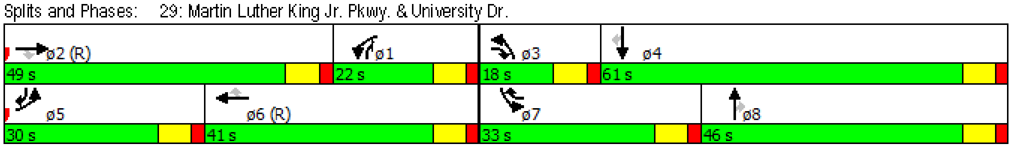
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	594	712	107	289	429	107	67	558	177	349	663	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	0		120	105		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			131			80			182			159
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	
Lane Group Flow (vph)	660	791	119	321	477	119	74	620	197	388	737	492
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Total Split (s)	30.0	49.0	18.0	22.0	41.0	33.0	18.0	46.0	22.0	33.0	61.0	30.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	30.7	49.7	61.7	17.0	36.0	69.0	12.0	35.3	52.3	28.0	51.3	87.0
Actuated g/C Ratio	0.20	0.33	0.41	0.11	0.24	0.46	0.08	0.24	0.35	0.19	0.34	0.58
v/c Ratio	0.97	0.70	0.17	0.85	0.58	0.16	0.55	0.76	0.31	1.19	0.62	0.50
Control Delay	72.0	45.8	9.9	77.3	45.6	7.8	81.9	59.5	3.9	161.5	43.3	14.2
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	72.0	45.8	9.9	77.3	45.6	7.8	81.9	59.5	3.9	161.5	43.3	14.2
LOS	E	D	A	E	D	A	F	E	A	F	D	B
Approach Delay		54.1			51.8			49.1			62.8	
Approach LOS		D			D			D			E	
Stops (vph)	501	685	36	273	365	36	64	505	19	286	538	178
Fuel Used(gal)	14	14	1	8	8	1	2	15	2	19	21	8
CO Emissions (g/hr)	1004	983	58	532	575	57	148	1036	115	1361	1464	559
NOx Emissions (g/hr)	195	191	11	104	112	11	29	202	22	265	285	109
VOC Emissions (g/hr)	233	228	13	123	133	13	34	240	27	315	339	130
Dilemma Vehicles (#)	0	5	0	0	10	0	0	19	0	0	22	0
Queue Length 50th (ft)	345	415	29	164	212	21	70	301	6	~455	321	186
Queue Length 95th (ft)	#539	495	m75	#241	271	66	127	353	35	#666	366	281
Internal Link Dist (ft)		361			405			980			1136	
Turn Bay Length (ft)			120	105		115	165		220	180		
Base Capacity (vph)	678	1132	715	379	828	753	145	948	642	327	1308	975
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.70	0.17	0.85	0.58	0.16	0.51	0.65	0.31	1.19	0.56	0.50

Triangle Transit - South Square 12/1/2014 2040 No-Build - AM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 2 (1%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 55.6	Intersection LOS: E
Intersection Capacity Utilization 80.2%	ICU Level of Service D
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 29: Martin Luther King Jr. Pkwy. & University Dr.



Triangle Transit - South Square 12/1/2014 2040 No-Build - AM Peak Synchro 8 Report
URS Page 2

Lanes and Geometrics
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	0		120	105		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	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)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			131			80			182			159
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	

Intersection Summary

Area Type: Other

Triangle Transit - South Square 12/1/2014 2040 No-Build - AM Peak Synchro 8 Report
URS Page 3

Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	262	747	1	8	358	324	4	27	28	269	20	304
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	11	12	12
Grade (%)		0%			-4%			1%			0%	
Storage Length (ft)	0		0	125		0	0		50	425		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.929			0.924				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3471	0	1770	3289	0	1727	1680	0	1678	1827	1553
Flt Permitted	0.950			0.339			0.743			0.950		
Satd. Flow (perm)	1736	3471	0	632	3289	0	1351	1680	0	1678	1827	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					149			30				153
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	
Lane Group Flow (vph)	291	831	0	9	758	0	4	61	0	299	22	338
Turn Type	Prot	NA		Perm	NA		Perm	NA		Prot	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases				6			8					4
Total Split (s)	35.0	80.0		45.0	45.0		33.0	33.0		37.0	70.0	35.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	29.4	90.5		56.1	56.1		16.8	16.8		30.5	49.5	83.9
Actuated g/C Ratio	0.20	0.60		0.37	0.37		0.11	0.11		0.20	0.33	0.56
v/c Ratio	0.86	0.40		0.04	0.57		0.03	0.28		0.88	0.04	0.36
Control Delay	70.1	32.3		63.1	46.0		52.5	34.7		83.8	27.9	8.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	70.1	32.3		63.1	46.0		52.5	34.7		83.8	27.9	8.9
LOS	E	C		E	D		D	C		F	C	A
Approach Delay		42.1			46.2			35.8			43.5	
Approach LOS		D			D			D			D	
Stops (vph)	238	497		5	428		5	26		248	13	80
Fuel Used(gal)	6	11		0	11		0	1		8	0	3
CO Emissions (g/hr)	449	785		11	786		7	53		583	25	230
NOx Emissions (g/hr)	87	153		2	153		1	10		114	5	45
VOC Emissions (g/hr)	104	182		3	182		2	12		135	6	53
Dilemma Vehicles (#)	0	64		0	32		0	2		0	1	0
Queue Length 50th (ft)	240	232		5	195		4	29		283	15	88
Queue Length 95th (ft)	m354	m447		27	406		15	70		#436	31	112
Internal Link Dist (ft)		396			255			360			895	
Turn Bay Length (ft)				125						425		
Base Capacity (vph)	354	2094		236	1324		252	338		357	791	947
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.82	0.40		0.04	0.57		0.02	0.18		0.84	0.03	0.36

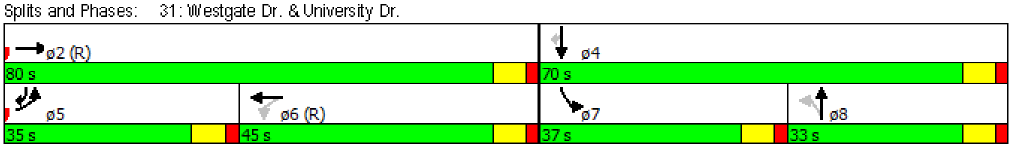
Triangle Transit - South Square 12/1/2014 2040 No-Build - AM Peak
URS

Synchro 8 Report
Page 1

Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 98 (65%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 43.5	Intersection LOS: D
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 31: Westgate Dr. & University Dr.



Lanes and Geometrics
31: Westgate Dr. & University Dr. 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	11	12	12
Grade (%)		0%			-4%			1%			0%	
Storage Length (ft)	0		0	125		0	0		50	425		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.929			0.924				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3471	0	1770	3289	0	1727	1680	0	1678	1827	1553
Flt Permitted	0.950			0.339			0.743			0.950		
Satd. Flow (perm)	1736	3471	0	632	3289	0	1351	1680	0	1678	1827	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					149			30				153
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	

Intersection Summary

Area Type: Other

Lanes, Volumes, Timings
1700: Falconbridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	335	3359	72	131	3480	607	501	87	875	507	11	290
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			137			115			152
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			576			811	
Travel Time (s)		27.1			24.8			13.1			18.4	
Lane Group Flow (vph)	372	3732	80	146	3867	674	557	97	972	563	12	322
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases			6			2			8			4
Total Split (s)	22.0	107.0	36.0	21.0	106.0	27.0	36.0	25.0	25.0	27.0	16.0	16.0
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
Act Effct Green (s)	15.0	100.0	136.0	14.0	99.0	126.0	29.0	18.0	18.0	20.0	9.0	9.0
Actuated g/C Ratio	0.08	0.56	0.76	0.08	0.55	0.70	0.16	0.10	0.10	0.11	0.05	0.05
v/c Ratio	2.68	1.39	0.07	1.12	1.46	0.62	2.06	0.55	3.84	1.56	0.14	1.47
Control Delay	800.0	212.7	1.7	185.3	241.0	13.7	523.7	89.7	1302.9	311.7	85.5	259.9
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	800.0	212.7	1.7	185.3	241.0	13.7	523.7	89.7	1302.9	311.7	85.5	259.9
LOS	F	F	A	F	F	B	F	F	F	F	F	F
Approach Delay		260.8			206.6			963.6			290.1	
Approach LOS		F			F			F			F	
Stops (vph)	190	2477	5	108	2486	256	300	83	416	353	12	80
Fuel Used (gal)	59	190	1	7	214	8	57	2	238	37	0	18
CO Emissions (g/hr)	4105	13304	50	465	14964	578	4007	170	16659	2609	23	1232
NOx Emissions (g/hr)	799	2588	10	90	2911	112	780	33	3241	508	4	240
VOC Emissions (g/hr)	951	3083	12	108	3468	134	929	40	3861	605	5	285
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	~739	~2143	4	~198	~2276	315	~1032	111	~1957	~481	14	~341
Queue Length 95th (ft)	#961	#2171	18	#359	#2299	434	#1279	180	#2227	#609	39	#557
Internal Link Dist (ft)		1112			1011			496			731	
Turn Bay Length (ft)	250		150	150		250						
Base Capacity (vph)	139	2676	1149	130	2649	1091	270	176	253	361	88	219
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.68	1.39	0.07	1.12	1.46	0.62	2.06	0.55	3.84	1.56	0.14	1.47

Intersection Summary

No Build Conditions 4:45 pm 10/1/2014 AM Peak Hour Synchro 8 Report
STV Page 1

Lanes, Volumes, Timings
1700: Falconbridge Rd & NC 54 3/5/2015

Area Type: Other	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.84	
Intersection Signal Delay: 341.1	Intersection LOS: F
Intersection Capacity Utilization 158.5%	ICU Level of Service H
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1700: Falconbridge Rd & NC 54

Lanes and Geometrics
1700: Falconbridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	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)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			137			115			152
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			576			811	
Travel Time (s)		27.1			24.8			13.1			18.4	

Intersection Summary

Area Type: Other

No Build Conditions 4:45 pm 10/1/2014 AM Peak Hour Synchro 8 Report
STV Page 3

2040 No-Build PM

1. Mangum Street and Main Street
2. Morreene Road/Towerview Road and Erwin Road
3. University Drive and Martin Luther King Jr. Parkway
4. University Drive and Westgate Drive
5. Falconbridge Road and NC 54

Lanes, Volumes, Timings
23: Mangum Street 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	272	24	281	235	0	0	0	0	92	985	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.989										0.850
Flt Protected				0.950							0.996	
Satd. Flow (prot)	0	1807	0	1736	1827	0	0	0	0	0	3423	1537
Flt Permitted				0.322							0.996	
Satd. Flow (perm)	0	1807	0	588	1827	0	0	0	0	0	3423	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		5										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	
Lane Group Flow (vph)	0	329	0	312	261	0	0	0	0	0	1196	16
Turn Type		NA		pm+pt	NA					Split	NA	Perm
Protected Phases		4		3	8					2	2	
Permitted Phases				8								2
Total Split (s)		25.0		17.0	42.0					48.0	48.0	48.0
Total Lost Time (s)		5.0		5.0	5.0						5.0	5.0
Act Effct Green (s)		20.0		37.0	37.0						43.0	43.0
Actuated g/C Ratio		0.22		0.41	0.41						0.48	0.48
v/c Ratio		0.81		0.79	0.35						0.73	0.02
Control Delay		37.1		44.8	19.9						22.2	0.1
Queue Delay		0.0		0.0	0.0						1.1	0.0
Total Delay		37.1		44.8	19.9						23.3	0.1
LOS		D		D	B						C	A
Approach Delay		37.1			33.4						23.0	
Approach LOS		D			C						C	
Queue Length 50th (ft)		66		124	99						275	0
Queue Length 95th (ft)		#293		#234	160						355	0
Internal Link Dist (ft)		318			194			229			321	
Turn Bay Length (ft)				120								250
Base Capacity (vph)		405		394	751						1635	803
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						217	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.81		0.79	0.35						0.84	0.02

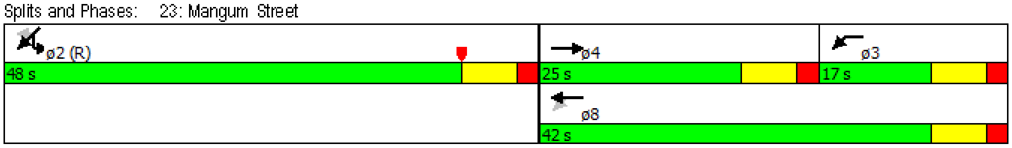
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 28 (31%), Referenced to phase 2:SWTL, Start of Yellow
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
23: Mangum Street 5/4/2015

Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 28.0	Intersection LOS: C
Intersection Capacity Utilization 73.7%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 23: Mangum Street



Lanes and Geometrics
23: Mangum Street 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor												
Frt		0.989										0.850
Flt Protected				0.950							0.996	
Satd. Flow (prot)	0	1807	0	1736	1827	0	0	0	0	0	3423	1537
Flt Permitted				0.322							0.996	
Satd. Flow (perm)	0	1807	0	588	1827	0	0	0	0	0	3423	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		5										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	

Intersection Summary	
Area Type:	Other

Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2035 No-Build PM Peak Synchro 8 Report
URS - M/A/B Page 3

Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	220	203	182	179	526	139	144	326	40	101	829	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	10	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	600		40	110		110	600		0	600		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1661	1680	0	1661	1748	1486	1661	3207	1435	1718	3176	0
Flt Permitted	0.133			0.133			0.067			0.484		
Satd. Flow (perm)	233	1680	0	233	1748	1486	117	3207	1435	875	3176	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		30							182		50	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	
Lane Group Flow (vph)	244	428	0	199	584	154	160	362	44	112	1304	0
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	19.0	49.0		22.0	52.0	14.0	15.0	65.0	65.0	14.0	64.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	44.1	44.1		47.0	47.0	61.0	70.0	60.0	60.0	68.0	59.0	
Actuated g/C Ratio	0.29	0.29		0.31	0.31	0.41	0.47	0.40	0.40	0.45	0.39	
v/c Ratio	1.21	0.83		0.85	1.07	0.25	1.02	0.28	0.06	0.25	1.02	
Control Delay	183.5	60.9		72.0	106.1	30.9	116.6	18.6	0.1	9.6	51.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	183.5	60.9		72.0	106.1	30.9	116.6	18.6	0.1	9.6	51.4	
LOS	F	E		E	F	C	F	B	A	A	D	
Approach Delay		105.4			86.5			44.9			48.1	
Approach LOS		F			F			D			D	
Queue Length 50th (ft)	~243	369		152	~629	99	~119	89	0	32	~695	
Queue Length 95th (ft)	#426	#645		#287	#866	156	m#244	128	m0	m31	#818	
Internal Link Dist (ft)		886			910			926			1131	
Turn Bay Length (ft)	600			110		110	600			600		
Base Capacity (vph)	201	515		234	547	604	157	1282	683	447	1279	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.21	0.83		0.85	1.07	0.25	1.02	0.28	0.06	0.25	1.02	

Intersection Summary

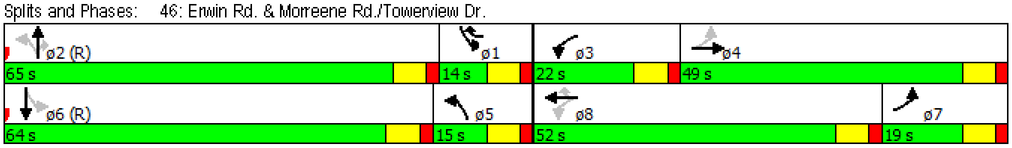
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 69 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 68.3 Intersection LOS: E

Triangle Transit - Erwin/University 10/22/2013 2040 No-Build - PM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/4/2015

Intersection Capacity Utilization 98.5% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 46: Erwin Rd. & Morreene Rd./Towerview Dr.



Lanes and Geometrics
46: Erwin Rd. & Morreene Rd./Towerview Dr. 5/4/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	10	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	600		40	110		110	600		0	600		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.929				0.850			0.850		0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1661	1680	0	1661	1748	1486	1661	3207	1435	1718	3176	0
Flt Permitted	0.133			0.133			0.067			0.484		
Satd. Flow (perm)	233	1680	0	233	1748	1486	117	3207	1435	875	3176	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		30							182		50	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	

Intersection Summary

Area Type: Other

Triangle Transit - Erwin/University 10/22/2013 2040 No-Build - PM Peak Synchro 8 Report
URS Page 3

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

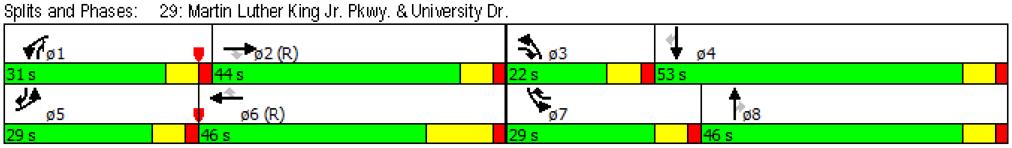
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	620	699	175	512	754	276	128	388	263	302	852	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	0		120	105		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			88			116			116
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	
Lane Group Flow (vph)	689	777	194	569	838	307	142	431	292	336	947	379
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Total Split (s)	29.0	44.0	22.0	31.0	46.0	29.0	22.0	46.0	31.0	29.0	53.0	29.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	26.5	40.2	61.6	27.3	36.0	70.0	16.4	38.5	70.8	24.0	46.1	77.6
Actuated g/C Ratio	0.18	0.27	0.41	0.18	0.24	0.47	0.11	0.26	0.47	0.16	0.31	0.52
v/c Ratio	1.18	0.85	0.29	0.93	1.01	0.40	0.78	0.48	0.38	1.20	0.88	0.44
Control Delay	140.8	63.3	16.8	88.0	78.7	11.4	91.8	48.9	16.0	170.8	59.6	16.9
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	140.8	63.3	16.8	88.0	78.7	11.4	91.8	48.9	16.0	170.8	59.6	16.9
LOS	F	E	B	F	E	B	F	D	B	F	E	B
Approach Delay		90.0			69.7			44.8			72.3	
Approach LOS		F			E			D			E	
Stops (vph)	483	668	91	451	681	102	118	321	99	245	788	148
Fuel Used(gal)	23	16	2	14	20	2	4	9	4	17	32	7
CO Emissions (g/hr)	1635	1136	129	1004	1387	166	298	646	253	1215	2204	458
NOx Emissions (g/hr)	318	221	25	195	270	32	58	126	49	236	429	89
VOC Emissions (g/hr)	379	263	30	233	321	38	69	150	59	282	511	106
Dilemma Vehicles (#)	0	25	0	0	13	0	0	13	0	0	28	0
Queue Length 50th (ft)	~448	408	87	278	~458	91	137	185	103	~397	455	155
Queue Length 95th (ft)	#567	#500	150	m#313	m#471	m128	#241	239	176	#600	544	239
Internal Link Dist (ft)		361			405			980			1136	
Turn Bay Length (ft)			120	105		115	165		220	180		
Base Capacity (vph)	586	915	680	610	828	767	190	948	769	280	1121	867
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.85	0.29	0.93	1.01	0.40	0.75	0.45	0.38	1.20	0.84	0.44

Triangle Transit - South Square 12/1/2014 2040 No-Build - PM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 125 (83%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 72.5	Intersection LOS: E
Intersection Capacity Utilization 90.0%	ICU Level of Service E
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 29: Martin Luther King Jr. Pkwy. & University Dr.



Lanes and Geometrics

29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	0		120	105		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	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)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			88			116			116
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	

Intersection Summary

Area Type: Other

Triangle Transit - South Square 12/1/2014 2040 No-Build - PM Peak
URS

Synchro 8 Report
Page 3

Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/5/2015

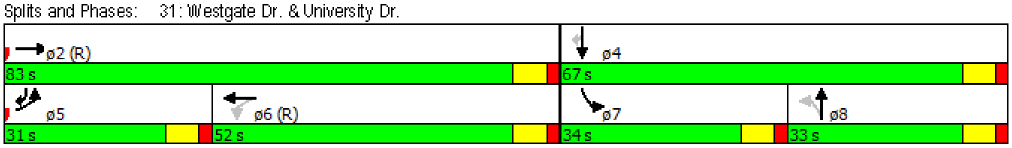
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	476	473	16	44	670	519	15	53	26	516	73	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	12	12
Grade (%)		0%			-4%			1%			0%	
Storage Length (ft)	0		0	125		0	0		50	425		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.934			0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3454	0	1770	3307	0	1727	1729	0	1678	1827	1553
Flt Permitted	0.950			0.449			0.704			0.950		
Satd. Flow (perm)	1736	3454	0	837	3307	0	1280	1729	0	1678	1827	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			136			15				45
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	
Lane Group Flow (vph)	529	544	0	49	1321	0	17	88	0	573	81	544
Turn Type	Prot	NA		Perm	NA		Perm	NA		Prot	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases				6			8					4
Total Split (s)	31.0	83.0		52.0	52.0		33.0	33.0		34.0	67.0	31.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	35.9	87.9		47.0	47.0		18.1	18.1		29.0	52.1	93.0
Actuated g/C Ratio	0.24	0.59		0.31	0.31		0.12	0.12		0.19	0.35	0.62
v/c Ratio	1.27	0.27		0.19	1.17		0.11	0.40		1.77	0.13	0.56
Control Delay	171.2	32.5		41.8	130.7		55.5	53.2		392.2	31.9	17.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	171.2	32.5		41.8	130.7		55.5	53.2		392.2	31.9	17.6
LOS	F	C		D	F		E	D		F	C	B
Approach Delay		100.9			127.5			53.5			197.7	
Approach LOS		F			F			D			F	
Stops (vph)	360	416		40	952		14	58		342	47	256
Fuel Used (gal)	21	8		1	42		0	2		47	1	7
CO Emissions (g/hr)	1463	563		55	2913		23	108		3314	94	498
NOx Emissions (g/hr)	285	110		11	567		4	21		645	18	97
VOC Emissions (g/hr)	339	131		13	675		5	25		768	22	115
Dilemma Vehicles (#)	0	6		0	14		0	3		0	3	0
Queue Length 50th (ft)	~616	234		45	~773		16	69		~833	57	269
Queue Length 95th (ft)	m#894	m285		m69	#917		38	116		#1069	86	375
Internal Link Dist (ft)		396			255			360			895	
Turn Bay Length (ft)				125						425		
Base Capacity (vph)	415	2025		262	1129		238	334		324	755	979
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.27	0.27		0.19	1.17		0.07	0.26		1.77	0.11	0.56

Triangle Transit - South Square 12/1/2014 2040 No-Build - PM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 61 (41%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.77	
Intersection Signal Delay: 140.3	Intersection LOS: F
Intersection Capacity Utilization 109.3%	ICU Level of Service H
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 31: Westgate Dr. & University Dr.



Lanes and Geometrics
31: Westgate Dr. & University Dr. 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	11	12	12
Grade (%)		0%			-4%			1%			0%	
Storage Length (ft)	0		0	125		0	0		50	425		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995			0.934			0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3454	0	1770	3307	0	1727	1729	0	1678	1827	1553
Flt Permitted	0.950			0.449			0.704			0.950		
Satd. Flow (perm)	1736	3454	0	837	3307	0	1280	1729	0	1678	1827	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			136			15				45
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	

Intersection Summary

Area Type: Other

Triangle Transit - South Square 12/1/2014 2040 No-Build - PM Peak Synchro 8 Report
URS Page 3

Lanes, Volumes, Timings
1700: Falconridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	353	3493	412	874	3381	748	73	16	159	498	59	230
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			67			109			152
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			533			846	
Travel Time (s)		27.1			24.8			12.1			19.2	
Lane Group Flow (vph)	392	3881	458	971	3757	831	81	18	177	553	66	256
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	1
Permitted Phases			6			2			8			4
Total Split (s)	35.0	87.0	18.0	55.0	107.0	28.0	18.0	10.0	55.0	28.0	20.0	35.0
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
Act Effct Green (s)	29.6	80.0	91.3	49.6	100.0	130.4	11.3	3.0	55.6	23.4	11.1	40.7
Actuated g/C Ratio	0.16	0.44	0.51	0.28	0.56	0.72	0.06	0.02	0.31	0.13	0.06	0.23
v/c Ratio	1.43	1.81	0.56	2.11	1.40	0.75	0.77	0.62	0.33	1.31	0.61	0.56
Control Delay	260.8	397.6	16.8	534.8	216.7	19.4	123.2	155.9	19.5	210.9	104.7	23.1
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	260.8	397.6	16.8	534.8	216.7	19.4	123.2	155.9	19.5	210.9	104.7	23.1
LOS	F	F	B	F	F	B	F	F	B	F	F	C
Approach Delay		349.4			242.7			58.8			148.0	
Approach LOS		F			F			E			F	
Stops (vph)	252	2201	214	518	2481	428	66	16	48	382	57	93
Fuel Used (gal)	23	327	6	105	192	12	2	1	2	27	2	3
CO Emissions (g/hr)	1637	22885	449	7371	13393	816	175	46	109	1872	137	218
NOx Emissions (g/hr)	318	4452	87	1434	2606	159	34	9	21	364	27	42
VOC Emissions (g/hr)	379	5304	104	1708	3104	189	40	11	25	434	32	50
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	~640	~2517	189	~1828	~2166	541	96	22	57	~457	77	87
Queue Length 95th (ft)	#865	#2538	285	#2094	#2193	738	#198	#72	129	#584	135	171
Internal Link Dist (ft)		1112			1011			453			766	
Turn Bay Length (ft)	250		150	150		250						
Base Capacity (vph)	275	2141	816	461	2676	1105	107	29	538	423	127	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.43	1.81	0.56	2.11	1.40	0.75	0.76	0.62	0.33	1.31	0.52	0.56

Intersection Summary

No Build Conditions 4:45 pm 10/1/2014 PM Peak Hour Synchro 8 Report
STV Page 1

Lanes, Volumes, Timings
1700: Falconridge Rd & NC 54 3/5/2015

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.11
Intersection Signal Delay: 275.2 Intersection LOS: F
Intersection Capacity Utilization 161.5% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1700: Falconridge Rd & NC 54

Lanes and Geometrics
1700: Falconridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	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)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1765	1500	3252	1765	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			67			109			152
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			533			846	
Travel Time (s)		27.1			24.8			12.1			19.2	

Intersection Summary

Area Type: Other

No Build Conditions 4:45 pm 10/1/2014 PM Peak Hour
STV

Synchro 8 Report
Page 3

2040 Build AM

1. Mangum Street and Main Street
2. Morreene Road/Towerview Road and Erwin Road
3. Falconbridge Road and NC 54

Lanes, Volumes, Timings
23: Mangum Street 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	280	9	45	321	0	0	0	0	172	1082	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.996										0.850
Flt Protected				0.950							0.993	
Satd. Flow (prot)	0	1820	0	1736	1827	0	0	0	0	0	3412	1537
Flt Permitted				0.950							0.993	
Satd. Flow (perm)	0	1820	0	1736	1827	0	0	0	0	0	3412	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		2										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	
Lane Group Flow (vph)	0	321	0	50	357	0	0	0	0	0	1393	19
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		4		3	8						2	
Permitted Phases										2		2
Total Split (s)		24.0		14.0	38.0					52.0	52.0	52.0
Total Lost Time (s)		5.0		5.0	5.0						5.0	5.0
Act Effct Green (s)		19.0		9.0	33.0						47.0	47.0
Actuated g/C Ratio		0.21		0.10	0.37						0.52	0.52
v/c Ratio		0.83		0.29	0.53						0.78	0.02
Control Delay		35.6		34.7	27.2						15.1	0.1
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		35.6		34.7	27.2						15.1	0.1
LOS		D		C	C						B	A
Approach Delay		35.6			28.1						14.9	
Approach LOS		D			C						B	
Queue Length 50th (ft)		42		29	185						194	0
Queue Length 95th (ft)		#294		m47	m242						226	m0
Internal Link Dist (ft)		318			194			229			321	
Turn Bay Length (ft)				120								250
Base Capacity (vph)		385		173	669						1781	866
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.83		0.29	0.53						0.78	0.02

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 34 (38%), Referenced to phase 2:SWTL, Start of Yellow

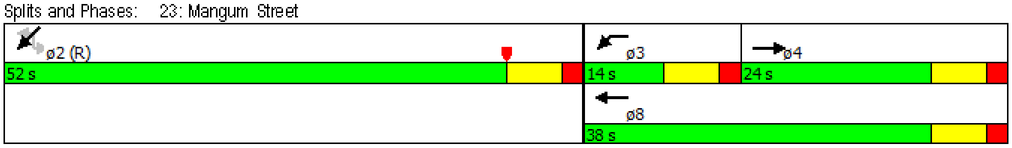
Control Type: Pretimed

Lanes, Volumes, Timings
23: Mangum Street 4/30/2015

Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Mangum Street



Lanes and Geometrics
23: Mangum Street 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor												
Frt		0.996										0.850
Flt Protected				0.950							0.993	
Satd. Flow (prot)	0	1820	0	1736	1827	0	0	0	0	0	3412	1537
Flt Permitted				0.950							0.993	
Satd. Flow (perm)	0	1820	0	1736	1827	0	0	0	0	0	3412	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		2										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	

Intersection Summary	
Area Type:	Other

Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	342	677	155	11	141	18	230	795	160	43	229	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	9	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	250		250	0		200	200		200	150		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1661	1809	1384	1661	1748	1486	1661	3207	1435	1718	3322	1435
Flt Permitted	0.493			0.163			0.950			0.950		
Satd. Flow (perm)	862	1809	1384	285	1748	1486	1661	3207	1435	1718	3322	1435
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			131			131			131			248
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	
Lane Group Flow (vph)	380	752	172	12	157	20	256	883	178	48	254	248
Turn Type	pm+pt	NA	Perm	Perm	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4			8	1	5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Total Split (s)	32.0	78.0	78.0	46.0	46.0	14.0	33.0	58.0	58.0	14.0	39.0	39.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	69.2	69.2	69.2	37.8	37.8	46.8	26.9	59.6	59.6	9.0	38.9	38.9
Actuated g/C Ratio	0.46	0.46	0.46	0.25	0.25	0.31	0.18	0.40	0.40	0.06	0.26	0.26
v/c Ratio	0.71	0.90	0.24	0.17	0.36	0.04	0.86	0.69	0.27	0.47	0.29	0.45
Control Delay	35.8	52.1	7.0	48.8	47.9	0.1	84.6	39.9	8.0	105.9	60.2	24.1
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	35.8	52.1	7.0	48.8	47.9	0.1	84.6	39.9	8.0	105.9	60.2	24.1
LOS	D	D	A	D	D	A	F	D	A	F	E	C
Approach Delay		41.4			42.9			44.2			47.9	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	246	643	21	9	125	0	254	428	55	48	124	89
Queue Length 95th (ft)	336	837	65	30	191	0	m#374	513	m53	m87	m173	m170
Internal Link Dist (ft)		886			910			926			1131	
Turn Bay Length (ft)	250		250			200	200		200	150		300
Base Capacity (vph)	541	880	740	77	477	553	310	1274	649	103	862	556
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.85	0.23	0.16	0.33	0.04	0.83	0.69	0.27	0.47	0.29	0.45

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 83 (55%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

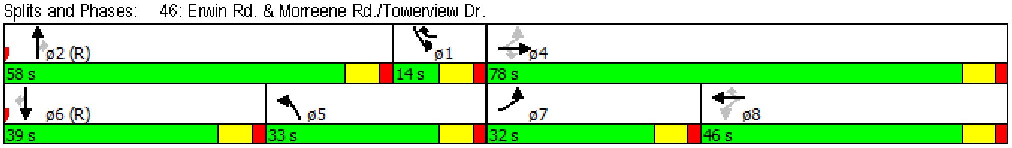
Intersection Signal Delay: 43.7 Intersection LOS: D

Triangle Transit - Erwin/University 11/10/2010 2040 Build - AM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 4/30/2015

Intersection Capacity Utilization 85.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 46: Erwin Rd. & Morreene Rd./Towerview Dr.



Lanes and Geometrics
46: Erwin Rd. & Morreene Rd./Towerview Dr. 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	9	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	250		250	0		200	200		200	150		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	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)	1661	1809	1384	1661	1748	1486	1661	3207	1435	1718	3322	1435
Flt Permitted	0.493			0.163			0.950			0.950		
Satd. Flow (perm)	862	1809	1384	285	1748	1486	1661	3207	1435	1718	3322	1435
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			131			131			131			248
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	

Intersection Summary

Area Type: Other

Lanes, Volumes, Timings
1700: Falconbridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	335	3359	72	131	3480	607	501	87	875	507	11	290
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.864			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1509	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			136		115			115	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			576			811	
Travel Time (s)		27.1			24.8			13.1			18.4	
Lane Group Flow (vph)	372	3732	80	146	3867	674	557	1069	0	563	334	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases			6			2						
Total Split (s)	21.0	106.0	36.0	22.0	107.0	27.0	36.0	25.0		27.0	16.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Act Effct Green (s)	14.0	99.0	135.0	15.0	100.0	127.0	29.0	18.0		20.0	9.0	
Actuated g/C Ratio	0.08	0.55	0.75	0.08	0.56	0.71	0.16	0.10		0.11	0.05	
v/c Ratio	2.86	1.41	0.07	1.05	1.45	0.61	2.06	4.18		1.56	1.82	
Control Delay	882.2	219.0	1.7	164.9	234.4	13.3	523.7	1451.8		311.7	412.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	882.2	219.0	1.7	164.9	234.4	13.3	523.7	1451.8		311.7	412.0	
LOS	F	F	A	F	F	B	F	F		F	F	
Approach Delay		273.8			200.4			1133.8			349.1	
Approach LOS		F			F			F			F	
Stops (vph)	189	2460	5	109	2503	251	300	482		353	93	
Fuel Used (gal)	64	195	1	6	209	8	57	291		37	28	
CO Emissions (g/hr)	4496	13603	50	427	14643	572	4007	20363		2609	1934	
NOx Emissions (g/hr)	875	2647	10	83	2849	111	780	3962		508	376	
VOC Emissions (g/hr)	1042	3153	12	99	3394	133	929	4719		605	448	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0		0	0	
Queue Length 50th (ft)	~750	~2156	4	~186	~2264	309	~1032	~2194		~481	~458	
Queue Length 95th (ft)	#973	#2183	18	#348	#2287	425	#1279	#2466		#609	#674	
Internal Link Dist (ft)		1112			1011			496			731	
Turn Bay Length (ft)	250		150	150		250						
Base Capacity (vph)	130	2649	1141	139	2676	1098	270	256		361	184	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	2.86	1.41	0.07	1.05	1.45	0.61	2.06	4.18		1.56	1.82	

Intersection Summary

Build with Improvements Conditions 4:45 pm 10/1/2014 AM Peak Hour Synchro 8 Report
STV Page 1

Lanes, Volumes, Timings
1700: Falconbridge Rd & NC 54 3/5/2015

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 4.18
Intersection Signal Delay: 372.3 Intersection LOS: F
Intersection Capacity Utilization 191.1% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1700: Falconbridge Rd & NC 54

Build with Improvements Conditions 4:45 pm 10/1/2014 AM Peak Hour Synchro 8 Report
STV Page 2

Lanes and Geometrics
1700: Falconbridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.864			0.855	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1509	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			136		115			115	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			576			811	
Travel Time (s)		27.1			24.8			13.1			18.4	

Intersection Summary

Area Type: Other

2040 Build PM

1. Mangum Street and Main Street
2. Morreene Road/Towerview Road and Erwin Road
3. Falconbridge Road and NC 54

Lanes, Volumes, Timings
23: Mangum Street 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	303	29	298	309	0	0	0	0	84	974	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.988										0.850
Flt Protected				0.950							0.996	
Satd. Flow (prot)	0	1805	0	1736	1827	0	0	0	0	0	3423	1537
Flt Permitted				0.290							0.996	
Satd. Flow (perm)	0	1805	0	530	1827	0	0	0	0	0	3423	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		5										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	
Lane Group Flow (vph)	0	369	0	331	343	0	0	0	0	0	1175	17
Turn Type		NA		pm+pt	NA					Split	NA	Perm
Protected Phases		4		3	8					2	2	
Permitted Phases				8								2
Total Split (s)		27.0		21.0	48.0					42.0	42.0	42.0
Total Lost Time (s)		5.0		5.0	5.0						5.0	5.0
Act Effct Green (s)		22.0		43.0	43.0						37.0	37.0
Actuated g/C Ratio		0.24		0.48	0.48						0.41	0.41
v/c Ratio		0.83		0.71	0.39						0.84	0.02
Control Delay		36.6		34.9	16.8						30.4	0.1
Queue Delay		0.0		0.0	0.0						1.5	0.0
Total Delay		36.6		34.9	16.8						31.8	0.1
LOS		D		C	B						C	A
Approach Delay		36.6			25.7						31.4	
Approach LOS		D			C						C	
Queue Length 50th (ft)		75		116	120						307	0
Queue Length 95th (ft)		#327		#183	187						396	0
Internal Link Dist (ft)		318			194			229			321	
Turn Bay Length (ft)				120								250
Base Capacity (vph)		445		467	872						1407	710
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						97	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.83		0.71	0.39						0.90	0.02

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 2:SWTL, Start of Yellow

Control Type: Actuated-Coordinated

Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2035 No-Build PM Peak Synchro 8 Report
URS - M/A/B Page 1

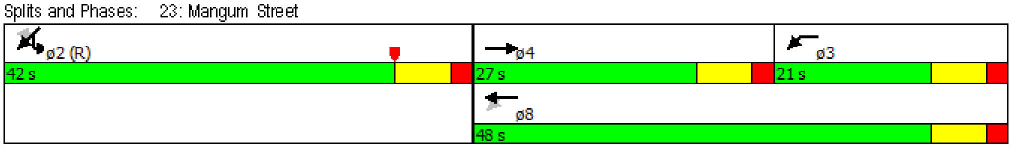
Lanes, Volumes, Timings
23: Mangum Street 4/30/2015

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 30.5	Intersection LOS: C
Intersection Capacity Utilization 76.1%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: Mangum Street



Lanes and Geometrics
23: Mangum Street 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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%			2%			2%	
Storage Length (ft)	0		0	120		0	0		0	0		250
Storage Lanes	0		0	1		0	0		0	0		1
Taper Length (ft)	0			25			0			0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor												
Frt		0.988										0.850
Flt Protected				0.950							0.996	
Satd. Flow (prot)	0	1805	0	1736	1827	0	0	0	0	0	3423	1537
Flt Permitted				0.290							0.996	
Satd. Flow (perm)	0	1805	0	530	1827	0	0	0	0	0	3423	1537
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		5										133
Link Speed (mph)		30			30			25			35	
Link Distance (ft)		398			274			309			401	
Travel Time (s)		9.0			6.2			8.4			7.8	

Intersection Summary

Area Type: Other

Triangle Transit - Durham-Orange Corridor 5:00 pm 12/16/2010 2035 No-Build PM Peak
URS - M/A/B

Synchro 8 Report
Page 3

Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	205	181	178	517	140	142	326	42	103	831	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	9	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	250		250	0		200	200		200	150		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1661	1809	1384	1661	1748	1486	1661	3207	1435	1718	3322	1435
Flt Permitted	0.105			0.524			0.950			0.950		
Satd. Flow (perm)	184	1809	1384	916	1748	1486	1661	3207	1435	1718	3322	1435
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			201			114			131			248
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	
Lane Group Flow (vph)	243	228	201	198	574	156	158	362	47	114	923	379
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Total Split (s)	17.0	59.0	59.0	16.0	58.0	25.0	20.0	50.0	50.0	25.0	55.0	55.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Act Effct Green (s)	66.0	54.0	54.0	64.0	53.0	73.0	15.0	45.0	45.0	20.0	50.0	50.0
Actuated g/C Ratio	0.44	0.36	0.36	0.43	0.35	0.49	0.10	0.30	0.30	0.13	0.33	0.33
v/c Ratio	1.22	0.35	0.32	0.44	0.93	0.20	0.95	0.38	0.09	0.50	0.83	0.59
Control Delay	166.2	37.1	5.4	28.7	69.5	4.5	119.5	27.3	2.2	53.6	21.8	3.8
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	166.2	37.1	5.4	28.7	69.5	4.5	119.5	27.3	2.2	53.6	21.8	3.8
LOS	F	D	A	C	E	A	F	C	A	D	C	A
Approach Delay		74.3			49.9			50.9			19.6	
Approach LOS		E			D			D			B	
Queue Length 50th (ft)	~223	163	0	116	540	15	162	147	5	118	325	36
Queue Length 95th (ft)	#406	239	55	173	#773	43	#311	196	17	m136	m387	m40
Internal Link Dist (ft)		886			910			926			1131	
Turn Bay Length (ft)	250		250			200	200		200	150		300
Base Capacity (vph)	199	651	626	445	617	781	166	962	522	229	1107	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.35	0.32	0.44	0.93	0.20	0.95	0.38	0.09	0.50	0.83	0.59

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 143 (95%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.22

Intersection Signal Delay: 42.6 Intersection LOS: D

Triangle Transit - Erwin/University 11/10/2010 2040 Build - AM Peak Synchro 8 Report
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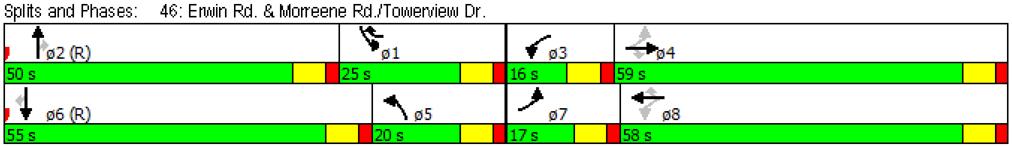
Lanes, Volumes, Timings
46: Erwin Rd. & Morreene Rd./Towerview Dr. 4/30/2015

Intersection Capacity Utilization 86.8%	ICU Level of Service E
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 46: Erwin Rd. & Morreene Rd./Towerview Dr.



Lanes and Geometrics
46: Erwin Rd. & Morreene Rd./Towerview Dr. 4/30/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑↑	↱	↰	↑↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	9	11	11	11	11	10	10	12	11	10
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	250		250	0		200	200		200	150		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	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)	1661	1809	1384	1661	1748	1486	1661	3207	1435	1718	3322	1435
Flt Permitted	0.105			0.524			0.950			0.950		
Satd. Flow (perm)	184	1809	1384	916	1748	1486	1661	3207	1435	1718	3322	1435
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			201			114			131			248
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		966			990			1006			1211	
Travel Time (s)		18.8			27.0			19.6			23.6	

Intersection Summary	
Area Type:	Other

Triangle Transit - Erwin/University 11/10/2010 2040 Build - AM Peak Synchro 8 Report
URS Page 3

Lanes, Volumes, Timings
1700: Falconbridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	353	3493	412	874	3381	748	73	16	159	498	59	230
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.864			0.881	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1555	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1555	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106			164		177			84	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			533			846	
Travel Time (s)		27.1			24.8			12.1			19.2	
Lane Group Flow (vph)	392	3881	458	971	3757	831	81	195	0	553	322	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	1	6	3	5	2	7	3	8		7	4	
Permitted Phases			6			2						
Total Split (s)	55.0	107.0	18.0	35.0	87.0	28.0	18.0	10.0		28.0	20.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Act Effct Green (s)	44.3	100.0	111.0	28.0	83.7	111.7	11.0	3.0		21.0	13.0	
Actuated g/C Ratio	0.25	0.56	0.62	0.16	0.46	0.62	0.06	0.02		0.12	0.07	
v/c Ratio	0.95	1.45	0.47	3.73	1.68	0.84	0.79	0.98		1.46	1.69	
Control Delay	99.5	236.6	9.4	1257.2	338.2	31.1	127.4	70.9		271.0	365.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	99.5	236.6	9.4	1257.2	338.2	31.1	127.4	70.9		271.0	365.0	
LOS	F	F	A	F	F	C	F	E		F	F	
Approach Delay		203.3			452.8			87.5			305.6	
Approach LOS		F			F			F			F	
Stops (vph)	330	2506	165	505	2221	509	66	14		365	123	
Fuel Used (gal)	12	215	6	234	274	14	3	3		33	24	
CO Emissions (g/hr)	857	14999	386	16351	19142	972	179	234		2291	1687	
NOx Emissions (g/hr)	167	2918	75	3181	3724	189	35	46		446	328	
VOC Emissions (g/hr)	199	3476	90	3789	4436	225	41	54		531	391	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0		0	0	
Queue Length 50th (ft)	450	~2277	120	~2056	~2397	663	96	22		~457	~461	
Queue Length 95th (ft)	#637	#2298	189	#2322	#2432	932	#198	#197		#584	#676	
Internal Link Dist (ft)		1112			1011			453			766	
Turn Bay Length (ft)	250		150	150		250						
Base Capacity (vph)	446	2676	965	260	2240	992	102	199		379	190	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.88	1.45	0.47	3.73	1.68	0.84	0.79	0.98		1.46	1.69	

Intersection Summary

Build with Improvements Conditions 4:45 pm 10/1/2014 PM Peak Hour Synchro 8 Report
STV Page 1

Lanes, Volumes, Timings
1700: Falconbridge Rd & NC 54 3/5/2015

Area Type: Other
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.73
Intersection Signal Delay: 329.6 Intersection LOS: F
Intersection Capacity Utilization 171.9% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1700: Falconbridge Rd & NC 54

Lanes and Geometrics
1700: Falconbridge Rd & NC 54 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	250		150	150		250	0		0	0		0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850		0.864			0.881	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1555	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	4818	1500	1676	4818	1500	1676	1525	0	3252	1555	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106			164		177			84	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1192			1091			533			846	
Travel Time (s)		27.1			24.8			12.1			19.2	

Intersection Summary	
Area Type:	Other

Build with Improvements Conditions 4:45 pm 10/1/2014 PM Peak Hour Synchro 8 Report
STV Page 3

2040 Build AM – NHC 1

1. University Drive and Martin Luther King Jr. Parkway
2. University Drive and Westgate Drive

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	582	703	102	284	424	107	65	554	177	350	647	434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	325		120	300		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3333	3436	1537	3333	3436	1537	1661	3436	1486	1718	3436	1537
Flt Permitted	0.950			0.950			0.334			0.144		
Satd. Flow (perm)	3333	3436	1537	3333	3436	1537	584	3436	1486	260	3436	1537
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	647	781	113	316	471	119	72	616	197	389	719	482
Shared Lane Traffic (%)												
Lane Group Flow (vph)	647	781	113	316	471	119	72	616	197	389	719	482
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.06	1.01	1.06	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5

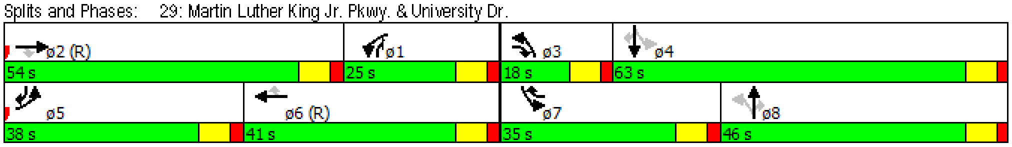
Triangle Transit - South Square 3/6/2015 2040 Build Alternative NHC 1 with 2EBL - AM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0
Minimum Split (s)	18.0	40.0	18.0	18.0	40.0	18.0	18.0	46.0	18.0	18.0	44.0	18.0
Total Split (s)	38.0	54.0	18.0	25.0	41.0	35.0	18.0	46.0	25.0	35.0	63.0	38.0
Total Split (%)	23.8%	33.8%	11.3%	15.6%	25.6%	21.9%	11.3%	28.8%	15.6%	21.9%	39.4%	23.8%
Maximum Green (s)	31.0	47.0	11.0	18.0	34.0	28.0	11.0	39.0	18.0	28.0	56.0	31.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		6.0			6.0			6.0			6.0	
Flash Dont Walk (s)		27.0			27.0			33.0			31.0	
Pedestrian Calls (#/hr)		15			15			15			15	
Act Effct Green (s)	35.0	53.7	64.9	20.0	38.7	73.7	47.6	36.3	56.3	71.3	55.1	95.1
Actuated g/C Ratio	0.22	0.34	0.41	0.12	0.24	0.46	0.30	0.23	0.35	0.45	0.34	0.59
v/c Ratio	0.89	0.68	0.18	0.76	0.57	0.17	0.29	0.79	0.38	1.00	0.61	0.53
Control Delay	62.3	41.1	20.1	93.1	69.4	29.3	29.6	65.9	22.1	88.2	45.8	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	41.1	20.1	93.1	69.4	29.3	29.6	65.9	22.1	88.2	45.8	21.6
LOS	E	D	C	F	E	C	C	E	C	F	D	C
Approach Delay		48.4			72.4			53.2			48.8	
Approach LOS		D			E			D			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 116 (73%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 53.8	Intersection LOS: D
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 29: Martin Luther King Jr. Pkwy. & University Dr.



Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	396	597	0	41	288	324	72	32	33	264	17	299
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	11	12	12
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	200		0	125		0	0		50	425		0
Storage Lanes	1		0	1		1	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.924				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3333	3436	0	1718	3436	1537	1718	1671	0	1661	1809	1537
Flt Permitted	0.950			0.400			0.745			0.588		
Satd. Flow (perm)	3333	3436	0	723	3436	1537	1347	1671	0	1028	1809	1537
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	440	663	0	46	320	360	80	36	37	293	19	332
Shared Lane Traffic (%)												
Lane Group Flow (vph)	440	663	0	46	320	360	80	73	0	293	19	332
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.06	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	

Triangle Transit - South Square 3/6/2015 2040 Build Alternative NHC 1 with 2EBL - AM Peak Synchro 8 Report
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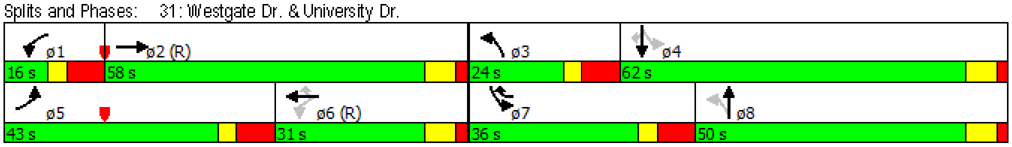
Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	16.0	31.0		16.0	31.0	16.0	16.0	50.0		16.0	45.0	45.0
Total Split (s)	43.0	58.0		16.0	31.0	36.0	24.0	50.0		36.0	62.0	62.0
Total Split (%)	26.9%	36.3%		10.0%	19.4%	22.5%	15.0%	31.3%		22.5%	38.8%	38.8%
Maximum Green (s)	34.0	51.0		7.0	24.0	27.0	15.0	43.0		27.0	55.0	55.0
Yellow Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	5.0
All-Red Time (s)	6.0	2.0		6.0	2.0	6.0	6.0	2.0		6.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	7.0	5.0		7.0	5.0	7.0	7.0	5.0		7.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	None
Walk Time (s)		4.0			4.0			4.0			4.0	4.0
Flash Dont Walk (s)		20.0			20.0			39.0			34.0	34.0
Pedestrian Calls (#/hr)		15			15			15			15	15
Act Effct Green (s)	28.3	67.9		52.5	45.4	77.5	45.2	35.2		67.2	50.2	50.2
Actuated g/C Ratio	0.18	0.42		0.33	0.28	0.48	0.28	0.22		0.42	0.31	0.31
v/c Ratio	0.75	0.45		0.16	0.33	0.48	0.20	0.20		0.54	0.03	0.69
Control Delay	61.6	32.8		23.7	40.5	30.6	28.0	48.7		32.0	29.2	52.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	61.6	32.8		23.7	40.5	30.6	28.0	48.7		32.0	29.2	52.8
LOS	E	C		C	D	C	C	D		C	C	D
Approach Delay		44.3			34.6			37.9			42.7	
Approach LOS		D			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 152 (95%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 40.8 Intersection LOS: D
Intersection Capacity Utilization 57.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 31: Westgate Dr. & University Dr.



Triangle Transit - South Square 3/6/2015 2040 Build Alternative NHC 1 with 2EBL - AM Peak Synchro 8 Report
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2040 Build PM – NHC 1

1. University Drive and Martin Luther King Jr. Parkway
2. University Drive and Westgate Drive

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr.   3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	618	695	173	507	750	275	126	385	260	299	839	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	325		120	300		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3333	3436	1537	3333	3436	1537	1661	3436	1486	1718	3436	1537
Flt Permitted	0.950			0.950			0.234			0.503		
Satd. Flow (perm)	3333	3436	1537	3333	3436	1537	409	3436	1486	910	3436	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			123			123			75			75
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	687	772	192	563	833	306	140	428	289	332	932	374
Shared Lane Traffic (%)												
Lane Group Flow (vph)	687	772	192	563	833	306	140	428	289	332	932	374
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.06	1.01	1.06	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (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
Detector 1 Queue (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
Detector 1 Delay (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
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5

Triangle Transit - South Square 3/6/2015 2040 Build NHC 1 with 2 EBL Diversion - PM Peak   Synchro 8 Report
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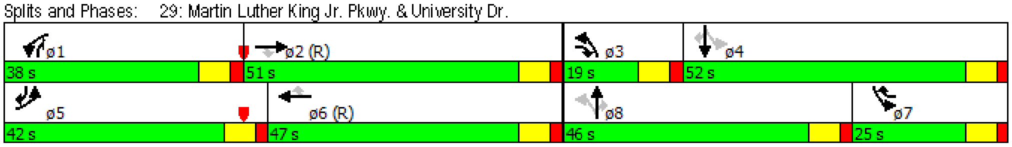
Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	14.0	7.0
Minimum Split (s)	16.0	40.0	16.0	18.0	40.0	16.0	16.0	46.0	18.0	16.0	44.0	16.0
Total Split (s)	42.0	51.0	19.0	38.0	47.0	25.0	19.0	46.0	38.0	25.0	52.0	42.0
Total Split (%)	26.3%	31.9%	11.9%	23.8%	29.4%	15.6%	11.9%	28.8%	23.8%	15.6%	32.5%	26.3%
Maximum Green (s)	35.0	44.0	12.0	31.0	40.0	18.0	12.0	39.0	31.0	18.0	45.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Walk Time (s)		6.0			6.0			6.0			6.0	
Flash Dont Walk (s)		27.0			27.0			33.0			31.0	
Pedestrian Calls (#/hr)		15			15			15			15	
Act Effct Green (s)	36.4	47.8	66.8	31.8	43.1	72.4	31.1	31.1	62.9	46.4	46.4	87.9
Actuated g/C Ratio	0.23	0.30	0.42	0.20	0.27	0.45	0.19	0.19	0.39	0.29	0.29	0.55
v/c Ratio	0.91	0.75	0.27	0.85	0.90	0.40	0.74	0.64	0.46	0.81	0.93	0.43
Control Delay	69.0	57.7	19.5	63.7	76.2	10.6	78.4	63.0	15.4	71.7	71.7	18.0
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	69.0	57.7	19.5	63.7	76.2	10.6	78.4	63.0	15.4	71.7	71.7	18.0
LOS	E	E	B	E	E	B	E	E	B	E	E	B
Approach Delay		58.0			60.2			49.4			59.4	
Approach LOS		E			E			D			E	

Intersection Summary	
Area Type: Other	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 106 (66%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 57.8	Intersection LOS: E
Intersection Capacity Utilization 85.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 29: Martin Luther King Jr. Pkwy. & University Dr.



Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	450	482	19	76	624	498	43	46	19	529	93	492
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	11	12	12
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	200		0	125		190	0		50	425		0
Storage Lanes	1		0	1		1	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3333	3416	0	1718	3436	1537	1718	1729	0	1661	1809	1537
Flt Permitted	0.950			0.443			0.690			0.580		
Satd. Flow (perm)	3333	3416	0	801	3436	1537	1248	1729	0	1014	1809	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				504		13				450
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	500	536	21	84	693	553	48	51	21	588	103	547
Shared Lane Traffic (%)												
Lane Group Flow (vph)	500	557	0	84	693	553	48	72	0	588	103	547
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.06	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	

Triangle Transit - South Square 3/6/2015 2040 Build NHC 1 with 2 EBL Diversion - PM Peak
URS

Synchro 8 Report
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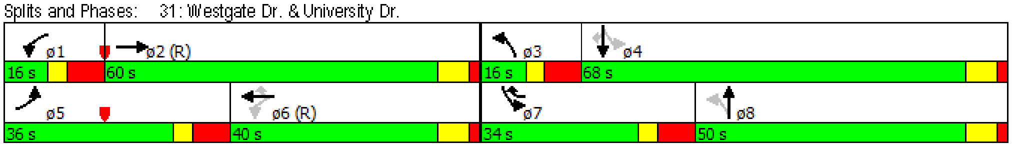
Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	19.0	39.0		16.0	37.0	17.0	16.0	50.0		17.0	47.0	47.0
Total Split (s)	36.0	60.0		16.0	40.0	34.0	16.0	50.0		34.0	68.0	68.0
Total Split (%)	22.5%	37.5%		10.0%	25.0%	21.3%	10.0%	31.3%		21.3%	42.5%	42.5%
Maximum Green (s)	27.0	53.0		7.0	33.0	25.0	7.0	43.0		25.0	61.0	61.0
Yellow Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	5.0
All-Red Time (s)	6.0	2.0		6.0	2.0	6.0	6.0	2.0		6.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	7.0	5.0		7.0	5.0	7.0	7.0	5.0		7.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	None
Walk Time (s)		4.0			4.0			4.0			4.0	4.0
Flash Dont Walk (s)		20.0			20.0			39.0			34.0	34.0
Pedestrian Calls (#/hr)		15			15			15			15	15
Act Effct Green (s)	28.2	68.9		57.0	49.9	81.9	38.0	31.0		63.0	52.2	52.2
Actuated g/C Ratio	0.18	0.43		0.36	0.31	0.51	0.24	0.19		0.39	0.33	0.33
v/c Ratio	0.85	0.38		0.25	0.65	0.54	0.15	0.21		1.16	0.17	0.68
Control Delay	65.0	29.4		37.2	60.6	3.2	28.8	40.5		129.9	37.1	11.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	65.0	29.4		37.2	60.6	3.2	28.8	40.5		129.9	37.1	11.8
LOS	E	C		D	E	A	C	D		F	D	B
Approach Delay		46.2			35.3			35.8			70.0	
Approach LOS		D			D			D			E	

Intersection Summary	
Area Type: Other	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 49.9	Intersection LOS: D
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 31: Westgate Dr. & University Dr.



2040 Build AM – NHC 2

1. University Drive and Martin Luther King Jr. Parkway
2. University Drive and Westgate Drive

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

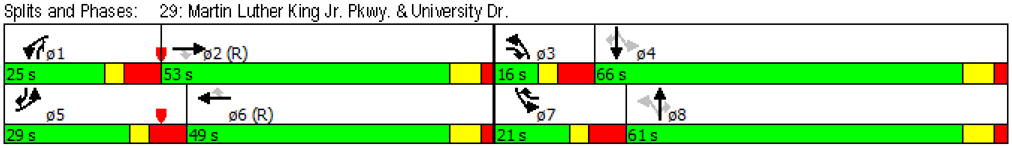
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	582	703	102	284	424	107	65	554	177	350	647	434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	325		120	300		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.224			0.215		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	396	3471	1501	397	3506	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	
Lane Group Flow (vph)	647	781	113	316	471	119	72	616	197	389	719	482
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6	8		8	4		4
Total Split (s)	29.0	53.0	16.0	25.0	49.0	21.0	16.0	61.0	25.0	21.0	66.0	29.0
Total Lost Time (s)	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.5	7.0	7.0	5.5	7.0
Act Effct Green (s)	31.9	57.0	71.0	18.8	44.0	63.0	53.1	45.6	70.0	63.1	50.6	88.0
Actuated g/C Ratio	0.20	0.36	0.44	0.12	0.28	0.39	0.33	0.28	0.44	0.39	0.32	0.55
v/c Ratio	0.98	0.64	0.17	0.80	0.50	0.20	0.35	0.62	0.30	1.41	0.65	0.56
Control Delay	100.6	32.1	13.8	92.1	45.8	32.5	32.2	51.7	29.0	237.6	49.1	26.5
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	100.6	32.1	13.8	92.1	45.8	32.5	32.2	51.7	29.0	237.6	49.1	26.5
LOS	F	C	B	F	D	C	C	D	C	F	D	C
Approach Delay		59.5			60.2			45.0			88.4	
Approach LOS		E			E			D			F	
Stops (vph)	395	507	32	273	368	74	41	465	109	195	537	278
Fuel Used(gal)	17	11	1	8	8	2	1	14	3	23	21	11
CO Emissions (g/hr)	0	0	0	0	0	0	0	0	0	0	0	0
NOx Emissions (g/hr)	0	0	0	0	0	0	0	0	0	0	0	0
VOC Emissions (g/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Dilemma Vehicles (#)	0	32	0	0	8	0	0	17	0	0	20	0
Queue Length 50th (ft)	~453	277	31	175	226	89	42	271	118	~357	310	319
Queue Length 95th (ft)	#602	364	41	#244	273	137	74	334	176	#580	376	431
Internal Link Dist (ft)		361			405			980			1136	
Turn Bay Length (ft)	325		120	300		115	165		220	180		
Base Capacity (vph)	660	1218	679	394	949	608	203	1204	656	275	1325	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.64	0.17	0.80	0.50	0.20	0.35	0.51	0.30	1.41	0.54	0.56

Triangle Transit - South Square 12/1/2014 2040 Build Alternative - AM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 82 (51%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.41	
Intersection Signal Delay: 66.4	Intersection LOS: E
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 29: Martin Luther King Jr. Pkwy. & University Dr.



Lanes and Geometrics
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	325		120	300		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	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)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.224			0.215		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	396	3471	1501	397	3506	1568
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	

Intersection Summary	
Area Type:	Other

Triangle Transit - South Square 12/1/2014 2040 Build Alternative - AM Peak Synchro 8 Report
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Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	550	671	0	70	259	324	244	37	33	281	32	299
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	11	12	12
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	200		0	125		0	0		50	425		0
Storage Lanes	1		0	1		1	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.929				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3333	3436	0	1718	3436	1537	1718	1680	0	1661	1809	1537
Flt Permitted	0.950			0.368			0.734			0.585		
Satd. Flow (perm)	3333	3436	0	666	3436	1537	1328	1680	0	1023	1809	1537
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	611	746	0	78	288	360	271	41	37	312	36	332
Shared Lane Traffic (%)												
Lane Group Flow (vph)	611	746	0	78	288	360	271	78	0	312	36	332
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.06	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	

Triangle Transit - South Square 3/5/2015 2040 Build Alternative NHC 2 with 2EBL and Reroute - AM Peak
URS
Synchro 8 Report
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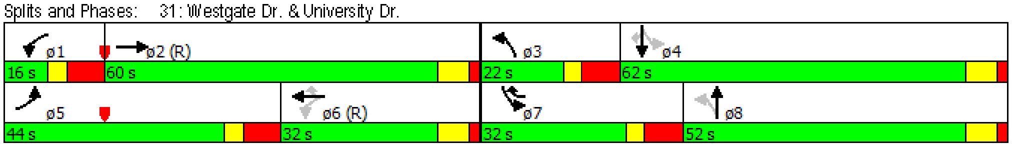
Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	16.0	31.0		16.0	31.0	16.0	16.0	52.0		16.0	45.0	45.0
Total Split (s)	44.0	60.0		16.0	32.0	32.0	22.0	52.0		32.0	62.0	62.0
Total Split (%)	27.5%	37.5%		10.0%	20.0%	20.0%	13.8%	32.5%		20.0%	38.8%	38.8%
Maximum Green (s)	35.0	53.0		7.0	25.0	23.0	13.0	45.0		23.0	55.0	55.0
Yellow Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	5.0
All-Red Time (s)	6.0	2.0		6.0	2.0	6.0	6.0	2.0		6.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	7.0	5.0		7.0	5.0	7.0	7.0	5.0		7.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	None
Walk Time (s)		4.0			4.0			4.0			4.0	4.0
Flash Dont Walk (s)		20.0			20.0			39.0			34.0	34.0
Pedestrian Calls (#/hr)		15			15			15			15	15
Act Effct Green (s)	35.4	63.9		47.2	38.8	68.4	50.2	37.2		66.7	46.7	46.7
Actuated g/C Ratio	0.22	0.40		0.30	0.24	0.43	0.31	0.23		0.42	0.29	0.29
v/c Ratio	0.83	0.54		0.30	0.35	0.55	0.60	0.20		0.60	0.07	0.74
Control Delay	47.3	41.8		26.2	45.8	36.3	40.2	48.0		44.4	45.8	70.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	47.3	41.8		26.2	45.8	36.3	40.2	48.0		44.4	45.8	70.1
LOS	D	D		C	D	D	D	D		D	D	E
Approach Delay		44.3			39.0			42.0			57.0	
Approach LOS		D			D			D			E	

Intersection Summary	
Area Type: Other	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 152 (95%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 45.6	Intersection LOS: D
Intersection Capacity Utilization 60.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 31: Westgate Dr. & University Dr.



Triangle Transit - South Square 3/5/2015 2040 Build Alternative NHC 2 with 2EBL and Reroute - AM Peak
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2040 Build PM – NHC 2

1. University Drive and Martin Luther King Jr. Parkway
2. University Drive and Westgate Drive

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

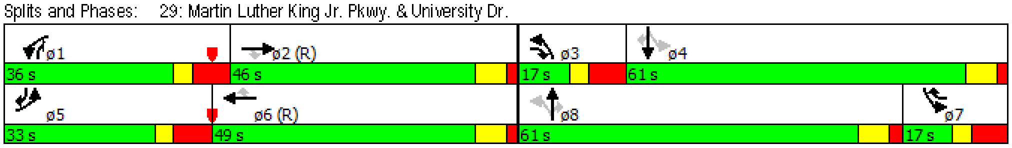
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	618	695	173	507	750	275	126	385	260	299	839	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	325		120	300		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.124			0.503		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	219	3471	1501	928	3506	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			150			89			89
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	
Lane Group Flow (vph)	687	772	192	563	833	306	140	428	289	332	932	374
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6	8		8	4		4
Total Split (s)	33.0	46.0	17.0	36.0	49.0	17.0	17.0	61.0	36.0	17.0	61.0	33.0
Total Lost Time (s)	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0
Act Effct Green (s)	30.2	44.3	59.3	29.9	44.0	61.5	40.3	42.3	70.2	49.8	51.8	87.0
Actuated g/C Ratio	0.19	0.28	0.37	0.19	0.28	0.38	0.25	0.26	0.44	0.31	0.32	0.54
v/c Ratio	1.10	0.82	0.29	0.90	0.88	0.45	0.96	0.47	0.41	0.85	0.82	0.42
Control Delay	125.0	57.1	8.2	75.5	62.8	9.1	113.0	49.7	12.0	75.7	56.3	17.5
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	125.0	57.1	8.2	75.5	62.8	9.1	113.0	49.7	12.0	75.7	56.3	17.5
LOS	F	E	A	E	E	A	F	D	B	E	E	B
Approach Delay		79.7			57.3			47.3			51.4	
Approach LOS		E			E			D			D	
Stops (vph)	499	566	30	472	700	134	92	309	109	234	754	149
Fuel Used(gal)	21	15	1	13	17	2	5	9	3	11	30	7
CO Emissions (g/hr)	0	0	0	0	0	0	0	0	0	0	0	0
NOx Emissions (g/hr)	0	0	0	0	0	0	0	0	0	0	0	0
VOC Emissions (g/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Dilemma Vehicles (#)	0	31	0	0	18	0	0	12	0	0	26	0
Queue Length 50th (ft)	~475	324	11	307	447	76	107	176	76	284	454	170
Queue Length 95th (ft)	#602	#479	79	#415	#531	125	#210	226	122	#471	538	251
Internal Link Dist (ft)		361			405			980			1136	
Turn Bay Length (ft)	325		120	300		115	165		220	180		
Base Capacity (vph)	626	947	661	626	949	686	146	1214	708	389	1227	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.82	0.29	0.90	0.88	0.45	0.96	0.35	0.41	0.85	0.76	0.42

Triangle Transit - South Square 12/1/2014 2040 Build - PM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Intersection Summary	
Area Type: Other	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 106 (66%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 60.5	Intersection LOS: E
Intersection Capacity Utilization 88.4%	ICU Level of Service E
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 29: Martin Luther King Jr. Pkwy. & University Dr.



Lanes and Geometrics
29: Martin Luther King Jr. Pkwy. & University Dr. 3/5/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Grade (%)		3%			1%			0%			-2%	
Storage Length (ft)	325		120	300		115	165		220	180		0
Storage Lanes	0		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	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)	3317	3419	1530	3350	3454	1545	1678	3471	1501	1753	3506	1568
Flt Permitted	0.950			0.950			0.124			0.503		
Satd. Flow (perm)	3317	3419	1530	3350	3454	1545	219	3471	1501	928	3506	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			150			89			89
Link Speed (mph)		35			35			35			55	
Link Distance (ft)		441			485			1060			1216	
Travel Time (s)		8.6			9.4			20.6			15.1	

Intersection Summary

Area Type: Other

Triangle Transit - South Square 12/1/2014 2040 Build - PM Peak
URS

Synchro 8 Report
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Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	562	500	0	157	543	498	288	59	19	565	99	492
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	11	12	12
Grade (%)		2%			2%			2%			2%	
Storage Length (ft)	200		0	125		0	0		50	425		0
Storage Lanes	1		0	1		1	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3333	3436	0	1718	3436	1537	1718	1744	0	1661	1809	1537
Flt Permitted	0.950			0.444			0.686			0.538		
Satd. Flow (perm)	3333	3436	0	803	3436	1537	1241	1744	0	941	1809	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						532		9				418
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		476			335			440			975	
Travel Time (s)		9.3			6.5			8.6			19.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	624	556	0	174	603	553	320	66	21	628	110	547
Shared Lane Traffic (%)												
Lane Group Flow (vph)	624	556	0	174	603	553	320	87	0	628	110	547
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.06	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	

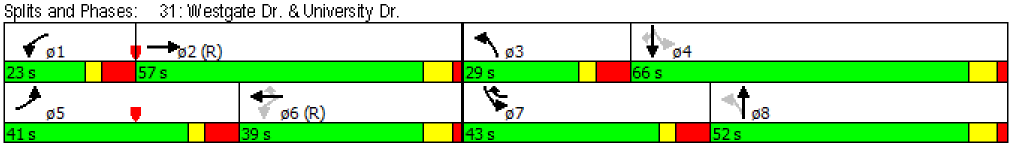
Triangle Transit - South Square 3/4/2015 2040 Build Alt NHC 2 with 2 EBL and Reroute - PM Peak Synchro 8 Report
URS Page 1

Lanes, Volumes, Timings
31: Westgate Dr. & University Dr. 3/15/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases				6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	4
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	16.0	39.0		16.0	33.0	17.0	17.0	52.0		17.0	47.0	47.0
Total Split (s)	41.0	57.0		23.0	39.0	43.0	29.0	52.0		43.0	66.0	66.0
Total Split (%)	23.4%	32.6%		13.1%	22.3%	24.6%	16.6%	29.7%		24.6%	37.7%	37.7%
Maximum Green (s)	32.0	50.0		14.0	32.0	34.0	20.0	45.0		34.0	59.0	59.0
Yellow Time (s)	3.0	5.0		3.0	5.0	3.0	3.0	5.0		3.0	5.0	5.0
All-Red Time (s)	6.0	2.0		6.0	2.0	6.0	6.0	2.0		6.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	7.0	5.0		7.0	5.0	7.0	7.0	5.0		7.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes			Yes				Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max	None	None	None		None	None	None
Walk Time (s)		6.0			6.0			6.0			6.0	6.0
Flash Dont Walk (s)		20.0			20.0			39.0			34.0	34.0
Pedestrian Calls (#/hr)		15			15			15			15	15
Act Effct Green (s)	35.5	67.7		59.3	46.7	87.7	52.8	32.8		73.8	46.8	46.8
Actuated g/C Ratio	0.20	0.39		0.34	0.27	0.50	0.30	0.19		0.42	0.27	0.27
v/c Ratio	0.92	0.42		0.50	0.66	0.53	0.74	0.26		1.15	0.23	0.76
Control Delay	58.6	45.1		23.3	47.6	19.1	48.4	51.8		130.0	49.3	23.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.6	45.1		23.3	47.6	19.1	48.4	51.8		130.0	49.3	23.6
LOS	E	D		C	D	B	D	D		F	D	C
Approach Delay		52.2			32.5			49.1			77.8	
Approach LOS		D			C			D			E	

Intersection Summary	
Area Type: Other	
Cycle Length: 175	
Actuated Cycle Length: 175	
Offset: 79 (45%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 53.5	Intersection LOS: D
Intersection Capacity Utilization 81.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 31: Westgate Dr. & University Dr.



Triangle Transit - South Square 3/4/2015 2040 Build Alt NHC 2 with 2 EBL and Reroute - PM Peak
URS

Synchro 8 Report
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Appendix D: CAL3QHC Input and Output Files

CAL3QHC INPUT AND OUTPUT FILES

2012 AM

2012 PM

2040 No-Build AM

2040 No-Build PM

2040 Build AM

2040 Build PM

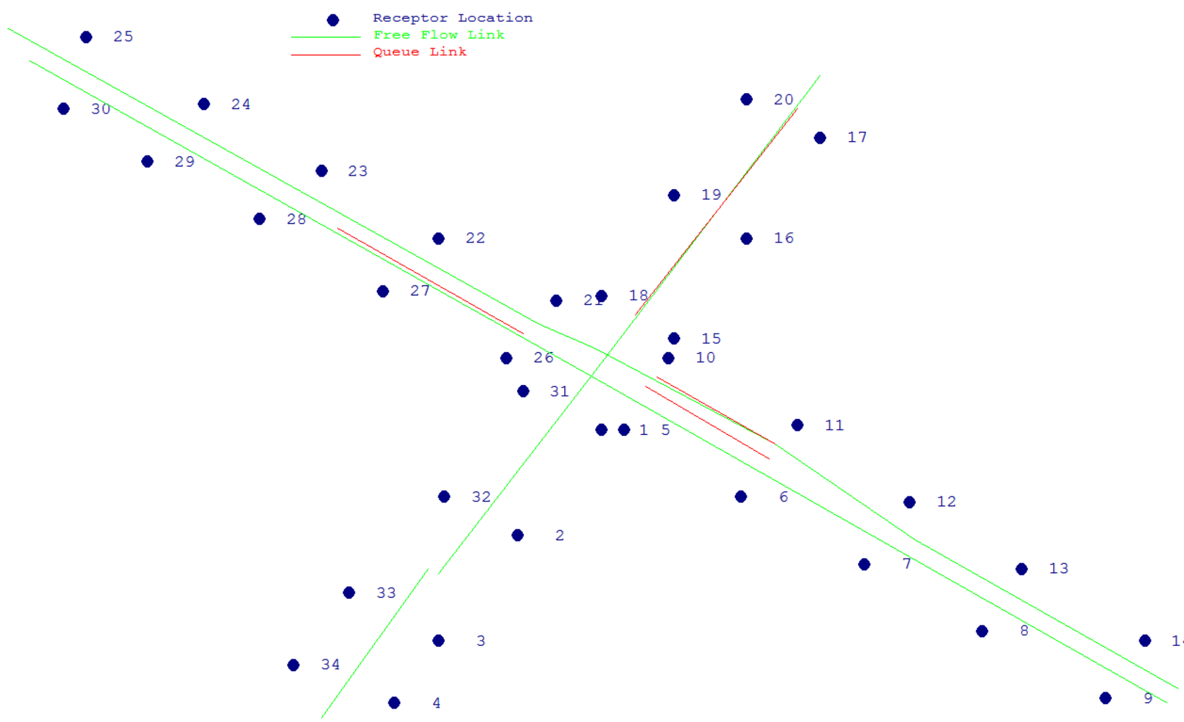
2040 Build AM – NHC 1

2040 Build PM – NHC 1

2040 Build AM – NHC 2

2040 Build PM – NHC 2

2012 AM Mangum Street and Main Street



CAL3QHC Input File

```
'Mangum Street and Main Street          '  60. 108.0    0.00    0.00 34     1.0000 0 0
'REC1                 '         2.0      -15.0        1.8
'REC2                 '       -13.0      -37.0        1.8
'REC3                 '       -27.0      -59.0        1.8
'REC4                 '       -35.0      -72.0        1.8
'REC5                 '         6.0      -15.0        1.8
'REC6                 '        27.0      -29.0        1.8
'REC7                 '        49.0      -43.0        1.8
'REC8                 '        70.0      -57.0        1.8
'REC9                 '        92.0      -71.0        1.8
'REC10                '        14.0        0.0        1.8
'REC11                '        37.0      -14.0        1.8
'REC12                '        57.0      -30.0        1.8
'REC13                '        77.0      -44.0        1.8
'REC14                '        99.0      -59.0        1.8
'REC15                '        15.0        4.0        1.8
'REC16                '        28.0       25.0        1.8
'REC17                '        41.0       46.0        1.8
'REC18                '         2.0       13.0        1.8
'REC19                '        15.0       34.0        1.8
'REC20                '        28.0       54.0        1.8
'REC21                '        -6.0       12.0        1.8
'REC22                '       -27.0       25.0        1.8
'REC23                '       -48.0       39.0        1.8
'REC24                '       -69.0       53.0        1.8
'REC25                '       -90.0       67.0        1.8
'REC26                '       -15.0        0.0        1.8
'REC27                '       -37.0       14.0        1.8
'REC28                '       -59.0       29.0        1.8
'REC29                '       -79.0       41.0        1.8
'REC30                '       -94.0       52.0        1.8
'REC31                '       -12.0       -7.0        1.8
'REC32                '       -26.0      -29.0        1.8
'REC33                '       -43.0      -49.0        1.8
'REC34                '       -53.0      -64.0        1.8
'2012 AM Peak                           '  14   1  0 C
1
'SBA                  ' 'AG'      41.0       59.0        2.0       -1.0      866.   8.34      0.0  14.0
1
'SBD1                 ' 'AG'       2.0       -1.0      -27.0      -45.0      852.   8.98      0.0  14.0
1
'SBD2                 ' 'AG'     -29.0      -44.0      -48.0      -75.0      852.   8.98      0.0  18.0
2
'SBQ                  ' 'AG'       8.0        9.0       37.0       52.0       0.0   8.0  2
   75     75    2.0    866  54.18 3426 2 3
1
'EBA                  ' 'AG'    -100.0       62.0       -1.0       -3.0      180.   6.65      0.0  10.0
1
'EBD                  ' 'AG'      -1.0       -3.0      103.0      -72.0      204.   6.65      0.0  10.0
2
'EBQ                  ' 'AG'     -12.0        5.0      -45.0       27.0       0.0   4.0  1
   75     45    2.0    180  54.18 1801 2 3
1
'WBA1                 ' 'AG'     105.0      -69.0       58.0      -38.0      200.   6.65      0.0  10.0
1
'WBA2                 ' 'AG'      58.0      -38.0       33.0      -18.0      200.   6.65      0.0  10.0
1
'WBA3                 ' 'AG'      33.0      -18.0        1.0        2.0      200.   6.65      0.0  10.0
1
'WBD1                 ' 'AG'       1.0        2.0       -9.0        7.0      190.   6.65      0.0  10.0
1
'WBD2                 ' 'AG'      -9.0        7.0      -98.0       65.0      190.   6.65      0.0  10.0
2
'WBQ                  ' 'AG'      12.0       -4.0       33.0      -18.0       0.0   4.0  1
   75     30    2.0    176  54.18 1827 2 3
2
'WBLQ                 ' 'AG'      10.0       -6.0       32.0      -21.0       0.0   4.0  1
   75     60    2.0     24  54.18 1736 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: Mangum Street and Main Street RUN: 2012 AM Peak

DATE : 5/13/15
TIME : 8:14:57

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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. SBA	41.0	59.0	2.0	-1.0	72.	213.	AG	866.	8.3	0.0	14.0		
2. SBD1	2.0	-1.0	-27.0	-45.0	53.	213.	AG	852.	9.0	0.0	14.0		
3. SBD2	-29.0	-44.0	-48.0	-75.0	36.	212.	AG	852.	9.0	0.0	18.0		
4. SBQ	8.0	9.0	49.3	70.2	74.	34.	AG	291.	100.0	0.0	8.0	****	12.3
5. EBA	-100.0	62.0	-1.0	-3.0	118.	123.	AG	180.	6.7	0.0	10.0		
6. EBD	-1.0	-3.0	103.0	-72.0	125.	124.	AG	204.	6.7	0.0	10.0		
7. EBQ	-12.0	5.0	-23.2	12.5	14.	304.	AG	87.	100.0	0.0	4.0	0.29	2.2
8. WBA1	105.0	-69.0	58.0	-38.0	56.	303.	AG	200.	6.7	0.0	10.0		
9. WBA2	58.0	-38.0	33.0	-18.0	32.	309.	AG	200.	6.7	0.0	10.0		
10. WBA3	33.0	-18.0	1.0	2.0	38.	302.	AG	200.	6.7	0.0	10.0		
11. WBD1	1.0	2.0	-9.0	7.0	11.	297.	AG	190.	6.7	0.0	10.0		
12. WBD2	-9.0	7.0	-98.0	65.0	106.	303.	AG	190.	6.7	0.0	10.0		
13. WBQ	12.0	-4.0	19.3	-8.9	9.	124.	AG	58.	100.0	0.0	4.0	0.18	1.5
14. WBLQ	10.0	-6.0	12.0	-7.4	2.	124.	AG	116.	100.0	0.0	4.0	0.09	0.4

JOB: Mangum Street and Main Street RUN: 2012 AM Peak

DATE : 5/13/15
TIME : 8:14:57

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
4. SBQ	75	75	2.0	866	3426	54.18	2	3
7. EBQ	75	45	2.0	180	1801	54.18	2	3
13. WBQ	75	30	2.0	176	1827	54.18	2	3
14. WBLQ	75	60	2.0	24	1736	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	2.0	-15.0	1.8
2. REC2	-13.0	-37.0	1.8
3. REC3	-27.0	-59.0	1.8
4. REC4	-35.0	-72.0	1.8
5. REC5	6.0	-15.0	1.8
6. REC6	27.0	-29.0	1.8
7. REC7	49.0	-43.0	1.8
8. REC8	70.0	-57.0	1.8
9. REC9	92.0	-71.0	1.8
10. REC10	14.0	0.0	1.8
11. REC11	37.0	-14.0	1.8
12. REC12	57.0	-30.0	1.8
13. REC13	77.0	-44.0	1.8
14. REC14	99.0	-59.0	1.8
15. REC15	15.0	4.0	1.8
16. REC16	28.0	25.0	1.8
17. REC17	41.0	46.0	1.8
18. REC18	2.0	13.0	1.8
19. REC19	15.0	34.0	1.8
20. REC20	28.0	54.0	1.8
21. REC21	-6.0	12.0	1.8
22. REC22	-27.0	25.0	1.8
23. REC23	-48.0	39.0	1.8
24. REC24	-69.0	53.0	1.8
25. REC25	-90.0	67.0	1.8
26. REC26	-15.0	0.0	1.8
27. REC27	-37.0	14.0	1.8
28. REC28	-59.0	29.0	1.8
29. REC29	-79.0	41.0	1.8
30. REC30	-94.0	52.0	1.8
31. REC31	-12.0	-7.0	1.8
32. REC32	-26.0	-29.0	1.8
33. REC33	-43.0	-49.0	1.8
34. REC34	-53.0	-64.0	1.8

JOB: Mangum Street and Main Street RUN: 2012 AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.5	0.3	0.2	0.3	0.6	0.4	0.1	0.0	0.0	1.1	0.4	0.1	0.0	0.0	1.2	1.3	1.2	0.0	0.0	0.0
10.	0.8	0.5	0.4	0.3	0.7	0.3	0.1	0.0	0.0	1.2	0.2	0.0	0.0	0.0	1.3	1.3	1.2	0.0	0.0	0.0
20.	0.9	0.7	0.6	0.4	0.9	0.1	0.0	0.0	0.0	1.1	0.1	0.0	0.0	0.0	1.2	1.2	0.8	0.3	0.1	0.0
30.	0.8	0.6	0.6	0.5	0.6	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.8	0.8	0.5	0.7	0.4	0.1
40.	0.4	0.4	0.2	0.3	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.4	0.3	1.2	0.8	0.4
50.	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	1.4	1.2	0.6
60.	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	1.4	1.3	0.8
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.2	1.0
80.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.0
90.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.0	1.0
100.	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
110.	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.9
120.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.0	0.9
130.	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	0.0	0.0	0.0	0.0	0.5	1.0	0.9
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	1.0	1.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	1.0	1.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.2	1.0	1.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.3	1.2	1.2
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	1.1	1.2
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	1.1	1.2
200.	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.3	0.9	1.2
210.	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.3	0.7	0.3	0.5	0.8
220.	0.4	0.2	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.3	0.6	1.2	0.1	0.3	0.3
230.	0.4	0.4	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	1.0	1.5	0.0	0.0	0.0
240.	0.3	0.3	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	1.1	1.5	0.1	0.0	0.0
250.	0.3	0.3	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.3	1.2	1.4	0.1	0.0	0.0
260.	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.3	1.2	1.3	0.1	0.0	0.0
270.	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.2	1.1	1.1	0.1	0.0	0.0
280.	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.3	0.2	0.2	0.2	0.2	0.3	1.0	1.1	0.0	0.0	0.0
290.	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.3	0.1	0.1	0.0	0.2	0.3	1.0	1.0	0.0	0.0	0.0
300.	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.2	0.2	0.1	0.0	0.1	0.5	1.0	1.1	0.0	0.0	0.0
310.	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.6	1.0	1.0	0.0	0.0	0.0
320.	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.5	0.3	0.3	0.1	0.1	0.8	1.0	1.0	0.0	0.0	0.0
330.	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.6	0.4	0.3	0.2	0.1	0.9	1.0	1.1	0.0	0.0	0.0
340.	0.2	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.2	0.7	0.4	0.3	0.1	0.1	1.0	1.1	1.1	0.0	0.0	0.0
350.	0.4	0.3	0.3	0.3	0.3	0.5	0.3	0.2	0.1	0.9	0.4	0.2	0.1	0.0	1.2	1.2	1.2	0.0	0.0	0.0
360.	0.5	0.3	0.2	0.3	0.6	0.4	0.1	0.0	0.0	1.1	0.4	0.1	0.0	0.0	1.2	1.3	1.2	0.0	0.0	0.0
MAX	0.9	0.7	0.6	0.5	0.9	0.5	0.4	0.3	0.2	1.2	0.4	0.3	0.2	0.2	1.3	1.3	1.5	1.4	1.3	1.2
DEGR.	20	20	20	30	20	350	330	340	310	10	0	320	280	280	10	0	230	50	60	170

PAGE 4

JOB: Mangum Street and Main Street RUN: 2012 AM Peak

MODEL RESULTS

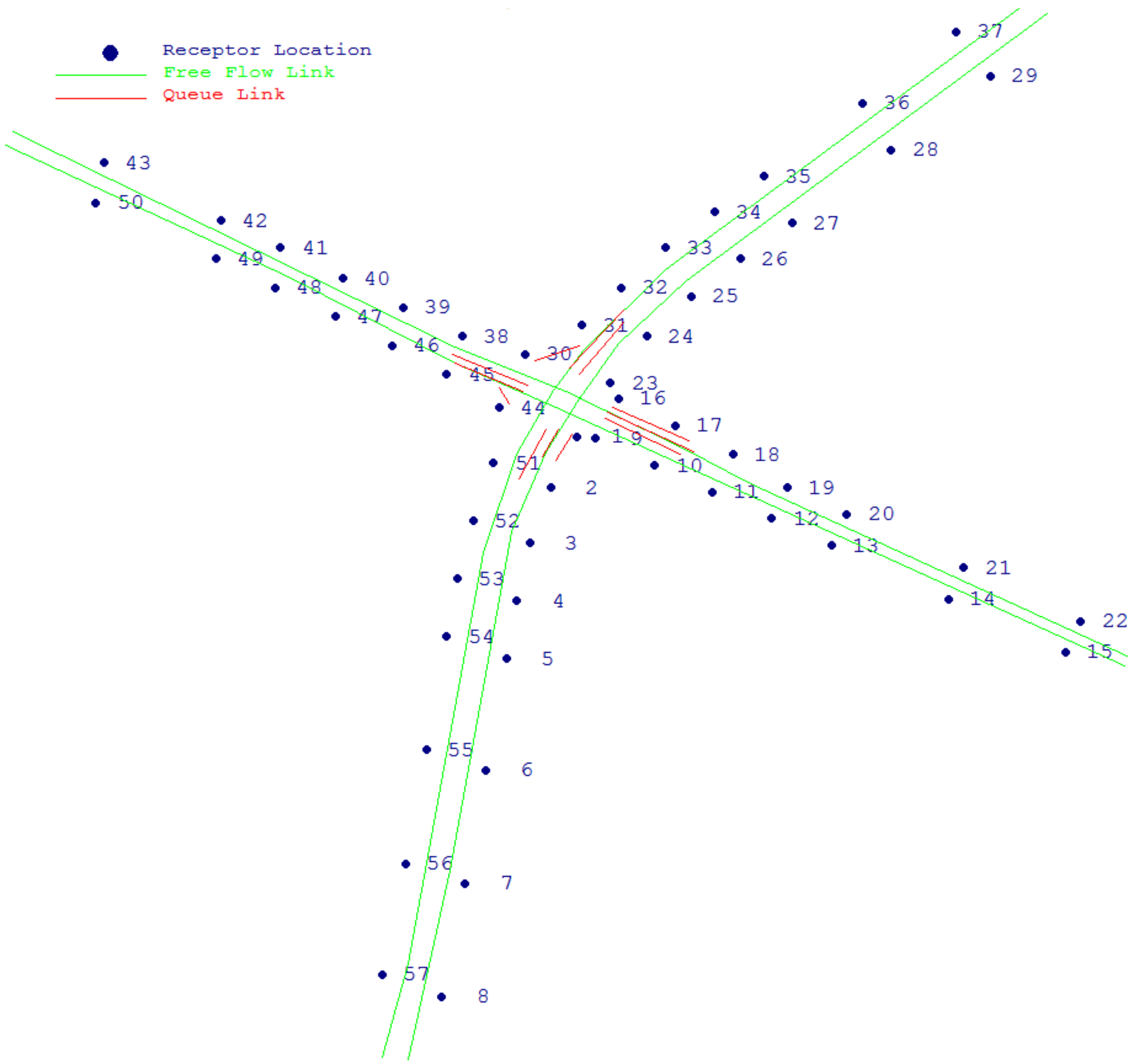
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34
0.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
10.	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
20.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1
30.	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.4	0.3	0.3
40.	0.5	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.9	0.6	0.5	0.6
50.	0.8	0.1	0.0	0.0	0.0	0.8	0.1	0.0	0.0	0.0	0.8	0.6	0.4	0.4
60.	0.9	0.2	0.0	0.0	0.0	0.7	0.3	0.1	0.0	0.0	0.7	0.4	0.3	0.4
70.	0.9	0.4	0.1	0.0	0.0	0.5	0.4	0.1	0.1	0.0	0.4	0.3	0.3	0.3
80.	0.8	0.4	0.2	0.1	0.0	0.2	0.4	0.3	0.1	0.2	0.3	0.3	0.3	0.2
90.	0.6	0.4	0.3	0.1	0.1	0.3	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2
100.	0.5	0.4	0.3	0.2	0.1	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2
110.	0.4	0.3	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
120.	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2
130.	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.2	0.2	0.2	0.2
140.	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.2	0.2	0.2	0.2
150.	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.2
160.	0.2	0.3	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.3	0.2	0.2	0.1
170.	0.2	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.1
180.	0.2	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.1
190.	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.1
200.	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.3	0.2	0.0
210.	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.3	0.1	0.0
220.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0
230.	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
240.	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
250.	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
260.	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
270.	0.2	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
280.	0.2	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
290.	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
300.	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
MAX	0.9	0.4	0.3	0.2	0.1	0.8	0.5	0.4	0.3	0.2	0.9	0.6	0.5	0.6
DEGR.	60	70	90	100	90	50	90	90	90	80	40	40	40	40

THE HIGHEST CONCENTRATION OF 1.50 PPM OCCURRED AT RECEPTOR REC17.

2012 AM Morreene Road/Towerview Road and Erwin Road



CAL3QHC Input File

```
'Morreene Rd_Towerview Rd and Erwin Rd      '  60. 108.0    0.00    0.00 57     1.0000 0 0
'REC1                 '        5.0      -19.0        1.8
'REC2                 '       -5.0      -42.0        1.8
'REC3                 '      -13.0      -67.0        1.8
'REC4                 '      -18.0      -93.0        1.8
'REC5                 '      -22.0     -119.0        1.8
'REC6                 '      -30.0     -169.0        1.8
'REC7                 '      -38.0     -220.0        1.8
'REC8                 '      -47.0     -271.0        1.8
'REC9                 '       12.0      -20.0        1.8
'REC10                '       35.0      -32.0        1.8
'REC11                '       57.0      -44.0        1.8
'REC12                '       80.0      -56.0        1.8
'REC13                '      103.0      -68.0        1.8
'REC14                '      148.0      -92.0        1.8
'REC15                '      193.0     -116.0        1.8
'REC16                '       21.0       -2.0        1.8
'REC17                '       43.0      -14.0        1.8
'REC18                '       65.0      -27.0        1.8
'REC19                '       86.0      -42.0        1.8
'REC20                '      109.0      -54.0        1.8
'REC21                '      154.0      -78.0        1.8
'REC22                '      199.0     -102.0        1.8
'REC23                '       18.0        5.0        1.8
'REC24                '       32.0       26.0        1.8
'REC25                '       49.0       44.0        1.8
'REC26                '       68.0       61.0        1.8
'REC27                '       88.0       77.0        1.8
'REC28                '      126.0      110.0        1.8
'REC29                '      164.0      143.0        1.8
'REC30                '      -15.0       18.0        1.8
'REC31                '        7.0       31.0        1.8
'REC32                '       22.0       48.0        1.8
'REC33                '       39.0       66.0        1.8
'REC34                '       58.0       82.0        1.8
'REC35                '       77.0       98.0        1.8
'REC36                '      115.0      131.0        1.8
'REC37                '      151.0      163.0        1.8
'REC38                '      -39.0       26.0        1.8
'REC39                '      -62.0       39.0        1.8
'REC40                '      -85.0       52.0        1.8
'REC41                '     -109.0       66.0        1.8
'REC42                '     -132.0       78.0        1.8
'REC43                '     -177.0      104.0        1.8
'REC44                '      -25.0       -6.0        1.8
'REC45                '      -45.0        9.0        1.8
'REC46                '      -66.0       22.0        1.8
'REC47                '      -88.0       35.0        1.8
'REC48                '     -111.0       48.0        1.8
'REC49                '     -134.0       61.0        1.8
'REC50                '     -180.0       86.0        1.8
'REC51                '      -27.0      -31.0        1.8
'REC52                '      -35.0      -57.0        1.8
'REC53                '      -41.0      -83.0        1.8
'REC54                '      -45.0     -109.0        1.8
'REC55                '      -53.0     -160.0        1.8
'REC56                '      -61.0     -211.0        1.8
'REC57                '      -70.0     -261.0        1.8
'2012 AM Peak                                  '  35    1   0 C
1
'NBA1                 ' 'AG'     -60.0     -299.0     -44.0    -214.0     959.   8.34      0.0  12.0
1
'NBA2                 ' 'AG'     -44.0     -214.0     -20.0     -62.0     959.   8.34      0.0  12.0
1
'NBA3                 ' 'AG'     -20.0      -62.0      -7.0     -26.0     959.   8.34      0.0  12.0
1
'NBA4                 ' 'AG'      -7.0      -26.0       6.0      -2.0     959.   8.34      0.0  12.0
1
'NBD1                 ' 'AG'       6.0       -2.0      21.0      23.0     952.   8.34      0.0  12.0
1
'NBD2                 ' 'AG'      21.0       23.0      47.0      51.0     952.   8.34      0.0  12.0
1
'NBD3                 ' 'AG'      47.0       51.0     186.0     171.0     952.   8.34      0.0  12.0
2
'NBQ                  ' 'AG'      -2.0      -16.0      -8.0     -28.0      0.0   6.0   2
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  150    90    2.0    754  54.18 3207 2 3
2
'NBLQ                  ' 'AG'        -7.0        -16.0        -17.0        -38.0        0.0     3.5   1
  150   130    2.0     48  54.18  914 2 3
2
'NBRQ                  ' 'AG'         3.0        -18.0         -3.0        -30.0        0.0     3.0   1
  150    90    2.0    157  54.18 1435 2 3
1
'SBA1                  ' 'AG'       179.0        177.0         39.0         56.0       375.    8.34        0.0  13.0
1
'SBA2                  ' 'AG'        39.0         56.0          8.0         20.0       375.    8.34        0.0  13.0
1
'SBA3                  ' 'AG'         8.0         20.0         -4.0          2.0       375.    8.34        0.0  13.0
1
'SBD1                  ' 'AG'        -4.0          2.0        -18.0        -27.0       287.    8.34        0.0  13.0
1
'SBD2                  ' 'AG'       -18.0        -27.0        -31.0        -71.0       287.    8.34        0.0  13.0
1
'SBD3                  ' 'AG'       -31.0        -71.0        -60.0       -256.0       287.    8.34        0.0  13.0
1
'SBD4                  ' 'AG'       -60.0       -256.0        -70.0       -298.0       287.    8.34        0.0  13.0
2
'SBQ                   ' 'AG'         2.0         12.0         23.0         38.0        0.0     7.0   2
  150    90    2.0    225  54.18 3196 2 3
2
'SBLQ                  ' 'AG'         6.0          9.0         23.0         32.0        0.0     4.0   1
  150   130    2.0     73  54.18  445 2 3
2
'SBRQ                  ' 'AG'       -11.0         15.0          6.0         22.0        0.0     3.0   1
  150    90    2.0     77  54.18 1600 2 3
1
'EBA1                  ' 'AG'      -215.0        112.0       -105.0         52.0       535.    8.34        0.0  10.0
1
'EBA2                  ' 'AG'      -105.0         52.0        -42.0         14.0       535.    8.34        0.0  10.0
1
'EBA3                  ' 'AG'       -42.0         14.0         -3.0         -6.0       535.    8.34        0.0  10.0
1
'EBD                   ' 'AG'        -3.0         -6.0        216.0       -122.0       562.    8.98        0.0  10.0
2
'EBQ                   ' 'AG'       -16.0          1.0        -42.0         14.0        0.0     4.0   1
  150   100    2.0    332  54.18 1776 2 3
2
'EBLQ                  ' 'AG'       -14.0          4.0        -43.0         18.0        0.0     3.5   1
  150   115    2.0    159  54.18  991 2 3
2
'EBRQ                  ' 'AG'       -21.0         -4.0        -25.0          3.0        0.0     3.0   1
  150   100    2.0     44  54.18 1600 2 3
1
'WBA1                  ' 'AG'       217.0       -118.0         72.0        -40.0       131.    8.98        0.0   9.5
1
'WBA2                  ' 'AG'        72.0        -40.0         46.0        -24.0       131.    8.98        0.0   9.5
1
'WBA3                  ' 'AG'        46.0        -24.0          1.0          1.0       131.    8.98        0.0   9.5
1
'WBD1                  ' 'AG'         1.0          1.0        -42.0         21.0       199.    8.34        0.0   9.5
1
'WBD2                  ' 'AG'       -42.0         21.0       -212.0        118.0       199.    8.34        0.0   9.5
2
'WBQ                   ' 'AG'        17.0         -8.0         50.0        -26.0        0.0     3.5   1
  150   115    2.0     74  54.18 1748 2 3
2
'WBLQ                  ' 'AG'        16.0        -11.0         45.0        -27.0        0.0     3.5   1
  150   130    2.0     18  54.18  493 2 3
2
'WBRQ                  ' 'AG'        19.0         -6.0         48.0        -21.0        0.0     3.5   1
  150   130    2.0     39  54.18 1486 2 3
 1.0    0.0 4  1000.0    0.0 'Y'   10    0   36
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CAL3QHC Output File

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CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Morreene Rd_Towerview Rd and Erwin Rd                RUN: 2012 AM Peak

      DATE :  5/13/15
      TIME :  8:39: 7

         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 = 108. CM
        U =  1.0 M/S          CLAS =   4  (D)     ATIM =  60. MINUTES    MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (M)          *   LENGTH  BRG TYPE  VPH    EF     H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2    *    (M)   (DEG)            (G/MI)  (M) (M)       (VEH)
      ------------------------*---------------------------------------*--------------------------------------------------------
-
       1. NBA1                *   -60.0    -299.0     -44.0    -214.0 *    86.    11. AG    959.   8.3   0.0 12.0
       2. NBA2                *   -44.0    -214.0     -20.0     -62.0 *   154.     9. AG    959.   8.3   0.0 12.0
       3. NBA3                *   -20.0     -62.0      -7.0     -26.0 *    38.    20. AG    959.   8.3   0.0 12.0
       4. NBA4                *    -7.0     -26.0       6.0      -2.0 *    27.    28. AG    959.   8.3   0.0 12.0
       5. NBD1                *     6.0      -2.0      21.0      23.0 *    29.    31. AG    952.   8.3   0.0 12.0
       6. NBD2                *    21.0      23.0      47.0      51.0 *    38.    43. AG    952.   8.3   0.0 12.0
       7. NBD3                *    47.0      51.0     186.0     171.0 *   184.    49. AG    952.   8.3   0.0 12.0
       8. NBQ                 *    -2.0     -16.0     -27.3     -66.6 *    57.   207. AG    174. 100.0   0.0  6.0 0.31   9.4
       9. NBLQ                *    -7.0     -16.0     -11.3     -25.5 *    10.   204. AG    126. 100.0   0.0  3.5 0.49   1.7
      10. NBRQ                *     3.0     -18.0      -7.5     -39.1 *    24.   207. AG     87. 100.0   0.0  3.0 0.29   3.9
      11. SBA1                *   179.0     177.0      39.0      56.0 *   185.   229. AG    375.   8.3   0.0 13.0
      12. SBA2                *    39.0      56.0       8.0      20.0 *    48.   221. AG    375.   8.3   0.0 13.0
      13. SBA3                *     8.0      20.0      -4.0       2.0 *    22.   214. AG    375.   8.3   0.0 13.0
      14. SBD1                *    -4.0       2.0     -18.0     -27.0 *    32.   206. AG    287.   8.3   0.0 13.0
      15. SBD2                *   -18.0     -27.0     -31.0     -71.0 *    46.   196. AG    287.   8.3   0.0 13.0
      16. SBD3                *   -31.0     -71.0     -60.0    -256.0 *   187.   189. AG    287.   8.3   0.0 13.0
      17. SBD4                *   -60.0    -256.0     -70.0    -298.0 *    43.   193. AG    287.   8.3   0.0 13.0
      18. SBQ                 *     2.0      12.0      12.6      25.1 *    17.    39. AG    174. 100.0   0.0  7.0 0.09   2.8
      19. SBLQ                *     6.0       9.0      69.1      94.3 *   106.    36. AG    126. 100.0   0.0  4.0 1.55  17.7
      20. SBRQ                *   -11.0      15.0      -0.3      19.4 *    12.    68. AG     87. 100.0   0.0  3.0 0.13   1.9
      21. EBA1                *  -215.0     112.0    -105.0      52.0 *   125.   119. AG    535.   8.3   0.0 10.0
      22. EBA2                *  -105.0      52.0     -42.0      14.0 *    74.   121. AG    535.   8.3   0.0 10.0
      23. EBA3                *   -42.0      14.0      -3.0      -6.0 *    44.   117. AG    535.   8.3   0.0 10.0
      24. EBD                 *    -3.0      -6.0     216.0    -122.0 *   248.   118. AG    562.   9.0   0.0 10.0
      25. EBQ                 *   -16.0       1.0     -65.5      25.7 *    55.   297. AG     97. 100.0   0.0  4.0 0.61   9.2
      26. EBLQ                *   -14.0       4.0     -41.6      17.3 *    31.   296. AG    111. 100.0   0.0  3.5 0.78   5.1
      27. EBRQ                *   -21.0      -4.0     -24.6       2.4 *     7.   330. AG     97. 100.0   0.0  3.0 0.09   1.2
      28. WBA1                *   217.0    -118.0      72.0     -40.0 *   165.   298. AG    131.   9.0   0.0  9.5
      29. WBA2                *    72.0     -40.0      46.0     -24.0 *    31.   302. AG    131.   9.0   0.0  9.5
      30. WBA3                *    46.0     -24.0       1.0       1.0 *    51.   299. AG    131.   9.0   0.0  9.5
      31. WBD1                *     1.0       1.0     -42.0      21.0 *    47.   295. AG    199.   8.3   0.0  9.5
      32. WBD2                *   -42.0      21.0    -212.0     118.0 *   196.   300. AG    199.   8.3   0.0  9.5
      33. WBQ                 *    17.0      -8.0      29.5     -14.8 *    14.   119. AG    111. 100.0   0.0  3.5 0.20   2.4
      34. WBLQ                *    16.0     -11.0      19.4     -12.9 *     4.   119. AG    126. 100.0   0.0  3.5 0.35   0.6
      35. WBRQ                *    19.0      -6.0      26.5      -9.9 *     8.   117. AG    126. 100.0   0.0  3.5 0.25   1.4
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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 AM Peak

DATE : 5/13/15
TIME : 8:39: 7

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
8. NBQ	150	90	2.0	754	3207	54.18	2	3
9. NBLQ	150	130	2.0	48	914	54.18	2	3
10. NBRQ	150	90	2.0	157	1435	54.18	2	3
18. SBQ	150	90	2.0	225	3196	54.18	2	3
19. SBLQ	150	130	2.0	73	445	54.18	2	3
20. SBRQ	150	90	2.0	77	1600	54.18	2	3
25. EBQ	150	100	2.0	332	1776	54.18	2	3
26. EBLQ	150	115	2.0	159	991	54.18	2	3
27. EBRQ	150	100	2.0	44	1600	54.18	2	3
33. WBQ	150	115	2.0	74	1748	54.18	2	3
34. WBLQ	150	130	2.0	18	493	54.18	2	3
35. WBRQ	150	130	2.0	39	1486	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	5.0	-19.0	1.8
2. REC2	-5.0	-42.0	1.8
3. REC3	-13.0	-67.0	1.8
4. REC4	-18.0	-93.0	1.8
5. REC5	-22.0	-119.0	1.8
6. REC6	-30.0	-169.0	1.8
7. REC7	-38.0	-220.0	1.8
8. REC8	-47.0	-271.0	1.8
9. REC9	12.0	-20.0	1.8
10. REC10	35.0	-32.0	1.8
11. REC11	57.0	-44.0	1.8
12. REC12	80.0	-56.0	1.8
13. REC13	103.0	-68.0	1.8
14. REC14	148.0	-92.0	1.8
15. REC15	193.0	-116.0	1.8
16. REC16	21.0	-2.0	1.8
17. REC17	43.0	-14.0	1.8
18. REC18	65.0	-27.0	1.8
19. REC19	86.0	-42.0	1.8
20. REC20	109.0	-54.0	1.8
21. REC21	154.0	-78.0	1.8
22. REC22	199.0	-102.0	1.8
23. REC23	18.0	5.0	1.8
24. REC24	32.0	26.0	1.8
25. REC25	49.0	44.0	1.8
26. REC26	68.0	61.0	1.8
27. REC27	88.0	77.0	1.8
28. REC28	126.0	110.0	1.8
29. REC29	164.0	143.0	1.8
30. REC30	-15.0	18.0	1.8
31. REC31	7.0	31.0	1.8
32. REC32	22.0	48.0	1.8
33. REC33	39.0	66.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 AM Peak

DATE : 5/13/15
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RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
34. REC34	58.0	82.0	1.8
35. REC35	77.0	98.0	1.8
36. REC36	115.0	131.0	1.8
37. REC37	151.0	163.0	1.8
38. REC38	-39.0	26.0	1.8
39. REC39	-62.0	39.0	1.8
40. REC40	-85.0	52.0	1.8
41. REC41	-109.0	66.0	1.8
42. REC42	-132.0	78.0	1.8
43. REC43	-177.0	104.0	1.8
44. REC44	-25.0	-6.0	1.8
45. REC45	-45.0	9.0	1.8
46. REC46	-66.0	22.0	1.8
47. REC47	-88.0	35.0	1.8
48. REC48	-111.0	48.0	1.8
49. REC49	-134.0	61.0	1.8
50. REC50	-180.0	86.0	1.8
51. REC51	-27.0	-31.0	1.8
52. REC52	-35.0	-57.0	1.8
53. REC53	-41.0	-83.0	1.8
54. REC54	-45.0	-109.0	1.8
55. REC55	-53.0	-160.0	1.8
56. REC56	-61.0	-211.0	1.8
57. REC57	-70.0	-261.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.6	1.1	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.5	0.2	0.1	0.1	0.0
10.	0.8	1.1	0.8	0.5	0.4	0.4	0.3	0.3	0.7	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.2	0.1	0.1	0.0
20.	0.8	0.8	0.5	0.4	0.2	0.1	0.1	0.2	0.9	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.1	0.1	0.0	0.0
30.	0.7	0.5	0.2	0.0	0.0	0.1	0.0	0.0	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.0
40.	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0
50.	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0
60.	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
70.	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
80.	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
90.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0
100.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0
110.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.1	0.0
120.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2
130.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.3
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.3	0.3
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.3	0.3
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.3	0.2
170.	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	0.6	0.1	0.1	0.1	0.1
180.	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.1	0.1	0.1
190.	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.1	0.1	0.1
200.	0.5	0.3	0.5	0.5	0.5	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.1	0.1	0.1
210.	1.0	0.5	0.5	0.5	0.5	0.6	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.1	0.1	0.1
220.	1.2	0.7	0.4	0.5	0.5	0.4	0.4	0.3	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.9	0.2	0.2	0.1	0.1
230.	1.4	0.7	0.4	0.4	0.4	0.4	0.4	0.3	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.2	0.2	0.1	0.1
240.	1.3	0.8	0.3	0.4	0.4	0.4	0.4	0.4	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.5	0.3	0.1	0.1	0.1
250.	1.3	0.8	0.3	0.4	0.4	0.4	0.4	0.4	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.2	0.1	0.1
260.	1.1	0.8	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.4	0.2	0.3	0.3
270.	1.0	0.6	0.4	0.4	0.3	0.4	0.2	0.2	0.7	0.4	0.1	0.1	0.0	0.0	0.0	0.4	0.4	0.2	0.3	0.4
280.	0.8	0.6	0.4	0.4	0.3	0.4	0.4	0.4	0.6	0.4	0.2	0.2	0.2	0.1	0.1	0.5	0.4	0.2	0.3	0.4
290.	0.8	0.7	0.5	0.2	0.2	0.3	0.3	0.2	0.7	0.3	0.2	0.2	0.3	0.2	0.2	0.4	0.4	0.1	0.1	0.2
300.	0.9	0.6	0.7	0.2	0.3	0.3	0.4	0.2	0.7	0.4	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.0	0.1	0.1
310.	0.8	0.7	0.6	0.3	0.4	0.4	0.4	0.3	0.7	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.1	0.0	0.0
320.	0.6	0.8	0.7	0.3	0.4	0.4	0.4	0.3	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.1	0.1	0.0
330.	0.5	1.1	0.7	0.4	0.4	0.4	0.4	0.3	0.3	0.7	0.3	0.3	0.2	0.2	0.2	0.6	0.1	0.1	0.1	0.0
340.	0.4	1.2	0.8	0.4	0.4	0.5	0.5	0.4	0.5	0.7	0.3	0.3	0.2	0.2	0.2	0.5	0.2	0.1	0.1	0.0
350.	0.6	1.1	0.7	0.6	0.5	0.5	0.6	0.5	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.5	0.2	0.1	0.0	0.0
360.	0.6	1.1	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.5	0.2	0.1	0.1	0.0
MAX	1.4	1.2	0.8	0.6	0.5	0.6	0.6	0.5	0.9	0.7	0.3	0.3	0.3	0.3	0.3	0.9	0.4	0.2	0.3	0.4
DEGR.	230	340	10	0	0	210	350	0	20	330	0	10	90	90	300	220	250	220	130	270

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	*	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	*	0.0	0.0	0.9	0.7	0.6	0.5	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10.	*	0.0	0.0	0.7	0.7	0.7	0.5	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
20.	*	0.0	0.0	0.8	0.7	0.7	0.5	0.5	0.5	0.4	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
30.	*	0.0	0.0	0.6	0.7	0.7	0.6	0.5	0.5	0.3	0.0	0.1	0.1	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0
40.	*	0.0	0.0	0.4	0.7	0.5	0.6	0.5	0.4	0.3	0.1	0.3	0.3	0.3	0.8	0.1	0.1	0.0	0.0	0.0	0.0
50.	*	0.0	0.0	0.1	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.5	0.5	0.5	1.0	0.2	0.2	0.1	0.0	0.0	0.0
60.	*	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.6	0.7	0.7	0.7	1.2	0.4	0.3	0.1	0.2	0.0	0.0
70.	*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.1	0.4	0.4	0.2	0.2	0.2	0.0
80.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.5	0.6	0.6	0.9	0.3	0.3	0.2	0.2	0.1	0.0
90.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.5	0.6	0.8	0.3	0.3	0.3	0.2	0.1	0.1
100.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.5	0.6	0.8	0.3	0.3	0.3	0.3	0.1	0.1
110.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4	0.5	0.6	0.8	0.3	0.3	0.3	0.2	0.0	0.0
120.	*	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.5	0.6	0.7	0.3	0.3	0.3	0.3	0.3	0.3
130.	*	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.5	0.5	0.7	0.3	0.3	0.3	0.6	0.5	0.3
140.	*	0.3	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.5	0.5	0.7	0.3	0.3	0.3	0.7	0.7	0.4
150.	*	0.3	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.5	0.6	0.8	0.3	0.3	0.3	0.7	0.5	0.4
160.	*	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.0	0.5	0.5	0.8	0.3	0.3	0.3	0.8	0.5	0.2
170.	*	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.6	1.0	0.5	0.5	0.9	0.3	0.3	0.3	0.8	0.5	0.2
180.	*	0.1	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.7	1.1	0.6	0.7	1.0	0.3	0.3	0.3	0.6	0.3	0.2
190.	*	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.8	0.8	1.0	0.3	0.3	0.3	0.4	0.3	0.2
200.	*	0.1	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.6	0.8	0.7	0.7	1.3	0.4	0.3	0.3	0.4	0.3	0.2
210.	*	0.1	0.1	0.8	0.5	0.2	0.1	0.0	0.1	0.1	0.4	0.4	0.6	0.8	1.5	0.7	0.4	0.4	0.3	0.2	0.2
220.	*	0.1	0.1	0.8	0.5	0.5	0.4	0.1	0.2	0.2	0.4	0.2	0.2	0.3	1.1	0.7	0.4	0.5	0.3	0.2	0.2
230.	*	0.1	0.1	0.7	0.7	0.6	0.4	0.4	0.4	0.5	0.4	0.3	0.0	0.0	0.7	0.6	0.3	0.3	0.3	0.2	0.2
240.	*	0.1	0.1	0.5	0.7	0.9	0.6	0.5	0.6	0.6	0.4	0.2	0.1	0.0	0.3	0.3	0.2	0.1	0.4	0.2	0.2
250.	*	0.1	0.1	0.4	1.0	0.7	0.6	0.7	0.6	0.5	0.6	0.2	0.0	0.0	0.1	0.2	0.0	0.0	0.4	0.2	0.2
260.	*	0.3	0.3	0.5	1.0	0.6	0.5	0.6	0.5	0.5	0.6	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.2	0.2
270.	*	0.3	0.3	0.6	0.7	0.6	0.6	0.5	0.4	0.4	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.2	0.3
280.	*	0.3	0.3	0.7	0.7	0.6	0.6	0.5	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2
290.	*	0.3	0.3	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2
300.	*	0.1	0.1	0.9	0.6	0.6	0.5	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
310.	*	0.0	0.0	0.8	0.6	0.6	0.6	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	*	0.0	0.0	0.7	0.6	0.4	0.6	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	*	0.0	0.0	0.7	0.5	0.5	0.6	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	*	0.0	0.0	0.8	0.6	0.6	0.5	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
350.	*	0.0	0.0	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
360.	*	0.0	0.0	0.9	0.7	0.6	0.5	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
MAX	*	0.3	0.3	0.9	1.0	0.9	0.6	0.7	0.6	0.6	0.7	1.1	0.8	0.8	1.5	0.7	0.4	0.5	0.8	0.7	0.4
DEGR.	*	140	260	0	250	240	30	250	240	240	70	180	190	190	210	210	70	220	160	140	140

PAGE 6

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 AM Peak

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.

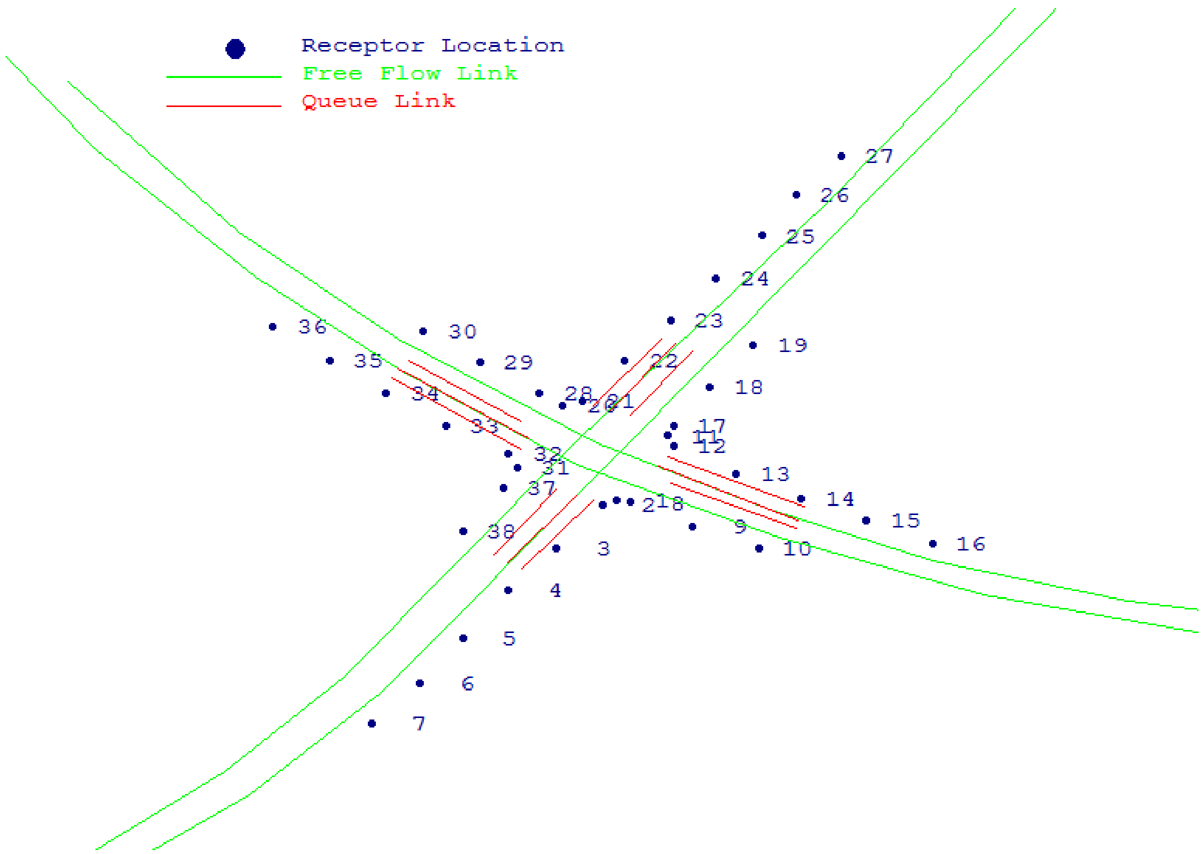
WIND ANGLE RANGE: 0.-360.

WIND * CONCENTRATION
ANGLE * (PPM)

(DEGR)	REC41	REC42	REC43	REC44	REC45	REC46	REC47	REC48	REC49	REC50	REC51	REC52	REC53	REC54	REC55	REC56	REC57
0.	0.0	0.0	0.0	0.6	0.3	0.3	0.2	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.7	0.3	0.3	0.1	0.1	0.1	0.1	0.3	0.0	0.1	0.2	0.3	0.2	0.2
20.	0.0	0.0	0.0	0.7	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.5	0.3	0.3	0.3
30.	0.0	0.0	0.0	0.6	0.5	0.5	0.2	0.1	0.1	0.1	0.3	0.6	0.6	0.4	0.3	0.3	0.3
40.	0.0	0.0	0.0	0.8	0.5	0.4	0.1	0.1	0.1	0.1	0.6	0.8	0.6	0.4	0.3	0.3	0.3
50.	0.0	0.0	0.0	1.0	0.7	0.4	0.1	0.2	0.1	0.1	0.7	0.8	0.5	0.3	0.3	0.3	0.3
60.	0.0	0.0	0.0	0.8	0.8	0.5	0.1	0.2	0.2	0.2	0.6	0.7	0.3	0.3	0.3	0.3	0.2
70.	0.0	0.0	0.0	0.5	0.9	0.8	0.2	0.2	0.2	0.2	0.9	0.7	0.3	0.3	0.3	0.3	0.3
80.	0.0	0.0	0.0	0.3	0.9	0.7	0.3	0.1	0.2	0.2	0.9	0.7	0.3	0.3	0.3	0.2	0.3
90.	0.0	0.0	0.0	0.3	1.0	0.8	0.3	0.3	0.3	0.2	0.7	0.6	0.3	0.3	0.3	0.2	0.3
100.	0.0	0.0	0.0	0.4	0.6	0.9	0.3	0.2	0.4	0.3	0.7	0.6	0.3	0.3	0.3	0.3	0.3
110.	0.0	0.0	0.0	0.5	0.7	0.9	0.4	0.3	0.3	0.2	0.8	0.6	0.3	0.3	0.3	0.2	0.3
120.	0.2	0.2	0.2	0.6	0.5	0.7	0.4	0.2	0.2	0.1	0.6	0.5	0.3	0.3	0.3	0.2	0.3
130.	0.3	0.3	0.2	0.6	0.2	0.3	0.3	0.2	0.0	0.1	0.6	0.6	0.3	0.3	0.3	0.3	0.3
140.	0.2	0.2	0.2	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.6	0.5	0.3	0.3	0.3	0.3	0.3
150.	0.2	0.2	0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.6	0.4	0.3	0.3	0.3	0.3	0.3
160.	0.3	0.2	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.6	0.4	0.3	0.3	0.3	0.3	0.2
170.	0.2	0.2	0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.7	0.4	0.3	0.3	0.3	0.3	0.2
180.	0.2	0.2	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.2	0.2	0.3	0.2	0.1
190.	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.2	0.2	0.1	0.0
200.	0.2	0.2	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
210.	0.2	0.2	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
220.	0.2	0.2	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
230.	0.2	0.2	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
240.	0.2	0.2	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
250.	0.2	0.2	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
260.	0.2	0.2	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
270.	0.2	0.3	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
280.	0.3	0.3	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
290.	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.5	0.6	0.3	0.4	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.4	0.5	0.3	0.3	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.6	0.3	0.3	0.2	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0
MAX	0.3	0.3	0.2	1.0	1.0	0.9	0.4	0.3	0.4	0.3	0.9	0.8	0.6	0.5	0.3	0.3	0.3
DEGR.	130	130	120	50	90	100	110	90	100	100	70	40	30	20	10	20	20

THE HIGHEST CONCENTRATION OF 1.50 PPM OCCURRED AT RECEPTOR REC34.

2012 AM University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway        '  60. 108.0    0.00     0.00 38     1.0000 0 0
'REC1                    '       9.0       -22.0         1.8
'REC2                    '       4.0       -24.0         1.8
'REC3                    '     -12.0       -44.0         1.8
'REC4                    '     -29.0       -64.0         1.8
'REC5                    '     -45.0       -86.0         1.8
'REC6                    '     -60.0      -107.0         1.8
'REC7                    '     -77.0      -126.0         1.8
'REC8                    '      14.0       -23.0         1.8
'REC9                    '      36.0       -34.0         1.8
'REC10                   '      59.0       -44.0         1.8
'REC11                   '      27.0         8.0         1.8
'REC12                   '      29.0         3.0         1.8
'REC13                   '      51.0       -10.0         1.8
'REC14                   '      74.0       -21.0         1.8
'REC15                   '      97.0       -31.0         1.8
'REC16                   '     120.0       -42.0         1.8
'REC17                   '      29.0        13.0         1.8
'REC18                   '      42.0        31.0         1.8
'REC19                   '      57.0        50.0         1.8
'REC20                   '     -10.0        22.0         1.8
'REC21                   '      -3.0        24.0         1.8
'REC22                   '      12.0        43.0         1.8
'REC23                   '      28.0        62.0         1.8
'REC24                   '      44.0        81.0         1.8
'REC25                   '      60.0       101.0         1.8
'REC26                   '      72.0       120.0         1.8
'REC27                   '      88.0       138.0         1.8
'REC28                   '     -18.0        28.0         1.8
'REC29                   '     -39.0        42.0         1.8
'REC30                   '     -59.0        57.0         1.8
'REC31                   '     -26.0        -7.0         1.8
'REC32                   '     -29.0         0.0         1.8
'REC33                   '     -51.0        13.0         1.8
'REC34                   '     -72.0        28.0         1.8
'REC35                   '     -92.0        43.0         1.8
'REC36                   '    -112.0        59.0         1.8
'REC37                   '     -31.0       -16.0         1.8
'REC38                   '     -45.0       -36.0         1.8
'2012 AM Peak                                  '  41    1   0 C
1
'NBA1                    ' 'AG'      528.0       -77.0       325.0       -84.0      547.   5.64       0.0  14.0
1
'NBA2                    ' 'AG'      325.0       -84.0       259.0       -80.0      547.   5.64       0.0  14.0
1
'NBA3                    ' 'AG'      259.0       -80.0       189.0       -69.0      547.   5.64       0.0  14.0
1
'NBA4                    ' 'AG'      189.0       -69.0       120.0       -50.0      547.   5.64       0.0  14.0
1
'NBA5                    ' 'AG'      120.0       -50.0        63.0       -26.0      547.   5.64       0.0  14.0
1
'NBA6                    ' 'AG'       63.0       -26.0         2.0         5.0      547.   5.64       0.0  14.0
1
'NBD1                    ' 'AG'        2.0         5.0       -68.0        53.0      998.   8.16       0.0  14.0
1
'NBD2                    ' 'AG'      -68.0        53.0      -124.0       103.0      998.   8.16       0.0  14.0
1
'NBD3                    ' 'AG'     -124.0       103.0      -184.0       173.0      998.   8.16       0.0  14.0
2
'NBQ                     ' 'AG'       24.0        -6.0        73.0       -31.0       0.0   8.0  2
  110     75    2.0    400   54.18 3725 2 3
2
'NBLQ                    ' 'AG'       28.0       -14.0        72.0       -35.0       0.0   4.0  1
  110     95    2.0     61   54.18 1863 2 3
2
'NBRQ                    ' 'AG'       27.0        -2.0        75.0       -25.0       0.0   4.0  1
  110     75    2.0     86   54.18 1667 2 3
1
'SBA1                    ' 'AG'     -206.0       184.0      -174.0       141.0     1137.   4.19       0.0  14.0
1
'SBA2                    ' 'AG'     -174.0       141.0      -118.0        82.0     1137.   4.19       0.0  14.0
1
'SBA3                    ' 'AG'     -118.0        82.0       -66.0        38.0     1137.   4.19       0.0  14.0
1
'SBA4                    ' 'AG'      -66.0        38.0        -5.0        -5.0     1137.   4.19       0.0  14.0
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1
'SBD1                  ' 'AG'       -5.0        -5.0        66.0       -39.0      694.   5.64       0.0  14.0
1
'SBD2                  ' 'AG'       66.0       -39.0       138.0       -66.0      694.   5.64       0.0  14.0
1
'SBD3                  ' 'AG'      138.0       -66.0       213.0       -83.0      694.   5.64       0.0  14.0
1
'SBD4                  ' 'AG'      213.0       -83.0       296.0       -93.0      694.   5.64       0.0  14.0
1
'SBD5                  ' 'AG'      296.0       -93.0       535.0       -87.0      694.   5.64       0.0  14.0
2
'SBQ                   ' 'AG'      -22.0         7.0       -68.0        39.0       0.0   8.0  2
  110     70    2.0    482  54.18 3725 2 3
2
'SBLQ                  ' 'AG'      -25.0        15.0       -64.0        43.0       0.0   4.0  1
  110     90    2.0    195  54.18 1863 2 3
2
'SBRQ                  ' 'AG'      -25.0         2.0       -70.0        35.0       0.0   4.0  1
  110     70    2.0    460  54.18 1667 2 3
1
'EBA1                  ' 'AG'     -253.0      -245.0      -188.0      -210.0     1076.   9.75       0.0  14.0
1
'EBA2                  ' 'AG'     -188.0      -210.0      -120.0      -159.0     1076.   9.75       0.0  14.0
1
'EBA3                  ' 'AG'     -120.0      -159.0       -74.0      -111.0     1076.   9.75       0.0  14.0
1
'EBA4                  ' 'AG'      -74.0      -111.0         7.0        -4.0     1076.   9.75       0.0  14.0
1
'EBD                   ' 'AG'        7.0        -4.0       180.0       229.0      725.   5.30       0.0  14.0
2
'EBQ                   ' 'AG'       -5.0       -20.0       -29.0       -51.0       0.0   8.0  2
  110     70    2.0    444  54.18 3725 2 3
2
'EBLQ                  ' 'AG'      -12.0       -17.0       -34.0       -47.0       0.0   8.0  2
  110     86    2.0    545  54.18 3614 2 3
2
'EBRQ                  ' 'AG'        1.0       -22.0       -24.0       -54.0       0.0   4.0  1
  110     70    2.0     87  54.18 1667 2 3
1
'WBA1                  ' 'AG'      170.0       235.0        84.0       118.0      443.   7.09       0.0  14.0
1
'WBA2                  ' 'AG'       84.0       118.0        -6.0         4.0      443.   7.09       0.0  14.0
1
'WBD1                  ' 'AG'       -6.0         4.0       -87.0      -104.0      786.   4.09       0.0  14.0
1
'WBD2                  ' 'AG'      -87.0      -104.0      -129.0      -148.0      786.   4.09       0.0  14.0
1
'WBD3                  ' 'AG'     -129.0      -148.0      -180.0      -189.0      786.   4.09       0.0  14.0
1
'WBD4                  ' 'AG'     -180.0      -189.0      -258.0      -235.0      786.   4.09       0.0  14.0
2
'WBQ                   ' 'AG'        7.0        20.0        30.0        51.0       0.0   8.0  2
  110     79    2.0    265  54.18 3725 2 3
2
'WBQL                  ' 'AG'       14.0        18.0        36.0        47.0       0.0   8.0  2
  110     95    2.0    125  54.18 3614 2 3
2
'WBQR                  ' 'AG'        1.0        22.0        25.0        53.0       0.0   4.0  1
  110     79    2.0     53  54.18 1667 2 3
 1.0    0.0 4   1000.0    0.0 'Y'   10    0   36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: University Drive and Martin Luther King Parkway RUN: 2012 AM Peak

DATE : 3/25/15
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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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	528.0	-77.0	325.0	-84.0	203.	268.	AG	547.	5.6	0.0	14.0		
2. NBA2	325.0	-84.0	259.0	-80.0	66.	273.	AG	547.	5.6	0.0	14.0		
3. NBA3	259.0	-80.0	189.0	-69.0	71.	279.	AG	547.	5.6	0.0	14.0		
4. NBA4	189.0	-69.0	120.0	-50.0	72.	285.	AG	547.	5.6	0.0	14.0		
5. NBA5	120.0	-50.0	63.0	-26.0	62.	293.	AG	547.	5.6	0.0	14.0		
6. NBA6	63.0	-26.0	2.0	5.0	68.	297.	AG	547.	5.6	0.0	14.0		
7. NBD1	2.0	5.0	-68.0	53.0	85.	304.	AG	998.	8.2	0.0	14.0		
8. NBD2	-68.0	53.0	-124.0	103.0	75.	312.	AG	998.	8.2	0.0	14.0		
9. NBD3	-124.0	103.0	-184.0	173.0	92.	319.	AG	998.	8.2	0.0	14.0		
10. NBQ	24.0	-6.0	46.3	-17.4	25.	117.	AG	198.	100.0	0.0	8.0	0.19	4.2
11. NBLQ	28.0	-14.0	36.7	-18.2	10.	116.	AG	126.	100.0	0.0	4.0	0.33	1.6
12. NBRQ	27.0	-2.0	36.7	-6.6	11.	116.	AG	99.	100.0	0.0	4.0	0.18	1.8
13. SBA1	-206.0	184.0	-174.0	141.0	54.	143.	AG	1137.	4.2	0.0	14.0		
14. SBA2	-174.0	141.0	-118.0	82.0	81.	136.	AG	1137.	4.2	0.0	14.0		
15. SBA3	-118.0	82.0	-66.0	38.0	68.	130.	AG	1137.	4.2	0.0	14.0		
16. SBA4	-66.0	38.0	-5.0	-5.0	75.	125.	AG	1137.	4.2	0.0	14.0		
17. SBD1	-5.0	-5.0	66.0	-39.0	79.	116.	AG	694.	5.6	0.0	14.0		
18. SBD2	66.0	-39.0	138.0	-66.0	77.	111.	AG	694.	5.6	0.0	14.0		
19. SBD3	138.0	-66.0	213.0	-83.0	77.	103.	AG	694.	5.6	0.0	14.0		
20. SBD4	213.0	-83.0	296.0	-93.0	84.	97.	AG	694.	5.6	0.0	14.0		
21. SBD5	296.0	-93.0	535.0	-87.0	239.	89.	AG	694.	5.6	0.0	14.0		
22. SBQ	-22.0	7.0	-45.1	23.1	28.	305.	AG	185.	100.0	0.0	8.0	0.20	4.7
23. SBLQ	-25.0	15.0	-48.8	32.1	29.	306.	AG	119.	100.0	0.0	4.0	0.72	4.9
24. SBRQ	-25.0	2.0	-68.8	34.2	54.	306.	AG	92.	100.0	0.0	4.0	0.84	9.1
25. EBA1	-253.0	-245.0	-188.0	-210.0	74.	62.	AG	1076.	9.8	0.0	14.0		
26. EBA2	-188.0	-210.0	-120.0	-159.0	85.	53.	AG	1076.	9.8	0.0	14.0		
27. EBA3	-120.0	-159.0	-74.0	-111.0	66.	44.	AG	1076.	9.8	0.0	14.0		
28. EBA4	-74.0	-111.0	7.0	-4.0	134.	37.	AG	1076.	9.8	0.0	14.0		
29. EBD	7.0	-4.0	180.0	229.0	290.	37.	AG	725.	5.3	0.0	14.0		
30. EBQ	-5.0	-20.0	-20.9	-40.5	26.	218.	AG	185.	100.0	0.0	8.0	0.18	4.3
31. EBLQ	-12.0	-17.0	-35.1	-48.4	39.	216.	AG	227.	100.0	0.0	8.0	0.41	6.5
32. EBRQ	1.0	-22.0	-5.2	-30.0	10.	218.	AG	92.	100.0	0.0	4.0	0.16	1.7
33. WBA1	170.0	235.0	84.0	118.0	145.	216.	AG	443.	7.1	0.0	14.0		
34. WBA2	84.0	118.0	-6.0	4.0	145.	218.	AG	443.	7.1	0.0	14.0		
35. WBD1	-6.0	4.0	-87.0	-104.0	135.	217.	AG	786.	4.1	0.0	14.0		
36. WBD2	-87.0	-104.0	-129.0	-148.0	61.	224.	AG	786.	4.1	0.0	14.0		
37. WBD3	-129.0	-148.0	-180.0	-189.0	65.	231.	AG	786.	4.1	0.0	14.0		
38. WBD4	-180.0	-189.0	-258.0	-235.0	91.	239.	AG	786.	4.1	0.0	14.0		
39. WBQ	7.0	20.0	17.4	34.0	17.	37.	AG	209.	100.0	0.0	8.0	0.14	2.9
40. WBQL	14.0	18.0	19.9	25.8	10.	37.	AG	251.	100.0	0.0	8.0	0.17	1.6
41. WBQR	1.0	22.0	5.3	27.5	7.	38.	AG	104.	100.0	0.0	4.0	0.13	1.2

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 AM Peak

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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
10. NBQ	110	75	2.0	400	3725	54.18	2	3
11. NBLQ	110	95	2.0	61	1863	54.18	2	3
12. NBRQ	110	75	2.0	86	1667	54.18	2	3
22. SBQ	110	70	2.0	482	3725	54.18	2	3
23. SBLQ	110	90	2.0	195	1863	54.18	2	3
24. SBRQ	110	70	2.0	460	1667	54.18	2	3
30. EBQ	110	70	2.0	444	3725	54.18	2	3
31. EBLQ	110	86	2.0	545	3614	54.18	2	3
32. EBRQ	110	70	2.0	87	1667	54.18	2	3
39. WBQ	110	79	2.0	265	3725	54.18	2	3
40. WBQL	110	95	2.0	125	3614	54.18	2	3
41. WBQR	110	79	2.0	53	1667	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	9.0	-22.0	1.8
2. REC2	4.0	-24.0	1.8
3. REC3	-12.0	-44.0	1.8
4. REC4	-29.0	-64.0	1.8
5. REC5	-45.0	-86.0	1.8
6. REC6	-60.0	-107.0	1.8
7. REC7	-77.0	-126.0	1.8
8. REC8	14.0	-23.0	1.8
9. REC9	36.0	-34.0	1.8
10. REC10	59.0	-44.0	1.8
11. REC11	27.0	8.0	1.8
12. REC12	29.0	3.0	1.8
13. REC13	51.0	-10.0	1.8
14. REC14	74.0	-21.0	1.8
15. REC15	97.0	-31.0	1.8
16. REC16	120.0	-42.0	1.8
17. REC17	29.0	13.0	1.8
18. REC18	42.0	31.0	1.8
19. REC19	57.0	50.0	1.8
20. REC20	-10.0	22.0	1.8
21. REC21	-3.0	24.0	1.8
22. REC22	12.0	43.0	1.8
23. REC23	28.0	62.0	1.8
24. REC24	44.0	81.0	1.8
25. REC25	60.0	101.0	1.8
26. REC26	72.0	120.0	1.8
27. REC27	88.0	138.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	42.0	1.8
30. REC30	-59.0	57.0	1.8
31. REC31	-26.0	-7.0	1.8
32. REC32	-29.0	0.0	1.8
33. REC33	-51.0	13.0	1.8

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 AM Peak

DATE : 3/25/15
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RECEPTOR LOCATIONS

RECEPTOR	X	Y	Z
34. REC34	-72.0	28.0	1.8
35. REC35	-92.0	43.0	1.8
36. REC36	-112.0	59.0	1.8
37. REC37	-31.0	-16.0	1.8
38. REC38	-45.0	-36.0	1.8

(COORDINATES (M))

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.7	0.7	1.3	1.2	0.6	0.5	0.5	0.5	0.7	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.0
10.	0.7	0.7	1.0	1.2	0.8	0.6	0.6	0.6	0.7	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.0
20.	0.6	0.7	1.0	1.0	0.8	0.7	0.7	0.4	0.5	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.3	0.3	0.2	0.0
30.	0.4	0.4	0.6	1.0	0.8	0.7	0.7	0.5	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0
40.	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1
50.	0.5	0.3	0.2	0.2	0.1	0.1	0.2	0.7	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3
60.	0.5	0.4	0.1	0.2	0.0	0.0	0.0	0.6	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
70.	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.6	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
80.	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
90.	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
100.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.6
110.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.6
120.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.5
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.7
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.6
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.8	0.1	0.2	0.2	0.2	0.3	0.0	0.0	0.6
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.1	0.2	0.2	0.2	0.2	0.6	0.0	0.0	0.6
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.0	0.2	0.2	0.2	0.2	0.7	0.1	0.0	0.8
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.0	0.2	0.2	0.2	0.2	0.7	0.1	0.0	0.9
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	0.2	0.2	0.2	0.2	0.5	0.1	0.1	0.9
200.	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.3	0.1	0.2	0.2	0.4	0.1	0.1	0.9
210.	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.5	0.6	0.4	0.1	0.2	0.2	0.7	0.3	0.3	0.8
220.	0.3	0.6	0.4	0.5	0.5	0.4	0.3	0.1	0.0	0.0	0.8	0.7	0.5	0.2	0.2	0.2	0.8	0.5	0.3	0.7
230.	0.7	1.0	0.6	0.6	0.7	0.5	0.5	0.4	0.1	0.0	1.0	0.8	0.7	0.2	0.2	0.2	0.8	0.6	0.6	0.6
240.	1.2	1.5	0.7	0.5	0.5	0.6	0.5	0.8	0.1	0.0	0.7	0.8	1.1	0.3	0.2	0.2	0.6	0.7	0.6	0.9
250.	1.3	1.7	0.6	0.5	0.4	0.5	0.4	1.1	0.2	0.1	0.5	0.8	1.1	0.5	0.3	0.2	0.3	0.8	0.6	0.9
260.	1.4	1.7	0.7	0.5	0.5	0.5	0.5	0.9	0.3	0.1	0.5	0.3	1.2	0.6	0.2	0.3	0.4	0.8	0.3	1.0
270.	1.1	1.5	0.8	0.5	0.5	0.4	0.5	0.8	0.4	0.3	0.5	0.5	1.1	0.6	0.4	0.3	0.7	0.7	0.2	0.9
280.	0.8	1.4	0.9	0.4	0.4	0.3	0.4	0.6	0.3	0.3	0.8	0.6	0.9	0.5	0.4	0.1	1.0	0.4	0.2	0.8
290.	0.5	1.1	1.0	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.7	0.6	0.6	0.4	0.2	0.2	0.8	0.3	0.2	0.6
300.	0.6	1.2	1.1	0.4	0.4	0.4	0.4	0.6	0.5	0.4	0.5	0.4	0.6	0.3	0.1	0.1	0.8	0.2	0.2	0.4
310.	0.9	1.1	1.2	0.4	0.4	0.4	0.4	0.8	0.6	0.4	0.6	0.4	0.2	0.1	0.0	0.0	0.9	0.2	0.2	0.3
320.	0.9	0.9	1.2	0.5	0.4	0.4	0.3	0.7	0.3	0.5	0.7	0.5	0.2	0.0	0.0	0.0	0.7	0.2	0.2	0.1
330.	0.6	0.7	1.6	0.5	0.4	0.4	0.3	0.4	0.6	0.5	0.7	0.5	0.0	0.0	0.0	0.0	0.6	0.2	0.2	0.0
340.	0.4	0.6	1.7	0.6	0.4	0.4	0.3	0.3	0.7	0.3	0.6	0.4	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.0
350.	0.5	0.5	1.6	1.1	0.5	0.5	0.5	0.6	0.7	0.2	0.4	0.4	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.0
360.	0.7	0.7	1.3	1.2	0.6	0.5	0.5	0.5	0.7	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.0
MAX	1.4	1.7	1.7	1.2	0.8	0.7	0.7	1.1	0.7	0.5	1.0	1.1	1.2	0.6	0.4	0.3	1.0	0.8	0.6	1.0
DEGR.	260	250	340	0	10	20	20	250	0	320	230	160	260	260	270	260	280	250	230	260

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 AM Peak

MODEL RESULTS

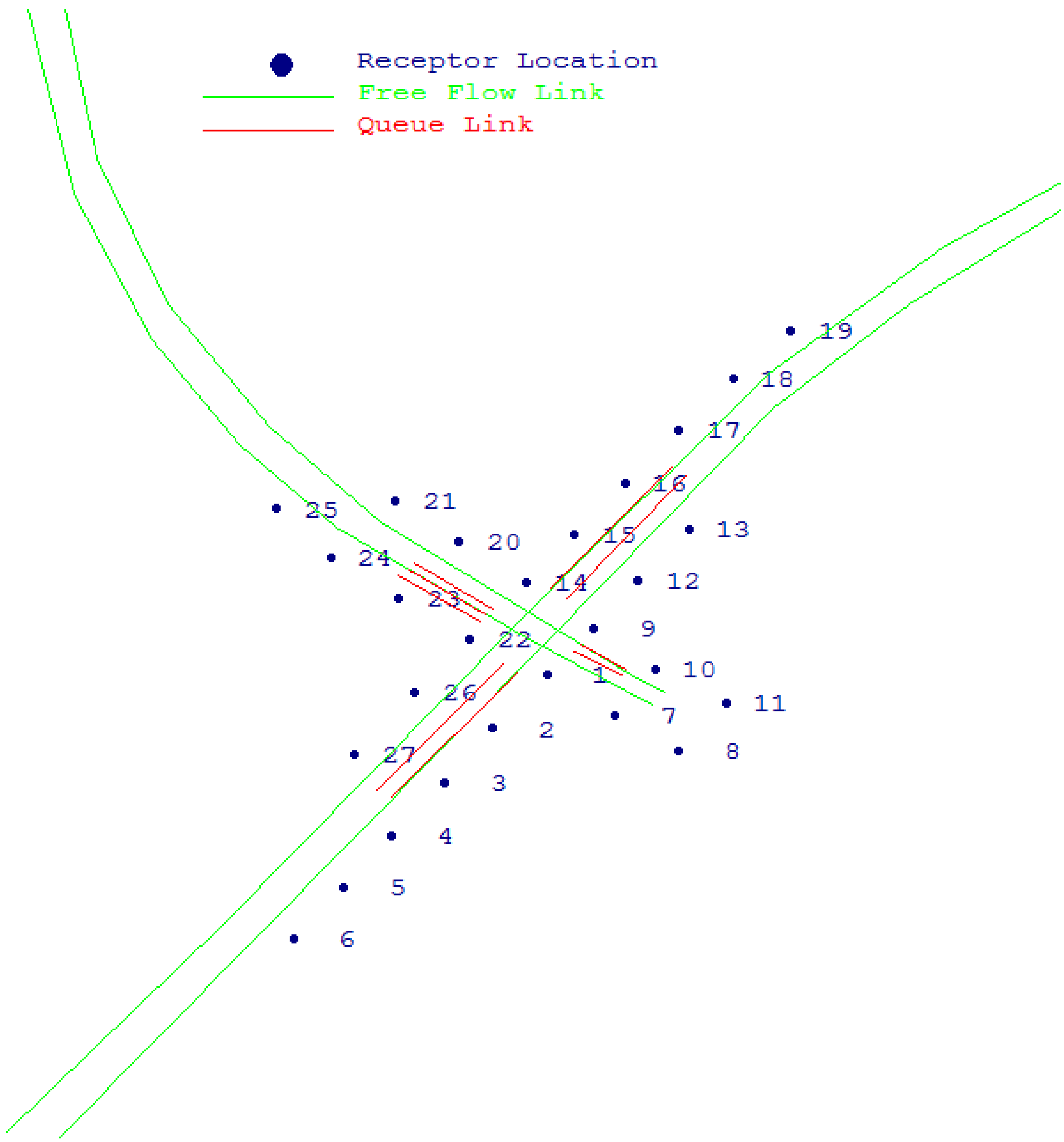
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.2	0.5	0.2	0.2	0.2	0.6	0.3
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1	0.5	0.3	0.2	0.2	0.6	0.4
20.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.0	0.6	0.3	0.2	0.2	0.4	0.3
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.9	0.8	0.4	0.2	0.2	0.3	0.3
40.	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.5	1.0	0.9	0.4	0.2	0.2	0.6	0.3
50.	0.4	0.2	0.2	0.2	0.3	0.2	0.3	0.0	0.0	0.0	0.7	0.9	1.0	0.4	0.2	0.2	0.7	0.5
60.	0.7	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.7	0.9	1.0	0.4	0.2	0.2	0.3	0.6
70.	0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.0	0.0	0.4	0.7	1.0	0.4	0.3	0.2	0.2	1.0
80.	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.0	0.0	0.4	0.4	1.0	0.6	0.2	0.2	0.5	1.0
90.	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.0	0.0	0.6	0.4	1.0	0.9	0.3	0.3	0.8	0.9
100.	1.1	0.2	0.2	0.2	0.2	0.1	0.2	0.5	0.1	0.0	0.5	0.6	0.8	0.9	0.7	0.3	0.9	0.8
110.	0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.7	0.5	0.7	0.8	0.6	0.2	0.9	0.8
120.	0.7	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.2	0.5	0.5	0.5	0.6	0.4	0.5	0.9	0.7
130.	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.5	0.4	0.5	0.7	0.4	0.3	0.5	0.4	0.2	1.0	0.6
140.	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.6	0.7	0.8	0.8	0.6	0.4	0.3	0.2	0.2	0.9	0.5
150.	0.6	0.7	0.2	0.2	0.2	0.2	0.2	0.5	1.1	1.1	0.9	0.7	0.4	0.2	0.2	0.1	0.9	0.4
160.	0.4	0.9	0.2	0.2	0.2	0.2	0.2	0.6	1.2	0.9	0.9	0.8	0.2	0.1	0.1	0.0	0.8	0.4
170.	0.4	0.9	0.3	0.2	0.2	0.2	0.2	0.7	1.3	0.8	0.9	0.7	0.2	0.1	0.0	0.0	0.8	0.3
180.	0.7	0.9	0.4	0.3	0.2	0.2	0.2	1.0	1.2	0.6	0.8	0.6	0.1	0.0	0.0	0.0	0.6	0.3
190.	1.0	0.9	0.5	0.3	0.2	0.2	0.3	0.9	0.9	0.4	0.6	0.5	0.1	0.0	0.0	0.0	0.5	0.3
200.	1.0	0.9	0.6	0.4	0.3	0.2	0.3	1.0	0.7	0.3	0.5	0.3	0.0	0.0	0.0	0.0	0.5	0.4
210.	0.6	0.7	0.5	0.4	0.2	0.2	0.2	0.9	0.7	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.3	0.4
220.	0.6	0.4	0.5	0.3	0.1	0.1	0.1	0.9	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
230.	0.5	0.2	0.2	0.2	0.0	0.0	0.0	0.9	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.9	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.9	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.9	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.7	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.4	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.7	0.2	0.1	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.7	1.2	0.5	0.3	0.3	0.2	0.2	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.3	0.6	0.4	0.4	0.2	0.5	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.5	0.6	0.4	0.2	0.4	0.6	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.4	0.4	0.2	0.2	0.4	0.6	0.2
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.2	0.5	0.2	0.2	0.2	0.6	0.3
MAX	1.1	0.9	0.6	0.4	0.3	0.2	0.3	1.0	1.3	1.1	0.9	1.5	1.0	0.9	0.7	0.5	1.0	1.0
DEGR.	80	160	200	200	40	50	50	200	170	150	150	340	50	90	100	120	130	70

THE HIGHEST CONCENTRATION OF 1.70 PPM OCCURRED AT RECEPTOR REC3 .

2012 AM University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive      '  60. 108.0    0.00    0.00 27     1.0000 0 0
'REC1                  '        4.0      -18.0        1.8
'REC2                  '      -12.0      -39.0        1.8
'REC3                  '      -26.0      -60.0        1.8
'REC4                  '      -42.0      -81.0        1.8
'REC5                  '      -56.0     -101.0        1.8
'REC6                  '      -71.0     -121.0        1.8
'REC7                  '       24.0      -34.0        1.8
'REC8                  '       43.0      -48.0        1.8
'REC9                  '       18.0        0.0        1.8
'REC10                 '       36.0      -16.0        1.8
'REC11                 '       57.0      -29.0        1.8
'REC12                 '       31.0       19.0        1.8
'REC13                 '       46.0       39.0        1.8
'REC14                 '       -2.0       18.0        1.8
'REC15                 '       12.0       37.0        1.8
'REC16                 '       27.0       57.0        1.8
'REC17                 '       43.0       78.0        1.8
'REC18                 '       59.0       98.0        1.8
'REC19                 '       76.0      117.0        1.8
'REC20                 '      -22.0       34.0        1.8
'REC21                 '      -41.0       50.0        1.8
'REC22                 '      -19.0       -4.0        1.8
'REC23                 '      -40.0       12.0        1.8
'REC24                 '      -60.0       28.0        1.8
'REC25                 '      -76.0       47.0        1.8
'REC26                 '      -35.0      -25.0        1.8
'REC27                 '      -53.0      -49.0        1.8
'2012 AM Peak                             '  37   1   0 C
1
'NBA1                  ' 'AG'      39.0      -25.0       29.0      -18.0      56.   7.50      0.0  10.0
1
'NBA2                  ' 'AG'      29.0      -18.0        3.0        3.0      56.   7.50      0.0  10.0
1
'NBD1                  ' 'AG'       3.0        3.0      -45.0       42.0     146.   6.65      0.0  14.0
1
'NBD2                  ' 'AG'     -45.0       42.0      -78.0       79.0     146.   6.65      0.0  14.0
1
'NBD3                  ' 'AG'     -78.0       79.0     -108.0      127.0     146.   6.65      0.0  14.0
1
'NBD4                  ' 'AG'    -108.0      127.0     -129.0      184.0     146.   6.65      0.0  14.0
1
'NBD5                  ' 'AG'    -129.0      184.0     -140.0      253.0     146.   6.65      0.0  14.0
2
'NBQ                   ' 'AG'      14.0       -6.0       27.0      -16.0      0.0   4.0  1
  110    86   2.0    21  54.18 1808 2 3
2
'NBLQ                  ' 'AG'      12.0       -9.0       26.0      -18.0      0.0   4.0  1
  110    86   2.0    12  54.18 1425 2 3
1
'SBA1                  ' 'AG'    -151.0      251.0     -136.0      170.0     248.   6.08      0.0  14.0
1
'SBA2                  ' 'AG'    -136.0      170.0     -113.0      113.0     248.   6.08      0.0  14.0
1
'SBA3                  ' 'AG'    -113.0      113.0      -87.0       72.0     248.   6.08      0.0  14.0
1
'SBA4                  ' 'AG'     -87.0       72.0      -58.0       40.0     248.   6.08      0.0  14.0
1
'SBA5                  ' 'AG'     -58.0       40.0       -2.0       -3.0     248.   6.08      0.0  10.0
1
'SBD                   ' 'AG'      -2.0       -3.0       35.0      -30.0      92.   5.30      0.0  10.0
2
'SBQ                   ' 'AG'     -14.0        6.0      -37.0       23.0      0.0   4.0  1
  110    82   2.0    42  54.18 1961 2 3
2
'SBLQ                  ' 'AG'     -12.0        8.0      -35.0       26.0      0.0   4.0  1
  110    91   2.0    57  54.18 1290 2 3
2
'SBRQ                  ' 'AG'     -16.0        3.0      -40.0       21.0      0.0   4.0  1
  110    86   2.0   149  54.18 1667 2 3
1
'EBA                   ' 'AG'    -169.0     -238.0        4.0       -5.0     448.   6.08      0.0  14.0
1
'EBD1                  ' 'AG'       4.0       -5.0       71.0       86.0     435.  11.58      0.0  14.0
1
```

```
'EBD2               ' 'AG'      71.0       86.0      111.0      127.0     435.  11.58      0.0  14.0
1
'EBD3               ' 'AG'     111.0      127.0      158.0      165.0     435.  11.58      0.0  14.0
1
'EBD4               ' 'AG'     158.0      165.0      224.0      203.0     435.  11.58      0.0  14.0
1
'EBD5               ' 'AG'     224.0      203.0      283.0      226.0     435.  11.58      0.0  14.0
1
'EBD6               ' 'AG'     283.0      226.0      386.0      252.0     435.  11.58      0.0  14.0
2
'EBQ                ' 'AG'      -5.0      -17.0      -42.0      -66.0      0.0   8.0  2
  110    61   2.0   364  54.18 3711 2 3
2
'EBLQ               ' 'AG'      -9.0      -14.0      -46.0      -63.0      0.0   4.0  1
  110    43   2.0    84  54.18  963 2 3
1
'WBA1               ' 'AG'     385.0      264.0      265.0      231.0     375.   3.60      0.0  14.0
1
'WBA2               ' 'AG'     265.0      231.0      219.0      211.0     375.   3.60      0.0  14.0
1
'WBA3               ' 'AG'     219.0      211.0      170.0      185.0     375.   3.60      0.0  14.0
1
'WBA4               ' 'AG'     170.0      185.0      121.0      149.0     375.   3.60      0.0  14.0
1
'WBA5               ' 'AG'     121.0      149.0       70.0      100.0     375.   3.60      0.0  14.0
1
'WBA6               ' 'AG'      70.0      100.0       -5.0        2.0     375.   3.60      0.0  14.0
1
'WBD1               ' 'AG'      -5.0        2.0      -92.0     -116.0     454.   6.08      0.0  14.0
1
'WBD2               ' 'AG'     -92.0     -116.0     -182.0     -230.0     454.   6.08      0.0  14.0
2
'WBQ                ' 'AG'       5.0       16.0       41.0       63.0      0.0   8.0  2
  110    67   2.0   334  54.18 3658 2 3
2
'WBQL               ' 'AG'      10.0       12.0       45.0       60.0      0.0   4.0  1
  110    49   2.0    41  54.18  976 2 3
 1.0    0.0 4  1000.0   0.0 'Y'  10    0  36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: University Drive and Westgate Drive                  RUN: 2012 AM Peak

      DATE :  3/25/15
      TIME : 15:18:17

         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 = 108. CM
        U =  1.0 M/S         CLAS =    4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION      *          LINK COORDINATES (M)           *   LENGTH  BRG TYPE  VPH    EF      H   W    V/C QUEUE
                               *   X1         Y1         X2         Y2   *    (M)   (DEG)           (G/MI)   (M)  (M)        (VEH)
      -------------------------*-----------------------------------------*---------------------------------------------------------
-
       1. NBA1                 *     39.0     -25.0      29.0     -18.0 *     12.   305. AG     56.   7.5   0.0 10.0
       2. NBA2                 *     29.0     -18.0       3.0       3.0 *     33.   309. AG     56.   7.5   0.0 10.0
       3. NBD1                 *      3.0       3.0     -45.0      42.0 *     62.   309. AG    146.   6.7   0.0 14.0
       4. NBD2                 *    -45.0      42.0     -78.0      79.0 *     50.   318. AG    146.   6.7   0.0 14.0
       5. NBD3                 *    -78.0      79.0    -108.0     127.0 *     57.   328. AG    146.   6.7   0.0 14.0
       6. NBD4                 *   -108.0     127.0    -129.0     184.0 *     61.   340. AG    146.   6.7   0.0 14.0
       7. NBD5                 *   -129.0     184.0    -140.0     253.0 *     70.   351. AG    146.   6.7   0.0 14.0
       8. NBQ                  *     14.0      -6.0      16.4      -7.8 *      3.   128. AG    114. 100.0   0.0  4.0 0.06    0.5
       9. NBLQ                 *     12.0      -9.0      13.4      -9.9 *      2.   123. AG    114. 100.0   0.0  4.0 0.05    0.3
      10. SBA1                 *   -151.0     251.0    -136.0     170.0 *     82.   170. AG    248.   6.1   0.0 14.0
      11. SBA2                 *   -136.0     170.0    -113.0     113.0 *     61.   158. AG    248.   6.1   0.0 14.0
      12. SBA3                 *   -113.0     113.0     -87.0      72.0 *     49.   148. AG    248.   6.1   0.0 14.0
      13. SBA4                 *    -87.0      72.0     -58.0      40.0 *     43.   138. AG    248.   6.1   0.0 14.0
      14. SBA5                 *    -58.0      40.0      -2.0      -3.0 *     71.   128. AG    248.   6.1   0.0 10.0
      15. SBD                  *     -2.0      -3.0      35.0     -30.0 *     46.   126. AG     92.   5.3   0.0 10.0
      16. SBQ                  *    -14.0       6.0     -18.6       9.4 *      6.   306. AG    108. 100.0   0.0  4.0 0.10    1.0
      17. SBLQ                 *    -12.0       8.0     -18.8      13.3 *      9.   308. AG    120. 100.0   0.0  4.0 0.33    1.4
      18. SBRQ                 *    -16.0       3.0     -33.1      15.8 *     21.   307. AG    114. 100.0   0.0  4.0 0.49    3.6
      19. EBA                  *   -169.0    -238.0       4.0      -5.0 *    290.    37. AG    448.   6.1   0.0 14.0
      20. EBD1                 *      4.0      -5.0      71.0      86.0 *    113.    36. AG    435.  11.6   0.0 14.0
      21. EBD2                 *     71.0      86.0     111.0     127.0 *     57.    44. AG    435.  11.6   0.0 14.0
      22. EBD3                 *    111.0     127.0     158.0     165.0 *     60.    51. AG    435.  11.6   0.0 14.0
      23. EBD4                 *    158.0     165.0     224.0     203.0 *     76.    60. AG    435.  11.6   0.0 14.0
      24. EBD5                 *    224.0     203.0     283.0     226.0 *     63.    69. AG    435.  11.6   0.0 14.0
      25. EBD6                 *    283.0     226.0     386.0     252.0 *    106.    76. AG    435.  11.6   0.0 14.0
      26. EBQ                  *     -5.0     -17.0     -16.2     -31.8 *     19.   217. AG    161. 100.0   0.0  8.0 0.12    3.1
      27. EBLQ                 *     -9.0     -14.0     -12.6     -18.8 *      6.   217. AG     57. 100.0   0.0  4.0 0.15    1.0
      28. WBA1                 *    385.0     264.0     265.0     231.0 *    124.   255. AG    375.   3.6   0.0 14.0
      29. WBA2                 *    265.0     231.0     219.0     211.0 *     50.   247. AG    375.   3.6   0.0 14.0
      30. WBA3                 *    219.0     211.0     170.0     185.0 *     55.   242. AG    375.   3.6   0.0 14.0
      31. WBA4                 *    170.0     185.0     121.0     149.0 *     61.   234. AG    375.   3.6   0.0 14.0
      32. WBA5                 *    121.0     149.0      70.0     100.0 *     71.   226. AG    375.   3.6   0.0 14.0
      33. WBA6                 *     70.0     100.0      -5.0       2.0 *    123.   217. AG    375.   3.6   0.0 14.0
      34. WBD1                 *     -5.0       2.0     -92.0    -116.0 *    147.   216. AG    454.   6.1   0.0 14.0
      35. WBD2                 *    -92.0    -116.0    -182.0    -230.0 *    145.   218. AG    454.   6.1   0.0 14.0
      36. WBQ                  *      5.0      16.0      16.3      30.8 *     19.    37. AG    177. 100.0   0.0  8.0 0.13    3.1
      37. WBQL                 *     10.0      12.0      12.0      14.7 *      3.    36. AG     65. 100.0   0.0  4.0 0.08    0.6
```

JOB: University Drive and Westgate Drive RUN: 2012 AM Peak

DATE : 3/25/15
TIME : 15:18:17

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
8. NBQ	110	86	2.0	21	1808	54.18	2	3
9. NBLQ	110	86	2.0	12	1425	54.18	2	3
16. SBQ	110	82	2.0	42	1961	54.18	2	3
17. SBLQ	110	91	2.0	57	1290	54.18	2	3
18. SBRQ	110	86	2.0	149	1667	54.18	2	3
26. EBQ	110	61	2.0	364	3711	54.18	2	3
27. EBLQ	110	43	2.0	84	963	54.18	2	3
36. WBQ	110	67	2.0	334	3658	54.18	2	3
37. WBQL	110	49	2.0	41	976	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	4.0	-18.0	1.8
2. REC2	-12.0	-39.0	1.8
3. REC3	-26.0	-60.0	1.8
4. REC4	-42.0	-81.0	1.8
5. REC5	-56.0	-101.0	1.8
6. REC6	-71.0	-121.0	1.8
7. REC7	24.0	-34.0	1.8
8. REC8	43.0	-48.0	1.8
9. REC9	18.0	0.0	1.8
10. REC10	36.0	-16.0	1.8
11. REC11	57.0	-29.0	1.8
12. REC12	31.0	19.0	1.8
13. REC13	46.0	39.0	1.8
14. REC14	-2.0	18.0	1.8
15. REC15	12.0	37.0	1.8
16. REC16	27.0	57.0	1.8
17. REC17	43.0	78.0	1.8
18. REC18	59.0	98.0	1.8
19. REC19	76.0	117.0	1.8
20. REC20	-22.0	34.0	1.8
21. REC21	-41.0	50.0	1.8
22. REC22	-19.0	-4.0	1.8
23. REC23	-40.0	12.0	1.8
24. REC24	-60.0	28.0	1.8
25. REC25	-76.0	47.0	1.8
26. REC26	-35.0	-25.0	1.8
27. REC27	-53.0	-49.0	1.8

PAGE 3

JOB: University Drive and Westgate Drive RUN: 2012 AM Peak

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.-360.

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.	0.3	0.5	0.2	0.2	0.2	0.2	0.1	0.0	0.3	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.3	0.5	0.3	0.2	0.2	0.2	0.1	0.0	0.3	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.3	0.6	0.2	0.1	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.2	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.4	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	0.1	0.0	0.0	0.1	0.1	0.5	0.2	0.1	0.1	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.2	0.2	0.1	0.2	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.2	0.3	0.1	0.3	0.1
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.2	0.1	0.1	0.2	0.1
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.1	0.1	0.1	0.2
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.1	0.1	0.1	0.2
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.1	0.2
120.	0.0	0.0	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	0.1	0.1	0.1	0.1	0.2
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.2
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.1	0.1	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.1	0.1	0.1	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.1	0.1	0.1	0.2
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.1	0.1	0.3
180.	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	0.7	0.2	0.2	0.2	0.1	0.1
190.	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	0.3	0.7	0.3	0.2	0.2	0.2	0.1
200.	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	0.3	0.7	0.3	0.3	0.2	0.1	0.1
210.	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.0	0.0	0.1	0.1	0.2	0.4	0.2	0.3	0.2	0.1	0.1
220.	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.4	0.0	0.0	0.3	0.2	0.3	0.1	0.1	0.1	0.0	0.1	0.0
230.	0.6	0.3	0.1	0.1	0.2	0.2	0.0	0.0	0.4	0.0	0.0	0.5	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0
240.	0.6	0.2	0.2	0.1	0.1	0.2	0.0	0.0	0.4	0.0	0.0	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0
250.	0.6	0.2	0.2	0.2	0.1	0.2	0.0	0.0	0.3	0.1	0.0	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.6	0.2	0.2	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.0	0.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.3	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.3	0.2	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.2	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.1	0.4	0.2	0.2	0.2	0.2	0.0	0.0	0.3	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.1	0.6	0.2	0.2	0.2	0.2	0.2	0.0	0.4	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.3	0.7	0.2	0.2	0.2	0.2	0.2	0.1	0.4	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.3	0.5	0.2	0.2	0.2	0.2	0.1	0.0	0.3	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.6	0.7	0.3	0.2	0.2	0.2	0.2	0.1	0.4	0.2	0.1	0.5	0.3	0.7	0.7	0.3	0.3	0.2	0.3	0.3
DEGR.	230	350	10	0	0	0	340	290	220	310	270	230	230	60	200	190	70	180	70	170

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JOB: University Drive and Westgate Drive RUN: 2012 AM Peak

MODEL RESULTS

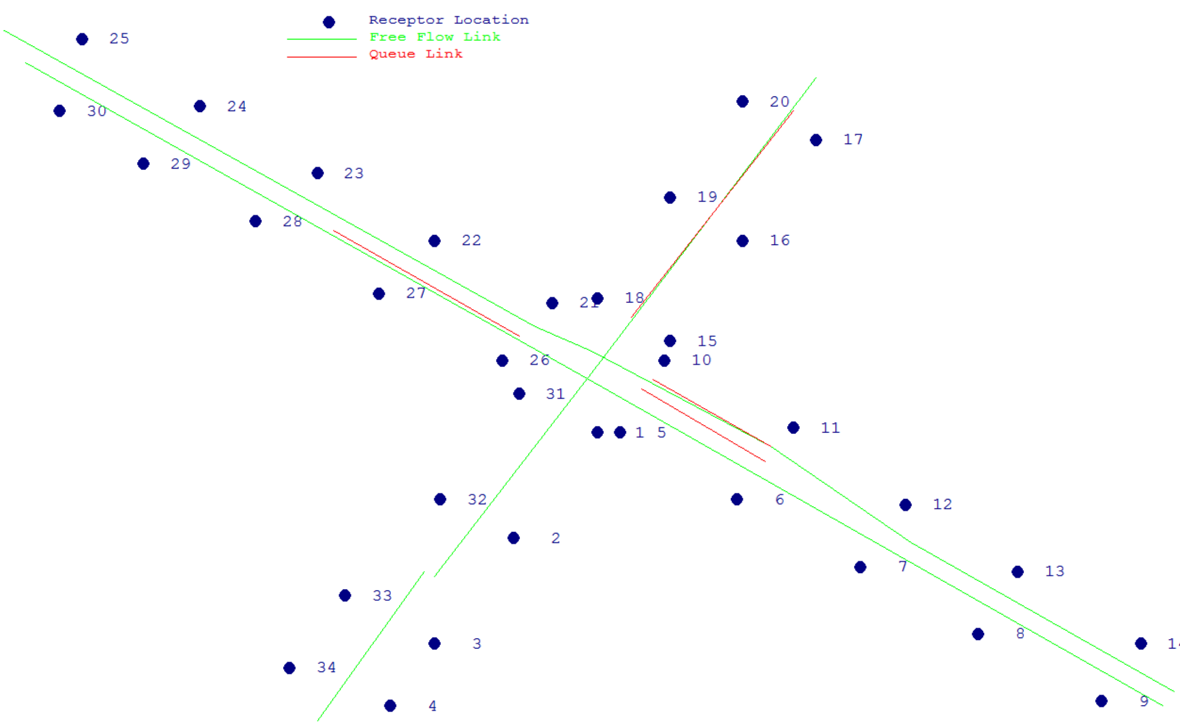
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27
0.	0.0	0.4	0.0	0.0	0.1	0.0	0.0
10.	0.0	0.4	0.0	0.0	0.0	0.1	0.0
20.	0.0	0.3	0.0	0.0	0.0	0.1	0.0
30.	0.0	0.4	0.0	0.0	0.0	0.1	0.0
40.	0.0	0.2	0.0	0.0	0.0	0.3	0.1
50.	0.0	0.3	0.1	0.0	0.0	0.3	0.3
60.	0.0	0.3	0.1	0.0	0.0	0.2	0.3
70.	0.0	0.2	0.4	0.0	0.0	0.2	0.3
80.	0.0	0.2	0.4	0.0	0.0	0.4	0.2
90.	0.0	0.2	0.6	0.1	0.0	0.4	0.2
100.	0.0	0.1	0.4	0.1	0.0	0.4	0.2
110.	0.1	0.1	0.2	0.1	0.0	0.3	0.2
120.	0.1	0.2	0.1	0.1	0.0	0.3	0.2
130.	0.0	0.3	0.1	0.1	0.0	0.2	0.2
140.	0.0	0.4	0.1	0.0	0.0	0.2	0.2
150.	0.1	0.4	0.1	0.0	0.0	0.2	0.2
160.	0.1	0.4	0.0	0.0	0.0	0.2	0.2
170.	0.1	0.4	0.0	0.0	0.0	0.2	0.2
180.	0.0	0.3	0.0	0.0	0.0	0.2	0.2
190.	0.0	0.2	0.0	0.0	0.0	0.2	0.2
200.	0.0	0.2	0.0	0.0	0.0	0.2	0.2
210.	0.0	0.2	0.0	0.0	0.0	0.2	0.2
220.	0.0	0.1	0.0	0.0	0.0	0.1	0.1
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.1	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.1	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.2	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.3	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.4	0.0	0.0	0.1	0.0	0.0
360.	0.0	0.4	0.0	0.0	0.1	0.0	0.0
MAX	0.1	0.4	0.6	0.1	0.1	0.4	0.3
DEGR.	110	0	90	90	0	80	50

THE HIGHEST CONCENTRATION OF 0.70 PPM OCCURRED AT RECEPTOR REC15.

2012 PM Mangum Street and Main Street



CAL3QHC Input File

```
'Mangum Street and Main Street          '  60. 108.0    0.00     0.00 34     1.0000 0 0
'REC1                 '         2.0       -15.0         1.8
'REC2                 '       -13.0       -37.0         1.8
'REC3                 '       -27.0       -59.0         1.8
'REC4                 '       -35.0       -72.0         1.8
'REC5                 '         6.0       -15.0         1.8
'REC6                 '        27.0       -29.0         1.8
'REC7                 '        49.0       -43.0         1.8
'REC8                 '        70.0       -57.0         1.8
'REC9                 '        92.0       -71.0         1.8
'REC10                '        14.0         0.0         1.8
'REC11                '        37.0       -14.0         1.8
'REC12                '        57.0       -30.0         1.8
'REC13                '        77.0       -44.0         1.8
'REC14                '        99.0       -59.0         1.8
'REC15                '        15.0         4.0         1.8
'REC16                '        28.0        25.0         1.8
'REC17                '        41.0        46.0         1.8
'REC18                '         2.0        13.0         1.8
'REC19                '        15.0        34.0         1.8
'REC20                '        28.0        54.0         1.8
'REC21                '        -6.0        12.0         1.8
'REC22                '       -27.0        25.0         1.8
'REC23                '       -48.0        39.0         1.8
'REC24                '       -69.0        53.0         1.8
'REC25                '       -90.0        67.0         1.8
'REC26                '       -15.0         0.0         1.8
'REC27                '       -37.0        14.0         1.8
'REC28                '       -59.0        29.0         1.8
'REC29                '       -79.0        41.0         1.8
'REC30                '       -94.0        52.0         1.8
'REC31                '       -12.0        -7.0         1.8
'REC32                '       -26.0       -29.0         1.8
'REC33                '       -43.0       -49.0         1.8
'REC34                '       -53.0       -64.0         1.8
'2012 PM Peak                           '  14    1  0 C
1
'SBA                  ' 'AG'       41.0       59.0        2.0       -1.0      914.   8.34      0.0  14.0
1
'SBD1                 ' 'AG'        2.0       -1.0      -27.0      -45.0     1025.   8.98      0.0  14.0
1
'SBD2                 ' 'AG'      -29.0      -44.0      -48.0      -75.0     1025.   8.98      0.0  18.0
2
'SBQ                  ' 'AG'        8.0        9.0       37.0       52.0        0.0   8.0  2
   90    45    2.0  1025  54.18 3430 2 3
1
'EBA                  ' 'AG'     -100.0       62.0       -1.0       -3.0      206.   6.65      0.0  10.0
1
'EBD                  ' 'AG'       -1.0       -3.0      103.0      -72.0      212.   6.65      0.0  10.0
2
'EBQ                  ' 'AG'      -12.0        5.0      -45.0       27.0        0.0   4.0  1
   90    60    2.0   206  54.18 1789 2 3
1
'WBA1                 ' 'AG'      105.0      -69.0       58.0      -38.0      313.   6.65      0.0  10.0
1
'WBA2                 ' 'AG'       58.0      -38.0       33.0      -18.0      313.   6.65      0.0  10.0
1
'WBA3                 ' 'AG'       33.0      -18.0        1.0        2.0      313.   6.65      0.0  10.0
1
'WBD1                 ' 'AG'        1.0        2.0       -9.0        7.0      196.   6.65      0.0  10.0
1
'WBD2                 ' 'AG'       -9.0        7.0      -98.0       65.0      196.   6.65      0.0  10.0
2
'WBQ                  ' 'AG'       12.0       -4.0       33.0      -18.0        0.0   4.0  1
   90    45    2.0   177  54.18 1827 2 3
2
'WBLQ                 ' 'AG'       10.0       -6.0       32.0      -21.0        0.0   4.0  1
   90    75    2.0   136  54.18 1736 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Mangum Street and Main Street                       RUN: 2012 PM Peak

      DATE :  5/13/15
      TIME :  8:21:18

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2    *    (M)   (DEG)           (G/MI)   (M)  (M)        (VEH)
      ------------------------*---------------------------------------*--------------------------------------------------------
-
       1. SBA                 *     41.0      59.0       2.0      -1.0 *     72.   213. AG    914.    8.3   0.0 14.0
       2. SBD1                *      2.0      -1.0     -27.0     -45.0 *     53.   213. AG   1025.    9.0   0.0 14.0
       3. SBD2                *    -29.0     -44.0     -48.0     -75.0 *     36.   212. AG   1025.    9.0   0.0 18.0
       4. SBQ                 *      8.0       9.0      29.5      40.8 *     38.    34. AG    145. 100.0   0.0  8.0 0.33    6.4
       5. EBA                 *   -100.0      62.0      -1.0      -3.0 *    118.   123. AG    206.    6.7   0.0 10.0
       6. EBD                 *     -1.0      -3.0     103.0     -72.0 *    125.   124. AG    212.    6.7   0.0 10.0
       7. EBQ                 *    -12.0       5.0     -29.1      16.4 *     21.   304. AG     97. 100.0   0.0  4.0 0.40    3.4
       8. WBA1                *    105.0     -69.0      58.0     -38.0 *     56.   303. AG    313.    6.7   0.0 10.0
       9. WBA2                *     58.0     -38.0      33.0     -18.0 *     32.   309. AG    313.    6.7   0.0 10.0
      10. WBA3                *     33.0     -18.0       1.0       2.0 *     38.   302. AG    313.    6.7   0.0 10.0
      11. WBD1                *      1.0       2.0      -9.0       7.0 *     11.   297. AG    196.    6.7   0.0 10.0
      12. WBD2                *     -9.0       7.0     -98.0      65.0 *    106.   303. AG    196.    6.7   0.0 10.0
      13. WBQ                 *     12.0      -4.0      23.0     -11.4 *     13.   124. AG     73. 100.0   0.0  4.0 0.21    2.2
      14. WBLQ                *     10.0      -6.0      24.0     -15.6 *     17.   124. AG    121. 100.0   0.0  4.0 0.64    2.8
```

PAGE 2

JOB: Mangum Street and Main Street RUN: 2012 PM Peak

DATE : 5/13/15
TIME : 8:21:18

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
4. SBQ	90	45	2.0	1025	3430	54.18	2	3
7. EBQ	90	60	2.0	206	1789	54.18	2	3
13. WBQ	90	45	2.0	177	1827	54.18	2	3
14. WBLQ	90	75	2.0	136	1736	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	2.0	-15.0	1.8
2. REC2	-13.0	-37.0	1.8
3. REC3	-27.0	-59.0	1.8
4. REC4	-35.0	-72.0	1.8
5. REC5	6.0	-15.0	1.8
6. REC6	27.0	-29.0	1.8
7. REC7	49.0	-43.0	1.8
8. REC8	70.0	-57.0	1.8
9. REC9	92.0	-71.0	1.8
10. REC10	14.0	0.0	1.8
11. REC11	37.0	-14.0	1.8
12. REC12	57.0	-30.0	1.8
13. REC13	77.0	-44.0	1.8
14. REC14	99.0	-59.0	1.8
15. REC15	15.0	4.0	1.8
16. REC16	28.0	25.0	1.8
17. REC17	41.0	46.0	1.8
18. REC18	2.0	13.0	1.8
19. REC19	15.0	34.0	1.8
20. REC20	28.0	54.0	1.8
21. REC21	-6.0	12.0	1.8
22. REC22	-27.0	25.0	1.8
23. REC23	-48.0	39.0	1.8
24. REC24	-69.0	53.0	1.8
25. REC25	-90.0	67.0	1.8
26. REC26	-15.0	0.0	1.8
27. REC27	-37.0	14.0	1.8
28. REC28	-59.0	29.0	1.8
29. REC29	-79.0	41.0	1.8
30. REC30	-94.0	52.0	1.8
31. REC31	-12.0	-7.0	1.8
32. REC32	-26.0	-29.0	1.8
33. REC33	-43.0	-49.0	1.8
34. REC34	-53.0	-64.0	1.8

PAGE 3

JOB: Mangum Street and Main Street RUN: 2012 PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.1	0.2	0.7	0.2	0.0	0.0	0.0	0.7	0.6	0.2	0.0	0.0	0.0
10.	0.6	0.5	0.4	0.4	0.5	0.2	0.1	0.1	0.1	0.7	0.0	0.0	0.0	0.0	0.7	0.5	0.2	0.0	0.0	0.0
20.	0.6	0.6	0.6	0.4	0.5	0.0	0.1	0.1	0.1	0.6	0.0	0.0	0.0	0.0	0.6	0.4	0.1	0.1	0.1	0.0
30.	0.5	0.5	0.5	0.5	0.5	0.0	0.1	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.4	0.3	0.1	0.3	0.1	0.0
40.	0.4	0.5	0.1	0.2	0.5	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.6	0.2	0.1
50.	0.2	0.2	0.0	0.0	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.4	0.1
60.	0.3	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5	0.1
70.	0.3	0.0	0.0	0.0	0.4	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.6	0.2
80.	0.3	0.0	0.0	0.0	0.4	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.7	0.2
90.	0.2	0.0	0.0	0.0	0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.6	0.2
100.	0.2	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.2
110.	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.2
120.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.6	0.2
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.6	0.2
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.6	0.6	0.2
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.5	0.6	0.2
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.1	0.1	0.4	0.0	0.0	0.5	0.7	0.4
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.1	0.1	0.4	0.0	0.0	0.3	0.7	0.5
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.1	0.1	0.4	0.0	0.0	0.4	0.8	0.6
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.4	0.8	0.7
200.	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.1	0.1	0.4	0.2	0.2	0.4	0.6	0.7
210.	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.4	0.4	0.5
220.	0.4	0.4	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.5	0.0	0.1	0.1	0.1	0.5	0.6	0.7	0.2	0.2	0.2
230.	0.5	0.4	0.3	0.1	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.1	0.1	0.5	0.7	0.8	0.0	0.0	0.0
240.	0.4	0.5	0.3	0.1	0.3	0.1	0.0	0.0	0.0	0.5	0.3	0.1	0.1	0.1	0.4	0.7	0.6	0.1	0.1	0.0
250.	0.4	0.4	0.3	0.2	0.3	0.2	0.0	0.0	0.0	0.4	0.3	0.1	0.1	0.1	0.4	0.8	0.5	0.1	0.0	0.0
260.	0.3	0.4	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.4	0.3	0.1	0.1	0.1	0.3	0.8	0.4	0.1	0.0	0.0
270.	0.3	0.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.3	0.4	0.2	0.1	0.2	0.3	0.7	0.3	0.1	0.0	0.0
280.	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.5	0.5	0.2	0.3	0.2	0.3	0.6	0.2	0.1	0.0	0.0
290.	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.0	0.4	0.4	0.3	0.1	0.2	0.4	0.6	0.2	0.0	0.0	0.0
300.	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.3	0.4	0.2	0.1	0.1	0.3	0.6	0.3	0.0	0.0	0.0
310.	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.0	0.1	0.4	0.6	0.2	0.0	0.0	0.0
320.	0.4	0.3	0.3	0.3	0.3	0.4	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.0	0.5	0.6	0.2	0.0	0.0	0.0
330.	0.4	0.3	0.3	0.3	0.2	0.6	0.3	0.2	0.2	0.4	0.2	0.2	0.0	0.0	0.6	0.6	0.2	0.0	0.0	0.0
340.	0.3	0.3	0.3	0.3	0.3	0.7	0.4	0.2	0.2	0.5	0.2	0.2	0.0	0.0	0.7	0.7	0.2	0.0	0.0	0.0
350.	0.4	0.3	0.3	0.3	0.3	0.5	0.3	0.2	0.2	0.6	0.2	0.0	0.0	0.0	0.7	0.7	0.2	0.0	0.0	0.0
360.	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.1	0.2	0.7	0.2	0.0	0.0	0.0	0.7	0.6	0.2	0.0	0.0	0.0
MAX	0.6	0.6	0.6	0.5	0.5	0.7	0.4	0.2	0.2	0.7	0.5	0.3	0.3	0.2	0.7	0.8	0.8	0.9	0.8	0.7
DEGR.	10	20	20	30	10	340	340	70	0	0	280	290	280	270	0	250	230	50	180	190

JOB: Mangum Street and Main Street RUN: 2012 PM Peak

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.

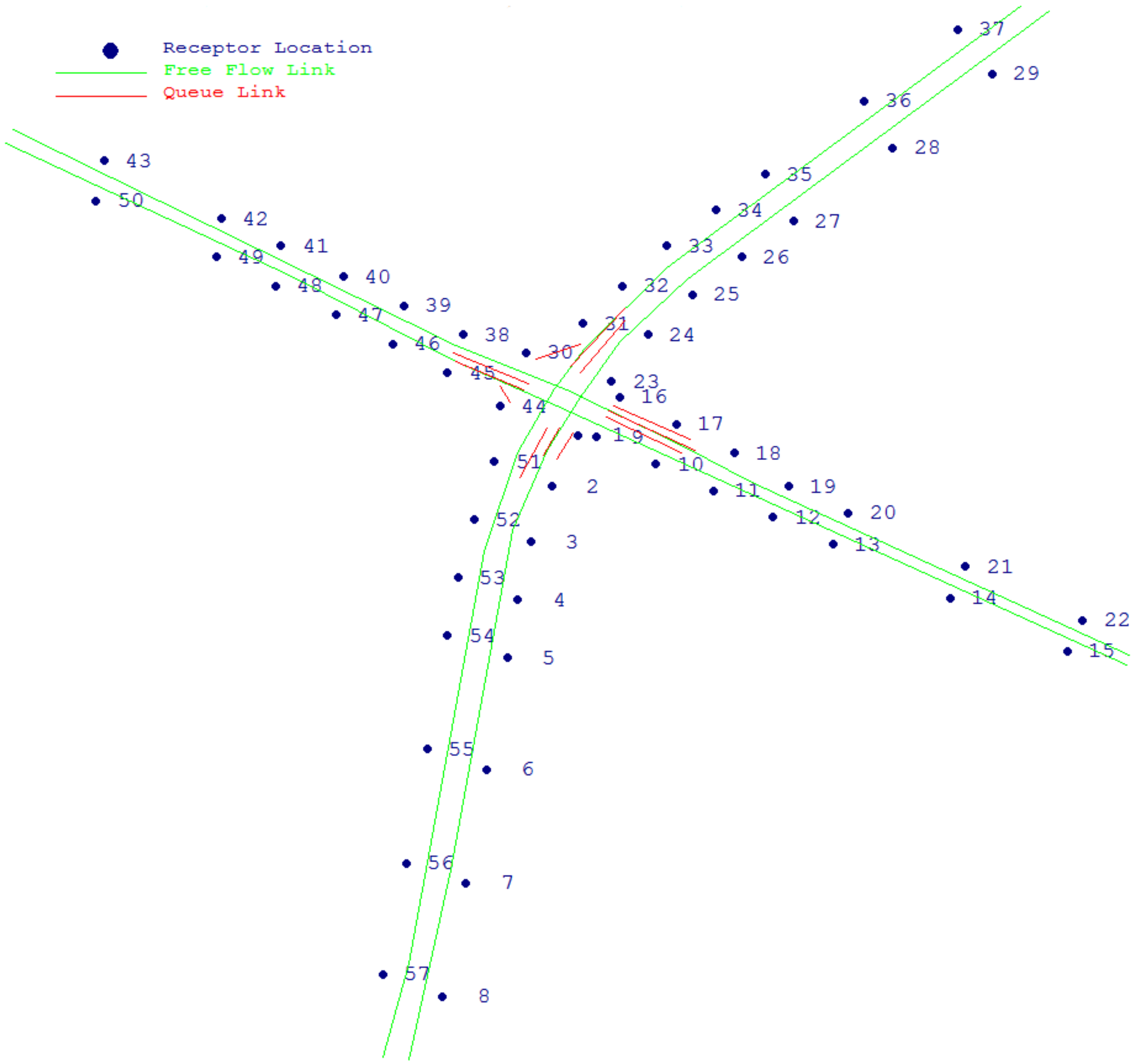
WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34
0.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
20.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
30.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.4	0.2	0.2
40.	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.4
50.	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.6	0.6	0.5	0.4
60.	0.5	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.5	0.4	0.4	0.4
70.	0.5	0.2	0.0	0.0	0.0	0.3	0.4	0.1	0.0	0.1	0.4	0.5	0.4	0.3
80.	0.5	0.2	0.0	0.0	0.0	0.4	0.5	0.2	0.1	0.1	0.5	0.3	0.3	0.3
90.	0.4	0.2	0.2	0.0	0.0	0.3	0.5	0.3	0.1	0.1	0.4	0.3	0.4	0.3
100.	0.4	0.2	0.2	0.0	0.0	0.3	0.5	0.3	0.2	0.2	0.4	0.3	0.3	0.3
110.	0.3	0.2	0.2	0.1	0.0	0.3	0.4	0.2	0.1	0.1	0.5	0.3	0.3	0.3
120.	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2	0.1	0.1	0.3	0.3	0.3	0.3
130.	0.4	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.3	0.3	0.3	0.3
140.	0.4	0.3	0.3	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.3	0.3	0.3	0.2
150.	0.3	0.4	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.3	0.3	0.3	0.2
160.	0.3	0.4	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.1
170.	0.2	0.4	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.3	0.4	0.3	0.1
180.	0.2	0.3	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.4	0.3	0.3	0.1
190.	0.2	0.2	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.4	0.4	0.3	0.1
200.	0.3	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.4	0.2	0.1
210.	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.0
220.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0
230.	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
240.	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
250.	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
260.	0.2	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
270.	0.3	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
280.	0.2	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
290.	0.2	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
300.	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
MAX	0.5	0.4	0.3	0.1	0.1	0.4	0.5	0.3	0.2	0.2	0.6	0.6	0.5	0.4
DEGR.	60	150	140	110	130	50	80	90	100	100	50	50	40	40

THE HIGHEST CONCENTRATION OF 0.90 PPM OCCURRED AT RECEPTOR REC18.

2012 PM Morreene Road/Towerview Road and Erwin Road



CAL3QHC Input File

```
'Morreene Rd_Towerview Rd and Erwin Rd     '  60. 108.0    0.00     0.00 57     1.0000 0 0
'REC1                 '       5.0       -19.0        1.8
'REC2                 '      -5.0       -42.0        1.8
'REC3                 '     -13.0       -67.0        1.8
'REC4                 '     -18.0       -93.0        1.8
'REC5                 '     -22.0      -119.0        1.8
'REC6                 '     -30.0      -169.0        1.8
'REC7                 '     -38.0      -220.0        1.8
'REC8                 '     -47.0      -271.0        1.8
'REC9                 '      12.0       -20.0        1.8
'REC10                '      35.0       -32.0        1.8
'REC11                '      57.0       -44.0        1.8
'REC12                '      80.0       -56.0        1.8
'REC13                '     103.0       -68.0        1.8
'REC14                '     148.0       -92.0        1.8
'REC15                '     193.0      -116.0        1.8
'REC16                '      21.0        -2.0        1.8
'REC17                '      43.0       -14.0        1.8
'REC18                '      65.0       -27.0        1.8
'REC19                '      86.0       -42.0        1.8
'REC20                '     109.0       -54.0        1.8
'REC21                '     154.0       -78.0        1.8
'REC22                '     199.0      -102.0        1.8
'REC23                '      18.0         5.0        1.8
'REC24                '      32.0        26.0        1.8
'REC25                '      49.0        44.0        1.8
'REC26                '      68.0        61.0        1.8
'REC27                '      88.0        77.0        1.8
'REC28                '     126.0       110.0        1.8
'REC29                '     164.0       143.0        1.8
'REC30                '     -15.0        18.0        1.8
'REC31                '       7.0        31.0        1.8
'REC32                '      22.0        48.0        1.8
'REC33                '      39.0        66.0        1.8
'REC34                '      58.0        82.0        1.8
'REC35                '      77.0        98.0        1.8
'REC36                '     115.0       131.0        1.8
'REC37                '     151.0       163.0        1.8
'REC38                '     -39.0        26.0        1.8
'REC39                '     -62.0        39.0        1.8
'REC40                '     -85.0        52.0        1.8
'REC41                '    -109.0        66.0        1.8
'REC42                '    -132.0        78.0        1.8
'REC43                '    -177.0       104.0        1.8
'REC44                '     -25.0        -6.0        1.8
'REC45                '     -45.0         9.0        1.8
'REC46                '     -66.0        22.0        1.8
'REC47                '     -88.0        35.0        1.8
'REC48                '    -111.0        48.0        1.8
'REC49                '    -134.0        61.0        1.8
'REC50                '    -180.0        86.0        1.8
'REC51                '     -27.0       -31.0        1.8
'REC52                '     -35.0       -57.0        1.8
'REC53                '     -41.0       -83.0        1.8
'REC54                '     -45.0      -109.0        1.8
'REC55                '     -53.0      -160.0        1.8
'REC56                '     -61.0      -211.0        1.8
'REC57                '     -70.0      -261.0        1.8
'2012 PM Peak                                '  35    1   0 C
1
'NBA1                 ' 'AG'      -60.0      -299.0      -44.0      -214.0     376.    8.34      0.0  12.0
1
'NBA2                 ' 'AG'      -44.0      -214.0      -20.0       -62.0     376.    8.34      0.0  12.0
1
'NBA3                 ' 'AG'      -20.0       -62.0       -7.0       -26.0     376.    8.34      0.0  12.0
1
'NBA4                 ' 'AG'       -7.0       -26.0        6.0        -2.0     376.    8.34      0.0  12.0
1
'NBD1                 ' 'AG'        6.0        -2.0       21.0        23.0     502.    8.34      0.0  12.0
1
'NBD2                 ' 'AG'       21.0        23.0       47.0        51.0     502.    8.34      0.0  12.0
1
'NBD3                 ' 'AG'       47.0        51.0      186.0       171.0     502.    8.34      0.0  12.0
2
'NBQ                  ' 'AG'       -2.0       -16.0       -8.0       -28.0      0.0    6.0   2
```

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  150    90   2.0    275  54.18 3207 2 3
2
'NBLQ                 ' 'AG'       -7.0      -16.0      -17.0      -38.0      0.0    3.5   1
  150   130   2.0     67  54.18  353 2 3
2
'NBRQ                 ' 'AG'        3.0      -18.0       -3.0      -30.0      0.0    3.0   1
  150    90   2.0     34  54.18 1435 2 3
1
'SBA1                 ' 'AG'      179.0      177.0       39.0       56.0     980.   8.34       0.0  13.0
1
'SBA2                 ' 'AG'       39.0       56.0        8.0       20.0     980.   8.34       0.0  13.0
1
'SBA3                 ' 'AG'        8.0       20.0       -4.0        2.0     980.   8.34       0.0  13.0
1
'SBD1                 ' 'AG'       -4.0        2.0      -18.0      -27.0     912.   8.34       0.0  13.0
1
'SBD2                 ' 'AG'      -18.0      -27.0      -31.0      -71.0     912.   8.34       0.0  13.0
1
'SBD3                 ' 'AG'      -31.0      -71.0      -60.0     -256.0     912.   8.34       0.0  13.0
1
'SBD4                 ' 'AG'      -60.0     -256.0      -70.0     -298.0     912.   8.34       0.0  13.0
2
'SBQ                  ' 'AG'        2.0       12.0       23.0       38.0      0.0    7.0   2
  150    90   2.0    698  54.18 3219 2 3
2
'SBLQ                 ' 'AG'        6.0        9.0       23.0       32.0      0.0    4.0   1
  150   130   2.0     99  54.18  946 2 3
2
'SBRQ                 ' 'AG'      -11.0       15.0        6.0       22.0      0.0    3.0   1
  150    90   2.0    183  54.18 1600 2 3
1
'EBA1                 ' 'AG'     -215.0      112.0     -105.0       52.0     280.   8.34       0.0  10.0
1
'EBA2                 ' 'AG'     -105.0       52.0      -42.0       14.0     280.   8.34       0.0  10.0
1
'EBA3                 ' 'AG'      -42.0       14.0       -3.0       -6.0     280.   8.34       0.0  10.0
1
'EBD                  ' 'AG'       -3.0       -6.0      216.0     -122.0     232.   8.98       0.0  10.0
2
'EBQ                  ' 'AG'      -16.0        1.0      -42.0       14.0      0.0    4.0   1
  150   100   2.0     99  54.18 1691 2 3
2
'EBLQ                 ' 'AG'      -14.0        4.0      -43.0       18.0      0.0    3.5   1
  150   115   2.0    105  54.18  484 2 3
2
'EBRQ                 ' 'AG'      -21.0       -4.0      -25.0        3.0      0.0    3.0   1
  150   100   2.0     76  54.18 1600 2 3
1
'WBA1                 ' 'AG'      217.0     -118.0       72.0      -40.0     515.   8.98       0.0   9.5
1
'WBA2                 ' 'AG'       72.0      -40.0       46.0      -24.0     515.   8.98       0.0   9.5
1
'WBA3                 ' 'AG'       46.0      -24.0        1.0        1.0     515.   8.98       0.0   9.5
1
'WBD1                 ' 'AG'        1.0        1.0      -42.0       21.0     505.   8.34       0.0   9.5
1
'WBD2                 ' 'AG'      -42.0       21.0     -212.0      118.0     505.   8.34       0.0   9.5
2
'WBQ                  ' 'AG'       17.0       -8.0       50.0      -26.0      0.0    3.5   1
  150   115   2.0    255  54.18 1748 2 3
2
'WBLQ                 ' 'AG'       16.0      -11.0       45.0      -27.0      0.0    3.5   1
  150   130   2.0    138  54.18  696 2 3
2
'WBRQ                 ' 'AG'       19.0       -6.0       48.0      -21.0      0.0    3.5   1
  150   130   2.0    122  54.18 1486 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 PM Peak

DATE : 5/13/15
TIME : 8:45:40

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 = 108. CM		
U = 1.0 M/S	CLAS = 4 (D)	ATIM = 60. MINUTES	MIXH = 1000. M	AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	-60.0	-299.0	-44.0	-214.0	86.	11.	AG	376.	8.3	0.0	12.0		
2. NBA2	-44.0	-214.0	-20.0	-62.0	154.	9.	AG	376.	8.3	0.0	12.0		
3. NBA3	-20.0	-62.0	-7.0	-26.0	38.	20.	AG	376.	8.3	0.0	12.0		
4. NBA4	-7.0	-26.0	6.0	-2.0	27.	28.	AG	376.	8.3	0.0	12.0		
5. NBD1	6.0	-2.0	21.0	23.0	29.	31.	AG	502.	8.3	0.0	12.0		
6. NBD2	21.0	23.0	47.0	51.0	38.	43.	AG	502.	8.3	0.0	12.0		
7. NBD3	47.0	51.0	186.0	171.0	184.	49.	AG	502.	8.3	0.0	12.0		
8. NBQ	-2.0	-16.0	-11.2	-34.4	21.	207.	AG	174.	100.0	0.0	6.0	0.11	3.4
9. NBLQ	-7.0	-16.0	-55.6	-122.9	117.	204.	AG	126.	100.0	0.0	3.5	1.81	19.6
10. NBRQ	3.0	-18.0	0.7	-22.6	5.	207.	AG	87.	100.0	0.0	3.0	0.06	0.9
11. SBA1	179.0	177.0	39.0	56.0	185.	229.	AG	980.	8.3	0.0	13.0		
12. SBA2	39.0	56.0	8.0	20.0	48.	221.	AG	980.	8.3	0.0	13.0		
13. SBA3	8.0	20.0	-4.0	2.0	22.	214.	AG	980.	8.3	0.0	13.0		
14. SBD1	-4.0	2.0	-18.0	-27.0	32.	206.	AG	912.	8.3	0.0	13.0		
15. SBD2	-18.0	-27.0	-31.0	-71.0	46.	196.	AG	912.	8.3	0.0	13.0		
16. SBD3	-31.0	-71.0	-60.0	-256.0	187.	189.	AG	912.	8.3	0.0	13.0		
17. SBD4	-60.0	-256.0	-70.0	-298.0	43.	193.	AG	912.	8.3	0.0	13.0		
18. SBQ	2.0	12.0	34.9	52.7	52.	39.	AG	174.	100.0	0.0	7.0	0.29	8.7
19. SBLQ	6.0	9.0	24.9	34.5	32.	36.	AG	126.	100.0	0.0	4.0	0.99	5.3
20. SBRQ	-11.0	15.0	14.4	25.5	27.	68.	AG	87.	100.0	0.0	3.0	0.31	4.6
21. EBA1	-215.0	112.0	-105.0	52.0	125.	119.	AG	280.	8.3	0.0	10.0		
22. EBA2	-105.0	52.0	-42.0	14.0	74.	121.	AG	280.	8.3	0.0	10.0		
23. EBA3	-42.0	14.0	-3.0	-6.0	44.	117.	AG	280.	8.3	0.0	10.0		
24. EBD	-3.0	-6.0	216.0	-122.0	248.	118.	AG	232.	9.0	0.0	10.0		
25. EBQ	-16.0	1.0	-30.8	8.4	16.	297.	AG	97.	100.0	0.0	4.0	0.19	2.8
26. EBLQ	-14.0	4.0	-56.2	24.4	47.	296.	AG	111.	100.0	0.0	3.5	1.05	7.8
27. EBRQ	-21.0	-4.0	-27.3	7.0	13.	330.	AG	97.	100.0	0.0	3.0	0.16	2.1
28. WBA1	217.0	-118.0	72.0	-40.0	165.	298.	AG	515.	9.0	0.0	9.5		
29. WBA2	72.0	-40.0	46.0	-24.0	31.	302.	AG	515.	9.0	0.0	9.5		
30. WBA3	46.0	-24.0	1.0	1.0	51.	299.	AG	515.	9.0	0.0	9.5		
31. WBD1	1.0	1.0	-42.0	21.0	47.	295.	AG	505.	8.3	0.0	9.5		
32. WBD2	-42.0	21.0	-212.0	118.0	196.	300.	AG	505.	8.3	0.0	9.5		
33. WBQ	17.0	-8.0	59.9	-31.4	49.	119.	AG	111.	100.0	0.0	3.5	0.71	8.1
34. WBLQ	16.0	-11.0	226.1	-126.9	240.	119.	AG	126.	100.0	0.0	3.5	1.86	40.0
35. WBRQ	19.0	-6.0	43.0	-18.4	27.	117.	AG	126.	100.0	0.0	3.5	0.77	4.5

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 PM Peak

DATE : 5/13/15
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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
8. NBQ	150	90	2.0	275	3207	54.18	2	3
9. NBLQ	150	130	2.0	67	353	54.18	2	3
10. NBRQ	150	90	2.0	34	1435	54.18	2	3
18. SBQ	150	90	2.0	698	3219	54.18	2	3
19. SBLQ	150	130	2.0	99	946	54.18	2	3
20. SBRQ	150	90	2.0	183	1600	54.18	2	3
25. EBQ	150	100	2.0	99	1691	54.18	2	3
26. EBLQ	150	115	2.0	105	484	54.18	2	3
27. EBRQ	150	100	2.0	76	1600	54.18	2	3
33. WBQ	150	115	2.0	255	1748	54.18	2	3
34. WBLQ	150	130	2.0	138	696	54.18	2	3
35. WBRQ	150	130	2.0	122	1486	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	5.0	-19.0	1.8
2. REC2	-5.0	-42.0	1.8
3. REC3	-13.0	-67.0	1.8
4. REC4	-18.0	-93.0	1.8
5. REC5	-22.0	-119.0	1.8
6. REC6	-30.0	-169.0	1.8
7. REC7	-38.0	-220.0	1.8
8. REC8	-47.0	-271.0	1.8
9. REC9	12.0	-20.0	1.8
10. REC10	35.0	-32.0	1.8
11. REC11	57.0	-44.0	1.8
12. REC12	80.0	-56.0	1.8
13. REC13	103.0	-68.0	1.8
14. REC14	148.0	-92.0	1.8
15. REC15	193.0	-116.0	1.8
16. REC16	21.0	-2.0	1.8
17. REC17	43.0	-14.0	1.8
18. REC18	65.0	-27.0	1.8
19. REC19	86.0	-42.0	1.8
20. REC20	109.0	-54.0	1.8
21. REC21	154.0	-78.0	1.8
22. REC22	199.0	-102.0	1.8
23. REC23	18.0	5.0	1.8
24. REC24	32.0	26.0	1.8
25. REC25	49.0	44.0	1.8
26. REC26	68.0	61.0	1.8
27. REC27	88.0	77.0	1.8
28. REC28	126.0	110.0	1.8
29. REC29	164.0	143.0	1.8
30. REC30	-15.0	18.0	1.8
31. REC31	7.0	31.0	1.8
32. REC32	22.0	48.0	1.8
33. REC33	39.0	66.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 PM Peak

DATE : 5/13/15
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RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
34. REC34	58.0	82.0	1.8
35. REC35	77.0	98.0	1.8
36. REC36	115.0	131.0	1.8
37. REC37	151.0	163.0	1.8
38. REC38	-39.0	26.0	1.8
39. REC39	-62.0	39.0	1.8
40. REC40	-85.0	52.0	1.8
41. REC41	-109.0	66.0	1.8
42. REC42	-132.0	78.0	1.8
43. REC43	-177.0	104.0	1.8
44. REC44	-25.0	-6.0	1.8
45. REC45	-45.0	9.0	1.8
46. REC46	-66.0	22.0	1.8
47. REC47	-88.0	35.0	1.8
48. REC48	-111.0	48.0	1.8
49. REC49	-134.0	61.0	1.8
50. REC50	-180.0	86.0	1.8
51. REC51	-27.0	-31.0	1.8
52. REC52	-35.0	-57.0	1.8
53. REC53	-41.0	-83.0	1.8
54. REC54	-45.0	-109.0	1.8
55. REC55	-53.0	-160.0	1.8
56. REC56	-61.0	-211.0	1.8
57. REC57	-70.0	-261.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	1.0	0.9	0.6	0.3	0.4	0.4	0.4	0.3	0.8	1.0	0.5	0.4	0.5	0.5	0.5	0.5	0.0	0.1	0.1	0.0
10.	0.9	0.8	0.5	0.5	0.2	0.3	0.2	0.2	0.7	0.8	0.6	0.4	0.4	0.5	0.5	0.5	0.1	0.1	0.1	0.0
20.	0.8	0.4	0.3	0.1	0.0	0.1	0.1	0.0	0.9	0.8	0.6	0.4	0.5	0.5	0.5	0.4	0.1	0.1	0.0	0.0
30.	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.8	0.4	0.4	0.5	0.5	0.5	0.2	0.1	0.0	0.0	0.0
40.	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.7	0.6	0.4	0.4	0.5	0.5	0.5	0.2	0.0	0.0	0.0	0.0
50.	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.8	0.6	0.4	0.4	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
60.	0.5	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.8	0.6	0.4	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
70.	0.8	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.8	0.7	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
80.	0.7	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
90.	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.8	0.6	0.5	0.6	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
100.	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.5	0.7	0.7	0.6	0.5	0.0	0.0	0.0	0.1	0.1
110.	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.1	0.2	0.3	0.2
120.	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.4	0.4	0.4	0.1	0.7	0.5	0.3	0.7	0.5
130.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	1.1	0.7	0.6	0.8	0.8
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.7	0.6	0.8	0.8
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.9	0.6	0.7	0.6
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.9	0.5	0.6	0.6
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.8	0.3	0.6	0.6
180.	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.7	0.3	0.6	0.6
190.	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.3	0.6	0.5
200.	0.2	0.4	0.4	0.4	0.4	0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.3	0.6	0.6
210.	0.7	0.5	0.5	0.4	0.4	0.3	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.9	0.3	0.6	0.6
220.	1.0	0.5	0.5	0.3	0.3	0.3	0.2	0.2	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.8	1.1	0.5	0.6	0.5
230.	1.3	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.8	1.0	0.5	0.5	0.5
240.	1.3	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.5	1.1	0.6	0.6	0.6
250.	1.3	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.7	0.2	0.1	0.0	0.0	0.0	0.0	0.6	1.3	0.7	0.7	0.6
260.	1.1	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.4	1.3	1.0	0.7	0.6
270.	1.1	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.5	1.4	1.1	0.9	0.6
280.	0.8	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.6	0.2	0.2	0.0	0.0	0.0	0.0	0.6	1.0	0.8	0.9	0.7
290.	0.8	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.7	0.8	0.7	0.7
300.	0.8	0.4	0.5	0.4	0.4	0.3	0.3	0.2	0.6	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.5	0.4	0.6	0.4
310.	0.9	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.5	0.4	0.6	0.7	0.6	0.6	0.7	0.5	0.3	0.2	0.3	0.3
320.	0.5	0.7	0.5	0.3	0.4	0.3	0.4	0.3	0.6	0.7	0.9	0.7	0.6	0.7	0.7	0.6	0.3	0.1	0.1	0.1
330.	0.4	0.9	0.5	0.4	0.4	0.3	0.3	0.3	0.5	0.8	1.0	0.8	0.5	0.6	0.7	0.8	0.3	0.2	0.1	0.0
340.	0.5	0.9	0.5	0.5	0.4	0.4	0.3	0.3	0.5	1.2	0.8	0.5	0.5	0.5	0.5	0.7	0.2	0.1	0.0	0.0
350.	0.6	0.8	0.5	0.4	0.5	0.5	0.3	0.3	0.8	1.1	0.7	0.5	0.5	0.5	0.5	0.6	0.2	0.0	0.0	0.0
360.	1.0	0.9	0.6	0.3	0.4	0.4	0.4	0.3	0.8	1.0	0.5	0.4	0.5	0.5	0.5	0.5	0.0	0.1	0.1	0.0
MAX	1.3	0.9	0.6	0.5	0.5	0.5	0.4	0.3	0.9	1.2	1.0	0.8	0.7	0.7	0.7	1.3	1.4	1.1	0.9	0.8
DEGR.	230	0	0	10	350	350	0	0	20	340	330	330	100	320	310	140	270	270	270	130

PAGE 5

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 PM Peak

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.-360.

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
	CONCENTRATION (PPM)																			
0.	0.0	0.0	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.9	0.6	0.3	0.4	0.4	0.4	0.4	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	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.3	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0
50.	0.0	0.0	0.1	0.3	0.3	0.3	0.3	0.2	0.1	0.4	0.9	0.7	0.4	0.5	0.5	0.3	0.2	0.1	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.8	1.1	0.8	0.5	0.6	0.6	0.5	0.3	0.1	0.1	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.1	0.8	0.5	0.5	0.5	0.5	0.3	0.3	0.1	0.1
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.9	0.5	0.5	0.5	0.5	0.4	0.2	0.1	0.1
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.1	0.9	0.4	0.4	0.4	0.4	0.4	0.5	0.2	0.1
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.1	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.1	0.1
110.	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.8	0.4	0.4	0.4	0.4	0.4	0.5	0.2	0.3
120.	0.4	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.8	0.3	0.3	0.3	0.3	0.3	0.6	0.4	0.3
130.	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.9	1.2	1.0	0.4	0.4	0.4	0.4	0.3	0.6	0.5	0.4
140.	0.6	0.4	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.7	1.3	0.9	0.5	0.4	0.4	0.4	0.4	0.9	0.4	0.4
150.	0.6	0.6	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.4	1.4	0.9	0.3	0.4	0.4	0.4	0.3	1.0	0.6	0.4
160.	0.6	0.6	0.7	0.2	0.1	0.1	0.1	0.0	0.0	0.4	1.7	1.2	0.5	0.4	0.4	0.3	0.3	0.8	0.5	0.4
170.	0.6	0.6	0.7	0.3	0.1	0.1	0.1	0.0	0.0	0.5	1.5	1.3	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.3
180.	0.6	0.5	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.9	1.1	1.3	0.7	0.5	0.4	0.4	0.4	0.5	0.3	0.2
190.	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.8	1.4	1.2	0.7	0.4	0.4	0.4	0.4	0.4	0.2	0.2
200.	0.5	0.5	0.4	0.6	0.3	0.1	0.0	0.0	0.0	0.8	1.2	1.7	1.1	0.6	0.5	0.5	0.5	0.3	0.2	0.2
210.	0.5	0.5	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.5	0.7	1.2	1.1	0.9	0.6	0.5	0.5	0.4	0.2	0.2
220.	0.4	0.4	0.8	0.5	0.4	0.3	0.2	0.1	0.1	0.5	0.5	0.6	0.8	0.7	0.6	0.6	0.5	0.4	0.2	0.2
230.	0.5	0.4	0.7	0.7	0.5	0.5	0.3	0.4	0.3	0.5	0.3	0.3	0.3	0.4	0.5	0.4	0.3	0.4	0.2	0.2
240.	0.6	0.5	0.5	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.1	0.0	0.2	0.1	0.2	0.1	0.4	0.2	0.2
250.	0.6	0.6	0.4	1.1	0.8	0.6	0.5	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.4	0.3	0.3
260.	0.6	0.6	0.6	1.1	0.7	0.5	0.4	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.3
270.	0.6	0.6	0.5	0.9	0.7	0.4	0.4	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.2
280.	0.8	0.8	0.7	0.9	0.6	0.4	0.3	0.3	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3
290.	0.7	0.7	0.9	0.8	0.5	0.3	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3
300.	0.4	0.4	0.8	0.8	0.5	0.3	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
310.	0.2	0.2	0.7	0.8	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
320.	0.0	0.0	0.9	0.7	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.9	0.7	0.2	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.8	0.6	0.4	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.9	0.7	0.4	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.8	0.8	0.9	1.1	0.8	0.6	0.5	0.5	0.4	1.0	1.7	1.7	1.1	0.9	0.6	0.6	0.5	1.0	0.6	0.4
DEGR.	280	280	290	250	250	240	240	240	0	120	160	200	200	210	60	220	200	150	150	130

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2012 PM Peak

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.

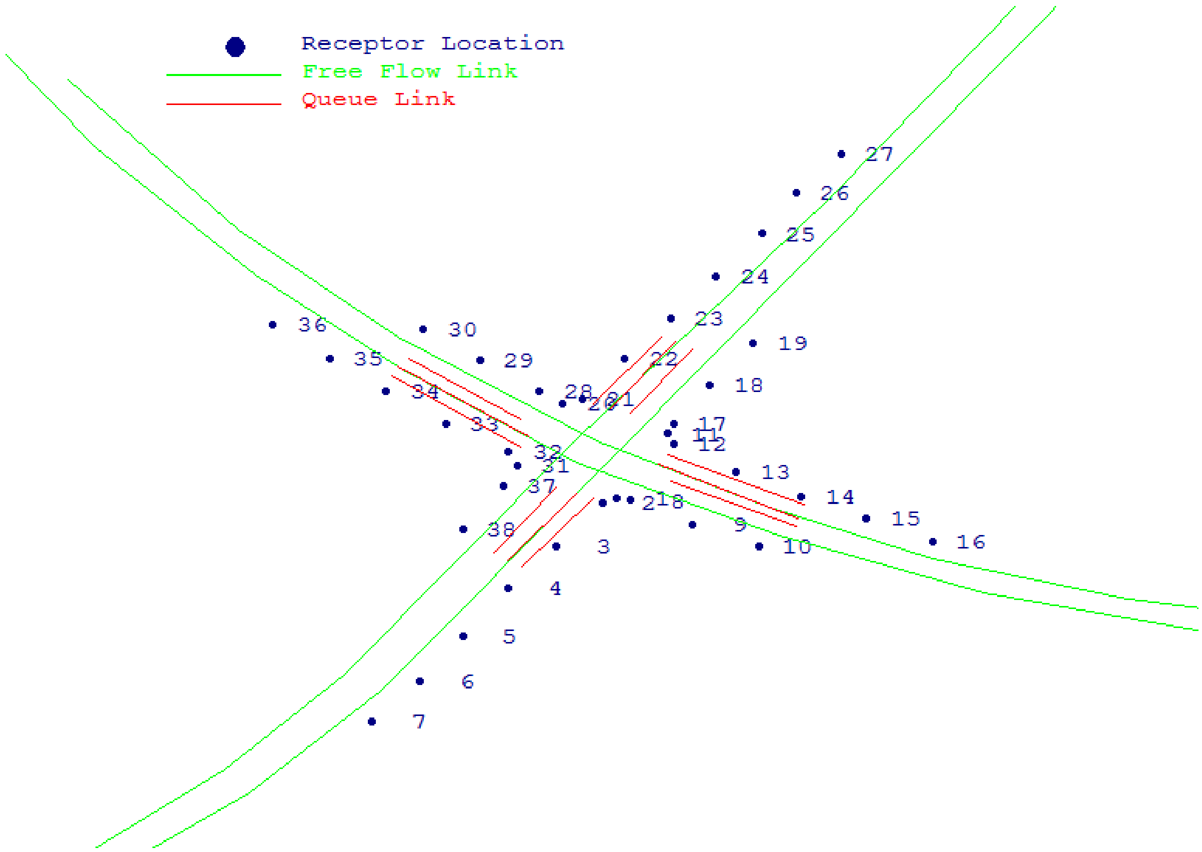
WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC41	REC42	REC43	REC44	REC45	REC46	REC47	REC48	REC49	REC50	REC51	REC52	REC53	REC54	REC55	REC56	REC57
0.	0.0	0.0	0.0	0.8	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.6	0.2	0.2	0.1
10.	0.0	0.0	0.0	0.9	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.3	0.9	0.5	0.4	0.2
20.	0.0	0.0	0.0	0.9	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.7	0.9	0.6	0.6	0.3
30.	0.0	0.0	0.0	0.9	0.3	0.2	0.2	0.2	0.2	0.2	0.7	0.8	1.1	0.7	0.5	0.5	0.3
40.	0.0	0.0	0.0	1.2	0.3	0.2	0.2	0.2	0.2	0.2	0.8	1.0	0.9	0.5	0.4	0.4	0.4
50.	0.0	0.0	0.0	1.3	0.5	0.2	0.2	0.1	0.2	0.2	0.7	0.8	0.9	0.4	0.4	0.4	0.4
60.	0.0	0.0	0.0	1.0	0.7	0.4	0.2	0.1	0.2	0.2	0.8	0.9	0.9	0.5	0.4	0.4	0.3
70.	0.0	0.0	0.0	0.7	0.9	0.5	0.3	0.2	0.2	0.2	1.1	0.8	0.9	0.4	0.3	0.3	0.4
80.	0.0	0.0	0.0	0.3	0.9	0.5	0.2	0.2	0.2	0.2	1.0	0.7	0.8	0.4	0.3	0.3	0.3
90.	0.0	0.0	0.0	0.6	0.7	0.7	0.3	0.2	0.2	0.2	0.9	0.6	0.8	0.3	0.3	0.2	0.3
100.	0.1	0.0	0.0	0.8	0.6	0.6	0.4	0.3	0.2	0.2	0.8	0.5	0.7	0.3	0.3	0.2	0.3
110.	0.2	0.1	0.1	0.7	0.7	0.5	0.4	0.4	0.2	0.2	0.7	0.4	0.7	0.3	0.3	0.2	0.3
120.	0.3	0.3	0.2	0.5	0.6	0.3	0.3	0.4	0.2	0.2	0.5	0.5	0.7	0.3	0.3	0.3	0.3
130.	0.3	0.3	0.4	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.7	0.3	0.3	0.3	0.3
140.	0.3	0.3	0.3	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.6	0.5	0.8	0.4	0.4	0.4	0.3
150.	0.3	0.3	0.3	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.6	0.7	0.8	0.4	0.4	0.4	0.4
160.	0.2	0.3	0.3	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.6	0.7	0.9	0.4	0.4	0.4	0.4
170.	0.2	0.3	0.3	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.7	0.8	1.0	0.5	0.4	0.4	0.3
180.	0.2	0.2	0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.8	0.8	1.1	0.4	0.3	0.4	0.2
190.	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.9	0.3	0.2	0.3	0.2
200.	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.5	0.2	0.1	0.1	0.1
210.	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.2	0.0	0.0	0.0
220.	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0
230.	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
240.	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
250.	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
260.	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
270.	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
280.	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
290.	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
300.	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.0
310.	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.4	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.4	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.4	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.4	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.7	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.5	0.1	0.0	0.0
360.	0.0	0.0	0.0	0.8	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.6	0.2	0.2	0.1
MAX	0.3	0.4	0.4	1.3	0.9	0.7	0.4	0.4	0.2	0.2	1.1	1.0	1.1	0.9	0.6	0.6	0.4
DEGR.	120	290	130	50	70	90	100	110	0	0	70	40	30	10	20	20	40

THE HIGHEST CONCENTRATION OF 1.70 PPM OCCURRED AT RECEPTOR REC31.

2012 PM University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway        '  60. 108.0    0.00    0.00 38     1.0000 0 0
'REC1                 '       9.0       -22.0         1.8
'REC2                 '       4.0       -24.0         1.8
'REC3                 '     -12.0       -44.0         1.8
'REC4                 '     -29.0       -64.0         1.8
'REC5                 '     -45.0       -86.0         1.8
'REC6                 '     -60.0      -107.0         1.8
'REC7                 '     -77.0      -126.0         1.8
'REC8                 '      14.0       -23.0         1.8
'REC9                 '      36.0       -34.0         1.8
'REC10                '      59.0       -44.0         1.8
'REC11                '      27.0         8.0         1.8
'REC12                '      29.0         3.0         1.8
'REC13                '      51.0       -10.0         1.8
'REC14                '      74.0       -21.0         1.8
'REC15                '      97.0       -31.0         1.8
'REC16                '     120.0       -42.0         1.8
'REC17                '      29.0        13.0         1.8
'REC18                '      42.0        31.0         1.8
'REC19                '      57.0        50.0         1.8
'REC20                '     -10.0        22.0         1.8
'REC21                '      -3.0        24.0         1.8
'REC22                '      12.0        43.0         1.8
'REC23                '      28.0        62.0         1.8
'REC24                '      44.0        81.0         1.8
'REC25                '      60.0       101.0         1.8
'REC26                '      72.0       120.0         1.8
'REC27                '      88.0       138.0         1.8
'REC28                '     -18.0        28.0         1.8
'REC29                '     -39.0        42.0         1.8
'REC30                '     -59.0        57.0         1.8
'REC31                '     -26.0        -7.0         1.8
'REC32                '     -29.0         0.0         1.8
'REC33                '     -51.0        13.0         1.8
'REC34                '     -72.0        28.0         1.8
'REC35                '     -92.0        43.0         1.8
'REC36                '    -112.0        59.0         1.8
'REC37                '     -31.0       -16.0         1.8
'REC38                '     -45.0       -36.0         1.8
'2012 PM Peak                            '  41    1   0 C
1
'NBA1                 ' 'AG'     528.0      -77.0      325.0      -84.0     528.   5.64      0.0  14.0
1
'NBA2                 ' 'AG'     325.0      -84.0      259.0      -80.0     528.   5.64      0.0  14.0
1
'NBA3                 ' 'AG'     259.0      -80.0      189.0      -69.0     528.   5.64      0.0  14.0
1
'NBA4                 ' 'AG'     189.0      -69.0      120.0      -50.0     528.   5.64      0.0  14.0
1
'NBA5                 ' 'AG'     120.0      -50.0       63.0      -26.0     528.   5.64      0.0  14.0
1
'NBA6                 ' 'AG'      63.0      -26.0        2.0        5.0     528.   5.64      0.0  14.0
1
'NBD1                 ' 'AG'       2.0        5.0      -68.0       53.0     897.   8.16      0.0  14.0
1
'NBD2                 ' 'AG'     -68.0       53.0     -124.0      103.0     897.   8.16      0.0  14.0
1
'NBD3                 ' 'AG'    -124.0      103.0     -184.0      173.0     897.   8.16      0.0  14.0
2
'NBQ                  ' 'AG'      24.0       -6.0       73.0      -31.0      0.0   8.0  2
  105     72   2.0   259   54.18 3725 2 3
2
'NBLQ                 ' 'AG'      28.0      -14.0       72.0      -35.0      0.0   4.0  1
  105     88   2.0    99   54.18 1863 2 3
2
'NBRQ                 ' 'AG'      27.0       -2.0       75.0      -25.0      0.0   4.0  1
  105     72   2.0   170   54.18 1667 2 3
1
'SBA1                 ' 'AG'    -206.0      184.0     -174.0      141.0    1067.   4.19      0.0  14.0
1
'SBA2                 ' 'AG'    -174.0      141.0     -118.0       82.0    1067.   4.19      0.0  14.0
1
'SBA3                 ' 'AG'    -118.0       82.0      -66.0       38.0    1067.   4.19      0.0  14.0
1
'SBA4                 ' 'AG'     -66.0       38.0       -5.0       -5.0    1067.   4.19      0.0  14.0
```

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1
'SBD1                ' 'AG'      -5.0      -5.0      66.0     -39.0     932.   5.64     0.0  14.0
1
'SBD2                ' 'AG'      66.0     -39.0     138.0     -66.0     932.   5.64     0.0  14.0
1
'SBD3                ' 'AG'     138.0     -66.0     213.0     -83.0     932.   5.64     0.0  14.0
1
'SBD4                ' 'AG'     213.0     -83.0     296.0     -93.0     932.   5.64     0.0  14.0
1
'SBD5                ' 'AG'     296.0     -93.0     535.0     -87.0     932.   5.64     0.0  14.0
2
'SBQ                 ' 'AG'     -22.0       7.0     -68.0      39.0      0.0   8.0  2
  105     69    2.0    545  54.18 3725 2 3
2
'SBLQ                ' 'AG'     -25.0      15.0     -64.0      43.0      0.0   4.0  1
  105     84    2.0    222  54.18 1863 2 3
2
'SBRQ                ' 'AG'     -25.0       2.0     -70.0      35.0      0.0   4.0  1
  105     69    2.0    300  54.18 1667 2 3
1
'EBA1                ' 'AG'    -253.0    -245.0    -188.0    -210.0    1071.   9.75     0.0  14.0
1
'EBA2                ' 'AG'    -188.0    -210.0    -120.0    -159.0    1071.   9.75     0.0  14.0
1
'EBA3                ' 'AG'    -120.0    -159.0     -74.0    -111.0    1071.   9.75     0.0  14.0
1
'EBA4                ' 'AG'     -74.0    -111.0       7.0      -4.0    1071.   9.75     0.0  14.0
1
'EBD                 ' 'AG'       7.0      -4.0     180.0     229.0     893.   5.30     0.0  14.0
2
'EBQ                 ' 'AG'      -5.0     -20.0     -29.0     -51.0      0.0   8.0  2
  105     70    2.0    501  54.18 3725 2 3
2
'EBLQ                ' 'AG'     -12.0     -17.0     -34.0     -47.0      0.0   8.0  2
  105     86    2.0    460  54.18 3614 2 3
2
'EBRQ                ' 'AG'       1.0     -22.0     -24.0     -54.0      0.0   4.0  1
  105     70    2.0    110  54.18 1667 2 3
1
'WBA1                ' 'AG'     170.0     235.0      84.0     118.0    1015.   7.09     0.0  14.0
1
'WBA2                ' 'AG'      84.0     118.0      -6.0       4.0    1015.   7.09     0.0  14.0
1
'WBD1                ' 'AG'      -6.0       4.0     -87.0    -104.0     959.   4.09     0.0  14.0
1
'WBD2                ' 'AG'     -87.0    -104.0    -129.0    -148.0     959.   4.09     0.0  14.0
1
'WBD3                ' 'AG'    -129.0    -148.0    -180.0    -189.0     959.   4.09     0.0  14.0
1
'WBD4                ' 'AG'    -180.0    -189.0    -258.0    -235.0     959.   4.09     0.0  14.0
2
'WBQ                 ' 'AG'       7.0      20.0      30.0      51.0      0.0   8.0  2
  105     72    2.0    560  54.18 3725 2 3
2
'WBQL                ' 'AG'      14.0      18.0      36.0      47.0      0.0   8.0  2
  105     88    2.0    277  54.18 3614 2 3
2
'WBQR                ' 'AG'       1.0      22.0      25.0      53.0      0.0   4.0  1
  105     72    2.0    178  54.18 1667 2 3
 1.0    0.0 4   1000.0    0.0 'Y'   10    0   36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 PM Peak

DATE : 3/25/15
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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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	528.0	-77.0	325.0	-84.0	203.	268.	AG	528.	5.6	0.0	14.0		
2. NBA2	325.0	-84.0	259.0	-80.0	66.	273.	AG	528.	5.6	0.0	14.0		
3. NBA3	259.0	-80.0	189.0	-69.0	71.	279.	AG	528.	5.6	0.0	14.0		
4. NBA4	189.0	-69.0	120.0	-50.0	72.	285.	AG	528.	5.6	0.0	14.0		
5. NBA5	120.0	-50.0	63.0	-26.0	62.	293.	AG	528.	5.6	0.0	14.0		
6. NBA6	63.0	-26.0	2.0	5.0	68.	297.	AG	528.	5.6	0.0	14.0		
7. NBD1	2.0	5.0	-68.0	53.0	85.	304.	AG	897.	8.2	0.0	14.0		
8. NBD2	-68.0	53.0	-124.0	103.0	75.	312.	AG	897.	8.2	0.0	14.0		
9. NBD3	-124.0	103.0	-184.0	173.0	92.	319.	AG	897.	8.2	0.0	14.0		
10. NBQ	24.0	-6.0	37.8	-13.0	15.	117.	AG	199.	100.0	0.0	8.0	0.13	2.6
11. NBLQ	28.0	-14.0	41.1	-20.3	15.	116.	AG	122.	100.0	0.0	4.0	0.43	2.4
12. NBRQ	27.0	-2.0	45.4	-10.8	20.	116.	AG	100.	100.0	0.0	4.0	0.37	3.4
13. SBA1	-206.0	184.0	-174.0	141.0	54.	143.	AG	1067.	4.2	0.0	14.0		
14. SBA2	-174.0	141.0	-118.0	82.0	81.	136.	AG	1067.	4.2	0.0	14.0		
15. SBA3	-118.0	82.0	-66.0	38.0	68.	130.	AG	1067.	4.2	0.0	14.0		
16. SBA4	-66.0	38.0	-5.0	-5.0	75.	125.	AG	1067.	4.2	0.0	14.0		
17. SBD1	-5.0	-5.0	66.0	-39.0	79.	116.	AG	932.	5.6	0.0	14.0		
18. SBD2	66.0	-39.0	138.0	-66.0	77.	111.	AG	932.	5.6	0.0	14.0		
19. SBD3	138.0	-66.0	213.0	-83.0	77.	103.	AG	932.	5.6	0.0	14.0		
20. SBD4	213.0	-83.0	296.0	-93.0	84.	97.	AG	932.	5.6	0.0	14.0		
21. SBD5	296.0	-93.0	535.0	-87.0	239.	89.	AG	932.	5.6	0.0	14.0		
22. SBQ	-22.0	7.0	-47.7	24.9	31.	305.	AG	191.	100.0	0.0	8.0	0.24	5.2
23. SBLQ	-25.0	15.0	-50.2	33.1	31.	306.	AG	116.	100.0	0.0	4.0	0.74	5.2
24. SBRQ	-25.0	2.0	-52.8	22.4	34.	306.	AG	96.	100.0	0.0	4.0	0.59	5.8
25. EBA1	-253.0	-245.0	-188.0	-210.0	74.	62.	AG	1071.	9.8	0.0	14.0		
26. EBA2	-188.0	-210.0	-120.0	-159.0	85.	53.	AG	1071.	9.8	0.0	14.0		
27. EBA3	-120.0	-159.0	-74.0	-111.0	66.	44.	AG	1071.	9.8	0.0	14.0		
28. EBA4	-74.0	-111.0	7.0	-4.0	134.	37.	AG	1071.	9.8	0.0	14.0		
29. EBD	7.0	-4.0	180.0	229.0	290.	37.	AG	893.	5.3	0.0	14.0		
30. EBQ	-5.0	-20.0	-22.9	-43.1	29.	218.	AG	194.	100.0	0.0	8.0	0.23	4.9
31. EBLQ	-12.0	-17.0	-31.5	-43.6	33.	216.	AG	238.	100.0	0.0	8.0	0.45	5.5
32. EBRQ	1.0	-22.0	-6.9	-32.1	13.	218.	AG	97.	100.0	0.0	4.0	0.22	2.1
33. WBA1	170.0	235.0	84.0	118.0	145.	216.	AG	1015.	7.1	0.0	14.0		
34. WBA2	84.0	118.0	-6.0	4.0	145.	218.	AG	1015.	7.1	0.0	14.0		
35. WBD1	-6.0	4.0	-87.0	-104.0	135.	217.	AG	959.	4.1	0.0	14.0		
36. WBD2	-87.0	-104.0	-129.0	-148.0	61.	224.	AG	959.	4.1	0.0	14.0		
37. WBD3	-129.0	-148.0	-180.0	-189.0	65.	231.	AG	959.	4.1	0.0	14.0		
38. WBD4	-180.0	-189.0	-258.0	-235.0	91.	239.	AG	959.	4.1	0.0	14.0		
39. WBQ	7.0	20.0	27.0	47.0	34.	37.	AG	199.	100.0	0.0	8.0	0.27	5.6
40. WBQL	14.0	18.0	26.2	34.1	20.	37.	AG	244.	100.0	0.0	8.0	0.31	3.4
41. WBQR	1.0	22.0	14.1	38.9	21.	38.	AG	100.	100.0	0.0	4.0	0.39	3.6

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 PM Peak

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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
10. NBQ	105	72	2.0	259	3725	54.18	2	3
11. NBLQ	105	88	2.0	99	1863	54.18	2	3
12. NBRQ	105	72	2.0	170	1667	54.18	2	3
22. SBQ	105	69	2.0	545	3725	54.18	2	3
23. SBLQ	105	84	2.0	222	1863	54.18	2	3
24. SBRQ	105	69	2.0	300	1667	54.18	2	3
30. EBQ	105	70	2.0	501	3725	54.18	2	3
31. EBLQ	105	86	2.0	460	3614	54.18	2	3
32. EBRQ	105	70	2.0	110	1667	54.18	2	3
39. WBQ	105	72	2.0	560	3725	54.18	2	3
40. WBQL	105	88	2.0	277	3614	54.18	2	3
41. WBQR	105	72	2.0	178	1667	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	9.0	-22.0	1.8
2. REC2	4.0	-24.0	1.8
3. REC3	-12.0	-44.0	1.8
4. REC4	-29.0	-64.0	1.8
5. REC5	-45.0	-86.0	1.8
6. REC6	-60.0	-107.0	1.8
7. REC7	-77.0	-126.0	1.8
8. REC8	14.0	-23.0	1.8
9. REC9	36.0	-34.0	1.8
10. REC10	59.0	-44.0	1.8
11. REC11	27.0	8.0	1.8
12. REC12	29.0	3.0	1.8
13. REC13	51.0	-10.0	1.8
14. REC14	74.0	-21.0	1.8
15. REC15	97.0	-31.0	1.8
16. REC16	120.0	-42.0	1.8
17. REC17	29.0	13.0	1.8
18. REC18	42.0	31.0	1.8
19. REC19	57.0	50.0	1.8
20. REC20	-10.0	22.0	1.8
21. REC21	-3.0	24.0	1.8
22. REC22	12.0	43.0	1.8
23. REC23	28.0	62.0	1.8
24. REC24	44.0	81.0	1.8
25. REC25	60.0	101.0	1.8
26. REC26	72.0	120.0	1.8
27. REC27	88.0	138.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	42.0	1.8
30. REC30	-59.0	57.0	1.8
31. REC31	-26.0	-7.0	1.8
32. REC32	-29.0	0.0	1.8
33. REC33	-51.0	13.0	1.8

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 PM Peak

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RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
34. REC34	-72.0	28.0	1.8
35. REC35	-92.0	43.0	1.8
36. REC36	-112.0	59.0	1.8
37. REC37	-31.0	-16.0	1.8
38. REC38	-45.0	-36.0	1.8

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.6	0.9	1.4	1.1	0.6	0.5	0.5	0.8	1.2	0.2	0.7	0.5	0.2	0.0	0.0	0.0	0.6	0.4	0.3	0.0
10.	0.8	0.7	1.3	1.3	0.8	0.5	0.6	0.7	0.8	0.2	0.5	0.5	0.2	0.0	0.0	0.0	0.6	0.4	0.3	0.0
20.	0.8	0.7	1.2	1.3	0.9	0.7	0.7	0.8	0.6	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.4	0.4	0.5	0.0
30.	0.8	0.7	1.1	1.3	1.0	0.6	0.8	0.7	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.5	0.5	0.4	0.0
40.	0.4	0.3	0.6	0.7	0.5	0.5	0.5	0.7	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.3
50.	0.5	0.3	0.3	0.2	0.1	0.1	0.2	0.8	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.6
60.	0.7	0.4	0.2	0.1	0.0	0.0	0.0	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
70.	0.7	0.5	0.1	0.0	0.0	0.0	0.0	0.6	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
80.	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.5	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
90.	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
100.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8
110.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.6
120.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.6
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.8
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.3	0.2	0.2	0.3	0.1	0.0	0.0	0.7
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.9	0.3	0.2	0.2	0.2	0.4	0.0	0.0	0.5
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.2	0.2	0.2	0.2	0.6	0.0	0.0	0.6
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.1	0.2	0.2	0.2	0.2	0.6	0.0	0.0	1.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.0	0.2	0.2	0.2	0.2	0.6	0.2	0.0	0.9
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	0.2	0.2	0.2	0.2	0.5	0.3	0.0	0.9
200.	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.2	0.2	0.2	0.2	0.4	0.3	0.1	0.9
210.	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.5	0.6	0.2	0.2	0.2	0.2	0.6	0.5	0.3	0.7
220.	0.3	0.5	0.4	0.5	0.5	0.4	0.3	0.1	0.0	0.0	0.8	0.7	0.3	0.2	0.2	0.2	0.8	0.6	0.6	0.6
230.	0.7	1.1	0.6	0.6	0.7	0.5	0.5	0.4	0.1	0.0	1.0	0.9	0.4	0.2	0.2	0.2	1.0	0.7	0.8	0.6
240.	1.2	1.5	0.6	0.6	0.5	0.7	0.5	0.8	0.1	0.0	0.8	0.8	0.9	0.3	0.2	0.2	0.7	0.8	0.7	0.8
250.	1.3	1.7	0.6	0.5	0.5	0.5	0.5	1.0	0.1	0.1	0.5	0.8	0.9	0.4	0.3	0.2	0.6	1.1	0.8	0.9
260.	1.4	1.7	0.7	0.5	0.5	0.5	0.5	1.0	0.3	0.1	0.7	0.4	1.1	0.5	0.4	0.3	0.6	1.2	0.7	1.0
270.	1.1	1.5	0.8	0.5	0.5	0.4	0.5	0.9	0.4	0.3	0.5	0.6	1.1	0.7	0.4	0.3	0.7	1.2	0.4	0.9
280.	0.9	1.4	1.0	0.4	0.4	0.3	0.4	0.8	0.3	0.4	0.7	0.6	1.1	0.6	0.3	0.3	0.8	0.9	0.2	0.7
290.	0.6	1.1	1.2	0.4	0.4	0.4	0.4	0.6	0.4	0.4	0.8	0.7	0.8	0.5	0.3	0.1	0.8	0.6	0.2	0.6
300.	0.8	1.2	1.3	0.4	0.4	0.4	0.4	0.7	0.6	0.4	0.6	0.5	0.8	0.5	0.0	0.1	1.0	0.7	0.2	0.4
310.	1.0	1.1	1.3	0.4	0.4	0.4	0.4	0.9	0.6	0.6	0.7	0.6	0.5	0.3	0.2	0.0	1.1	0.5	0.3	0.3
320.	0.8	1.1	1.3	0.4	0.4	0.4	0.4	0.7	0.3	0.6	0.9	0.7	0.4	0.3	0.0	0.0	1.0	0.3	0.2	0.1
330.	0.8	0.8	1.5	0.4	0.4	0.4	0.3	0.6	0.8	0.8	1.0	0.8	0.4	0.1	0.0	0.0	1.0	0.3	0.2	0.0
340.	0.6	0.7	1.7	0.5	0.4	0.4	0.3	0.6	1.0	0.6	0.9	0.7	0.4	0.1	0.0	0.0	1.0	0.3	0.3	0.0
350.	0.8	0.6	1.7	0.8	0.5	0.5	0.5	0.8	1.1	0.4	0.8	0.7	0.2	0.1	0.0	0.0	0.8	0.3	0.3	0.0
360.	0.6	0.9	1.4	1.1	0.6	0.5	0.5	0.8	1.2	0.2	0.7	0.5	0.2	0.0	0.0	0.0	0.6	0.4	0.3	0.0
MAX	1.4	1.7	1.7	1.3	1.0	0.7	0.8	1.0	1.2	0.8	1.0	1.1	1.1	0.7	0.4	0.3	1.1	1.2	0.8	1.1
DEGR.	260	250	340	10	30	20	30	250	0	330	230	170	260	270	260	140	310	260	230	70

PAGE 5

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2012 PM Peak

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.

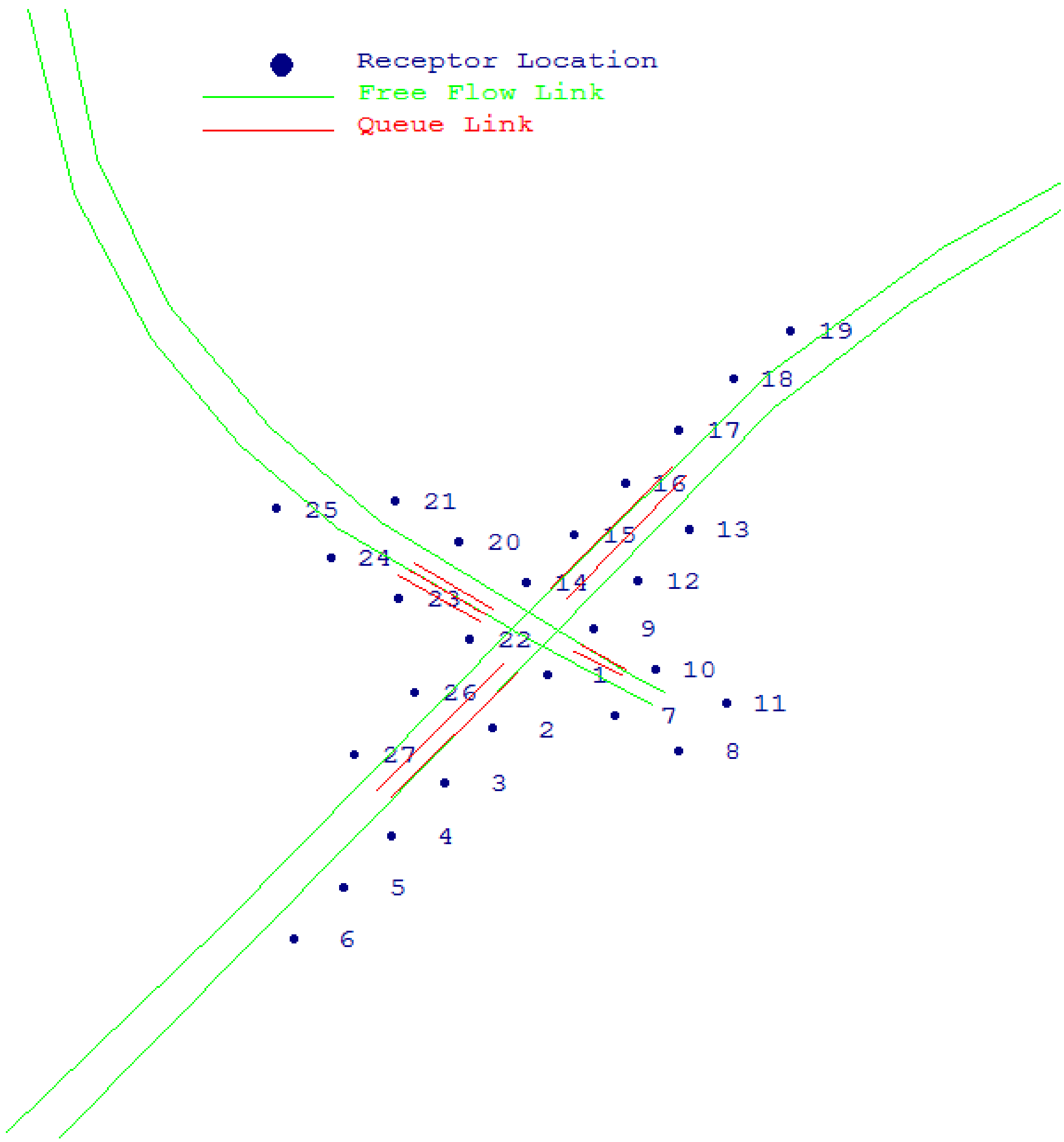
WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.1	0.6	0.2	0.2	0.2	0.7	0.3
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1	0.7	0.3	0.2	0.2	0.6	0.4
20.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	1.0	0.8	0.2	0.2	0.2	0.4	0.3
30.	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.5	0.9	0.9	0.3	0.2	0.2	0.5	0.5
40.	0.7	0.4	0.4	0.4	0.4	0.3	0.4	0.0	0.0	0.0	0.8	1.0	1.0	0.2	0.2	0.2	0.8	0.6
50.	1.0	0.4	0.5	0.5	0.5	0.4	0.5	0.2	0.0	0.0	0.9	1.3	1.1	0.2	0.2	0.2	0.8	0.8
60.	1.3	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.0	0.7	1.0	1.3	0.2	0.2	0.2	0.6	0.7
70.	1.5	0.6	0.4	0.4	0.4	0.3	0.4	0.6	0.1	0.0	0.6	0.7	1.3	0.4	0.3	0.2	0.4	1.1
80.	1.4	0.7	0.4	0.4	0.4	0.4	0.4	0.6	0.2	0.1	0.5	0.7	1.3	0.6	0.2	0.2	0.5	1.3
90.	1.3	0.7	0.3	0.3	0.3	0.3	0.3	0.7	0.3	0.1	0.5	0.5	1.3	0.7	0.4	0.2	0.8	1.0
100.	1.2	0.8	0.3	0.3	0.3	0.3	0.3	0.7	0.3	0.2	0.5	0.6	0.8	0.7	0.6	0.3	0.9	0.9
110.	1.0	0.9	0.3	0.3	0.3	0.3	0.3	0.6	0.4	0.4	0.6	0.4	0.7	0.7	0.5	0.3	1.0	0.7
120.	0.7	1.0	0.3	0.3	0.3	0.3	0.3	0.6	0.5	0.4	0.6	0.4	0.7	0.5	0.4	0.4	1.0	0.6
130.	0.9	1.1	0.3	0.3	0.3	0.3	0.3	0.6	0.5	0.5	0.9	0.4	0.3	0.5	0.3	0.2	1.0	0.4
140.	0.6	1.3	0.3	0.3	0.3	0.3	0.3	0.6	0.7	0.7	0.8	0.6	0.4	0.3	0.2	0.1	1.0	0.3
150.	0.7	1.4	0.3	0.3	0.3	0.3	0.3	0.6	1.0	1.1	1.0	0.7	0.4	0.2	0.1	0.1	0.9	0.3
160.	0.5	1.6	0.3	0.3	0.3	0.3	0.3	0.7	1.2	1.0	0.9	0.8	0.2	0.1	0.1	0.0	0.9	0.3
170.	0.5	1.6	0.5	0.3	0.4	0.3	0.3	0.8	1.3	0.7	0.9	0.7	0.2	0.1	0.0	0.0	0.8	0.3
180.	0.8	1.5	1.0	0.4	0.4	0.3	0.4	0.9	1.1	0.4	0.8	0.6	0.1	0.0	0.0	0.0	0.7	0.4
190.	1.1	1.3	1.1	0.6	0.4	0.4	0.4	1.0	1.0	0.3	0.6	0.4	0.1	0.0	0.0	0.0	0.6	0.4
200.	1.0	1.3	1.4	0.7	0.7	0.4	0.5	0.9	0.8	0.2	0.5	0.2	0.0	0.0	0.0	0.0	0.5	0.4
210.	0.7	1.0	1.0	0.8	0.7	0.6	0.4	0.8	0.7	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.4	0.4
220.	0.5	0.7	0.7	0.5	0.3	0.2	0.3	0.8	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
230.	0.5	0.2	0.3	0.3	0.1	0.1	0.1	0.9	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
240.	0.6	0.3	0.2	0.0	0.0	0.0	0.0	0.9	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.9	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.3	0.3	0.4	0.1	0.1	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.8	1.2	0.3	0.3	0.3	0.2	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.2	0.4	0.2	0.4	0.2	0.5	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.4	0.4	0.2	0.2	0.4	0.6	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.2	0.3	0.2	0.2	0.4	0.6	0.1
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.1	0.6	0.2	0.2	0.2	0.7	0.3
MAX	1.5	1.6	1.4	0.8	0.7	0.6	0.5	1.0	1.3	1.1	1.0	1.4	1.3	0.7	0.6	0.4	1.0	1.3
DEGR.	70	160	200	210	200	210	50	190	170	150	150	340	60	90	100	120	110	80

THE HIGHEST CONCENTRATION OF 1.70 PPM OCCURRED AT RECEPTOR REC3 .

2012 PM University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive      '  60. 108.0    0.00    0.00 27     1.0000 0 0
'REC1                '         4.0      -18.0         1.8
'REC2                '       -12.0      -39.0         1.8
'REC3                '       -26.0      -60.0         1.8
'REC4                '       -42.0      -81.0         1.8
'REC5                '       -56.0     -101.0         1.8
'REC6                '       -71.0     -121.0         1.8
'REC7                '        24.0      -34.0         1.8
'REC8                '        43.0      -48.0         1.8
'REC9                '        18.0        0.0         1.8
'REC10               '        36.0      -16.0         1.8
'REC11               '        57.0      -29.0         1.8
'REC12               '        31.0       19.0         1.8
'REC13               '        46.0       39.0         1.8
'REC14               '        -2.0       18.0         1.8
'REC15               '        12.0       37.0         1.8
'REC16               '        27.0       57.0         1.8
'REC17               '        43.0       78.0         1.8
'REC18               '        59.0       98.0         1.8
'REC19               '        76.0      117.0         1.8
'REC20               '       -22.0       34.0         1.8
'REC21               '       -41.0       50.0         1.8
'REC22               '       -19.0       -4.0         1.8
'REC23               '       -40.0       12.0         1.8
'REC24               '       -60.0       28.0         1.8
'REC25               '       -76.0       47.0         1.8
'REC26               '       -35.0      -25.0         1.8
'REC27               '       -53.0      -49.0         1.8
'2012 PM Peak                                 '  37   1   0 C
1
'NBA1                ' 'AG'      39.0      -25.0       29.0      -18.0     212.   7.50      0.0  10.0
1
'NBA2                ' 'AG'      29.0      -18.0        3.0        3.0     212.   7.50      0.0  10.0
1
'NBD1                ' 'AG'       3.0        3.0      -45.0       42.0     360.   6.65      0.0  14.0
1
'NBD2                ' 'AG'     -45.0       42.0      -78.0       79.0     360.   6.65      0.0  14.0
1
'NBD3                ' 'AG'     -78.0       79.0     -108.0      127.0     360.   6.65      0.0  14.0
1
'NBD4                ' 'AG'    -108.0      127.0     -129.0      184.0     360.   6.65      0.0  14.0
1
'NBD5                ' 'AG'    -129.0      184.0     -140.0      253.0     360.   6.65      0.0  14.0
2
'NBQ                 ' 'AG'      14.0       -6.0       27.0      -16.0      0.0   4.0  1
  105     78    2.0    79  54.18 1820 2 3
2
'NBLQ                ' 'AG'      12.0       -9.0       26.0      -18.0      0.0   4.0  1
  105     62    2.0    60  54.18 1076 2 3
1
'SBA1                ' 'AG'    -151.0      251.0     -136.0      170.0     478.   6.08      0.0  14.0
1
'SBA2                ' 'AG'    -136.0      170.0     -113.0      113.0     478.   6.08      0.0  14.0
1
'SBA3                ' 'AG'    -113.0      113.0      -87.0       72.0     478.   6.08      0.0  14.0
1
'SBA4                ' 'AG'     -87.0       72.0      -58.0       40.0     478.   6.08      0.0  14.0
1
'SBA5                ' 'AG'     -58.0       40.0       -2.0       -3.0     478.   6.08      0.0  10.0
1
'SBD                 ' 'AG'      -2.0       -3.0       35.0      -30.0     183.   5.30      0.0  10.0
2
'SBQ                 ' 'AG'     -14.0        6.0      -37.0       23.0      0.0   4.0  1
  105     76    2.0    88  54.18 1961 2 3
2
'SBLQ                ' 'AG'     -12.0        8.0      -35.0       26.0      0.0   4.0  1
  105     87    2.0   139  54.18  927 2 3
2
'SBRQ                ' 'AG'     -16.0        3.0      -40.0       21.0      0.0   4.0  1
  105     80    2.0   251  54.18 1667 2 3
1
'EBA                 ' 'AG'    -169.0     -238.0        4.0       -5.0     716.   6.08      0.0  14.0
1
'EBD1                ' 'AG'       4.0       -5.0       71.0       86.0     652.  11.58      0.0  14.0
1
```

```
'EBD2                ' 'AG'      71.0      86.0     111.0     127.0    652.  11.58     0.0  14.0
1
'EBD3                ' 'AG'     111.0     127.0     158.0     165.0    652.  11.58     0.0  14.0
1
'EBD4                ' 'AG'     158.0     165.0     224.0     203.0    652.  11.58     0.0  14.0
1
'EBD5                ' 'AG'     224.0     203.0     283.0     226.0    652.  11.58     0.0  14.0
1
'EBD6                ' 'AG'     283.0     226.0     386.0     252.0    652.  11.58     0.0  14.0
2
'EBQ                 ' 'AG'      -5.0     -17.0     -42.0     -66.0      0.0   8.0  2
  105    61    2.0    494  54.18 3666 2 3
2
'EBLQ                ' 'AG'      -9.0     -14.0     -46.0     -63.0      0.0   4.0  1
  105    45    2.0    222  54.18  892 2 3
1
'WBA1                ' 'AG'     385.0     264.0     265.0     231.0    393.   3.60     0.0  14.0
1
'WBA2                ' 'AG'     265.0     231.0     219.0     211.0    393.   3.60     0.0  14.0
1
'WBA3                ' 'AG'     219.0     211.0     170.0     185.0    393.   3.60     0.0  14.0
1
'WBA4                ' 'AG'     170.0     185.0     121.0     149.0    393.   3.60     0.0  14.0
1
'WBA5                ' 'AG'     121.0     149.0      70.0     100.0    393.   3.60     0.0  14.0
1
'WBA6                ' 'AG'      70.0     100.0      -5.0       2.0    393.   3.60     0.0  14.0
1
'WBD1                ' 'AG'      -5.0       2.0     -92.0    -116.0    604.   6.08     0.0  14.0
1
'WBD2                ' 'AG'     -92.0    -116.0    -182.0    -230.0    604.   6.08     0.0  14.0
2
'WBQ                 ' 'AG'       5.0      16.0      41.0      63.0      0.0   8.0  2
  105    70    2.0    293  54.18 3632 2 3
2
'WBQL                ' 'AG'      10.0      12.0      45.0      60.0      0.0   4.0  1
  105    54    2.0     41  54.18  875 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: University Drive and Westgate Drive                  RUN: 2012 PM Peak

      DATE :  3/25/15
      TIME : 15:18:29

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2    *    (M)    (DEG)          (G/MI)   (M)  (M)        (VEH)
      ------------------------*---------------------------------------*--------------------------------------------------------
-
       1. NBA1                *    39.0     -25.0      29.0     -18.0 *     12.   305. AG    212.   7.5   0.0 10.0
       2. NBA2                *    29.0     -18.0       3.0       3.0 *     33.   309. AG    212.   7.5   0.0 10.0
       3. NBD1                *     3.0       3.0     -45.0      42.0 *     62.   309. AG    360.   6.7   0.0 14.0
       4. NBD2                *   -45.0      42.0     -78.0      79.0 *     50.   318. AG    360.   6.7   0.0 14.0
       5. NBD3                *   -78.0      79.0    -108.0     127.0 *     57.   328. AG    360.   6.7   0.0 14.0
       6. NBD4                *  -108.0     127.0    -129.0     184.0 *     61.   340. AG    360.   6.7   0.0 14.0
       7. NBD5                *  -129.0     184.0    -140.0     253.0 *     70.   351. AG    360.   6.7   0.0 14.0
       8. NBQ                 *    14.0      -6.0      22.1     -12.3 *     10.   128. AG    108. 100.0   0.0  4.0 0.20   1.7
       9. NBLQ                *    12.0      -9.0      17.2     -12.4 *      6.   123. AG     86. 100.0   0.0  4.0 0.15   1.0
      10. SBA1                *  -151.0     251.0    -136.0     170.0 *     82.   170. AG    478.   6.1   0.0 14.0
      11. SBA2                *  -136.0     170.0    -113.0     113.0 *     61.   158. AG    478.   6.1   0.0 14.0
      12. SBA3                *  -113.0     113.0     -87.0      72.0 *     49.   148. AG    478.   6.1   0.0 14.0
      13. SBA4                *   -87.0      72.0     -58.0      40.0 *     43.   138. AG    478.   6.1   0.0 14.0
      14. SBA5                *   -58.0      40.0      -2.0      -3.0 *     71.   128. AG    478.   6.1   0.0 10.0
      15. SBD                 *    -2.0      -3.0      35.0     -30.0 *     46.   126. AG    183.   5.3   0.0 10.0
      16. SBQ                 *   -14.0       6.0     -23.0      12.6 *     11.   306. AG    105. 100.0   0.0  4.0 0.19   1.9
      17. SBLQ                *   -12.0       8.0     -77.0      58.9 *     83.   308. AG    120. 100.0   0.0  4.0 1.13  13.8
      18. SBRQ                *   -16.0       3.0     -42.8      23.1 *     33.   307. AG    111. 100.0   0.0  4.0 0.75   5.6
      19. EBA                 *  -169.0    -238.0       4.0      -5.0 *    290.    37. AG    716.   6.1   0.0 14.0
      20. EBD1                *     4.0      -5.0      71.0      86.0 *    113.    36. AG    652.  11.6   0.0 14.0
      21. EBD2                *    71.0      86.0     111.0     127.0 *     57.    44. AG    652.  11.6   0.0 14.0
      22. EBD3                *   111.0     127.0     158.0     165.0 *     60.    51. AG    652.  11.6   0.0 14.0
      23. EBD4                *   158.0     165.0     224.0     203.0 *     76.    60. AG    652.  11.6   0.0 14.0
      24. EBD5                *   224.0     203.0     283.0     226.0 *     63.    69. AG    652.  11.6   0.0 14.0
      25. EBD6                *   283.0     226.0     386.0     252.0 *    106.    76. AG    652.  11.6   0.0 14.0
      26. EBQ                 *    -5.0     -17.0     -20.1     -37.0 *     25.   217. AG    169. 100.0   0.0  8.0 0.18   4.2
      27. EBLQ                *    -9.0     -14.0     -19.0     -27.3 *     17.   217. AG     62. 100.0   0.0  4.0 0.47   2.8
      28. WBA1                *   385.0     264.0     265.0     231.0 *    124.   255. AG    393.   3.6   0.0 14.0
      29. WBA2                *   265.0     231.0     219.0     211.0 *     50.   247. AG    393.   3.6   0.0 14.0
      30. WBA3                *   219.0     211.0     170.0     185.0 *     55.   242. AG    393.   3.6   0.0 14.0
      31. WBA4                *   170.0     185.0     121.0     149.0 *     61.   234. AG    393.   3.6   0.0 14.0
      32. WBA5                *   121.0     149.0      70.0     100.0 *     71.   226. AG    393.   3.6   0.0 14.0
      33. WBA6                *    70.0     100.0      -5.0       2.0 *    123.   217. AG    393.   3.6   0.0 14.0
      34. WBD1                *    -5.0       2.0     -92.0    -116.0 *    147.   216. AG    604.   6.1   0.0 14.0
      35. WBD2                *   -92.0    -116.0    -182.0    -230.0 *    145.   218. AG    604.   6.1   0.0 14.0
      36. WBQ                 *     5.0      16.0      15.4      29.5 *     17.    37. AG    194. 100.0   0.0  8.0 0.14   2.8
      37. WBQL                *    10.0      12.0      12.2      15.0 *      4.    36. AG     75. 100.0   0.0  4.0 0.10   0.6
```

JOB: University Drive and Westgate Drive RUN: 2012 PM Peak

DATE : 3/25/15
TIME : 15:18:29

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
8. NBQ	105	78	2.0	79	1820	54.18	2	3
9. NBLQ	105	62	2.0	60	1076	54.18	2	3
16. SBQ	105	76	2.0	88	1961	54.18	2	3
17. SBLQ	105	87	2.0	139	927	54.18	2	3
18. SBRQ	105	80	2.0	251	1667	54.18	2	3
26. EBQ	105	61	2.0	494	3666	54.18	2	3
27. EBLQ	105	45	2.0	222	892	54.18	2	3
36. WBQ	105	70	2.0	293	3632	54.18	2	3
37. WBQL	105	54	2.0	41	875	54.18	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	4.0	-18.0	1.8
2. REC2	-12.0	-39.0	1.8
3. REC3	-26.0	-60.0	1.8
4. REC4	-42.0	-81.0	1.8
5. REC5	-56.0	-101.0	1.8
6. REC6	-71.0	-121.0	1.8
7. REC7	24.0	-34.0	1.8
8. REC8	43.0	-48.0	1.8
9. REC9	18.0	0.0	1.8
10. REC10	36.0	-16.0	1.8
11. REC11	57.0	-29.0	1.8
12. REC12	31.0	19.0	1.8
13. REC13	46.0	39.0	1.8
14. REC14	-2.0	18.0	1.8
15. REC15	12.0	37.0	1.8
16. REC16	27.0	57.0	1.8
17. REC17	43.0	78.0	1.8
18. REC18	59.0	98.0	1.8
19. REC19	76.0	117.0	1.8
20. REC20	-22.0	34.0	1.8
21. REC21	-41.0	50.0	1.8
22. REC22	-19.0	-4.0	1.8
23. REC23	-40.0	12.0	1.8
24. REC24	-60.0	28.0	1.8
25. REC25	-76.0	47.0	1.8
26. REC26	-35.0	-25.0	1.8
27. REC27	-53.0	-49.0	1.8

JOB: University Drive and Westgate Drive RUN: 2012 PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.3	1.0	0.5	0.4	0.3	0.3	0.1	0.1	0.4	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.4	0.9	0.5	0.3	0.3	0.3	0.1	0.1	0.4	0.1	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.5	0.7	0.5	0.4	0.3	0.3	0.1	0.0	0.4	0.1	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.4	0.4	0.4	0.4	0.3	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.4	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0
50.	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.6	0.3	0.3	0.1	0.2	0.1	0.0
60.	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	0.8	0.3	0.3	0.2	0.3	0.2	0.1
70.	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	0.8	0.3	0.3	0.3	0.2	0.3	0.1
80.	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	0.8	0.3	0.3	0.3	0.2	0.3	0.1
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.2	0.1	0.2	0.2	0.2
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.2	0.2	0.2	0.2	0.2
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.2	0.2	0.2	0.3
120.	0.0	0.0	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	0.2	0.2	0.1	0.2	0.2
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2
150.	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	0.2	0.2	0.1	0.2	0.2
160.	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	0.2	0.5	0.2	0.2	0.2	0.2	0.4
170.	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	0.3	0.7	0.3	0.3	0.3	0.2	0.8
180.	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	0.3	0.7	0.3	0.3	0.3	0.2	0.9
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.4	0.9	0.4	0.3	0.3	0.2	0.7
200.	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.1	0.5	0.9	0.4	0.3	0.3	0.3	0.6
210.	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.4	0.1	0.0	0.3	0.3	0.5	0.5	0.4	0.4	0.2	0.1	0.5
220.	0.4	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.6	0.1	0.0	0.5	0.5	0.7	0.3	0.1	0.1	0.1	0.1	0.5
230.	0.7	0.4	0.3	0.2	0.3	0.3	0.1	0.0	0.6	0.1	0.0	0.6	0.5	0.5	0.2	0.1	0.0	0.0	0.0	0.5
240.	0.8	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.4	0.2	0.0	0.4	0.4	0.6	0.2	0.1	0.1	0.0	0.0	0.5
250.	0.9	0.3	0.3	0.3	0.2	0.3	0.1	0.0	0.5	0.2	0.0	0.4	0.5	0.6	0.2	0.1	0.1	0.0	0.0	0.4
260.	0.8	0.4	0.3	0.3	0.3	0.3	0.2	0.0	0.4	0.2	0.0	0.6	0.5	0.6	0.1	0.1	0.0	0.0	0.0	0.4
270.	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.0	0.3	0.2	0.1	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.3
280.	0.5	0.4	0.2	0.2	0.2	0.1	0.3	0.1	0.5	0.2	0.1	0.6	0.2	0.5	0.1	0.0	0.0	0.0	0.0	0.3
290.	0.3	0.5	0.2	0.2	0.2	0.1	0.2	0.1	0.7	0.5	0.0	0.6	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.3
300.	0.4	0.6	0.2	0.2	0.2	0.2	0.2	0.1	0.5	0.4	0.1	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2
310.	0.5	0.6	0.2	0.2	0.2	0.2	0.3	0.1	0.5	0.4	0.2	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.6	0.6	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.5	0.9	0.2	0.2	0.2	0.2	0.2	0.1	0.4	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.2	1.0	0.3	0.2	0.2	0.2	0.3	0.1	0.4	0.2	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.3	1.1	0.4	0.3	0.2	0.2	0.3	0.1	0.5	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.3	1.0	0.5	0.4	0.3	0.3	0.1	0.1	0.4	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.9	1.1	0.5	0.4	0.3	0.3	0.3	0.1	0.7	0.5	0.2	0.7	0.5	0.8	0.9	0.4	0.4	0.3	0.3	0.9
DEGR.	250	350	0	0	0	0	280	0	290	290	310	270	220	60	190	190	210	60	70	180

PAGE 4

JOB: University Drive and Westgate Drive RUN: 2012 PM Peak

MODEL RESULTS

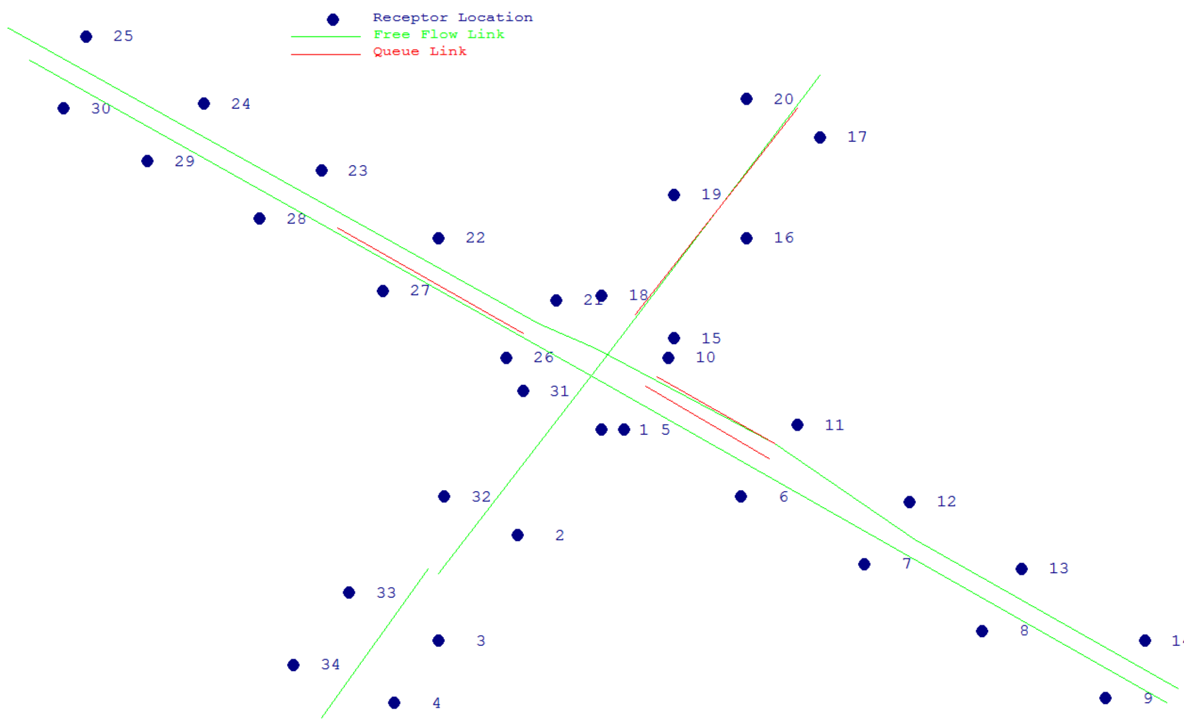
REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27
0.	0.0	0.6	0.5	0.3	0.3	0.2	0.1
10.	0.0	0.6	0.5	0.2	0.3	0.2	0.1
20.	0.0	0.4	0.5	0.3	0.3	0.2	0.1
30.	0.0	0.5	0.5	0.3	0.3	0.3	0.1
40.	0.0	0.4	0.5	0.3	0.3	0.3	0.2
50.	0.0	0.5	0.5	0.3	0.3	0.3	0.5
60.	0.0	0.5	0.6	0.3	0.3	0.3	0.4
70.	0.0	0.4	0.8	0.3	0.3	0.5	0.3
80.	0.1	0.3	0.9	0.4	0.4	0.5	0.3
90.	0.1	0.2	0.9	0.6	0.4	0.5	0.2
100.	0.1	0.2	0.7	0.6	0.4	0.5	0.2
110.	0.2	0.2	0.4	0.5	0.5	0.4	0.2
120.	0.2	0.3	0.1	0.4	0.5	0.4	0.2
130.	0.3	0.3	0.1	0.2	0.3	0.3	0.2
140.	0.2	0.5	0.1	0.1	0.0	0.3	0.2
150.	0.4	0.5	0.1	0.0	0.0	0.2	0.2
160.	0.6	0.6	0.2	0.0	0.0	0.2	0.2
170.	0.5	0.5	0.2	0.0	0.0	0.2	0.2
180.	0.5	0.6	0.2	0.0	0.0	0.2	0.2
190.	0.4	0.4	0.2	0.0	0.0	0.3	0.3
200.	0.3	0.3	0.1	0.0	0.0	0.3	0.3
210.	0.3	0.3	0.0	0.0	0.0	0.3	0.2
220.	0.3	0.1	0.0	0.0	0.0	0.1	0.1
230.	0.3	0.1	0.0	0.0	0.0	0.0	0.0
240.	0.3	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.3	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.3	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.4	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.3	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.2	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.1	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.1	0.2	0.1	0.0	0.0	0.0	0.0
320.	0.0	0.5	0.1	0.2	0.0	0.0	0.0
330.	0.0	0.6	0.4	0.2	0.2	0.1	0.0
340.	0.0	0.7	0.4	0.3	0.2	0.1	0.0
350.	0.0	0.7	0.5	0.3	0.2	0.2	0.0
360.	0.0	0.6	0.5	0.3	0.3	0.2	0.1
MAX	0.6	0.7	0.9	0.6	0.5	0.5	0.5
DEGR.	160	340	80	90	110	70	50

THE HIGHEST CONCENTRATION OF 1.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 AM No-Build Mangum Street and Main Street



CAL3QHC Input File

```
'Mangum Street and Main Street          '  60. 108.0    0.00    0.00 34     1.0000 0 0
'REC1                  '        2.0      -15.0        1.8
'REC2                  '      -13.0      -37.0        1.8
'REC3                  '      -27.0      -59.0        1.8
'REC4                  '      -35.0      -72.0        1.8
'REC5                  '        6.0      -15.0        1.8
'REC6                  '       27.0      -29.0        1.8
'REC7                  '       49.0      -43.0        1.8
'REC8                  '       70.0      -57.0        1.8
'REC9                  '       92.0      -71.0        1.8
'REC10                 '       14.0        0.0        1.8
'REC11                 '       37.0      -14.0        1.8
'REC12                 '       57.0      -30.0        1.8
'REC13                 '       77.0      -44.0        1.8
'REC14                 '       99.0      -59.0        1.8
'REC15                 '       15.0        4.0        1.8
'REC16                 '       28.0       25.0        1.8
'REC17                 '       41.0       46.0        1.8
'REC18                 '        2.0       13.0        1.8
'REC19                 '       15.0       34.0        1.8
'REC20                 '       28.0       54.0        1.8
'REC21                 '       -6.0       12.0        1.8
'REC22                 '      -27.0       25.0        1.8
'REC23                 '      -48.0       39.0        1.8
'REC24                 '      -69.0       53.0        1.8
'REC25                 '      -90.0       67.0        1.8
'REC26                 '      -15.0        0.0        1.8
'REC27                 '      -37.0       14.0        1.8
'REC28                 '      -59.0       29.0        1.8
'REC29                 '      -79.0       41.0        1.8
'REC30                 '      -94.0       52.0        1.8
'REC31                 '      -12.0       -7.0        1.8
'REC32                 '      -26.0      -29.0        1.8
'REC33                 '      -43.0      -49.0        1.8
'REC34                 '      -53.0      -64.0        1.8
'2040 No-Build AM Peak                  '  14    1  0 C
1
'SBA                   ' 'AG'      41.0       59.0        2.0       -1.0    1279.   1.16      0.0  14.0
1
'SBD1                  ' 'AG'       2.0       -1.0      -27.0      -45.0    1190.   1.18      0.0  14.0
1
'SBD2                  ' 'AG'     -29.0      -44.0      -48.0      -75.0    1190.   1.18      0.0  18.0
2
'SBQ                   ' 'AG'       8.0        9.0       37.0       52.0      0.0   8.0  2
   90    38    2.0  1279    1.31 3412 2 3
1
'EBA                   ' 'AG'    -100.0       62.0       -1.0       -3.0     209.   0.81      0.0  10.0
1
'EBD                   ' 'AG'      -1.0       -3.0      103.0      -72.0     375.   0.81      0.0  10.0
2
'EBQ                   ' 'AG'     -12.0        5.0      -45.0       27.0      0.0   4.0  1
   90    66    2.0   209    1.31 1818 2 3
1
'WBA1                  ' 'AG'     105.0      -69.0       58.0      -38.0     324.   0.81      0.0  10.0
1
'WBA2                  ' 'AG'      58.0      -38.0       33.0      -18.0     324.   0.81      0.0  10.0
1
'WBA3                  ' 'AG'      33.0      -18.0        1.0        2.0     324.   0.81      0.0  10.0
1
'WBD1                  ' 'AG'       1.0        2.0       -9.0        7.0     247.   0.81      0.0  10.0
1
'WBD2                  ' 'AG'      -9.0        7.0      -98.0       65.0     247.   0.81      0.0  10.0
2
'WBQ                   ' 'AG'      12.0       -4.0       33.0      -18.0      0.0   4.0  1
   90    52    2.0   240    1.31 1827 2 3
2
'WBLQ                  ' 'AG'      10.0       -6.0       32.0      -21.0      0.0   4.0  1
   90    76    2.0    84    1.31 1736 2 3
 1.0   0.0 4  1000.0   0.0 'Y'  10   0  36
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CAL3QHC Output File

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CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Mangum Street and Main Street                     RUN: 2040 No-Build AM Peak

      DATE :  5/ 5/15
      TIME :  8: 4:12

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION    *         LINK COORDINATES (M)           *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                             *   X1        Y1        X2        Y2     *    (M)   (DEG)            (G/MI)   (M)  (M)        (VEH)
      ------------------------*----------------------------------------*--------------------------------------------------------
-
       1. SBA                *    41.0      59.0       2.0      -1.0 *     72.  213. AG   1279.   1.2    0.0 14.0
       2. SBD1               *     2.0      -1.0     -27.0     -45.0 *     53.  213. AG   1190.   1.2    0.0 14.0
       3. SBD2               *   -29.0     -44.0     -48.0     -75.0 *     36.  212. AG   1190.   1.2    0.0 18.0
       4. SBQ                *     8.0       9.0      30.6      42.6 *     40.   34. AG      3. 100.0   0.0  8.0 0.35   6.7
       5. EBA                *  -100.0      62.0      -1.0      -3.0 *    118.  123. AG    209.   0.8    0.0 10.0
       6. EBD                *    -1.0      -3.0     103.0     -72.0 *    125.  124. AG    375.   0.8    0.0 10.0
       7. EBQ                *   -12.0       5.0     -31.1      17.8 *     23.  304. AG      3. 100.0   0.0  4.0 0.52   3.8
       8. WBA1               *   105.0     -69.0      58.0     -38.0 *     56.  303. AG    324.   0.8    0.0 10.0
       9. WBA2               *    58.0     -38.0      33.0     -18.0 *     32.  309. AG    324.   0.8    0.0 10.0
      10. WBA3               *    33.0     -18.0       1.0       2.0 *     38.  302. AG    324.   0.8    0.0 10.0
      11. WBD1               *     1.0       2.0      -9.0       7.0 *     11.  297. AG    247.   0.8    0.0 10.0
      12. WBD2               *    -9.0       7.0     -98.0      65.0 *    106.  303. AG    247.   0.8    0.0 10.0
      13. WBQ                *    12.0      -4.0      29.3     -15.5 *     21.  124. AG      2. 100.0   0.0  4.0 0.35   3.5
      14. WBLQ               *    10.0      -6.0      18.8     -12.0 *     11.  124. AG      3. 100.0   0.0  4.0 0.44   1.8
```

PAGE 2

JOB: Mangum Street and Main Street RUN: 2040 No-Build AM Peak

DATE : 5/ 5/15
TIME : 8: 4:12

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
4. SBQ	90	38	2.0	1279	3412	1.31	2	3
7. EBQ	90	66	2.0	209	1818	1.31	2	3
13. WBQ	90	52	2.0	240	1827	1.31	2	3
14. WBLQ	90	76	2.0	84	1736	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	2.0	-15.0	1.8
2. REC2	-13.0	-37.0	1.8
3. REC3	-27.0	-59.0	1.8
4. REC4	-35.0	-72.0	1.8
5. REC5	6.0	-15.0	1.8
6. REC6	27.0	-29.0	1.8
7. REC7	49.0	-43.0	1.8
8. REC8	70.0	-57.0	1.8
9. REC9	92.0	-71.0	1.8
10. REC10	14.0	0.0	1.8
11. REC11	37.0	-14.0	1.8
12. REC12	57.0	-30.0	1.8
13. REC13	77.0	-44.0	1.8
14. REC14	99.0	-59.0	1.8
15. REC15	15.0	4.0	1.8
16. REC16	28.0	25.0	1.8
17. REC17	41.0	46.0	1.8
18. REC18	2.0	13.0	1.8
19. REC19	15.0	34.0	1.8
20. REC20	28.0	54.0	1.8
21. REC21	-6.0	12.0	1.8
22. REC22	-27.0	25.0	1.8
23. REC23	-48.0	39.0	1.8
24. REC24	-69.0	53.0	1.8
25. REC25	-90.0	67.0	1.8
26. REC26	-15.0	0.0	1.8
27. REC27	-37.0	14.0	1.8
28. REC28	-59.0	29.0	1.8
29. REC29	-79.0	41.0	1.8
30. REC30	-94.0	52.0	1.8
31. REC31	-12.0	-7.0	1.8
32. REC32	-26.0	-29.0	1.8
33. REC33	-43.0	-49.0	1.8
34. REC34	-53.0	-64.0	1.8

PAGE 3

JOB: Mangum Street and Main Street RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
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	0.1	0.1	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	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
20.	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	0.1	0.1	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	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
230.	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	0.1	0.1	0.0	0.0	0.0
240.	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	0.1	0.1	0.0	0.0	0.0
250.	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	0.1	0.1	0.0	0.0	0.0
260.	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	0.1	0.1	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	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
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
350.	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	0.1	0.1	0.0	0.0	0.0	0.0
360.	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	0.1	0.1	0.0	0.0	0.0	0.0
MAX	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1
DEGR.	230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	40	50	160

JOB: Mangum Street and Main Street RUN: 2040 No-Build AM Peak

MODEL RESULTS

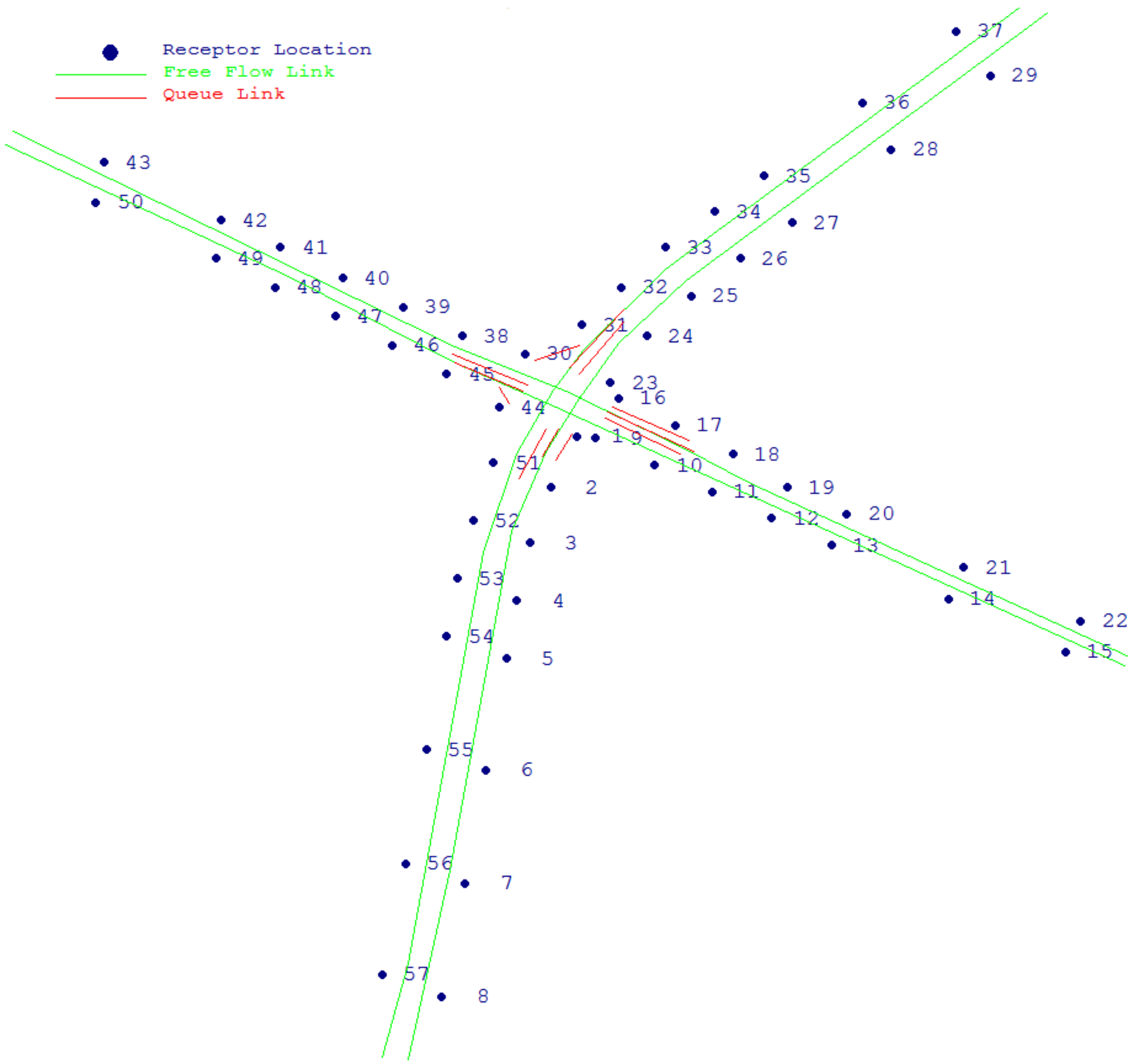
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
50.	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
60.	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
70.	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
80.	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
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	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
180.	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
190.	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
200.	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
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	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
DEGR.	0	0	0	0	0	0	0	0	0	0	170	50	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 AM No-Build Morreene Road/Towerview Road and Erwin Road



CAL3QHC Input File

```
'Morreene Rd_Towerview Rd and Erwin Rd   '  60. 108.0    0.00    0.00 57     1.0000 0 0
'REC1                 '        5.0      -19.0        1.8
'REC2                 '       -5.0      -42.0        1.8
'REC3                 '      -13.0      -67.0        1.8
'REC4                 '      -18.0      -93.0        1.8
'REC5                 '      -22.0     -119.0        1.8
'REC6                 '      -30.0     -169.0        1.8
'REC7                 '      -38.0     -220.0        1.8
'REC8                 '      -47.0     -271.0        1.8
'REC9                 '       12.0      -20.0        1.8
'REC10                '       35.0      -32.0        1.8
'REC11                '       57.0      -44.0        1.8
'REC12                '       80.0      -56.0        1.8
'REC13                '      103.0      -68.0        1.8
'REC14                '      148.0      -92.0        1.8
'REC15                '      193.0     -116.0        1.8
'REC16                '       21.0       -2.0        1.8
'REC17                '       43.0      -14.0        1.8
'REC18                '       65.0      -27.0        1.8
'REC19                '       86.0      -42.0        1.8
'REC20                '      109.0      -54.0        1.8
'REC21                '      154.0      -78.0        1.8
'REC22                '      199.0     -102.0        1.8
'REC23                '       18.0        5.0        1.8
'REC24                '       32.0       26.0        1.8
'REC25                '       49.0       44.0        1.8
'REC26                '       68.0       61.0        1.8
'REC27                '       88.0       77.0        1.8
'REC28                '      126.0      110.0        1.8
'REC29                '      164.0      143.0        1.8
'REC30                '      -15.0       18.0        1.8
'REC31                '        7.0       31.0        1.8
'REC32                '       22.0       48.0        1.8
'REC33                '       39.0       66.0        1.8
'REC34                '       58.0       82.0        1.8
'REC35                '       77.0       98.0        1.8
'REC36                '      115.0      131.0        1.8
'REC37                '      151.0      163.0        1.8
'REC38                '      -39.0       26.0        1.8
'REC39                '      -62.0       39.0        1.8
'REC40                '      -85.0       52.0        1.8
'REC41                '     -109.0       66.0        1.8
'REC42                '     -132.0       78.0        1.8
'REC43                '     -177.0      104.0        1.8
'REC44                '      -25.0       -6.0        1.8
'REC45                '      -45.0        9.0        1.8
'REC46                '      -66.0       22.0        1.8
'REC47                '      -88.0       35.0        1.8
'REC48                '     -111.0       48.0        1.8
'REC49                '     -134.0       61.0        1.8
'REC50                '     -180.0       86.0        1.8
'REC51                '      -27.0      -31.0        1.8
'REC52                '      -35.0      -57.0        1.8
'REC53                '      -41.0      -83.0        1.8
'REC54                '      -45.0     -109.0        1.8
'REC55                '      -53.0     -160.0        1.8
'REC56                '      -61.0     -211.0        1.8
'REC57                '      -70.0     -261.0        1.8
'2040 No-Build AM Peak                   '  35   1  0 C
1
'NBA1                 ' 'AG'     -60.0     -299.0      -44.0     -214.0    1195.   1.16      0.0  12.0
1
'NBA2                 ' 'AG'     -44.0     -214.0      -20.0      -62.0    1195.   1.16      0.0  12.0
1
'NBA3                 ' 'AG'     -20.0      -62.0       -7.0      -26.0    1195.   1.16      0.0  12.0
1
'NBA4                 ' 'AG'      -7.0      -26.0        6.0       -2.0    1195.   1.16      0.0  12.0
1
'NBD1                 ' 'AG'       6.0       -2.0       21.0       23.0    1160.   1.16      0.0  12.0
1
'NBD2                 ' 'AG'      21.0       23.0       47.0       51.0    1160.   1.16      0.0  12.0
1
'NBD3                 ' 'AG'      47.0       51.0      186.0      171.0    1160.   1.16      0.0  12.0
2
'NBQ                  ' 'AG'      -2.0      -16.0       -8.0      -28.0      0.0   6.0  2
  150   101   2.0   801   1.31 3207 2 3
2
'NBLQ                 ' 'AG'      -7.0      -16.0      -17.0      -38.0      0.0   3.5  1
  150   123   2.0   220   1.31  288 2 3
2
'NBRQ                 ' 'AG'       3.0      -18.0       -3.0      -30.0      0.0   3.0  1
  150   101   2.0   174   1.31 1435 2 3
1
'SBA1                 ' 'AG'     179.0      177.0       39.0       56.0     500.   1.16      0.0  13.0
1
'SBA2                 ' 'AG'      39.0       56.0        8.0       20.0     500.   1.16      0.0  13.0
1
'SBA3                 ' 'AG'       8.0       20.0       -4.0        2.0     500.   1.16      0.0  13.0
```

```
1
'SBD1              ' 'AG'      -4.0       2.0     -18.0     -27.0     395.   1.16      0.0  13.0
1
'SBD2              ' 'AG'     -18.0     -27.0     -31.0     -71.0     395.   1.16      0.0  13.0
1
'SBD3              ' 'AG'     -31.0     -71.0     -60.0    -256.0     395.   1.16      0.0  13.0
1
'SBD4              ' 'AG'     -60.0    -256.0     -70.0    -298.0     395.   1.16      0.0  13.0
2
'SBQ               ' 'AG'       2.0      12.0      23.0      38.0      0.0   7.0  2
  150   114   2.0   233   1.31 3083 2 3
2
'SBLQ              ' 'AG'       6.0       9.0      23.0      32.0      0.0   4.0  1
  150   136   2.0    49   1.31  445 2 3
2
'SBRQ              ' 'AG'     -11.0      15.0       6.0      22.0      0.0   3.0  1
  150   114   2.0   218   1.31 1600 2 3
1
'EBA1              ' 'AG'    -215.0     112.0    -105.0      52.0    1214.   1.16      0.0  10.0
1
'EBA2              ' 'AG'    -105.0      52.0     -42.0      14.0    1214.   1.16      0.0  10.0
1
'EBA3              ' 'AG'     -42.0      14.0      -3.0      -6.0    1214.   1.16      0.0  10.0
1
'EBD               ' 'AG'      -3.0      -6.0     216.0    -122.0     951.   1.18      0.0  10.0
2
'EBQ               ' 'AG'     -16.0       1.0     -42.0      14.0      0.0   4.0  1
  150    63   2.0   728   1.31 1763 2 3
2
'EBLQ              ' 'AG'     -14.0       4.0     -43.0      18.0      0.0   3.5  1
  150   119   2.0   338   1.31  907 2 3
2
'EBRQ              ' 'AG'     -21.0      -4.0     -25.0       3.0      0.0   3.0  1
  150    63   2.0   148   1.31 1600 2 3
1
'WBA1              ' 'AG'     217.0    -118.0      72.0     -40.0     200.   1.18      0.0   9.5
1
'WBA2              ' 'AG'      72.0     -40.0      46.0     -24.0     200.   1.18      0.0   9.5
1
'WBA3              ' 'AG'      46.0     -24.0       1.0       1.0     200.   1.18      0.0   9.5
1
'WBD1              ' 'AG'       1.0       1.0     -42.0      21.0     603.   1.16      0.0   9.5
1
'WBD2              ' 'AG'     -42.0      21.0    -212.0     118.0     603.   1.16      0.0   9.5
2
'WBQ               ' 'AG'      17.0      -8.0      50.0     -26.0      0.0   3.5  1
  150    94   2.0   165   1.31 1748 2 3
2
'WBLQ              ' 'AG'      16.0     -11.0      45.0     -27.0      0.0   3.5  1
  150    94   2.0    14   1.31  133 2 3
2
'WBRQ              ' 'AG'      19.0      -6.0      48.0     -21.0      0.0   3.5  1
  150    14   2.0    21   1.31 1486 2 3
   1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Morreene Rd_Towerview Rd and Erwin Rd                RUN: 2040 No-Build AM Peak

      DATE :  5/ 5/15
      TIME :  9:37:38

         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 = 108. CM
        U =  1.0 M/S          CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *          LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1         X2        Y2    *    (M)   (DEG)            (G/MI)  (M)  (M)        (VEH)
      ------------------------*----------------------------------------*--------------------------------------------------------
-

       1. NBA1                *    -60.0    -299.0     -44.0    -214.0 *    86.     11. AG  1195.   1.2    0.0 12.0
       2. NBA2                *    -44.0    -214.0     -20.0     -62.0 *   154.      9. AG  1195.   1.2    0.0 12.0
       3. NBA3                *    -20.0     -62.0      -7.0     -26.0 *    38.     20. AG  1195.   1.2    0.0 12.0
       4. NBA4                *     -7.0     -26.0       6.0      -2.0 *    27.     28. AG  1195.   1.2    0.0 12.0
       5. NBD1                *      6.0      -2.0      21.0      23.0 *    29.     31. AG  1160.   1.2    0.0 12.0
       6. NBD2                *     21.0      23.0      47.0      51.0 *    38.     43. AG  1160.   1.2    0.0 12.0
       7. NBD3                *     47.0      51.0     186.0     171.0 *   184.     49. AG  1160.   1.2    0.0 12.0
       8. NBQ                 *     -2.0     -16.0     -32.1     -76.2 *    67.    207. AG     5. 100.0    0.0  6.0 0.42  11.2
       9. NBLQ                *     -7.0     -16.0    -260.1    -572.9 *   612.    204. AG     3. 100.0    0.0  3.5 5.00 102.0
      10. NBRQ                *      3.0     -18.0     -10.1     -44.2 *    29.    207. AG     2. 100.0    0.0  3.0 0.40   4.9
      11. SBA1                *    179.0     177.0      39.0      56.0 *   185.    229. AG   500.   1.2    0.0 13.0
      12. SBA2                *     39.0      56.0       8.0      20.0 *    48.    221. AG   500.   1.2    0.0 13.0
      13. SBA3                *      8.0      20.0      -4.0       2.0 *    22.    214. AG   500.   1.2    0.0 13.0
      14. SBD1                *     -4.0       2.0     -18.0     -27.0 *    32.    206. AG   395.   1.2    0.0 13.0
      15. SBD2                *    -18.0     -27.0     -31.0     -71.0 *    46.    196. AG   395.   1.2    0.0 13.0
      16. SBD3                *    -31.0     -71.0     -60.0    -256.0 *   187.    189. AG   395.   1.2    0.0 13.0
      17. SBD4                *    -60.0    -256.0     -70.0    -298.0 *    43.    193. AG   395.   1.2    0.0 13.0
      18. SBQ                 *      2.0      12.0      15.8      29.1 *    22.     39. AG     5. 100.0    0.0  7.0 0.18   3.7
      19. SBLQ                *      6.0       9.0      54.6      74.8 *    82.     36. AG     3. 100.0    0.0  4.0 1.69  13.6
      20. SBRQ                *    -11.0      15.0      27.3      30.8 *    41.     68. AG     3. 100.0    0.0  3.0 0.64   6.9
      21. EBA1                *   -215.0     112.0    -105.0      52.0 *   125.    119. AG  1214.   1.2    0.0 10.0
      22. EBA2                *   -105.0      52.0     -42.0      14.0 *    74.    121. AG  1214.   1.2    0.0 10.0
      23. EBA3                *    -42.0      14.0      -3.0      -6.0 *    44.    117. AG  1214.   1.2    0.0 10.0
      24. EBD                 *     -3.0      -6.0     216.0    -122.0 *   248.    118. AG   951.   1.2    0.0 10.0
      25. EBQ                 *    -16.0       1.0     -84.4      35.2 *    76.    297. AG     1. 100.0    0.0  4.0 0.75  12.7
      26. EBLQ                *    -14.0       4.0    -572.7     273.7 *   620.    296. AG     3. 100.0    0.0  3.5 2.07 103.4
      27. EBRQ                *    -21.0      -4.0     -28.7       9.5 *    16.    330. AG     1. 100.0    0.0  3.0 0.17   2.6
      28. WBA1                *    217.0    -118.0      72.0     -40.0 *   165.    298. AG   200.   1.2    0.0  9.5
      29. WBA2                *     72.0     -40.0      46.0     -24.0 *    31.    302. AG   200.   1.2    0.0  9.5
      30. WBA3                *     46.0     -24.0       1.0       1.0 *    51.    299. AG   200.   1.2    0.0  9.5
      31. WBD1                *      1.0       1.0     -42.0      21.0 *    47.    295. AG   603.   1.2    0.0  9.5
      32. WBD2                *    -42.0      21.0    -212.0     118.0 *   196.    300. AG   603.   1.2    0.0  9.5
      33. WBQ                 *     17.0      -8.0      39.7     -20.4 *    26.    119. AG     2. 100.0    0.0  3.5 0.27   4.3
      34. WBLQ                *     16.0     -11.0      17.9     -12.1 *     2.    119. AG     2. 100.0    0.0  3.5 0.30   0.4
      35. WBRQ                *     19.0      -6.0      19.4      -6.2 *     0.    117. AG     0. 100.0    0.0  3.5 0.02   0.1
```

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

DATE : 5/ 5/15
TIME : 9:37:38

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
8. NBQ	150	101	2.0	801	3207	1.31	2	3
9. NBLQ	150	123	2.0	220	288	1.31	2	3
10. NBRQ	150	101	2.0	174	1435	1.31	2	3
18. SBQ	150	114	2.0	233	3083	1.31	2	3
19. SBLQ	150	136	2.0	49	445	1.31	2	3
20. SBRQ	150	114	2.0	218	1600	1.31	2	3
25. EBQ	150	63	2.0	728	1763	1.31	2	3
26. EBLQ	150	119	2.0	338	907	1.31	2	3
27. EBRQ	150	63	2.0	148	1600	1.31	2	3
33. WBQ	150	94	2.0	165	1748	1.31	2	3
34. WBLQ	150	94	2.0	14	133	1.31	2	3
35. WBRQ	150	14	2.0	21	1486	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	5.0	-19.0	1.8
2. REC2	-5.0	-42.0	1.8
3. REC3	-13.0	-67.0	1.8
4. REC4	-18.0	-93.0	1.8
5. REC5	-22.0	-119.0	1.8
6. REC6	-30.0	-169.0	1.8
7. REC7	-38.0	-220.0	1.8
8. REC8	-47.0	-271.0	1.8
9. REC9	12.0	-20.0	1.8
10. REC10	35.0	-32.0	1.8
11. REC11	57.0	-44.0	1.8
12. REC12	80.0	-56.0	1.8
13. REC13	103.0	-68.0	1.8
14. REC14	148.0	-92.0	1.8
15. REC15	193.0	-116.0	1.8
16. REC16	21.0	-2.0	1.8
17. REC17	43.0	-14.0	1.8
18. REC18	65.0	-27.0	1.8
19. REC19	86.0	-42.0	1.8
20. REC20	109.0	-54.0	1.8
21. REC21	154.0	-78.0	1.8
22. REC22	199.0	-102.0	1.8
23. REC23	18.0	5.0	1.8
24. REC24	32.0	26.0	1.8
25. REC25	49.0	44.0	1.8
26. REC26	68.0	61.0	1.8
27. REC27	88.0	77.0	1.8
28. REC28	126.0	110.0	1.8
29. REC29	164.0	143.0	1.8
30. REC30	-15.0	18.0	1.8
31. REC31	7.0	31.0	1.8
32. REC32	22.0	48.0	1.8
33. REC33	39.0	66.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

DATE : 5/ 5/15
TIME : 9:37:38

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
34. REC34	58.0	82.0	1.8
35. REC35	77.0	98.0	1.8
36. REC36	115.0	131.0	1.8
37. REC37	151.0	163.0	1.8
38. REC38	-39.0	26.0	1.8
39. REC39	-62.0	39.0	1.8
40. REC40	-85.0	52.0	1.8
41. REC41	-109.0	66.0	1.8
42. REC42	-132.0	78.0	1.8
43. REC43	-177.0	104.0	1.8
44. REC44	-25.0	-6.0	1.8
45. REC45	-45.0	9.0	1.8
46. REC46	-66.0	22.0	1.8
47. REC47	-88.0	35.0	1.8
48. REC48	-111.0	48.0	1.8
49. REC49	-134.0	61.0	1.8
50. REC50	-180.0	86.0	1.8
51. REC51	-27.0	-31.0	1.8
52. REC52	-35.0	-57.0	1.8
53. REC53	-41.0	-83.0	1.8
54. REC54	-45.0	-109.0	1.8
55. REC55	-53.0	-160.0	1.8
56. REC56	-61.0	-211.0	1.8
57. REC57	-70.0	-261.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	CONCENTRATION (PPM)																			
0.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	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	0.1	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
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.1	0.1	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
230.	0.0	0.1	0.1	0.1	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
240.	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
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.1	0.1	0.1	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
350.	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.1	0.1	0.1	0.1	0.1	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	0.0
DEGR.	100	230	190	190	0	0	0	0	90	80	90	90	80	90	300	0	0	0	0	0

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	0.0	0.0	0.0	0.1	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
10.	0.0	0.0	0.0	0.1	0.0	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
20.	0.0	0.0	0.0	0.1	0.1	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
30.	0.0	0.0	0.0	0.1	0.1	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
40.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.1	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
MAX	0.0	0.0	0.0	0.1	0.1	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
DEGR.	0	0	0	0	20	0	10	10	10	0	0	0	0	0	0	0	0	0	0	0

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

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.

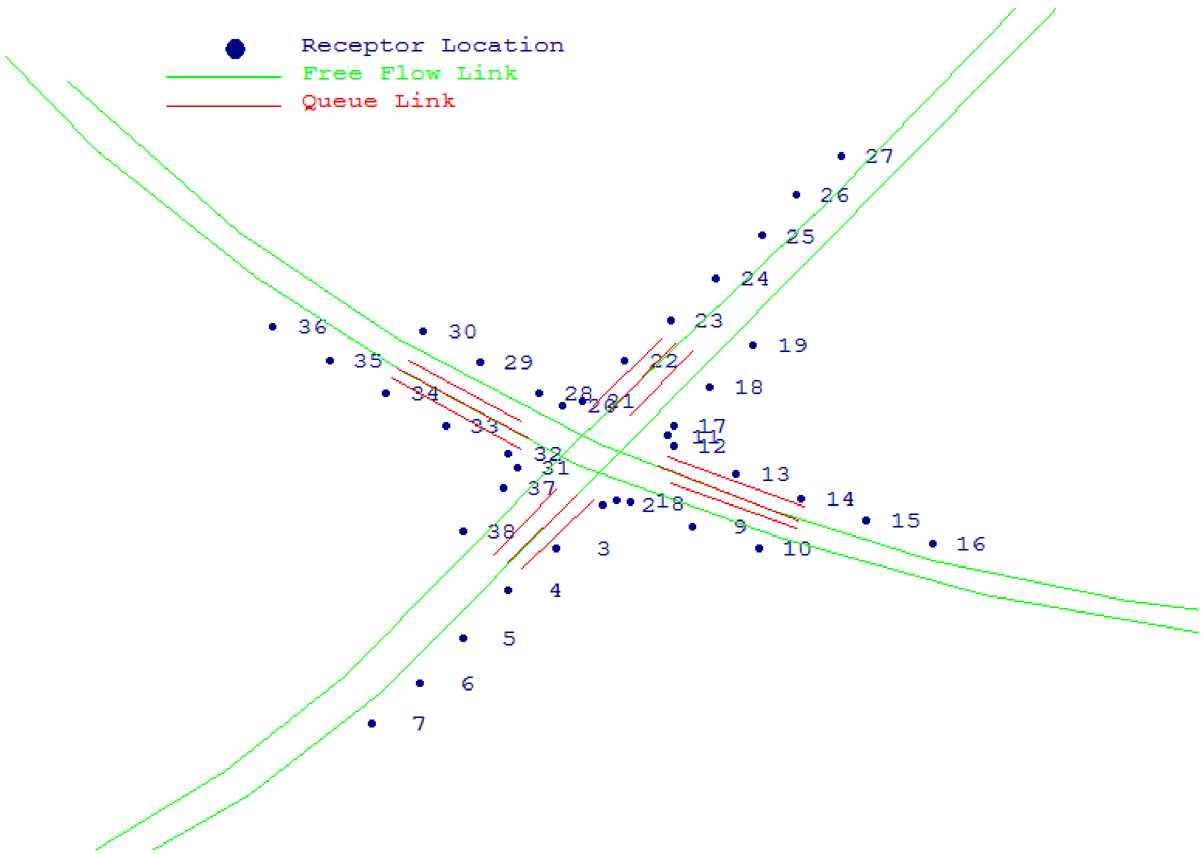
WIND ANGLE RANGE: 0.-360.

WIND * CONCENTRATION
ANGLE * (PPM)

(DEGR)*	REC41	REC42	REC43	REC44	REC45	REC46	REC47	REC48	REC49	REC50	REC51	REC52	REC53	REC54	REC55	REC56	REC57
0. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
50. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70. *	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300. *	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	0.0	0.0	0.0
310. *	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350. *	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR. *	0	0	0	0	80	70	70	90	70	70	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC5 .

2040 AM No-Build University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway        '  60. 108.0    0.00    0.00 38    1.0000 0 0
'REC1                '        9.0      -22.0        1.8
'REC2                '        4.0      -24.0        1.8
'REC3                '      -12.0      -44.0        1.8
'REC4                '      -29.0      -64.0        1.8
'REC5                '      -45.0      -86.0        1.8
'REC6                '      -60.0     -107.0        1.8
'REC7                '      -77.0     -126.0        1.8
'REC8                '       14.0      -23.0        1.8
'REC9                '       36.0      -34.0        1.8
'REC10               '       59.0      -44.0        1.8
'REC11               '       27.0        8.0        1.8
'REC12               '       29.0        3.0        1.8
'REC13               '       51.0      -10.0        1.8
'REC14               '       74.0      -21.0        1.8
'REC15               '       97.0      -31.0        1.8
'REC16               '      120.0      -42.0        1.8
'REC17               '       29.0       13.0        1.8
'REC18               '       42.0       31.0        1.8
'REC19               '       57.0       50.0        1.8
'REC20               '      -10.0       22.0        1.8
'REC21               '       -3.0       24.0        1.8
'REC22               '       12.0       43.0        1.8
'REC23               '       28.0       62.0        1.8
'REC24               '       44.0       81.0        1.8
'REC25               '       60.0      101.0        1.8
'REC26               '       72.0      120.0        1.8
'REC27               '       88.0      138.0        1.8
'REC28               '      -18.0       28.0        1.8
'REC29               '      -39.0       42.0        1.8
'REC30               '      -59.0       57.0        1.8
'REC31               '      -26.0       -7.0        1.8
'REC32               '      -29.0        0.0        1.8
'REC33               '      -51.0       13.0        1.8
'REC34               '      -72.0       28.0        1.8
'REC35               '      -92.0       43.0        1.8
'REC36               '     -112.0       59.0        1.8
'REC37               '      -31.0      -16.0        1.8
'REC38               '      -45.0      -36.0        1.8
'2040 No-Build AM Peak                    '  41    1   0 C
1
'NBA1                ' 'AG'      528.0      -77.0      325.0      -84.0      802.   0.76      0.0  14.0
1
'NBA2                ' 'AG'      325.0      -84.0      259.0      -80.0      802.   0.76      0.0  14.0
1
'NBA3                ' 'AG'      259.0      -80.0      189.0      -69.0      802.   0.76      0.0  14.0
1
'NBA4                ' 'AG'      189.0      -69.0      120.0      -50.0      802.   0.76      0.0  14.0
1
'NBA5                ' 'AG'      120.0      -50.0       63.0      -26.0      802.   0.76      0.0  14.0
1
'NBA6                ' 'AG'       63.0      -26.0        2.0        5.0      802.   0.76      0.0  14.0
1
'NBD1                ' 'AG'        2.0        5.0      -68.0       53.0     1259.   1.16      0.0  14.0
1
'NBD2                ' 'AG'      -68.0       53.0     -124.0      103.0     1259.   1.16      0.0  14.0
1
'NBD3                ' 'AG'     -124.0      103.0     -184.0      173.0     1259.   1.16      0.0  14.0
2
'NBQ                 ' 'AG'       24.0       -6.0       73.0      -31.0        0.0    8.0  2
  150   104    2.0   558    1.31 3436 2 3
2
'NBLQ                ' 'AG'       28.0      -14.0       72.0      -35.0        0.0    4.0  1
  150   132    2.0    67    1.31 1661 2 3
2
'NBRQ                ' 'AG'       27.0       -2.0       75.0      -25.0        0.0    4.0  1
  150    82    2.0   177    1.31 1486 2 3
1
'SBA1                ' 'AG'     -206.0      184.0     -174.0      141.0     1455.   0.41      0.0  14.0
1
'SBA2                ' 'AG'     -174.0      141.0     -118.0       82.0     1455.   0.41      0.0  14.0
1
'SBA3                ' 'AG'     -118.0       82.0      -66.0       38.0     1455.   0.41      0.0  14.0
1
'SBA4                ' 'AG'      -66.0       38.0       -5.0       -5.0     1455.   0.41      0.0  14.0
```

```
1
'SBD1                ' 'AG'      -5.0      -5.0      66.0     -39.0    1059.  0.71      0.0  14.0
1
'SBD2                ' 'AG'      66.0     -39.0     138.0     -66.0    1059.  0.71      0.0  14.0
1
'SBD3                ' 'AG'     138.0     -66.0     213.0     -83.0    1059.  0.71      0.0  14.0
1
'SBD4                ' 'AG'     213.0     -83.0     296.0     -93.0    1059.  0.71      0.0  14.0
1
'SBD5                ' 'AG'     296.0     -93.0     535.0     -87.0    1059.  0.71      0.0  14.0
2
'SBQ                 ' 'AG'     -22.0       7.0     -68.0      39.0     0.0   8.0  2
  150    89    2.0   663   1.31 3436 2 3
2
'SBLQ                ' 'AG'     -25.0      15.0     -64.0      43.0     0.0   4.0  1
  150   117    2.0   349   1.31 1718 2 3
2
'SBRQ                ' 'AG'     -25.0       2.0     -70.0      35.0     0.0   4.0  1
  150    59    2.0   443   1.31 1537 2 3
1
'EBA1                ' 'AG'    -253.0    -245.0    -188.0    -210.0    1413.  1.40      0.0  14.0
1
'EBA2                ' 'AG'    -188.0    -210.0    -120.0    -159.0    1413.  1.40      0.0  14.0
1
'EBA3                ' 'AG'    -120.0    -159.0     -74.0    -111.0    1413.  1.40      0.0  14.0
1
'EBA4                ' 'AG'     -74.0    -111.0       7.0      -4.0    1413.  1.40      0.0  14.0
1
'EBD                 ' 'AG'       7.0      -4.0     180.0     229.0    1238.  0.63      0.0  14.0
2
'EBQ                 ' 'AG'      -5.0     -20.0     -29.0     -51.0     0.0   8.0  2
  150   101    2.0   712   1.31 3436 2 3
2
'EBLQ                ' 'AG'     -12.0     -17.0     -34.0     -47.0     0.0   8.0  2
  150   120    2.0   594   1.31 3333 2 3
2
'EBRQ                ' 'AG'       1.0     -22.0     -24.0     -54.0     0.0   4.0  1
  150    83    2.0   107   1.31 1537 2 3
1
'WBA1                ' 'AG'     170.0     235.0      84.0     118.0     825.  0.94      0.0  14.0
1
'WBA2                ' 'AG'      84.0     118.0      -6.0       4.0     825.  0.94      0.0  14.0
1
'WBD1                ' 'AG'      -6.0       4.0     -87.0    -104.0     939.  0.43      0.0  14.0
1
'WBD2                ' 'AG'     -87.0    -104.0    -129.0    -148.0     939.  0.43      0.0  14.0
1
'WBD3                ' 'AG'    -129.0    -148.0    -180.0    -189.0     939.  0.43      0.0  14.0
1
'WBD4                ' 'AG'    -180.0    -189.0    -258.0    -235.0     939.  0.43      0.0  14.0
2
'WBQ                 ' 'AG'       7.0      20.0      30.0      51.0     0.0   8.0  2
  150   109    2.0   429   1.31 3436 2 3
2
'WBQL                ' 'AG'      14.0      18.0      36.0      47.0     0.0   8.0  2
  150   128    2.0   289   1.31 3333 2 3
2
'WBQR                ' 'AG'       1.0      22.0      25.0      53.0     0.0   4.0  1
  150    76    2.0   107   1.31 1537 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build AM Peak

DATE : 3/25/15
TIME : 17:41:26

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 = 108. CM		
U = 1.0 M/S	CLAS = 4 (D)	ATIM = 60. MINUTES	MIXH = 1000. M	AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1 (M)	Y1 (M)	X2 (M)	Y2 (M)	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	528.0	-77.0	325.0	-84.0	203.	268.	AG	802.	0.8	0.0	14.0		
2. NBA2	325.0	-84.0	259.0	-80.0	66.	273.	AG	802.	0.8	0.0	14.0		
3. NBA3	259.0	-80.0	189.0	-69.0	71.	279.	AG	802.	0.8	0.0	14.0		
4. NBA4	189.0	-69.0	120.0	-50.0	72.	285.	AG	802.	0.8	0.0	14.0		
5. NBA5	120.0	-50.0	63.0	-26.0	62.	293.	AG	802.	0.8	0.0	14.0		
6. NBA6	63.0	-26.0	2.0	5.0	68.	297.	AG	802.	0.8	0.0	14.0		
7. NBD1	2.0	5.0	-68.0	53.0	85.	304.	AG	1259.	1.2	0.0	14.0		
8. NBD2	-68.0	53.0	-124.0	103.0	75.	312.	AG	1259.	1.2	0.0	14.0		
9. NBD3	-124.0	103.0	-184.0	173.0	92.	319.	AG	1259.	1.2	0.0	14.0		
10. NBQ	24.0	-6.0	67.1	-28.0	48.	117.	AG	5.	100.0	0.0	8.0	0.29	8.1
11. NBLQ	28.0	-14.0	41.3	-20.3	15.	116.	AG	3.	100.0	0.0	4.0	0.43	2.5
12. NBRQ	27.0	-2.0	48.8	-12.5	24.	116.	AG	2.	100.0	0.0	4.0	0.28	4.0
13. SBA1	-206.0	184.0	-174.0	141.0	54.	143.	AG	1455.	0.4	0.0	14.0		
14. SBA2	-174.0	141.0	-118.0	82.0	81.	136.	AG	1455.	0.4	0.0	14.0		
15. SBA3	-118.0	82.0	-66.0	38.0	68.	130.	AG	1455.	0.4	0.0	14.0		
16. SBA4	-66.0	38.0	-5.0	-5.0	75.	125.	AG	1455.	0.4	0.0	14.0		
17. SBD1	-5.0	-5.0	66.0	-39.0	79.	116.	AG	1059.	0.7	0.0	14.0		
18. SBD2	66.0	-39.0	138.0	-66.0	77.	111.	AG	1059.	0.7	0.0	14.0		
19. SBD3	138.0	-66.0	213.0	-83.0	77.	103.	AG	1059.	0.7	0.0	14.0		
20. SBD4	213.0	-83.0	296.0	-93.0	84.	97.	AG	1059.	0.7	0.0	14.0		
21. SBD5	296.0	-93.0	535.0	-87.0	239.	89.	AG	1059.	0.7	0.0	14.0		
22. SBQ	-22.0	7.0	-62.3	35.0	49.	305.	AG	4.	100.0	0.0	8.0	0.25	8.2
23. SBLQ	-25.0	15.0	-137.1	95.5	138.	306.	AG	3.	100.0	0.0	4.0	1.05	23.0
24. SBRQ	-25.0	2.0	-60.1	27.8	44.	306.	AG	1.	100.0	0.0	4.0	0.50	7.3
25. EBA1	-253.0	-245.0	-188.0	-210.0	74.	62.	AG	1413.	1.4	0.0	14.0		
26. EBA2	-188.0	-210.0	-120.0	-159.0	85.	53.	AG	1413.	1.4	0.0	14.0		
27. EBA3	-120.0	-159.0	-74.0	-111.0	66.	44.	AG	1413.	1.4	0.0	14.0		
28. EBA4	-74.0	-111.0	7.0	-4.0	134.	37.	AG	1413.	1.4	0.0	14.0		
29. EBD	7.0	-4.0	180.0	229.0	290.	37.	AG	1238.	0.6	0.0	14.0		
30. EBQ	-5.0	-20.0	-41.7	-67.4	60.	218.	AG	5.	100.0	0.0	8.0	0.35	10.0
31. EBLQ	-12.0	-17.0	-47.1	-64.9	59.	216.	AG	6.	100.0	0.0	8.0	0.51	9.9
32. EBRQ	1.0	-22.0	-8.1	-33.7	15.	218.	AG	2.	100.0	0.0	4.0	0.17	2.5
33. WBA1	170.0	235.0	84.0	118.0	145.	216.	AG	825.	0.9	0.0	14.0		
34. WBA2	84.0	118.0	-6.0	4.0	145.	218.	AG	825.	0.9	0.0	14.0		
35. WBD1	-6.0	4.0	-87.0	-104.0	135.	217.	AG	939.	0.4	0.0	14.0		
36. WBD2	-87.0	-104.0	-129.0	-148.0	61.	224.	AG	939.	0.4	0.0	14.0		
37. WBD3	-129.0	-148.0	-180.0	-189.0	65.	231.	AG	939.	0.4	0.0	14.0		
38. WBD4	-180.0	-189.0	-258.0	-235.0	91.	239.	AG	939.	0.4	0.0	14.0		
39. WBQ	7.0	20.0	30.2	51.2	39.	37.	AG	5.	100.0	0.0	8.0	0.25	6.5
40. WBQL	14.0	18.0	32.6	42.5	31.	37.	AG	6.	100.0	0.0	8.0	0.36	5.1
41. WBQR	1.0	22.0	9.3	32.7	14.	38.	AG	2.	100.0	0.0	4.0	0.15	2.3

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build AM Peak

DATE : 3/25/15
TIME : 17:41:26

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
10. NBQ	150	104	2.0	558	3436	1.31	2	3
11. NBLQ	150	132	2.0	67	1661	1.31	2	3
12. NBRQ	150	82	2.0	177	1486	1.31	2	3
22. SBQ	150	89	2.0	663	3436	1.31	2	3
23. SBLQ	150	117	2.0	349	1718	1.31	2	3
24. SBRQ	150	59	2.0	443	1537	1.31	2	3
30. EBQ	150	101	2.0	712	3436	1.31	2	3
31. EBLQ	150	120	2.0	594	3333	1.31	2	3
32. EBRQ	150	83	2.0	107	1537	1.31	2	3
39. WBQ	150	109	2.0	429	3436	1.31	2	3
40. WBQL	150	128	2.0	289	3333	1.31	2	3
41. WBQR	150	76	2.0	107	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	9.0	-22.0	1.8
2. REC2	4.0	-24.0	1.8
3. REC3	-12.0	-44.0	1.8
4. REC4	-29.0	-64.0	1.8
5. REC5	-45.0	-86.0	1.8
6. REC6	-60.0	-107.0	1.8
7. REC7	-77.0	-126.0	1.8
8. REC8	14.0	-23.0	1.8
9. REC9	36.0	-34.0	1.8
10. REC10	59.0	-44.0	1.8
11. REC11	27.0	8.0	1.8
12. REC12	29.0	3.0	1.8
13. REC13	51.0	-10.0	1.8
14. REC14	74.0	-21.0	1.8
15. REC15	97.0	-31.0	1.8
16. REC16	120.0	-42.0	1.8
17. REC17	29.0	13.0	1.8
18. REC18	42.0	31.0	1.8
19. REC19	57.0	50.0	1.8
20. REC20	-10.0	22.0	1.8
21. REC21	-3.0	24.0	1.8
22. REC22	12.0	43.0	1.8
23. REC23	28.0	62.0	1.8
24. REC24	44.0	81.0	1.8
25. REC25	60.0	101.0	1.8
26. REC26	72.0	120.0	1.8
27. REC27	88.0	138.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	42.0	1.8
30. REC30	-59.0	57.0	1.8
31. REC31	-26.0	-7.0	1.8
32. REC32	-29.0	0.0	1.8
33. REC33	-51.0	13.0	1.8

JOB: University Drive and Martin Luther King Jr. Parkway   RUN: 2040 No-Build AM Peak

DATE : 3/25/15
TIME : 17:41:26

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
34. REC34	-72.0	28.0	1.8
35. REC35	-92.0	43.0	1.8
36. REC36	-112.0	59.0	1.8
37. REC37	-31.0	-16.0	1.8
38. REC38	-45.0	-36.0	1.8

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR) / CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.1	0.1	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
10.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.1	0.1	0.1	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
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.1	0.1	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	0.0	0.0
230.	0.1	0.1	0.1	0.1	0.1	0.1	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
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.1	0.1	0.1	0.1	0.1	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	0.1
260.	0.1	0.1	0.1	0.1	0.1	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	0.1
270.	0.1	0.1	0.1	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	0.1
280.	0.1	0.1	0.1	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	0.1
290.	0.0	0.1	0.1	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	0.1
300.	0.0	0.1	0.1	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	0.1
310.	0.0	0.1	0.1	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
320.	0.0	0.1	0.1	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
330.	0.0	0.1	0.1	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
340.	0.0	0.1	0.1	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
350.	0.0	0.1	0.1	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
360.	0.0	0.1	0.1	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
MAX	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
DEGR.	230	0	0	0	0	0	0	240	0	0	220	230	0	0	0	0	0	0	0	160

PAGE 5

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build AM Peak

MODEL RESULTS

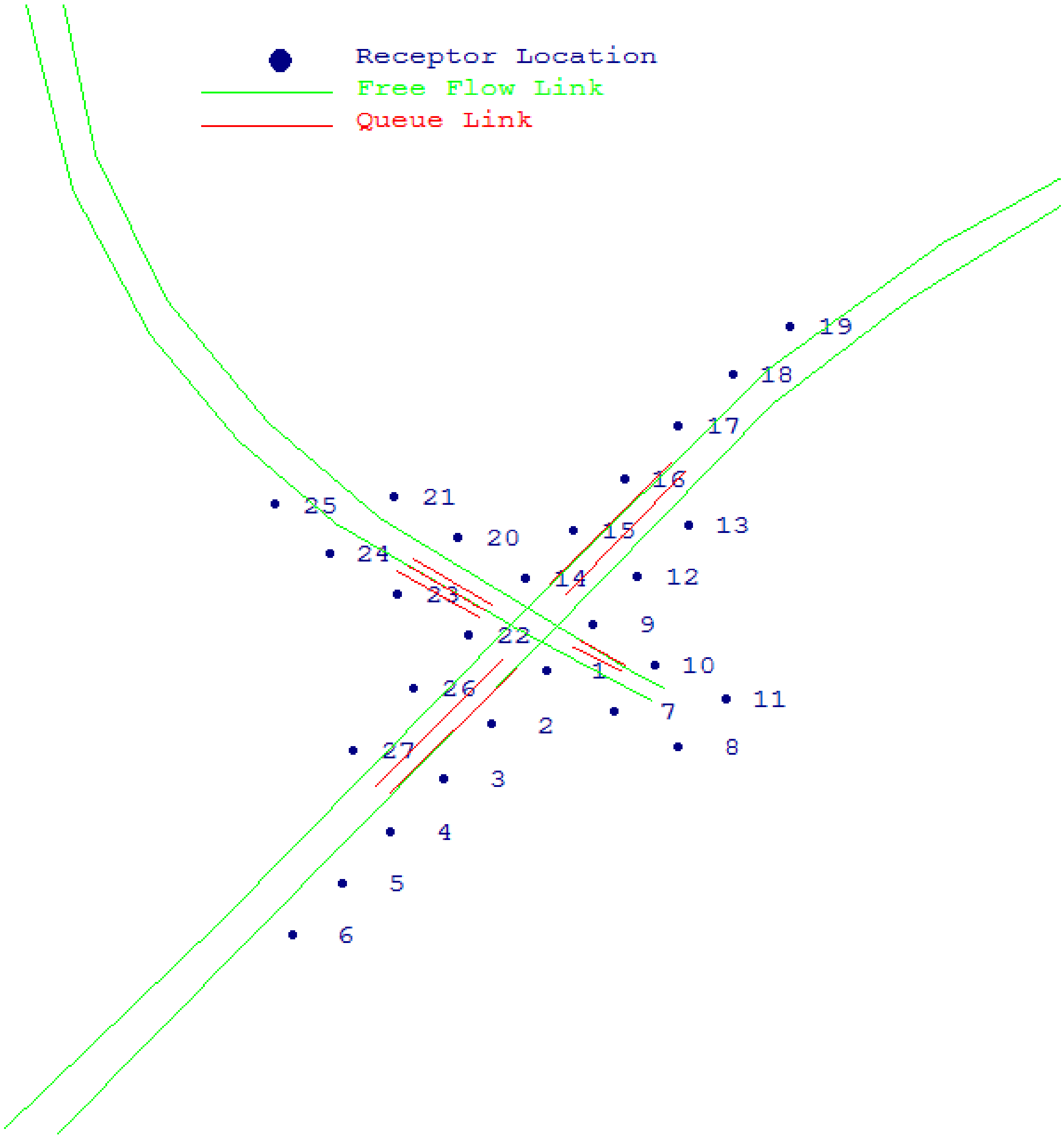
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38
	CONCENTRATION (PPM)																	
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	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	0.0	0.0	0.0	0.0
270.	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	0.0	0.0	0.0	0.0
280.	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	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0	140	130	130	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 AM No-Build University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive      '  60. 108.0    0.00    0.00 27     1.0000 0 0
'REC1                  '        4.0      -18.0         1.8
'REC2                  '      -12.0      -39.0         1.8
'REC3                  '      -26.0      -60.0         1.8
'REC4                  '      -42.0      -81.0         1.8
'REC5                  '      -56.0     -101.0         1.8
'REC6                  '      -71.0     -121.0         1.8
'REC7                  '       24.0      -34.0         1.8
'REC8                  '       43.0      -48.0         1.8
'REC9                  '       18.0        0.0         1.8
'REC10                 '       36.0      -16.0         1.8
'REC11                 '       57.0      -29.0         1.8
'REC12                 '       31.0       19.0         1.8
'REC13                 '       46.0       39.0         1.8
'REC14                 '       -2.0       18.0         1.8
'REC15                 '       12.0       37.0         1.8
'REC16                 '       27.0       57.0         1.8
'REC17                 '       43.0       78.0         1.8
'REC18                 '       59.0       98.0         1.8
'REC19                 '       76.0      117.0         1.8
'REC20                 '      -22.0       34.0         1.8
'REC21                 '      -41.0       50.0         1.8
'REC22                 '      -19.0       -4.0         1.8
'REC23                 '      -40.0       12.0         1.8
'REC24                 '      -60.0       28.0         1.8
'REC25                 '      -76.0       47.0         1.8
'REC26                 '      -35.0      -25.0         1.8
'REC27                 '      -53.0      -49.0         1.8
'2040 No-Build AM Peak                    '  37    1   0 C
1
'NBA1                  ' 'AG'       39.0      -25.0       29.0      -18.0      59.   0.94       0.0  10.0
1
'NBA2                  ' 'AG'       29.0      -18.0        3.0        3.0      59.   0.94       0.0  10.0
1
'NBD1                  ' 'AG'        3.0        3.0      -45.0       42.0     613.   0.76       0.0  14.0
1
'NBD2                  ' 'AG'      -45.0       42.0      -78.0       79.0     613.   0.76       0.0  14.0
1
'NBD3                  ' 'AG'      -78.0       79.0     -108.0      127.0     613.   0.76       0.0  14.0
1
'NBD4                  ' 'AG'     -108.0      127.0     -129.0      184.0     613.   0.76       0.0  14.0
1
'NBD5                  ' 'AG'     -129.0      184.0     -140.0      253.0     613.   0.76       0.0  14.0
2
'NBQ                   ' 'AG'       14.0       -6.0       27.0      -16.0      0.0   4.0  1
  150    117    2.0     55    1.31 1671 2 3
2
'NBLQ                  ' 'AG'       12.0       -9.0       26.0      -18.0      0.0   4.0  1
  150    117    2.0      4    1.31 1344 2 3
1
'SBA1                  ' 'AG'     -151.0      251.0     -136.0      170.0     593.   0.76       0.0  14.0
1
'SBA2                  ' 'AG'     -136.0      170.0     -113.0      113.0     593.   0.76       0.0  14.0
1
'SBA3                  ' 'AG'     -113.0      113.0      -87.0       72.0     593.   0.76       0.0  14.0
1
'SBA4                  ' 'AG'      -87.0       72.0      -58.0       40.0     593.   0.76       0.0  14.0
1
'SBA5                  ' 'AG'      -58.0       40.0       -2.0       -3.0     593.   0.76       0.0  10.0
1
'SBD                   ' 'AG'       -2.0       -3.0       35.0      -30.0      29.   0.63       0.0  10.0
2
'SBQ                   ' 'AG'      -14.0        6.0      -37.0       23.0      0.0   4.0  1
  150     80    2.0     20    1.31 1809 2 3
2
'SBLQ                  ' 'AG'      -12.0        8.0      -35.0       26.0      0.0   4.0  1
  150    113    2.0    269    1.31 1661 2 3
2
'SBRQ                  ' 'AG'      -16.0        3.0      -40.0       21.0      0.0   4.0  1
  150     45    2.0    304    1.31 1537 2 3
1
'EBA                   ' 'AG'     -169.0     -238.0        4.0       -5.0    1010.   0.76       0.0  14.0
1
'EBD1                  ' 'AG'        4.0       -5.0       71.0       86.0    1044.   1.71       0.0  14.0
1
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'EBD2                ' 'AG'      71.0      86.0     111.0     127.0   1044.  1.71      0.0  14.0
1
'EBD3                ' 'AG'     111.0     127.0     158.0     165.0   1044.  1.71      0.0  14.0
1
'EBD4                ' 'AG'     158.0     165.0     224.0     203.0   1044.  1.71      0.0  14.0
1
'EBD5                ' 'AG'     224.0     203.0     283.0     226.0   1044.  1.71      0.0  14.0
1
'EBD6                ' 'AG'     283.0     226.0     386.0     252.0   1044.  1.71      0.0  14.0
2
'EBQ                 ' 'AG'      -5.0     -17.0     -42.0     -66.0     0.0  8.0  2
  150    70   2.0   748   1.31 3436 2 3
2
'EBLQ                ' 'AG'      -9.0     -14.0     -46.0     -63.0     0.0  4.0  1
  150   115   2.0   262   1.31 1718 2 3
1
'WBA1                ' 'AG'     385.0     264.0     265.0     231.0    690.  0.37      0.0  14.0
1
'WBA2                ' 'AG'     265.0     231.0     219.0     211.0    690.  0.37      0.0  14.0
1
'WBA3                ' 'AG'     219.0     211.0     170.0     185.0    690.  0.37      0.0  14.0
1
'WBA4                ' 'AG'     170.0     185.0     121.0     149.0    690.  0.37      0.0  14.0
1
'WBA5                ' 'AG'     121.0     149.0      70.0     100.0    690.  0.37      0.0  14.0
1
'WBA6                ' 'AG'      70.0     100.0      -5.0       2.0    690.  0.37      0.0  14.0
1
'WBD1                ' 'AG'      -5.0       2.0     -92.0    -116.0    666.  0.76      0.0  14.0
1
'WBD2                ' 'AG'     -92.0    -116.0    -182.0    -230.0    666.  0.76      0.0  14.0
2
'WBQ                 ' 'AG'       5.0      16.0      41.0      63.0     0.0  8.0  2
  150   105   2.0   682   1.31 3192 2 3
2
'WBQL                ' 'AG'      10.0      12.0      45.0      60.0     0.0  4.0  1
  150   105   2.0     8   1.31  613 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: University Drive and Westgate Drive RUN: 2040 No-Build AM Peak

DATE : 3/26/15
TIME : 6:31:31

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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	39.0	-25.0	29.0	-18.0	12.	305.	AG	59.	0.9	0.0	10.0		
2. NBA2	29.0	-18.0	3.0	3.0	33.	309.	AG	59.	0.9	0.0	10.0		
3. NBD1	3.0	3.0	-45.0	42.0	62.	309.	AG	613.	0.8	0.0	14.0		
4. NBD2	-45.0	42.0	-78.0	79.0	50.	318.	AG	613.	0.8	0.0	14.0		
5. NBD3	-78.0	79.0	-108.0	127.0	57.	328.	AG	613.	0.8	0.0	14.0		
6. NBD4	-108.0	127.0	-129.0	184.0	61.	340.	AG	613.	0.8	0.0	14.0		
7. NBD5	-129.0	184.0	-140.0	253.0	70.	351.	AG	613.	0.8	0.0	14.0		
8. NBQ	14.0	-6.0	22.5	-12.5	11.	128.	AG	3.	100.0	0.0	4.0	0.17	1.8
9. NBLQ	12.0	-9.0	12.7	-9.4	1.	123.	AG	3.	100.0	0.0	4.0	0.02	0.1
10. SBA1	-151.0	251.0	-136.0	170.0	82.	170.	AG	593.	0.8	0.0	14.0		
11. SBA2	-136.0	170.0	-113.0	113.0	61.	158.	AG	593.	0.8	0.0	14.0		
12. SBA3	-113.0	113.0	-87.0	72.0	49.	148.	AG	593.	0.8	0.0	14.0		
13. SBA4	-87.0	72.0	-58.0	40.0	43.	138.	AG	593.	0.8	0.0	14.0		
14. SBA5	-58.0	40.0	-2.0	-3.0	71.	128.	AG	593.	0.8	0.0	10.0		
15. SBD	-2.0	-3.0	35.0	-30.0	46.	126.	AG	29.	0.6	0.0	10.0		
16. SBQ	-14.0	6.0	-16.1	7.6	3.	306.	AG	2.	100.0	0.0	4.0	0.03	0.4
17. SBLQ	-12.0	8.0	-51.9	39.2	51.	308.	AG	3.	100.0	0.0	4.0	0.74	8.4
18. SBRQ	-16.0	3.0	-34.2	16.7	23.	307.	AG	1.	100.0	0.0	4.0	0.29	3.8
19. EBA	-169.0	-238.0	4.0	-5.0	290.	37.	AG	1010.	0.8	0.0	14.0		
20. EBD1	4.0	-5.0	71.0	86.0	113.	36.	AG	1044.	1.7	0.0	14.0		
21. EBD2	71.0	86.0	111.0	127.0	57.	44.	AG	1044.	1.7	0.0	14.0		
22. EBD3	111.0	127.0	158.0	165.0	60.	51.	AG	1044.	1.7	0.0	14.0		
23. EBD4	158.0	165.0	224.0	203.0	76.	60.	AG	1044.	1.7	0.0	14.0		
24. EBD5	224.0	203.0	283.0	226.0	63.	69.	AG	1044.	1.7	0.0	14.0		
25. EBD6	283.0	226.0	386.0	252.0	106.	76.	AG	1044.	1.7	0.0	14.0		
26. EBQ	-5.0	-17.0	-31.3	-51.8	44.	217.	AG	3.	100.0	0.0	8.0	0.21	7.3
27. EBLQ	-9.0	-14.0	-39.3	-54.1	50.	217.	AG	3.	100.0	0.0	4.0	0.74	8.4
28. WBA1	385.0	264.0	265.0	231.0	124.	255.	AG	690.	0.4	0.0	14.0		
29. WBA2	265.0	231.0	219.0	211.0	50.	247.	AG	690.	0.4	0.0	14.0		
30. WBA3	219.0	211.0	170.0	185.0	55.	242.	AG	690.	0.4	0.0	14.0		
31. WBA4	170.0	185.0	121.0	149.0	61.	234.	AG	690.	0.4	0.0	14.0		
32. WBA5	121.0	149.0	70.0	100.0	71.	226.	AG	690.	0.4	0.0	14.0		
33. WBA6	70.0	100.0	-5.0	2.0	123.	217.	AG	690.	0.4	0.0	14.0		
34. WBD1	-5.0	2.0	-92.0	-116.0	147.	216.	AG	666.	0.8	0.0	14.0		
35. WBD2	-92.0	-116.0	-182.0	-230.0	145.	218.	AG	666.	0.8	0.0	14.0		
36. WBQ	5.0	16.0	41.3	63.4	60.	37.	AG	5.	100.0	0.0	8.0	0.39	9.9
37. WBQL	10.0	12.0	10.8	13.1	1.	36.	AG	2.	100.0	0.0	4.0	0.05	0.2

JOB: University Drive and Westgate Drive RUN: 2040 No-Build AM Peak

DATE : 3/26/15
TIME : 6:31:31

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
8. NBQ	150	117	2.0	55	1671	1.31	2	3
9. NBLQ	150	117	2.0	4	1344	1.31	2	3
16. SBQ	150	80	2.0	20	1809	1.31	2	3
17. SBLQ	150	113	2.0	269	1661	1.31	2	3
18. SBRQ	150	45	2.0	304	1537	1.31	2	3
26. EBQ	150	70	2.0	748	3436	1.31	2	3
27. EBLQ	150	115	2.0	262	1718	1.31	2	3
36. WBQ	150	105	2.0	682	3192	1.31	2	3
37. WBQL	150	105	2.0	8	613	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	4.0	-18.0	1.8
2. REC2	-12.0	-39.0	1.8
3. REC3	-26.0	-60.0	1.8
4. REC4	-42.0	-81.0	1.8
5. REC5	-56.0	-101.0	1.8
6. REC6	-71.0	-121.0	1.8
7. REC7	24.0	-34.0	1.8
8. REC8	43.0	-48.0	1.8
9. REC9	18.0	0.0	1.8
10. REC10	36.0	-16.0	1.8
11. REC11	57.0	-29.0	1.8
12. REC12	31.0	19.0	1.8
13. REC13	46.0	39.0	1.8
14. REC14	-2.0	18.0	1.8
15. REC15	12.0	37.0	1.8
16. REC16	27.0	57.0	1.8
17. REC17	43.0	78.0	1.8
18. REC18	59.0	98.0	1.8
19. REC19	76.0	117.0	1.8
20. REC20	-22.0	34.0	1.8
21. REC21	-41.0	50.0	1.8
22. REC22	-19.0	-4.0	1.8
23. REC23	-40.0	12.0	1.8
24. REC24	-60.0	28.0	1.8
25. REC25	-76.0	47.0	1.8
26. REC26	-35.0	-25.0	1.8
27. REC27	-53.0	-49.0	1.8

PAGE 3

JOB: University Drive and Westgate Drive RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	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	0.0	0.0
230.	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	0.0	0.0
240.	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	0.0	0.0
250.	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	0.0	0.0
260.	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	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

```
JOB: University Drive and Westgate Drive              RUN: 2040 No-Build AM Peak

 MODEL RESULTS
 -------------

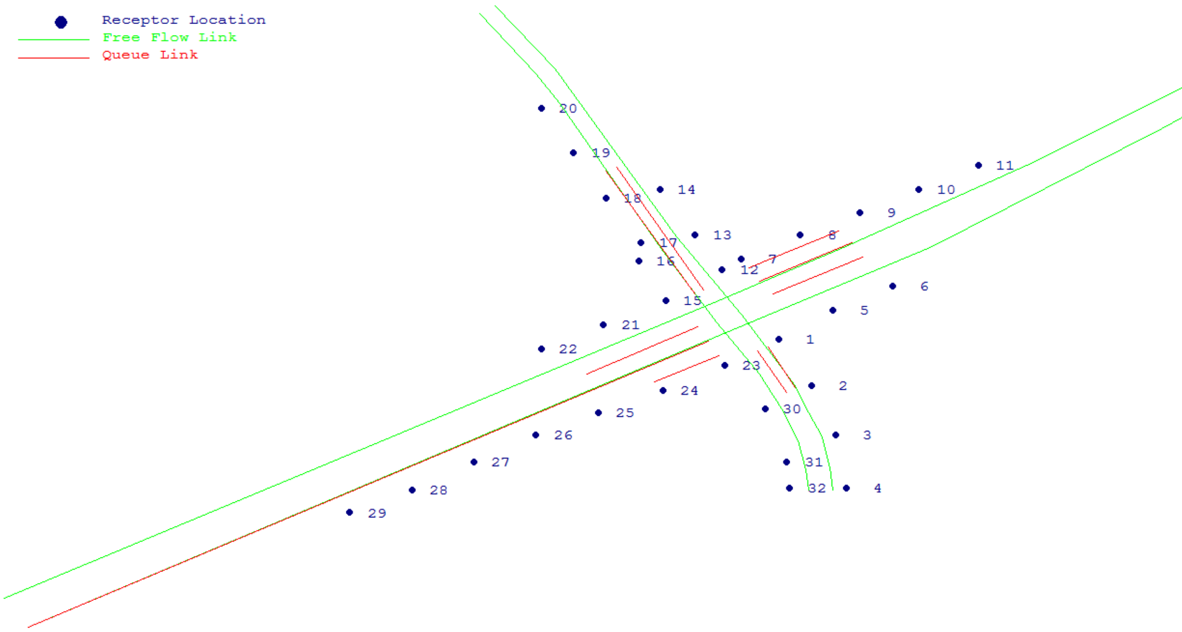
 REMARKS : In search of the angle corresponding to
           the maximum concentration, only the first
           angle, of the angles with same maximum
           concentrations, is indicated as maximum.

WIND ANGLE RANGE:   0.-360.

WIND  * CONCENTRATION
ANGLE *      (PPM)
(DEGR)* REC21 REC22 REC23 REC24 REC25 REC26 REC27
------*------------------------------------------
  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
 20.  *   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
 40.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
 50.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
 60.  *   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
 80.  *   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
100.  *   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
120.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
130.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
140.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
150.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
160.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
170.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
180.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
190.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
200.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
210.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
220.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
230.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
240.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
250.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
260.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
270.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
280.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
290.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
300.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
310.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
320.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
330.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
340.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
350.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
360.  *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
------*------------------------------------------
MAX   *   0.0   0.0   0.0   0.0   0.0   0.0   0.0
DEGR. *    0     0     0     0     0     0     0

THE HIGHEST CONCENTRATION OF    0.10 PPM OCCURRED AT RECEPTOR REC9 .
```

2040 AM No-Build Falconbridge Road and NC 54



CAL3QHC Input File

```
'Falconbridge Road and NC54             '  60. 108.0    0.00    0.00 32     1.0000 0 0
'REC1                    '       19.0      -10.0         1.8
'REC2                    '       31.0      -33.0         1.8
'REC3                    '       40.0      -57.0         1.8
'REC4                    '       44.0      -83.0         1.8
'REC5                    '       39.0        4.0         1.8
'REC6                    '       61.0       16.0         1.8
'REC7                    '        5.0       29.0         1.8
'REC8                    '       27.0       41.0         1.8
'REC9                    '       49.0       52.0         1.8
'REC10                   '       71.0       63.0         1.8
'REC11                   '       93.0       75.0         1.8
'REC12                   '       -2.0       24.0         1.8
'REC13                   '      -12.0       41.0         1.8
'REC14                   '      -25.0       63.0         1.8
'REC15                   '      -23.0        9.0         1.8
'REC16                   '      -33.0       28.0         1.8
'REC17                   '      -32.0       37.0         1.8
'REC18                   '      -45.0       59.0         1.8
'REC19                   '      -57.0       81.0         1.8
'REC20                   '      -69.0      103.0         1.8
'REC21                   '      -46.0       -3.0         1.8
'REC22                   '      -69.0      -15.0         1.8
'REC23                   '       -1.0      -23.0         1.8
'REC24                   '      -24.0      -35.0         1.8
'REC25                   '      -48.0      -46.0         1.8
'REC26                   '      -71.0      -57.0         1.8
'REC27                   '      -94.0      -70.0         1.8
'REC28                   '     -117.0      -84.0         1.8
'REC29                   '     -140.0      -95.0         1.8
'REC30                   '       14.0      -44.0         1.8
'REC31                   '       22.0      -70.0         1.8
'REC32                   '       23.0      -83.0         1.8
'2040 No-Build AM Peak                  '  36    1   0 C
1
'NBA1                    ' 'AG'      39.0      -84.0      38.0      -73.0    1463.   0.81      0.0  10.0
1
'NBA2                    ' 'AG'      38.0      -73.0      35.0      -58.0    1463.   0.81      0.0  10.0
1
'NBA3                    ' 'AG'      35.0      -58.0      30.0      -46.0    1463.   0.81      0.0  10.0
1
'NBA4                    ' 'AG'      30.0      -46.0      25.0      -33.0    1463.   0.81      0.0  10.0
1
'NBA5                    ' 'AG'      25.0      -33.0       5.0        2.0    1463.   0.81      0.0  10.0
1
'NBD1                    ' 'AG'       5.0        2.0     -19.0       40.0    1029.   0.81      0.0  10.0
1
'NBD2                    ' 'AG'     -19.0       40.0     -64.0      122.0    1029.   0.81      0.0  10.0
1
'NBD3                    ' 'AG'     -64.0      122.0     -86.0      153.0    1029.   0.81      0.0  10.0
2
'NBQ                     ' 'AG'      15.0      -14.0      25.0      -34.0      0.0   4.0  1
  180   155   2.0   962   1.31 1765 2 3
2
'NBLQ                    ' 'AG'      11.0      -16.0      22.0      -36.0      0.0   4.0  1
  180   144   2.0   501   1.31 1676 2 3
1
'SBA1                    ' 'AG'     -92.0      149.0     -71.0      120.0     808.   0.81      0.0  10.0
1
'SBA2                    ' 'AG'     -71.0      120.0     -62.0      105.0     808.   0.81      0.0  10.0
1
'SBA3                    ' 'AG'     -62.0      105.0     -24.0       33.0     808.   0.81      0.0  10.0
1
'SBA4                    ' 'AG'     -24.0       33.0      -4.0       -2.0     808.   0.81      0.0  10.0
1
'SBD1                    ' 'AG'      -4.0       -2.0      12.0      -27.0     214.   0.81      0.0  10.0
1
'SBD2                    ' 'AG'      12.0      -27.0      20.0      -44.0     214.   0.81      0.0  10.0
1
'SBD3                    ' 'AG'      20.0      -44.0      26.0      -60.0     214.   0.81      0.0  10.0
1
'SBD4                    ' 'AG'      26.0      -60.0      29.0      -74.0     214.   0.81      0.0  10.0
1
'SBD5                    ' 'AG'      29.0      -74.0      30.0      -84.0     214.   0.81      0.0  10.0
2
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'SBQ                   ' 'AG'      -12.0       12.0      -45.0       72.0       0.0    4.0  1
  180   164   2.0   301   1.31 1765 2 3
2
'SBLQ                  ' 'AG'       -9.0       14.0      -41.0       74.0       0.0    8.0  2
  180   153   2.0   507   1.31 3252 2 3
1
'EBA                   ' 'AG'     -259.0     -151.0        3.0       -5.0    3766.    0.81       0.0  18.0
1
'EBD1                  ' 'AG'        3.0       -5.0       75.0       35.0    4741.    0.81       0.0  18.0
1
'EBD2                  ' 'AG'       75.0       35.0      161.0       93.0    4741.    0.81       0.0  18.0
1
'EBD3                  ' 'AG'      161.0       93.0      252.0      159.0    4741.    0.81       0.0  18.0
2
'EBQ                   ' 'AG'       -7.0      -11.0     -259.0     -151.0       0.0   12.0  3
  180    73   2.0  3359   1.31 4818 2 3
2
'EBLQ                  ' 'AG'      -11.0       -4.0      -52.0      -27.0       0.0    4.0  1
  180   158   2.0   335   1.31 1676 2 3
2
'EBRQ                  ' 'AG'       -3.0      -18.0      -27.0      -31.0       0.0    4.0  1
  180    37   2.0    72   1.31 1500 2 3
1
'WBA1                  ' 'AG'      244.0      169.0      184.0      123.0    4218.    0.81       0.0  18.0
1
'WBA2                  ' 'AG'      184.0      123.0      111.0       75.0    4218.    0.81       0.0  18.0
1
'WBA3                  ' 'AG'      111.0       75.0       43.0       35.0    4218.    0.81       0.0  18.0
1
'WBA4                  ' 'AG'       43.0       35.0       -5.0        8.0    4218.    0.81       0.0  18.0
1
'WBD                   ' 'AG'       -5.0        8.0     -268.0     -137.0    4271.    0.81       0.0  18.0
2
'WBQ                   ' 'AG'       12.0       18.0       46.0       37.0       0.0   12.0  3
  180    74   2.0  3480   1.31 4818 2 3
2
'WBLQ                  ' 'AG'       17.0       12.0       50.0       30.0       0.0    4.0  1
  180   159   2.0   131   1.31 1676 2 3
2
'WBRQ                  ' 'AG'        8.0       25.0       41.0       43.0       0.0    4.0  1
  180    47   2.0   607   1.31 1500 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: Falconbridge Road and NC54 RUN: 2040 No-Build AM Peak

DATE : 3/26/15
TIME : 6:37:23

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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	39.0	-84.0	38.0	-73.0	11.	355.	AG	1463.	0.8	0.0	10.0		
2. NBA2	38.0	-73.0	35.0	-58.0	15.	349.	AG	1463.	0.8	0.0	10.0		
3. NBA3	35.0	-58.0	30.0	-46.0	13.	337.	AG	1463.	0.8	0.0	10.0		
4. NBA4	30.0	-46.0	25.0	-33.0	14.	339.	AG	1463.	0.8	0.0	10.0		
5. NBA5	25.0	-33.0	5.0	2.0	40.	330.	AG	1463.	0.8	0.0	10.0		
6. NBD1	5.0	2.0	-19.0	40.0	45.	328.	AG	1029.	0.8	0.0	10.0		
7. NBD2	-19.0	40.0	-64.0	122.0	94.	331.	AG	1029.	0.8	0.0	10.0		
8. NBD3	-64.0	122.0	-86.0	153.0	38.	325.	AG	1029.	0.8	0.0	10.0		
9. NBQ	15.0	-14.0	1171.2	-2326.3	2585.	153.	AG	3.	100.0	0.0	4.0	4.69	430.9
10. NBLQ	11.0	-16.0	377.1	-681.6	760.	151.	AG	3.	100.0	0.0	4.0	1.69	126.6
11. SBA1	-92.0	149.0	-71.0	120.0	36.	144.	AG	808.	0.8	0.0	10.0		
12. SBA2	-71.0	120.0	-62.0	105.0	17.	149.	AG	808.	0.8	0.0	10.0		
13. SBA3	-62.0	105.0	-24.0	33.0	81.	152.	AG	808.	0.8	0.0	10.0		
14. SBA4	-24.0	33.0	-4.0	-2.0	40.	150.	AG	808.	0.8	0.0	10.0		
15. SBD1	-4.0	-2.0	12.0	-27.0	30.	147.	AG	214.	0.8	0.0	10.0		
16. SBD2	12.0	-27.0	20.0	-44.0	19.	155.	AG	214.	0.8	0.0	10.0		
17. SBD3	20.0	-44.0	26.0	-60.0	17.	159.	AG	214.	0.8	0.0	10.0		
18. SBD4	26.0	-60.0	29.0	-74.0	14.	168.	AG	214.	0.8	0.0	10.0		
19. SBD5	29.0	-74.0	30.0	-84.0	10.	174.	AG	214.	0.8	0.0	10.0		
20. SBQ	-12.0	12.0	-331.6	593.1	663.	331.	AG	3.	100.0	0.0	4.0	2.57	110.5
21. SBLQ	-9.0	14.0	-39.4	70.9	65.	332.	AG	6.	100.0	0.0	8.0	0.61	10.8
22. EBA	-259.0	-151.0	3.0	-5.0	300.	61.	AG	3766.	0.8	0.0	18.0		
23. EBD1	3.0	-5.0	75.0	35.0	82.	61.	AG	4741.	0.8	0.0	18.0		
24. EBD2	75.0	35.0	161.0	93.0	104.	56.	AG	4741.	0.8	0.0	18.0		
25. EBD3	161.0	93.0	252.0	159.0	112.	54.	AG	4741.	0.8	0.0	18.0		
26. EBQ	-7.0	-11.0	-126.0	-77.1	136.	241.	AG	4.	100.0	0.0	12.0	0.41	22.7
27. EBLQ	-11.0	-4.0	-550.1	-306.4	618.	241.	AG	3.	100.0	0.0	4.0	2.01	103.0
28. EBRQ	-3.0	-18.0	-6.9	-20.1	4.	242.	AG	1.	100.0	0.0	4.0	0.06	0.7
29. WBA1	244.0	169.0	184.0	123.0	76.	233.	AG	4218.	0.8	0.0	18.0		
30. WBA2	184.0	123.0	111.0	75.0	87.	237.	AG	4218.	0.8	0.0	18.0		
31. WBA3	111.0	75.0	43.0	35.0	79.	240.	AG	4218.	0.8	0.0	18.0		
32. WBA4	43.0	35.0	-5.0	8.0	55.	241.	AG	4218.	0.8	0.0	18.0		
33. WBD	-5.0	8.0	-268.0	-137.0	300.	241.	AG	4271.	0.8	0.0	18.0		
34. WBQ	12.0	18.0	136.9	87.8	143.	61.	AG	4.	100.0	0.0	12.0	0.42	23.8
35. WBLQ	17.0	12.0	48.9	29.4	36.	61.	AG	3.	100.0	0.0	4.0	0.83	6.1
36. WBRQ	8.0	25.0	49.7	47.8	48.	61.	AG	1.	100.0	0.0	4.0	0.57	7.9

JOB: Falconbridge Road and NC54 RUN: 2040 No-Build AM Peak

DATE : 3/26/15
TIME : 6:37:23

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
9. NBQ	180	155	2.0	962	1765	1.31	2	3
10. NBLQ	180	144	2.0	501	1676	1.31	2	3
20. SBQ	180	164	2.0	301	1765	1.31	2	3
21. SBLQ	180	153	2.0	507	3252	1.31	2	3
26. EBQ	180	73	2.0	3359	4818	1.31	2	3
27. EBLQ	180	158	2.0	335	1676	1.31	2	3
28. EBRQ	180	37	2.0	72	1500	1.31	2	3
34. WBQ	180	74	2.0	3480	4818	1.31	2	3
35. WBLQ	180	159	2.0	131	1676	1.31	2	3
36. WBRQ	180	47	2.0	607	1500	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	19.0	-10.0	1.8
2. REC2	31.0	-33.0	1.8
3. REC3	40.0	-57.0	1.8
4. REC4	44.0	-83.0	1.8
5. REC5	39.0	4.0	1.8
6. REC6	61.0	16.0	1.8
7. REC7	5.0	29.0	1.8
8. REC8	27.0	41.0	1.8
9. REC9	49.0	52.0	1.8
10. REC10	71.0	63.0	1.8
11. REC11	93.0	75.0	1.8
12. REC12	-2.0	24.0	1.8
13. REC13	-12.0	41.0	1.8
14. REC14	-25.0	63.0	1.8
15. REC15	-23.0	9.0	1.8
16. REC16	-33.0	28.0	1.8
17. REC17	-32.0	37.0	1.8
18. REC18	-45.0	59.0	1.8
19. REC19	-57.0	81.0	1.8
20. REC20	-69.0	103.0	1.8
21. REC21	-46.0	-3.0	1.8
22. REC22	-69.0	-15.0	1.8
23. REC23	-1.0	-23.0	1.8
24. REC24	-24.0	-35.0	1.8
25. REC25	-48.0	-46.0	1.8
26. REC26	-71.0	-57.0	1.8
27. REC27	-94.0	-70.0	1.8
28. REC28	-117.0	-84.0	1.8
29. REC29	-140.0	-95.0	1.8
30. REC30	14.0	-44.0	1.8
31. REC31	22.0	-70.0	1.8
32. REC32	23.0	-83.0	1.8

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JOB: Falconbridge Road and NC54 RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR)	*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
		CONCENTRATION (PPM)																			
0.	*	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	*	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	*	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	*	0.1	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	*	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	*	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	*	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
80.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
90.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
100.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
110.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
120.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
130.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
140.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
150.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
160.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
170.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
180.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
190.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
200.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0
210.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.2	0.1	0.2	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0
220.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0
230.	*	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.0	0.3	0.1	0.0	0.0	0.0	0.0
240.	*	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
250.	*	0.2	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
260.	*	0.2	0.0	0.0	0.0	0.3	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
270.	*	0.2	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	*	0.3	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	*	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	*	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	*	0.1	0.1	0.0	0.0	0.2	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
320.	*	0.1	0.0	0.0	0.0	0.2	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
330.	*	0.2	0.0	0.0	0.0	0.2	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
340.	*	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	*	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	*	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	*	0.3	0.1	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0
DEGR.	*	280	0	0	0	250	30	210	230	200	60	80	90	120	0	80	100	200	0	0	0

JOB: Falconbridge Road and NC54 RUN: 2040 No-Build AM Peak

MODEL RESULTS

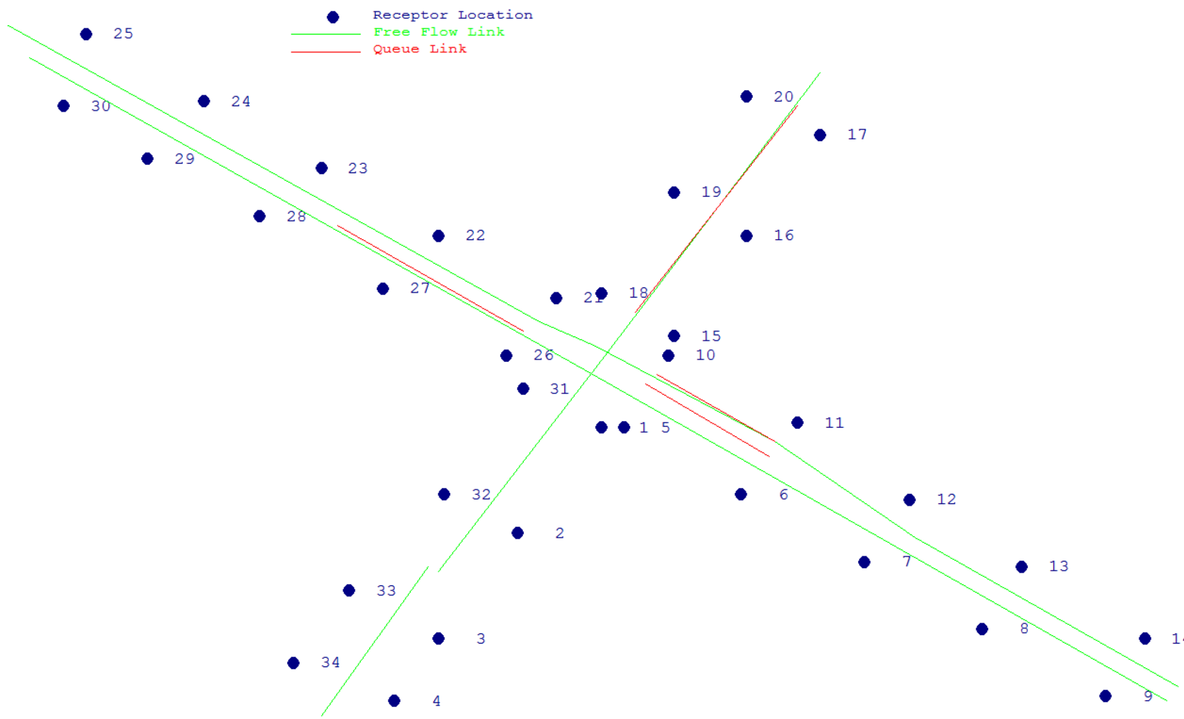
REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
10.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
20.	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0
30.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
40.	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0
50.	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0
60.	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
70.	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
80.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
250.	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.0	0.0	0.0
260.	0.0	0.0	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.0	0.0	0.0
270.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
280.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
290.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
300.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
310.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
320.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
330.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
340.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
350.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
360.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
MAX	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.1	0.0	0.0
DEGR.	220	220	20	0	0	250	250	0	50	20	0	0

THE HIGHEST CONCENTRATION OF 0.30 PPM OCCURRED AT RECEPTOR REC6 .

2040 PM No-Build Mangum Street and Main Street



CAL3QHC Input File

```
'Mangum Street and Main Street          '  60. 108.0    0.00    0.00 34     1.0000 0 0
'REC1                 '         2.0      -15.0         1.8
'REC2                 '       -13.0      -37.0         1.8
'REC3                 '       -27.0      -59.0         1.8
'REC4                 '       -35.0      -72.0         1.8
'REC5                 '         6.0      -15.0         1.8
'REC6                 '        27.0      -29.0         1.8
'REC7                 '        49.0      -43.0         1.8
'REC8                 '        70.0      -57.0         1.8
'REC9                 '        92.0      -71.0         1.8
'REC10                '        14.0        0.0         1.8
'REC11                '        37.0      -14.0         1.8
'REC12                '        57.0      -30.0         1.8
'REC13                '        77.0      -44.0         1.8
'REC14                '        99.0      -59.0         1.8
'REC15                '        15.0        4.0         1.8
'REC16                '        28.0       25.0         1.8
'REC17                '        41.0       46.0         1.8
'REC18                '         2.0       13.0         1.8
'REC19                '        15.0       34.0         1.8
'REC20                '        28.0       54.0         1.8
'REC21                '        -6.0       12.0         1.8
'REC22                '       -27.0       25.0         1.8
'REC23                '       -48.0       39.0         1.8
'REC24                '       -69.0       53.0         1.8
'REC25                '       -90.0       67.0         1.8
'REC26                '       -15.0        0.0         1.8
'REC27                '       -37.0       14.0         1.8
'REC28                '       -59.0       29.0         1.8
'REC29                '       -79.0       41.0         1.8
'REC30                '       -94.0       52.0         1.8
'REC31                '       -12.0       -7.0         1.8
'REC32                '       -26.0      -29.0         1.8
'REC33                '       -43.0      -49.0         1.8
'REC34                '       -53.0      -64.0         1.8
'2040 No-Build PM Peak                  '  14    1  0 C
1
'SBA                  ' 'AG'      41.0       59.0        2.0       -1.0    1091.   1.16      0.0  14.0
1
'SBD1                 ' 'AG'       2.0       -1.0      -27.0      -45.0    1290.   1.18      0.0  14.0
1
'SBD2                 ' 'AG'     -29.0      -44.0      -48.0      -75.0    1290.   1.18      0.0  18.0
2
'SBQ                  ' 'AG'       8.0        9.0       37.0       52.0      0.0   8.0  2
   90    42    2.0  1091    1.31 3423 2 3
1
'EBA                  ' 'AG'    -100.0       62.0       -1.0       -3.0     296.   0.81      0.0  10.0
1
'EBD                  ' 'AG'      -1.0       -3.0      103.0      -72.0     364.   0.81      0.0  10.0
2
'EBQ                  ' 'AG'     -12.0        5.0      -45.0       27.0      0.0   4.0  1
   90    65    2.0   296    1.31 1807 2 3
1
'WBA1                 ' 'AG'     105.0      -69.0       58.0      -38.0     516.   0.81      0.0  10.0
1
'WBA2                 ' 'AG'      58.0      -38.0       33.0      -18.0     516.   0.81      0.0  10.0
1
'WBA3                 ' 'AG'      33.0      -18.0        1.0        2.0     516.   0.81      0.0  10.0
1
'WBD1                 ' 'AG'       1.0        2.0       -9.0        7.0     249.   0.81      0.0  10.0
1
'WBD2                 ' 'AG'      -9.0        7.0      -98.0       65.0     249.   0.81      0.0  10.0
2
'WBQ                  ' 'AG'      12.0       -4.0       33.0      -18.0      0.0   4.0  1
   90    48    2.0   235    1.31 1827 2 3
2
'WBLQ                 ' 'AG'      10.0       -6.0       32.0      -21.0      0.0   4.0  1
   90    73    2.0   281    1.31  588 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Mangum Street and Main Street                          RUN: 2040 No-Build PM Peak

      DATE :  5/ 5/15
      TIME :  8: 4:22

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
```

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. SBA	41.0	59.0	2.0	-1.0	72.	213.	AG	1091.	1.2	0.0	14.0		
2. SBD1	2.0	-1.0	-27.0	-45.0	53.	213.	AG	1290.	1.2	0.0	14.0		
3. SBD2	-29.0	-44.0	-48.0	-75.0	36.	212.	AG	1290.	1.2	0.0	18.0		
4. SBQ	8.0	9.0	29.3	40.6	38.	34.	AG	3.	100.0	0.0	8.0	0.33	6.4
5. EBA	-100.0	62.0	-1.0	-3.0	118.	123.	AG	296.	0.8	0.0	10.0		
6. EBD	-1.0	-3.0	103.0	-72.0	125.	124.	AG	364.	0.8	0.0	10.0		
7. EBQ	-12.0	5.0	-38.7	22.8	32.	304.	AG	3.	100.0	0.0	4.0	0.70	5.3
8. WBA1	105.0	-69.0	58.0	-38.0	56.	303.	AG	516.	0.8	0.0	10.0		
9. WBA2	58.0	-38.0	33.0	-18.0	32.	309.	AG	516.	0.8	0.0	10.0		
10. WBA3	33.0	-18.0	1.0	2.0	38.	302.	AG	516.	0.8	0.0	10.0		
11. WBD1	1.0	2.0	-9.0	7.0	11.	297.	AG	249.	0.8	0.0	10.0		
12. WBD2	-9.0	7.0	-98.0	65.0	106.	303.	AG	249.	0.8	0.0	10.0		
13. WBQ	12.0	-4.0	27.6	-14.4	19.	124.	AG	2.	100.0	0.0	4.0	0.30	3.1
14. WBLQ	10.0	-6.0	556.6	-378.7	662.	124.	AG	3.	100.0	0.0	4.0	3.35	110.3

JOB: Mangum Street and Main Street RUN: 2040 No-Build PM Peak

DATE : 5/ 5/15
TIME : 8: 4:22

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
4. SBQ	90	42	2.0	1091	3423	1.31	2	3
7. EBQ	90	65	2.0	296	1807	1.31	2	3
13. WBQ	90	48	2.0	235	1827	1.31	2	3
14. WBLQ	90	73	2.0	281	588	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	2.0	-15.0	1.8
2. REC2	-13.0	-37.0	1.8
3. REC3	-27.0	-59.0	1.8
4. REC4	-35.0	-72.0	1.8
5. REC5	6.0	-15.0	1.8
6. REC6	27.0	-29.0	1.8
7. REC7	49.0	-43.0	1.8
8. REC8	70.0	-57.0	1.8
9. REC9	92.0	-71.0	1.8
10. REC10	14.0	0.0	1.8
11. REC11	37.0	-14.0	1.8
12. REC12	57.0	-30.0	1.8
13. REC13	77.0	-44.0	1.8
14. REC14	99.0	-59.0	1.8
15. REC15	15.0	4.0	1.8
16. REC16	28.0	25.0	1.8
17. REC17	41.0	46.0	1.8
18. REC18	2.0	13.0	1.8
19. REC19	15.0	34.0	1.8
20. REC20	28.0	54.0	1.8
21. REC21	-6.0	12.0	1.8
22. REC22	-27.0	25.0	1.8
23. REC23	-48.0	39.0	1.8
24. REC24	-69.0	53.0	1.8
25. REC25	-90.0	67.0	1.8
26. REC26	-15.0	0.0	1.8
27. REC27	-37.0	14.0	1.8
28. REC28	-59.0	29.0	1.8
29. REC29	-79.0	41.0	1.8
30. REC30	-94.0	52.0	1.8
31. REC31	-12.0	-7.0	1.8
32. REC32	-26.0	-29.0	1.8
33. REC33	-43.0	-49.0	1.8
34. REC34	-53.0	-64.0	1.8

PAGE 3

JOB: Mangum Street and Main Street RUN: 2040 No-Build PM Peak

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.-360.

WIND * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.1	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	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
20.	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	0.1	0.0	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	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	0.1	0.0	0.0	0.0
230.	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	0.1	0.1	0.0	0.0	0.0
240.	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	0.1	0.1	0.0	0.0	0.0
250.	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
260.	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
270.	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
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	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
350.	0.0	0.1	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
360.	0.0	0.1	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	0.1	0.0	0.0	0.0	0.0
MAX	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	0.1	0.1	0.1	0.1	0.0	0.1
DEGR.	220	0	250	0	0	0	0	0	0	0	0	0	0	0	0	0	220	40	0	180

JOB: Mangum Street and Main Street RUN: 2040 No-Build PM Peak

MODEL RESULTS

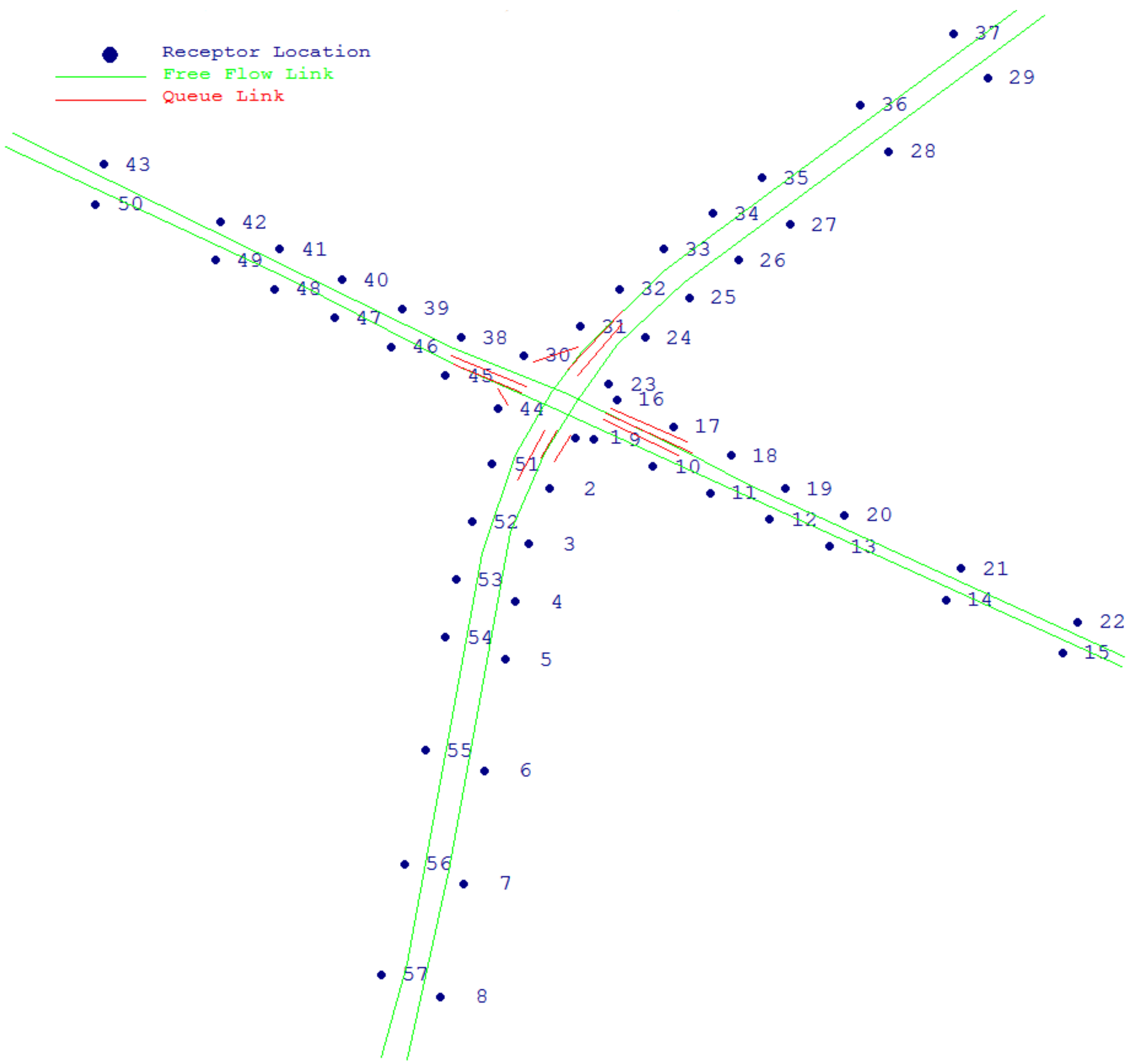
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
50.	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
60.	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
70.	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	0.1
80.	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
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	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
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
190.	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
200.	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
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
DEGR.	0	0	0	0	0	0	0	0	0	0	160	50	170	70

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 PM No-Build Morreene Road/Towerview Road and Erwin Road



CAL3QHC Input File

```
'Morreene Rd_Towerview Rd and Erwin Rd   '  60. 108.0    0.00    0.00 57    1.0000 0 0
'REC1                 '        5.0       -19.0        1.8
'REC2                 '       -5.0       -42.0        1.8
'REC3                 '      -13.0       -67.0        1.8
'REC4                 '      -18.0       -93.0        1.8
'REC5                 '      -22.0      -119.0        1.8
'REC6                 '      -30.0      -169.0        1.8
'REC7                 '      -38.0      -220.0        1.8
'REC8                 '      -47.0      -271.0        1.8
'REC9                 '       12.0       -20.0        1.8
'REC10                '       35.0       -32.0        1.8
'REC11                '       57.0       -44.0        1.8
'REC12                '       80.0       -56.0        1.8
'REC13                '      103.0       -68.0        1.8
'REC14                '      148.0       -92.0        1.8
'REC15                '      193.0      -116.0        1.8
'REC16                '       21.0        -2.0        1.8
'REC17                '       43.0       -14.0        1.8
'REC18                '       65.0       -27.0        1.8
'REC19                '       86.0       -42.0        1.8
'REC20                '      109.0       -54.0        1.8
'REC21                '      154.0       -78.0        1.8
'REC22                '      199.0      -102.0        1.8
'REC23                '       18.0         5.0        1.8
'REC24                '       32.0        26.0        1.8
'REC25                '       49.0        44.0        1.8
'REC26                '       68.0        61.0        1.8
'REC27                '       88.0        77.0        1.8
'REC28                '      126.0       110.0        1.8
'REC29                '      164.0       143.0        1.8
'REC30                '      -15.0        18.0        1.8
'REC31                '        7.0        31.0        1.8
'REC32                '       22.0        48.0        1.8
'REC33                '       39.0        66.0        1.8
'REC34                '       58.0        82.0        1.8
'REC35                '       77.0        98.0        1.8
'REC36                '      115.0       131.0        1.8
'REC37                '      151.0       163.0        1.8
'REC38                '      -39.0        26.0        1.8
'REC39                '      -62.0        39.0        1.8
'REC40                '      -85.0        52.0        1.8
'REC41                '     -109.0        66.0        1.8
'REC42                '     -132.0        78.0        1.8
'REC43                '     -177.0       104.0        1.8
'REC44                '      -25.0        -6.0        1.8
'REC45                '      -45.0         9.0        1.8
'REC46                '      -66.0        22.0        1.8
'REC47                '      -88.0        35.0        1.8
'REC48                '     -111.0        48.0        1.8
'REC49                '     -134.0        61.0        1.8
'REC50                '     -180.0        86.0        1.8
'REC51                '      -27.0       -31.0        1.8
'REC52                '      -35.0       -57.0        1.8
'REC53                '      -41.0       -83.0        1.8
'REC54                '      -45.0      -109.0        1.8
'REC55                '      -53.0      -160.0        1.8
'REC56                '      -61.0      -211.0        1.8
'REC57                '      -70.0      -261.0        1.8
'2040 No-Build PM Peak                   '  35   1  0 C
1
'NBA1                 ' 'AG'     -60.0     -299.0     -44.0     -214.0     510.  1.16      0.0  12.0
1
'NBA2                 ' 'AG'     -44.0     -214.0     -20.0      -62.0     510.  1.16      0.0  12.0
1
'NBA3                 ' 'AG'     -20.0      -62.0      -7.0      -26.0     510.  1.16      0.0  12.0
1
'NBA4                 ' 'AG'      -7.0      -26.0       6.0       -2.0     510.  1.16      0.0  12.0
1
'NBD1                 ' 'AG'       6.0       -2.0      21.0       23.0     685.  1.16      0.0  12.0
1
'NBD2                 ' 'AG'      21.0       23.0      47.0       51.0     685.  1.16      0.0  12.0
1
'NBD3                 ' 'AG'      47.0       51.0     186.0      171.0     685.  1.16      0.0  12.0
2
'NBQ                  ' 'AG'      -2.0      -16.0      -8.0      -28.0      0.0   6.0  2
```

```
  150    85    2.0    326    1.31 3207 2 3
2
'NBLQ                  ' 'AG'      -7.0      -16.0      -17.0      -38.0      0.0    3.5   1
  150   135    2.0   144    1.31  117 2 3
2
'NBRQ                  ' 'AG'       3.0      -18.0       -3.0      -30.0      0.0    3.0   1
  150    85    2.0    40    1.31 1435 2 3
1
'SBA1                  ' 'AG'     179.0      177.0       39.0       56.0    1275.   1.16       0.0  13.0
1
'SBA2                  ' 'AG'      39.0       56.0        8.0       20.0    1275.   1.16       0.0  13.0
1
'SBA3                  ' 'AG'       8.0       20.0       -4.0        2.0    1275.   1.16       0.0  13.0
1
'SBD1                  ' 'AG'      -4.0        2.0      -18.0      -27.0    1190.   1.16       0.0  13.0
1
'SBD2                  ' 'AG'     -18.0      -27.0      -31.0      -71.0    1190.   1.16       0.0  13.0
1
'SBD3                  ' 'AG'     -31.0      -71.0      -60.0     -256.0    1190.   1.16       0.0  13.0
1
'SBD4                  ' 'AG'     -60.0     -256.0      -70.0     -298.0    1190.   1.16       0.0  13.0
2
'SBQ                   ' 'AG'       2.0       12.0       23.0       38.0      0.0    7.0   2
  150    86    2.0   829    1.31 3176 2 3
2
'SBLQ                  ' 'AG'       6.0        9.0       23.0       32.0      0.0    4.0   1
  150   136    2.0   101    1.31  875 2 3
2
'SBRQ                  ' 'AG'     -11.0       15.0        6.0       22.0      0.0    3.0   1
  150    86    2.0   345    1.31 1600 2 3
1
'EBA1                  ' 'AG'    -215.0      112.0     -105.0       52.0     605.   1.16       0.0  10.0
1
'EBA2                  ' 'AG'    -105.0       52.0      -42.0       14.0     605.   1.16       0.0  10.0
1
'EBA3                  ' 'AG'     -42.0       14.0       -3.0       -6.0     605.   1.16       0.0  10.0
1
'EBD                   ' 'AG'      -3.0       -6.0      216.0     -122.0     344.   1.18       0.0  10.0
2
'EBQ                   ' 'AG'     -16.0        1.0      -42.0       14.0      0.0    4.0   1
  150   101    2.0   203    1.31 1680 2 3
2
'EBLQ                  ' 'AG'     -14.0        4.0      -43.0       18.0      0.0    3.5   1
  150   131    2.0   220    1.31  233 2 3
2
'EBRQ                  ' 'AG'     -21.0       -4.0      -25.0        3.0      0.0    3.0   1
  150   101    2.0   182    1.31 1600 2 3
1
'WBA1                  ' 'AG'     217.0     -118.0       72.0      -40.0     844.   1.18       0.0   9.5
1
'WBA2                  ' 'AG'      72.0      -40.0       46.0      -24.0     844.   1.18       0.0   9.5
1
'WBA3                  ' 'AG'      46.0      -24.0        1.0        1.0     844.   1.18       0.0   9.5
1
'WBD1                  ' 'AG'       1.0        1.0      -42.0       21.0    1015.   1.16       0.0   9.5
1
'WBD2                  ' 'AG'     -42.0       21.0     -212.0      118.0    1015.   1.16       0.0   9.5
2
'WBQ                   ' 'AG'      17.0       -8.0       50.0      -26.0      0.0    3.5   1
  150    98    2.0   526    1.31 1748 2 3
2
'WBLQ                  ' 'AG'      16.0      -11.0       45.0      -27.0      0.0    3.5   1
  150   128    2.0   179    1.31  233 2 3
2
'WBRQ                  ' 'AG'      19.0       -6.0       48.0      -21.0      0.0    3.5   1
  150   136    2.0   139    1.31 1486 2 3
 1.0    0.0 4  1000.0    0.0 'Y'   10    0   36
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CAL3QHC Output File

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CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Morreene Rd_Towerview Rd and Erwin Rd                RUN: 2040 No-Build PM Peak

      DATE :  5/ 5/15
      TIME :  9:37:46

         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 = 108. CM
        U =  1.0 M/S         CLAS =    4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION      *         LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                               *   X1        Y1        X2        Y2    *    (M)   (DEG)           (G/MI)   (M)  (M)        (VEH)
      ------------------------*----------------------------------------*--------------------------------------------------------
-
       1. NBA1                 *    -60.0    -299.0     -44.0    -214.0 *     86.    11. AG    510.   1.2    0.0 12.0
       2. NBA2                 *    -44.0    -214.0     -20.0     -62.0 *    154.     9. AG    510.   1.2    0.0 12.0
       3. NBA3                 *    -20.0     -62.0      -7.0     -26.0 *     38.    20. AG    510.   1.2    0.0 12.0
       4. NBA4                 *     -7.0     -26.0       6.0      -2.0 *     27.    28. AG    510.   1.2    0.0 12.0
       5. NBD1                 *      6.0      -2.0      21.0      23.0 *     29.    31. AG    685.   1.2    0.0 12.0
       6. NBD2                 *     21.0      23.0      47.0      51.0 *     38.    43. AG    685.   1.2    0.0 12.0
       7. NBD3                 *     47.0      51.0     186.0     171.0 *    184.    49. AG    685.   1.2    0.0 12.0
       8. NBQ                  *     -2.0     -16.0     -12.3     -36.7 *     23.   207. AG      4. 100.0    0.0  6.0 0.12   3.8
       9. NBLQ                 *     -7.0     -16.0    -215.0    -473.6 *    503.   204. AG      3. 100.0    0.0  3.5 ****  83.8
      10. NBRQ                 *      3.0     -18.0       0.5     -23.1 *      6.   207. AG      2. 100.0    0.0  3.0 0.07   0.9
      11. SBA1                 *    179.0     177.0      39.0      56.0 *    185.   229. AG   1275.   1.2    0.0 13.0
      12. SBA2                 *     39.0      56.0       8.0      20.0 *     48.   221. AG   1275.   1.2    0.0 13.0
      13. SBA3                 *      8.0      20.0      -4.0       2.0 *     22.   214. AG   1275.   1.2    0.0 13.0
      14. SBD1                 *     -4.0       2.0     -18.0     -27.0 *     32.   206. AG   1190.   1.2    0.0 13.0
      15. SBD2                 *    -18.0     -27.0     -31.0     -71.0 *     46.   196. AG   1190.   1.2    0.0 13.0
      16. SBD3                 *    -31.0     -71.0     -60.0    -256.0 *    187.   189. AG   1190.   1.2    0.0 13.0
      17. SBD4                 *    -60.0    -256.0     -70.0    -298.0 *     43.   193. AG   1190.   1.2    0.0 13.0
      18. SBQ                  *      2.0      12.0      39.3      58.2 *     59.    39. AG      4. 100.0    0.0  7.0 0.33   9.9
      19. SBLQ                 *      6.0       9.0     105.2     143.3 *    167.    36. AG      3. 100.0    0.0  4.0 1.74  27.8
      20. SBRQ                 *    -11.0      15.0      34.7      33.8 *     49.    68. AG      2. 100.0    0.0  3.0 0.54   8.2
      21. EBA1                 *   -215.0     112.0    -105.0      52.0 *    125.   119. AG    605.   1.2    0.0 10.0
      22. EBA2                 *   -105.0      52.0     -42.0      14.0 *     74.   121. AG    605.   1.2    0.0 10.0
      23. EBA3                 *    -42.0      14.0      -3.0      -6.0 *     44.   117. AG    605.   1.2    0.0 10.0
      24. EBD                  *     -3.0      -6.0     216.0    -122.0 *    248.   118. AG    344.   1.2    0.0 10.0
      25. EBQ                  *    -16.0       1.0     -46.6      16.3 *     34.   297. AG      2. 100.0    0.0  4.0 0.40   5.7
      26. EBLQ                 *    -14.0       4.0    -638.7     305.6 *    694.   296. AG      3. 100.0    0.0  3.5 9.57 115.6
      27. EBRQ                 *    -21.0      -4.0     -36.2      22.6 *     31.   330. AG      2. 100.0    0.0  3.0 0.38   5.1
      28. WBA1                 *    217.0    -118.0      72.0     -40.0 *    165.   298. AG    844.   1.2    0.0  9.5
      29. WBA2                 *     72.0     -40.0      46.0     -24.0 *     31.   302. AG    844.   1.2    0.0  9.5
      30. WBA3                 *     46.0     -24.0       1.0       1.0 *     51.   299. AG    844.   1.2    0.0  9.5
      31. WBD1                 *      1.0       1.0     -42.0      21.0 *     47.   295. AG   1015.   1.2    0.0  9.5
      32. WBD2                 *    -42.0      21.0    -212.0     118.0 *    196.   300. AG   1015.   1.2    0.0  9.5
      33. WBQ                  *     17.0      -8.0     100.4     -53.5 *     95.   119. AG      2. 100.0    0.0  3.5 0.94  15.8
      34. WBLQ                 *     16.0     -11.0     484.5    -269.5 *    535.   119. AG      3. 100.0    0.0  3.5 6.63  89.2
      35. WBRQ                 *     19.0      -6.0     167.1     -82.6 *    167.   117. AG      3. 100.0    0.0  3.5 1.40  27.8
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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

DATE : 5/ 5/15
TIME : 9:37:46

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
8. NBQ	150	85	2.0	326	3207	1.31	2	3
9. NBLQ	150	135	2.0	144	117	1.31	2	3
10. NBRQ	150	85	2.0	40	1435	1.31	2	3
18. SBQ	150	86	2.0	829	3176	1.31	2	3
19. SBLQ	150	136	2.0	101	875	1.31	2	3
20. SBRQ	150	86	2.0	345	1600	1.31	2	3
25. EBQ	150	101	2.0	203	1680	1.31	2	3
26. EBLQ	150	131	2.0	220	233	1.31	2	3
27. EBRQ	150	101	2.0	182	1600	1.31	2	3
33. WBQ	150	98	2.0	526	1748	1.31	2	3
34. WBLQ	150	128	2.0	179	233	1.31	2	3
35. WBRQ	150	136	2.0	139	1486	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	5.0	-19.0	1.8
2. REC2	-5.0	-42.0	1.8
3. REC3	-13.0	-67.0	1.8
4. REC4	-18.0	-93.0	1.8
5. REC5	-22.0	-119.0	1.8
6. REC6	-30.0	-169.0	1.8
7. REC7	-38.0	-220.0	1.8
8. REC8	-47.0	-271.0	1.8
9. REC9	12.0	-20.0	1.8
10. REC10	35.0	-32.0	1.8
11. REC11	57.0	-44.0	1.8
12. REC12	80.0	-56.0	1.8
13. REC13	103.0	-68.0	1.8
14. REC14	148.0	-92.0	1.8
15. REC15	193.0	-116.0	1.8
16. REC16	21.0	-2.0	1.8
17. REC17	43.0	-14.0	1.8
18. REC18	65.0	-27.0	1.8
19. REC19	86.0	-42.0	1.8
20. REC20	109.0	-54.0	1.8
21. REC21	154.0	-78.0	1.8
22. REC22	199.0	-102.0	1.8
23. REC23	18.0	5.0	1.8
24. REC24	32.0	26.0	1.8
25. REC25	49.0	44.0	1.8
26. REC26	68.0	61.0	1.8
27. REC27	88.0	77.0	1.8
28. REC28	126.0	110.0	1.8
29. REC29	164.0	143.0	1.8
30. REC30	-15.0	18.0	1.8
31. REC31	7.0	31.0	1.8
32. REC32	22.0	48.0	1.8
33. REC33	39.0	66.0	1.8

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

DATE : 5/ 5/15
TIME : 9:37:46

RECEPTOR LOCATIONS

RECEPTOR	X	Y	Z
34. REC34	58.0	82.0	1.8
35. REC35	77.0	98.0	1.8
36. REC36	115.0	131.0	1.8
37. REC37	151.0	163.0	1.8
38. REC38	-39.0	26.0	1.8
39. REC39	-62.0	39.0	1.8
40. REC40	-85.0	52.0	1.8
41. REC41	-109.0	66.0	1.8
42. REC42	-132.0	78.0	1.8
43. REC43	-177.0	104.0	1.8
44. REC44	-25.0	-6.0	1.8
45. REC45	-45.0	9.0	1.8
46. REC46	-66.0	22.0	1.8
47. REC47	-88.0	35.0	1.8
48. REC48	-111.0	48.0	1.8
49. REC49	-134.0	61.0	1.8
50. REC50	-180.0	86.0	1.8
51. REC51	-27.0	-31.0	1.8
52. REC52	-35.0	-57.0	1.8
53. REC53	-41.0	-83.0	1.8
54. REC54	-45.0	-109.0	1.8
55. REC55	-53.0	-160.0	1.8
56. REC56	-61.0	-211.0	1.8
57. REC57	-70.0	-261.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

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.-360.

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.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
DEGR.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	120

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JOB: Morreene Rd_Towerview Rd and Erwin Rd   RUN: 2040 No-Build PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	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	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	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	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.1	0.0	0.1
140.	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	0.1	0.0	0.1
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	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
180.	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	0.1	0.1	0.1	0.1	0.0	0.0	0.0
190.	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	0.1	0.1	0.1	0.1	0.0	0.0	0.0
200.	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	0.1	0.1	0.1	0.1	0.0	0.0	0.0
210.	0.0	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	0.1	0.1	0.1	0.0	0.0	0.0
220.	0.0	0.0	0.0	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	0.1	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1
280.	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	0.1	0.1	0.1
290.	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	0.1	0.1	0.1
300.	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
DEGR.	130	280	0	0	0	0	0	0	0	0	60	170	50	50	50	50	70	130	270	130

PAGE 6

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

MODEL RESULTS

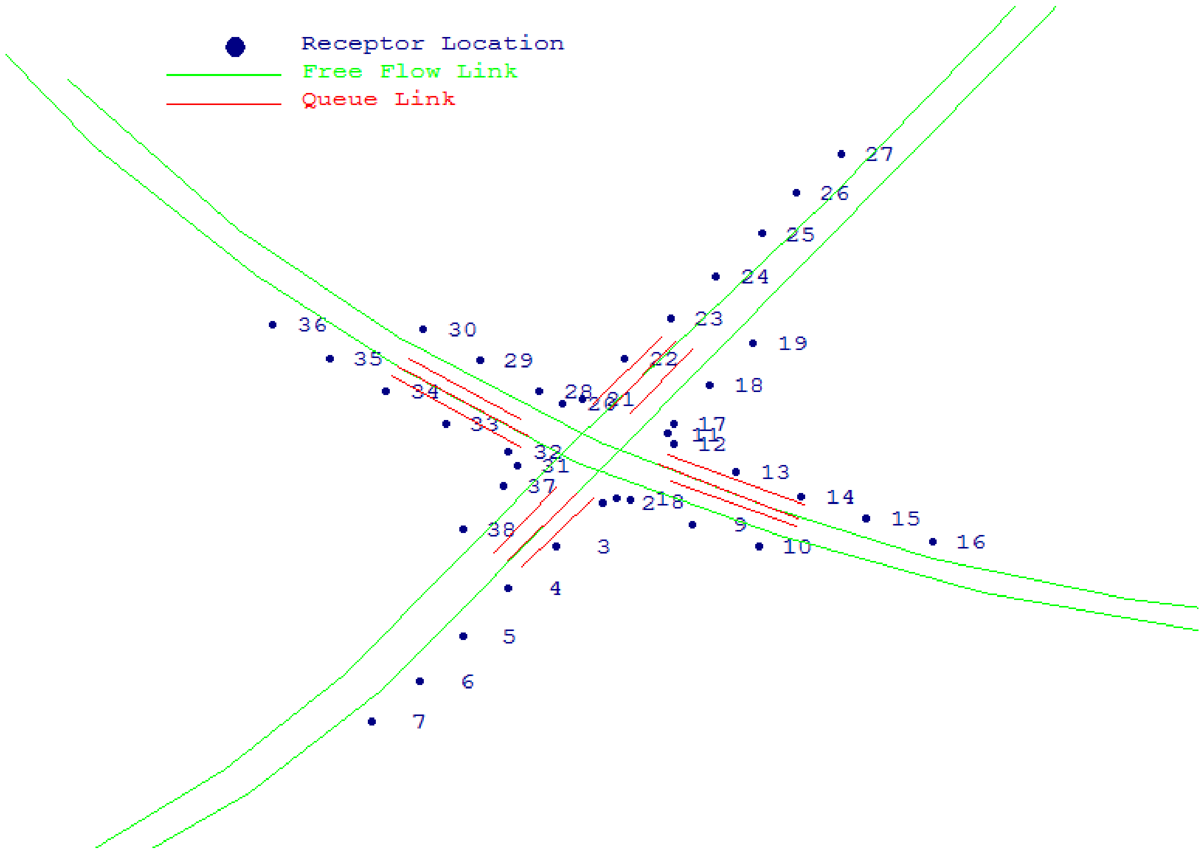
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	REC41	REC42	REC43	REC44	REC45	REC46	REC47	REC48	REC49	REC50	REC51	REC52	REC53	REC54	REC55	REC56	REC57
	CONCENTRATION (PPM)																
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	0.1	0.1	0.1
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	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
130.	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
140.	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
150.	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0
160.	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	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
270.	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
280.	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
290.	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
300.	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
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
DEGR.	130	120	120	0	0	0	0	0	0	0	160	40	150	30	20	10	20

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC56.

2040 PM No-Build University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway       ' 60. 108.0    0.00    0.00 38     1.0000 0 0
'REC1                   '       9.0       -22.0         1.8
'REC2                   '       4.0       -24.0         1.8
'REC3                   '     -12.0       -44.0         1.8
'REC4                   '     -29.0       -64.0         1.8
'REC5                   '     -45.0       -86.0         1.8
'REC6                   '     -60.0      -107.0         1.8
'REC7                   '     -77.0      -126.0         1.8
'REC8                   '      14.0       -23.0         1.8
'REC9                   '      36.0       -34.0         1.8
'REC10                  '      59.0       -44.0         1.8
'REC11                  '      27.0         8.0         1.8
'REC12                  '      29.0         3.0         1.8
'REC13                  '      51.0       -10.0         1.8
'REC14                  '      74.0       -21.0         1.8
'REC15                  '      97.0       -31.0         1.8
'REC16                  '     120.0       -42.0         1.8
'REC17                  '      29.0        13.0         1.8
'REC18                  '      42.0        31.0         1.8
'REC19                  '      57.0        50.0         1.8
'REC20                  '     -10.0        22.0         1.8
'REC21                  '      -3.0        24.0         1.8
'REC22                  '      12.0        43.0         1.8
'REC23                  '      28.0        62.0         1.8
'REC24                  '      44.0        81.0         1.8
'REC25                  '      60.0       101.0         1.8
'REC26                  '      72.0       120.0         1.8
'REC27                  '      88.0       138.0         1.8
'REC28                  '     -18.0        28.0         1.8
'REC29                  '     -39.0        42.0         1.8
'REC30                  '     -59.0        57.0         1.8
'REC31                  '     -26.0        -7.0         1.8
'REC32                  '     -29.0         0.0         1.8
'REC33                  '     -51.0        13.0         1.8
'REC34                  '     -72.0        28.0         1.8
'REC35                  '     -92.0        43.0         1.8
'REC36                  '    -112.0        59.0         1.8
'REC37                  '     -31.0       -16.0         1.8
'REC38                  '     -45.0       -36.0         1.8
'2040 No-Build PM Peak                    '  41    1   0 C
1
'NBA1                   ' 'AG'     528.0      -77.0      325.0      -84.0     779.   0.76      0.0  14.0
1
'NBA2                   ' 'AG'     325.0      -84.0      259.0      -80.0     779.   0.76      0.0  14.0
1
'NBA3                   ' 'AG'     259.0      -80.0      189.0      -69.0     779.   0.76      0.0  14.0
1
'NBA4                   ' 'AG'     189.0      -69.0      120.0      -50.0     779.   0.76      0.0  14.0
1
'NBA5                   ' 'AG'     120.0      -50.0       63.0      -26.0     779.   0.76      0.0  14.0
1
'NBA6                   ' 'AG'      63.0      -26.0        2.0        5.0     779.   0.76      0.0  14.0
1
'NBD1                   ' 'AG'       2.0        5.0      -68.0       53.0    1284.   1.16      0.0  14.0
1
'NBD2                   ' 'AG'     -68.0       53.0     -124.0      103.0    1284.   1.16      0.0  14.0
1
'NBD3                   ' 'AG'    -124.0      103.0     -184.0      173.0    1284.   1.16      0.0  14.0
2
'NBQ                    ' 'AG'      24.0       -6.0       73.0      -31.0      0.0    8.0  2
  150   104   2.0   388   1.31 3436 2 3
2
'NBLQ                   ' 'AG'      28.0      -14.0       72.0      -35.0      0.0    4.0  1
  150   128   2.0   128   1.31 1661 2 3
2
'NBRQ                   ' 'AG'      27.0       -2.0       75.0      -25.0      0.0    4.0  1
  150    73   2.0   263   1.31 1486 2 3
1
'SBA1                   ' 'AG'    -206.0      184.0     -174.0      141.0    1495.   0.41      0.0  14.0
1
'SBA2                   ' 'AG'    -174.0      141.0     -118.0       82.0    1495.   0.41      0.0  14.0
1
'SBA3                   ' 'AG'    -118.0       82.0      -66.0       38.0    1495.   0.41      0.0  14.0
1
'SBA4                   ' 'AG'     -66.0       38.0       -5.0       -5.0    1495.   0.41      0.0  14.0
```

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1
'SBD1                ' 'AG'      -5.0      -5.0      66.0     -39.0    1539.   0.71      0.0  14.0
1
'SBD2                ' 'AG'      66.0     -39.0     138.0     -66.0    1539.   0.71      0.0  14.0
1
'SBD3                ' 'AG'     138.0     -66.0     213.0     -83.0    1539.   0.71      0.0  14.0
1
'SBD4                ' 'AG'     213.0     -83.0     296.0     -93.0    1539.   0.71      0.0  14.0
1
'SBD5                ' 'AG'     296.0     -93.0     535.0     -87.0    1539.   0.71      0.0  14.0
2
'SBQ                 ' 'AG'     -22.0       7.0     -68.0      39.0      0.0   8.0  2
  150    97    2.0   852   1.31 3436 2 3
2
'SBLQ                ' 'AG'     -25.0      15.0     -64.0      43.0      0.0   4.0  1
  150   121    2.0   302   1.31 1718 2 3
2
'SBRQ                ' 'AG'     -25.0       2.0     -70.0      35.0      0.0   4.0  1
  150    68    2.0   341   1.31 1537 2 3
1
'EBA1                ' 'AG'    -253.0    -245.0    -188.0    -210.0    1494.   1.40      0.0  14.0
1
'EBA2                ' 'AG'    -188.0    -210.0    -120.0    -159.0    1494.   1.40      0.0  14.0
1
'EBA3                ' 'AG'    -120.0    -159.0     -74.0    -111.0    1494.   1.40      0.0  14.0
1
'EBA4                ' 'AG'     -74.0    -111.0       7.0      -4.0    1494.   1.40      0.0  14.0
1
'EBD                 ' 'AG'       7.0      -4.0     180.0     229.0    1264.   0.63      0.0  14.0
2
'EBQ                 ' 'AG'      -5.0     -20.0     -29.0     -51.0      0.0   8.0  2
  150   106    2.0   699   1.31 3436 2 3
2
'EBLQ                ' 'AG'     -12.0     -17.0     -34.0     -47.0      0.0   8.0  2
  150   121    2.0   620   1.31 3333 2 3
2
'EBRQ                ' 'AG'       1.0     -22.0     -24.0     -54.0      0.0   4.0  1
  150    84    2.0   175   1.31 1537 2 3
1
'WBA1                ' 'AG'     170.0     235.0      84.0     118.0    1542.   0.94      0.0  14.0
1
'WBA2                ' 'AG'      84.0     118.0      -6.0       4.0    1542.   0.94      0.0  14.0
1
'WBD1                ' 'AG'      -6.0       4.0     -87.0    -104.0    1223.   0.43      0.0  14.0
1
'WBD2                ' 'AG'     -87.0    -104.0    -129.0    -148.0    1223.   0.43      0.0  14.0
1
'WBD3                ' 'AG'    -129.0    -148.0    -180.0    -189.0    1223.   0.43      0.0  14.0
1
'WBD4                ' 'AG'    -180.0    -189.0    -258.0    -235.0    1223.   0.43      0.0  14.0
2
'WBQ                 ' 'AG'       7.0      20.0      30.0      51.0      0.0   8.0  2
  150   104    2.0   754   1.31 3436 2 3
2
'WBQL                ' 'AG'      14.0      18.0      36.0      47.0      0.0   8.0  2
  150   119    2.0   512   1.31 3333 2 3
2
'WBQR                ' 'AG'       1.0      22.0      25.0      53.0      0.0   4.0  1
  150    75    2.0   276   1.31 1537 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0  36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                  PAGE  1

      JOB: University Drive and Martin Luther King Jr.  Parkway              RUN: 2040 No-Build PM Peak

      DATE :  3/25/15
      TIME : 17:41:35

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
```

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	528.0	-77.0	325.0	-84.0	203.	268.	AG	779.	0.8	0.0	14.0		
2. NBA2	325.0	-84.0	259.0	-80.0	66.	273.	AG	779.	0.8	0.0	14.0		
3. NBA3	259.0	-80.0	189.0	-69.0	71.	279.	AG	779.	0.8	0.0	14.0		
4. NBA4	189.0	-69.0	120.0	-50.0	72.	285.	AG	779.	0.8	0.0	14.0		
5. NBA5	120.0	-50.0	63.0	-26.0	62.	293.	AG	779.	0.8	0.0	14.0		
6. NBA6	63.0	-26.0	2.0	5.0	68.	297.	AG	779.	0.8	0.0	14.0		
7. NBD1	2.0	5.0	-68.0	53.0	85.	304.	AG	1284.	1.2	0.0	14.0		
8. NBD2	-68.0	53.0	-124.0	103.0	75.	312.	AG	1284.	1.2	0.0	14.0		
9. NBD3	-124.0	103.0	-184.0	173.0	92.	319.	AG	1284.	1.2	0.0	14.0		
10. NBQ	24.0	-6.0	54.0	-21.3	34.	117.	AG	5.	100.0	0.0	8.0	0.20	5.6
11. NBLQ	28.0	-14.0	52.6	-25.8	27.	116.	AG	3.	100.0	0.0	4.0	0.64	4.6
12. NBRQ	27.0	-2.0	55.9	-15.8	32.	116.	AG	2.	100.0	0.0	4.0	0.36	5.3
13. SBA1	-206.0	184.0	-174.0	141.0	54.	143.	AG	1495.	0.4	0.0	14.0		
14. SBA2	-174.0	141.0	-118.0	82.0	81.	136.	AG	1495.	0.4	0.0	14.0		
15. SBA3	-118.0	82.0	-66.0	38.0	68.	130.	AG	1495.	0.4	0.0	14.0		
16. SBA4	-66.0	38.0	-5.0	-5.0	75.	125.	AG	1495.	0.4	0.0	14.0		
17. SBD1	-5.0	-5.0	66.0	-39.0	79.	116.	AG	1539.	0.7	0.0	14.0		
18. SBD2	66.0	-39.0	138.0	-66.0	77.	111.	AG	1539.	0.7	0.0	14.0		
19. SBD3	138.0	-66.0	213.0	-83.0	77.	103.	AG	1539.	0.7	0.0	14.0		
20. SBD4	213.0	-83.0	296.0	-93.0	84.	97.	AG	1539.	0.7	0.0	14.0		
21. SBD5	296.0	-93.0	535.0	-87.0	239.	89.	AG	1539.	0.7	0.0	14.0		
22. SBQ	-22.0	7.0	-78.5	46.3	69.	305.	AG	5.	100.0	0.0	8.0	0.38	11.5
23. SBLQ	-25.0	15.0	-128.0	88.9	127.	306.	AG	3.	100.0	0.0	4.0	1.06	21.1
24. SBRQ	-25.0	2.0	-56.2	24.9	39.	306.	AG	2.	100.0	0.0	4.0	0.43	6.4
25. EBA1	-253.0	-245.0	-188.0	-210.0	74.	62.	AG	1494.	1.4	0.0	14.0		
26. EBA2	-188.0	-210.0	-120.0	-159.0	85.	53.	AG	1494.	1.4	0.0	14.0		
27. EBA3	-120.0	-159.0	-74.0	-111.0	66.	44.	AG	1494.	1.4	0.0	14.0		
28. EBA4	-74.0	-111.0	7.0	-4.0	134.	37.	AG	1494.	1.4	0.0	14.0		
29. EBD	7.0	-4.0	180.0	229.0	290.	37.	AG	1264.	0.6	0.0	14.0		
30. EBQ	-5.0	-20.0	-42.7	-68.8	62.	218.	AG	5.	100.0	0.0	8.0	0.38	10.3
31. EBLQ	-12.0	-17.0	-49.0	-67.4	63.	216.	AG	6.	100.0	0.0	8.0	0.56	10.4
32. EBRQ	1.0	-22.0	-14.1	-41.3	25.	218.	AG	2.	100.0	0.0	4.0	0.28	4.1
33. WBA1	170.0	235.0	84.0	118.0	145.	216.	AG	1542.	0.9	0.0	14.0		
34. WBA2	84.0	118.0	-6.0	4.0	145.	218.	AG	1542.	0.9	0.0	14.0		
35. WBD1	-6.0	4.0	-87.0	-104.0	135.	217.	AG	1223.	0.4	0.0	14.0		
36. WBD2	-87.0	-104.0	-129.0	-148.0	61.	224.	AG	1223.	0.4	0.0	14.0		
37. WBD3	-129.0	-148.0	-180.0	-189.0	65.	231.	AG	1223.	0.4	0.0	14.0		
38. WBD4	-180.0	-189.0	-258.0	-235.0	91.	239.	AG	1223.	0.4	0.0	14.0		
39. WBQ	7.0	20.0	45.9	72.5	65.	37.	AG	5.	100.0	0.0	8.0	0.39	10.9
40. WBQL	14.0	18.0	44.7	58.5	51.	37.	AG	6.	100.0	0.0	8.0	0.43	8.5
41. WBQR	1.0	22.0	22.1	49.3	34.	38.	AG	2.	100.0	0.0	4.0	0.38	5.8

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build PM Peak

DATE : 3/25/15
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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
10. NBQ	150	104	2.0	388	3436	1.31	2	3
11. NBLQ	150	128	2.0	128	1661	1.31	2	3
12. NBRQ	150	73	2.0	263	1486	1.31	2	3
22. SBQ	150	97	2.0	852	3436	1.31	2	3
23. SBLQ	150	121	2.0	302	1718	1.31	2	3
24. SBRQ	150	68	2.0	341	1537	1.31	2	3
30. EBQ	150	106	2.0	699	3436	1.31	2	3
31. EBLQ	150	121	2.0	620	3333	1.31	2	3
32. EBRQ	150	84	2.0	175	1537	1.31	2	3
39. WBQ	150	104	2.0	754	3436	1.31	2	3
40. WBQL	150	119	2.0	512	3333	1.31	2	3
41. WBQR	150	75	2.0	276	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	9.0	-22.0	1.8
2. REC2	4.0	-24.0	1.8
3. REC3	-12.0	-44.0	1.8
4. REC4	-29.0	-64.0	1.8
5. REC5	-45.0	-86.0	1.8
6. REC6	-60.0	-107.0	1.8
7. REC7	-77.0	-126.0	1.8
8. REC8	14.0	-23.0	1.8
9. REC9	36.0	-34.0	1.8
10. REC10	59.0	-44.0	1.8
11. REC11	27.0	8.0	1.8
12. REC12	29.0	3.0	1.8
13. REC13	51.0	-10.0	1.8
14. REC14	74.0	-21.0	1.8
15. REC15	97.0	-31.0	1.8
16. REC16	120.0	-42.0	1.8
17. REC17	29.0	13.0	1.8
18. REC18	42.0	31.0	1.8
19. REC19	57.0	50.0	1.8
20. REC20	-10.0	22.0	1.8
21. REC21	-3.0	24.0	1.8
22. REC22	12.0	43.0	1.8
23. REC23	28.0	62.0	1.8
24. REC24	44.0	81.0	1.8
25. REC25	60.0	101.0	1.8
26. REC26	72.0	120.0	1.8
27. REC27	88.0	138.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	42.0	1.8
30. REC30	-59.0	57.0	1.8
31. REC31	-26.0	-7.0	1.8
32. REC32	-29.0	0.0	1.8
33. REC33	-51.0	13.0	1.8

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build PM Peak

DATE : 3/25/15
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RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
34. REC34	-72.0	28.0	1.8
35. REC35	-92.0	43.0	1.8
36. REC36	-112.0	59.0	1.8
37. REC37	-31.0	-16.0	1.8
38. REC38	-45.0	-36.0	1.8

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.1	0.1	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
10.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.1	0.1	0.1	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
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.1	0.1	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	0.1	0.0	0.0	0.0
230.	0.1	0.1	0.1	0.1	0.1	0.1	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
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.1	0.1	0.1	0.1	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	0.1
260.	0.1	0.1	0.1	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	0.1
270.	0.1	0.1	0.1	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	0.1
280.	0.1	0.1	0.1	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	0.1
290.	0.1	0.1	0.1	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	0.1
300.	0.1	0.1	0.1	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	0.1
310.	0.1	0.1	0.1	0.1	0.1	0.1	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
320.	0.1	0.1	0.1	0.1	0.1	0.1	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
330.	0.0	0.1	0.1	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
340.	0.0	0.1	0.1	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
350.	0.0	0.1	0.1	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
360.	0.0	0.1	0.1	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
MAX	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
DEGR.	230	0	0	0	0	0	0	240	0	310	220	230	0	0	0	0	220	0	0	150

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 No-Build PM Peak

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.

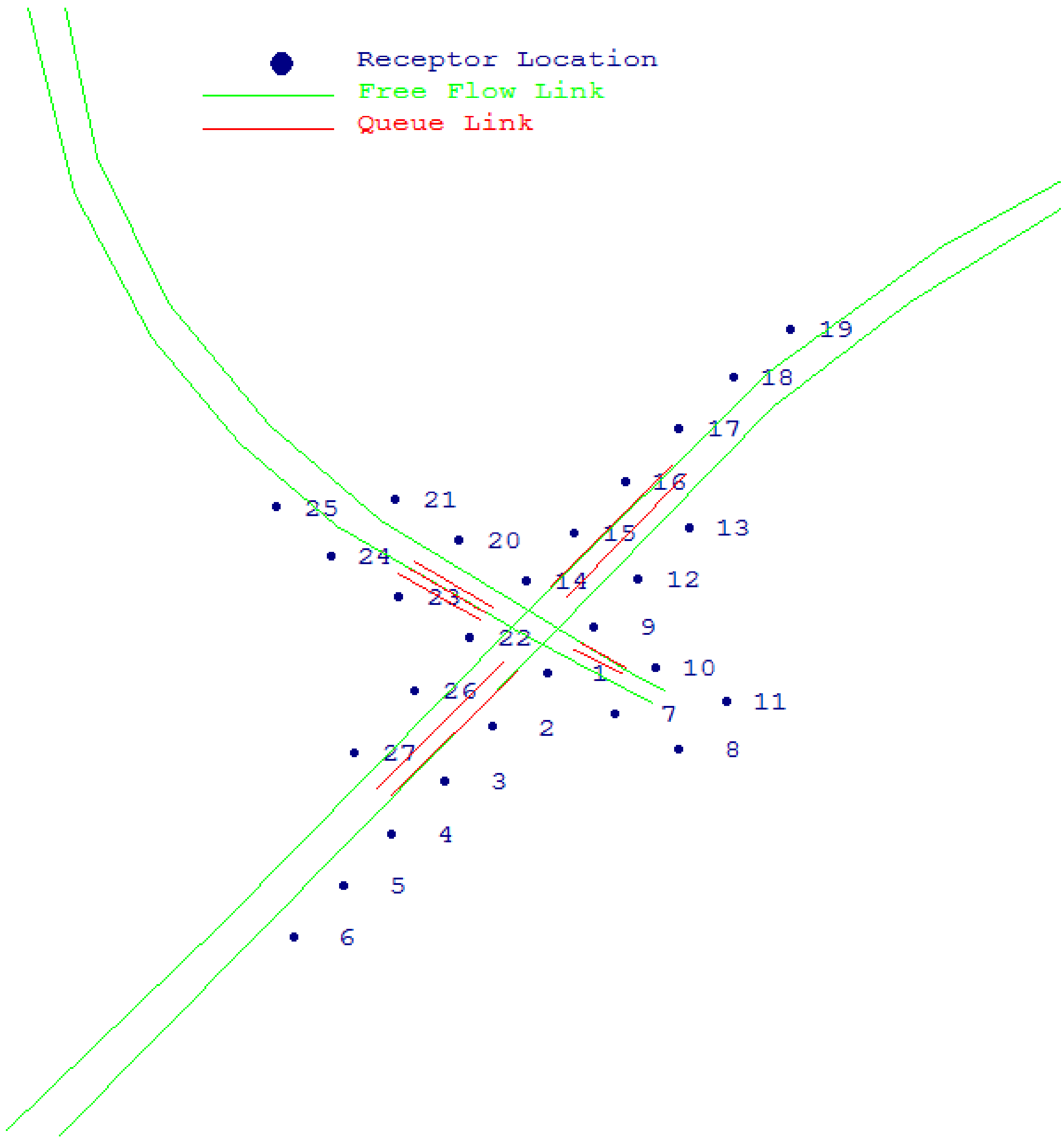
WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	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
50.	0.1	0.1	0.1	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
60.	0.1	0.1	0.1	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
70.	0.1	0.1	0.1	0.1	0.1	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
80.	0.0	0.0	0.1	0.1	0.1	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
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.1	0.1	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
180.	0.0	0.0	0.1	0.1	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
190.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	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	0.0	0.0	0.0	0.0
260.	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	0.0	0.0	0.0	0.0
270.	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	0.0	0.0	0.0	0.0
280.	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	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	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	0.0	0.0	0.0	0.0
DEGR.	50	50	50	50	70	50	40	140	130	130	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 PM No-Build University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive      '  60. 108.0    0.00    0.00 27     1.0000 0 0
'REC1                    '        4.0       -18.0        1.8
'REC2                    '      -12.0       -39.0        1.8
'REC3                    '      -26.0       -60.0        1.8
'REC4                    '      -42.0       -81.0        1.8
'REC5                    '      -56.0      -101.0        1.8
'REC6                    '      -71.0      -121.0        1.8
'REC7                    '       24.0       -34.0        1.8
'REC8                    '       43.0       -48.0        1.8
'REC9                    '       18.0         0.0        1.8
'REC10                   '       36.0       -16.0        1.8
'REC11                   '       57.0       -29.0        1.8
'REC12                   '       31.0        19.0        1.8
'REC13                   '       46.0        39.0        1.8
'REC14                   '       -2.0        18.0        1.8
'REC15                   '       12.0        37.0        1.8
'REC16                   '       27.0        57.0        1.8
'REC17                   '       43.0        78.0        1.8
'REC18                   '       59.0        98.0        1.8
'REC19                   '       76.0       117.0        1.8
'REC20                   '      -22.0        34.0        1.8
'REC21                   '      -41.0        50.0        1.8
'REC22                   '      -19.0        -4.0        1.8
'REC23                   '      -40.0        12.0        1.8
'REC24                   '      -60.0        28.0        1.8
'REC25                   '      -76.0        47.0        1.8
'REC26                   '      -35.0       -25.0        1.8
'REC27                   '      -53.0       -49.0        1.8
'2040 No-Build PM Peak                    '  37    1   0 C
1
'NBA1                    ' 'AG'       39.0      -25.0       29.0      -18.0       94.   0.94      0.0  10.0
1
'NBA2                    ' 'AG'       29.0      -18.0        3.0        3.0       94.   0.94      0.0  10.0
1
'NBD1                    ' 'AG'        3.0        3.0      -45.0       42.0     1048.   0.76      0.0  14.0
1
'NBD2                    ' 'AG'      -45.0       42.0      -78.0       79.0     1048.   0.76      0.0  14.0
1
'NBD3                    ' 'AG'      -78.0       79.0     -108.0      127.0     1048.   0.76      0.0  14.0
1
'NBD4                    ' 'AG'     -108.0      127.0     -129.0      184.0     1048.   0.76      0.0  14.0
1
'NBD5                    ' 'AG'     -129.0      184.0     -140.0      253.0     1048.   0.76      0.0  14.0
2
'NBQ                     ' 'AG'       14.0       -6.0       27.0      -16.0       0.0    4.0  1
  150    117    2.0     79    1.31 1720 2 3
2
'NBLQ                    ' 'AG'       12.0       -9.0       26.0      -18.0       0.0    4.0  1
  150    117    2.0     15    1.31 1273 2 3
1
'SBA1                    ' 'AG'     -151.0      251.0     -136.0      170.0     1079.   0.76      0.0  14.0
1
'SBA2                    ' 'AG'     -136.0      170.0     -113.0      113.0     1079.   0.76      0.0  14.0
1
'SBA3                    ' 'AG'     -113.0      113.0      -87.0       72.0     1079.   0.76      0.0  14.0
1
'SBA4                    ' 'AG'      -87.0       72.0      -58.0       40.0     1079.   0.76      0.0  14.0
1
'SBA5                    ' 'AG'      -58.0       40.0       -2.0       -3.0     1079.   0.76      0.0  10.0
1
'SBD                     ' 'AG'       -2.0       -3.0       35.0      -30.0      133.   0.63      0.0  10.0
2
'SBQ                     ' 'AG'      -14.0        6.0      -37.0       23.0       0.0    4.0  1
  150     83    2.0     73    1.31 1809 2 3
2
'SBLQ                    ' 'AG'      -12.0        8.0      -35.0       26.0       0.0    4.0  1
  150    116    2.0    516    1.31 1661 2 3
2
'SBRQ                    ' 'AG'      -16.0        3.0      -40.0       21.0       0.0    4.0  1
  150     52    2.0    490    1.31 1537 2 3
1
'EBA                     ' 'AG'     -169.0     -238.0        4.0       -5.0      965.   0.76      0.0  14.0
1
'EBD1                    ' 'AG'        4.0       -5.0       71.0       86.0     1015.   1.71      0.0  14.0
1
```

```
'EBD2                ' 'AG'      71.0      86.0     111.0     127.0   1015.   1.71      0.0  14.0
1
'EBD3                ' 'AG'     111.0     127.0     158.0     165.0   1015.   1.71      0.0  14.0
1
'EBD4                ' 'AG'     158.0     165.0     224.0     203.0   1015.   1.71      0.0  14.0
1
'EBD5                ' 'AG'     224.0     203.0     283.0     226.0   1015.   1.71      0.0  14.0
1
'EBD6                ' 'AG'     283.0     226.0     386.0     252.0   1015.   1.71      0.0  14.0
2
'EBQ                 ' 'AG'      -5.0     -17.0     -42.0     -66.0     0.0   8.0  2
  150    67   2.0   489   1.31 3419 2 3
2
'EBLQ                ' 'AG'      -9.0     -14.0     -46.0     -63.0     0.0   4.0  1
  150   119   2.0   476   1.31 1718 2 3
1
'WBA1                ' 'AG'     385.0     264.0     265.0     231.0   1233.   0.37      0.0  14.0
1
'WBA2                ' 'AG'     265.0     231.0     219.0     211.0   1233.   0.37      0.0  14.0
1
'WBA3                ' 'AG'     219.0     211.0     170.0     185.0   1233.   0.37      0.0  14.0
1
'WBA4                ' 'AG'     170.0     185.0     121.0     149.0   1233.   0.37      0.0  14.0
1
'WBA5                ' 'AG'     121.0     149.0      70.0     100.0   1233.   0.37      0.0  14.0
1
'WBA6                ' 'AG'      70.0     100.0      -5.0       2.0   1233.   0.37      0.0  14.0
1
'WBD1                ' 'AG'      -5.0       2.0     -92.0    -116.0   1175.   0.76      0.0  14.0
1
'WBD2                ' 'AG'     -92.0    -116.0    -182.0    -230.0   1175.   0.76      0.0  14.0
2
'WBQ                 ' 'AG'       5.0      16.0      41.0      63.0     0.0   8.0  2
  150    98   2.0  1189   1.31 3210 2 3
2
'WBQL                ' 'AG'      10.0      12.0      45.0      60.0     0.0   4.0  1
  150    98   2.0    44   1.31  812 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: University Drive and Westgate Drive                  RUN: 2040 No-Build PM Peak

      DATE :  3/26/15
      TIME :  6:31:40

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *          LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2     *    (M)   (DEG)           (G/MI)   (M)  (M)        (VEH)
      ------------------------*----------------------------------------*---------------------------------------------------------
-
       1. NBA1                *     39.0     -25.0      29.0     -18.0 *     12.   305. AG     94.   0.9    0.0 10.0
       2. NBA2                *     29.0     -18.0       3.0       3.0 *     33.   309. AG     94.   0.9    0.0 10.0
       3. NBD1                *      3.0       3.0     -45.0      42.0 *     62.   309. AG   1048.   0.8    0.0 14.0
       4. NBD2                *    -45.0      42.0     -78.0      79.0 *     50.   318. AG   1048.   0.8    0.0 14.0
       5. NBD3                *    -78.0      79.0    -108.0     127.0 *     57.   328. AG   1048.   0.8    0.0 14.0
       6. NBD4                *   -108.0     127.0    -129.0     184.0 *     61.   340. AG   1048.   0.8    0.0 14.0
       7. NBD5                *   -129.0     184.0    -140.0     253.0 *     70.   351. AG   1048.   0.8    0.0 14.0
       8. NBQ                 *     14.0      -6.0      26.2     -15.4 *     15.   128. AG      3. 100.0    0.0  4.0 0.24   2.6
       9. NBLQ                *     12.0      -9.0      14.5     -10.6 *      3.   123. AG      3. 100.0    0.0  4.0 0.06   0.5
      10. SBA1                *   -151.0     251.0    -136.0     170.0 *     82.   170. AG   1079.   0.8    0.0 14.0
      11. SBA2                *   -136.0     170.0    -113.0     113.0 *     61.   158. AG   1079.   0.8    0.0 14.0
      12. SBA3                *   -113.0     113.0     -87.0      72.0 *     49.   148. AG   1079.   0.8    0.0 14.0
      13. SBA4                *    -87.0      72.0     -58.0      40.0 *     43.   138. AG   1079.   0.8    0.0 14.0
      14. SBA5                *    -58.0      40.0      -2.0      -3.0 *     71.   128. AG   1079.   0.8    0.0 10.0
      15. SBD                 *     -2.0      -3.0      35.0     -30.0 *     46.   126. AG    133.   0.6    0.0 10.0
      16. SBQ                 *    -14.0       6.0     -22.1      12.0 *     10.   306. AG      2. 100.0    0.0  4.0 0.10   1.7
      17. SBLQ                *    -12.0       8.0    -547.4     427.0 *    680.   308. AG      3. 100.0    0.0  4.0 1.55 113.3
      18. SBRQ                *    -16.0       3.0     -50.0      28.5 *     42.   307. AG      1. 100.0    0.0  4.0 0.51   7.1
      19. EBA                 *   -169.0    -238.0       4.0      -5.0 *    290.    37. AG    965.   0.8    0.0 14.0
      20. EBD1                *      4.0      -5.0      71.0      86.0 *    113.    36. AG   1015.   1.7    0.0 14.0
      21. EBD2                *     71.0      86.0     111.0     127.0 *     57.    44. AG   1015.   1.7    0.0 14.0
      22. EBD3                *    111.0     127.0     158.0     165.0 *     60.    51. AG   1015.   1.7    0.0 14.0
      23. EBD4                *    158.0     165.0     224.0     203.0 *     76.    60. AG   1015.   1.7    0.0 14.0
      24. EBD5                *    224.0     203.0     283.0     226.0 *     63.    69. AG   1015.   1.7    0.0 14.0
      25. EBD6                *    283.0     226.0     386.0     252.0 *    106.    76. AG   1015.   1.7    0.0 14.0
      26. EBQ                 *     -5.0     -17.0     -21.4     -38.7 *     27.   217. AG      3. 100.0    0.0  8.0 0.14   4.5
      27. EBLQ                *     -9.0     -14.0    -384.0    -510.7 *    622.   217. AG      3. 100.0    0.0  4.0 1.54 103.7
      28. WBA1                *    385.0     264.0     265.0     231.0 *    124.   255. AG   1233.   0.4    0.0 14.0
      29. WBA2                *    265.0     231.0     219.0     211.0 *     50.   247. AG   1233.   0.4    0.0 14.0
      30. WBA3                *    219.0     211.0     170.0     185.0 *     55.   242. AG   1233.   0.4    0.0 14.0
      31. WBA4                *    170.0     185.0     121.0     149.0 *     61.   234. AG   1233.   0.4    0.0 14.0
      32. WBA5                *    121.0     149.0      70.0     100.0 *     71.   226. AG   1233.   0.4    0.0 14.0
      33. WBA6                *     70.0     100.0      -5.0       2.0 *    123.   217. AG   1233.   0.4    0.0 14.0
      34. WBD1                *     -5.0       2.0     -92.0    -116.0 *    147.   216. AG   1175.   0.8    0.0 14.0
      35. WBD2                *    -92.0    -116.0    -182.0    -230.0 *    145.   218. AG   1175.   0.8    0.0 14.0
      36. WBQ                 *      5.0      16.0      64.0      93.0 *     97.    37. AG      5. 100.0    0.0  8.0 0.58  16.2
      37. WBQL                *     10.0      12.0      14.2      17.8 *      7.    36. AG      2. 100.0    0.0  4.0 0.17   1.2
```

JOB: University Drive and Westgate Drive RUN: 2040 No-Build PM Peak

DATE : 3/26/15
TIME : 6:31:40

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
8. NBQ	150	117	2.0	79	1720	1.31	2	3
9. NBLQ	150	117	2.0	15	1273	1.31	2	3
16. SBQ	150	83	2.0	73	1809	1.31	2	3
17. SBLQ	150	116	2.0	516	1661	1.31	2	3
18. SBRQ	150	52	2.0	490	1537	1.31	2	3
26. EBQ	150	67	2.0	489	3419	1.31	2	3
27. EBLQ	150	119	2.0	476	1718	1.31	2	3
36. WBQ	150	98	2.0	1189	3210	1.31	2	3
37. WBQL	150	98	2.0	44	812	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	4.0	-18.0	1.8
2. REC2	-12.0	-39.0	1.8
3. REC3	-26.0	-60.0	1.8
4. REC4	-42.0	-81.0	1.8
5. REC5	-56.0	-101.0	1.8
6. REC6	-71.0	-121.0	1.8
7. REC7	24.0	-34.0	1.8
8. REC8	43.0	-48.0	1.8
9. REC9	18.0	0.0	1.8
10. REC10	36.0	-16.0	1.8
11. REC11	57.0	-29.0	1.8
12. REC12	31.0	19.0	1.8
13. REC13	46.0	39.0	1.8
14. REC14	-2.0	18.0	1.8
15. REC15	12.0	37.0	1.8
16. REC16	27.0	57.0	1.8
17. REC17	43.0	78.0	1.8
18. REC18	59.0	98.0	1.8
19. REC19	76.0	117.0	1.8
20. REC20	-22.0	34.0	1.8
21. REC21	-41.0	50.0	1.8
22. REC22	-19.0	-4.0	1.8
23. REC23	-40.0	12.0	1.8
24. REC24	-60.0	28.0	1.8
25. REC25	-76.0	47.0	1.8
26. REC26	-35.0	-25.0	1.8
27. REC27	-53.0	-49.0	1.8

PAGE 3

JOB: University Drive and Westgate Drive RUN: 2040 No-Build PM Peak

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.-360.

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	CONCENTRATION (PPM)																			
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	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	0.0	0.0
230.	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	0.0	0.0
240.	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	0.0	0.0
250.	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	0.0	0.0
260.	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	0.0	0.0
270.	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	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

JOB: University Drive and Westgate Drive RUN: 2040 No-Build PM Peak

MODEL RESULTS

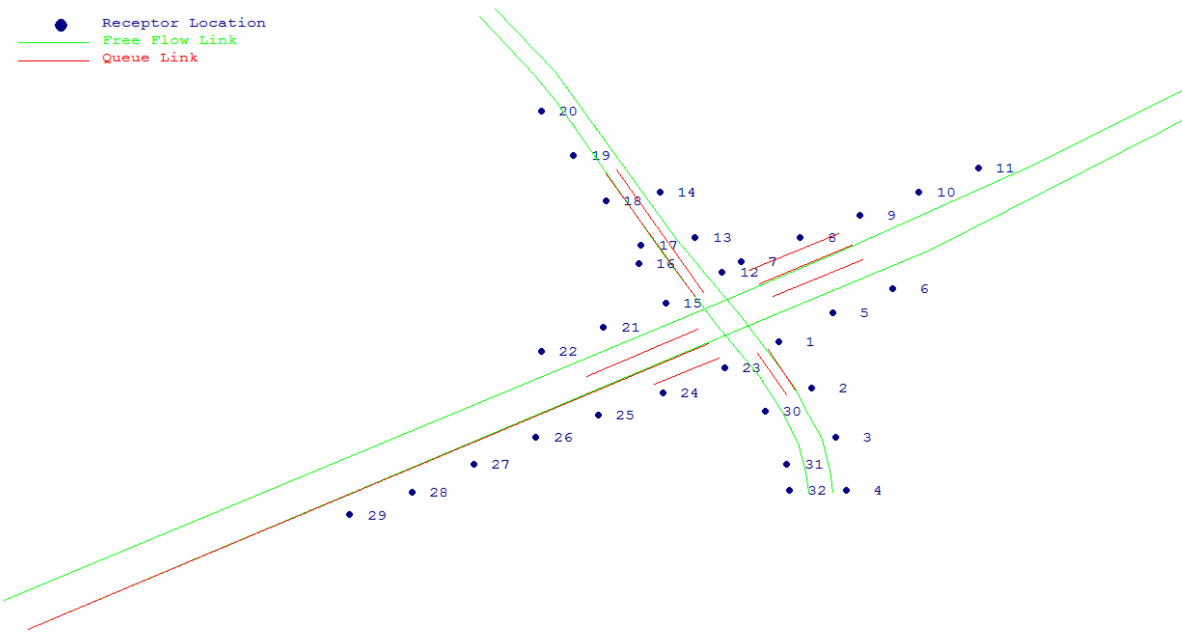
REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27
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
20.	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
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	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
80.	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
100.	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
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC9 .

2040 PM No-Build Falconbridge Road and NC 54



CAL3QHC Input File

```
'Falconbridge Road and NC54             ' 60. 108.0    0.00    0.00 32     1.0000 0 0
'REC1                    '       19.0      -10.0         1.8
'REC2                    '       31.0      -33.0         1.8
'REC3                    '       40.0      -57.0         1.8
'REC4                    '       44.0      -83.0         1.8
'REC5                    '       39.0        4.0         1.8
'REC6                    '       61.0       16.0         1.8
'REC7                    '        5.0       29.0         1.8
'REC8                    '       27.0       41.0         1.8
'REC9                    '       49.0       52.0         1.8
'REC10                   '       71.0       63.0         1.8
'REC11                   '       93.0       75.0         1.8
'REC12                   '       -2.0       24.0         1.8
'REC13                   '      -12.0       41.0         1.8
'REC14                   '      -25.0       63.0         1.8
'REC15                   '      -23.0        9.0         1.8
'REC16                   '      -33.0       28.0         1.8
'REC17                   '      -32.0       37.0         1.8
'REC18                   '      -45.0       59.0         1.8
'REC19                   '      -57.0       81.0         1.8
'REC20                   '      -69.0      103.0         1.8
'REC21                   '      -46.0       -3.0         1.8
'REC22                   '      -69.0      -15.0         1.8
'REC23                   '       -1.0      -23.0         1.8
'REC24                   '      -24.0      -35.0         1.8
'REC25                   '      -48.0      -46.0         1.8
'REC26                   '      -71.0      -57.0         1.8
'REC27                   '      -94.0      -70.0         1.8
'REC28                   '     -117.0      -84.0         1.8
'REC29                   '     -140.0      -95.0         1.8
'REC30                   '       14.0      -44.0         1.8
'REC31                   '       22.0      -70.0         1.8
'REC32                   '       23.0      -83.0         1.8
'2040 No-Build PM Peak                  '  36    1   0 C
1
'NBA1                    ' 'AG'      39.0      -84.0       38.0       -73.0     248.   0.81      0.0  10.0
1
'NBA2                    ' 'AG'      38.0      -73.0       35.0       -58.0     248.   0.81      0.0  10.0
1
'NBA3                    ' 'AG'      35.0      -58.0       30.0       -46.0     248.   0.81      0.0  10.0
1
'NBA4                    ' 'AG'      30.0      -46.0       25.0       -33.0     248.   0.81      0.0  10.0
1
'NBA5                    ' 'AG'      25.0      -33.0        5.0         2.0     248.   0.81      0.0  10.0
1
'NBD1                    ' 'AG'       5.0        2.0      -19.0        40.0    1117.   0.81      0.0  10.0
1
'NBD2                    ' 'AG'     -19.0       40.0      -64.0       122.0    1117.   0.81      0.0  10.0
1
'NBD3                    ' 'AG'     -64.0      122.0      -86.0       153.0    1117.   0.81      0.0  10.0
2
'NBQ                     ' 'AG'      15.0      -14.0       25.0       -34.0       0.0   4.0  1
  180   170   2.0   175   1.31 1765 2 3
2
'NBLQ                    ' 'AG'      11.0      -16.0       22.0       -36.0       0.0   4.0  1
  180   162   2.0    73   1.31 1676 2 3
1
'SBA1                    ' 'AG'     -92.0      149.0      -71.0       120.0     787.   0.81      0.0  10.0
1
'SBA2                    ' 'AG'     -71.0      120.0      -62.0       105.0     787.   0.81      0.0  10.0
1
'SBA3                    ' 'AG'     -62.0      105.0      -24.0        33.0     787.   0.81      0.0  10.0
1
'SBA4                    ' 'AG'     -24.0       33.0       -4.0        -2.0     787.   0.81      0.0  10.0
1
'SBD1                    ' 'AG'      -4.0       -2.0       12.0       -27.0    1345.   0.81      0.0  10.0
1
'SBD2                    ' 'AG'      12.0      -27.0       20.0       -44.0    1345.   0.81      0.0  10.0
1
'SBD3                    ' 'AG'      20.0      -44.0       26.0       -60.0    1345.   0.81      0.0  10.0
1
'SBD4                    ' 'AG'      26.0      -60.0       29.0       -74.0    1345.   0.81      0.0  10.0
1
'SBD5                    ' 'AG'      29.0      -74.0       30.0       -84.0    1345.   0.81      0.0  10.0
2
```

```
'SBQ                ' 'AG'     -12.0      12.0      -45.0      72.0      0.0   4.0  1
  180   160   2.0   289   1.31 1765 2 3
2
'SBLQ               ' 'AG'      -9.0      14.0      -41.0      74.0      0.0   8.0  2
  180   152   2.0   498   1.31 3252 2 3
1
'EBA                ' 'AG'    -259.0    -151.0        3.0      -5.0   4258.   0.81       0.0  18.0
1
'EBD1               ' 'AG'       3.0      -5.0       75.0      35.0   4150.   0.81       0.0  18.0
1
'EBD2               ' 'AG'      75.0      35.0      161.0      93.0   4150.   0.81       0.0  18.0
1
'EBD3               ' 'AG'     161.0      93.0      252.0     159.0   4150.   0.81       0.0  18.0
2
'EBQ                ' 'AG'      -7.0     -11.0     -259.0    -151.0      0.0  12.0  3
  180    93   2.0  3493   1.31 4818 2 3
2
'EBLQ               ' 'AG'     -11.0      -4.0      -52.0     -27.0      0.0   4.0  1
  180   145   2.0   353   1.31 1676 2 3
2
'EBRQ               ' 'AG'      -3.0     -18.0      -27.0     -31.0      0.0   4.0  1
  180    75   2.0   412   1.31 1500 2 3
1
'WBA1               ' 'AG'     244.0     169.0      184.0     123.0   5003.   0.81       0.0  18.0
1
'WBA2               ' 'AG'     184.0     123.0      111.0      75.0   5003.   0.81       0.0  18.0
1
'WBA3               ' 'AG'     111.0      75.0       43.0      35.0   5003.   0.81       0.0  18.0
1
'WBA4               ' 'AG'      43.0      35.0       -5.0       8.0   5003.   0.81       0.0  18.0
1
'WBD                ' 'AG'      -5.0       8.0     -268.0    -137.0   3684.   0.81       0.0  18.0
2
'WBQ                ' 'AG'      12.0      18.0       46.0      37.0      0.0  12.0  3
  180    73   2.0  3381   1.31 4818 2 3
2
'WBLQ               ' 'AG'      17.0      12.0       50.0      30.0      0.0   4.0  1
  180   125   2.0   874   1.31 1676 2 3
2
'WBRQ               ' 'AG'       8.0      25.0       41.0      43.0      0.0   4.0  1
  180    53   2.0   748   1.31 1500 2 3
 1.0    0.0 4  1000.0    0.0 'Y'   10    0  36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: Falconbridge Road and NC54 RUN: 2040 No-Build PM Peak

DATE : 3/26/15
TIME : 6:37:32

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	39.0	-84.0	38.0	-73.0	11.	355.	AG	248.	0.8	0.0	10.0		
2. NBA2	38.0	-73.0	35.0	-58.0	15.	349.	AG	248.	0.8	0.0	10.0		
3. NBA3	35.0	-58.0	30.0	-46.0	13.	337.	AG	248.	0.8	0.0	10.0		
4. NBA4	30.0	-46.0	25.0	-33.0	14.	339.	AG	248.	0.8	0.0	10.0		
5. NBA5	25.0	-33.0	5.0	2.0	40.	330.	AG	248.	0.8	0.0	10.0		
6. NBD1	5.0	2.0	-19.0	40.0	45.	328.	AG	1117.	0.8	0.0	10.0		
7. NBD2	-19.0	40.0	-64.0	122.0	94.	331.	AG	1117.	0.8	0.0	10.0		
8. NBD3	-64.0	122.0	-86.0	153.0	38.	325.	AG	1117.	0.8	0.0	10.0		
9. NBQ	15.0	-14.0	205.5	-394.9	426.	153.	AG	3.	100.0	0.0	4.0	3.02	71.0
10. NBLQ	11.0	-16.0	20.5	-33.3	20.	151.	AG	3.	100.0	0.0	4.0	0.56	3.3
11. SBA1	-92.0	149.0	-71.0	120.0	36.	144.	AG	787.	0.8	0.0	10.0		
12. SBA2	-71.0	120.0	-62.0	105.0	17.	149.	AG	787.	0.8	0.0	10.0		
13. SBA3	-62.0	105.0	-24.0	33.0	81.	152.	AG	787.	0.8	0.0	10.0		
14. SBA4	-24.0	33.0	-4.0	-2.0	40.	150.	AG	787.	0.8	0.0	10.0		
15. SBD1	-4.0	-2.0	12.0	-27.0	30.	147.	AG	1345.	0.8	0.0	10.0		
16. SBD2	12.0	-27.0	20.0	-44.0	19.	155.	AG	1345.	0.8	0.0	10.0		
17. SBD3	20.0	-44.0	26.0	-60.0	17.	159.	AG	1345.	0.8	0.0	10.0		
18. SBD4	26.0	-60.0	29.0	-74.0	14.	168.	AG	1345.	0.8	0.0	10.0		
19. SBD5	29.0	-74.0	30.0	-84.0	10.	174.	AG	1345.	0.8	0.0	10.0		
20. SBQ	-12.0	12.0	-252.7	449.6	499.	331.	AG	3.	100.0	0.0	4.0	1.85	83.2
21. SBLQ	-9.0	14.0	-38.7	69.7	63.	332.	AG	6.	100.0	0.0	8.0	0.58	10.5
22. EBA	-259.0	-151.0	3.0	-5.0	300.	61.	AG	4258.	0.8	0.0	18.0		
23. EBD1	3.0	-5.0	75.0	35.0	82.	61.	AG	4150.	0.8	0.0	18.0		
24. EBD2	75.0	35.0	161.0	93.0	104.	56.	AG	4150.	0.8	0.0	18.0		
25. EBD3	161.0	93.0	252.0	159.0	112.	54.	AG	4150.	0.8	0.0	18.0		
26. EBQ	-7.0	-11.0	-164.7	-98.6	180.	241.	AG	5.	100.0	0.0	12.0	0.52	30.1
27. EBLQ	-11.0	-4.0	-272.6	-150.8	300.	241.	AG	3.	100.0	0.0	4.0	1.23	50.0
28. EBRQ	-3.0	-18.0	-48.3	-42.5	51.	242.	AG	1.	100.0	0.0	4.0	0.49	8.6
29. WBA1	244.0	169.0	184.0	123.0	76.	233.	AG	5003.	0.8	0.0	18.0		
30. WBA2	184.0	123.0	111.0	75.0	87.	237.	AG	5003.	0.8	0.0	18.0		
31. WBA3	111.0	75.0	43.0	35.0	79.	240.	AG	5003.	0.8	0.0	18.0		
32. WBA4	43.0	35.0	-5.0	8.0	55.	241.	AG	5003.	0.8	0.0	18.0		
33. WBD	-5.0	8.0	-268.0	-137.0	300.	241.	AG	3684.	0.8	0.0	18.0		
34. WBQ	12.0	18.0	131.7	84.9	137.	61.	AG	4.	100.0	0.0	12.0	0.41	22.9
35. WBLQ	17.0	12.0	1262.4	691.3	1419.	61.	AG	2.	100.0	0.0	4.0	1.84	236.4
36. WBRQ	8.0	25.0	66.0	56.6	66.	61.	AG	1.	100.0	0.0	4.0	0.73	11.0

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JOB: Falconbridge Road and NC54 RUN: 2040 No-Build PM Peak

DATE : 3/26/15
TIME : 6:37:32

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
9. NBQ	180	170	2.0	175	1765	1.31	2	3
10. NBLQ	180	162	2.0	73	1676	1.31	2	3
20. SBQ	180	160	2.0	289	1765	1.31	2	3
21. SBLQ	180	152	2.0	498	3252	1.31	2	3
26. EBQ	180	93	2.0	3493	4818	1.31	2	3
27. EBLQ	180	145	2.0	353	1676	1.31	2	3
28. EBRQ	180	75	2.0	412	1500	1.31	2	3
34. WBQ	180	73	2.0	3381	4818	1.31	2	3
35. WBLQ	180	125	2.0	874	1676	1.31	2	3
36. WBRQ	180	53	2.0	748	1500	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	19.0	-10.0	1.8
2. REC2	31.0	-33.0	1.8
3. REC3	40.0	-57.0	1.8
4. REC4	44.0	-83.0	1.8
5. REC5	39.0	4.0	1.8
6. REC6	61.0	16.0	1.8
7. REC7	5.0	29.0	1.8
8. REC8	27.0	41.0	1.8
9. REC9	49.0	52.0	1.8
10. REC10	71.0	63.0	1.8
11. REC11	93.0	75.0	1.8
12. REC12	-2.0	24.0	1.8
13. REC13	-12.0	41.0	1.8
14. REC14	-25.0	63.0	1.8
15. REC15	-23.0	9.0	1.8
16. REC16	-33.0	28.0	1.8
17. REC17	-32.0	37.0	1.8
18. REC18	-45.0	59.0	1.8
19. REC19	-57.0	81.0	1.8
20. REC20	-69.0	103.0	1.8
21. REC21	-46.0	-3.0	1.8
22. REC22	-69.0	-15.0	1.8
23. REC23	-1.0	-23.0	1.8
24. REC24	-24.0	-35.0	1.8
25. REC25	-48.0	-46.0	1.8
26. REC26	-71.0	-57.0	1.8
27. REC27	-94.0	-70.0	1.8
28. REC28	-117.0	-84.0	1.8
29. REC29	-140.0	-95.0	1.8
30. REC30	14.0	-44.0	1.8
31. REC31	22.0	-70.0	1.8
32. REC32	23.0	-83.0	1.8

JOB: Falconbridge Road and NC54 RUN: 2040 No-Build PM Peak

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.-360.

WIND ANGLE * CONCENTRATION (PPM)

(DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.2	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.1	0.0	0.0	0.0	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	0.0	0.0	0.0
60.	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.2	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.2	0.2	0.3	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.2	0.2	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
240.	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
250.	0.2	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
260.	0.2	0.1	0.0	0.0	0.3	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
270.	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.1	0.0	0.0	0.0	0.2	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
320.	0.2	0.0	0.0	0.0	0.2	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
330.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.2	0.1	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0
DEGR.	0	260	0	0	250	40	210	230	200	60	80	200	110	0	80	90	110	0	0	0

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JOB: Falconbridge Road and NC54 RUN: 2040 No-Build PM Peak

MODEL RESULTS

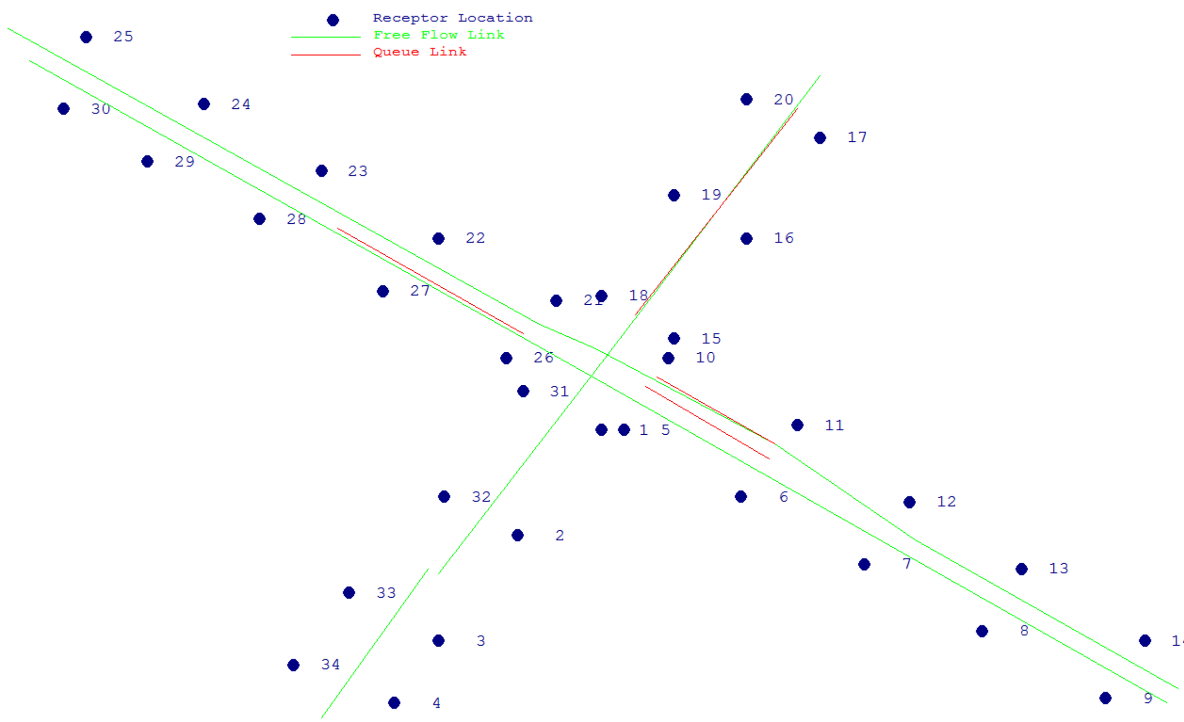
REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
10.	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
20.	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
30.	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0
40.	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.0	0.0	0.0
50.	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0
60.	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0
70.	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
80.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
250.	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.0	0.0	0.0
260.	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.0
270.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0
280.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0
290.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
300.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
310.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
320.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
330.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
340.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
350.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
360.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
MAX	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.0
DEGR.	230	90	10	50	260	250	40	40	40	260	0	0

THE HIGHEST CONCENTRATION OF 0.30 PPM OCCURRED AT RECEPTOR REC6 .

2040 AM Build Mangum Street and Main Street



CAL3QHC Input File

```
'Mangum Street and Main Street          '  60. 108.0    0.00    0.00 34     1.0000 0 0
'REC1                 '        2.0      -15.0        1.8
'REC2                 '      -13.0      -37.0        1.8
'REC3                 '      -27.0      -59.0        1.8
'REC4                 '      -35.0      -72.0        1.8
'REC5                 '        6.0      -15.0        1.8
'REC6                 '       27.0      -29.0        1.8
'REC7                 '       49.0      -43.0        1.8
'REC8                 '       70.0      -57.0        1.8
'REC9                 '       92.0      -71.0        1.8
'REC10                '       14.0        0.0        1.8
'REC11                '       37.0      -14.0        1.8
'REC12                '       57.0      -30.0        1.8
'REC13                '       77.0      -44.0        1.8
'REC14                '       99.0      -59.0        1.8
'REC15                '       15.0        4.0        1.8
'REC16                '       28.0       25.0        1.8
'REC17                '       41.0       46.0        1.8
'REC18                '        2.0       13.0        1.8
'REC19                '       15.0       34.0        1.8
'REC20                '       28.0       54.0        1.8
'REC21                '       -6.0       12.0        1.8
'REC22                '      -27.0       25.0        1.8
'REC23                '      -48.0       39.0        1.8
'REC24                '      -69.0       53.0        1.8
'REC25                '      -90.0       67.0        1.8
'REC26                '      -15.0        0.0        1.8
'REC27                '      -37.0       14.0        1.8
'REC28                '      -59.0       29.0        1.8
'REC29                '      -79.0       41.0        1.8
'REC30                '      -94.0       52.0        1.8
'REC31                '      -12.0       -7.0        1.8
'REC32                '      -26.0      -29.0        1.8
'REC33                '      -43.0      -49.0        1.8
'REC34                '      -53.0      -64.0        1.8
'2040 Build AM Peak                     '  14    1  0 C
1
'SBA                  ' 'AG'       41.0       59.0        2.0       -1.0     1271.   1.16       0.0  14.0
1
'SBD1                 ' 'AG'        2.0       -1.0      -27.0      -45.0     1136.   1.18       0.0  14.0
1
'SBD2                 ' 'AG'      -29.0      -44.0      -48.0      -75.0     1136.   1.18       0.0  18.0
2
'SBQ                  ' 'AG'        8.0        9.0       37.0       52.0      0.0    8.0   2
   90     38    2.0  1271    1.31 3412 2 3
1
'EBA                  ' 'AG'     -100.0       62.0       -1.0       -3.0      289.   0.81       0.0  10.0
1
'EBD                  ' 'AG'       -1.0       -3.0      103.0      -72.0      452.   0.81       0.0  10.0
2
'EBQ                  ' 'AG'      -12.0        5.0      -45.0       27.0      0.0    4.0   1
   90     66    2.0   289    1.31 1820 2 3
1
'WBA1                 ' 'AG'      105.0      -69.0       58.0      -38.0      366.   0.81       0.0  10.0
1
'WBA2                 ' 'AG'       58.0      -38.0       33.0      -18.0      366.   0.81       0.0  10.0
1
'WBA3                 ' 'AG'       33.0      -18.0        1.0        2.0      366.   0.81       0.0  10.0
1
'WBD1                 ' 'AG'        1.0        2.0       -9.0        7.0      338.   0.81       0.0  10.0
1
'WBD2                 ' 'AG'       -9.0        7.0      -98.0       65.0      338.   0.81       0.0  10.0
2
'WBQ                  ' 'AG'       12.0       -4.0       33.0      -18.0      0.0    4.0   1
   90     52    2.0   321    1.31 1827 2 3
2
'WBLQ                 ' 'AG'       10.0       -6.0       32.0      -21.0      0.0    4.0   1
   90     76    2.0    45    1.31 1736 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0   36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: Mangum Street and Main Street RUN: 2040 Build AM Peak

DATE : 5/ 5/15
TIME : 8:13:49

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

SITE & METEOROLOGICAL VARIABLES

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

	LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1.	SBA	41.0	59.0	2.0	-1.0	72.	213.	AG	1271.	1.2	0.0	14.0		
2.	SBD1	2.0	-1.0	-27.0	-45.0	53.	213.	AG	1136.	1.2	0.0	14.0		
3.	SBD2	-29.0	-44.0	-48.0	-75.0	36.	212.	AG	1136.	1.2	0.0	18.0		
4.	SBQ	8.0	9.0	30.5	42.3	40.	34.	AG	3.	100.0	0.0	8.0	0.35	6.7
5.	EBA	-100.0	62.0	-1.0	-3.0	118.	123.	AG	289.	0.8	0.0	10.0		
6.	EBD	-1.0	-3.0	103.0	-72.0	125.	124.	AG	452.	0.8	0.0	10.0		
7.	EBQ	-12.0	5.0	-38.5	22.6	32.	304.	AG	3.	100.0	0.0	4.0	0.72	5.3
8.	WBA1	105.0	-69.0	58.0	-38.0	56.	303.	AG	366.	0.8	0.0	10.0		
9.	WBA2	58.0	-38.0	33.0	-18.0	32.	309.	AG	366.	0.8	0.0	10.0		
10.	WBA3	33.0	-18.0	1.0	2.0	38.	302.	AG	366.	0.8	0.0	10.0		
11.	WBD1	1.0	2.0	-9.0	7.0	11.	297.	AG	338.	0.8	0.0	10.0		
12.	WBD2	-9.0	7.0	-98.0	65.0	106.	303.	AG	338.	0.8	0.0	10.0		
13.	WBQ	12.0	-4.0	35.1	-19.4	28.	124.	AG	2.	100.0	0.0	4.0	0.47	4.6
14.	WBLQ	10.0	-6.0	14.7	-9.2	6.	124.	AG	3.	100.0	0.0	4.0	0.23	0.9

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JOB: Mangum Street and Main Street RUN: 2040 Build AM Peak

DATE : 5/ 5/15
TIME : 8:13:49

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
4. SBQ	90	38	2.0	1271	3412	1.31	2	3
7. EBQ	90	66	2.0	289	1820	1.31	2	3
13. WBQ	90	52	2.0	321	1827	1.31	2	3
14. WBLQ	90	76	2.0	45	1736	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	2.0	-15.0	1.8
2. REC2	-13.0	-37.0	1.8
3. REC3	-27.0	-59.0	1.8
4. REC4	-35.0	-72.0	1.8
5. REC5	6.0	-15.0	1.8
6. REC6	27.0	-29.0	1.8
7. REC7	49.0	-43.0	1.8
8. REC8	70.0	-57.0	1.8
9. REC9	92.0	-71.0	1.8
10. REC10	14.0	0.0	1.8
11. REC11	37.0	-14.0	1.8
12. REC12	57.0	-30.0	1.8
13. REC13	77.0	-44.0	1.8
14. REC14	99.0	-59.0	1.8
15. REC15	15.0	4.0	1.8
16. REC16	28.0	25.0	1.8
17. REC17	41.0	46.0	1.8
18. REC18	2.0	13.0	1.8
19. REC19	15.0	34.0	1.8
20. REC20	28.0	54.0	1.8
21. REC21	-6.0	12.0	1.8
22. REC22	-27.0	25.0	1.8
23. REC23	-48.0	39.0	1.8
24. REC24	-69.0	53.0	1.8
25. REC25	-90.0	67.0	1.8
26. REC26	-15.0	0.0	1.8
27. REC27	-37.0	14.0	1.8
28. REC28	-59.0	29.0	1.8
29. REC29	-79.0	41.0	1.8
30. REC30	-94.0	52.0	1.8
31. REC31	-12.0	-7.0	1.8
32. REC32	-26.0	-29.0	1.8
33. REC33	-43.0	-49.0	1.8
34. REC34	-53.0	-64.0	1.8

PAGE 3

JOB: Mangum Street and Main Street RUN: 2040 Build AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
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	0.1	0.1	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	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
20.	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	0.1	0.1	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	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
230.	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	0.1	0.1	0.0	0.0	0.0
240.	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	0.1	0.1	0.0	0.0	0.0
250.	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	0.1	0.1	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	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
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	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
350.	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	0.1	0.1	0.0	0.0	0.0	0.0
360.	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	0.1	0.1	0.0	0.0	0.0	0.0
MAX	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1
DEGR.	230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	40	50	170

JOB: Mangum Street and Main Street RUN: 2040 Build AM Peak

MODEL RESULTS

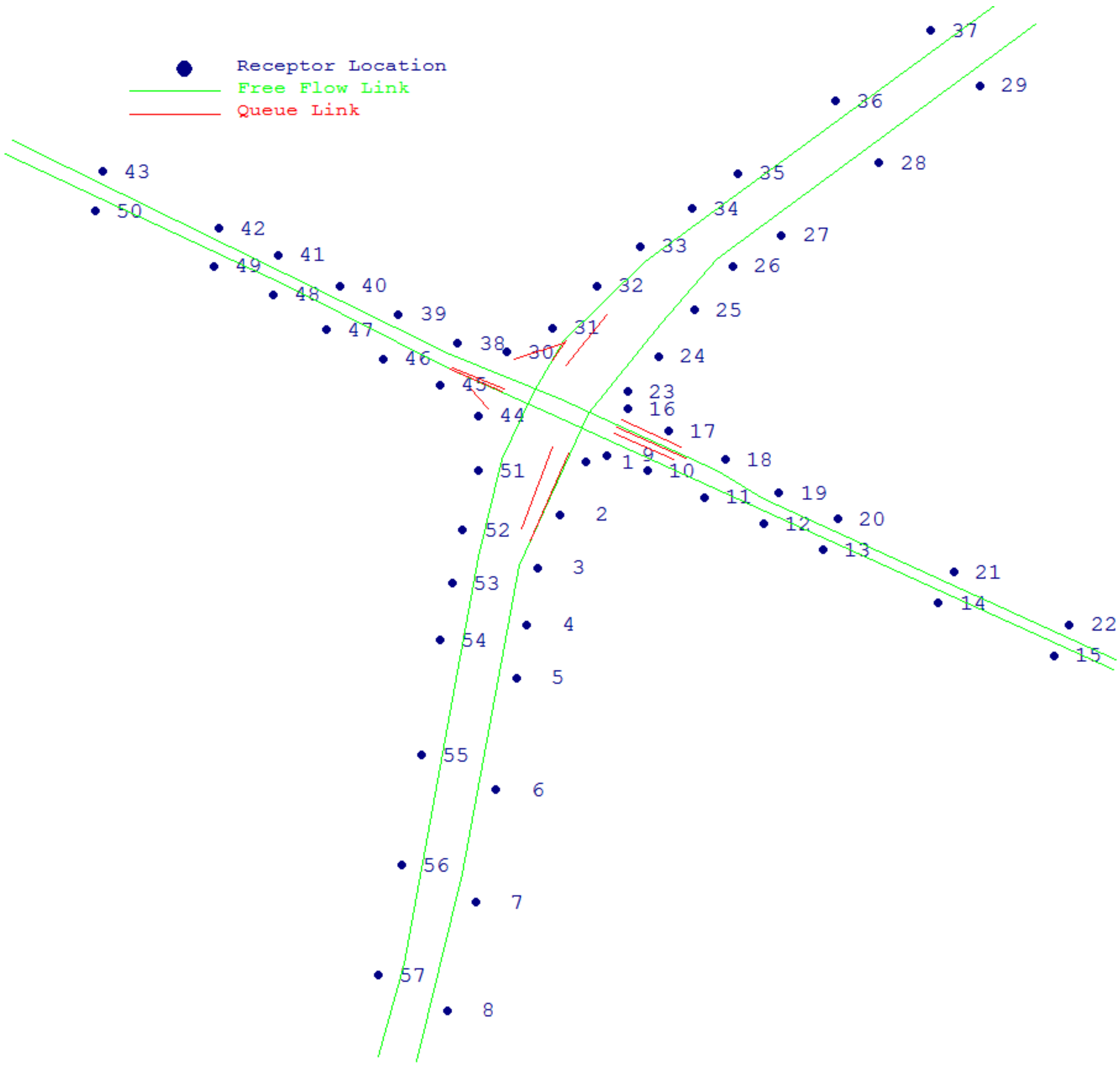
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
50.	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
60.	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
70.	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
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	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
190.	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
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	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
DEGR.	0	0	0	0	0	0	0	0	0	0	180	50	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 AM Build Morreene Road/Towerview Road and Erwin Road



CAL3QHC Input File

```
'Morreene Rd_Towerview Rd and Erwin Rd    '  60. 108.0    0.00    0.00 57     1.0000 0 0
'REC1                 '        11.0      -28.0         1.8
'REC2                 '         1.0      -52.0         1.8
'REC3                 '        -8.0      -76.0         1.8
'REC4                 '       -12.0     -102.0         1.8
'REC5                 '       -16.0     -126.0         1.8
'REC6                 '       -24.0     -177.0         1.8
'REC7                 '       -32.0     -228.0         1.8
'REC8                 '       -43.0     -277.0         1.8
'REC9                 '        19.0      -25.0         1.8
'REC10                '        35.0      -32.0         1.8
'REC11                '        57.0      -44.0         1.8
'REC12                '        80.0      -56.0         1.8
'REC13                '       103.0      -68.0         1.8
'REC14                '       148.0      -92.0         1.8
'REC15                '       193.0     -116.0         1.8
'REC16                '        27.0       -4.0         1.8
'REC17                '        43.0      -14.0         1.8
'REC18                '        65.0      -27.0         1.8
'REC19                '        86.0      -42.0         1.8
'REC20                '       109.0      -54.0         1.8
'REC21                '       154.0      -78.0         1.8
'REC22                '       199.0     -102.0         1.8
'REC23                '        27.0        4.0         1.8
'REC24                '        39.0       20.0         1.8
'REC25                '        53.0       41.0         1.8
'REC26                '        68.0       61.0         1.8
'REC27                '        87.0       75.0         1.8
'REC28                '       125.0      108.0         1.8
'REC29                '       164.0      143.0         1.8
'REC30                '       -20.0       22.0         1.8
'REC31                '        -2.0       33.0         1.8
'REC32                '        15.0       52.0         1.8
'REC33                '        32.0       70.0         1.8
'REC34                '        52.0       87.0         1.8
'REC35                '        70.0      103.0         1.8
'REC36                '       108.0      136.0         1.8
'REC37                '       145.0      168.0         1.8
'REC38                '       -39.0       26.0         1.8
'REC39                '       -62.0       39.0         1.8
'REC40                '       -85.0       52.0         1.8
'REC41                '      -109.0       66.0         1.8
'REC42                '      -132.0       78.0         1.8
'REC43                '      -177.0      104.0         1.8
'REC44                '       -31.0       -7.0         1.8
'REC45                '       -46.0        7.0         1.8
'REC46                '       -68.0       19.0         1.8
'REC47                '       -90.0       32.0         1.8
'REC48                '      -111.0       48.0         1.8
'REC49                '      -134.0       61.0         1.8
'REC50                '      -180.0       86.0         1.8
'REC51                '       -31.0      -32.0         1.8
'REC52                '       -37.0      -59.0         1.8
'REC53                '       -41.0      -83.0         1.8
'REC54                '       -46.0     -109.0         1.8
'REC55                '       -53.0     -161.0         1.8
'REC56                '       -61.0     -211.0         1.8
'REC57                '       -70.0     -261.0         1.8
'2040 No-Build AM Peak                    '  33    1   0 C
1
'NBA1                 ' 'AG'      -55.0     -300.0      -37.0     -215.0    1185.   1.16      0.0  12.0
1
'NBA2                 ' 'AG'      -37.0     -215.0      -15.0      -75.0    1185.   1.16      0.0  12.0
1
'NBA3                 ' 'AG'      -15.0      -75.0       12.0       -6.0    1185.   1.16      0.0  12.0
1
'NBD1                 ' 'AG'       12.0       -6.0       40.0       35.0    1155.   1.16      0.0  12.0
1
'NBD2                 ' 'AG'       40.0       35.0       62.0       64.0    1155.   1.16      0.0  12.0
1
'NBD3                 ' 'AG'       62.0       64.0      186.0      171.0    1155.   1.16      0.0  12.0
2
'NBQ                  ' 'AG'        4.0      -24.0      -11.0      -64.0      0.0    6.0  2
  150     92   2.0    955   1.31 3207 2 3
2
```

```
'NBLQ                 ' 'AG'       -2.0      -21.0      -14.0      -58.0      0.0   3.5  1
  150   117   2.0   230   1.31 1661 2 3
1
'SBA1                 ' 'AG'      174.0      183.0       34.0       63.0     495.  1.16      0.0  13.0
1
'SBA2                 ' 'AG'       34.0       63.0        2.0       27.0     495.  1.16      0.0  13.0
1
'SBA3                 ' 'AG'        2.0       27.0      -10.0        3.0     495.  1.16      0.0  13.0
1
'SBD1                 ' 'AG'      -10.0        3.0      -22.0      -27.0     395.  1.16      0.0  13.0
1
'SBD2                 ' 'AG'      -22.0      -27.0      -31.0      -71.0     395.  1.16      0.0  13.0
1
'SBD3                 ' 'AG'      -31.0      -71.0      -60.0     -256.0     395.  1.16      0.0  13.0
1
'SBD4                 ' 'AG'      -60.0     -256.0      -70.0     -298.0     395.  1.16      0.0  13.0
2
'SBQ                  ' 'AG'       -2.0       18.0        3.0       27.0      0.0   7.0  2
  150   111   2.0   229   1.31 3322 2 3
2
'SBLQ                 ' 'AG'        3.0       16.0       19.0       39.0      0.0   4.0  1
  150   136   2.0    43   1.31 1718 2 3
2
'SBRQ                 ' 'AG'      -17.0       19.0        2.0       26.0      0.0   3.0  1
  150   111   2.0   223   1.31 1435 2 3
1
'EBA1                 ' 'AG'     -215.0      112.0     -105.0       52.0    1174.  1.16      0.0  10.0
1
'EBA2                 ' 'AG'     -105.0       52.0      -42.0       14.0    1174.  1.16      0.0  10.0
1
'EBA3                 ' 'AG'      -42.0       14.0       -3.0       -6.0    1174.  1.16      0.0  10.0
1
'EBD                  ' 'AG'       -3.0       -6.0      216.0     -122.0     880.  1.18      0.0  10.0
2
'EBQ                  ' 'AG'      -22.0        4.0      -42.0       14.0      0.0   4.0  1
  150    72   2.0   677   1.31 1809 2 3
2
'EBLQ                 ' 'AG'      -21.0        5.0      -41.0       15.0      0.0   3.5  1
  150   118   2.0   342   1.31  862 2 3
2
'EBRQ                 ' 'AG'      -27.0       -4.0      -34.0        5.0      0.0   3.0  1
  150    72   2.0   155   1.31 1384 2 3
1
'WBA1                 ' 'AG'      217.0     -118.0       80.0      -45.0     170.  1.18      0.0   9.5
1
'WBA2                 ' 'AG'       80.0      -45.0       62.0      -32.0     170.  1.18      0.0   9.5
1
'WBA3                 ' 'AG'       62.0      -32.0        1.0        1.0     170.  1.18      0.0   9.5
1
'WBD1                 ' 'AG'        1.0        1.0      -42.0       21.0     594.  1.16      0.0   9.5
1
'WBD2                 ' 'AG'      -42.0       21.0     -212.0      118.0     594.  1.16      0.0   9.5
2
'WBQ                  ' 'AG'       23.0      -12.0       50.0      -26.0      0.0   3.5  1
  150   104   2.0   141   1.31 1748 2 3
2
'WBLQ                 ' 'AG'       22.0      -15.0       45.0      -27.0      0.0   3.5  1
  150   104   2.0    11   1.31  285 2 3
2
'WBRQ                 ' 'AG'       25.0       -9.0       48.0      -21.0      0.0   3.5  1
  150   136   2.0    18   1.31 1486 2 3
 1.0    0.0 4  1000.0    0.0 'Y'   10    0   36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

DATE : 5/ 5/15
TIME : 10:37: 9

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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	-55.0	-300.0	-37.0	-215.0	87.	12.	AG	1185.	1.2	0.0	12.0		
2. NBA2	-37.0	-215.0	-15.0	-75.0	142.	9.	AG	1185.	1.2	0.0	12.0		
3. NBA3	-15.0	-75.0	12.0	-6.0	74.	21.	AG	1185.	1.2	0.0	12.0		
4. NBD1	12.0	-6.0	40.0	35.0	50.	34.	AG	1155.	1.2	0.0	12.0		
5. NBD2	40.0	35.0	62.0	64.0	36.	37.	AG	1155.	1.2	0.0	12.0		
6. NBD3	62.0	64.0	186.0	171.0	164.	49.	AG	1155.	1.2	0.0	12.0		
7. NBQ	4.0	-24.0	-21.7	-92.5	73.	201.	AG	4.	100.0	0.0	6.0	0.41	12.2
8. NBLQ	-2.0	-21.0	-15.8	-63.7	45.	198.	AG	3.	100.0	0.0	3.5	0.72	7.5
9. SBA1	174.0	183.0	34.0	63.0	184.	229.	AG	495.	1.2	0.0	13.0		
10. SBA2	34.0	63.0	2.0	27.0	48.	222.	AG	495.	1.2	0.0	13.0		
11. SBA3	2.0	27.0	-10.0	3.0	27.	207.	AG	495.	1.2	0.0	13.0		
12. SBD1	-10.0	3.0	-22.0	-27.0	32.	202.	AG	395.	1.2	0.0	13.0		
13. SBD2	-22.0	-27.0	-31.0	-71.0	45.	192.	AG	395.	1.2	0.0	13.0		
14. SBD3	-31.0	-71.0	-60.0	-256.0	187.	189.	AG	395.	1.2	0.0	13.0		
15. SBD4	-60.0	-256.0	-70.0	-298.0	43.	193.	AG	395.	1.2	0.0	13.0		
16. SBQ	-2.0	18.0	8.2	36.4	21.	29.	AG	5.	100.0	0.0	7.0	0.15	3.5
17. SBLQ	3.0	16.0	8.6	24.0	10.	35.	AG	3.	100.0	0.0	4.0	0.38	1.6
18. SBRQ	-17.0	19.0	21.7	33.3	41.	70.	AG	3.	100.0	0.0	3.0	0.67	6.9
19. EBA1	-215.0	112.0	-105.0	52.0	125.	119.	AG	1174.	1.2	0.0	10.0		
20. EBA2	-105.0	52.0	-42.0	14.0	74.	121.	AG	1174.	1.2	0.0	10.0		
21. EBA3	-42.0	14.0	-3.0	-6.0	44.	117.	AG	1174.	1.2	0.0	10.0		
22. EBD	-3.0	-6.0	216.0	-122.0	248.	118.	AG	880.	1.2	0.0	10.0		
23. EBQ	-22.0	4.0	-94.7	40.3	81.	297.	AG	2.	100.0	0.0	4.0	0.76	13.5
24. EBLQ	-21.0	5.0	-595.5	292.3	642.	297.	AG	3.	100.0	0.0	3.5	2.14	107.1
25. EBRQ	-27.0	-4.0	-38.4	10.7	19.	322.	AG	2.	100.0	0.0	3.0	0.23	3.1
26. WBA1	217.0	-118.0	80.0	-45.0	155.	298.	AG	170.	1.2	0.0	9.5		
27. WBA2	80.0	-45.0	62.0	-32.0	22.	306.	AG	170.	1.2	0.0	9.5		
28. WBA3	62.0	-32.0	1.0	1.0	69.	298.	AG	170.	1.2	0.0	9.5		
29. WBD1	1.0	1.0	-42.0	21.0	47.	295.	AG	594.	1.2	0.0	9.5		
30. WBD2	-42.0	21.0	-212.0	118.0	196.	300.	AG	594.	1.2	0.0	9.5		
31. WBQ	23.0	-12.0	44.7	-23.3	24.	117.	AG	2.	100.0	0.0	3.5	0.29	4.1
32. WBLQ	22.0	-15.0	23.7	-15.9	2.	118.	AG	2.	100.0	0.0	3.5	0.14	0.3
33. WBRQ	25.0	-9.0	28.6	-10.9	4.	118.	AG	3.	100.0	0.0	3.5	0.18	0.7

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

DATE : 5/ 5/15
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ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
7. NBQ	150	92	2.0	955	3207	1.31	2	3
8. NBLQ	150	117	2.0	230	1661	1.31	2	3
16. SBQ	150	111	2.0	229	3322	1.31	2	3
17. SBLQ	150	136	2.0	43	1718	1.31	2	3
18. SBRQ	150	111	2.0	223	1435	1.31	2	3
23. EBQ	150	72	2.0	677	1809	1.31	2	3
24. EBLQ	150	118	2.0	342	862	1.31	2	3
25. EBRQ	150	72	2.0	155	1384	1.31	2	3
31. WBQ	150	104	2.0	141	1748	1.31	2	3
32. WBLQ	150	104	2.0	11	285	1.31	2	3
33. WBRQ	150	136	2.0	18	1486	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	11.0	-28.0	1.8
2. REC2	1.0	-52.0	1.8
3. REC3	-8.0	-76.0	1.8
4. REC4	-12.0	-102.0	1.8
5. REC5	-16.0	-126.0	1.8
6. REC6	-24.0	-177.0	1.8
7. REC7	-32.0	-228.0	1.8
8. REC8	-43.0	-277.0	1.8
9. REC9	19.0	-25.0	1.8
10. REC10	35.0	-32.0	1.8
11. REC11	57.0	-44.0	1.8
12. REC12	80.0	-56.0	1.8
13. REC13	103.0	-68.0	1.8
14. REC14	148.0	-92.0	1.8
15. REC15	193.0	-116.0	1.8
16. REC16	27.0	-4.0	1.8
17. REC17	43.0	-14.0	1.8
18. REC18	65.0	-27.0	1.8
19. REC19	86.0	-42.0	1.8
20. REC20	109.0	-54.0	1.8
21. REC21	154.0	-78.0	1.8
22. REC22	199.0	-102.0	1.8
23. REC23	27.0	4.0	1.8
24. REC24	39.0	20.0	1.8
25. REC25	53.0	41.0	1.8
26. REC26	68.0	61.0	1.8
27. REC27	87.0	75.0	1.8
28. REC28	125.0	108.0	1.8
29. REC29	164.0	143.0	1.8
30. REC30	-20.0	22.0	1.8
31. REC31	-2.0	33.0	1.8
32. REC32	15.0	52.0	1.8
33. REC33	32.0	70.0	1.8
34. REC34	52.0	87.0	1.8

PAGE 3

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

DATE : 5/ 5/15
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RECEPTOR LOCATIONS

RECEPTOR	X (M)	Y (M)	Z (M)
35. REC35	70.0	103.0	1.8
36. REC36	108.0	136.0	1.8
37. REC37	145.0	168.0	1.8
38. REC38	-39.0	26.0	1.8
39. REC39	-62.0	39.0	1.8
40. REC40	-85.0	52.0	1.8
41. REC41	-109.0	66.0	1.8
42. REC42	-132.0	78.0	1.8
43. REC43	-177.0	104.0	1.8
44. REC44	-31.0	-7.0	1.8
45. REC45	-46.0	7.0	1.8
46. REC46	-68.0	19.0	1.8
47. REC47	-90.0	32.0	1.8
48. REC48	-111.0	48.0	1.8
49. REC49	-134.0	61.0	1.8
50. REC50	-180.0	86.0	1.8
51. REC51	-31.0	-32.0	1.8
52. REC52	-37.0	-59.0	1.8
53. REC53	-41.0	-83.0	1.8
54. REC54	-46.0	-109.0	1.8
55. REC55	-53.0	-161.0	1.8
56. REC56	-61.0	-211.0	1.8
57. REC57	-70.0	-261.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.1	0.1	0.0	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
10.	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	0.0	0.0
20.	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	0.0
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.1	0.1	0.1	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
120.	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	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	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	0.0	0.0
250.	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
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.1	0.1	0.1	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
340.	0.1	0.1	0.1	0.1	0.1	0.1	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
350.	0.0	0.1	0.1	0.0	0.1	0.1	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
360.	0.0	0.1	0.1	0.0	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
MAX	0.1	0.1	0.1	0.1	0.1	0.1	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	0.0
DEGR.	210	0	0	190	0	0	0	0	100	90	90	90	90	90	300	0	0	0	0	0

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	0.0	0.0	0.1	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
10.	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	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	0.1	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
50.	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	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.1	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
250.	0.0	0.0	0.0	0.1	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
260.	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	0.0	0.0	0.0	0.0	0.0	0.0
270.	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	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	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	0.0
360.	0.0	0.0	0.1	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
MAX	0.0	0.0	0.1	0.1	0.1	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
DEGR.	0	0	0	240	0	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build AM Peak

MODEL RESULTS

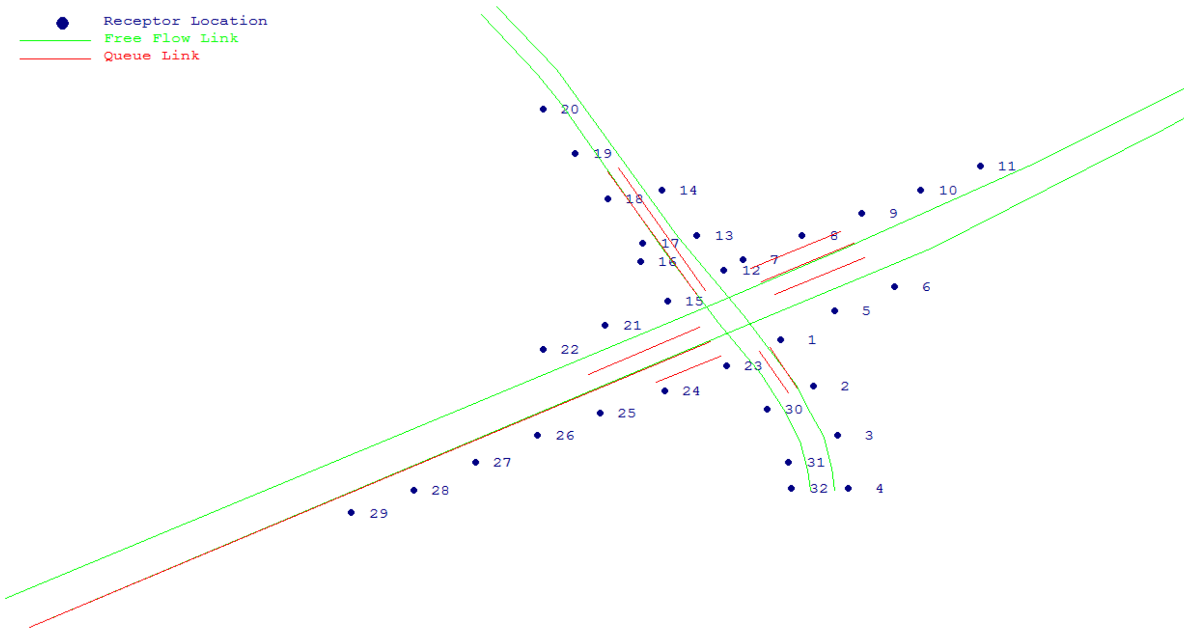
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	REC41	REC42	REC43	REC44	REC45	REC46	REC47	REC48	REC49	REC50	REC51	REC52	REC53	REC54	REC55	REC56	REC57
	CONCENTRATION (PPM)																
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	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	0.0	0.0
80.	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	0.0	0.0
90.	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	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	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	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	320	0	0	100	70	70	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 AM Build Falconbridge Road and NC 54



CAL3QHC Input File

```
'Falconbridge Road and NC54            '  60. 108.0    0.00    0.00 32     1.0000 0 0
'REC1                    '       19.0      -10.0        1.8
'REC2                    '       31.0      -33.0        1.8
'REC3                    '       40.0      -57.0        1.8
'REC4                    '       44.0      -83.0        1.8
'REC5                    '       39.0        4.0        1.8
'REC6                    '       61.0       16.0        1.8
'REC7                    '        5.0       29.0        1.8
'REC8                    '       27.0       41.0        1.8
'REC9                    '       49.0       52.0        1.8
'REC10                   '       71.0       63.0        1.8
'REC11                   '       93.0       75.0        1.8
'REC12                   '       -2.0       24.0        1.8
'REC13                   '      -12.0       41.0        1.8
'REC14                   '      -25.0       63.0        1.8
'REC15                   '      -23.0        9.0        1.8
'REC16                   '      -33.0       28.0        1.8
'REC17                   '      -32.0       37.0        1.8
'REC18                   '      -45.0       59.0        1.8
'REC19                   '      -57.0       81.0        1.8
'REC20                   '      -69.0      103.0        1.8
'REC21                   '      -46.0       -3.0        1.8
'REC22                   '      -69.0      -15.0        1.8
'REC23                   '       -1.0      -23.0        1.8
'REC24                   '      -24.0      -35.0        1.8
'REC25                   '      -48.0      -46.0        1.8
'REC26                   '      -71.0      -57.0        1.8
'REC27                   '      -94.0      -70.0        1.8
'REC28                   '     -117.0      -84.0        1.8
'REC29                   '     -140.0      -95.0        1.8
'REC30                   '       14.0      -44.0        1.8
'REC31                   '       22.0      -70.0        1.8
'REC32                   '       23.0      -83.0        1.8
'2040 Build AM Peak                    '  36    1   0 C
1
'NBA1                    ' 'AG'       39.0       -84.0       38.0       -73.0     1463.   0.81       0.0  10.0
1
'NBA2                    ' 'AG'       38.0       -73.0       35.0       -58.0     1463.   0.81       0.0  10.0
1
'NBA3                    ' 'AG'       35.0       -58.0       30.0       -46.0     1463.   0.81       0.0  10.0
1
'NBA4                    ' 'AG'       30.0       -46.0       25.0       -33.0     1463.   0.81       0.0  10.0
1
'NBA5                    ' 'AG'       25.0       -33.0        5.0         2.0     1463.   0.81       0.0  10.0
1
'NBD1                    ' 'AG'        5.0         2.0      -19.0        40.0     1029.   0.81       0.0  10.0
1
'NBD2                    ' 'AG'      -19.0        40.0      -64.0       122.0     1029.   0.81       0.0  10.0
1
'NBD3                    ' 'AG'      -64.0       122.0      -86.0       153.0     1029.   0.81       0.0  10.0
2
'NBQ                     ' 'AG'       15.0       -14.0       25.0       -34.0       0.0    4.0   1
  180   155   2.0   962   1.31 1765 2 3
2
'NBLQ                    ' 'AG'       11.0       -16.0       22.0       -36.0       0.0    4.0   1
  180   144   2.0   501   1.31 1676 2 3
1
'SBA1                    ' 'AG'      -92.0       149.0      -71.0       120.0      808.   0.81       0.0  10.0
1
'SBA2                    ' 'AG'      -71.0       120.0      -62.0       105.0      808.   0.81       0.0  10.0
1
'SBA3                    ' 'AG'      -62.0       105.0      -24.0        33.0      808.   0.81       0.0  10.0
1
'SBA4                    ' 'AG'      -24.0        33.0       -4.0        -2.0      808.   0.81       0.0  10.0
1
'SBD1                    ' 'AG'       -4.0        -2.0       12.0       -27.0      214.   0.81       0.0  10.0
1
'SBD2                    ' 'AG'       12.0       -27.0       20.0       -44.0      214.   0.81       0.0  10.0
1
'SBD3                    ' 'AG'       20.0       -44.0       26.0       -60.0      214.   0.81       0.0  10.0
1
'SBD4                    ' 'AG'       26.0       -60.0       29.0       -74.0      214.   0.81       0.0  10.0
1
'SBD5                    ' 'AG'       29.0       -74.0       30.0       -84.0      214.   0.81       0.0  10.0
2
```

```
'SBQ                ' 'AG'      -12.0       12.0      -45.0       72.0       0.0   4.0  1
  180   164   2.0   301   1.31 1765 2 3
2
'SBLQ               ' 'AG'       -9.0       14.0      -41.0       74.0       0.0   8.0  2
  180   153   2.0   507   1.31 3252 2 3
1
'EBA                ' 'AG'     -259.0     -151.0        3.0       -5.0    3766.   0.81       0.0  18.0
1
'EBD1               ' 'AG'        3.0       -5.0       75.0       35.0    4741.   0.81       0.0  18.0
1
'EBD2               ' 'AG'       75.0       35.0      161.0       93.0    4741.   0.81       0.0  18.0
1
'EBD3               ' 'AG'      161.0       93.0      252.0      159.0    4741.   0.81       0.0  18.0
2
'EBQ                ' 'AG'       -7.0      -11.0     -259.0     -151.0       0.0  12.0  3
  180    74   2.0  3359   1.31 4818 2 3
2
'EBLQ               ' 'AG'      -11.0       -4.0      -52.0      -27.0       0.0   4.0  1
  180   159   2.0   335   1.31 1676 2 3
2
'EBRQ               ' 'AG'       -3.0      -18.0      -27.0      -31.0       0.0   4.0  1
  180    38   2.0    72   1.31 1500 2 3
1
'WBA1               ' 'AG'      244.0      169.0      184.0      123.0    4218.   0.81       0.0  18.0
1
'WBA2               ' 'AG'      184.0      123.0      111.0       75.0    4218.   0.81       0.0  18.0
1
'WBA3               ' 'AG'      111.0       75.0       43.0       35.0    4218.   0.81       0.0  18.0
1
'WBA4               ' 'AG'       43.0       35.0       -5.0        8.0    4218.   0.81       0.0  18.0
1
'WBD                ' 'AG'       -5.0        8.0     -268.0     -137.0    4271.   0.81       0.0  18.0
2
'WBQ                ' 'AG'       12.0       18.0       46.0       37.0       0.0  12.0  3
  180    73   2.0  3480   1.31 4818 2 3
2
'WBLQ               ' 'AG'       17.0       12.0       50.0       30.0       0.0   4.0  1
  180   158   2.0   131   1.31 1676 2 3
2
'WBRQ               ' 'AG'        8.0       25.0       41.0       43.0       0.0   4.0  1
  180    46   2.0   607   1.31 1500 2 3
 1.0    0.0 4  1000.0    0.0 'Y'   10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Falconbridge Road and NC54                          RUN: 2040 Build AM Peak

      DATE :  3/26/15
      TIME :  6:46:33

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (M)           *    LENGTH  BRG TYPE   VPH     EF       H   W     V/C QUEUE
                              *   X1        Y1        X2        Y2     *     (M)    (DEG)            (G/MI)   (M)  (M)         (VEH)
      ------------------------*----------------------------------------*--------------------------------------------------------
-
       1. NBA1                *    39.0     -84.0      38.0     -73.0 *     11.   355. AG   1463.    0.8    0.0 10.0
       2. NBA2                *    38.0     -73.0      35.0     -58.0 *     15.   349. AG   1463.    0.8    0.0 10.0
       3. NBA3                *    35.0     -58.0      30.0     -46.0 *     13.   337. AG   1463.    0.8    0.0 10.0
       4. NBA4                *    30.0     -46.0      25.0     -33.0 *     14.   339. AG   1463.    0.8    0.0 10.0
       5. NBA5                *    25.0     -33.0       5.0       2.0 *     40.   330. AG   1463.    0.8    0.0 10.0
       6. NBD1                *     5.0       2.0     -19.0      40.0 *     45.   328. AG   1029.    0.8    0.0 10.0
       7. NBD2                *   -19.0      40.0     -64.0     122.0 *     94.   331. AG   1029.    0.8    0.0 10.0
       8. NBD3                *   -64.0     122.0     -86.0     153.0 *     38.   325. AG   1029.    0.8    0.0 10.0
       9. NBQ                 *    15.0     -14.0    1171.2   -2326.3 *   2585.   153. AG      3. 100.0    0.0  4.0 4.69 430.9
      10. NBLQ                *    11.0     -16.0     377.1    -681.6 *    760.   151. AG      3. 100.0    0.0  4.0 1.69 126.6
      11. SBA1                *   -92.0     149.0     -71.0     120.0 *     36.   144. AG    808.    0.8    0.0 10.0
      12. SBA2                *   -71.0     120.0     -62.0     105.0 *     17.   149. AG    808.    0.8    0.0 10.0
      13. SBA3                *   -62.0     105.0     -24.0      33.0 *     81.   152. AG    808.    0.8    0.0 10.0
      14. SBA4                *   -24.0      33.0      -4.0      -2.0 *     40.   150. AG    808.    0.8    0.0 10.0
      15. SBD1                *    -4.0      -2.0      12.0     -27.0 *     30.   147. AG    214.    0.8    0.0 10.0
      16. SBD2                *    12.0     -27.0      20.0     -44.0 *     19.   155. AG    214.    0.8    0.0 10.0
      17. SBD3                *    20.0     -44.0      26.0     -60.0 *     17.   159. AG    214.    0.8    0.0 10.0
      18. SBD4                *    26.0     -60.0      29.0     -74.0 *     14.   168. AG    214.    0.8    0.0 10.0
      19. SBD5                *    29.0     -74.0      30.0     -84.0 *     10.   174. AG    214.    0.8    0.0 10.0
      20. SBQ                 *   -12.0      12.0    -331.6     593.1 *    663.   331. AG      3. 100.0    0.0  4.0 2.57 110.5
      21. SBLQ                *    -9.0      14.0     -39.4      70.9 *     65.   332. AG      6. 100.0    0.0  8.0 0.61  10.8
      22. EBA                 *  -259.0    -151.0       3.0      -5.0 *    300.    61. AG   3766.    0.8    0.0 18.0
      23. EBD1                *     3.0      -5.0      75.0      35.0 *     82.    61. AG   4741.    0.8    0.0 18.0
      24. EBD2                *    75.0      35.0     161.0      93.0 *    104.    56. AG   4741.    0.8    0.0 18.0
      25. EBD3                *   161.0      93.0     252.0     159.0 *    112.    54. AG   4741.    0.8    0.0 18.0
      26. EBQ                 *    -7.0     -11.0    -127.6     -78.0 *    138.   241. AG      4. 100.0    0.0 12.0 0.41  23.0
      27. EBLQ                *   -11.0      -4.0    -575.0    -320.4 *    647.   241. AG      3. 100.0    0.0  4.0 2.12 107.8
      28. EBRQ                *    -3.0     -18.0      -7.0     -20.2 *      5.   242. AG      1. 100.0    0.0  4.0 0.06   0.8
      29. WBA1                *   244.0     169.0     184.0     123.0 *     76.   233. AG   4218.    0.8    0.0 18.0
      30. WBA2                *   184.0     123.0     111.0      75.0 *     87.   237. AG   4218.    0.8    0.0 18.0
      31. WBA3                *   111.0      75.0      43.0      35.0 *     79.   240. AG   4218.    0.8    0.0 18.0
      32. WBA4                *    43.0      35.0      -5.0       8.0 *     55.   241. AG   4218.    0.8    0.0 18.0
      33. WBD                 *    -5.0       8.0    -268.0    -137.0 *    300.   241. AG   4271.    0.8    0.0 18.0
      34. WBQ                 *    12.0      18.0     135.2      86.8 *    141.    61. AG      4. 100.0    0.0 12.0 0.42  23.5
      35. WBLQ                *    17.0      12.0      47.5      28.6 *     35.    61. AG      3. 100.0    0.0  4.0 0.78   5.8
      36. WBRQ                *     8.0      25.0      48.9      47.3 *     47.    61. AG      1. 100.0    0.0  4.0 0.56   7.8
```

JOB: Falconbridge Road and NC54 RUN: 2040 Build AM Peak

DATE : 3/26/15
TIME : 6:46:33

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
9. NBQ	180	155	2.0	962	1765	1.31	2	3
10. NBLQ	180	144	2.0	501	1676	1.31	2	3
20. SBQ	180	164	2.0	301	1765	1.31	2	3
21. SBLQ	180	153	2.0	507	3252	1.31	2	3
26. EBQ	180	74	2.0	3359	4818	1.31	2	3
27. EBLQ	180	159	2.0	335	1676	1.31	2	3
28. EBRQ	180	38	2.0	72	1500	1.31	2	3
34. WBQ	180	73	2.0	3480	4818	1.31	2	3
35. WBLQ	180	158	2.0	131	1676	1.31	2	3
36. WBRQ	180	46	2.0	607	1500	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	19.0	-10.0	1.8
2. REC2	31.0	-33.0	1.8
3. REC3	40.0	-57.0	1.8
4. REC4	44.0	-83.0	1.8
5. REC5	39.0	4.0	1.8
6. REC6	61.0	16.0	1.8
7. REC7	5.0	29.0	1.8
8. REC8	27.0	41.0	1.8
9. REC9	49.0	52.0	1.8
10. REC10	71.0	63.0	1.8
11. REC11	93.0	75.0	1.8
12. REC12	-2.0	24.0	1.8
13. REC13	-12.0	41.0	1.8
14. REC14	-25.0	63.0	1.8
15. REC15	-23.0	9.0	1.8
16. REC16	-33.0	28.0	1.8
17. REC17	-32.0	37.0	1.8
18. REC18	-45.0	59.0	1.8
19. REC19	-57.0	81.0	1.8
20. REC20	-69.0	103.0	1.8
21. REC21	-46.0	-3.0	1.8
22. REC22	-69.0	-15.0	1.8
23. REC23	-1.0	-23.0	1.8
24. REC24	-24.0	-35.0	1.8
25. REC25	-48.0	-46.0	1.8
26. REC26	-71.0	-57.0	1.8
27. REC27	-94.0	-70.0	1.8
28. REC28	-117.0	-84.0	1.8
29. REC29	-140.0	-95.0	1.8
30. REC30	14.0	-44.0	1.8
31. REC31	22.0	-70.0	1.8
32. REC32	23.0	-83.0	1.8

PAGE 3

JOB: Falconbridge Road and NC54 RUN: 2040 Build AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.2	0.1	0.2	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.0	0.3	0.1	0.0	0.0	0.0	0.0
240.	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
250.	0.2	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
260.	0.2	0.0	0.0	0.0	0.3	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
270.	0.2	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.3	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.1	0.1	0.0	0.0	0.2	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
320.	0.1	0.0	0.0	0.0	0.2	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
330.	0.2	0.0	0.0	0.0	0.2	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
340.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.3	0.1	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0
DEGR.	280	0	0	0	250	30	210	230	200	60	80	90	120	0	80	100	200	0	0	0

JOB: Falconbridge Road and NC54 RUN: 2040 Build AM Peak

MODEL RESULTS

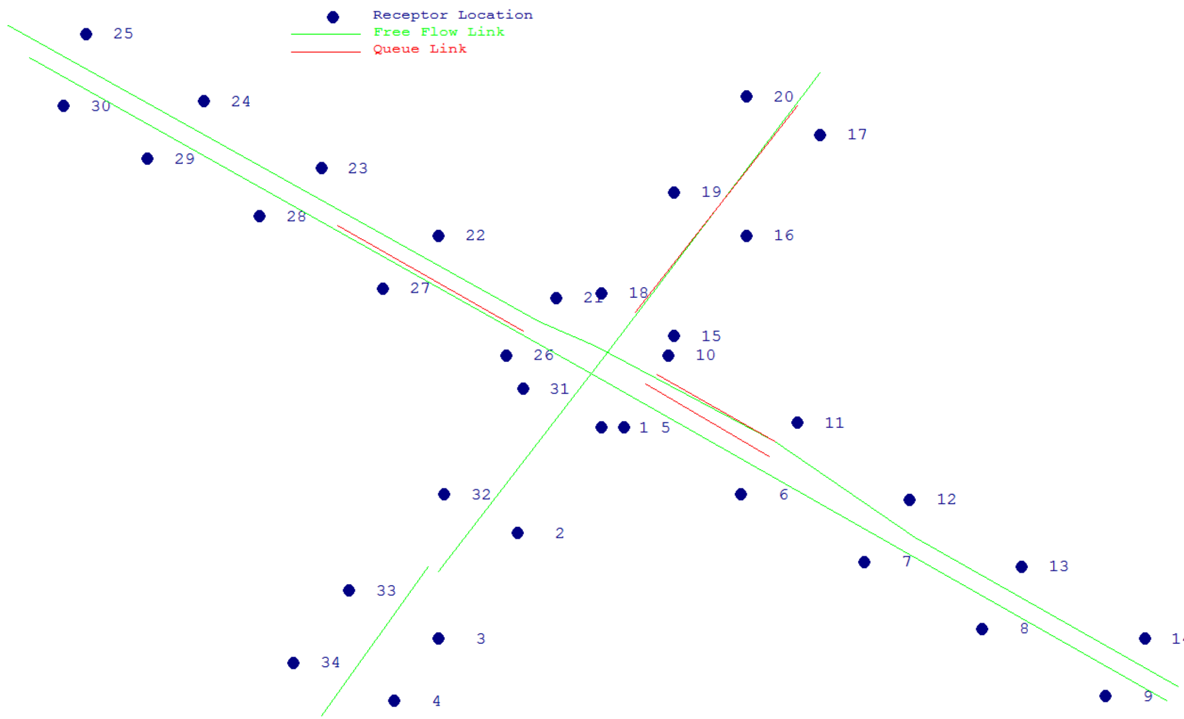
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
10.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
20.	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0
30.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
40.	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0
50.	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0
60.	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
70.	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
80.	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
250.	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.0	0.0	0.0
260.	0.0	0.0	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.0	0.0	0.0
270.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
280.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
290.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
300.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
310.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
320.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
330.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
340.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
350.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
360.	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
MAX	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.1	0.0	0.0
DEGR.	220	220	20	0	0	250	250	0	50	20	0	0

THE HIGHEST CONCENTRATION OF 0.30 PPM OCCURRED AT RECEPTOR REC6 .

2040 PM Build Mangum Street and Main Street



CAL3QHC Input File

```
'Mangum Street and Main Street          '  60. 108.0    0.00    0.00 34     1.0000 0 0
'REC1                    '        2.0       -15.0         1.8
'REC2                    '      -13.0       -37.0         1.8
'REC3                    '      -27.0       -59.0         1.8
'REC4                    '      -35.0       -72.0         1.8
'REC5                    '        6.0       -15.0         1.8
'REC6                    '       27.0       -29.0         1.8
'REC7                    '       49.0       -43.0         1.8
'REC8                    '       70.0       -57.0         1.8
'REC9                    '       92.0       -71.0         1.8
'REC10                   '       14.0         0.0         1.8
'REC11                   '       37.0       -14.0         1.8
'REC12                   '       57.0       -30.0         1.8
'REC13                   '       77.0       -44.0         1.8
'REC14                   '       99.0       -59.0         1.8
'REC15                   '       15.0         4.0         1.8
'REC16                   '       28.0        25.0         1.8
'REC17                   '       41.0        46.0         1.8
'REC18                   '        2.0        13.0         1.8
'REC19                   '       15.0        34.0         1.8
'REC20                   '       28.0        54.0         1.8
'REC21                   '       -6.0        12.0         1.8
'REC22                   '      -27.0        25.0         1.8
'REC23                   '      -48.0        39.0         1.8
'REC24                   '      -69.0        53.0         1.8
'REC25                   '      -90.0        67.0         1.8
'REC26                   '      -15.0         0.0         1.8
'REC27                   '      -37.0        14.0         1.8
'REC28                   '      -59.0        29.0         1.8
'REC29                   '      -79.0        41.0         1.8
'REC30                   '      -94.0        52.0         1.8
'REC31                   '      -12.0        -7.0         1.8
'REC32                   '      -26.0       -29.0         1.8
'REC33                   '      -43.0       -49.0         1.8
'REC34                   '      -53.0       -64.0         1.8
'2040 Build PM Peak                     '  14    1  0 C
1
'SBA                     ' 'AG'       41.0       59.0        2.0       -1.0    1073.   1.16      0.0  14.0
1
'SBD1                    ' 'AG'        2.0       -1.0      -27.0      -45.0    1301.   1.18      0.0  14.0
1
'SBD2                    ' 'AG'      -29.0      -44.0      -48.0      -75.0    1301.   1.18      0.0  18.0
2
'SBQ                     ' 'AG'        8.0        9.0       37.0       52.0      0.0   8.0   2
   90     48    2.0  1073    1.31 3423 2 3
1
'EBA                     ' 'AG'     -100.0       62.0       -1.0       -3.0     332.   0.81      0.0  10.0
1
'EBD                     ' 'AG'       -1.0       -3.0      103.0      -72.0     387.   0.81      0.0  10.0
2
'EBQ                     ' 'AG'      -12.0        5.0      -45.0       27.0      0.0   4.0   1
   90     63    2.0   332    1.31 1805 2 3
1
'WBA1                    ' 'AG'      105.0      -69.0       58.0      -38.0     607.   0.81      0.0  10.0
1
'WBA2                    ' 'AG'       58.0      -38.0       33.0      -18.0     607.   0.81      0.0  10.0
1
'WBA3                    ' 'AG'       33.0      -18.0        1.0        2.0     607.   0.81      0.0  10.0
1
'WBD1                    ' 'AG'        1.0        2.0       -9.0        7.0     324.   0.81      0.0  10.0
1
'WBD2                    ' 'AG'       -9.0        7.0      -98.0       65.0     324.   0.81      0.0  10.0
2
'WBQ                     ' 'AG'       12.0       -4.0       33.0      -18.0      0.0   4.0   1
   90     42    2.0   309    1.31 1827 2 3
2
'WBLQ                    ' 'AG'       10.0       -6.0       32.0      -21.0      0.0   4.0   1
   90     69    2.0   298    1.31  530 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Mangum Street and Main Street                       RUN: 2040 Build PM Peak

      DATE :  5/ 5/15
      TIME :  8:13:57

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (M)          *    LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2    *     (M)   (DEG)            (G/MI)   (M)  (M)        (VEH)
      ------------------------*---------------------------------------*---------------------------------------------------------
-
       1. SBA                 *    41.0      59.0       2.0      -1.0 *      72.   213. AG   1073.   1.2    0.0 14.0
       2. SBD1                *     2.0      -1.0     -27.0     -45.0 *      53.   213. AG   1301.   1.2    0.0 14.0
       3. SBD2                *   -29.0     -44.0     -48.0     -75.0 *      36.   212. AG   1301.   1.2    0.0 18.0
       4. SBQ                 *     8.0       9.0      32.0      44.6 *      43.    34. AG      4. 100.0    0.0  8.0 0.37    7.1
       5. EBA                 *  -100.0      62.0      -1.0      -3.0 *     118.   123. AG    332.   0.8    0.0 10.0
       6. EBD                 *    -1.0      -3.0     103.0     -72.0 *     125.   124. AG    387.   0.8    0.0 10.0
       7. EBQ                 *   -12.0       5.0     -41.0      24.3 *      35.   304. AG      2. 100.0    0.0  4.0 0.72    5.8
       8. WBA1                *   105.0     -69.0      58.0     -38.0 *      56.   303. AG    607.   0.8    0.0 10.0
       9. WBA2                *    58.0     -38.0      33.0     -18.0 *      32.   309. AG    607.   0.8    0.0 10.0
      10. WBA3                *    33.0     -18.0       1.0       2.0 *      38.   302. AG    607.   0.8    0.0 10.0
      11. WBD1                *     1.0       2.0      -9.0       7.0 *      11.   297. AG    324.   0.8    0.0 10.0
      12. WBD2                *    -9.0       7.0     -98.0      65.0 *     106.   303. AG    324.   0.8    0.0 10.0
      13. WBQ                 *    12.0      -4.0      30.0     -16.0 *      22.   124. AG      2. 100.0    0.0  4.0 0.35    3.6
      14. WBLQ                *    10.0      -6.0     558.2    -379.8 *     664.   124. AG      3. 100.0    0.0  4.0 2.98 110.6
```

PAGE 2

JOB: Mangum Street and Main Street RUN: 2040 Build PM Peak

DATE : 5/ 5/15
TIME : 8:13:57

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
4. SBQ	90	48	2.0	1073	3423	1.31	2	3
7. EBQ	90	63	2.0	332	1805	1.31	2	3
13. WBQ	90	42	2.0	309	1827	1.31	2	3
14. WBLQ	90	69	2.0	298	530	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	2.0	-15.0	1.8
2. REC2	-13.0	-37.0	1.8
3. REC3	-27.0	-59.0	1.8
4. REC4	-35.0	-72.0	1.8
5. REC5	6.0	-15.0	1.8
6. REC6	27.0	-29.0	1.8
7. REC7	49.0	-43.0	1.8
8. REC8	70.0	-57.0	1.8
9. REC9	92.0	-71.0	1.8
10. REC10	14.0	0.0	1.8
11. REC11	37.0	-14.0	1.8
12. REC12	57.0	-30.0	1.8
13. REC13	77.0	-44.0	1.8
14. REC14	99.0	-59.0	1.8
15. REC15	15.0	4.0	1.8
16. REC16	28.0	25.0	1.8
17. REC17	41.0	46.0	1.8
18. REC18	2.0	13.0	1.8
19. REC19	15.0	34.0	1.8
20. REC20	28.0	54.0	1.8
21. REC21	-6.0	12.0	1.8
22. REC22	-27.0	25.0	1.8
23. REC23	-48.0	39.0	1.8
24. REC24	-69.0	53.0	1.8
25. REC25	-90.0	67.0	1.8
26. REC26	-15.0	0.0	1.8
27. REC27	-37.0	14.0	1.8
28. REC28	-59.0	29.0	1.8
29. REC29	-79.0	41.0	1.8
30. REC30	-94.0	52.0	1.8
31. REC31	-12.0	-7.0	1.8
32. REC32	-26.0	-29.0	1.8
33. REC33	-43.0	-49.0	1.8
34. REC34	-53.0	-64.0	1.8

JOB: Mangum Street and Main Street RUN: 2040 Build PM Peak

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.-360.

WIND * CONCENTRATION
ANGLE * (PPM)

(DEGR)*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0. *	0.0	0.1	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
10. *	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	0.1	0.0	0.0	0.0	0.0	0.0
20. *	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	0.1	0.0	0.0	0.0	0.0	0.0
30. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0
50. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
60. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
70. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
80. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
190. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
200. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
210. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220. *	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	0.1	0.0	0.0	0.0
230. *	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	0.1	0.0	0.0	0.0
240. *	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	0.1	0.1	0.0	0.0	0.0
250. *	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
260. *	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
270. *	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
280. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300. *	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
310. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340. *	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
350. *	0.0	0.1	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
360. *	0.0	0.1	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
MAX *	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	0.1	0.1	0.1	0.1	0.0	0.1
DEGR. *	220	0	250	0	0	0	0	0	0	0	0	0	0	0	0	240	220	40	0	180

JOB: Mangum Street and Main Street RUN: 2040 Build PM Peak

MODEL RESULTS

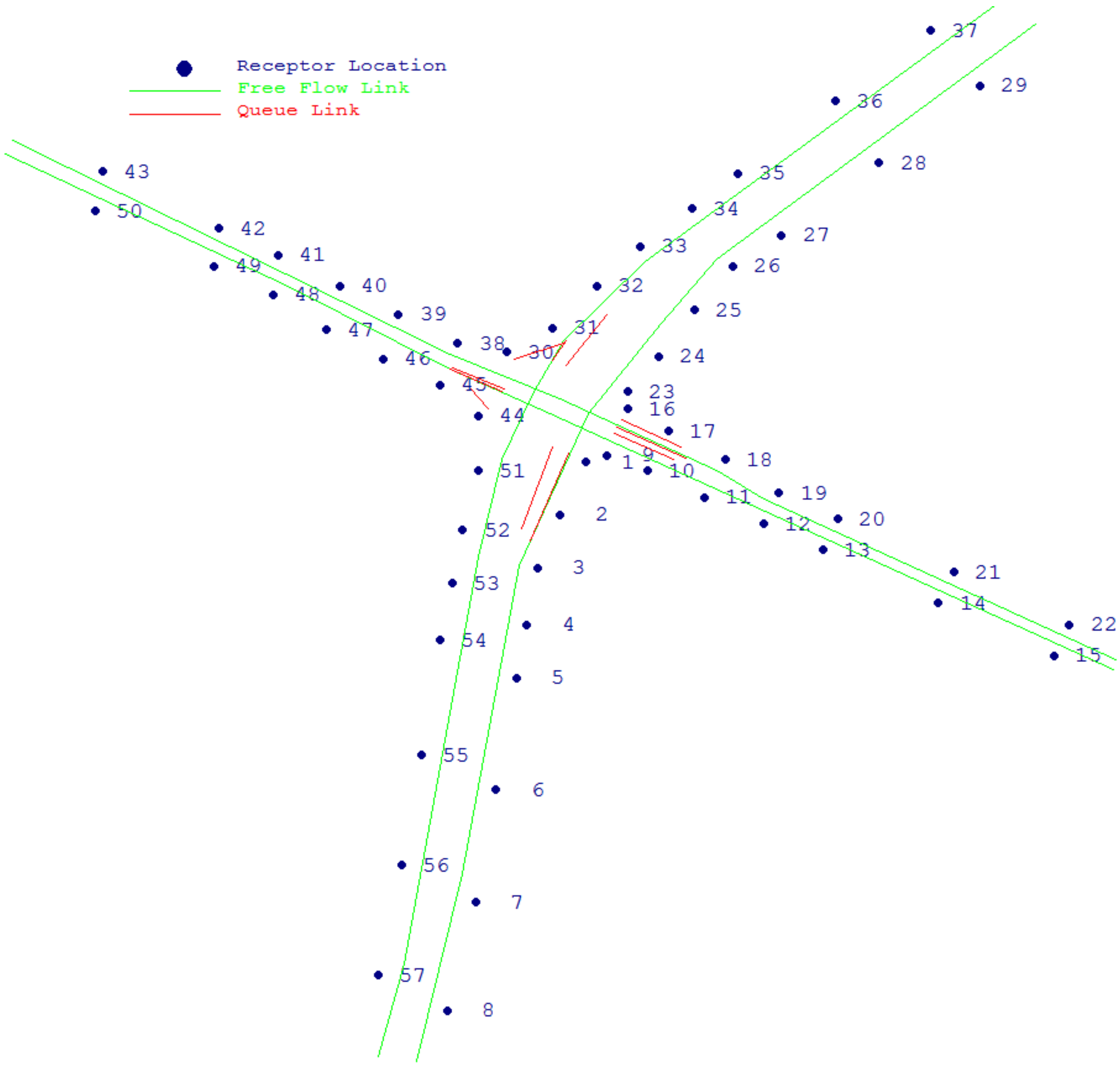
REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
50.	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
60.	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	0.1
70.	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	0.1
80.	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
90.	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
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	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
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
190.	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
200.	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
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
DEGR.	0	0	0	0	0	0	0	0	0	0	160	50	170	60

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 PM Build Morreene Road/Towerview Road and Erwin Road



CAL3QHC Input File

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'Morreene Rd_Towerview Rd and Erwin Rd     '  60. 108.0    0.00    0.00 57     1.0000 0 0
'REC1                 '         11.0      -28.0        1.8
'REC2                 '          1.0      -52.0        1.8
'REC3                 '         -8.0      -76.0        1.8
'REC4                 '        -12.0     -102.0        1.8
'REC5                 '        -16.0     -126.0        1.8
'REC6                 '        -24.0     -177.0        1.8
'REC7                 '        -32.0     -228.0        1.8
'REC8                 '        -43.0     -277.0        1.8
'REC9                 '         19.0      -25.0        1.8
'REC10                '         35.0      -32.0        1.8
'REC11                '         57.0      -44.0        1.8
'REC12                '         80.0      -56.0        1.8
'REC13                '        103.0      -68.0        1.8
'REC14                '        148.0      -92.0        1.8
'REC15                '        193.0     -116.0        1.8
'REC16                '         27.0       -4.0        1.8
'REC17                '         43.0      -14.0        1.8
'REC18                '         65.0      -27.0        1.8
'REC19                '         86.0      -42.0        1.8
'REC20                '        109.0      -54.0        1.8
'REC21                '        154.0      -78.0        1.8
'REC22                '        199.0     -102.0        1.8
'REC23                '         27.0        4.0        1.8
'REC24                '         39.0       20.0        1.8
'REC25                '         53.0       41.0        1.8
'REC26                '         68.0       61.0        1.8
'REC27                '         87.0       75.0        1.8
'REC28                '        125.0      108.0        1.8
'REC29                '        164.0      143.0        1.8
'REC30                '        -20.0       22.0        1.8
'REC31                '         -2.0       33.0        1.8
'REC32                '         15.0       52.0        1.8
'REC33                '         32.0       70.0        1.8
'REC34                '         52.0       87.0        1.8
'REC35                '         70.0      103.0        1.8
'REC36                '        108.0      136.0        1.8
'REC37                '        145.0      168.0        1.8
'REC38                '        -39.0       26.0        1.8
'REC39                '        -62.0       39.0        1.8
'REC40                '        -85.0       52.0        1.8
'REC41                '       -109.0       66.0        1.8
'REC42                '       -132.0       78.0        1.8
'REC43                '       -177.0      104.0        1.8
'REC44                '        -31.0       -7.0        1.8
'REC45                '        -46.0        7.0        1.8
'REC46                '        -68.0       19.0        1.8
'REC47                '        -90.0       32.0        1.8
'REC48                '       -111.0       48.0        1.8
'REC49                '       -134.0       61.0        1.8
'REC50                '       -180.0       86.0        1.8
'REC51                '        -31.0      -32.0        1.8
'REC52                '        -37.0      -59.0        1.8
'REC53                '        -41.0      -83.0        1.8
'REC54                '        -46.0     -109.0        1.8
'REC55                '        -53.0     -161.0        1.8
'REC56                '        -61.0     -211.0        1.8
'REC57                '        -70.0     -261.0        1.8
'2040 No-Build PM Peak                     '  33    1   0 C
1
'NBA1                 ' 'AG'      -55.0     -300.0      -37.0     -215.0     510.   1.16      0.0  12.0
1
'NBA2                 ' 'AG'      -37.0     -215.0      -15.0      -75.0     510.   1.16      0.0  12.0
1
'NBA3                 ' 'AG'      -15.0      -75.0       12.0       -6.0     510.   1.16      0.0  12.0
1
'NBD1                 ' 'AG'       12.0       -6.0       40.0       35.0     685.   1.16      0.0  12.0
1
'NBD2                 ' 'AG'       40.0       35.0       62.0       64.0     685.   1.16      0.0  12.0
1
'NBD3                 ' 'AG'       62.0       64.0      186.0      171.0     685.   1.16      0.0  12.0
2
'NBQ                  ' 'AG'        4.0      -24.0      -11.0      -64.0       0.0    6.0  2
  150    100    2.0    368    1.31  3207 2 3
2
```

```
'NBLQ                ' 'AG'      -2.0      -21.0      -14.0      -58.0      0.0   3.5  1
  150   130   2.0   142   1.31 1661 2 3
1
'SBA1                ' 'AG'     174.0      183.0       34.0       63.0   1275.   1.16       0.0  13.0
1
'SBA2                ' 'AG'      34.0       63.0        2.0       27.0   1275.   1.16       0.0  13.0
1
'SBA3                ' 'AG'       2.0       27.0      -10.0        3.0   1275.   1.16       0.0  13.0
1
'SBD1                ' 'AG'     -10.0        3.0      -22.0      -27.0   1190.   1.16       0.0  13.0
1
'SBD2                ' 'AG'     -22.0      -27.0      -31.0      -71.0   1190.   1.16       0.0  13.0
1
'SBD3                ' 'AG'     -31.0      -71.0      -60.0     -256.0   1190.   1.16       0.0  13.0
1
'SBD4                ' 'AG'     -60.0     -256.0      -70.0     -298.0   1190.   1.16       0.0  13.0
2
'SBQ                 ' 'AG'      -2.0       18.0        3.0       27.0      0.0   7.0  2
  150    95   2.0   831   1.31 3322 2 3
2
'SBLQ                ' 'AG'       3.0       16.0       19.0       39.0      0.0   4.0  1
  150   125   2.0   103   1.31 1718 2 3
2
'SBRQ                ' 'AG'     -17.0       19.0        2.0       26.0      0.0   3.0  1
  150    95   2.0   341   1.31 1435 2 3
1
'EBA1                ' 'AG'    -215.0      112.0     -105.0       52.0    605.   1.16       0.0  10.0
1
'EBA2                ' 'AG'    -105.0       52.0      -42.0       14.0    605.   1.16       0.0  10.0
1
'EBA3                ' 'AG'     -42.0       14.0       -3.0       -6.0    605.   1.16       0.0  10.0
1
'EBD                 ' 'AG'      -3.0       -6.0      216.0     -122.0    350.   1.18       0.0  10.0
2
'EBQ                 ' 'AG'     -22.0        4.0      -42.0       14.0      0.0   4.0  1
  150    91   2.0   205   1.31 1809 2 3
2
'EBLQ                ' 'AG'     -21.0        5.0      -41.0       15.0      0.0   3.5  1
  150   133   2.0   219   1.31  184 2 3
2
'EBRQ                ' 'AG'     -27.0       -4.0      -34.0        5.0      0.0   3.0  1
  150    91   2.0   181   1.31 1384 2 3
1
'WBA1                ' 'AG'     217.0     -118.0       80.0      -45.0    835.   1.18       0.0   9.5
1
'WBA2                ' 'AG'      80.0      -45.0       62.0      -32.0    835.   1.18       0.0   9.5
1
'WBA3                ' 'AG'      62.0      -32.0        1.0        1.0    835.   1.18       0.0   9.5
1
'WBD1                ' 'AG'       1.0        1.0      -42.0       21.0   1000.   1.16       0.0   9.5
1
'WBD2                ' 'AG'     -42.0       21.0     -212.0      118.0   1000.   1.16       0.0   9.5
2
'WBQ                 ' 'AG'      23.0      -12.0       50.0      -26.0      0.0   3.5  1
  150    92   2.0   517   1.31 1748 2 3
2
'WBLQ                ' 'AG'      22.0      -15.0       45.0      -27.0      0.0   3.5  1
  150   134   2.0   178   1.31  916 2 3
2
'WBRQ                ' 'AG'      25.0       -9.0       48.0      -21.0      0.0   3.5  1
  150   125   2.0   140   1.31 1486 2 3
 1.0   0.0 4  1000.0   0.0 'Y'  10   0  36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Morreene Rd_Towerview Rd and Erwin Rd                RUN: 2040 No-Build PM Peak

      DATE :  5/ 5/15
      TIME : 10:37:17

         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 = 108. CM
        U =   1.0 M/S         CLAS =    4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *          LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2     *    (M)   (DEG)           (G/MI)   (M)  (M)        (VEH)
      ------------------------*----------------------------------------*-----------------------------------------------------------
-
       1. NBA1                *    -55.0    -300.0     -37.0    -215.0 *     87.    12. AG    510.   1.2    0.0 12.0
       2. NBA2                *    -37.0    -215.0     -15.0     -75.0 *    142.     9. AG    510.   1.2    0.0 12.0
       3. NBA3                *    -15.0     -75.0      12.0      -6.0 *     74.    21. AG    510.   1.2    0.0 12.0
       4. NBD1                *     12.0      -6.0      40.0      35.0 *     50.    34. AG    685.   1.2    0.0 12.0
       5. NBD2                *     40.0      35.0      62.0      64.0 *     36.    37. AG    685.   1.2    0.0 12.0
       6. NBD3                *     62.0      64.0     186.0     171.0 *    164.    49. AG    685.   1.2    0.0 12.0
       7. NBQ                 *      4.0     -24.0      -6.8     -52.7 *     31.   201. AG      5. 100.0    0.0  6.0 0.19    5.1
       8. NBLQ                *     -2.0     -21.0     -11.8     -51.3 *     32.   198. AG      3. 100.0    0.0  3.5 0.80    5.3
       9. SBA1                *    174.0     183.0      34.0      63.0 *    184.   229. AG   1275.   1.2    0.0 13.0
      10. SBA2                *     34.0      63.0       2.0      27.0 *     48.   222. AG   1275.   1.2    0.0 13.0
      11. SBA3                *      2.0      27.0     -10.0       3.0 *     27.   207. AG   1275.   1.2    0.0 13.0
      12. SBD1                *    -10.0       3.0     -22.0     -27.0 *     32.   202. AG   1190.   1.2    0.0 13.0
      13. SBD2                *    -22.0     -27.0     -31.0     -71.0 *     45.   192. AG   1190.   1.2    0.0 13.0
      14. SBD3                *    -31.0     -71.0     -60.0    -256.0 *    187.   189. AG   1190.   1.2    0.0 13.0
      15. SBD4                *    -60.0    -256.0     -70.0    -298.0 *     43.   193. AG   1190.   1.2    0.0 13.0
      16. SBQ                 *     -2.0      18.0      29.9      75.4 *     66.    29. AG      4. 100.0    0.0  7.0 0.37   11.0
      17. SBLQ                *      3.0      16.0      15.3      33.6 *     21.    35. AG      3. 100.0    0.0  4.0 0.43    3.6
      18. SBRQ                *    -17.0      19.0      33.7      37.7 *     54.    70. AG      2. 100.0    0.0  3.0 0.70    9.0
      19. EBA1                *   -215.0     112.0    -105.0      52.0 *    125.   119. AG    605.   1.2    0.0 10.0
      20. EBA2                *   -105.0      52.0     -42.0      14.0 *     74.   121. AG    605.   1.2    0.0 10.0
      21. EBA3                *    -42.0      14.0      -3.0      -6.0 *     44.   117. AG    605.   1.2    0.0 10.0
      22. EBD                 *     -3.0      -6.0     216.0    -122.0 *    248.   118. AG    350.   1.2    0.0 10.0
      23. EBQ                 *    -22.0       4.0     -49.8      17.9 *     31.   297. AG      2. 100.0    0.0  4.0 0.31    5.2
      24. EBLQ                *    -21.0       5.0    -672.8     330.9 *    729.   297. AG      3. 100.0    0.0  3.5 **** 121.5
      25. EBRQ                *    -27.0      -4.0     -43.9      17.7 *     27.   322. AG      2. 100.0    0.0  3.0 0.36    4.6
      26. WBA1                *    217.0    -118.0      80.0     -45.0 *    155.   298. AG    835.   1.2    0.0  9.5
      27. WBA2                *     80.0     -45.0      62.0     -32.0 *     22.   306. AG    835.   1.2    0.0  9.5
      28. WBA3                *     62.0     -32.0       1.0       1.0 *     69.   298. AG    835.   1.2    0.0  9.5
      29. WBD1                *      1.0       1.0     -42.0      21.0 *     47.   295. AG   1000.   1.2    0.0  9.5
      30. WBD2                *    -42.0      21.0    -212.0     118.0 *    196.   300. AG   1000.   1.2    0.0  9.5
      31. WBQ                 *     23.0     -12.0      93.4     -48.5 *     79.   117. AG      2. 100.0    0.0  3.5 0.82   13.2
      32. WBLQ                *     22.0     -15.0     357.2    -189.9 *    378.   118. AG      3. 100.0    0.0  3.5 2.44   63.0
      33. WBRQ                *     25.0      -9.0      50.9     -22.5 *     29.   118. AG      3. 100.0    0.0  3.5 0.67    4.9
```

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

DATE : 5/ 5/15
TIME : 10:37:17

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
7. NBQ	150	100	2.0	368	3207	1.31	2	3
8. NBLQ	150	130	2.0	142	1661	1.31	2	3
16. SBQ	150	95	2.0	831	3322	1.31	2	3
17. SBLQ	150	125	2.0	103	1718	1.31	2	3
18. SBRQ	150	95	2.0	341	1435	1.31	2	3
23. EBQ	150	91	2.0	205	1809	1.31	2	3
24. EBLQ	150	133	2.0	219	184	1.31	2	3
25. EBRQ	150	91	2.0	181	1384	1.31	2	3
31. WBQ	150	92	2.0	517	1748	1.31	2	3
32. WBLQ	150	134	2.0	178	916	1.31	2	3
33. WBRQ	150	125	2.0	140	1486	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	11.0	-28.0	1.8
2. REC2	1.0	-52.0	1.8
3. REC3	-8.0	-76.0	1.8
4. REC4	-12.0	-102.0	1.8
5. REC5	-16.0	-126.0	1.8
6. REC6	-24.0	-177.0	1.8
7. REC7	-32.0	-228.0	1.8
8. REC8	-43.0	-277.0	1.8
9. REC9	19.0	-25.0	1.8
10. REC10	35.0	-32.0	1.8
11. REC11	57.0	-44.0	1.8
12. REC12	80.0	-56.0	1.8
13. REC13	103.0	-68.0	1.8
14. REC14	148.0	-92.0	1.8
15. REC15	193.0	-116.0	1.8
16. REC16	27.0	-4.0	1.8
17. REC17	43.0	-14.0	1.8
18. REC18	65.0	-27.0	1.8
19. REC19	86.0	-42.0	1.8
20. REC20	109.0	-54.0	1.8
21. REC21	154.0	-78.0	1.8
22. REC22	199.0	-102.0	1.8
23. REC23	27.0	4.0	1.8
24. REC24	39.0	20.0	1.8
25. REC25	53.0	41.0	1.8
26. REC26	68.0	61.0	1.8
27. REC27	87.0	75.0	1.8
28. REC28	125.0	108.0	1.8
29. REC29	164.0	143.0	1.8
30. REC30	-20.0	22.0	1.8
31. REC31	-2.0	33.0	1.8
32. REC32	15.0	52.0	1.8
33. REC33	32.0	70.0	1.8
34. REC34	52.0	87.0	1.8

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

DATE : 5/ 5/15
TIME : 10:37:17

RECEPTOR LOCATIONS

RECEPTOR	X	Y	Z
35. REC35	70.0	103.0	1.8
36. REC36	108.0	136.0	1.8
37. REC37	145.0	168.0	1.8
38. REC38	-39.0	26.0	1.8
39. REC39	-62.0	39.0	1.8
40. REC40	-85.0	52.0	1.8
41. REC41	-109.0	66.0	1.8
42. REC42	-132.0	78.0	1.8
43. REC43	-177.0	104.0	1.8
44. REC44	-31.0	-7.0	1.8
45. REC45	-46.0	7.0	1.8
46. REC46	-68.0	19.0	1.8
47. REC47	-90.0	32.0	1.8
48. REC48	-111.0	48.0	1.8
49. REC49	-134.0	61.0	1.8
50. REC50	-180.0	86.0	1.8
51. REC51	-31.0	-32.0	1.8
52. REC52	-37.0	-59.0	1.8
53. REC53	-41.0	-83.0	1.8
54. REC54	-46.0	-109.0	1.8
55. REC55	-53.0	-161.0	1.8
56. REC56	-61.0	-211.0	1.8
57. REC57	-70.0	-261.0	1.8

COORDINATES (M) apply to X, Y, Z.

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JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

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.-360.

WIND * CONCENTRATION
ANGLE * (PPM)

(DEGR)*	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
30. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
140. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
150. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280. *	0.0	0.0	0.0	0.0	0.0	0.0	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
290. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX *	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1
DEGR. *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280	130	130

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

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.-360.

WIND * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39	REC40
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.1	0.0	0.1
140.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	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
180.	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	0.1	0.1	0.1	0.1	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
200.	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	0.1	0.1	0.1	0.1	0.0	0.0	0.0
210.	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	0.1	0.1	0.1	0.1	0.0	0.0	0.0
220.	0.0	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	0.1	0.1	0.1	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1
280.	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	0.1	0.1	0.1
290.	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	0.1	0.1	0.1
300.	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
DEGR.	130	280	0	0	0	0	0	0	0	0	50	70	50	50	50	50	70	130	270	130

PAGE 6

JOB: Morreene Rd_Towerview Rd and Erwin Rd RUN: 2040 No-Build PM Peak

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.

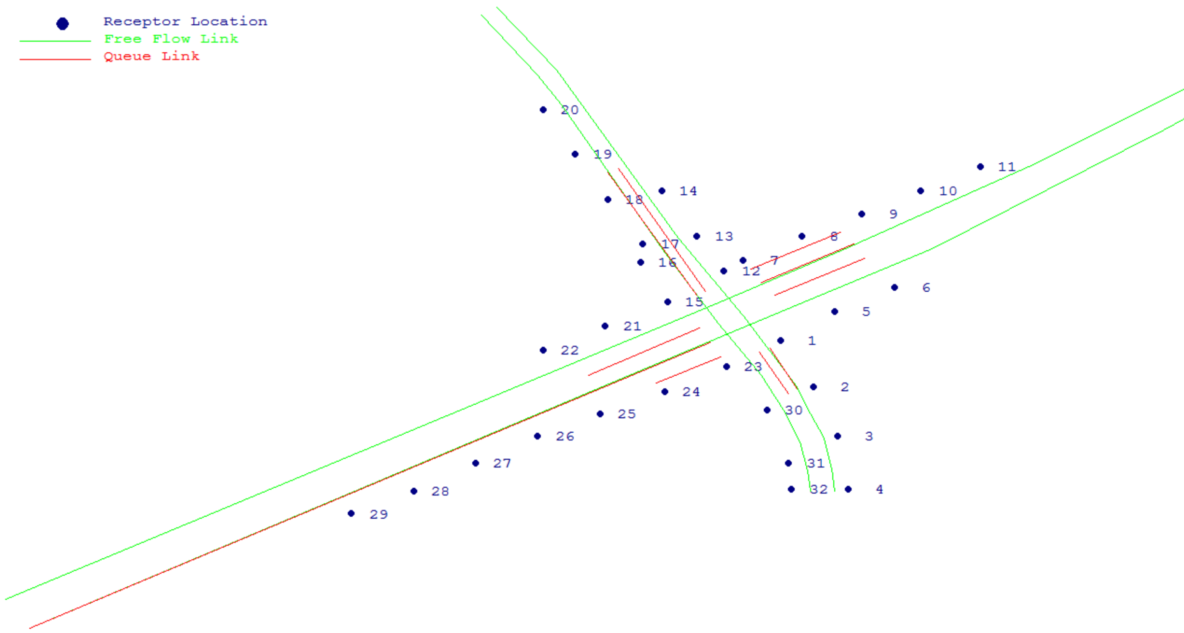
WIND ANGLE RANGE: 0.-360.

WIND * CONCENTRATION
ANGLE * (PPM)

(DEGR)*	REC41	REC42	REC43	REC44	REC45	REC46	REC47	REC48	REC49	REC50	REC51	REC52	REC53	REC54	REC55	REC56	REC57
0. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	0.1	0.1	0.1
30. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
40. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0
50. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
60. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120. *	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
130. *	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
140. *	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
150. *	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0
160. *	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0
170. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0
180. *	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	0.1	0.1	0.0	0.0
190. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260. *	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
270. *	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
280. *	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
290. *	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
300. *	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
310. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX *	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
DEGR. *	130	120	120	0	0	0	0	0	0	0	150	40	150	40	20	10	20

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC56.

2040 PM Build Falconbridge Road and NC 54



CAL3QHC Input File

```
'Falconbridge Road and NC54              '  60. 108.0    0.00    0.00 32     1.0000 0 0
'REC1                    '       19.0      -10.0        1.8
'REC2                    '       31.0      -33.0        1.8
'REC3                    '       40.0      -57.0        1.8
'REC4                    '       44.0      -83.0        1.8
'REC5                    '       39.0        4.0        1.8
'REC6                    '       61.0       16.0        1.8
'REC7                    '        5.0       29.0        1.8
'REC8                    '       27.0       41.0        1.8
'REC9                    '       49.0       52.0        1.8
'REC10                   '       71.0       63.0        1.8
'REC11                   '       93.0       75.0        1.8
'REC12                   '       -2.0       24.0        1.8
'REC13                   '      -12.0       41.0        1.8
'REC14                   '      -25.0       63.0        1.8
'REC15                   '      -23.0        9.0        1.8
'REC16                   '      -33.0       28.0        1.8
'REC17                   '      -32.0       37.0        1.8
'REC18                   '      -45.0       59.0        1.8
'REC19                   '      -57.0       81.0        1.8
'REC20                   '      -69.0      103.0        1.8
'REC21                   '      -46.0       -3.0        1.8
'REC22                   '      -69.0      -15.0        1.8
'REC23                   '       -1.0      -23.0        1.8
'REC24                   '      -24.0      -35.0        1.8
'REC25                   '      -48.0      -46.0        1.8
'REC26                   '      -71.0      -57.0        1.8
'REC27                   '      -94.0      -70.0        1.8
'REC28                   '     -117.0      -84.0        1.8
'REC29                   '     -140.0      -95.0        1.8
'REC30                   '       14.0      -44.0        1.8
'REC31                   '       22.0      -70.0        1.8
'REC32                   '       23.0      -83.0        1.8
'2040 Build PM Peak                      '  36    1   0 C
1
'NBA1                    ' 'AG'       39.0      -84.0       38.0      -73.0     248.   0.81       0.0  10.0
1
'NBA2                    ' 'AG'       38.0      -73.0       35.0      -58.0     248.   0.81       0.0  10.0
1
'NBA3                    ' 'AG'       35.0      -58.0       30.0      -46.0     248.   0.81       0.0  10.0
1
'NBA4                    ' 'AG'       30.0      -46.0       25.0      -33.0     248.   0.81       0.0  10.0
1
'NBA5                    ' 'AG'       25.0      -33.0        5.0        2.0     248.   0.81       0.0  10.0
1
'NBD1                    ' 'AG'        5.0        2.0      -19.0       40.0    1117.   0.81       0.0  10.0
1
'NBD2                    ' 'AG'      -19.0       40.0      -64.0      122.0    1117.   0.81       0.0  10.0
1
'NBD3                    ' 'AG'      -64.0      122.0      -86.0      153.0    1117.   0.81       0.0  10.0
2
'NBQ                     ' 'AG'       15.0      -14.0       25.0      -34.0       0.0   4.0  1
  180    170    2.0    175    1.31 1765 2 3
2
'NBLQ                    ' 'AG'       11.0      -16.0       22.0      -36.0       0.0   4.0  1
  180    162    2.0     73    1.31 1676 2 3
1
'SBA1                    ' 'AG'      -92.0      149.0      -71.0      120.0     787.   0.81       0.0  10.0
1
'SBA2                    ' 'AG'      -71.0      120.0      -62.0      105.0     787.   0.81       0.0  10.0
1
'SBA3                    ' 'AG'      -62.0      105.0      -24.0       33.0     787.   0.81       0.0  10.0
1
'SBA4                    ' 'AG'      -24.0       33.0       -4.0       -2.0     787.   0.81       0.0  10.0
1
'SBD1                    ' 'AG'       -4.0       -2.0       12.0      -27.0    1345.   0.81       0.0  10.0
1
'SBD2                    ' 'AG'       12.0      -27.0       20.0      -44.0    1345.   0.81       0.0  10.0
1
'SBD3                    ' 'AG'       20.0      -44.0       26.0      -60.0    1345.   0.81       0.0  10.0
1
'SBD4                    ' 'AG'       26.0      -60.0       29.0      -74.0    1345.   0.81       0.0  10.0
1
'SBD5                    ' 'AG'       29.0      -74.0       30.0      -84.0    1345.   0.81       0.0  10.0
2
```

```
'SBQ                 ' 'AG'      -12.0       12.0      -45.0       72.0       0.0    4.0   1
  180   160   2.0   289   1.31 1765 2 3
2
'SBLQ                ' 'AG'       -9.0       14.0      -41.0       74.0       0.0    8.0   2
  180   152   2.0   498   1.31 3252 2 3
1
'EBA                 ' 'AG'     -259.0     -151.0        3.0       -5.0     4258.   0.81       0.0   18.0
1
'EBD1                ' 'AG'        3.0       -5.0       75.0       35.0     4150.   0.81       0.0   18.0
1
'EBD2                ' 'AG'       75.0       35.0      161.0       93.0     4150.   0.81       0.0   18.0
1
'EBD3                ' 'AG'      161.0       93.0      252.0      159.0     4150.   0.81       0.0   18.0
2
'EBQ                 ' 'AG'       -7.0      -11.0     -259.0     -151.0       0.0   12.0   3
  180    73   2.0  3493   1.31 4818 2 3
2
'EBLQ                ' 'AG'      -11.0       -4.0      -52.0      -27.0       0.0    4.0   1
  180   125   2.0   353   1.31 1676 2 3
2
'EBRQ                ' 'AG'       -3.0      -18.0      -27.0      -31.0       0.0    4.0   1
  180    55   2.0   412   1.31 1500 2 3
1
'WBA1                ' 'AG'      244.0      169.0      184.0      123.0     5003.   0.81       0.0   18.0
1
'WBA2                ' 'AG'      184.0      123.0      111.0       75.0     5003.   0.81       0.0   18.0
1
'WBA3                ' 'AG'      111.0       75.0       43.0       35.0     5003.   0.81       0.0   18.0
1
'WBA4                ' 'AG'       43.0       35.0       -5.0        8.0     5003.   0.81       0.0   18.0
1
'WBD                 ' 'AG'       -5.0        8.0     -268.0     -137.0     3684.   0.81       0.0   18.0
2
'WBQ                 ' 'AG'       12.0       18.0       46.0       37.0       0.0   12.0   3
  180    93   2.0  3381   1.31 4818 2 3
2
'WBLQ                ' 'AG'       17.0       12.0       50.0       30.0       0.0    4.0   1
  180   145   2.0   874   1.31 1676 2 3
2
'WBRQ                ' 'AG'        8.0       25.0       41.0       43.0       0.0    4.0   1
  180    65   2.0   748   1.31 1500 2 3
 1.0    0.0 4  1000.0   0.0 'Y'   10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: Falconbridge Road and NC54                            RUN: 2040 Build PM Peak

      DATE :  3/26/15
      TIME :  6:46:43

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *          LINK COORDINATES (M)          *    LENGTH  BRG TYPE   VPH     EF      H    W     V/C QUEUE
                              *   X1        Y1        X2        Y2     *     (M)   (DEG)            (G/MI)   (M)  (M)        (VEH)
      ------------------------*----------------------------------------*--------------------------------------------------------
-
       1. NBA1                *    39.0     -84.0      38.0     -73.0 *     11.   355. AG    248.    0.8    0.0 10.0
       2. NBA2                *    38.0     -73.0      35.0     -58.0 *     15.   349. AG    248.    0.8    0.0 10.0
       3. NBA3                *    35.0     -58.0      30.0     -46.0 *     13.   337. AG    248.    0.8    0.0 10.0
       4. NBA4                *    30.0     -46.0      25.0     -33.0 *     14.   339. AG    248.    0.8    0.0 10.0
       5. NBA5                *    25.0     -33.0       5.0       2.0 *     40.   330. AG    248.    0.8    0.0 10.0
       6. NBD1                *     5.0       2.0     -19.0      40.0 *     45.   328. AG   1117.    0.8    0.0 10.0
       7. NBD2                *   -19.0      40.0     -64.0     122.0 *     94.   331. AG   1117.    0.8    0.0 10.0
       8. NBD3                *   -64.0     122.0     -86.0     153.0 *     38.   325. AG   1117.    0.8    0.0 10.0
       9. NBQ                 *    15.0     -14.0     205.5    -394.9 *    426.   153. AG      3. 100.0    0.0  4.0 3.02   71.0
      10. NBLQ                *    11.0     -16.0      20.5     -33.3 *     20.   151. AG      3. 100.0    0.0  4.0 0.56    3.3
      11. SBA1                *   -92.0     149.0     -71.0     120.0 *     36.   144. AG    787.    0.8    0.0 10.0
      12. SBA2                *   -71.0     120.0     -62.0     105.0 *     17.   149. AG    787.    0.8    0.0 10.0
      13. SBA3                *   -62.0     105.0     -24.0      33.0 *     81.   152. AG    787.    0.8    0.0 10.0
      14. SBA4                *   -24.0      33.0      -4.0      -2.0 *     40.   150. AG    787.    0.8    0.0 10.0
      15. SBD1                *    -4.0      -2.0      12.0     -27.0 *     30.   147. AG   1345.    0.8    0.0 10.0
      16. SBD2                *    12.0     -27.0      20.0     -44.0 *     19.   155. AG   1345.    0.8    0.0 10.0
      17. SBD3                *    20.0     -44.0      26.0     -60.0 *     17.   159. AG   1345.    0.8    0.0 10.0
      18. SBD4                *    26.0     -60.0      29.0     -74.0 *     14.   168. AG   1345.    0.8    0.0 10.0
      19. SBD5                *    29.0     -74.0      30.0     -84.0 *     10.   174. AG   1345.    0.8    0.0 10.0
      20. SBQ                 *   -12.0      12.0    -252.7     449.6 *    499.   331. AG      3. 100.0    0.0  4.0 1.85   83.2
      21. SBLQ                *    -9.0      14.0     -38.7      69.7 *     63.   332. AG      6. 100.0    0.0  8.0 0.58   10.5
      22. EBA                 *  -259.0    -151.0       3.0      -5.0 *    300.    61. AG   4258.    0.8    0.0 18.0
      23. EBD1                *     3.0      -5.0      75.0      35.0 *     82.    61. AG   4150.    0.8    0.0 18.0
      24. EBD2                *    75.0      35.0     161.0      93.0 *    104.    56. AG   4150.    0.8    0.0 18.0
      25. EBD3                *   161.0      93.0     252.0     159.0 *    112.    54. AG   4150.    0.8    0.0 18.0
      26. EBQ                 *    -7.0     -11.0    -130.8     -79.8 *    142.   241. AG      4. 100.0    0.0 12.0 0.42   23.6
      27. EBLQ                *   -11.0      -4.0     -75.1     -40.0 *     74.   241. AG      2. 100.0    0.0  4.0 0.74   12.3
      28. EBRQ                *    -3.0     -18.0     -36.2     -36.0 *     38.   242. AG      1. 100.0    0.0  4.0 0.41    6.3
      29. WBA1                *   244.0     169.0     184.0     123.0 *     76.   233. AG   5003.    0.8    0.0 18.0
      30. WBA2                *   184.0     123.0     111.0      75.0 *     87.   237. AG   5003.    0.8    0.0 18.0
      31. WBA3                *   111.0      75.0      43.0      35.0 *     79.   240. AG   5003.    0.8    0.0 18.0
      32. WBA4                *    43.0      35.0      -5.0       8.0 *     55.   241. AG   5003.    0.8    0.0 18.0
      33. WBD                 *    -5.0       8.0    -268.0    -137.0 *    300.   241. AG   3684.    0.8    0.0 18.0
      34. WBQ                 *    12.0      18.0     164.5     103.2 *    175.    61. AG      5. 100.0    0.0 12.0 0.51   29.1
      35. WBLQ                *    17.0      12.0    1788.5     978.3 *   2018.    61. AG      3. 100.0    0.0  4.0 3.03  336.3
      36. WBRQ                *     8.0      25.0      79.1      63.8 *     81.    61. AG      1. 100.0    0.0  4.0 0.81   13.5
```

JOB: Falconbridge Road and NC54 RUN: 2040 Build PM Peak

DATE : 3/26/15
TIME : 6:46:43

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
9. NBQ	180	170	2.0	175	1765	1.31	2	3
10. NBLQ	180	162	2.0	73	1676	1.31	2	3
20. SBQ	180	160	2.0	289	1765	1.31	2	3
21. SBLQ	180	152	2.0	498	3252	1.31	2	3
26. EBQ	180	73	2.0	3493	4818	1.31	2	3
27. EBLQ	180	125	2.0	353	1676	1.31	2	3
28. EBRQ	180	55	2.0	412	1500	1.31	2	3
34. WBQ	180	93	2.0	3381	4818	1.31	2	3
35. WBLQ	180	145	2.0	874	1676	1.31	2	3
36. WBRQ	180	65	2.0	748	1500	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	19.0	-10.0	1.8
2. REC2	31.0	-33.0	1.8
3. REC3	40.0	-57.0	1.8
4. REC4	44.0	-83.0	1.8
5. REC5	39.0	4.0	1.8
6. REC6	61.0	16.0	1.8
7. REC7	5.0	29.0	1.8
8. REC8	27.0	41.0	1.8
9. REC9	49.0	52.0	1.8
10. REC10	71.0	63.0	1.8
11. REC11	93.0	75.0	1.8
12. REC12	-2.0	24.0	1.8
13. REC13	-12.0	41.0	1.8
14. REC14	-25.0	63.0	1.8
15. REC15	-23.0	9.0	1.8
16. REC16	-33.0	28.0	1.8
17. REC17	-32.0	37.0	1.8
18. REC18	-45.0	59.0	1.8
19. REC19	-57.0	81.0	1.8
20. REC20	-69.0	103.0	1.8
21. REC21	-46.0	-3.0	1.8
22. REC22	-69.0	-15.0	1.8
23. REC23	-1.0	-23.0	1.8
24. REC24	-24.0	-35.0	1.8
25. REC25	-48.0	-46.0	1.8
26. REC26	-71.0	-57.0	1.8
27. REC27	-94.0	-70.0	1.8
28. REC28	-117.0	-84.0	1.8
29. REC29	-140.0	-95.0	1.8
30. REC30	14.0	-44.0	1.8
31. REC31	22.0	-70.0	1.8
32. REC32	23.0	-83.0	1.8

PAGE 3

JOB: Falconbridge Road and NC54 RUN: 2040 Build PM Peak

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.-360.

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	CONCENTRATION (PPM)																			
0.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.2	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.1	0.0	0.0	0.0	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	0.0	0.0	0.0
60.	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.2	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.2	0.2	0.3	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.2	0.2	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
240.	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
250.	0.2	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
260.	0.2	0.1	0.0	0.0	0.3	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
270.	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.1	0.0	0.0	0.0	0.2	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
320.	0.2	0.0	0.0	0.0	0.2	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
330.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.2	0.1	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.1	0.0	0.3	0.1	0.1	0.0	0.0	0.0
DEGR.	0	260	0	0	250	40	210	230	200	60	80	200	110	0	80	90	110	0	0	0

PAGE 4

JOB: Falconbridge Road and NC54 RUN: 2040 Build PM Peak

MODEL RESULTS

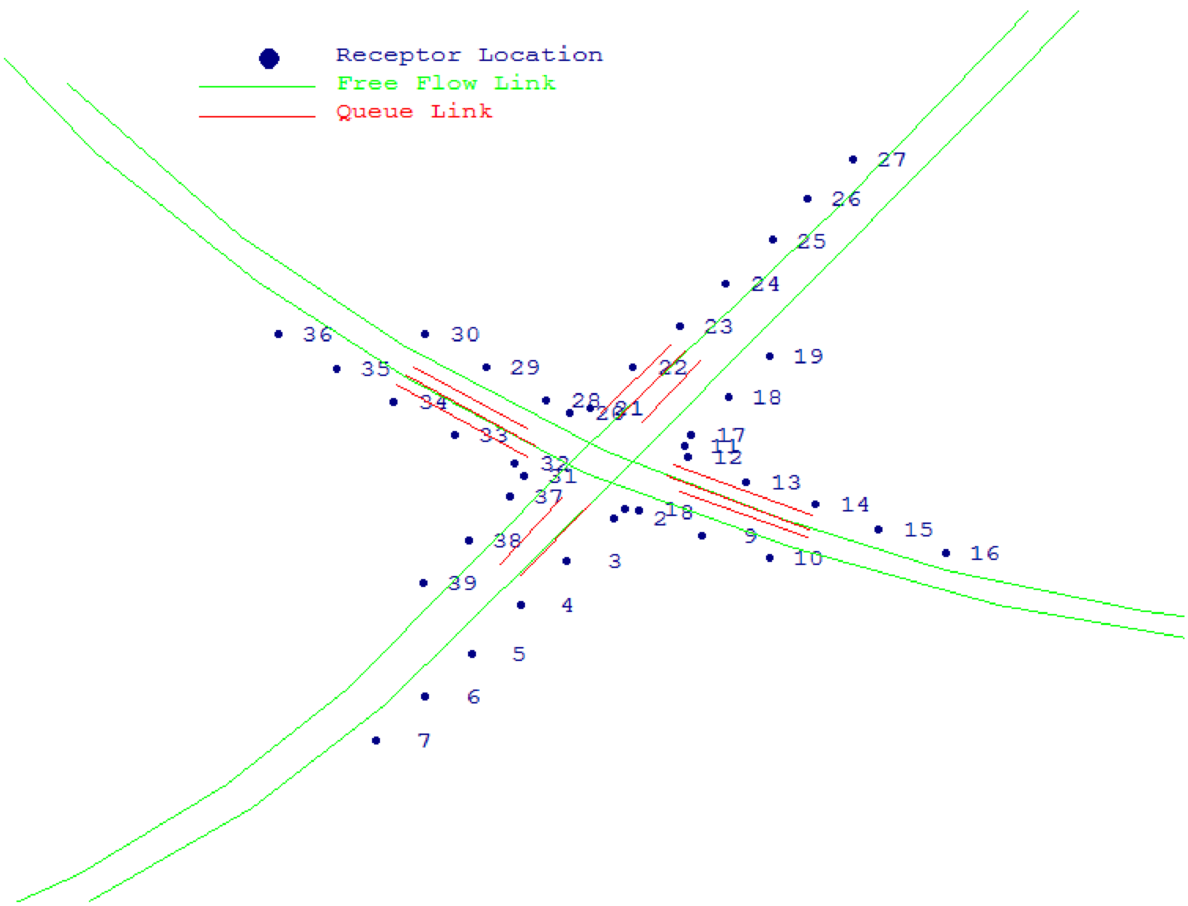
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
10.	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
20.	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
30.	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0
40.	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.0	0.0	0.0
50.	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0
60.	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0
70.	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
80.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
250.	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.0	0.0	0.0
260.	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.0
270.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0
280.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0
290.	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
300.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
310.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
320.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
330.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
340.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
350.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
360.	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
MAX	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.0
DEGR.	230	90	10	50	260	250	40	40	40	260	0	0

THE HIGHEST CONCENTRATION OF 0.30 PPM OCCURRED AT RECEPTOR REC6 .

2040 AM Build NHC 1 University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway        ' 60. 108.0    0.00     0.00 39     1.0000 0 0
'REC1                    '       9.0       -22.0        1.8
'REC2                    '       5.0       -26.0        1.8
'REC3                    '     -11.0       -46.0        1.8
'REC4                    '     -27.0       -66.0        1.8
'REC5                    '     -44.0       -88.0        1.8
'REC6                    '     -60.0      -108.0        1.8
'REC7                    '     -77.0      -128.0        1.8
'REC8                    '      14.0       -23.0        1.8
'REC9                    '      36.0       -34.0        1.8
'REC10                   '      59.0       -44.0        1.8
'REC11                   '      30.0         7.0        1.8
'REC12                   '      31.0         2.0        1.8
'REC13                   '      51.0       -10.0        1.8
'REC14                   '      75.0       -20.0        1.8
'REC15                   '      97.0       -31.0        1.8
'REC16                   '     120.0       -42.0        1.8
'REC17                   '      32.0        12.0        1.8
'REC18                   '      45.0        29.0        1.8
'REC19                   '      59.0        48.0        1.8
'REC20                   '     -10.0        22.0        1.8
'REC21                   '      -3.0        24.0        1.8
'REC22                   '      12.0        43.0        1.8
'REC23                   '      28.0        62.0        1.8
'REC24                   '      44.0        81.0        1.8
'REC25                   '      60.0       101.0        1.8
'REC26                   '      72.0       120.0        1.8
'REC27                   '      88.0       138.0        1.8
'REC28                   '     -18.0        28.0        1.8
'REC29                   '     -39.0        43.0        1.8
'REC30                   '     -60.0        58.0        1.8
'REC31                   '     -26.0        -7.0        1.8
'REC32                   '     -29.0        -1.0        1.8
'REC33                   '     -50.0        12.0        1.8
'REC34                   '     -71.0        27.0        1.8
'REC35                   '     -91.0        42.0        1.8
'REC36                   '    -111.0        58.0        1.8
'REC37                   '     -31.0       -16.0        1.8
'REC38                   '     -45.0       -36.0        1.8
'REC39                   '     -61.0       -56.0        1.8
'2040 Build Opt1 AM Peak                         '  40    1   0 C
1
'NBA1                    ' 'AG'      528.0      -77.0      325.0      -84.0     796.    0.76      0.0  14.0
1
'NBA2                    ' 'AG'      325.0      -84.0      259.0      -80.0     796.    0.76      0.0  14.0
1
'NBA3                    ' 'AG'      259.0      -80.0      189.0      -69.0     796.    0.76      0.0  14.0
1
'NBA4                    ' 'AG'      189.0      -69.0      120.0      -50.0     796.    0.76      0.0  14.0
1
'NBA5                    ' 'AG'      120.0      -50.0       63.0      -26.0     796.    0.76      0.0  14.0
1
'NBA6                    ' 'AG'       63.0      -26.0        2.0        5.0     796.    0.76      0.0  14.0
1
'NBD1                    ' 'AG'        2.0        5.0      -68.0       53.0    1243.    1.16      0.0  14.0
1
'NBD2                    ' 'AG'      -68.0       53.0     -124.0      103.0    1243.    1.16      0.0  14.0
1
'NBD3                    ' 'AG'     -124.0      103.0     -184.0      173.0    1243.    1.16      0.0  14.0
2
'NBQ                     ' 'AG'       24.0       -7.0       73.0      -31.0      0.0    8.0  2
  160   114   2.0   551   1.31 3436 2 3
2
'NBLQ                    ' 'AG'       28.0      -14.0       72.0      -35.0      0.0    4.0  1
  160   142   2.0    65   1.31  469 2 3
2
'NBRQ                    ' 'AG'       26.0       -2.0       74.0      -25.0      0.0    4.0  1
  160    89   2.0   177   1.31 1486 2 3
1
'SBA1                    ' 'AG'     -206.0      184.0     -174.0      141.0    1431.    0.41      0.0  14.0
1
'SBA2                    ' 'AG'     -174.0      141.0     -118.0       82.0    1431.    0.41      0.0  14.0
1
'SBA3                    ' 'AG'     -118.0       82.0      -66.0       38.0    1431.    0.41      0.0  14.0
1
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'SBA4                ' 'AG'     -66.0      38.0      -5.0      -5.0   1431.  0.41     0.0  14.0
1
'SBD1                ' 'AG'      -5.0      -5.0      66.0     -39.0   1033.  0.71     0.0  14.0
1
'SBD2                ' 'AG'      66.0     -39.0     138.0     -66.0   1033.  0.71     0.0  14.0
1
'SBD3                ' 'AG'     138.0     -66.0     213.0     -83.0   1033.  0.71     0.0  14.0
1
'SBD4                ' 'AG'     213.0     -83.0     296.0     -93.0   1033.  0.71     0.0  14.0
1
'SBD5                ' 'AG'     296.0     -93.0     535.0     -87.0   1033.  0.71     0.0  14.0
2
'SBQ                 ' 'AG'     -22.0       7.0     -67.0      39.0     0.0   8.0  2
  160    97   2.0   647   1.31 3436 2 3
2
'SBLQ                ' 'AG'     -25.0      15.0     -64.0      43.0     0.0   4.0  1
  160   125   2.0   350   1.31  374 2 3
2
'SBRQ                ' 'AG'     -25.0       2.0     -70.0      35.0     0.0   4.0  1
  160    59   2.0   434   1.31 1537 2 3
1
'EBA1                ' 'AG'    -253.0    -245.0    -188.0    -210.0   1387.  1.40     0.0  18.0
1
'EBA2                ' 'AG'    -188.0    -210.0    -120.0    -159.0   1387.  1.40     0.0  18.0
1
'EBA3                ' 'AG'    -120.0    -159.0     -74.0    -111.0   1387.  1.40     0.0  18.0
1
'EBA4                ' 'AG'     -74.0    -111.0       8.0      -5.0   1387.  1.40     0.0  18.0
1
'EBD                 ' 'AG'       8.0      -5.0     182.0     227.0   1230.  0.63     0.0  18.0
2
'EBQ                 ' 'AG'      -3.0     -20.0     -27.0     -52.0     0.0  12.0  3
  160   106   2.0   805   1.31 4844 2 3
2
'EBLQ                ' 'AG'     -13.0     -17.0     -34.0     -47.0     0.0   8.0  2
  160   122   2.0   582   1.31 3333 2 3
1
'WBA1                ' 'AG'     170.0     235.0      84.0     118.0    815.  0.94     0.0  14.0
1
'WBA2                ' 'AG'      84.0     118.0      -6.0       4.0    815.  0.94     0.0  14.0
1
'WBD1                ' 'AG'      -6.0       4.0     -87.0    -104.0    923.  0.43     0.0  14.0
1
'WBD2                ' 'AG'     -87.0    -104.0    -129.0    -148.0    923.  0.43     0.0  14.0
1
'WBD3                ' 'AG'    -129.0    -148.0    -180.0    -189.0    923.  0.43     0.0  14.0
1
'WBD4                ' 'AG'    -180.0    -189.0    -258.0    -235.0    923.  0.43     0.0  14.0
2
'WBQ                 ' 'AG'       7.0      20.0      30.0      50.0     0.0   8.0  2
  160   119   2.0   424   1.31 3436 2 3
2
'WBQL                ' 'AG'      15.0      18.0      35.0      46.0     0.0   8.0  2
  160   135   2.0   284   1.31 3333 2 3
2
'WBQR                ' 'AG'       1.0      22.0      25.0      53.0     0.0   4.0  1
  160    84   2.0   107   1.31 1537 2 3
 1.0    0.0 4  1000.0    0.0 'Y'   10    0   36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

DATE : 3/26/15
TIME : 13:19:23

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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	528.0	-77.0	325.0	-84.0	203.	268.	AG	796.	0.8	0.0	14.0		
2. NBA2	325.0	-84.0	259.0	-80.0	66.	273.	AG	796.	0.8	0.0	14.0		
3. NBA3	259.0	-80.0	189.0	-69.0	71.	279.	AG	796.	0.8	0.0	14.0		
4. NBA4	189.0	-69.0	120.0	-50.0	72.	285.	AG	796.	0.8	0.0	14.0		
5. NBA5	120.0	-50.0	63.0	-26.0	62.	293.	AG	796.	0.8	0.0	14.0		
6. NBA6	63.0	-26.0	2.0	5.0	68.	297.	AG	796.	0.8	0.0	14.0		
7. NBD1	2.0	5.0	-68.0	53.0	85.	304.	AG	1243.	1.2	0.0	14.0		
8. NBD2	-68.0	53.0	-124.0	103.0	75.	312.	AG	1243.	1.2	0.0	14.0		
9. NBD3	-124.0	103.0	-184.0	173.0	92.	319.	AG	1243.	1.2	0.0	14.0		
10. NBQ	24.0	-7.0	70.9	-30.0	52.	116.	AG	5.	100.0	0.0	8.0	0.31	8.7
11. NBLQ	28.0	-14.0	117.4	-56.7	99.	116.	AG	3.	100.0	0.0	4.0	1.59	16.5
12. NBRQ	26.0	-2.0	49.7	-13.3	26.	116.	AG	2.	100.0	0.0	4.0	0.28	4.4
13. SBA1	-206.0	184.0	-174.0	141.0	54.	143.	AG	1431.	0.4	0.0	14.0		
14. SBA2	-174.0	141.0	-118.0	82.0	81.	136.	AG	1431.	0.4	0.0	14.0		
15. SBA3	-118.0	82.0	-66.0	38.0	68.	130.	AG	1431.	0.4	0.0	14.0		
16. SBA4	-66.0	38.0	-5.0	-5.0	75.	125.	AG	1431.	0.4	0.0	14.0		
17. SBD1	-5.0	-5.0	66.0	-39.0	79.	116.	AG	1033.	0.7	0.0	14.0		
18. SBD2	66.0	-39.0	138.0	-66.0	77.	111.	AG	1033.	0.7	0.0	14.0		
19. SBD3	138.0	-66.0	213.0	-83.0	77.	103.	AG	1033.	0.7	0.0	14.0		
20. SBD4	213.0	-83.0	296.0	-93.0	84.	97.	AG	1033.	0.7	0.0	14.0		
21. SBD5	296.0	-93.0	535.0	-87.0	239.	89.	AG	1033.	0.7	0.0	14.0		
22. SBQ	-22.0	7.0	-64.6	37.3	52.	305.	AG	4.	100.0	0.0	8.0	0.25	8.7
23. SBLQ	-25.0	15.0	-799.7	571.2	954.	306.	AG	3.	100.0	0.0	4.0	4.86	158.9
24. SBRQ	-25.0	2.0	-59.4	27.2	43.	306.	AG	1.	100.0	0.0	4.0	0.47	7.1
25. EBA1	-253.0	-245.0	-188.0	-210.0	74.	62.	AG	1387.	1.4	0.0	18.0		
26. EBA2	-188.0	-210.0	-120.0	-159.0	85.	53.	AG	1387.	1.4	0.0	18.0		
27. EBA3	-120.0	-159.0	-74.0	-111.0	66.	44.	AG	1387.	1.4	0.0	18.0		
28. EBA4	-74.0	-111.0	8.0	-5.0	134.	38.	AG	1387.	1.4	0.0	18.0		
29. EBD	8.0	-5.0	182.0	227.0	290.	37.	AG	1230.	0.6	0.0	18.0		
30. EBQ	-3.0	-20.0	-31.4	-57.9	47.	217.	AG	7.	100.0	0.0	12.0	0.18	7.9
31. EBLQ	-13.0	-17.0	-46.9	-65.5	59.	215.	AG	5.	100.0	0.0	8.0	0.41	9.9
32. WBA1	170.0	235.0	84.0	118.0	145.	216.	AG	815.	0.9	0.0	14.0		
33. WBA2	84.0	118.0	-6.0	4.0	145.	218.	AG	815.	0.9	0.0	14.0		
34. WBD1	-6.0	4.0	-87.0	-104.0	135.	217.	AG	923.	0.4	0.0	14.0		
35. WBD2	-87.0	-104.0	-129.0	-148.0	61.	224.	AG	923.	0.4	0.0	14.0		
36. WBD3	-129.0	-148.0	-180.0	-189.0	65.	231.	AG	923.	0.4	0.0	14.0		
37. WBD4	-180.0	-189.0	-258.0	-235.0	91.	239.	AG	923.	0.4	0.0	14.0		
38. WBQ	7.0	20.0	32.6	53.4	42.	37.	AG	5.	100.0	0.0	8.0	0.27	7.0
39. WBQL	15.0	18.0	33.6	44.0	32.	36.	AG	6.	100.0	0.0	8.0	0.32	5.3
40. WBQR	1.0	22.0	10.2	33.8	15.	38.	AG	2.	100.0	0.0	4.0	0.15	2.5

PAGE 2

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

DATE : 3/26/15
TIME : 13:19:23

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
10. NBQ	160	114	2.0	551	3436	1.31	2	3
11. NBLQ	160	142	2.0	65	469	1.31	2	3
12. NBRQ	160	89	2.0	177	1486	1.31	2	3
22. SBQ	160	97	2.0	647	3436	1.31	2	3
23. SBLQ	160	125	2.0	350	374	1.31	2	3
24. SBRQ	160	59	2.0	434	1537	1.31	2	3
30. EBQ	160	106	2.0	805	4844	1.31	2	3
31. EBLQ	160	122	2.0	582	3333	1.31	2	3
38. WBQ	160	119	2.0	424	3436	1.31	2	3
39. WBQL	160	135	2.0	284	3333	1.31	2	3
40. WBQR	160	84	2.0	107	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	9.0	-22.0	1.8
2. REC2	5.0	-26.0	1.8
3. REC3	-11.0	-46.0	1.8
4. REC4	-27.0	-66.0	1.8
5. REC5	-44.0	-88.0	1.8
6. REC6	-60.0	-108.0	1.8
7. REC7	-77.0	-128.0	1.8
8. REC8	14.0	-23.0	1.8
9. REC9	36.0	-34.0	1.8
10. REC10	59.0	-44.0	1.8
11. REC11	30.0	7.0	1.8
12. REC12	31.0	2.0	1.8
13. REC13	51.0	-10.0	1.8
14. REC14	75.0	-20.0	1.8
15. REC15	97.0	-31.0	1.8
16. REC16	120.0	-42.0	1.8
17. REC17	32.0	12.0	1.8
18. REC18	45.0	29.0	1.8
19. REC19	59.0	48.0	1.8
20. REC20	-10.0	22.0	1.8
21. REC21	-3.0	24.0	1.8
22. REC22	12.0	43.0	1.8
23. REC23	28.0	62.0	1.8
24. REC24	44.0	81.0	1.8
25. REC25	60.0	101.0	1.8
26. REC26	72.0	120.0	1.8
27. REC27	88.0	138.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	43.0	1.8
30. REC30	-60.0	58.0	1.8
31. REC31	-26.0	-7.0	1.8
32. REC32	-29.0	-1.0	1.8
33. REC33	-50.0	12.0	1.8
34. REC34	-71.0	27.0	1.8

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

DATE : 3/26/15
TIME : 13:19:23

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
35. REC35	-91.0	42.0	1.8
36. REC36	-111.0	58.0	1.8
37. REC37	-31.0	-16.0	1.8
38. REC38	-45.0	-36.0	1.8
39. REC39	-61.0	-56.0	1.8

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

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.-360.

WIND ANGLE * CONCENTRATION (PPM)

(DEGR) *	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0. *	0.0	0.1	0.1	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
10. *	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20. *	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30. *	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40. *	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
170. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
180. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210. *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220. *	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
230. *	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240. *	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250. *	0.1	0.1	0.1	0.1	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
260. *	0.1	0.1	0.1	0.1	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	0.1
270. *	0.1	0.1	0.1	0.1	0.1	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	0.1
280. *	0.1	0.1	0.1	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	0.1
290. *	0.1	0.1	0.1	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	0.1
300. *	0.1	0.1	0.1	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	0.1
310. *	0.1	0.1	0.1	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
320. *	0.1	0.1	0.1	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
330. *	0.1	0.1	0.1	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
340. *	0.0	0.1	0.1	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
350. *	0.0	0.1	0.1	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
360. *	0.0	0.1	0.1	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
MAX *	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
DEGR. *	220	0	0	0	0	0	0	230	0	0	230	230	0	0	0	0	0	0	0	160

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

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.

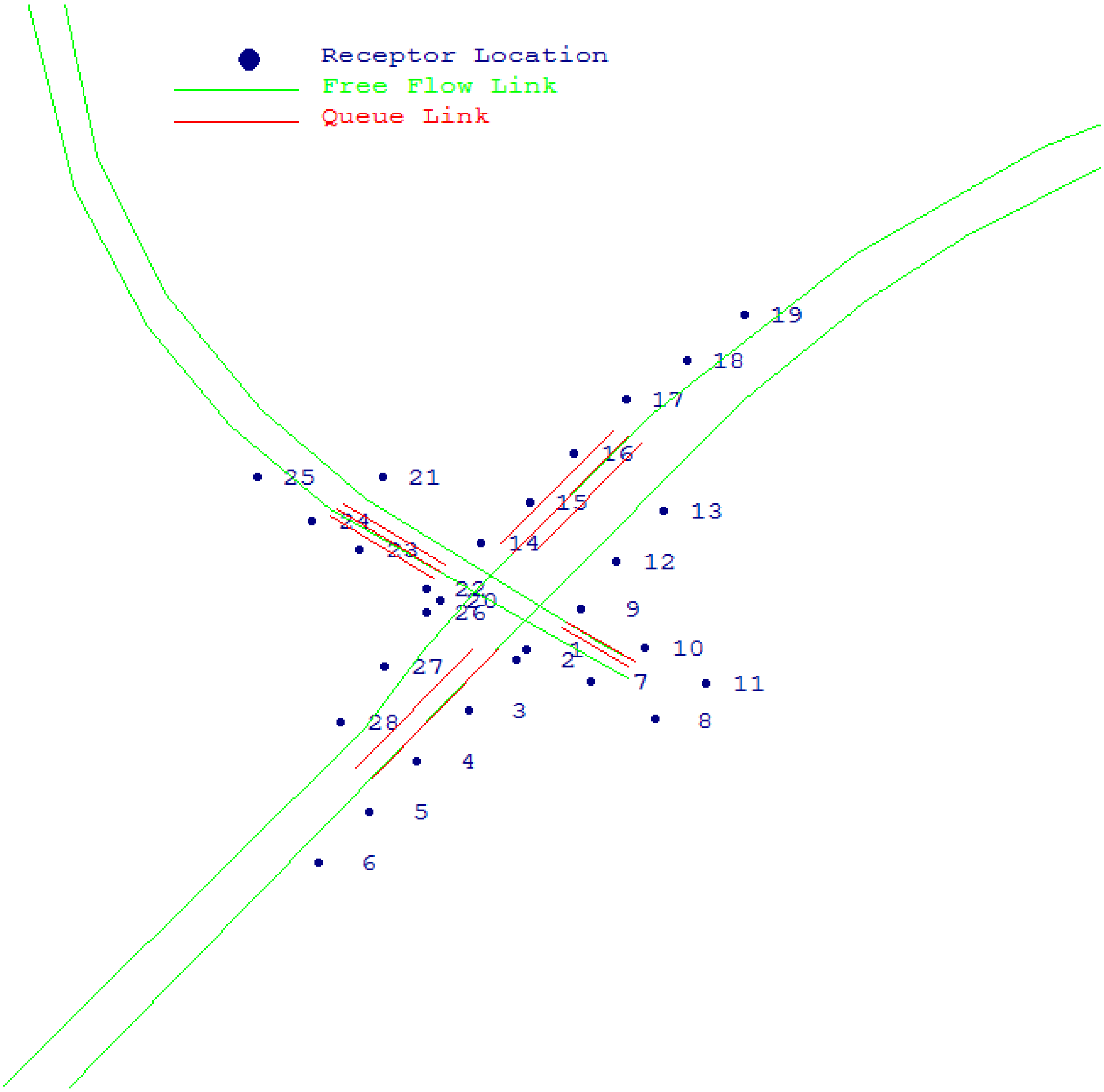
WIND ANGLE RANGE: 0.-360.

WIND * CONCENTRATION
ANGLE * (PPM)

(DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	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	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	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	0.0	0.0	0.0	0.0	0.0
270.	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	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0	140	130	130	0	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 AM Build NHC 1 University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive      '  60. 108.0    0.00    0.00 28     1.0000 0 0
'REC1                    '         5.0       -20.0         1.8
'REC2                    '         2.0       -24.0         1.8
'REC3                    '       -13.0       -45.0         1.8
'REC4                    '       -29.0       -66.0         1.8
'REC5                    '       -44.0       -87.0         1.8
'REC6                    '       -60.0      -108.0         1.8
'REC7                    '        25.0       -33.0         1.8
'REC8                    '        45.0       -49.0         1.8
'REC9                    '        22.0        -3.0         1.8
'REC10                   '        42.0       -19.0         1.8
'REC11                   '        61.0       -34.0         1.8
'REC12                   '        33.0        16.0         1.8
'REC13                   '        48.0        37.0         1.8
'REC14                   '        -9.0        24.0         1.8
'REC15                   '         6.0        41.0         1.8
'REC16                   '        20.0        61.0         1.8
'REC17                   '        36.0        83.0         1.8
'REC18                   '        55.0        99.0         1.8
'REC19                   '        73.0       118.0         1.8
'REC20                   '       -21.0         0.0         0.0
'REC21                   '       -40.0        51.0         1.8
'REC22                   '       -26.0         5.0         1.8
'REC23                   '       -47.0        21.0         1.8
'REC24                   '       -62.0        33.0         1.8
'REC25                   '       -79.0        51.0         1.8
'REC26                   '       -26.0        -5.0         1.8
'REC27                   '       -39.0       -27.0         1.8
'REC28                   '       -53.0       -50.0         1.8
'2040 Build Opt1 AM Peak                  '  39    1   0 C
1
'NBA1                    ' 'AG'       39.0      -25.0       29.0      -18.0     137.   0.94      0.0  10.0
1
'NBA2                    ' 'AG'       29.0      -18.0        3.0        3.0     137.   0.94      0.0  10.0
1
'NBD1                    ' 'AG'        3.0        3.0      -45.0       42.0     752.   0.76      0.0  14.0
1
'NBD2                    ' 'AG'      -45.0       42.0      -78.0       79.0     752.   0.76      0.0  14.0
1
'NBD3                    ' 'AG'      -78.0       79.0     -108.0      127.0     752.   0.76      0.0  14.0
1
'NBD4                    ' 'AG'     -108.0      127.0     -129.0      184.0     752.   0.76      0.0  14.0
1
'NBD5                    ' 'AG'     -129.0      184.0     -140.0      253.0     752.   0.76      0.0  14.0
2
'NBQ                     ' 'AG'       18.0       -9.0       39.0      -25.0      0.0   4.0  1
  160   110   2.0    65   1.31 1671 2 3
2
'NBLQ                    ' 'AG'       16.0      -11.0       37.0      -27.0      0.0   4.0  1
  160   136   2.0    72   1.31 1347 2 3
1
'SBA1                    ' 'AG'     -151.0      251.0     -136.0      170.0     580.   0.76      0.0  14.0
1
'SBA2                    ' 'AG'     -136.0      170.0     -113.0      113.0     580.   0.76      0.0  14.0
1
'SBA3                    ' 'AG'     -113.0      113.0      -87.0       72.0     580.   0.76      0.0  14.0
1
'SBA4                    ' 'AG'      -87.0       72.0      -56.0       38.0     580.   0.76      0.0  14.0
1
'SBA5                    ' 'AG'      -56.0       38.0       -2.0       -3.0     580.   0.76      0.0  10.0
1
'SBD                     ' 'AG'       -2.0       -3.0       37.0      -32.0      58.   0.63      0.0  10.0
2
'SBQ                     ' 'AG'      -22.0       12.0      -54.0       38.0      0.0   4.0  1
  160    98   2.0    17   1.31 1809 2 3
2
'SBLQ                    ' 'AG'      -20.0       15.0      -52.0       40.0      0.0   3.4  1
  160   124   2.0   264   1.31 1028 2 3
2
'SBRQ                    ' 'AG'      -24.0        9.0      -56.0       35.0      0.0   4.0  1
  160    98   2.0   299   1.31 1537 2 3
1
'EBA                     ' 'AG'     -165.0     -238.0        6.0       -6.0     993.   0.76      0.0  14.0
1
'EBD1                    ' 'AG'        6.0       -6.0       73.0       83.0     894.   1.71      0.0  14.0
```

```
1
'EBD2                ' 'AG'       73.0       83.0      110.0      123.0     894.  1.71      0.0  14.0
1
'EBD3                ' 'AG'      110.0      123.0      142.0      150.0     894.  1.71      0.0  14.0
1
'EBD4                ' 'AG'      142.0      150.0      187.0      181.0     894.  1.71      0.0  14.0
1
'EBD5                ' 'AG'      187.0      181.0      256.0      211.0     894.  1.71      0.0  14.0
1
'EBD6                ' 'AG'      256.0      211.0      387.0      247.0     894.  1.71      0.0  14.0
2
'EBQ                 ' 'AG'       -4.0      -20.0      -43.0      -73.0      0.0  8.0  2
  160   102   2.0   597   1.31 3436 2 3
2
'EBLQ                ' 'AG'      -12.0      -20.0      -48.0      -69.0      0.0  8.0  2
  160   117   2.0   396   1.31 3333 2 3
1
'WBA1                ' 'AG'      387.0      267.0      272.0      235.0     653.  0.37      0.0  14.0
1
'WBA2                ' 'AG'      272.0      235.0      221.0      216.0     653.  0.37      0.0  14.0
1
'WBA3                ' 'AG'      221.0      216.0      166.0      187.0     653.  0.37      0.0  14.0
1
'WBA4                ' 'AG'      166.0      187.0      108.0      143.0     653.  0.37      0.0  14.0
1
'WBA5                ' 'AG'      108.0      143.0       44.0       77.0     653.  0.37      0.0  14.0
1
'WBA6                ' 'AG'       44.0       77.0      -10.0        5.0     653.  0.37      0.0  14.0
1
'WBD1                ' 'AG'      -10.0        5.0      -28.0      -22.0     659.  0.76      0.0  14.0
1
'WBD2                ' 'AG'      -28.0      -22.0      -45.0      -52.0     659.  0.76      0.0  14.0
1
'WBD3                ' 'AG'      -45.0      -52.0     -181.0     -230.0     659.  0.76      0.0  14.0
2
'WBQ                 ' 'AG'        1.0       20.0       37.0       68.0      0.0  8.0  2
  160   129   2.0   288   1.31 3436 2 3
2
'WBLQ                ' 'AG'        9.0       22.0       41.0       65.0      0.0  4.0  1
  160   144   2.0    41   1.31  723 2 3
2
'WBRQ                ' 'AG'       -3.0       24.0       32.0       70.0      0.0  4.0  1
  160   124   2.0   324   1.31 1537 2 3
 1.0   0.0 4  1000.0   0.0 'Y'  10   0  36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                         PAGE  1

      JOB: University Drive and Westgate Drive                  RUN: 2040 Build Opt1 AM Peak

      DATE :  3/26/15
      TIME : 19: 8: 0

         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 = 108. CM
        U =  1.0 M/S          CLAS =   4  (D)       ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION      *          LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                               *   X1        Y1        X2        Y2     *    (M)   (DEG)             (G/MI)  (M)  (M)       (VEH)
      ------------------------*----------------------------------------*-----------------------------------------------------------
-
       1. NBA1                 *    39.0     -25.0      29.0     -18.0 *     12.   305. AG    137.   0.9    0.0 10.0
       2. NBA2                 *    29.0     -18.0       3.0       3.0 *     33.   309. AG    137.   0.9    0.0 10.0
       3. NBD1                 *     3.0       3.0     -45.0      42.0 *     62.   309. AG    752.   0.8    0.0 14.0
       4. NBD2                 *   -45.0      42.0     -78.0      79.0 *     50.   318. AG    752.   0.8    0.0 14.0
       5. NBD3                 *   -78.0      79.0    -108.0     127.0 *     57.   328. AG    752.   0.8    0.0 14.0
       6. NBD4                 *  -108.0     127.0    -129.0     184.0 *     61.   340. AG    752.   0.8    0.0 14.0
       7. NBD5                 *  -129.0     184.0    -140.0     253.0 *     70.   351. AG    752.   0.8    0.0 14.0
       8. NBQ                  *    18.0      -9.0      27.5     -16.2 *     12.   127. AG      2. 100.0    0.0  4.0 0.14    2.0
       9. NBLQ                 *    16.0     -11.0      29.0     -20.9 *     16.   127. AG      3. 100.0    0.0  4.0 0.43    2.7
      10. SBA1                 *  -151.0     251.0    -136.0     170.0 *     82.   170. AG    580.   0.8    0.0 14.0
      11. SBA2                 *  -136.0     170.0    -113.0     113.0 *     61.   158. AG    580.   0.8    0.0 14.0
      12. SBA3                 *  -113.0     113.0     -87.0      72.0 *     49.   148. AG    580.   0.8    0.0 14.0
      13. SBA4                 *   -87.0      72.0     -56.0      38.0 *     46.   138. AG    580.   0.8    0.0 14.0
      14. SBA5                 *   -56.0      38.0      -2.0      -3.0 *     68.   127. AG    580.   0.8    0.0 10.0
      15. SBD                  *    -2.0      -3.0      37.0     -32.0 *     49.   127. AG     58.   0.6    0.0 10.0
      16. SBQ                  *   -22.0      12.0     -24.2      13.8 *      3.   309. AG      2. 100.0    0.0  4.0 0.03    0.5
      17. SBLQ                 *   -20.0      15.0    -217.5     169.3 *    251.   308. AG      3. 100.0    0.0  3.4 1.29   41.8
      18. SBRQ                 *   -24.0       9.0     -61.9      39.8 *     49.   309. AG      2. 100.0    0.0  4.0 0.54    8.1
      19. EBA                  *  -165.0    -238.0       6.0      -6.0 *    288.    36. AG    993.   0.8    0.0 14.0
      20. EBD1                 *     6.0      -6.0      73.0      83.0 *    111.    37. AG    894.   1.7    0.0 14.0
      21. EBD2                 *    73.0      83.0     110.0     123.0 *     54.    43. AG    894.   1.7    0.0 14.0
      22. EBD3                 *   110.0     123.0     142.0     150.0 *     42.    50. AG    894.   1.7    0.0 14.0
      23. EBD4                 *   142.0     150.0     187.0     181.0 *     55.    55. AG    894.   1.7    0.0 14.0
      24. EBD5                 *   187.0     181.0     256.0     211.0 *     75.    67. AG    894.   1.7    0.0 14.0
      25. EBD6                 *   256.0     211.0     387.0     247.0 *    136.    75. AG    894.   1.7    0.0 14.0
      26. EBQ                  *    -4.0     -20.0     -34.0     -60.8 *     51.   216. AG      4. 100.0    0.0  8.0 0.26    8.4
      27. EBLQ                 *   -12.0     -20.0     -34.9     -51.1 *     39.   216. AG      5. 100.0    0.0  8.0 0.24    6.4
      28. WBA1                 *   387.0     267.0     272.0     235.0 *    119.   254. AG    653.   0.4    0.0 14.0
      29. WBA2                 *   272.0     235.0     221.0     216.0 *     54.   250. AG    653.   0.4    0.0 14.0
      30. WBA3                 *   221.0     216.0     166.0     187.0 *     62.   242. AG    653.   0.4    0.0 14.0
      31. WBA4                 *   166.0     187.0     108.0     143.0 *     73.   233. AG    653.   0.4    0.0 14.0
      32. WBA5                 *   108.0     143.0      44.0      77.0 *     92.   224. AG    653.   0.4    0.0 14.0
      33. WBA6                 *    44.0      77.0     -10.0       5.0 *     90.   217. AG    653.   0.4    0.0 14.0
      34. WBD1                 *   -10.0       5.0     -28.0     -22.0 *     32.   214. AG    659.   0.8    0.0 14.0
      35. WBD2                 *   -28.0     -22.0     -45.0     -52.0 *     34.   210. AG    659.   0.8    0.0 14.0
      36. WBD3                 *   -45.0     -52.0    -181.0    -230.0 *    224.   217. AG    659.   0.8    0.0 14.0
      37. WBQ                  *     1.0      20.0      19.6      44.8 *     31.    37. AG      6. 100.0    0.0  8.0 0.25    5.2
      38. WBLQ                 *     9.0      22.0      15.6      30.9 *     11.    37. AG      3. 100.0    0.0  4.0 0.76    1.9
      39. WBRQ                 *    -3.0      24.0      79.4     132.4 *    136.    37. AG      3. 100.0    0.0  4.0 1.06   22.7
```

JOB: University Drive and Westgate Drive RUN: 2040 Build Opt1 AM Peak

DATE : 3/26/15
TIME : 19: 8: 0

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
8. NBQ	160	110	2.0	65	1671	1.31	2	3
9. NBLQ	160	136	2.0	72	1347	1.31	2	3
16. SBQ	160	98	2.0	17	1809	1.31	2	3
17. SBLQ	160	124	2.0	264	1028	1.31	2	3
18. SBRQ	160	98	2.0	299	1537	1.31	2	3
26. EBQ	160	102	2.0	597	3436	1.31	2	3
27. EBLQ	160	117	2.0	396	3333	1.31	2	3
37. WBQ	160	129	2.0	288	3436	1.31	2	3
38. WBLQ	160	144	2.0	41	723	1.31	2	3
39. WBRQ	160	124	2.0	324	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	5.0	-20.0	1.8
2. REC2	2.0	-24.0	1.8
3. REC3	-13.0	-45.0	1.8
4. REC4	-29.0	-66.0	1.8
5. REC5	-44.0	-87.0	1.8
6. REC6	-60.0	-108.0	1.8
7. REC7	25.0	-33.0	1.8
8. REC8	45.0	-49.0	1.8
9. REC9	22.0	-3.0	1.8
10. REC10	42.0	-19.0	1.8
11. REC11	61.0	-34.0	1.8
12. REC12	33.0	16.0	1.8
13. REC13	48.0	37.0	1.8
14. REC14	-9.0	24.0	1.8
15. REC15	6.0	41.0	1.8
16. REC16	20.0	61.0	1.8
17. REC17	36.0	83.0	1.8
18. REC18	55.0	99.0	1.8
19. REC19	73.0	118.0	1.8
20. REC20	-21.0	0.0	0.0
21. REC21	-40.0	51.0	1.8
22. REC22	-26.0	5.0	1.8
23. REC23	-47.0	21.0	1.8
24. REC24	-62.0	33.0	1.8
25. REC25	-79.0	51.0	1.8
26. REC26	-26.0	-5.0	1.8
27. REC27	-39.0	-27.0	1.8
28. REC28	-53.0	-50.0	1.8

JOB: University Drive and Westgate Drive RUN: 2040 Build Opt1 AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	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	0.0
230.	0.0	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	0.0
240.	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	0.0	0.0
250.	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	0.0	0.0
260.	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	0.0	0.0
270.	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	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	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	0.0
350.	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	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PAGE 4

JOB: University Drive and Westgate Drive RUN: 2040 Build Opt1 AM Peak

MODEL RESULTS

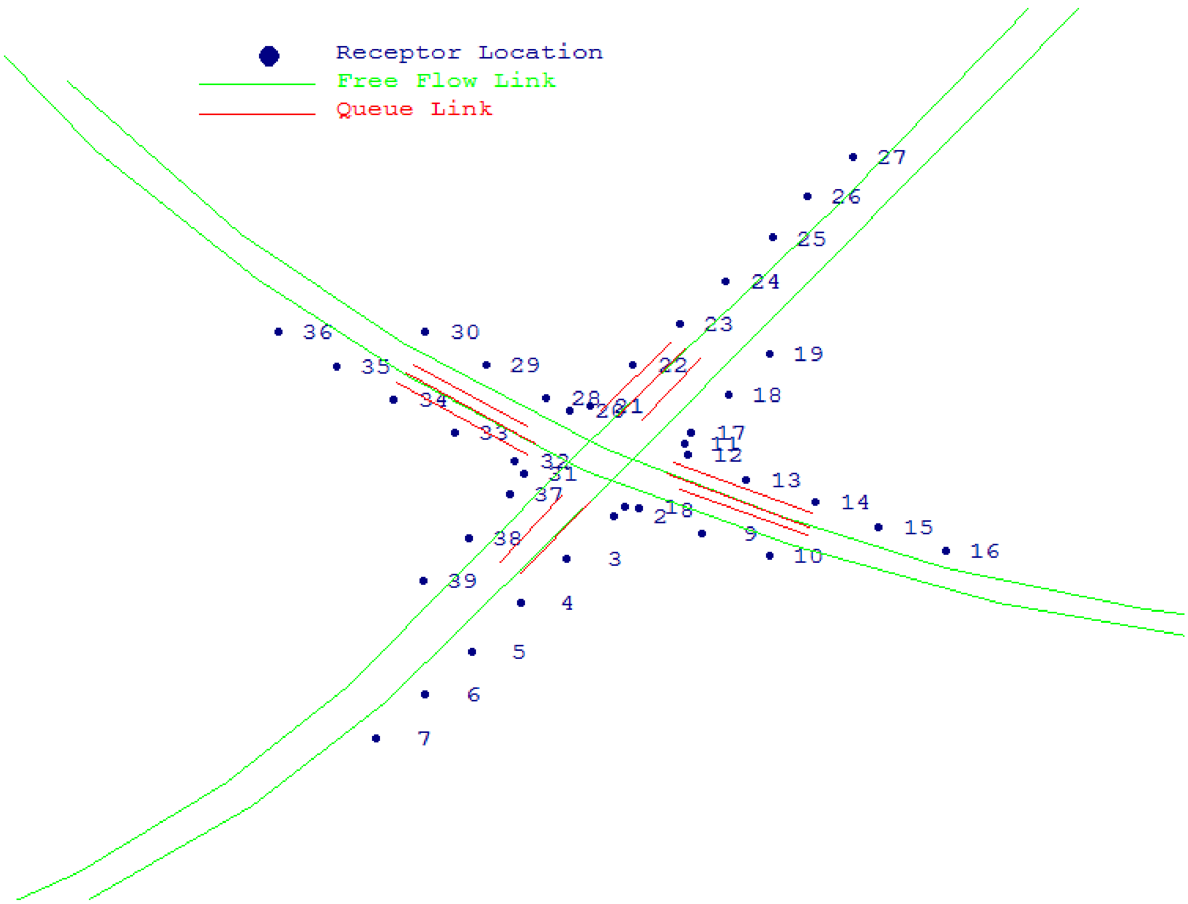
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
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
20.	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
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	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
80.	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
100.	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
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC9 .

2040 PM Build NHC 1 University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway        '  60. 108.0    0.00    0.00 39     1.0000 0 0
'REC1                    '        9.0       -22.0        1.8
'REC2                    '        5.0       -26.0        1.8
'REC3                    '      -11.0       -46.0        1.8
'REC4                    '      -27.0       -66.0        1.8
'REC5                    '      -44.0       -88.0        1.8
'REC6                    '      -60.0      -108.0        1.8
'REC7                    '      -77.0      -128.0        1.8
'REC8                    '       14.0       -23.0        1.8
'REC9                    '       36.0       -34.0        1.8
'REC10                   '       59.0       -44.0        1.8
'REC11                   '       30.0         7.0        1.8
'REC12                   '       31.0         2.0        1.8
'REC13                   '       51.0       -10.0        1.8
'REC14                   '       75.0       -20.0        1.8
'REC15                   '       97.0       -31.0        1.8
'REC16                   '      120.0       -42.0        1.8
'REC17                   '       32.0        12.0        1.8
'REC18                   '       45.0        29.0        1.8
'REC19                   '       59.0        48.0        1.8
'REC20                   '      -10.0        22.0        1.8
'REC21                   '       -3.0        24.0        1.8
'REC22                   '       12.0        43.0        1.8
'REC23                   '       28.0        62.0        1.8
'REC24                   '       44.0        81.0        1.8
'REC25                   '       60.0       101.0        1.8
'REC26                   '       72.0       120.0        1.8
'REC27                   '       88.0       138.0        1.8
'REC28                   '      -18.0        28.0        1.8
'REC29                   '      -39.0        43.0        1.8
'REC30                   '      -60.0        58.0        1.8
'REC31                   '      -26.0        -7.0        1.8
'REC32                   '      -29.0        -1.0        1.8
'REC33                   '      -50.0        12.0        1.8
'REC34                   '      -71.0        27.0        1.8
'REC35                   '      -91.0        42.0        1.8
'REC36                   '     -111.0        58.0        1.8
'REC37                   '      -31.0       -16.0        1.8
'REC38                   '      -45.0       -36.0        1.8
'REC39                   '      -61.0       -56.0        1.8
'2040 Build Opt1 AM Peak                  '  40    1   0 C
1
'NBA1                    ' 'AG'      528.0      -77.0      325.0      -84.0     771.   0.76       0.0  14.0
1
'NBA2                    ' 'AG'      325.0      -84.0      259.0      -80.0     771.   0.76       0.0  14.0
1
'NBA3                    ' 'AG'      259.0      -80.0      189.0      -69.0     771.   0.76       0.0  14.0
1
'NBA4                    ' 'AG'      189.0      -69.0      120.0      -50.0     771.   0.76       0.0  14.0
1
'NBA5                    ' 'AG'      120.0      -50.0       63.0      -26.0     771.   0.76       0.0  14.0
1
'NBA6                    ' 'AG'       63.0      -26.0        2.0        5.0     771.   0.76       0.0  14.0
1
'NBD1                    ' 'AG'        2.0        5.0      -68.0       53.0    1278.   1.16       0.0  14.0
1
'NBD2                    ' 'AG'      -68.0       53.0     -124.0      103.0    1278.   1.16       0.0  14.0
1
'NBD3                    ' 'AG'     -124.0      103.0     -184.0      173.0    1278.   1.16       0.0  14.0
2
'NBQ                     ' 'AG'       24.0       -7.0       73.0      -31.0       0.0    8.0  2
  160   114   2.0   385   1.31 3436 2 3
2
'NBLQ                    ' 'AG'       28.0      -14.0       72.0      -35.0       0.0    4.0  1
  160   141   2.0   126   1.31  147 2 3
2
'NBRQ                    ' 'AG'       26.0       -2.0       74.0      -25.0       0.0    4.0  1
  160    76   2.0   260   1.31 1486 2 3
1
'SBA1                    ' 'AG'     -206.0      184.0     -174.0      141.0    1475.   0.41       0.0  14.0
1
'SBA2                    ' 'AG'     -174.0      141.0     -118.0       82.0    1475.   0.41       0.0  14.0
1
'SBA3                    ' 'AG'     -118.0       82.0      -66.0       38.0    1475.   0.41       0.0  14.0
1
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'SBA4                ' 'AG'     -66.0       38.0       -5.0       -5.0    1475.   0.41      0.0  14.0
1
'SBD1                ' 'AG'      -5.0       -5.0       66.0      -39.0    1519.   0.71      0.0  14.0
1
'SBD2                ' 'AG'      66.0      -39.0      138.0      -66.0    1519.   0.71      0.0  14.0
1
'SBD3                ' 'AG'     138.0      -66.0      213.0      -83.0    1519.   0.71      0.0  14.0
1
'SBD4                ' 'AG'     213.0      -83.0      296.0      -93.0    1519.   0.71      0.0  14.0
1
'SBD5                ' 'AG'     296.0      -93.0      535.0      -87.0    1519.   0.71      0.0  14.0
2
'SBQ                 ' 'AG'     -22.0        7.0      -67.0       39.0      0.0   8.0  2
  160   108   2.0   839   1.31 3436 2 3
2
'SBLQ                ' 'AG'     -25.0       15.0      -64.0       43.0      0.0   4.0  1
  160   135   2.0   299   1.31  662 2 3
2
'SBRQ                ' 'AG'     -25.0        2.0      -70.0       35.0      0.0   4.0  1
  160   118   2.0   337   1.31 1537 2 3
1
'EBA1                ' 'AG'    -253.0     -245.0     -188.0     -210.0    1486.   1.40      0.0  18.0
1
'EBA2                ' 'AG'    -188.0     -210.0     -120.0     -159.0    1486.   1.40      0.0  18.0
1
'EBA3                ' 'AG'    -120.0     -159.0      -74.0     -111.0    1486.   1.40      0.0  18.0
1
'EBA4                ' 'AG'     -74.0     -111.0        8.0       -5.0    1486.   1.40      0.0  18.0
1
'EBD                 ' 'AG'       8.0       -5.0      182.0      227.0    1254.   0.63      0.0  18.0
2
'EBQ                 ' 'AG'      -3.0      -20.0      -27.0      -52.0      0.0  12.0  3
  160   109   2.0   868   1.31 4789 2 3
2
'EBLQ                ' 'AG'     -13.0      -17.0      -34.0      -47.0      0.0   8.0  2
  160   118   2.0   618   1.31 3333 2 3
1
'WBA1                ' 'AG'     170.0      235.0       84.0      118.0    1532.   0.94      0.0  14.0
1
'WBA2                ' 'AG'      84.0      118.0       -6.0        4.0    1532.   0.94      0.0  14.0
1
'WBD1                ' 'AG'      -6.0        4.0      -87.0     -104.0    1213.   0.43      0.0  14.0
1
'WBD2                ' 'AG'     -87.0     -104.0     -129.0     -148.0    1213.   0.43      0.0  14.0
1
'WBD3                ' 'AG'    -129.0     -148.0     -180.0     -189.0    1213.   0.43      0.0  14.0
1
'WBD4                ' 'AG'    -180.0     -189.0     -258.0     -235.0    1213.   0.43      0.0  14.0
2
'WBQ                 ' 'AG'       7.0       20.0       30.0       50.0      0.0   8.0  2
  160   113   2.0   750   1.31 3436 2 3
2
'WBQL                ' 'AG'      15.0       18.0       35.0       46.0      0.0   8.0  2
  160   122   2.0   507   1.31 3333 2 3
2
'WBQR                ' 'AG'       1.0       22.0       25.0       53.0      0.0   4.0  1
  160   135   2.0   275   1.31 1537 2 3
 1.0    0.0 4  1000.0    0.0 'Y'   10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: University Drive and Martin Luther King Jr. Parkway                    RUN: 2040 Build Opt1 AM Peak

      DATE :  3/26/15
      TIME : 13:19:32

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

       SITE & METEOROLOGICAL VARIABLES
       -------------------------------
       VS =   0.0 CM/S       VD =   0.0 CM/S       Z0 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (M)          *   LENGTH  BRG TYPE  VPH    EF     H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2    *    (M)   (DEG)           (G/MI)  (M)  (M)        (VEH)
      ------------------------*----------------------------------------*--------------------------------------------------------
-
       1. NBA1                *   528.0     -77.0     325.0     -84.0 *    203.  268. AG   771.   0.8   0.0 14.0
       2. NBA2                *   325.0     -84.0     259.0     -80.0 *     66.  273. AG   771.   0.8   0.0 14.0
       3. NBA3                *   259.0     -80.0     189.0     -69.0 *     71.  279. AG   771.   0.8   0.0 14.0
       4. NBA4                *   189.0     -69.0     120.0     -50.0 *     72.  285. AG   771.   0.8   0.0 14.0
       5. NBA5                *   120.0     -50.0      63.0     -26.0 *     62.  293. AG   771.   0.8   0.0 14.0
       6. NBA6                *    63.0     -26.0       2.0       5.0 *     68.  297. AG   771.   0.8   0.0 14.0
       7. NBD1                *     2.0       5.0     -68.0      53.0 *     85.  304. AG  1278.   1.2   0.0 14.0
       8. NBD2                *   -68.0      53.0    -124.0     103.0 *     75.  312. AG  1278.   1.2   0.0 14.0
       9. NBD3                *  -124.0     103.0    -184.0     173.0 *     92.  319. AG  1278.   1.2   0.0 14.0
      10. NBQ                 *    24.0      -7.0      56.8     -23.0 *     36.  116. AG     5. 100.0   0.0  8.0 0.21   6.1
      11. NBLQ                *    28.0     -14.0     398.7    -190.9 *    411.  116. AG     3. 100.0   0.0  4.0 9.69  68.5
      12. NBRQ                *    26.0      -2.0      55.7     -16.2 *     33.  116. AG     2. 100.0   0.0  4.0 0.35   5.5
      13. SBA1                *  -206.0     184.0    -174.0     141.0 *     54.  143. AG  1475.   0.4   0.0 14.0
      14. SBA2                *  -174.0     141.0    -118.0      82.0 *     81.  136. AG  1475.   0.4   0.0 14.0
      15. SBA3                *  -118.0      82.0     -66.0      38.0 *     68.  130. AG  1475.   0.4   0.0 14.0
      16. SBA4                *   -66.0      38.0      -5.0      -5.0 *     75.  125. AG  1475.   0.4   0.0 14.0
      17. SBD1                *    -5.0      -5.0      66.0     -39.0 *     79.  116. AG  1519.   0.7   0.0 14.0
      18. SBD2                *    66.0     -39.0     138.0     -66.0 *     77.  111. AG  1519.   0.7   0.0 14.0
      19. SBD3                *   138.0     -66.0     213.0     -83.0 *     77.  103. AG  1519.   0.7   0.0 14.0
      20. SBD4                *   213.0     -83.0     296.0     -93.0 *     84.   97. AG  1519.   0.7   0.0 14.0
      21. SBD5                *   296.0     -93.0     535.0     -87.0 *    239.   89. AG  1519.   0.7   0.0 14.0
      22. SBQ                 *   -22.0       7.0     -83.5      50.7 *     75.  305. AG     5. 100.0   0.0  8.0 0.41  12.6
      23. SBLQ                *   -25.0      15.0    -627.7     447.7 *    742.  306. AG     3. 100.0   0.0  4.0 3.48 123.7
      24. SBRQ                *   -25.0       2.0     -83.8      45.1 *     73.  306. AG     3. 100.0   0.0  4.0 0.92  12.2
      25. EBA1                *  -253.0    -245.0    -188.0    -210.0 *     74.   62. AG  1486.   1.4   0.0 18.0
      26. EBA2                *  -188.0    -210.0    -120.0    -159.0 *     85.   53. AG  1486.   1.4   0.0 18.0
      27. EBA3                *  -120.0    -159.0     -74.0    -111.0 *     66.   44. AG  1486.   1.4   0.0 18.0
      28. EBA4                *   -74.0    -111.0       8.0      -5.0 *    134.   38. AG  1486.   1.4   0.0 18.0
      29. EBD                 *     8.0      -5.0     182.0     227.0 *    290.   37. AG  1254.   0.6   0.0 18.0
      30. EBQ                 *    -3.0     -20.0     -34.5     -62.0 *     53.  217. AG     7. 100.0   0.0 12.0 0.21   8.8
      31. EBLQ                *   -13.0     -17.0     -47.8     -66.8 *     61.  215. AG     5. 100.0   0.0  8.0 0.39  10.1
      32. WBA1                *   170.0     235.0      84.0     118.0 *    145.  216. AG  1532.   0.9   0.0 14.0
      33. WBA2                *    84.0     118.0      -6.0       4.0 *    145.  218. AG  1532.   0.9   0.0 14.0
      34. WBD1                *    -6.0       4.0     -87.0    -104.0 *    135.  217. AG  1213.   0.4   0.0 14.0
      35. WBD2                *   -87.0    -104.0    -129.0    -148.0 *     61.  224. AG  1213.   0.4   0.0 14.0
      36. WBD3                *  -129.0    -148.0    -180.0    -189.0 *     65.  231. AG  1213.   0.4   0.0 14.0
      37. WBD4                *  -180.0    -189.0    -258.0    -235.0 *     91.  239. AG  1213.   0.4   0.0 14.0
      38. WBQ                 *     7.0      20.0      50.0      76.0 *     71.   37. AG     5. 100.0   0.0  8.0 0.41  11.8
      39. WBQL                *    15.0      18.0      44.9      59.9 *     51.   36. AG     5. 100.0   0.0  8.0 0.36   8.6
      40. WBQR                *     1.0      22.0     186.9     262.1 *    304.   38. AG     3. 100.0   0.0  4.0 1.37  50.6
```

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

DATE : 3/26/15
TIME : 13:19:32

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
10. NBQ	160	114	2.0	385	3436	1.31	2	3
11. NBLQ	160	141	2.0	126	147	1.31	2	3
12. NBRQ	160	76	2.0	260	1486	1.31	2	3
22. SBQ	160	108	2.0	839	3436	1.31	2	3
23. SBLQ	160	135	2.0	299	662	1.31	2	3
24. SBRQ	160	118	2.0	337	1537	1.31	2	3
30. EBQ	160	109	2.0	868	4789	1.31	2	3
31. EBLQ	160	118	2.0	618	3333	1.31	2	3
38. WBQ	160	113	2.0	750	3436	1.31	2	3
39. WBQL	160	122	2.0	507	3333	1.31	2	3
40. WBQR	160	135	2.0	275	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	9.0	-22.0	1.8
2. REC2	5.0	-26.0	1.8
3. REC3	-11.0	-46.0	1.8
4. REC4	-27.0	-66.0	1.8
5. REC5	-44.0	-88.0	1.8
6. REC6	-60.0	-108.0	1.8
7. REC7	-77.0	-128.0	1.8
8. REC8	14.0	-23.0	1.8
9. REC9	36.0	-34.0	1.8
10. REC10	59.0	-44.0	1.8
11. REC11	30.0	7.0	1.8
12. REC12	31.0	2.0	1.8
13. REC13	51.0	-10.0	1.8
14. REC14	75.0	-20.0	1.8
15. REC15	97.0	-31.0	1.8
16. REC16	120.0	-42.0	1.8
17. REC17	32.0	12.0	1.8
18. REC18	45.0	29.0	1.8
19. REC19	59.0	48.0	1.8
20. REC20	-10.0	22.0	1.8
21. REC21	-3.0	24.0	1.8
22. REC22	12.0	43.0	1.8
23. REC23	28.0	62.0	1.8
24. REC24	44.0	81.0	1.8
25. REC25	60.0	101.0	1.8
26. REC26	72.0	120.0	1.8
27. REC27	88.0	138.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	43.0	1.8
30. REC30	-60.0	58.0	1.8
31. REC31	-26.0	-7.0	1.8
32. REC32	-29.0	-1.0	1.8
33. REC33	-50.0	12.0	1.8
34. REC34	-71.0	27.0	1.8

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                                                                                              PAGE  3
 JOB: University Drive and Martin Luther King Jr. Parkway                    RUN: 2040 Build Opt1 AM Peak

 DATE :  3/26/15
 TIME : 13:19:32


  RECEPTOR LOCATIONS
  ------------------
                         *          COORDINATES (M)          *
    RECEPTOR             *      X          Y           Z     *
-------------------------*-------------------------------------*
35. REC35                *      -91.0       42.0        1.8   *
36. REC36                *     -111.0       58.0        1.8   *
37. REC37                *      -31.0      -16.0        1.8   *
38. REC38                *      -45.0      -36.0        1.8   *
39. REC39                *      -61.0      -56.0        1.8   *
```

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.1	0.1	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
10.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.1	0.1	0.1	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
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
260.	0.1	0.1	0.1	0.1	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	0.1
270.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
280.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
290.	0.1	0.1	0.1	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	0.1
300.	0.1	0.1	0.1	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	0.1
310.	0.1	0.1	0.1	0.1	0.1	0.1	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
320.	0.1	0.1	0.1	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
330.	0.1	0.1	0.1	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
340.	0.1	0.1	0.1	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
350.	0.0	0.1	0.1	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
360.	0.0	0.1	0.1	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
MAX	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
DEGR.	220	0	0	0	0	0	0	230	0	310	220	230	0	0	0	0	0	0	0	160

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build Opt1 AM Peak

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.

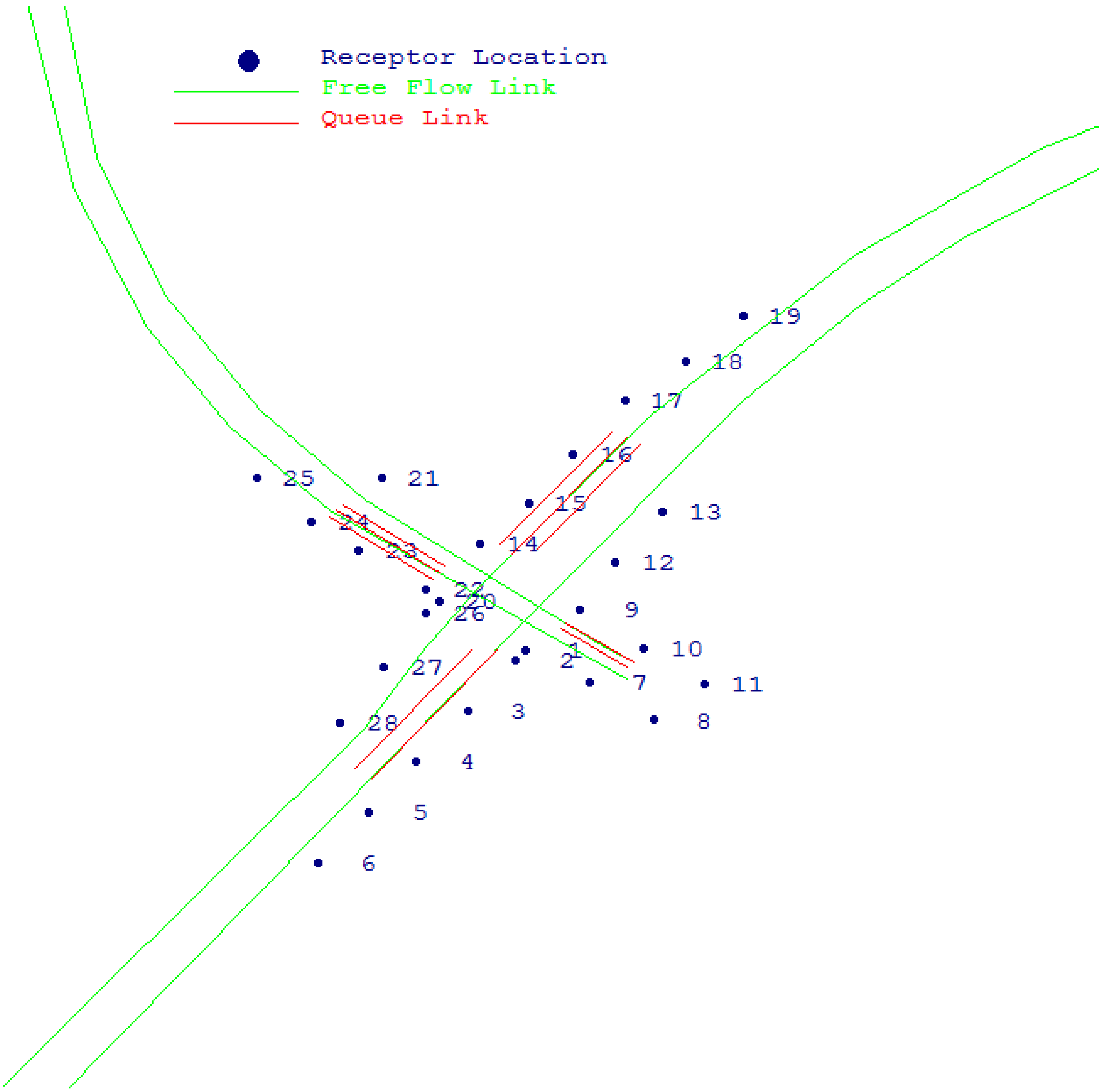
WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	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
50.	0.1	0.1	0.1	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
60.	0.1	0.1	0.1	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
70.	0.1	0.1	0.1	0.1	0.1	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
80.	0.0	0.0	0.1	0.1	0.1	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
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	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
260.	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	0.0	0.0	0.0	0.0	0.0
270.	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	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	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	0.0	0.0	0.0	0.0	0.0
DEGR.	50	50	50	50	70	50	40	140	130	130	0	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 PM Build NHC 1 University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive     ' 60. 108.0    0.00    0.00 28     1.0000 0 0
'REC1               '        5.0      -20.0         1.8
'REC2               '        2.0      -24.0         1.8
'REC3               '      -13.0      -45.0         1.8
'REC4               '      -29.0      -66.0         1.8
'REC5               '      -44.0      -87.0         1.8
'REC6               '      -60.0     -108.0         1.8
'REC7               '       25.0      -33.0         1.8
'REC8               '       45.0      -49.0         1.8
'REC9               '       22.0       -3.0         1.8
'REC10              '       42.0      -19.0         1.8
'REC11              '       61.0      -34.0         1.8
'REC12              '       33.0       16.0         1.8
'REC13              '       48.0       37.0         1.8
'REC14              '       -9.0       24.0         1.8
'REC15              '        6.0       41.0         1.8
'REC16              '       20.0       61.0         1.8
'REC17              '       36.0       83.0         1.8
'REC18              '       55.0       99.0         1.8
'REC19              '       73.0      118.0         1.8
'REC20              '      -21.0        0.0         0.0
'REC21              '      -40.0       51.0         1.8
'REC22              '      -26.0        5.0         1.8
'REC23              '      -47.0       21.0         1.8
'REC24              '      -62.0       33.0         1.8
'REC25              '      -79.0       51.0         1.8
'REC26              '      -26.0       -5.0         1.8
'REC27              '      -39.0      -27.0         1.8
'REC28              '      -53.0      -50.0         1.8
'2040 Build Opt1 PM Peak                  '  39    1   0 C
1
'NBA1               ' 'AG'       39.0      -25.0       29.0      -18.0      108.   0.94      0.0  10.0
1
'NBA2               ' 'AG'       29.0      -18.0        3.0        3.0      108.   0.94      0.0  10.0
1
'NBD1               ' 'AG'        3.0        3.0      -45.0       42.0      994.   0.76      0.0  14.0
1
'NBD2               ' 'AG'      -45.0       42.0      -78.0       79.0      994.   0.76      0.0  14.0
1
'NBD3               ' 'AG'      -78.0       79.0     -108.0      127.0      994.   0.76      0.0  14.0
1
'NBD4               ' 'AG'     -108.0      127.0     -129.0      184.0      994.   0.76      0.0  14.0
1
'NBD5               ' 'AG'     -129.0      184.0     -140.0      253.0      994.   0.76      0.0  14.0
2
'NBQ                ' 'AG'       18.0       -9.0       39.0      -25.0        0.0   4.0  1
  160    110    2.0    65    1.31 1729 2 3
2
'NBLQ               ' 'AG'       16.0      -11.0       37.0      -27.0        0.0   4.0  1
  160    144    2.0    43    1.31 1248 2 3
1
'SBA1               ' 'AG'     -151.0      251.0     -136.0      170.0     1114.   0.76      0.0  14.0
1
'SBA2               ' 'AG'     -136.0      170.0     -113.0      113.0     1114.   0.76      0.0  14.0
1
'SBA3               ' 'AG'     -113.0      113.0      -87.0       72.0     1114.   0.76      0.0  14.0
1
'SBA4               ' 'AG'      -87.0       72.0      -56.0       38.0     1114.   0.76      0.0  14.0
1
'SBA5               ' 'AG'      -56.0       38.0       -2.0       -3.0     1114.   0.76      0.0  10.0
1
'SBD                ' 'AG'       -2.0       -3.0       37.0      -32.0      188.   0.63      0.0  10.0
2
'SBQ                ' 'AG'      -22.0       12.0      -54.0       38.0        0.0   4.0  1
  160     92    2.0    93    1.31 1809 2 3
2
'SBLQ               ' 'AG'      -20.0       15.0      -52.0       40.0        0.0   3.4  1
  160    126    2.0   529    1.31 1014 2 3
2
'SBRQ               ' 'AG'      -24.0        9.0      -56.0       35.0        0.0   4.0  1
  160     92    2.0   492    1.31 1537 2 3
1
'EBA                ' 'AG'     -165.0     -238.0        6.0       -6.0      951.   0.76      0.0  14.0
1
'EBD1               ' 'AG'        6.0       -6.0       73.0       83.0     1030.   1.71      0.0  14.0
1
'EBD2               ' 'AG'       73.0       83.0      110.0      123.0     1030.   1.71      0.0  14.0
1
'EBD3               ' 'AG'      110.0      123.0      142.0      150.0     1030.   1.71      0.0  14.0
1
'EBD4               ' 'AG'      142.0      150.0      187.0      181.0     1030.   1.71      0.0  14.0
1
'EBD5               ' 'AG'      187.0      181.0      256.0      211.0     1030.   1.71      0.0  14.0
1
'EBD6               ' 'AG'      256.0      211.0      387.0      247.0     1030.   1.71      0.0  14.0
2
'EBQ                ' 'AG'       -4.0      -20.0      -43.0      -73.0        0.0   8.0  2
  160    100    2.0   501    1.31 3416 2 3
```

```
2
'EBLQ                ' 'AG'      -12.0      -20.0      -48.0      -69.0      0.0    8.0  2
  160   124   2.0   450   1.31 3333 2 3
1
'WBA1                ' 'AG'      387.0      267.0      272.0      235.0     1198.   0.37      0.0  14.0
1
'WBA2                ' 'AG'      272.0      235.0      221.0      216.0     1198.   0.37      0.0  14.0
1
'WBA3                ' 'AG'      221.0      216.0      166.0      187.0     1198.   0.37      0.0  14.0
1
'WBA4                ' 'AG'      166.0      187.0      108.0      143.0     1198.   0.37      0.0  14.0
1
'WBA5                ' 'AG'      108.0      143.0       44.0       77.0     1198.   0.37      0.0  14.0
1
'WBA6                ' 'AG'       44.0       77.0      -10.0        5.0     1198.   0.37      0.0  14.0
1
'WBD1                ' 'AG'      -10.0        5.0      -28.0      -22.0     1159.   0.76      0.0  14.0
1
'WBD2                ' 'AG'      -28.0      -22.0      -45.0      -52.0     1159.   0.76      0.0  14.0
1
'WBD3                ' 'AG'      -45.0      -52.0     -181.0     -230.0     1159.   0.76      0.0  14.0
2
'WBQ                 ' 'AG'        1.0       20.0       37.0       68.0      0.0    8.0  2
  160   120   2.0   624   1.31 3436 2 3
2
'WBLQ                ' 'AG'        9.0       22.0       41.0       65.0      0.0    4.0  1
  160   144   2.0    76   1.31  801 2 3
2
'WBRQ                ' 'AG'       -3.0       24.0       32.0       70.0      0.0    4.0  1
  160   126   2.0   498   1.31 1537 2 3
 1.0    0.0 4   1000.0    0.0 'Y'   10     0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: University Drive and Westgate Drive                  RUN: 2040 Build Opt1 PM Peak

      DATE :  3/26/15
      TIME : 19: 8: 9

         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 = 108. CM
        U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (M)         *   LENGTH  BRG TYPE   VPH    EF     H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2   *    (M)   (DEG)            (G/MI)  (M)  (M)        (VEH)
      ------------------------*--------------------------------------*--------------------------------------------------------
-
       1. NBA1                *    39.0     -25.0      29.0     -18.0 *     12.   305. AG    108.    0.9    0.0 10.0
       2. NBA2                *    29.0     -18.0       3.0       3.0 *     33.   309. AG    108.    0.9    0.0 10.0
       3. NBD1                *     3.0       3.0     -45.0      42.0 *     62.   309. AG    994.    0.8    0.0 14.0
       4. NBD2                *   -45.0      42.0     -78.0      79.0 *     50.   318. AG    994.    0.8    0.0 14.0
       5. NBD3                *   -78.0      79.0    -108.0     127.0 *     57.   328. AG    994.    0.8    0.0 14.0
       6. NBD4                *  -108.0     127.0    -129.0     184.0 *     61.   340. AG    994.    0.8    0.0 14.0
       7. NBD5                *  -129.0     184.0    -140.0     253.0 *     70.   351. AG    994.    0.8    0.0 14.0
       8. NBQ                 *    18.0      -9.0      27.5     -16.2 *     12.   127. AG      2. 100.0    0.0  4.0 0.13    2.0
       9. NBLQ                *    16.0     -11.0      24.2     -17.3 *     10.   127. AG      3. 100.0    0.0  4.0 0.46    1.7
      10. SBA1                *  -151.0     251.0    -136.0     170.0 *     82.   170. AG   1114.    0.8    0.0 14.0
      11. SBA2                *  -136.0     170.0    -113.0     113.0 *     61.   158. AG   1114.    0.8    0.0 14.0
      12. SBA3                *  -113.0     113.0     -87.0      72.0 *     49.   148. AG   1114.    0.8    0.0 14.0
      13. SBA4                *   -87.0      72.0     -56.0      38.0 *     46.   138. AG   1114.    0.8    0.0 14.0
      14. SBA5                *   -56.0      38.0      -2.0      -3.0 *     68.   127. AG   1114.    0.8    0.0 10.0
      15. SBD                 *    -2.0      -3.0      37.0     -32.0 *     49.   127. AG    188.    0.6    0.0 10.0
      16. SBQ                 *   -22.0      12.0     -33.1      21.0 *     14.   309. AG      2. 100.0    0.0  4.0 0.13    2.4
      17. SBLQ                *   -20.0      15.0    -940.5     734.1 *   1168.   308. AG      3. 100.0    0.0  3.4 2.78 194.7
      18. SBRQ                *   -24.0       9.0     -82.6      56.6 *     75.   309. AG      2. 100.0    0.0  4.0 0.80   12.6
      19. EBA                 *  -165.0    -238.0       6.0      -6.0 *    288.    36. AG    951.    0.8    0.0 14.0
      20. EBD1                *     6.0      -6.0      73.0      83.0 *    111.    37. AG   1030.    1.7    0.0 14.0
      21. EBD2                *    73.0      83.0     110.0     123.0 *     54.    43. AG   1030.    1.7    0.0 14.0
      22. EBD3                *   110.0     123.0     142.0     150.0 *     42.    50. AG   1030.    1.7    0.0 14.0
      23. EBD4                *   142.0     150.0     187.0     181.0 *     55.    55. AG   1030.    1.7    0.0 14.0
      24. EBD5                *   187.0     181.0     256.0     211.0 *     75.    67. AG   1030.    1.7    0.0 14.0
      25. EBD6                *   256.0     211.0     387.0     247.0 *    136.    75. AG   1030.    1.7    0.0 14.0
      26. EBQ                 *    -4.0     -20.0     -28.7     -53.6 *     42.   216. AG      4. 100.0    0.0  8.0 0.21    6.9
      27. EBLQ                *   -12.0     -20.0     -39.5     -57.5 *     46.   216. AG      5. 100.0    0.0  8.0 0.34    7.8
      28. WBA1                *   387.0     267.0     272.0     235.0 *    119.   254. AG   1198.    0.4    0.0 14.0
      29. WBA2                *   272.0     235.0     221.0     216.0 *     54.   250. AG   1198.    0.4    0.0 14.0
      30. WBA3                *   221.0     216.0     166.0     187.0 *     62.   242. AG   1198.    0.4    0.0 14.0
      31. WBA4                *   166.0     187.0     108.0     143.0 *     73.   233. AG   1198.    0.4    0.0 14.0
      32. WBA5                *   108.0     143.0      44.0      77.0 *     92.   224. AG   1198.    0.4    0.0 14.0
      33. WBA6                *    44.0      77.0     -10.0       5.0 *     90.   217. AG   1198.    0.4    0.0 14.0
      34. WBD1                *   -10.0       5.0     -28.0     -22.0 *     32.   214. AG   1159.    0.8    0.0 14.0
      35. WBD2                *   -28.0     -22.0     -45.0     -52.0 *     34.   210. AG   1159.    0.8    0.0 14.0
      36. WBD3                *   -45.0     -52.0    -181.0    -230.0 *    224.   217. AG   1159.    0.8    0.0 14.0
      37. WBQ                 *     1.0      20.0      38.4      69.9 *     62.    37. AG      5. 100.0    0.0  8.0 0.40   10.4
      38. WBLQ                *     9.0      22.0      55.1      84.0 *     77.    37. AG      3. 100.0    0.0  4.0 1.27   12.9
      39. WBRQ                *    -3.0      24.0     459.4     631.7 *    764.    37. AG      3. 100.0    0.0  4.0 1.73 127.3
```

PAGE 2

JOB: University Drive and Westgate Drive RUN: 2040 Build Opt1 PM Peak

DATE : 3/26/15
TIME : 19: 8: 9

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
8. NBQ	160	110	2.0	65	1729	1.31	2	3
9. NBLQ	160	144	2.0	43	1248	1.31	2	3
16. SBQ	160	92	2.0	93	1809	1.31	2	3
17. SBLQ	160	126	2.0	529	1014	1.31	2	3
18. SBRQ	160	92	2.0	492	1537	1.31	2	3
26. EBQ	160	100	2.0	501	3416	1.31	2	3
27. EBLQ	160	124	2.0	450	3333	1.31	2	3
37. WBQ	160	120	2.0	624	3436	1.31	2	3
38. WBLQ	160	144	2.0	76	801	1.31	2	3
39. WBRQ	160	126	2.0	498	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	5.0	-20.0	1.8
2. REC2	2.0	-24.0	1.8
3. REC3	-13.0	-45.0	1.8
4. REC4	-29.0	-66.0	1.8
5. REC5	-44.0	-87.0	1.8
6. REC6	-60.0	-108.0	1.8
7. REC7	25.0	-33.0	1.8
8. REC8	45.0	-49.0	1.8
9. REC9	22.0	-3.0	1.8
10. REC10	42.0	-19.0	1.8
11. REC11	61.0	-34.0	1.8
12. REC12	33.0	16.0	1.8
13. REC13	48.0	37.0	1.8
14. REC14	-9.0	24.0	1.8
15. REC15	6.0	41.0	1.8
16. REC16	20.0	61.0	1.8
17. REC17	36.0	83.0	1.8
18. REC18	55.0	99.0	1.8
19. REC19	73.0	118.0	1.8
20. REC20	-21.0	0.0	0.0
21. REC21	-40.0	51.0	1.8
22. REC22	-26.0	5.0	1.8
23. REC23	-47.0	21.0	1.8
24. REC24	-62.0	33.0	1.8
25. REC25	-79.0	51.0	1.8
26. REC26	-26.0	-5.0	1.8
27. REC27	-39.0	-27.0	1.8
28. REC28	-53.0	-50.0	1.8

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JOB: University Drive and Westgate Drive RUN: 2040 Build Opt1 PM Peak

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.-360.

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	CONCENTRATION (PPM)																			
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	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	0.0
230.	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	0.0	0.0
240.	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	0.0	0.0
250.	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	0.0	0.0
260.	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	0.0	0.0
270.	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	0.0	0.0
280.	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	0.0	0.0
290.	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	0.0	0.0
300.	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	0.0	0.0
310.	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	0.0	0.0
320.	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	0.0	0.0
330.	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	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	20	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

JOB: University Drive and Westgate Drive RUN: 2040 Build Opt1 PM Peak

MODEL RESULTS

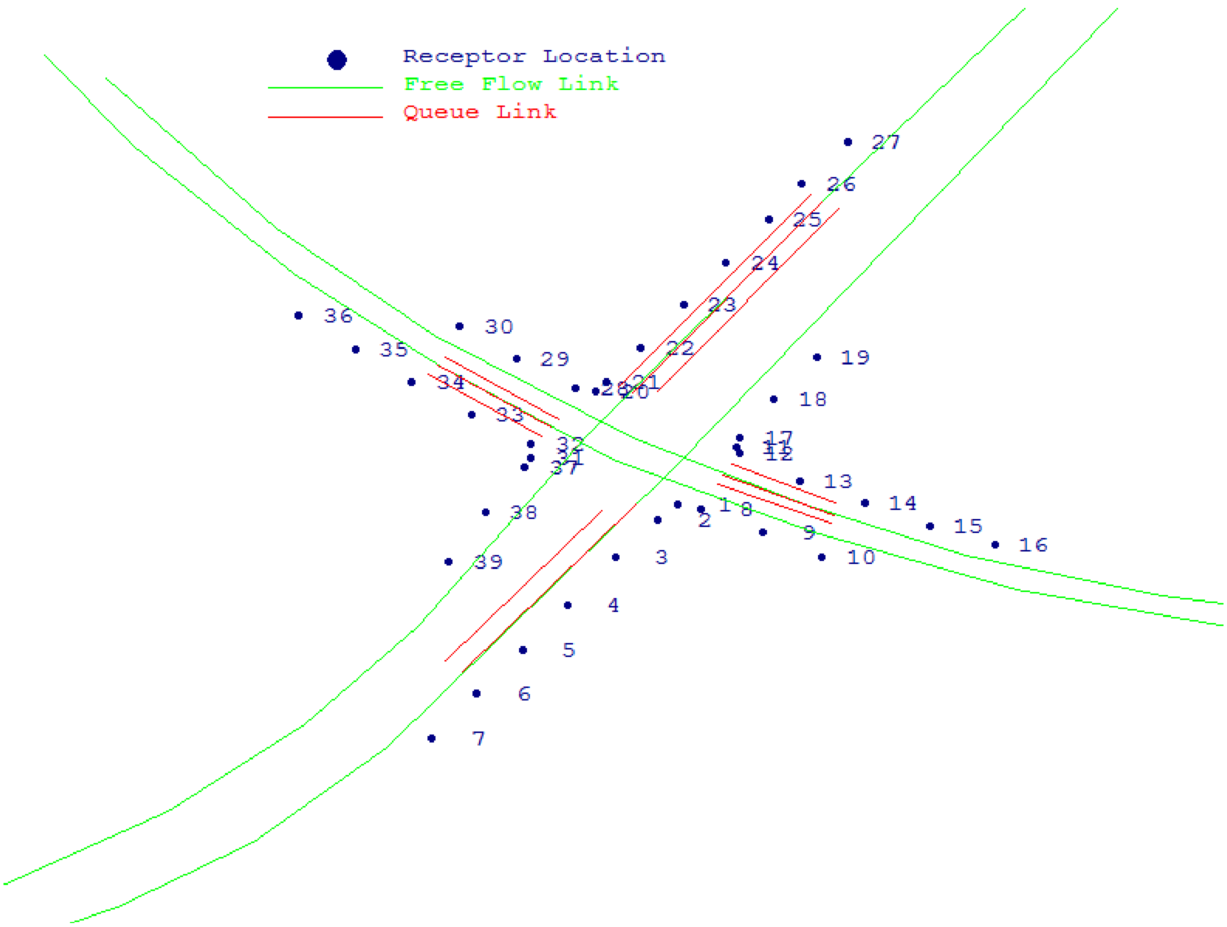
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
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
20.	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
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	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
80.	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
100.	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
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC9 .

2040 AM Build NHC 2 University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway         '  60. 108.0     0.00     0.00 39      1.0000 0 0
'REC1                '        18.0       -26.0        1.8
'REC2                '        11.0       -33.0        1.8
'REC3                '        -4.0       -51.0        1.8
'REC4                '       -21.0       -73.0        1.8
'REC5                '       -37.0       -94.0        1.8
'REC6                '       -53.0      -114.0        1.8
'REC7                '       -69.0      -135.0        1.8
'REC8                '        26.0       -28.0        1.8
'REC9                '        48.0       -39.0        1.8
'REC10               '        69.0       -51.0        1.8
'REC11               '        39.0         1.0        1.8
'REC12               '        40.0        -2.0        1.8
'REC13               '        61.0       -15.0        1.8
'REC14               '        84.0       -25.0        1.8
'REC15               '       107.0       -36.0        1.8
'REC16               '       130.0       -45.0        1.8
'REC17               '        40.0         5.0        1.8
'REC18               '        52.0        23.0        1.8
'REC19               '        67.0        43.0        1.8
'REC20               '       -11.0        27.0        1.8
'REC21               '        -7.0        31.0        1.8
'REC22               '         5.0        47.0        1.8
'REC23               '        20.0        67.0        1.8
'REC24               '        35.0        87.0        1.8
'REC25               '        50.0       107.0        1.8
'REC26               '        62.0       124.0        1.8
'REC27               '        78.0       143.0        1.8
'REC28               '       -18.0        28.0        1.8
'REC29               '       -39.0        42.0        1.8
'REC30               '       -59.0        57.0        1.8
'REC31               '       -34.0        -4.0        1.8
'REC32               '       -34.0         2.0        1.8
'REC33               '       -55.0        16.0        1.8
'REC34               '       -76.0        31.0        1.8
'REC35               '       -96.0        46.0        1.8
'REC36               '      -116.0        62.0        1.8
'REC37               '       -36.0        -9.0        1.8
'REC38               '       -50.0       -30.0        1.8
'REC39               '       -63.0       -53.0        1.8
'2040 Build LPA and Opt2 AM Peak          '  40    1   0 C
1
'NBA1                ' 'AG'      528.0       -77.0       325.0       -84.0      796.   0.76       0.0  14.0
1
'NBA2                ' 'AG'      325.0       -84.0       259.0       -80.0      796.   0.76       0.0  14.0
1
'NBA3                ' 'AG'      259.0       -80.0       189.0       -69.0      796.   0.76       0.0  14.0
1
'NBA4                ' 'AG'      189.0       -69.0       120.0       -50.0      796.   0.76       0.0  14.0
1
'NBA5                ' 'AG'      120.0       -50.0        63.0       -26.0      796.   0.76       0.0  14.0
1
'NBA6                ' 'AG'       63.0       -26.0         2.0         5.0      796.   0.76       0.0  14.0
1
'NBD1                ' 'AG'        2.0         5.0       -68.0        53.0     1243.   1.16       0.0  14.0
1
'NBD2                ' 'AG'      -68.0        53.0      -124.0       103.0     1243.   1.16       0.0  14.0
1
'NBD3                ' 'AG'     -124.0       103.0      -184.0       173.0     1243.   1.16       0.0  14.0
2
'NBQ                 ' 'AG'       34.0       -12.0        73.0       -31.0       0.0   8.0  2
  160     99    2.0    551    1.31 3436 2 3
2
'NBLQ                ' 'AG'       32.0       -17.0        72.0       -35.0       0.0   4.0  1
  160     82    2.0     65    1.31   469 2 3
2
'NBRQ                ' 'AG'       37.0        -7.0        74.0       -25.0       0.0   4.0  1
  160     74    2.0    177    1.31 1486 2 3
1
'SBA1                ' 'AG'     -206.0       184.0      -174.0       141.0     1431.   0.41       0.0  14.0
1
'SBA2                ' 'AG'     -174.0       141.0      -118.0        82.0     1431.   0.41       0.0  14.0
1
'SBA3                ' 'AG'     -118.0        82.0       -66.0        38.0     1431.   0.41       0.0  14.0
1
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'SBA4                   ' 'AG'     -66.0      38.0      -5.0      -5.0   1431.  0.41      0.0  14.0
1
'SBD1                   ' 'AG'      -5.0      -5.0      66.0     -39.0   1033.  0.71      0.0  14.0
1
'SBD2                   ' 'AG'      66.0     -39.0     138.0     -66.0   1033.  0.71      0.0  14.0
1
'SBD3                   ' 'AG'     138.0     -66.0     213.0     -83.0   1033.  0.71      0.0  14.0
1
'SBD4                   ' 'AG'     213.0     -83.0     296.0     -93.0   1033.  0.71      0.0  14.0
1
'SBD5                   ' 'AG'     296.0     -93.0     535.0     -87.0   1033.  0.71      0.0  14.0
2
'SBQ                    ' 'AG'     -27.0      10.0     -67.0      39.0     0.0   8.0  2
  160    90   2.0   647   1.31 3436 2 3
2
'SBLQ                   ' 'AG'     -24.0      14.0     -64.0      43.0     0.0   4.0  1
  160    64   2.0   350   1.31  374 2 3
2
'SBRQ                   ' 'AG'     -30.0       6.0     -70.0      35.0     0.0   4.0  1
  160    66   2.0   434   1.31 1537 2 3
1
'EBA1                   ' 'AG'    -252.0    -247.0    -180.0    -214.0   1387.  1.40      0.0  18.0
1
'EBA2                   ' 'AG'    -180.0    -214.0    -132.0    -184.0   1387.  1.40      0.0  18.0
1
'EBA3                   ' 'AG'    -132.0    -184.0     -85.0    -140.0   1387.  1.40      0.0  18.0
1
'EBA4                   ' 'AG'     -85.0    -140.0      17.0      -9.0   1387.  1.40      0.0  18.0
1
'EBD                    ' 'AG'      17.0      -9.0     187.0     224.0   1230.  0.63      0.0  18.0
2
'EBQ                    ' 'AG'       3.0     -26.0     -58.0    -104.0     0.0  12.0  3
  160   111   2.0   805   1.31 4844 2 3
2
'EBLQ                   ' 'AG'      -9.0     -29.0     -64.0     -99.0     0.0   8.0  2
  160   136   2.0   582   1.31 3333 2 3
1
'WBA1                   ' 'AG'     167.0     239.0      69.0     115.0    815.  0.94      0.0  14.0
1
'WBA2                   ' 'AG'      69.0     115.0     -13.0       7.0    815.  0.94      0.0  14.0
1
'WBD1                   ' 'AG'     -13.0       7.0     -74.0     -83.0    923.  0.43      0.0  14.0
1
'WBD2                   ' 'AG'     -74.0     -83.0    -114.0    -129.0    923.  0.43      0.0  14.0
1
'WBD3                   ' 'AG'    -114.0    -129.0    -162.0    -169.0    923.  0.43      0.0  14.0
1
'WBD4                   ' 'AG'    -162.0    -169.0    -261.0    -228.0    923.  0.43      0.0  14.0
2
'WBQ                    ' 'AG'       2.0      26.0      69.0     115.0     0.0   8.0  2
  160   110   2.0   424   1.31 3436 2 3
2
'WBQL                   ' 'AG'      11.0      27.0      75.0     112.0     0.0   8.0  2
  160   135   2.0   284   1.31 3333 2 3
2
'WBQR                   ' 'AG'      -3.0      29.0      65.0     119.0     0.0   4.0  1
  160    84   2.0   107   1.31 1537 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0   36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build LPA and Opt2 AM Peak

DATE : 3/26/15
TIME : 7: 1:57

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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	528.0	-77.0	325.0	-84.0	203.	268.	AG	796.	0.8	0.0	14.0		
2. NBA2	325.0	-84.0	259.0	-80.0	66.	273.	AG	796.	0.8	0.0	14.0		
3. NBA3	259.0	-80.0	189.0	-69.0	71.	279.	AG	796.	0.8	0.0	14.0		
4. NBA4	189.0	-69.0	120.0	-50.0	72.	285.	AG	796.	0.8	0.0	14.0		
5. NBA5	120.0	-50.0	63.0	-26.0	62.	293.	AG	796.	0.8	0.0	14.0		
6. NBA6	63.0	-26.0	2.0	5.0	68.	297.	AG	796.	0.8	0.0	14.0		
7. NBD1	2.0	5.0	-68.0	53.0	85.	304.	AG	1243.	1.2	0.0	14.0		
8. NBD2	-68.0	53.0	-124.0	103.0	75.	312.	AG	1243.	1.2	0.0	14.0		
9. NBD3	-124.0	103.0	-184.0	173.0	92.	319.	AG	1243.	1.2	0.0	14.0		
10. NBQ	34.0	-12.0	74.8	-31.9	45.	116.	AG	4.	100.0	0.0	8.0	0.22	7.6
11. NBLQ	32.0	-17.0	40.1	-20.6	9.	114.	AG	2.	100.0	0.0	4.0	0.30	1.5
12. NBRQ	37.0	-7.0	56.6	-16.5	22.	116.	AG	2.	100.0	0.0	4.0	0.23	3.6
13. SBA1	-206.0	184.0	-174.0	141.0	54.	143.	AG	1431.	0.4	0.0	14.0		
14. SBA2	-174.0	141.0	-118.0	82.0	81.	136.	AG	1431.	0.4	0.0	14.0		
15. SBA3	-118.0	82.0	-66.0	38.0	68.	130.	AG	1431.	0.4	0.0	14.0		
16. SBA4	-66.0	38.0	-5.0	-5.0	75.	125.	AG	1431.	0.4	0.0	14.0		
17. SBD1	-5.0	-5.0	66.0	-39.0	79.	116.	AG	1033.	0.7	0.0	14.0		
18. SBD2	66.0	-39.0	138.0	-66.0	77.	111.	AG	1033.	0.7	0.0	14.0		
19. SBD3	138.0	-66.0	213.0	-83.0	77.	103.	AG	1033.	0.7	0.0	14.0		
20. SBD4	213.0	-83.0	296.0	-93.0	84.	97.	AG	1033.	0.7	0.0	14.0		
21. SBD5	296.0	-93.0	535.0	-87.0	239.	89.	AG	1033.	0.7	0.0	14.0		
22. SBQ	-27.0	10.0	-66.2	38.4	48.	306.	AG	4.	100.0	0.0	8.0	0.23	8.1
23. SBLQ	-24.0	14.0	-404.3	289.7	470.	306.	AG	1.	100.0	0.0	4.0	1.63	78.3
24. SBRQ	-30.0	6.0	-68.7	34.0	48.	306.	AG	1.	100.0	0.0	4.0	0.50	8.0
25. EBA1	-252.0	-247.0	-180.0	-214.0	79.	65.	AG	1387.	1.4	0.0	18.0		
26. EBA2	-180.0	-214.0	-132.0	-184.0	57.	58.	AG	1387.	1.4	0.0	18.0		
27. EBA3	-132.0	-184.0	-85.0	-140.0	64.	47.	AG	1387.	1.4	0.0	18.0		
28. EBA4	-85.0	-140.0	17.0	-9.0	166.	38.	AG	1387.	1.4	0.0	18.0		
29. EBD	17.0	-9.0	187.0	224.0	288.	36.	AG	1230.	0.6	0.0	18.0		
30. EBQ	3.0	-26.0	-27.5	-65.1	50.	218.	AG	7.	100.0	0.0	12.0	0.20	8.3
31. EBLQ	-9.0	-29.0	-49.8	-80.9	66.	218.	AG	6.	100.0	0.0	8.0	0.70	11.0
32. WBA1	167.0	239.0	69.0	115.0	158.	218.	AG	815.	0.9	0.0	14.0		
33. WBA2	69.0	115.0	-13.0	7.0	136.	217.	AG	815.	0.9	0.0	14.0		
34. WBD1	-13.0	7.0	-74.0	-83.0	109.	214.	AG	923.	0.4	0.0	14.0		
35. WBD2	-74.0	-83.0	-114.0	-129.0	61.	221.	AG	923.	0.4	0.0	14.0		
36. WBD3	-114.0	-129.0	-162.0	-169.0	62.	230.	AG	923.	0.4	0.0	14.0		
37. WBD4	-162.0	-169.0	-261.0	-228.0	115.	239.	AG	923.	0.4	0.0	14.0		
38. WBQ	2.0	26.0	25.4	57.1	39.	37.	AG	5.	100.0	0.0	8.0	0.21	6.5
39. WBQL	11.0	27.0	30.2	52.5	32.	37.	AG	6.	100.0	0.0	8.0	0.32	5.3
40. WBQR	-3.0	29.0	6.0	41.0	15.	37.	AG	2.	100.0	0.0	4.0	0.15	2.5

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build LPA and Opt2 AM Peak

DATE : 3/26/15
TIME : 7: 1:57

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
10. NBQ	160	99	2.0	551	3436	1.31	2	3
11. NBLQ	160	82	2.0	65	469	1.31	2	3
12. NBRQ	160	74	2.0	177	1486	1.31	2	3
22. SBQ	160	90	2.0	647	3436	1.31	2	3
23. SBLQ	160	64	2.0	350	374	1.31	2	3
24. SBRQ	160	66	2.0	434	1537	1.31	2	3
30. EBQ	160	111	2.0	805	4844	1.31	2	3
31. EBLQ	160	136	2.0	582	3333	1.31	2	3
38. WBQ	160	110	2.0	424	3436	1.31	2	3
39. WBQL	160	135	2.0	284	3333	1.31	2	3
40. WBQR	160	84	2.0	107	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	18.0	-26.0	1.8
2. REC2	11.0	-33.0	1.8
3. REC3	-4.0	-51.0	1.8
4. REC4	-21.0	-73.0	1.8
5. REC5	-37.0	-94.0	1.8
6. REC6	-53.0	-114.0	1.8
7. REC7	-69.0	-135.0	1.8
8. REC8	26.0	-28.0	1.8
9. REC9	48.0	-39.0	1.8
10. REC10	69.0	-51.0	1.8
11. REC11	39.0	1.0	1.8
12. REC12	40.0	-2.0	1.8
13. REC13	61.0	-15.0	1.8
14. REC14	84.0	-25.0	1.8
15. REC15	107.0	-36.0	1.8
16. REC16	130.0	-45.0	1.8
17. REC17	40.0	5.0	1.8
18. REC18	52.0	23.0	1.8
19. REC19	67.0	43.0	1.8
20. REC20	-11.0	27.0	1.8
21. REC21	-7.0	31.0	1.8
22. REC22	5.0	47.0	1.8
23. REC23	20.0	67.0	1.8
24. REC24	35.0	87.0	1.8
25. REC25	50.0	107.0	1.8
26. REC26	62.0	124.0	1.8
27. REC27	78.0	143.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	42.0	1.8
30. REC30	-59.0	57.0	1.8
31. REC31	-34.0	-4.0	1.8
32. REC32	-34.0	2.0	1.8
33. REC33	-55.0	16.0	1.8
34. REC34	-76.0	31.0	1.8

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JOB: University Drive and Martin Luther King Jr. Parkway                    RUN: 2040 Build LPA and Opt2 AM Peak

DATE :  3/26/15
TIME :  7: 1:57


 RECEPTOR LOCATIONS
 ------------------
                         *          COORDINATES (M)          *
    RECEPTOR             *      X          Y           Z     *
-------------------------*-----------------------------------*
35. REC35                *      -96.0       46.0        1.8   *
36. REC36                *     -116.0       62.0        1.8   *
37. REC37                *      -36.0       -9.0        1.8   *
38. REC38                *      -50.0      -30.0        1.8   *
39. REC39                *      -63.0      -53.0        1.8   *
```

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build LPA and Opt2 AM Peak

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.-360.

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.	0.0	0.1	0.1	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
10.	0.0	0.1	0.1	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
20.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.1	0.1	0.1	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
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.1	0.1	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
230.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.1	0.1	0.1	0.1	0.1	0.1	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
260.	0.1	0.1	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
270.	0.1	0.1	0.1	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
280.	0.1	0.1	0.1	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	0.1
290.	0.1	0.1	0.1	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
300.	0.1	0.1	0.1	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
310.	0.1	0.1	0.1	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
320.	0.1	0.1	0.1	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
330.	0.1	0.1	0.1	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
340.	0.0	0.1	0.1	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
350.	0.0	0.1	0.1	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
360.	0.0	0.1	0.1	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
MAX	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
DEGR.	220	0	0	0	0	0	0	240	0	0	230	230	0	0	0	0	230	0	0	280

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build LPA and Opt2 AM Peak

MODEL RESULTS

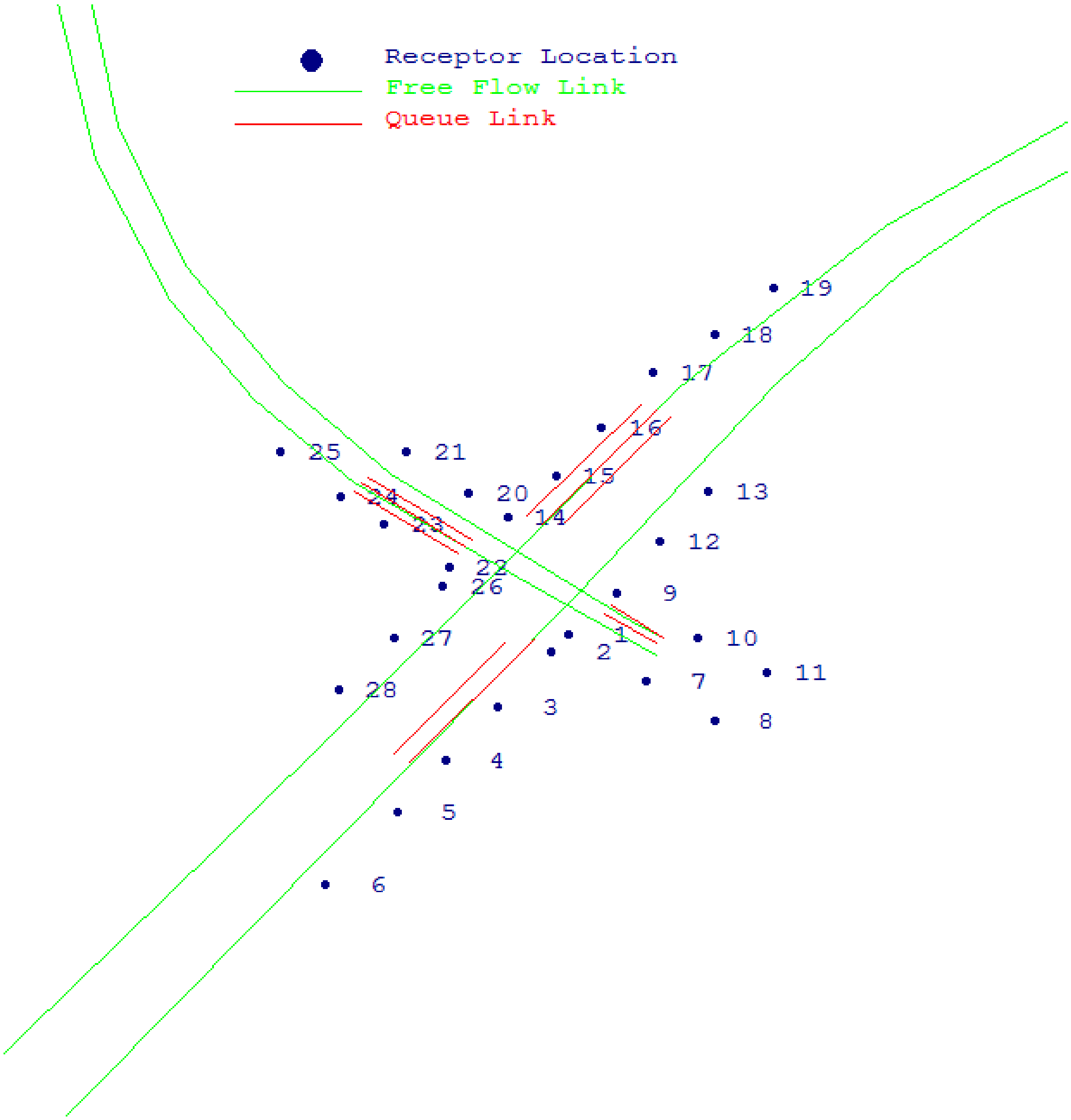
REMARKS : In search of the angle corresponding to the maximum concentration, only the first angle, of the angles with same maximum concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	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	0.0	0.0	0.0	0.0	0.0
270.	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	0.0	0.0	0.0	0.0	0.0
280.	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	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0	140	130	130	0	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 AM Build NHC 2 University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive     '  60. 108.0    0.00     0.00 28     1.0000 0 0
'REC1                    '        10.0       -24.0         1.8
'REC2                    '         4.0       -31.0         1.8
'REC3                    '       -12.0       -53.0         1.8
'REC4                    '       -28.0       -75.0         1.8
'REC5                    '       -43.0       -96.0         1.8
'REC6                    '       -65.0      -126.0         1.8
'REC7                    '        34.0       -43.0         1.8
'REC8                    '        55.0       -59.0         1.8
'REC9                    '        25.0        -7.0         1.8
'REC10                   '        50.0       -25.0         1.8
'REC11                   '        71.0       -39.0         1.8
'REC12                   '        38.0        14.0         1.8
'REC13                   '        53.0        35.0         1.8
'REC14                   '        -9.0        24.0         1.8
'REC15                   '         6.0        41.0         1.8
'REC16                   '        20.0        61.0         1.8
'REC17                   '        36.0        83.0         1.8
'REC18                   '        55.0        99.0         1.8
'REC19                   '        73.0       118.0         1.8
'REC20                   '       -21.0        34.0         1.8
'REC21                   '       -40.0        51.0         1.8
'REC22                   '       -27.0         4.0         1.8
'REC23                   '       -47.0        21.0         1.8
'REC24                   '       -60.0        33.0         1.8
'REC25                   '       -79.0        51.0         1.8
'REC26                   '       -29.0        -4.0         1.8
'REC27                   '       -44.0       -25.0         1.8
'REC28                   '       -61.0       -46.0         1.8
'2040 Build LPA and Opt2 AM Peak         '  38    1   0 C
1
'NBA1                    ' 'AG'       39.0       -25.0        29.0       -18.0      314.   0.94       0.0  10.0
1
'NBA2                    ' 'AG'       29.0       -18.0         3.0         3.0      314.   0.94       0.0  10.0
1
'NBD1                    ' 'AG'        3.0         3.0       -45.0        42.0      911.   0.76       0.0  14.0
1
'NBD2                    ' 'AG'      -45.0        42.0       -78.0        79.0      911.   0.76       0.0  14.0
1
'NBD3                    ' 'AG'      -78.0        79.0      -108.0       127.0      911.   0.76       0.0  14.0
1
'NBD4                    ' 'AG'     -108.0       127.0      -129.0       184.0      911.   0.76       0.0  14.0
1
'NBD5                    ' 'AG'     -129.0       184.0      -140.0       253.0      911.   0.76       0.0  14.0
2
'NBQ                     ' 'AG'       23.0       -12.0        39.0       -25.0       0.0   4.0  1
  160   108   2.0    70   1.31 1680 2 3
2
'NBLQ                    ' 'AG'       21.0       -15.0        37.0       -27.0       0.0   4.0  1
  160   138   2.0   244   1.31 1328 2 3
1
'SBA1                    ' 'AG'     -151.0       251.0      -136.0       170.0      612.   0.76       0.0  14.0
1
'SBA2                    ' 'AG'     -136.0       170.0      -113.0       113.0      612.   0.76       0.0  14.0
1
'SBA3                    ' 'AG'     -113.0       113.0       -87.0        72.0      612.   0.76       0.0  14.0
1
'SBA4                    ' 'AG'      -87.0        72.0       -56.0        38.0      612.   0.76       0.0  14.0
1
'SBA5                    ' 'AG'      -56.0        38.0        -2.0        -3.0      612.   0.76       0.0  10.0
1
'SBD                     ' 'AG'       -2.0        -3.0        37.0       -32.0      102.   0.63       0.0  10.0
2
'SBQ                     ' 'AG'      -22.0        12.0       -54.0        38.0       0.0   4.0  1
  160    98   2.0    32   1.31 1809 2 3
2
'SBLQ                    ' 'AG'      -20.0        15.0       -52.0        40.0       0.0   3.4  1
  160   128   2.0   281   1.31 1023 2 3
2
'SBRQ                    ' 'AG'      -24.0         9.0       -56.0        35.0       0.0   4.0  1
  160    98   2.0   299   1.31 1537 2 3
1
'EBA                     ' 'AG'     -161.0      -242.0        11.0       -10.0     1221.   0.76       0.0  14.0
1
'EBD1                    ' 'AG'       11.0       -10.0        75.0        80.0      985.   1.71       0.0  14.0
```

```
1
'EBD2              ' 'AG'      75.0      80.0     112.0     123.0    985.  1.71      0.0  14.0
1
'EBD3              ' 'AG'     112.0     123.0     142.0     150.0    985.  1.71      0.0  14.0
1
'EBD4              ' 'AG'     142.0     150.0     187.0     181.0    985.  1.71      0.0  14.0
1
'EBD5              ' 'AG'     187.0     181.0     256.0     211.0    985.  1.71      0.0  14.0
1
'EBD6              ' 'AG'     256.0     211.0     387.0     247.0    985.  1.71      0.0  14.0
2
'EBQ               ' 'AG'      -1.0     -26.0     -39.0     -76.0     0.0  8.0  2
  160   100   2.0   671   1.31 3436 2 3
2
'EBLQ              ' 'AG'     -10.0     -27.0     -44.0     -72.0     0.0  8.0  2
  160   116   2.0   550   1.31 3333 2 3
1
'WBA1              ' 'AG'     387.0     267.0     272.0     235.0    653.  0.37      0.0  14.0
1
'WBA2              ' 'AG'     272.0     235.0     221.0     216.0    653.  0.37      0.0  14.0
1
'WBA3              ' 'AG'     221.0     216.0     166.0     187.0    653.  0.37      0.0  14.0
1
'WBA4              ' 'AG'     166.0     187.0     108.0     143.0    653.  0.37      0.0  14.0
1
'WBA5              ' 'AG'     108.0     143.0      44.0      77.0    653.  0.37      0.0  14.0
1
'WBA6              ' 'AG'      44.0      77.0     -10.0       5.0    653.  0.37      0.0  14.0
1
'WBD1              ' 'AG'     -10.0       5.0     -98.0    -110.0    802.  0.76      0.0  14.0
1
'WBD2              ' 'AG'     -98.0    -110.0    -188.0    -225.0    802.  0.76      0.0  14.0
2
'WBQ               ' 'AG'       2.0      21.0      37.0      68.0     0.0  8.0  2
  160   128   2.0   259   1.31 3436 2 3
2
'WBQL              ' 'AG'       9.0      22.0      41.0      65.0     0.0  4.0  1
  160   144   2.0    70   1.31  666 2 3
2
'WBQR              ' 'AG'      -3.0      25.0      32.0      70.0     0.0  4.0  1
  160   128   2.0   324   1.31 1537 2 3
 1.0   0.0 4  1000.0   0.0 'Y'  10   0  36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                        PAGE  1

      JOB: University Drive and Westgate Drive                  RUN: 2040 Build LPA and Opt2 AM Peak

      DATE :  3/26/15
      TIME : 19:20:37

         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 = 108. CM
        U =  1.0 M/S          CLAS =    4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *          LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2     *    (M)   (DEG)            (G/MI)   (M)  (M)        (VEH)
      ------------------------*----------------------------------------*---------------------------------------------------------
-
       1. NBA1                *    39.0     -25.0      29.0     -18.0 *     12.   305. AG    314.   0.9   0.0 10.0
       2. NBA2                *    29.0     -18.0       3.0       3.0 *     33.   309. AG    314.   0.9   0.0 10.0
       3. NBD1                *     3.0       3.0     -45.0      42.0 *     62.   309. AG    911.   0.8   0.0 14.0
       4. NBD2                *   -45.0      42.0     -78.0      79.0 *     50.   318. AG    911.   0.8   0.0 14.0
       5. NBD3                *   -78.0      79.0    -108.0     127.0 *     57.   328. AG    911.   0.8   0.0 14.0
       6. NBD4                *  -108.0     127.0    -129.0     184.0 *     61.   340. AG    911.   0.8   0.0 14.0
       7. NBD5                *  -129.0     184.0    -140.0     253.0 *     70.   351. AG    911.   0.8   0.0 14.0
       8. NBQ                 *    23.0     -12.0      32.8     -19.9 *     13.   129. AG      2. 100.0   0.0  4.0 0.14   2.1
       9. NBLQ                *    21.0     -15.0     310.7    -232.3 *    362.   127. AG      3. 100.0   0.0  4.0 1.64  60.3
      10. SBA1                *  -151.0     251.0    -136.0     170.0 *     82.   170. AG    612.   0.8   0.0 14.0
      11. SBA2                *  -136.0     170.0    -113.0     113.0 *     61.   158. AG    612.   0.8   0.0 14.0
      12. SBA3                *  -113.0     113.0     -87.0      72.0 *     49.   148. AG    612.   0.8   0.0 14.0
      13. SBA4                *   -87.0      72.0     -56.0      38.0 *     46.   138. AG    612.   0.8   0.0 14.0
      14. SBA5                *   -56.0      38.0      -2.0      -3.0 *     68.   127. AG    612.   0.8   0.0 10.0
      15. SBD                 *    -2.0      -3.0      37.0     -32.0 *     49.   127. AG    102.   0.6   0.0 10.0
      16. SBQ                 *   -22.0      12.0     -26.1      15.3 *      5.   309. AG      2. 100.0   0.0  4.0 0.05   0.9
      17. SBLQ                *   -20.0      15.0    -325.7     253.8 *    388.   308. AG      3. 100.0   0.0  3.4 1.57  64.7
      18. SBRQ                *   -24.0       9.0     -61.9      39.8 *     49.   309. AG      2. 100.0   0.0  4.0 0.54   8.1
      19. EBA                 *  -161.0    -242.0      11.0     -10.0 *    289.    37. AG   1221.   0.8   0.0 14.0
      20. EBD1                *    11.0     -10.0      75.0      80.0 *    110.    35. AG    985.   1.7   0.0 14.0
      21. EBD2                *    75.0      80.0     112.0     123.0 *     57.    41. AG    985.   1.7   0.0 14.0
      22. EBD3                *   112.0     123.0     142.0     150.0 *     40.    48. AG    985.   1.7   0.0 14.0
      23. EBD4                *   142.0     150.0     187.0     181.0 *     55.    55. AG    985.   1.7   0.0 14.0
      24. EBD5                *   187.0     181.0     256.0     211.0 *     75.    67. AG    985.   1.7   0.0 14.0
      25. EBD6                *   256.0     211.0     387.0     247.0 *    136.    75. AG    985.   1.7   0.0 14.0
      26. EBQ                 *    -1.0     -26.0     -34.8     -70.5 *     56.   217. AG      4. 100.0   0.0  8.0 0.28   9.3
      27. EBLQ                *   -10.0     -27.0     -42.1     -69.4 *     53.   217. AG      5. 100.0   0.0  8.0 0.33   8.9
      28. WBA1                *   387.0     267.0     272.0     235.0 *    119.   254. AG    653.   0.4   0.0 14.0
      29. WBA2                *   272.0     235.0     221.0     216.0 *     54.   250. AG    653.   0.4   0.0 14.0
      30. WBA3                *   221.0     216.0     166.0     187.0 *     62.   242. AG    653.   0.4   0.0 14.0
      31. WBA4                *   166.0     187.0     108.0     143.0 *     73.   233. AG    653.   0.4   0.0 14.0
      32. WBA5                *   108.0     143.0      44.0      77.0 *     92.   224. AG    653.   0.4   0.0 14.0
      33. WBA6                *    44.0      77.0     -10.0       5.0 *     90.   217. AG    653.   0.4   0.0 14.0
      34. WBD1                *   -10.0       5.0     -98.0    -110.0 *    145.   217. AG    802.   0.8   0.0 14.0
      35. WBD2                *   -98.0    -110.0    -188.0    -225.0 *    146.   218. AG    802.   0.8   0.0 14.0
      36. WBQ                 *     2.0      21.0      18.4      43.1 *     28.    37. AG      6. 100.0   0.0  8.0 0.21   4.6
      37. WBQL                *     9.0      22.0      63.4      95.2 *     91.    37. AG      3. 100.0   0.0  4.0 1.43  15.2
      38. WBQR                *    -3.0      25.0     154.7     227.7 *    257.    38. AG      3. 100.0   0.0  4.0 1.21  42.8
```

JOB: University Drive and Westgate Drive RUN: 2040 Build LPA and Opt2 AM Peak

DATE : 3/26/15
TIME : 19:20:37

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
8. NBQ	160	108	2.0	70	1680	1.31	2	3
9. NBLQ	160	138	2.0	244	1328	1.31	2	3
16. SBQ	160	98	2.0	32	1809	1.31	2	3
17. SBLQ	160	128	2.0	281	1023	1.31	2	3
18. SBRQ	160	98	2.0	299	1537	1.31	2	3
26. EBQ	160	100	2.0	671	3436	1.31	2	3
27. EBLQ	160	116	2.0	550	3333	1.31	2	3
36. WBQ	160	128	2.0	259	3436	1.31	2	3
37. WBQL	160	144	2.0	70	666	1.31	2	3
38. WBQR	160	128	2.0	324	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	10.0	-24.0	1.8
2. REC2	4.0	-31.0	1.8
3. REC3	-12.0	-53.0	1.8
4. REC4	-28.0	-75.0	1.8
5. REC5	-43.0	-96.0	1.8
6. REC6	-65.0	-126.0	1.8
7. REC7	34.0	-43.0	1.8
8. REC8	55.0	-59.0	1.8
9. REC9	25.0	-7.0	1.8
10. REC10	50.0	-25.0	1.8
11. REC11	71.0	-39.0	1.8
12. REC12	38.0	14.0	1.8
13. REC13	53.0	35.0	1.8
14. REC14	-9.0	24.0	1.8
15. REC15	6.0	41.0	1.8
16. REC16	20.0	61.0	1.8
17. REC17	36.0	83.0	1.8
18. REC18	55.0	99.0	1.8
19. REC19	73.0	118.0	1.8
20. REC20	-21.0	34.0	1.8
21. REC21	-40.0	51.0	1.8
22. REC22	-27.0	4.0	1.8
23. REC23	-47.0	21.0	1.8
24. REC24	-60.0	33.0	1.8
25. REC25	-79.0	51.0	1.8
26. REC26	-29.0	-4.0	1.8
27. REC27	-44.0	-25.0	1.8
28. REC28	-61.0	-46.0	1.8

PAGE 3

JOB: University Drive and Westgate Drive RUN: 2040 Build LPA and Opt2 AM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	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	0.0	0.0
250.	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	0.0	0.0
260.	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	0.0	0.0
270.	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	0.0	0.0
280.	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	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	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	0.0	0.0
310.	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	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	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	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	20	220	220	230	230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PAGE 4

JOB: University Drive and Westgate Drive RUN: 2040 Build LPA and Opt2 AM Peak

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.

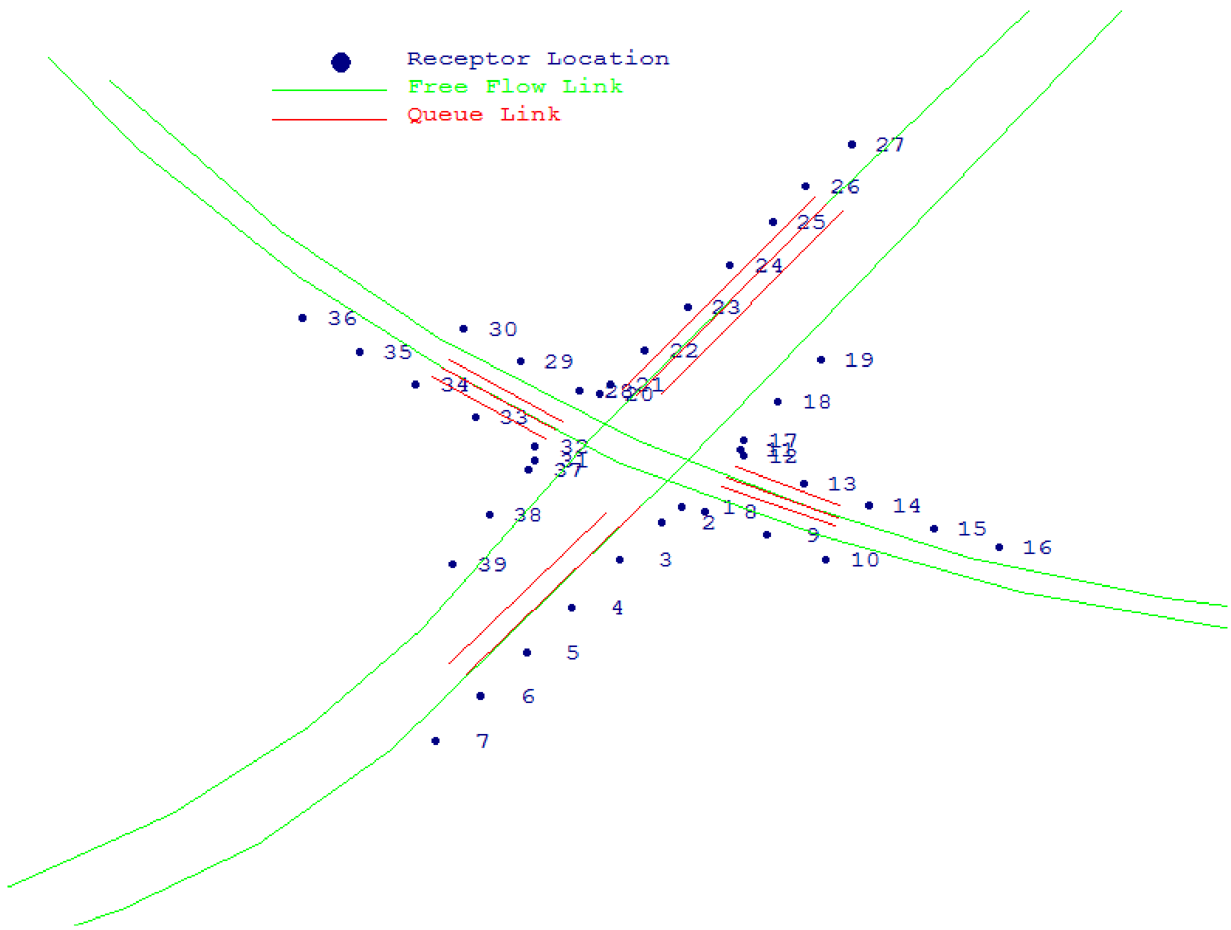
WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
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
20.	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
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	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
80.	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
100.	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
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0	0

CONCENTRATION (PPM)

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC9 .

2040 PM Build NHC 2 University Drive and Martin Luther King Jr. Parkway



CAL3QHC Input File

```
'University Drive and Martin Luther King Jr. Parkway        ' 60. 108.0    0.00     0.00 39      1.0000 0 0
'REC1                  '        18.0       -26.0         1.8
'REC2                  '        11.0       -33.0         1.8
'REC3                  '        -4.0       -51.0         1.8
'REC4                  '       -21.0       -73.0         1.8
'REC5                  '       -37.0       -94.0         1.8
'REC6                  '       -53.0      -114.0         1.8
'REC7                  '       -69.0      -135.0         1.8
'REC8                  '        26.0       -28.0         1.8
'REC9                  '        48.0       -39.0         1.8
'REC10                 '        69.0       -51.0         1.8
'REC11                 '        39.0         1.0         1.8
'REC12                 '        40.0        -2.0         1.8
'REC13                 '        61.0       -15.0         1.8
'REC14                 '        84.0       -25.0         1.8
'REC15                 '       107.0       -36.0         1.8
'REC16                 '       130.0       -45.0         1.8
'REC17                 '        40.0         5.0         1.8
'REC18                 '        52.0        23.0         1.8
'REC19                 '        67.0        43.0         1.8
'REC20                 '       -11.0        27.0         1.8
'REC21                 '        -7.0        31.0         1.8
'REC22                 '         5.0        47.0         1.8
'REC23                 '        20.0        67.0         1.8
'REC24                 '        35.0        87.0         1.8
'REC25                 '        50.0       107.0         1.8
'REC26                 '        62.0       124.0         1.8
'REC27                 '        78.0       143.0         1.8
'REC28                 '       -18.0        28.0         1.8
'REC29                 '       -39.0        42.0         1.8
'REC30                 '       -59.0        57.0         1.8
'REC31                 '       -34.0        -4.0         1.8
'REC32                 '       -34.0         2.0         1.8
'REC33                 '       -55.0        16.0         1.8
'REC34                 '       -76.0        31.0         1.8
'REC35                 '       -96.0        46.0         1.8
'REC36                 '      -116.0        62.0         1.8
'REC37                 '       -36.0        -9.0         1.8
'REC38                 '       -50.0       -30.0         1.8
'REC39                 '       -63.0       -53.0         1.8
'2040 Build LPA and Opt2 PM Peak          '  40    1   0 C
1
'NBA1                  ' 'AG'      528.0       -77.0       325.0       -84.0      771.   0.76       0.0  14.0
1
'NBA2                  ' 'AG'      325.0       -84.0       259.0       -80.0      771.   0.76       0.0  14.0
1
'NBA3                  ' 'AG'      259.0       -80.0       189.0       -69.0      771.   0.76       0.0  14.0
1
'NBA4                  ' 'AG'      189.0       -69.0       120.0       -50.0      771.   0.76       0.0  14.0
1
'NBA5                  ' 'AG'      120.0       -50.0        63.0       -26.0      771.   0.76       0.0  14.0
1
'NBA6                  ' 'AG'       63.0       -26.0         2.0         5.0      771.   0.76       0.0  14.0
1
'NBD1                  ' 'AG'        2.0         5.0       -68.0        53.0     1278.   1.16       0.0  14.0
1
'NBD2                  ' 'AG'      -68.0        53.0      -124.0       103.0     1278.   1.16       0.0  14.0
1
'NBD3                  ' 'AG'     -124.0       103.0      -184.0       173.0     1278.   1.16       0.0  14.0
2
'NBQ                   ' 'AG'       34.0       -12.0        73.0       -31.0        0.0   8.0  2
  175   114   2.0   385   1.31 3436 2 3
2
'NBLQ                  ' 'AG'       32.0       -17.0        72.0       -35.0        0.0   4.0  1
  175    95   2.0   126   1.31  147 2 3
2
'NBRQ                  ' 'AG'       37.0        -7.0        74.0       -25.0        0.0   4.0  1
  175    74   2.0   260   1.31 1486 2 3
1
'SBA1                  ' 'AG'     -206.0       184.0      -174.0       141.0     1475.   0.41       0.0  14.0
1
'SBA2                  ' 'AG'     -174.0       141.0      -118.0        82.0     1475.   0.41       0.0  14.0
1
'SBA3                  ' 'AG'     -118.0        82.0       -66.0        38.0     1475.   0.41       0.0  14.0
1
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'SBA4                ' 'AG'     -66.0       38.0       -5.0       -5.0    1475.  0.41      0.0  14.0
1
'SBD1                ' 'AG'      -5.0       -5.0       66.0      -39.0    1519.  0.71      0.0  14.0
1
'SBD2                ' 'AG'      66.0      -39.0      138.0      -66.0    1519.  0.71      0.0  14.0
1
'SBD3                ' 'AG'     138.0      -66.0      213.0      -83.0    1519.  0.71      0.0  14.0
1
'SBD4                ' 'AG'     213.0      -83.0      296.0      -93.0    1519.  0.71      0.0  14.0
1
'SBD5                ' 'AG'     296.0      -93.0      535.0      -87.0    1519.  0.71      0.0  14.0
2
'SBQ                 ' 'AG'     -27.0       10.0      -67.0       39.0      0.0   8.0  2
  175   113   2.0   839   1.31 3436 2 3
2
'SBLQ                ' 'AG'     -24.0       14.0      -64.0       43.0      0.0   4.0  1
  175    91   2.0   299   1.31  662 2 3
2
'SBRQ                ' 'AG'     -30.0        6.0      -70.0       35.0      0.0   4.0  1
  175    70   2.0   337   1.31 1537 2 3
1
'EBA1                ' 'AG'    -252.0     -247.0     -180.0     -214.0    1486.  1.40      0.0  18.0
1
'EBA2                ' 'AG'    -180.0     -214.0     -132.0     -184.0    1486.  1.40      0.0  18.0
1
'EBA3                ' 'AG'    -132.0     -184.0      -85.0     -140.0    1486.  1.40      0.0  18.0
1
'EBA4                ' 'AG'     -85.0     -140.0       17.0       -9.0    1486.  1.40      0.0  18.0
1
'EBD                 ' 'AG'      17.0       -9.0      187.0      224.0    1254.  0.63      0.0  18.0
2
'EBQ                 ' 'AG'       3.0      -26.0      -58.0     -104.0      0.0  12.0  3
  175   122   2.0   868   1.31 4789 2 3
2
'EBLQ                ' 'AG'      -9.0      -29.0      -64.0      -99.0      0.0   8.0  2
  175   132   2.0   618   1.31 3333 2 3
1
'WBA1                ' 'AG'     167.0      239.0       69.0      115.0    1532.  0.94      0.0  14.0
1
'WBA2                ' 'AG'      69.0      115.0      -13.0        7.0    1532.  0.94      0.0  14.0
1
'WBD1                ' 'AG'     -13.0        7.0      -74.0      -83.0    1213.  0.43      0.0  14.0
1
'WBD2                ' 'AG'     -74.0      -83.0     -114.0     -129.0    1213.  0.43      0.0  14.0
1
'WBD3                ' 'AG'    -114.0     -129.0     -162.0     -169.0    1213.  0.43      0.0  14.0
1
'WBD4                ' 'AG'    -162.0     -169.0     -261.0     -228.0    1213.  0.43      0.0  14.0
2
'WBQ                 ' 'AG'       2.0       26.0       69.0      115.0      0.0   8.0  2
  175   125   2.0   750   1.31 3436 2 3
2
'WBQL                ' 'AG'      11.0       27.0       75.0      112.0      0.0   8.0  2
  175   135   2.0   507   1.31 3333 2 3
2
'WBQR                ' 'AG'      -3.0       29.0       65.0      119.0      0.0   4.0  1
  175   103   2.0   275   1.31 1537 2 3
 1.0    0.0 4  1000.0    0.0 'Y'  10    0   36
```

CAL3QHC Output File

```
CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221                         PAGE  1

      JOB: University Drive and Martin Luther King Jr. Parkway                          RUN: 2040 Build LPA and Opt2 PM Peak

      DATE :  3/26/15
      TIME :   7: 2: 5

         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 = 108. CM
        U =  1.0 M/S          CLAS =    4  (D)      ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  0.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION      *         LINK COORDINATES (M)          *   LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                               *   X1        Y1        X2        Y2    *    (M)   (DEG)           (G/MI)   (M) (M)        (VEH)
      -------------------------*---------------------------------------*--------------------------------------------------------
-
       1. NBA1                 *   528.0     -77.0     325.0     -84.0 *    203.  268. AG    771.    0.8    0.0 14.0
       2. NBA2                 *   325.0     -84.0     259.0     -80.0 *     66.  273. AG    771.    0.8    0.0 14.0
       3. NBA3                 *   259.0     -80.0     189.0     -69.0 *     71.  279. AG    771.    0.8    0.0 14.0
       4. NBA4                 *   189.0     -69.0     120.0     -50.0 *     72.  285. AG    771.    0.8    0.0 14.0
       5. NBA5                 *   120.0     -50.0      63.0     -26.0 *     62.  293. AG    771.    0.8    0.0 14.0
       6. NBA6                 *    63.0     -26.0       2.0       5.0 *     68.  297. AG    771.    0.8    0.0 14.0
       7. NBD1                 *     2.0       5.0     -68.0      53.0 *     85.  304. AG   1278.    1.2    0.0 14.0
       8. NBD2                 *   -68.0      53.0    -124.0     103.0 *     75.  312. AG   1278.    1.2    0.0 14.0
       9. NBD3                 *  -124.0     103.0    -184.0     173.0 *     92.  319. AG   1278.    1.2    0.0 14.0
      10. NBQ                  *    34.0     -12.0      66.8     -28.0 *     36.  116. AG      5. 100.0    0.0  8.0 0.17   6.1
      11. NBLQ                 *    32.0     -17.0     239.5    -110.4 *    228.  114. AG      2. 100.0    0.0  4.0 2.00  37.9
      12. NBRQ                 *    37.0      -7.0      65.8     -21.0 *     32.  116. AG      1. 100.0    0.0  4.0 0.32   5.3
      13. SBA1                 *  -206.0     184.0    -174.0     141.0 *     54.  143. AG   1475.    0.4    0.0 14.0
      14. SBA2                 *  -174.0     141.0    -118.0      82.0 *     81.  136. AG   1475.    0.4    0.0 14.0
      15. SBA3                 *  -118.0      82.0     -66.0      38.0 *     68.  130. AG   1475.    0.4    0.0 14.0
      16. SBA4                 *   -66.0      38.0      -5.0      -5.0 *     75.  125. AG   1475.    0.4    0.0 14.0
      17. SBD1                 *    -5.0      -5.0      66.0     -39.0 *     79.  116. AG   1519.    0.7    0.0 14.0
      18. SBD2                 *    66.0     -39.0     138.0     -66.0 *     77.  111. AG   1519.    0.7    0.0 14.0
      19. SBD3                 *   138.0     -66.0     213.0     -83.0 *     77.  103. AG   1519.    0.7    0.0 14.0
      20. SBD4                 *   213.0     -83.0     296.0     -93.0 *     84.   97. AG   1519.    0.7    0.0 14.0
      21. SBD5                 *   296.0     -93.0     535.0     -87.0 *    239.   89. AG   1519.    0.7    0.0 14.0
      22. SBQ                  *   -27.0      10.0     -90.9      56.3 *     79.  306. AG      5. 100.0    0.0  8.0 0.37  13.2
      23. SBLQ                 *   -24.0      14.0     -74.2      50.4 *     62.  306. AG      2. 100.0    0.0  4.0 0.99  10.3
      24. SBRQ                 *   -30.0       6.0     -61.8      29.1 *     39.  306. AG      1. 100.0    0.0  4.0 0.38   6.6
      25. EBA1                 *  -252.0    -247.0    -180.0    -214.0 *     79.   65. AG   1486.    1.4    0.0 18.0
      26. EBA2                 *  -180.0    -214.0    -132.0    -184.0 *     57.   58. AG   1486.    1.4    0.0 18.0
      27. EBA3                 *  -132.0    -184.0     -85.0    -140.0 *     64.   47. AG   1486.    1.4    0.0 18.0
      28. EBA4                 *   -85.0    -140.0      17.0      -9.0 *    166.   38. AG   1486.    1.4    0.0 18.0
      29. EBD                  *    17.0      -9.0     187.0     224.0 *    288.   36. AG   1254.    0.6    0.0 18.0
      30. EBQ                  *     3.0     -26.0     -33.2     -72.3 *     59.  218. AG      7. 100.0    0.0 12.0 0.22   9.8
      31. EBLQ                 *    -9.0     -29.0     -51.0     -82.5 *     68.  218. AG      5. 100.0    0.0  8.0 0.42  11.3
      32. WBA1                 *   167.0     239.0      69.0     115.0 *    158.  218. AG   1532.    0.9    0.0 14.0
      33. WBA2                 *    69.0     115.0     -13.0       7.0 *    136.  217. AG   1532.    0.9    0.0 14.0
      34. WBD1                 *   -13.0       7.0     -74.0     -83.0 *    109.  214. AG   1213.    0.4    0.0 14.0
      35. WBD2                 *   -74.0     -83.0    -114.0    -129.0 *     61.  221. AG   1213.    0.4    0.0 14.0
      36. WBD3                 *  -114.0    -129.0    -162.0    -169.0 *     62.  230. AG   1213.    0.4    0.0 14.0
      37. WBD4                 *  -162.0    -169.0    -261.0    -228.0 *    115.  239. AG   1213.    0.4    0.0 14.0
      38. WBQ                  *     2.0      26.0      49.0      88.4 *     78.   37. AG      5. 100.0    0.0  8.0 0.42  13.0
      39. WBQL                 *    11.0      27.0      45.2      72.5 *     57.   37. AG      5. 100.0    0.0  8.0 0.37   9.5
      40. WBQR                 *    -3.0      29.0      25.5      66.7 *     47.   37. AG      2. 100.0    0.0  4.0 0.46   7.9
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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build LPA and Opt2 PM Peak

DATE : 3/26/15
TIME : 7: 2: 5

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
10. NBQ	175	114	2.0	385	3436	1.31	2	3
11. NBLQ	175	95	2.0	126	147	1.31	2	3
12. NBRQ	175	74	2.0	260	1486	1.31	2	3
22. SBQ	175	113	2.0	839	3436	1.31	2	3
23. SBLQ	175	91	2.0	299	662	1.31	2	3
24. SBRQ	175	70	2.0	337	1537	1.31	2	3
30. EBQ	175	122	2.0	868	4789	1.31	2	3
31. EBLQ	175	132	2.0	618	3333	1.31	2	3
38. WBQ	175	125	2.0	750	3436	1.31	2	3
39. WBQL	175	135	2.0	507	3333	1.31	2	3
40. WBQR	175	103	2.0	275	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	18.0	-26.0	1.8
2. REC2	11.0	-33.0	1.8
3. REC3	-4.0	-51.0	1.8
4. REC4	-21.0	-73.0	1.8
5. REC5	-37.0	-94.0	1.8
6. REC6	-53.0	-114.0	1.8
7. REC7	-69.0	-135.0	1.8
8. REC8	26.0	-28.0	1.8
9. REC9	48.0	-39.0	1.8
10. REC10	69.0	-51.0	1.8
11. REC11	39.0	1.0	1.8
12. REC12	40.0	-2.0	1.8
13. REC13	61.0	-15.0	1.8
14. REC14	84.0	-25.0	1.8
15. REC15	107.0	-36.0	1.8
16. REC16	130.0	-45.0	1.8
17. REC17	40.0	5.0	1.8
18. REC18	52.0	23.0	1.8
19. REC19	67.0	43.0	1.8
20. REC20	-11.0	27.0	1.8
21. REC21	-7.0	31.0	1.8
22. REC22	5.0	47.0	1.8
23. REC23	20.0	67.0	1.8
24. REC24	35.0	87.0	1.8
25. REC25	50.0	107.0	1.8
26. REC26	62.0	124.0	1.8
27. REC27	78.0	143.0	1.8
28. REC28	-18.0	28.0	1.8
29. REC29	-39.0	42.0	1.8
30. REC30	-59.0	57.0	1.8
31. REC31	-34.0	-4.0	1.8
32. REC32	-34.0	2.0	1.8
33. REC33	-55.0	16.0	1.8
34. REC34	-76.0	31.0	1.8

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 JOB: University Drive and Martin Luther King Jr. Parkway                             RUN: 2040 Build LPA and Opt2 PM Peak

 DATE :  3/26/15
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  RECEPTOR LOCATIONS
  ------------------
                         *           COORDINATES (M)          *
    RECEPTOR             *       X          Y           Z     *
-------------------------*------------------------------------*
35. REC35                *     -96.0       46.0        1.8    *
36. REC36                *    -116.0       62.0        1.8    *
37. REC37                *     -36.0       -9.0        1.8    *
38. REC38                *     -50.0      -30.0        1.8    *
39. REC39                *     -63.0      -53.0        1.8    *
```

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build LPA and Opt2 PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	0.0	0.1	0.1	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
10.	0.0	0.1	0.1	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
20.	0.0	0.1	0.1	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
30.	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.1	0.1	0.1	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
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
80.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
230.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
240.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.1	0.1	0.1	0.1	0.1	0.1	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
260.	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.1	0.1	0.1	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	0.1
280.	0.1	0.1	0.1	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	0.1
290.	0.1	0.1	0.1	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
300.	0.1	0.1	0.1	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
310.	0.1	0.1	0.1	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
320.	0.1	0.1	0.1	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
330.	0.1	0.1	0.1	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
340.	0.1	0.1	0.1	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
350.	0.0	0.1	0.1	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
360.	0.0	0.1	0.1	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
MAX	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
DEGR.	220	0	0	0	0	0	0	240	0	0	220	230	0	0	0	0	220	0	0	50

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JOB: University Drive and Martin Luther King Jr. Parkway RUN: 2040 Build LPA and Opt2 PM Peak

MODEL RESULTS

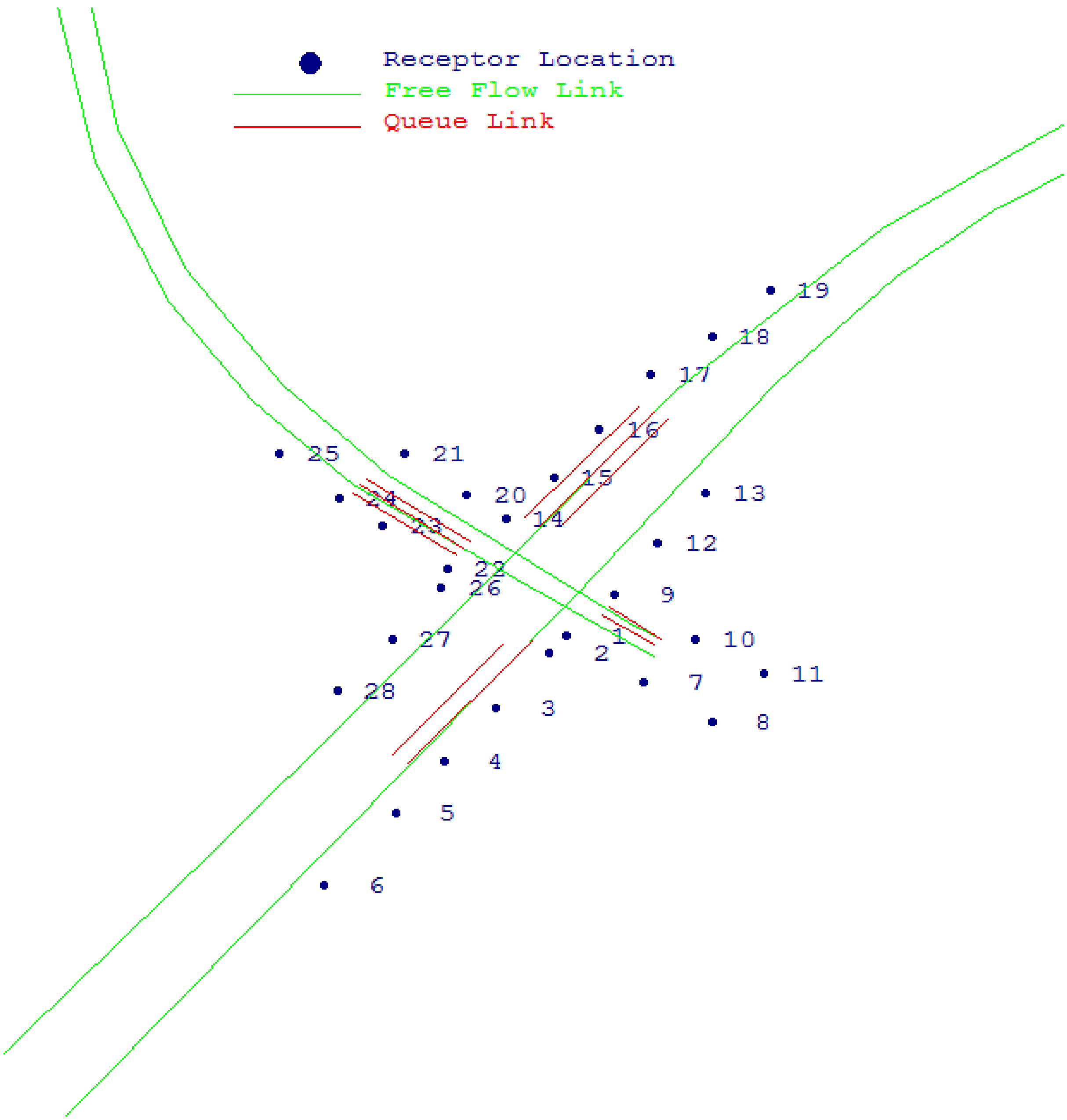
REMARKS : In search of the angle corresponding to
the maximum concentration, only the first
angle, of the angles with same maximum
concentrations, is indicated as maximum.

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32	REC33	REC34	REC35	REC36	REC37	REC38	REC39
0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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
30.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	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	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.1	0.1	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
190.	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	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	0.0	0.0	0.0	0.0	0.0
260.	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	0.0	0.0	0.0	0.0	0.0
270.	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	0.0	0.0	0.0	0.0	0.0
280.	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	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	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	0.0	0.0	0.0	0.0	0.0
DEGR.	50	50	50	180	180	50	50	140	130	130	0	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC2 .

2040 PM Build NHC 2 University Drive and Westgate Drive



CAL3QHC Input File

```
'University Drive and Westgate Drive      '  60. 108.0    0.00    0.00 28     1.0000 0 0
'REC1                   '        10.0       -24.0        1.8
'REC2                   '         4.0       -31.0        1.8
'REC3                   '       -12.0       -53.0        1.8
'REC4                   '       -28.0       -75.0        1.8
'REC5                   '       -43.0       -96.0        1.8
'REC6                   '       -65.0      -126.0        1.8
'REC7                   '        34.0       -43.0        1.8
'REC8                   '        55.0       -59.0        1.8
'REC9                   '        25.0        -7.0        1.8
'REC10                  '        50.0       -25.0        1.8
'REC11                  '        71.0       -39.0        1.8
'REC12                  '        38.0        14.0        1.8
'REC13                  '        53.0        35.0        1.8
'REC14                  '        -9.0        24.0        1.8
'REC15                  '         6.0        41.0        1.8
'REC16                  '        20.0        61.0        1.8
'REC17                  '        36.0        83.0        1.8
'REC18                  '        55.0        99.0        1.8
'REC19                  '        73.0       118.0        1.8
'REC20                  '       -21.0        34.0        1.8
'REC21                  '       -40.0        51.0        1.8
'REC22                  '       -27.0         4.0        1.8
'REC23                  '       -47.0        21.0        1.8
'REC24                  '       -60.0        33.0        1.8
'REC25                  '       -79.0        51.0        1.8
'REC26                  '       -29.0        -4.0        1.8
'REC27                  '       -44.0       -25.0        1.8
'REC28                  '       -61.0       -46.0        1.8
'2040 Build LPA and Opt2 PM Peak          '  38    1   0 C
1
'NBA1                   ' 'AG'       39.0       -25.0        29.0       -18.0      366.   0.94       0.0  10.0
1
'NBA2                   ' 'AG'       29.0       -18.0         3.0         3.0      366.   0.94       0.0  10.0
1
'NBD1                   ' 'AG'        3.0         3.0       -45.0        42.0     1119.   0.76       0.0  14.0
1
'NBD2                   ' 'AG'      -45.0        42.0       -78.0        79.0     1119.   0.76       0.0  14.0
1
'NBD3                   ' 'AG'      -78.0        79.0      -108.0       127.0     1119.   0.76       0.0  14.0
1
'NBD4                   ' 'AG'     -108.0       127.0      -129.0       184.0     1119.   0.76       0.0  14.0
1
'NBD5                   ' 'AG'     -129.0       184.0      -140.0       253.0     1119.   0.76       0.0  14.0
2
'NBQ                    ' 'AG'       23.0       -12.0        39.0       -25.0       0.0   4.0  1
  175   123   2.0    78   1.31 1744 2 3
2
'NBLQ                   ' 'AG'       21.0       -15.0        37.0       -27.0       0.0   4.0  1
  175   146   2.0   288   1.31 1241 2 3
1
'SBA1                   ' 'AG'     -151.0       251.0      -136.0       170.0     1156.   0.76       0.0  14.0
1
'SBA2                   ' 'AG'     -136.0       170.0      -113.0       113.0     1156.   0.76       0.0  14.0
1
'SBA3                   ' 'AG'     -113.0       113.0       -87.0        72.0     1156.   0.76       0.0  14.0
1
'SBA4                   ' 'AG'      -87.0        72.0       -56.0        38.0     1156.   0.76       0.0  14.0
1
'SBA5                   ' 'AG'      -56.0        38.0        -2.0        -3.0     1156.   0.76       0.0  10.0
1
'SBD                    ' 'AG'       -2.0        -3.0        37.0       -32.0      256.   0.63       0.0  10.0
2
'SBQ                    ' 'AG'      -22.0        12.0       -54.0        38.0       0.0   4.0  1
  175   109   2.0    99   1.31 1809 2 3
2
'SBLQ                   ' 'AG'      -20.0        15.0       -52.0        40.0       0.0   3.4  1
  175   132   2.0   565   1.31  941 2 3
2
'SBRQ                   ' 'AG'      -24.0         9.0       -56.0        35.0       0.0   4.0  1
  175   109   2.0   492   1.31 1537 2 3
1
'EBA                    ' 'AG'     -161.0      -242.0        11.0       -10.0     1062.   0.76       0.0  14.0
1
'EBD1                   ' 'AG'       11.0       -10.0        75.0        80.0     1084.   1.71       0.0  14.0
```

```
1
'EBD2              ' 'AG'      75.0      80.0     112.0     123.0    1084.  1.71      0.0  14.0
1
'EBD3              ' 'AG'     112.0     123.0     142.0     150.0    1084.  1.71      0.0  14.0
1
'EBD4              ' 'AG'     142.0     150.0     187.0     181.0    1084.  1.71      0.0  14.0
1
'EBD5              ' 'AG'     187.0     181.0     256.0     211.0    1084.  1.71      0.0  14.0
1
'EBD6              ' 'AG'     256.0     211.0     387.0     247.0    1084.  1.71      0.0  14.0
2
'EBQ               ' 'AG'      -1.0     -26.0     -39.0     -76.0     0.0   8.0  2
  175   118   2.0   500   1.31 3436 2 3
2
'EBLQ              ' 'AG'     -10.0     -27.0     -44.0     -72.0     0.0   8.0  2
  175   134   2.0   562   1.31 3333 2 3
1
'WBA1              ' 'AG'     387.0     267.0     272.0     235.0    1198.  0.37      0.0  14.0
1
'WBA2              ' 'AG'     272.0     235.0     221.0     216.0    1198.  0.37      0.0  14.0
1
'WBA3              ' 'AG'     221.0     216.0     166.0     187.0    1198.  0.37      0.0  14.0
1
'WBA4              ' 'AG'     166.0     187.0     108.0     143.0    1198.  0.37      0.0  14.0
1
'WBA5              ' 'AG'     108.0     143.0      44.0      77.0    1198.  0.37      0.0  14.0
1
'WBA6              ' 'AG'      44.0      77.0     -10.0       5.0    1198.  0.37      0.0  14.0
1
'WBD1              ' 'AG'     -10.0       5.0     -98.0    -110.0    1323.  0.76      0.0  14.0
1
'WBD2              ' 'AG'     -98.0    -110.0    -188.0    -225.0    1323.  0.76      0.0  14.0
2
'WBQ               ' 'AG'       2.0      21.0      37.0      68.0     0.0   8.0  2
  175   136   2.0   543   1.31 3436 2 3
2
'WBQL              ' 'AG'       9.0      22.0      41.0      65.0     0.0   4.0  1
  175   152   2.0   157   1.31  803 2 3
2
'WBQR              ' 'AG'      -3.0      25.0      32.0      70.0     0.0   4.0  1
  175   132   2.0   498   1.31 1537 2 3
 1.0   0.0 4  1000.0   0.0 'Y'  10   0  36
```

CAL3QHC Output File

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221 PAGE 1

JOB: University Drive and Westgate Drive RUN: 2040 Build LPA and Opt2 PM Peak

DATE : 3/26/15
TIME : 19:20:46

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 = 108. CM
U = 1.0 M/S CLAS = 4 (D) ATIM = 60. MINUTES MIXH = 1000. M AMB = 0.0 PPM

LINK VARIABLES

LINK DESCRIPTION	X1 (M)	Y1 (M)	X2 (M)	Y2 (M)	LENGTH (M)	BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)	V/C	QUEUE (VEH)
1. NBA1	39.0	-25.0	29.0	-18.0	12.	305.	AG	366.	0.9	0.0	10.0		
2. NBA2	29.0	-18.0	3.0	3.0	33.	309.	AG	366.	0.9	0.0	10.0		
3. NBD1	3.0	3.0	-45.0	42.0	62.	309.	AG	1119.	0.8	0.0	14.0		
4. NBD2	-45.0	42.0	-78.0	79.0	50.	318.	AG	1119.	0.8	0.0	14.0		
5. NBD3	-78.0	79.0	-108.0	127.0	57.	328.	AG	1119.	0.8	0.0	14.0		
6. NBD4	-108.0	127.0	-129.0	184.0	61.	340.	AG	1119.	0.8	0.0	14.0		
7. NBD5	-129.0	184.0	-140.0	253.0	70.	351.	AG	1119.	0.8	0.0	14.0		
8. NBQ	23.0	-12.0	35.4	-22.1	16.	129.	AG	2.	100.0	0.0	4.0	0.16	2.7
9. NBLQ	21.0	-15.0	361.0	-270.0	425.	127.	AG	3.	100.0	0.0	4.0	1.63	70.8
10. SBA1	-151.0	251.0	-136.0	170.0	82.	170.	AG	1156.	0.8	0.0	14.0		
11. SBA2	-136.0	170.0	-113.0	113.0	61.	158.	AG	1156.	0.8	0.0	14.0		
12. SBA3	-113.0	113.0	-87.0	72.0	49.	148.	AG	1156.	0.8	0.0	14.0		
13. SBA4	-87.0	72.0	-56.0	38.0	46.	138.	AG	1156.	0.8	0.0	14.0		
14. SBA5	-56.0	38.0	-2.0	-3.0	68.	127.	AG	1156.	0.8	0.0	10.0		
15. SBD	-2.0	-3.0	37.0	-32.0	49.	127.	AG	256.	0.6	0.0	10.0		
16. SBQ	-22.0	12.0	-36.0	23.3	18.	309.	AG	2.	100.0	0.0	4.0	0.15	3.0
17. SBLQ	-20.0	15.0	-991.0	773.6	1232.	308.	AG	3.	100.0	0.0	3.4	2.70	205.4
18. SBRQ	-24.0	9.0	-95.5	67.1	92.	309.	AG	2.	100.0	0.0	4.0	0.90	15.4
19. EBA	-161.0	-242.0	11.0	-10.0	289.	37.	AG	1062.	0.8	0.0	14.0		
20. EBD1	11.0	-10.0	75.0	80.0	110.	35.	AG	1084.	1.7	0.0	14.0		
21. EBD2	75.0	80.0	112.0	123.0	57.	41.	AG	1084.	1.7	0.0	14.0		
22. EBD3	112.0	123.0	142.0	150.0	40.	48.	AG	1084.	1.7	0.0	14.0		
23. EBD4	142.0	150.0	187.0	181.0	55.	55.	AG	1084.	1.7	0.0	14.0		
24. EBD5	187.0	181.0	256.0	211.0	75.	67.	AG	1084.	1.7	0.0	14.0		
25. EBD6	256.0	211.0	387.0	247.0	136.	75.	AG	1084.	1.7	0.0	14.0		
26. EBQ	-1.0	-26.0	-30.7	-65.1	49.	217.	AG	5.	100.0	0.0	8.0	0.24	8.2
27. EBLQ	-10.0	-27.0	-47.8	-77.1	63.	217.	AG	5.	100.0	0.0	8.0	0.40	10.5
28. WBA1	387.0	267.0	272.0	235.0	119.	254.	AG	1198.	0.4	0.0	14.0		
29. WBA2	272.0	235.0	221.0	216.0	54.	250.	AG	1198.	0.4	0.0	14.0		
30. WBA3	221.0	216.0	166.0	187.0	62.	242.	AG	1198.	0.4	0.0	14.0		
31. WBA4	166.0	187.0	108.0	143.0	73.	233.	AG	1198.	0.4	0.0	14.0		
32. WBA5	108.0	143.0	44.0	77.0	92.	224.	AG	1198.	0.4	0.0	14.0		
33. WBA6	44.0	77.0	-10.0	5.0	90.	217.	AG	1198.	0.4	0.0	14.0		
34. WBD1	-10.0	5.0	-98.0	-110.0	145.	217.	AG	1323.	0.8	0.0	14.0		
35. WBD2	-98.0	-110.0	-188.0	-225.0	146.	218.	AG	1323.	0.8	0.0	14.0		
36. WBQ	2.0	21.0	38.7	70.3	61.	37.	AG	5.	100.0	0.0	8.0	0.39	10.2
37. WBQL	9.0	22.0	169.0	237.0	268.	37.	AG	3.	100.0	0.0	4.0	1.80	44.7
38. WBQR	-3.0	25.0	367.3	501.1	603.	38.	AG	3.	100.0	0.0	4.0	1.46	100.5

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JOB: University Drive and Westgate Drive RUN: 2040 Build LPA and Opt2 PM Peak

DATE : 3/26/15
TIME : 19:20:46

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
8. NBQ	175	123	2.0	78	1744	1.31	2	3
9. NBLQ	175	146	2.0	288	1241	1.31	2	3
16. SBQ	175	109	2.0	99	1809	1.31	2	3
17. SBLQ	175	132	2.0	565	941	1.31	2	3
18. SBRQ	175	109	2.0	492	1537	1.31	2	3
26. EBQ	175	118	2.0	500	3436	1.31	2	3
27. EBLQ	175	134	2.0	562	3333	1.31	2	3
36. WBQ	175	136	2.0	543	3436	1.31	2	3
37. WBQL	175	152	2.0	157	803	1.31	2	3
38. WBQR	175	132	2.0	498	1537	1.31	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC1	10.0	-24.0	1.8
2. REC2	4.0	-31.0	1.8
3. REC3	-12.0	-53.0	1.8
4. REC4	-28.0	-75.0	1.8
5. REC5	-43.0	-96.0	1.8
6. REC6	-65.0	-126.0	1.8
7. REC7	34.0	-43.0	1.8
8. REC8	55.0	-59.0	1.8
9. REC9	25.0	-7.0	1.8
10. REC10	50.0	-25.0	1.8
11. REC11	71.0	-39.0	1.8
12. REC12	38.0	14.0	1.8
13. REC13	53.0	35.0	1.8
14. REC14	-9.0	24.0	1.8
15. REC15	6.0	41.0	1.8
16. REC16	20.0	61.0	1.8
17. REC17	36.0	83.0	1.8
18. REC18	55.0	99.0	1.8
19. REC19	73.0	118.0	1.8
20. REC20	-21.0	34.0	1.8
21. REC21	-40.0	51.0	1.8
22. REC22	-27.0	4.0	1.8
23. REC23	-47.0	21.0	1.8
24. REC24	-60.0	33.0	1.8
25. REC25	-79.0	51.0	1.8
26. REC26	-29.0	-4.0	1.8
27. REC27	-44.0	-25.0	1.8
28. REC28	-61.0	-46.0	1.8

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JOB: University Drive and Westgate Drive RUN: 2040 Build LPA and Opt2 PM Peak

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.-360.

WIND ANGLE (DEGR) * CONCENTRATION (PPM)

WIND ANGLE (DEGR)	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	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	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	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	0.0
230.	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	0.0	0.0
240.	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	0.0	0.0
250.	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	0.0	0.0
260.	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	0.0	0.0
270.	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	0.0	0.0
280.	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	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	20	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

JOB: University Drive and Westgate Drive RUN: 2040 Build LPA and Opt2 PM Peak

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.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28
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
20.	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
40.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60.	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
80.	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
100.	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
120.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
290.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
310.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
320.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
330.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
340.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
350.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
360.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEGR.	0	0	0	0	0	0	0	0

THE HIGHEST CONCENTRATION OF 0.10 PPM OCCURRED AT RECEPTOR REC9 .