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Air Quality Conformity Review

for

Sea-Tac Master Plan Update

Prepared for

Airport Communities Coalition

June 5, 1996

SUMMARY AND CONCLUSIONS

This report describes Envirometrics' review and analysis of the Federal Aviation Administration's air quality study of the implementation of the Master Plan Update for the Seattle-Tacoma International Airport. In its draft Clean Air Act Conformity finding, the FAA concludes that, based on the FEIS modeling, "with mitigation, the proposed improvements would not result in any new exceedances, nor increase the frequency or severity of any existing violations of the ambient air quality standards for carbon monoxide (CO) or nitrogen dioxide(NO_2) at any modeled receptor locations."

The FAA's conclusion is based on the assumption that aviation traffic will be the same regardless of whether or not the Master Plan projects are completed. In fact, implementation of the third runway could mean an increase in airport operations by as much as an annual average 33 percent above that projected by the Master Plan Update by 2020, which could translate into an increase of up to 50 percent above the projections for the peak hour. Therefore, to test the impact and validity of this assumption, Envirometrics estimated NO_2 and modeled CO concentrations based on the alternate assumption that the expanded airport would result in increased aircraft and passenger vehicle traffic. Our analysis provides predictions of the effect of a 30 percent increase in passengers in the peak hour in 2010 on CO concentrations at surface street intersections from increased vehicle traffic and the effect on NO_2 concentrations from a 33 percent increase aircraft activity by 2020.

We conducted our intersection modeling with the same models used by the FAA for the FEIS, preserving many of the original option choices but correcting the many errors made in the FEIS modeling and with the intersections revised to represent the geometries actually used in the FEIS traffic model. Traffic volumes and signal light timings were supplied by Smith Engineering and Management from their runs of the same traffic model.

Envirometrics modeled CO concentrations at these intersections for three scenarios for 2010: the Do Nothing alternative, the Project alternative, and a Project alternative which assumes an increase in passengers above the Do Nothing alternative. Modeled predictions show that the expected maximum CO concentration will be greater with implementation of the project and greater still with the increased passengers case. With the project, the frequency of CO exceedances of the NAAQS increases and with the increased passengers case it increases significantly. At the S 160th St. and SR 99 intersection the frequency more than doubles.

The FEIS modeling for NO_2 projected future concentrations at 11 sites. From the results presented in the FEIS, we estimated the effect of the increased passengers scenario on NO_2 concentrations at these receptor sites. Our calculations indicate it is reasonable to conclude that the number of modeled receptor locations where the annual NAAQS for NO_2 will be exceeded will increase, in

2020, from one for the Do Nothing alternative to at least three and perhaps five for the Project with increased passengers alternative.

The data presented in this report clearly establishes that, with the expected increases in passenger activity above that projected in the Master Plan Update, the proposed improvements will result in new exceedances of the NO_2 ambient air quality standards and will increase the frequency and severity of the CO ambient air quality standards at modeled receptor locations. The increased NO_2 and CO concentrations associated with aircraft activity and motor vehicle traffic expected from the increased passenger load will delay the attainment of the ambient air quality standards.

INTRODUCTION

This report describes an air quality study of traffic associated with the implementation of a Master Plan Update for the Seattle-Tacoma International Airport. The Master Plan proposes the development of a third runway, the addition of a North Unit Terminal, resulting revisions to the location of air cargo handling facilities, revisions to parking facilities, and further revisions to other support facilities. Development of the South Airport Support Area (SASA) is included in the Master Plan and the analysis as part of the proposed action, although a separate Environmental Impact Statement has previously been issued for that project. Similarly, only the proposed action alternative includes a revision to the terminal roadway system that provides passenger-related traffic access to the southern portion of Air Cargo Road, although such a connection is currently under discussion by the Port, independent of the third runway project.

In the draft Clean Air Act Conformity finding contained in Chapter IV, Section 9 (p. 11) of the Final Environmental Impact Statement (FEIS) for the Master Plan Update, the Federal Aviation Administration (FAA) concludes that, "with mitigation, the proposed improvements would not result in any new exceedances, nor increase the frequency or severity of any existing violations of the ambient air quality standards for carbon monoxide (CO) or nitrogen dioxide(NO_2) at any modeled receptor locations."

The FEIS includes in Chapter IV, Section 9 (with additional detail in Appendix O) a description of the air quality modeling conducted for aircraft activity and traffic associated with the airport. The aircraft activity was analyzed using EDMS, a specialized model developed by the FAA for pollutants from aircraft activity. This model was also used to analyze some traffic activity, but it is only able to consider through traffic movements and not queuing at intersections, so it is not capable of modeling the traffic activity which generates the greatest amount of traffic pollutants. Both traffic queuing and through traffic at intersections was modeled with an EPA model, CAL3QHC, which is designed to predict pollution impact at intersections. The EDMS modeling is described in Sections 3 through 7 of Appendix O and the CAL3QHC modeling in Section 9 of Appendix O.

The EDMS modeling of aircraft activity included estimates for nitrogen dioxide (NO_2) and carbon monoxide (CO). The CAL3QHC intersection modeling covered only CO. The NO_2 National Ambient Air Quality Standard (NAAQS) is an annual average standard and should therefore be modeled for an average rate of emissions activities. The NAAQS for NO_2 is an annual average not to exceed 0.053 ppm. The CO NAAQSs are for one hour and eight hours, not to be exceeded more than once a year. Thus CO should be modeled using a peak emissions condition, the highest expected emissions condition during the year, with the least favorable meteorological conditions. The eight-hour average CO NAAQS is 9 ppm.

The FEIS aircraft activity modeling used eleven receptor locations on and at the edges of the airport. These locations are shown on Exhibit IV.9-1 of the FEIS, which is included for convenience in the Appendix of this report. The EDMS model includes emissions of ground service activity, aircraft taxi movements to and from the terminal, waiting in queues for takeoff, takeoff, and landing. It also includes automobile traffic through the airport and on adjacent roads.

Technical Report No. 5 of the Airport Master Plan Update projects approximately 406,000 annual operations and 91 operations in the peak hour in 2010. In Table I-5 of the FEIS this level of activity is projected to result in an arrival delay of one to eight hours at the existing airport during adverse weather conditions. In Table II-4 it is pointed out that an arrival delay of more than one hour under existing conditions would be reduced to about 13 minutes with the new runway. In a paper prepared for the Airport Communities Coalition, Dr. Clifford Winston argues that this reduced delay will result in an increased passenger demand and an increase in annual operations above that projected by the Master Plan Update of up to 33% by 2020 (and, presumably, by a lesser, incremental amount each year along the way to 2020). Table 3-8 of Technical Report No. 5 reports almost twice as many passengers in the peak hour as the average hour in the peak month. Thus, an annual average increase of 33% would mean a much greater increase in the peak hour, perhaps more than 50% above the operations expected without the proposed project. Therefore, construction of the third runway would mean the number of arriving and departing passengers in the peak hour, and their associated surface traffic, could increase by more than 50% above the usage without the third runway.

This increase in passengers and passenger traffic will require a similar but smaller increase in employees and employee traffic and associated (e.g., shuttle vans) traffic. Thus an additional scenario should be evaluated which reflects this increased passenger load during the peak hour with the implementation of the proposed project. A conservative estimate of this increased load in the peak hours for 2010 would be a 30% increase in arriving and departing passengers and in aircraft activity, a 10% increase in associated and employee vehicle traffic, and no increase in airport overhead employees.

The FEIS intersection modeling included four intersections, all on SR 99 (International Boulevard S): S 160th St., S 170th St., S 188th St., and S 200th St. These locations are shown on Exhibit IV.9-2 in the FEIS and included for convenience in the Appendix to this report. Traffic movements through all of these intersections are directly affected by the proposed project. The construction of the North Unit Terminal cuts Air Cargo Road and closes the portion of S 170th St. that accesses the airport (it becomes only an access to a hotel parking lot and the back entrance to the cemetery). Access to S 160th is similarly, but less, affected since there would be no access to Air Cargo Road, and thus to S 160th, from Airport Expressway. Traffic moving on SR 99 through S 188th and S 200th would be reduced by the opening of an access from the terminal roadways to Air Cargo Road South and onto an improved 28th Ave S. Other traffic was displaced to the freeway network. Of these intersections, the S 160th St. at SR 99 intersection is most representative of the impact of the project on the wider community, as increased passenger traffic is only marginally diverted to other routes.

The FAA's transportation consultants assigned traffic to and from the airport to particular routes and then utilized the Traffix model for intersection capacity analysis to make estimates of the number of vehicles that would pass through or turn at a given intersection. This model is also used to optimize the traffic signal timing at each intersection, to the extent possible.

The same traffic model was used to prepare traffic data for air quality modeling for this report. Data for three scenarios were utilized: 1) the Do Nothing alternative as described in the FEIS but including the connection from the terminal roadway to Air Cargo Road South and some changes in the traffic route assignments, 2) the Project as described in the FEIS but with some changes in the traffic route assignments, and 3) the Project as in item 2 but with the additional traffic from the 30% increase in passenger activity described above. The traffic implications of each of these scenarios was developed by Smith Engineering and Management for this study and is described in detail in their report[1].

Only about 30% of the passenger traffic to and from the airport moves on surface streets. The modeling described in this report does not estimate the effects on air quality of the remaining 70% of the traffic, which moves along the I-5, SR 518 and Airport Expressway network. Most of the backups created by increased traffic to and from the airport will be on the ramps between I-5 and SR 518. Tables O-B-17 and O-B-21 in Appendix O of the FEIS report that several of these ramps can be expected to degrade to a very marginal level of service. Such slow moving traffic will result in high emission rates of CO and potentially high concentrations along these ramps during adverse weather conditions. Undoubtedly a proper evaluation of these ramps would show numerous locations on the ramps where the CO concentrations would be similar to those described in this report.

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[1]Smith Engineering & Management, "Revised Traffic Analysis for Air Quality Conformity Review of Sea-Tac Master Plan Update" (1996)

INTERSECTION MODELING PROCEDURES

The modelling of air quality at an intersection requires the development of the quantities of pollutants released by the vehicles, a description of the meteorological conditions and how they will affect the dispersion of the pollutants from the roadway sources to receptors located near the edge of the road, and a precise description of the geometry of the sources and receptors. The most significant source of air pollutants at an intersection are the vehicles queued and waiting at the stop light. These vehicles may be waiting to turn left, to go straight through, or to turn right. The longer the vehicles must wait to clear the intersection, the greater the emissions. Also important are the moving vehicles approaching and departing from the intersections. The slower the vehicle speed, the greater will be the pollutant emissions[2]. Emission rates are calculated by an EPA-developed program, MOBILE 5A. This program requires information about the mix of vehicle types on a road, ages, local regulations about vehicle inspection and maintainance, etc.

Intersection models such as CAL3QHC include, from traffic engineering studies, estimation procedures for the lengths of queues, given the traffic signal timing and the rate vehicles approach the intersection from each direction. Since air quality modeling requires the use of the least favorable meteorological conditions, intersection models systematically apply winds from 10 degree increments around the compass, to find the wind direction which results in the highest value at a given receptor. As a result the highest value at one receptor might be with winds from the north and the highest value at a receptor across the street might be with winds from the southwest.

The air quality analysis for the FEIS, which is offered in support of the FAA's draft Clean Air Act Conformity finding, included intersection modeling results for the intersections of S 160th St., S 170th St., S 188th St., and S 200th St., all at SR 99 (International Boulevard S) and for S 160th St. and S 170th St., at SR 99, each with an additional turn lane as mitigation. Envirometrics obtained the computer files used for the modeling of these intersections from the FAA. These files were found to contain numerous errors. For all of the intersections, the intersection geometries used in the CAL3QHC modeling were different from the intersection geometries used by the FAA's consultants, INCA Engineers, in preparing the traffic study. Because the traffic study provided the basis for the traffic volumes and signal timings used in the CAL3QHC modeling runs they should have used identical geometries, but they inexplicably did not (generally one more lane was added to at least one branch of the intersection and in some cases one less lane was used). Some lanes were positioned incorrectly (overlapping another lane or just misplaced). There were errors in entering the traffic volumes (at every intersection the number of vehicles entering the intersection exceeded the number leaving the intersection, by a substantial amount). Some of the signal timings were not properly computed. The emission rate for moving vehicles appears to include

[2] Emission rates of CO decline with speed at the speeds encountered on surface streets. At freeway speeds CO emission rates will increase with speed for certain types of engines.

only automobiles and excludes vans, gas and diesel trucks, heavy duty vehicles, etc. Nor does it use the actual Washington state vehicle registration distribution for vehicle age. Further, the emission rate calculations assume the use of reformulated gasoline, which is currently in the first stages of use in California but has not been adopted for use in Washington. Apparently, the inspection and maintenance program was included in the calculations for idling emissions but not for emissions from moving vehicles. As a result, the emission rates used in the FEIS were under stated by approximately 20 percent.

Two intersections were modeled by Envirometrics for this report, chosen as representative of the intersections affected by the proposed project. We chose S 188th St. at SR 99 as representative of the intersections which have been significantly relieved of traffic by project actions (i.e., S 200th St. at SR 99 and S 170th St. at SR 99) while S 160th St. at SR 99 was chosen as representative of other intersections in the vicinity which are less directly affected and reflect more the increase in vehicle movements to and from the airport. We modeled the S 160th St. at SR 99 intersection only in the mitigated arrangement described in the FEIS as this change is likely to be implemented prior to 2010. We chose the year 2010 for modeling as, from among the years modeled in the FEIS, this most closely matches the target years for the current Air Quality Maintenance Plans, for which conformity is to be demonstrated.

Envirometrics created new base files for each of the intersections modeled in the FEIS. The option choices made in the FEIS CAL3QHC input files (e.g. signal types, clearance lost time, wind speed, stability class, etc.) were not changed in developing the new files. The same persistence factor[3] was used to move from the calculated one-hour average to the eight-hour average required for comparison with the NAAQS. However, we prepared new intersection geometries for each of the modeled intersections, placing the traffic lanes properly and using the number and orientation of the lanes used in the FEIS and Smith traffic studies. In the new files, the potential pollutant receptor locations were generally the same as in the FEIS input files but approximately half as many receptors were used in order to reduce coding and computer run time.

Smith Engineering and Management developed new traffic volumes for the year 2010 using the same traffic modeling program used by INCA Engineers (specifically, the "Initial Future" volumes modified to include all right turn volumes were used as the actual traffic counts). The changes made in traffic generation volumes and origin-destination assignments by Smith for the proposed project and the do-nothing alternative have been described separately in their report. Smith also developed an additional scenario for the greater passenger load described above, which is also described in detail in their report.

Because the traffic modeling program optimizes the traffic signal timing at each intersection to the new traffic volumes, we used the new signal times from the traffic data supplied by Smith in the

[3] Persistence factor is the ratio between the eight-hour average CO concentrations and the peak one-hour concentration during peak periods as developed from statistical studies of the frequency distribution of the hourly concentration values. This is generally assumed to be 0.7 for intersection modeling studies.

new input files. Turn opportunity time ("green time") for right turns was assumed to include 100 percent of red time for lanes with no traffic conflicts, 70 percent of red time for lightly opposed lanes and 30 percent for heavily conflicted lanes. A protected right-turn lane was assumed for S 188th St. northbound onto SR 99.

Envirometrics modeled three scenarios which are reported here: 1) a base case which assumes the proposed project is not implemented, using the peak annual/peak hour background and airport traffic assumed in the FEIS, but assuming the proposed connection between Airport Expressway and Air Cargo Road S is completed by 2010, allowing access to Air Cargo Road S; 2) a case which assumes the project is implemented, again using the peak annual/peak hour traffic assumed in the FEIS; 3) a case which assumes the project is implemented and total passenger and employee traffic increases by about 20 percent beyond the estimate in the FEIS in the peak hour of the peak day, as discussed in the previous section (*vide*, p. 2).

In the Envirometrics modeling runs, concentrations of carbon monoxide (CO) were estimated for receptors located 3 meters back from each roadway margin and along each side of each street at the intersection. One receptor was placed at each of the four corners of the intersection and three additional receptors along each side of each street. The effect of traffic on overall CO concentrations can be summarized by averaging the receptors along each street, although the overall maximum is the number used for air quality management purposes. The background concentration of CO from sources away from the intersection being modeled was assumed in the FEIS to be 3.5 ppm over an 8 hour averaging period, which is appropriate for current urban conditions. Although 3.5 ppm is an acceptable assumption for background levels in 1994, in their recent studies the Washington Dept. of Transportation has generally used about 1.5 ppm as more representative of the anticipated value in future years, such as 2010, when overall emissions are reduced by the lower emissions of future model year vehicles. This study used a compromise value of 2 ppm.

INTERSECTION MODELING RESULTS

The tables below summarize the predicted carbon monoxide (CO) concentrations for each of the conditions modeled for 2010: Do Nothing, the Project with traffic as described in the FEIS, and the Project with greater passenger traffic. For the intersection at S 160th St. and SR 99, the mitigation described in the FEIS (a dual southbound left turn lane) is assumed to be implemented. A schematic drawing of a typical intersection showing the location of receptors is in the Appendix.

Table I. Predicted CO Concentrations for S 160th St. and SR 99 (ppm)

	Do Nothing	Project	Incr Pass
East stop line	10.8	11.7	12.2
Average East	7.5	7.6	7.9
Max East	10.8	11.7	12.2
South stop line	10.8	11.8	12.3
Average South	9.3	10.4	10.9
Max South	10.8	11.8	12.3
West stop line	10.7	12.0	12.5
Average West	5.7	6.2	7.2
Max West	10.7	12.0	12.5
North stop line	9.7	10.1	10.7
Average North	9.7	10.9	11.7
Max North	11.2	12.1	12.4

The maximum value predicted at S 160th St. and SR 99 for the Do Nothing alternative is 11.2, at a receptor on the northeast side of the intersection. The high value there is primarily from northbound traffic leaving the intersection and the east-turning queue of southbound traffic, delayed by northbound traffic. The maximum value predicted for the increased passenger traffic alternative of the proposed Project is 12.5, at the west stop line of eastbound traffic. This receptor is influenced by several sources, those mentioned previously and the southbound through traffic.

In the FEIS the "With Project" condition at S 160th St. and SR 99 is said to "result in a maximum concentration equal to or below the Do-Nothing condition" with the highest concentration at 11 ppm over an 8-hour period. However this value includes the higher background concentration assumed in the FEIS. When the background is adjusted from 3.5 ppm to 2 ppm, as used in this report, the equivalent FEIS value at this intersection would be 9.5 ppm. The lower values predicted by the FEIS are partly due to the lower emission rates, partly due to leaving out the traffic departing from the intersection, and partly due to the assumption of no increase in passenger traffic with the implementation of the project.

Table II. Predicted CO Concentrations for S 188th St. and SR 99 (ppm)

	Do Nothing	Project	Incr Pass
East stop line	17.9	18.1	18.5
Average East	14.0	14.4	14.4
Max East	17.9	18.1	18.5
South stop line	15.7	15.9	15.9
Average South	13.5	13.7	14.0
Max South	16.1	16.1	16.5
West stop line	15.3	15.7	15.9
Average West	13.2	13.3	13.5
Max West	15.3	15.7	15.9
North stop line	17.1	17.4	17.7
Average North	12.4	12.4	10.9
Max North	17.1	17.4	17.7

The maximum value predicted at S 188th St. and SR 99 for the Do Nothing alternative is 17.9, at a receptor at the east stop line of westbound traffic. The high value here is primarily from north-bound traffic approaching, queued, and leaving the intersection, southbound traffic leaving the intersection, and the westbound traffic approaching and queued at the intersection. The maximum value predicted for the increased passenger traffic alternative of the proposed Project is 18.5, at the same location and influenced by the same traffic.

In the FEIS the "With Project" condition at S 188th St. and SR 99 is said to "result in a maximum concentration equal to or below the Do-Nothing condition" with the highest concentration at 18 ppm over an 8-hour average. When the background is adjusted to the values used in this report, that would be 16.5 ppm.

The number of days[4] when the CO concentration will exceed the NAAQS can be estimated from the approximately lognormal frequency distribution of measured air pollutant concentrations[5]. If the value estimated by the modeling represents the value which will not be exceeded more than once a year (as the NAAQS is defined) then the number of days on which the standard will be exceeded can be determined directly from the frequency distribution, given the characteristics of the frequency distribution for observed urban CO concentrations[6]. Using conventional techniques for estimating the frequency interval value of a distribution, it can be estimated that for the predicted maximum values for the S 160th St. and SR 99 intersection in Table I, with the Do Nothing alternative the NAAQS will be exceeded up to 15 times in a year, with the Project alternative as presented in the FEIS the NAAQs will be exceeded up to 26 times in a year, and with the Project alternative with a higher passenger load the NAAQS would be exceeded up to 33 times in a year, more than double the Do Nothing alternative.

Again for the maximum CO concentrations reported for S 188th St. and SR 99 in Table II, estimating from the statistical distribution of urban CO concentrations, the Do Nothing alternative predicts there will be up to 220 periods during the year when the CO NAAQS will be exceeded, 230 periods with the Project alternative, and the Project alternative with a higher passenger load would mean the NAAQS would be exceeded in up to 245 periods during the year at this intersection.

These results are summarized in Table III, on the following page.

The output files for each of the six model runs described here are included in the Appendix to this report.

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[4] To be strictly correct, we should say "the number of non-overlapping periods", of which there are three 8-hour periods in a day. Although there can be more than one non-overlapping period during the day that exceeds the standard, it is most likely for the exceedance to occur with respect to the evening peak, which is also the period which has been modeled here, and not occur during the morning or late night periods. Thus we use "days" as a short-hand expression.

[5] Larsen, R.I. "An Air Quality Data Analysis System for Interrelating Effects, Standards, and Needed Source Reductions," *J. Air Pollution Control Assn.* 23(1973):933-940

[6] Larsen, R.I. "An Air Quality Data Analysis System for Interrelating Effects, Standards, and Needed Source Reductions - Part 2," *J. Air Pollution Control Assn.* 24(1974):551-558

Table III. Summary of CO Modeling Results

	Maximum CO (ppm)	Days above NAAQS
S 160th St./SR 99		
Do Nothing	11.2	15
Project	12.1	26
Increased Passengers	12.5	33
S 188th St./SR 99		
Do Nothing	17.9	220
Project	18.1	230
Increased Passengers	18.5	245

AIRCRAFT ACTIVITY MODELING

The air quality analysis for aircraft activity in the FEIS utilized the FAA's EDMS model, which provides emission rates for ground service activity, the taxi movements of aircraft to and from the terminal, waiting in queues for takeoff, takeoff, and landing. These emissions are located by the model at the position on the airport where they will take place. Takeoff and landing emissions are modified to reflect the elevation of the aircraft during the takeoff and landing processes, resulting in ground level concentrations higher at the end of the airport where the aircraft are on or near the ground. These emissions coupled with emissions from motor vehicle traffic are used to estimate the concentrations of air pollutants on and adjacent to the airport.

The EDMS model is a relatively complex model which requires extensive input data to be used effectively. There was simply not enough time available during this review to prepare the input files which would have permitted the use of EDMS directly to project the potential for higher NO_2 concentrations associated with the 33 percent increase in passenger load by 2020 suggested by Dr. Clifford Winston (*vide*, p. 2). However the results of the EDMS modeling for the FEIS (reported in Table D-10 of the FEIS) can be used to provide an estimate of the impact[7]. The projected NO_2 concentrations presented in the FEIS for the Do Nothing and the Project alternatives for 11 receptor sites are reproduced in Table IV, on the following page.

Because increased operations do result in some congestion delays, as seen by the increased time in mode for departure queue for all alternatives for 2020 as compared to 2010 (*cf*, Page 3 and Page 4 of Table D-2) the emissions of hydrocarbons and the pollutants associated with low aircraft engine speed will increase by an amount greater than the increase in operations. Annual emissions of NO_2, on the other hand, will increase approximately proportionally to the number of operations in any one year. The results presented in the table have already been adjusted for NO to NO_2 conversion, so simply increasing the Airport Sources values presented in Table D-10 by 30 percent and rounding to the initial accuracy of the table will produce a useful estimate of the NO_2 concentrations for the higher passenger load case that is consistent with the FEIS presentation.

The influence on receptors by Roadway Sources will be strongest by those sources closest to the receptor. Thus the estimated increase at receptors within or adjacent to the terminal complex can be calculated by assuming a 30 percent increase in NO_2 concentrations similar to the increase from aircraft activity, while concentrations at receptors near adjacent public streets should be calculated

[7] It would have been more desirable to work directly from the output files of the EDMS model runs rather than the less accurate summary tables in the FEIS. However the output files supplied to us by the FAA do not appear to be the output files utilized by the FAA's consultants in developing the FEIS. For example, the output file for the 2020 Do Nothing alternative contains data for only a single wind direction and the output file for the 2020 With Project alternative contains only error messages.

Table IV. Estimated NO_2 (ppm) Concentrations in 2020

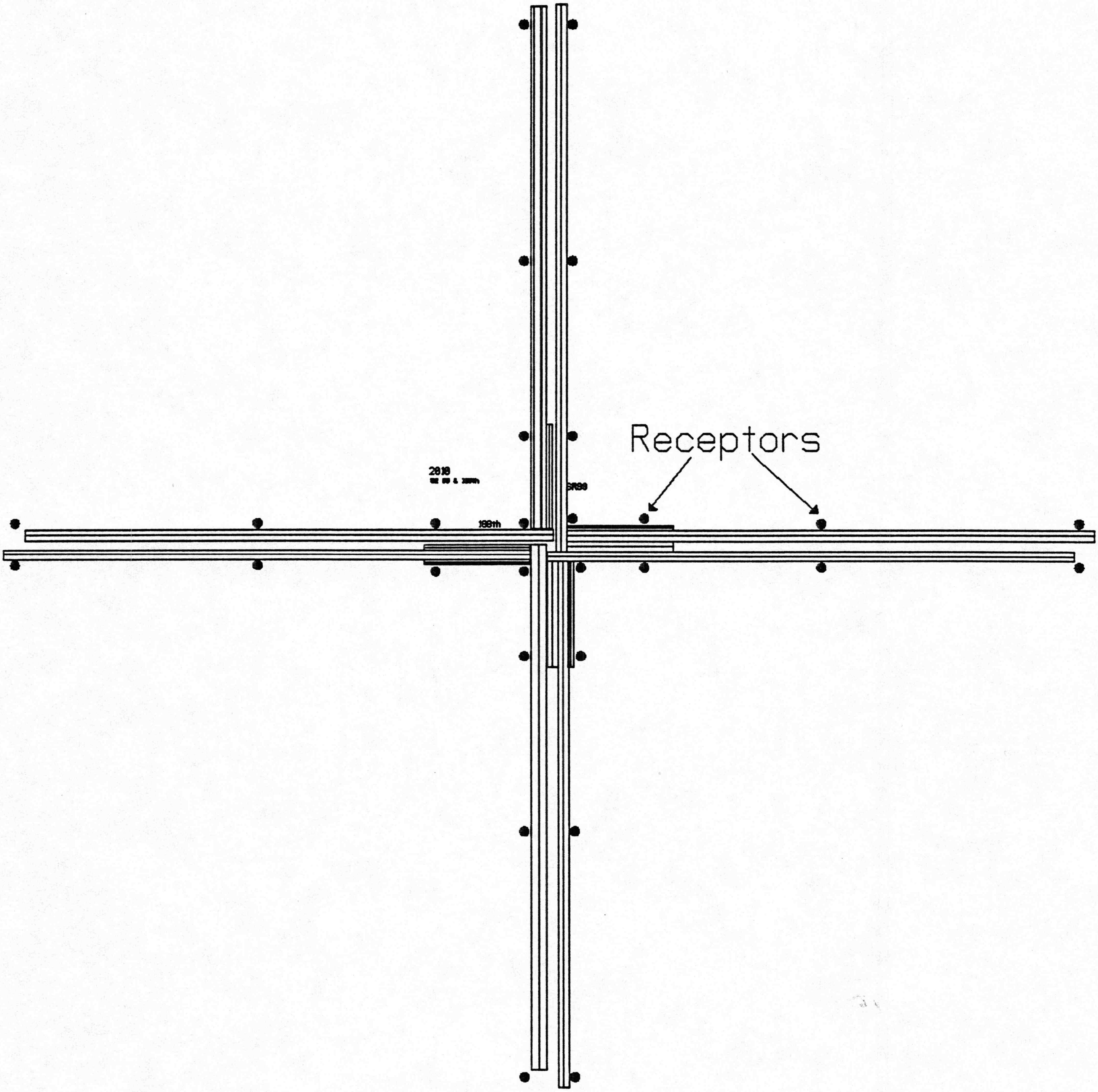
	Terminal South	Terminal Hotel	Highline Nurseries	SeaTac Reservoir	SeaTac Indus Pk	Des Moines Creek Pk	Existing 154th St.	Future 154th St.	188th St. (E)	188th St. (W)	North Terminal
Do Nothing											
Airport Sources	0.00	0.00	0.01	0.01	0.01	0.01	0.08	N/A	0.03	0.01	N/A
Roadway Sources	0.02	0.03	0.01	0.01	0.01	0.01	0.01	N/A	0.02	0.01	N/A
Background	0.02	0.02	0.02	0.02	0.02	0.02	0.02	N/A	0.02	0.02	N/A
Total Do Nothing	0.05	0.05	0.04	0.03	0.04	0.04	0.11	N/A	0.06	0.05	N/A
Project											
Airport Sources	0.00	0.00	0.01	0.01	0.01	0.01	N/A	0.03	0.02	0.02	0.00
Roadway Sources	0.02	0.02	0.01	0.01	0.01	0.01	N/A	0.01	0.02	0.01	0.02
Background	0.02	0.02	0.02	0.02	0.02	0.02	N/A	0.02	0.02	0.02	0.02
Total Project	0.04	0.04	0.04	0.04	0.04	0.04	N/A	0.07	0.06	0.05	0.04
Incr Pass Project											
Airport Sources	0.00	0.01	0.01	0.01	0.01	0.01	N/A	0.04	0.03	0.02	0.00
Roadway Sources	0.03	0.03	0.01	0.01	0.01	0.01	N/A	0.01	0.02	0.02	0.02
Background	0.02	0.02	0.02	0.02	0.02	0.02	N/A	0.02	0.02	0.02	0.02
Total Incr Pass	0.05	0.05	0.05	0.04	0.04	0.04	N/A	0.07	0.07	0.06	0.05

by assuming only an approximately 10 percent increase in observed NO_2 (since airport traffic will represent about one-third of the traffic on these streets). The contribution from additional airport vehicular traffic in residential neighborhoods can be assumed to be small.

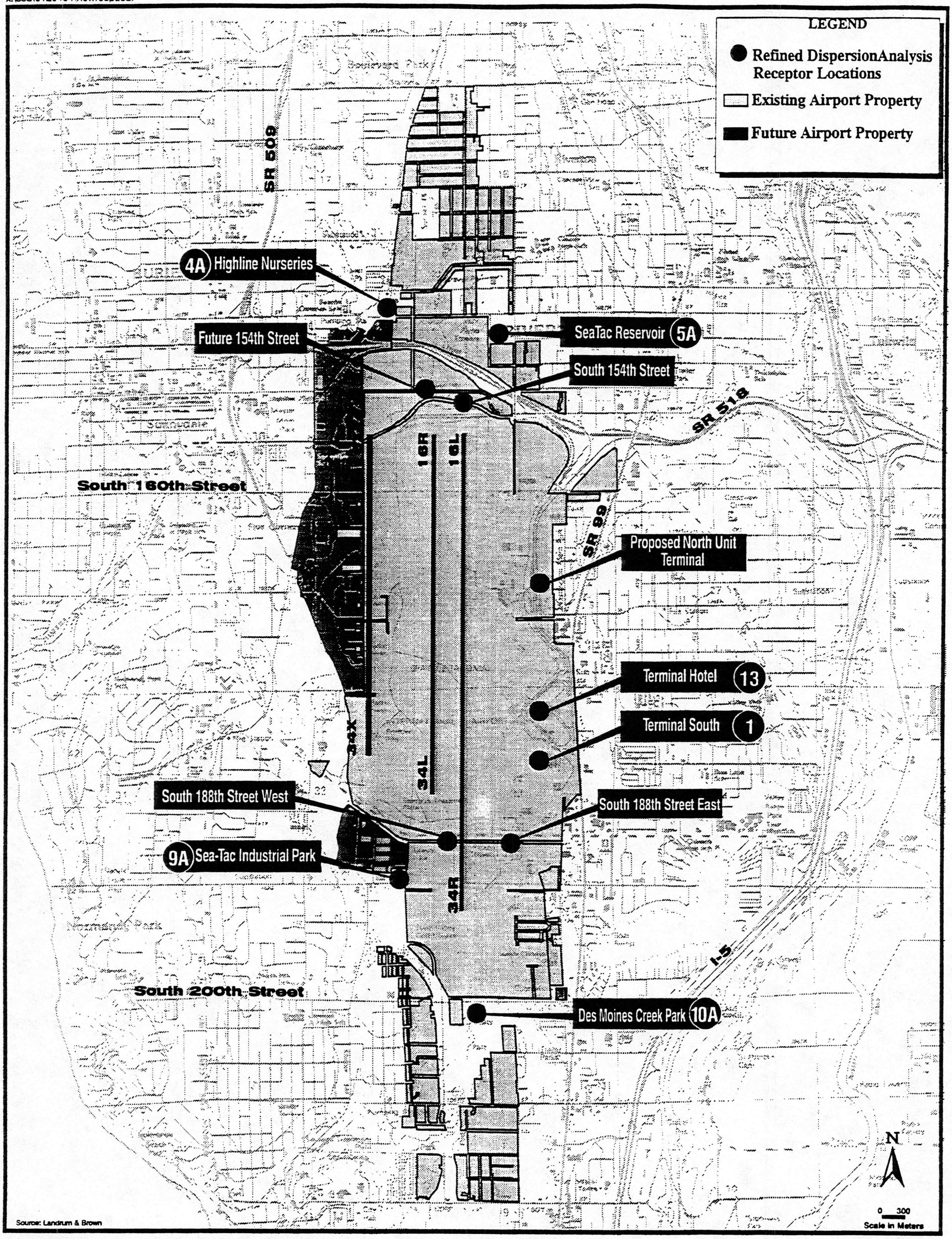
Because the data in Table D-10 (and thus in Table IV) are presented to only one significant digit, it is difficult to know if an entry shown as 0.5 ppm is less than the NO_2 NAAQS of 0.53 ppm or if it actually exceeds 0.53 ppm. Based on the numbers presented in the table and in Table IV.9-6, it is likely that the Do Nothing alternative reports one location where the NO_2 standard will be exceeded in 2020. Similarly, it is likely that the estimates for the Project alternative with an increased passenger load report an additional two and perhaps four locations where the NO_2 NAAQS will be exceeded, in addition to the one noted for the Do Nothing alternative, where it will be exceeded by a greater amount. In the one case where the estimated concentration decreases, this is accomplished by moving the receptor location.

Although the analysis presented here is based on the minimal information provided by the FAA, it is sufficiently illustrative of the potential results from a more detailed study to generate a requirement for the EDMS modeling to be repeated for the increased passenger load case.

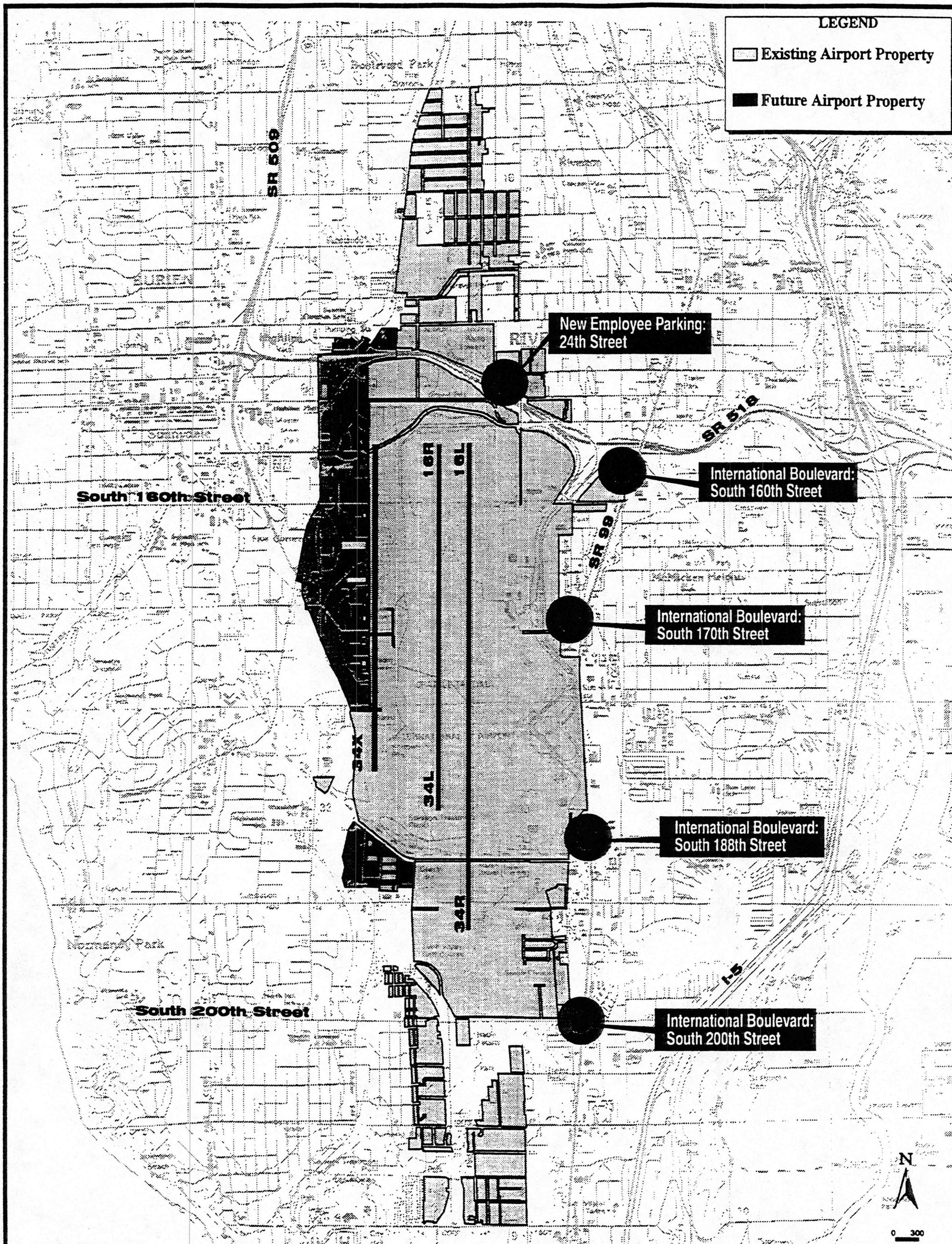
APPENDIX


Receptors
2010
SR90

x:\sea\0120404\newrecpt.cdr



Seattle - Tacoma International Airport	Refined Dispersion Analysis Receptor Locations	EXHIBIT: IV.9-1



Seattle - Tacoma International Airport

Roadway Intersection Dispersion Analysis

EXHIBIT: IV.9-2

JOB: SR99 AND 160TH ST. (2010 W/mitigation S- RUN: SR99 & 160TH ST.w/mit S-DN

DATE : 5/20/96
TIME : 10:38:35

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

SITE & METEOROLOGICAL VARIABLES

VS = .0 CM/S VD = .0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 626. M AMB = 5.0 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. SR99 NB Approach	-41.7	-300.0	-3.1	-8.0	295.	8.	AG	1958.	28.3	.0	12.0		
2. SR99 NB Queue	3.1	-8.0	-57.6	-404.0	401.	189.	AG	756.	100.0	.0	6.0	1.09	66.8
3. SR99 NB Queue Left	-1.4	-7.3	-12.2	-76.6	70.	189.	AG	703.	100.0	.0	3.0	1.01	11.7
4. SR99 NB Depart	4.4	-.7	66.4	300.3	307.	12.	AG	2217.	28.3	.0	12.0		
5. SR99 SB Appr TH L	53.9	303.2	-6.0	11.2	298.	192.	AG	2144.	28.3	.0	12.0		
6. SR99 SB Appr RT	49.8	304.1	-10.6	12.2	298.	192.	AG	125.	28.3	.0	9.0		
7. SR99 SB QueueTH	-6.0	11.2	21.6	145.9	137.	12.	A	703.	100.0	.0	6.0	.96	22.9
8. SR99 SB QueueRT	-10.6	12.2	-9.6	16.9	5.	12.	AG	102.	100.0	.0	3.0	.09	.8
9. SR99 SB Queue Left	.1	10.1	28.6	146.8	140.	12.	AG	1361.	100.0	.0	6.0	1.09	23.3
10. SR99 SB Depart	-8.6	2.6	-56.4	-296.4	303.	189.	AG	1879.	28.3	.0	15.0		
11. 160 EB Approach	-301.1	2.8	-14.9	-3.5	286.	91.	AG	648.	28.3	.0	12.0		
12. 160 EB QueueT R	-3.5	-14.9	-57.0	-11.7	54.	273.	AG	1326.	100.0	.0	6.0	.81	8.9
13. 160 EB Queue Left	-14.7	-1.5	-211.0	10.5	197.	273.	AG	681.	100.0	.0	3.0	1.17	32.8
14. 160 EB Depart	-2.4	-3.8	299.6	6.6	302.	88.	AG	862.	28.3	.0	12.0		
15. 160 WB Queue Left	10.5	2.0	50.7	3.4	40.	88.	AG	739.	100.0	.0	3.0	.99	6.7
16. 160 WB Approach	299.6	14.8	10.5	5.0	289.	268.	AG	564.	28.3	.0	9.0		
17. 160 WB Queue TH	10.5	5.0	356.7	18.8	346.	88.	A	739.	100.0	.0	3.0	1.92	57.7
18. 160 WB Queue RT	10.5	8.0	63.6	9.9	53.	88.	A	503.	100.0	.0	3.0	.50	8.9
19. 160 WB Dep.	2.8	5.7	-300.7	11.6	304.	271.	AG	482.	28.3	.0	12.0		

JOB: SR99 AND 160TH ST. (2010 W/mitigation S-   RUN: SR99 & 160TH ST.w/mit S-DN

DATE : 5/20/96
TIME : 10:38:35

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
2. SR99 NB Queue	180	85	1.0	1787	1600	298.55	1	3
3. SR99 NB Queue Left	180	158	1.0	170	1600	298.55	1	3
7. SR99 SB QueueTH	180	79	1.0	1680	1600	298.55	1	3
8. SR99 SB QueueRT	180	23	1.0	125	1600	298.55	1	3
9. SR99 SB Queue Left	180	153	1.0	464	1600	298.55	1	3
12. 160 EB QueueT R	180	149	1.0	400	1600	298.55	1	3
13. 160 EB Queue Left	180	153	1.0	249	1600	298.55	1	3
15. 160 WB Queue Left	180	166	1.0	96	1600	298.55	1	3
17. 160 WB Queue TH	180	166	1.0	186	1600	298.55	1	3
18. 160 WB Queue RT	180	113	1.0	282	1600	298.55	1	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC 1 WB1	14.0	14.0	1.8
2. REC 2 WB2	33.0	14.5	1.8
3. REC 3 WB3	80.0	15.0	1.8
4. REC 4 WB4	299.0	23.0	1.8
5. REC 5 WB5	299.0	.0	1.8
6. REC 6 WB6	80.0	-8.0	1.8
7. REC 7 WB7	33.0	-9.0	1.8
8. REC 8 NB1	9.0	-12.0	1.8
9. REC 9 NB2	4.0	-41.0	1.8
10. REC10 NB3	-4.0	-99.0	1.8
11. REC11 NB4	-35.0	-300.0	1.8
12. REC12 NB5	-66.0	-300.0	1.8
13. REC13 NB6	-33.0	-99.0	1.8
14. REC14 NB7	-25.0	-41.0	1.8
15. REC15 EB1	-19.0	-10.0	1.8
16. REC16 EB2	-125.0	-8.0	1.8
17. REC17 EB3	-235.0	-6.0	1.8
18. REC18 EB4	-300.0	-4.0	1.8
19. REC19 EB5	-300.0	18.0	1.8
20. REC20 EB6	-235.0	17.0	1.8
21. REC21 EB7	-125.0	15.0	1.8
22. REC22 SB1	-16.0	16.0	1.8
23. REC23 SB2	-12.0	28.0	1.8
24. REC24 SB3	-1.0	84.0	1.8
25. REC25 SB4	13.0	155.0	1.8
26. REC26 SB5	42.0	300.0	1.8
27. REC27 SB6	73.0	300.0	1.8
28. REC28 SB7	43.0	155.0	1.8
29. REC29 SB8	28.0	84.0	1.8
30. REC30 SB9	17.0	28.0	1.8

JOB: SR99 AND 160TH ST. (2010 W/mitigation S-   RUN: SR99 & 160TH ST.w/mit S-DN

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.	16.8	9.1	5.5	5.0	6.7	7.7	12.8	17.6	16.2	16.2	15.8	7.4	8.5	9.4	9.0	7.0	5.9	5.6	5.0	5.0
10.	13.2	6.7	5.1	5.0	6.4	7.2	10.6	15.4	13.3	13.0	13.2	11.3	13.3	13.7	13.6	7.0	5.9	5.7	5.0	5.0
20.	8.0	5.3	5.0	5.0	6.3	7.1	9.3	11.1	9.1	8.2	7.8	12.7	15.4	16.3	17.4	7.1	5.9	5.8	5.0	5.0
30.	5.6	5.0	5.0	5.0	6.2	7.2	9.4	9.5	7.4	6.3	5.8	10.9	14.2	14.9	16.1	7.5	5.9	5.9	5.0	5.0
40.	5.2	5.0	5.0	5.0	6.3	7.5	9.6	9.5	7.2	5.8	5.5	9.9	12.4	13.4	12.6	8.7	6.3	6.0	5.0	5.2
50.	5.2	5.0	5.0	5.0	6.4	7.7	9.5	9.8	6.9	5.8	5.2	9.2	11.1	13.2	10.6	9.5	7.2	6.4	5.2	5.4
60.	5.1	5.0	5.0	5.0	6.4	8.2	9.4	10.0	6.7	5.8	5.1	8.4	10.2	12.5	10.7	9.9	8.1	6.9	5.5	5.9
70.	5.2	5.1	5.1	5.1	5.9	8.8	9.3	9.9	6.6	5.6	5.0	7.8	9.8	12.0	12.4	10.3	9.1	7.8	6.0	6.4
80.	6.6	6.4	6.4	5.5	5.4	8.8	9.1	9.0	6.2	5.1	5.0	7.4	9.1	11.0	13.8	11.5	10.1	9.0	6.8	7.6
90.	9.5	9.0	8.7	6.4	5.1	7.1	7.6	7.1	5.3	5.0	5.0	6.7	8.8	10.0	13.7	11.2	9.7	9.1	9.0	10.0
100.	11.5	10.6	9.7	7.3	5.0	5.5	5.8	5.5	5.0	5.0	5.0	6.3	8.9	9.8	14.2	8.4	7.2	7.0	8.7	10.6
110.	11.7	10.7	9.1	7.5	5.0	5.1	5.2	5.0	5.0	5.0	5.0	6.1	8.9	9.7	15.5	6.9	6.0	5.8	7.6	8.7
120.	11.3	10.6	8.6	7.3	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.1	9.0	9.8	16.0	6.4	5.9	5.8	7.0	7.5
130.	10.9	10.5	8.1	7.0	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.2	9.1	10.1	16.0	6.3	5.9	5.7	6.8	7.1
140.	10.3	10.3	7.9	6.8	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.2	9.5	10.4	16.1	6.3	5.7	5.4	6.5	6.7
150.	10.2	10.1	7.7	6.7	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.3	10.0	10.7	16.2	6.3	5.5	5.1	6.0	6.5
160.	9.9	9.7	7.7	6.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.4	10.7	11.1	16.5	6.2	5.1	5.0	5.8	5.9
170.	10.2	9.8	7.6	7.0	5.0	5.0	5.0	5.3	5.3	5.3	5.1	6.2	11.8	11.9	17.2	5.6	5.0	5.0	5.8	5.8
180.	12.1	10.1	7.6	7.3	5.0	5.0	5.3	7.3	7.5	7.2	5.9	5.6	11.6	11.6	17.3	5.1	5.0	5.0	5.6	5.9
190.	16.0	11.8	7.9	7.5	5.0	5.2	6.7	11.9	11.8	10.7	7.4	5.1	9.0	8.8	14.2	5.0	5.0	5.0	5.3	5.8
200.	17.5	13.9	8.8	7.6	5.0	6.0	8.4	14.6	14.4	12.9	8.4	5.0	6.2	5.9	10.8	5.0	5.0	5.0	5.1	5.8
210.	15.3	14.6	9.7	7.9	5.0	6.8	8.9	13.9	13.9	12.3	8.4	5.0	5.3	5.2	9.9	5.0	5.0	5.0	5.1	5.9
220.	12.9	14.9	10.2	8.3	5.2	6.8	9.0	12.8	13.2	11.3	8.0	5.0	5.2	5.1	10.2	5.0	5.0	5.0	5.1	5.9
230.	11.7	14.4	10.6	8.9	5.6	6.9	8.7	12.5	12.4	10.7	7.8	5.0	5.1	5.0	10.8	5.0	5.0	5.0	5.0	6.1
240.	11.7	13.8	11.8	9.5	5.8	7.1	8.6	12.5	11.7	10.1	7.7	5.0	5.1	5.0	11.6	5.0	5.0	5.0	5.0	6.1
250.	12.2	12.7	13.3	10.3	5.9	7.3	9.2	13.8	11.4	9.9	7.6	5.0	5.1	5.0	12.6	5.1	5.1	5.0	5.0	6.2
260.	13.2	11.8	13.6	11.3	7.2	8.5	10.6	15.8	11.0	9.7	7.8	5.0	5.0	5.0	13.3	5.3	5.2	5.0	5.0	6.1
270.	13.2	10.5	11.0	9.7	10.0	10.4	11.7	17.3	11.1	9.6	8.2	5.0	5.0	5.2	12.9	6.3	5.6	5.0	5.0	5.7
280.	12.7	9.7	8.5	6.9	10.6	12.1	10.8	16.1	11.9	9.7	9.0	5.0	5.0	5.6	11.5	7.5	6.1	5.0	5.0	5.2
290.	12.2	9.4	7.6	6.0	9.5	11.9	10.0	12.7	13.1	9.9	9.4	5.0	5.2	6.2	9.8	8.0	6.3	5.0	5.0	5.1
300.	12.3	9.4	7.6	5.6	8.6	11.6	11.0	9.8	14.3	10.3	9.8	5.0	5.5	6.6	8.5	7.8	6.3	5.0	5.0	5.0
310.	12.5	9.5	7.6	5.4	8.1	11.0	12.9	8.3	14.9	10.7	10.2	5.0	5.8	7.2	8.1	7.6	6.2	5.1	5.0	5.0
320.	13.0	9.8	7.8	5.2	7.8	10.5	13.5	8.3	14.9	11.3	10.7	5.0	5.8	7.7	7.8	7.3	6.0	5.1	5.0	5.0
330.	13.8	10.2	7.7	5.0	7.3	10.0	14.0	9.6	14.9	12.5	11.5	5.2	5.8	7.9	7.4	7.1	5.9	5.1	5.0	5.0
340.	14.9	10.6	7.1	5.0	7.0	9.4	14.3	12.2	14.8	13.8	12.7	5.4	6.1	7.9	7.4	7.0	5.9	5.2	5.0	5.0
350.	16.3	10.6	6.3	5.0	7.0	8.7	14.4	15.1	15.2	15.7	14.3	5.6	6.6	7.9	7.4	7.0	5.9	5.4	5.0	5.0
360.	16.8	9.1	5.5	5.0	6.7	7.7	12.8	17.6	16.2	16.2	15.8	7.4	8.5	9.4	9.0	7.0	5.9	5.6	5.0	5.0
MAX	17.5	14.9	13.6	11.3	10.6	12.1	14.4	17.6	16.2	16.2	15.8	12.7	15.4	16.3	17.4	11.5	10.1	9.1	9.0	10.6
DEGR.	200	220	260	260	280	280	350	0	0	0	0	20	20	20	20	80	80	90	90	100

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
0.	5.0	6.0	6.3	5.8	5.5	5.0	5.0	10.9	14.8	16.3
10.	5.0	9.7	10.2	8.7	6.9	5.0	5.0	9.4	11.5	12.7
20.	5.0	14.2	15.2	12.5	8.7	5.0	5.0	6.8	7.5	7.8
30.	5.4	15.5	16.6	14.7	9.5	5.0	5.0	5.5	5.7	5.5
40.	6.1	14.5	15.2	14.5	9.1	5.1	5.0	5.2	5.3	5.2
50.	6.8	13.4	14.1	13.8	8.7	5.2	5.0	5.2	5.2	5.2
60.	7.1	12.7	13.1	13.1	8.3	5.5	5.0	5.2	5.2	5.1
70.	7.1	12.3	12.6	12.5	8.1	5.9	5.0	5.1	5.1	5.1
80.	7.9	13.1	12.5	12.2	8.0	6.4	5.0	5.0	5.1	5.3
90.	9.8	15.3	13.8	12.1	7.8	7.1	5.0	5.0	5.1	6.4
100.	11.2	16.0	15.3	12.5	8.1	7.6	5.0	5.0	5.5	7.6
110.	10.9	13.7	15.6	12.9	8.7	7.8	5.0	5.2	5.9	7.8
120.	10.0	10.2	15.6	13.1	9.9	7.8	5.0	5.5	6.0	8.0
130.	9.2	8.2	14.5	13.2	11.1	8.0	5.1	5.7	6.0	8.2
140.	8.8	8.1	13.1	13.8	12.2	8.4	5.2	5.6	6.0	8.3
150.	8.6	9.5	12.2	14.9	13.3	8.8	5.5	5.7	6.1	8.4
160.	8.4	11.7	12.1	15.8	14.8	9.2	5.5	5.7	6.5	8.3
170.	7.6	14.2	13.5	16.7	16.5	10.1	5.7	6.1	6.9	8.4
180.	7.3	14.8	14.4	16.7	17.4	12.0	7.8	8.4	8.9	10.1
190.	7.1	12.2	12.1	12.8	13.9	11.3	12.1	13.9	14.0	14.0
200.	7.0	9.4	8.9	8.0	8.4	7.2	13.7	18.2	17.2	15.4
210.	7.2	8.6	7.8	6.4	5.8	5.5	11.7	17.9	17.4	13.9
220.	7.3	8.5	7.6	5.8	5.5	5.3	10.1	15.6	16.3	13.2
230.	7.6	8.4	7.1	5.8	5.5	5.0	9.2	13.7	15.3	14.1
240.	7.8	7.9	6.8	5.8	5.3	5.0	8.5	11.8	14.3	14.7
250.	8.2	7.7	6.8	5.6	5.0	5.0	8.1	9.9	13.4	14.5
260.	8.3	7.8	6.7	5.3	5.0	5.0	7.7	8.8	12.8	14.0
270.	7.1	6.8	5.8	5.0	5.0	5.0	7.0	8.3	12.4	13.1
280.	5.7	5.6	5.1	5.0	5.0	5.0	6.3	8.4	12.5	12.3
290.	5.1	5.0	5.0	5.0	5.0	5.0	5.5	8.3	12.3	12.2
300.	5.0	5.0	5.0	5.0	5.0	5.0	5.2	8.3	12.3	12.1
310.	5.0	5.0	5.0	5.0	5.0	5.0	5.1	8.5	12.6	12.5
320.	5.0	5.0	5.0	5.0	5.0	5.0	5.1	8.7	13.2	13.0
330.	5.0	5.0	5.0	5.0	5.0	5.0	5.1	9.1	14.0	13.8
340.	5.0	5.0	5.0	5.0	5.0	5.0	5.0	9.7	14.8	14.8
350.	5.0	5.1	5.1	5.1	5.0	5.0	5.0	10.5	15.4	16.2
360.	5.0	6.0	6.3	5.8	5.5	5.0	5.0	10.9	14.8	16.3
MAX	11.2	16.0	16.6	16.7	17.4	12.0	13.7	18.2	17.4	16.3
DEGR.	100	100	30	170	180	180	200	200	210	0

THE HIGHEST CONCENTRATION OF 18.20 PPM OCCURRED AT RECEPTOR REC28.

JOB: SR99 AND 160TH ST. (2010 W/mitigation S-   RUN: SR99 & 160TH ST.w/mit S-DN

DATE : 5/20/96
TIME : 10:38:35

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	200	220	260	260	280	280	350	0	0	0	0	20	20	20	20	80	80	90	90	100
1	2.0	1.0	.2	.1	.0	.1	.0	.0	.5	1.6	4.0	1.4	1.2	.3	.0	.1	.0	.1	.1	.2
2	2.7	1.2	.2	.2	.0	.1	.0	.0	2.1	3.1	4.0	1.6	.9	.1	.0	.1	.0	.1	.1	.2
3	1.3	.8	.1	.1	.0	.1	.0	.0	.5	1.3	.1	.1	.9	.1	.0	.1	.0	.1	.1	.1
4	1.6	.1	.3	.1	.2	.4	1.4	3.5	1.7	.8	.2	.3	1.0	1.6	1.7	.3	.2	.1	.2	.1
5	.0	.0	.1	.0	.2	.2	1.1	1.9	1.5	.8	.2	.2	.7	1.5	2.5	.2	.2	.1	.1	.0
6	.0	.0	.0	.0	.0	.0	.1	.1	.1	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
7	.0	.0	.1	.0	.2	.2	.8	1.4	1.2	.6	.2	.1	.5	1.2	2.2	.2	.2	.1	.1	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.3	.1	.4	.4	1.9	3.9	2.5	1.1	.3	.3	1.1	2.3	3.2	.5	.4	.2	.3	.1
10	1.7	.9	.3	.2	.0	.2	.0	.0	.2	.8	1.5	3.1	3.1	1.9	1.0	.1	.0	.1	.1	.2
11	.0	.0	.3	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0	.1	.5	1.1	1.2	1.1	.4	.6
12	.3	.3	.8	.2	.1	.4	.0	.0	.2	.5	.2	.1	.4	1.7	.0	.5	.2	.2	.2	.4
13	.0	.0	.6	.2	.1	.6	.0	.0	.0	.1	.1	.0	.1	.2	.9	1.5	1.5	.7	.7	2.0
14	.5	.6	.4	.8	1.8	1.4	.8	.7	.3	.1	.0	.1	.1	.1	.0	.2	.1	.2	.1	.1
15	.5	1.4	.9	.1	.1	.9	1.2	.4	.1	.1	.0	.1	.1	.0	.0	.2	.1	.1	.1	.1
16	.2	.5	.6	.8	.6	.3	.3	.1	.0	.0	.0	.0	.0	.0	.0	.2	.1	.1	.1	.1
17	.8	1.7	1.9	3.1	1.8	.9	1.1	.4	.1	.1	.0	.2	.2	.0	.0	.6	.3	.4	.4	.3
18	.9	1.4	1.3	.1	.1	.4	.7	.2	.1	.1	.0	.1	.1	.0	.0	.2	.1	.1	.1	.1
19	.0	.0	.2	.1	.0	.3	.0	.0	.1	.1	.0	.0	.0	.1	.3	.4	.5	.3	.8	1.0

JOB: SR99 AND 160TH ST. (2010 W/mitigation S-   RUN: SR99 & 160TH ST.w/mit S-DN

DATE : 5/20/96
TIME : 10:38:35

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC21 100	REC22 100	REC23 30	REC24 170	REC25 180	REC26 180	REC27 200	REC28 200	REC29 210	REC30 0
1	.2	.0	.0	.3	.5	.2	.2	.4	.2	.0
2	.2	.0	.0	.5	.7	.3	.3	.5	.2	.0
3	.2	.0	.0	.2	.2	.1	.1	.2	.1	.0
4	.1	1.1	1.8	1.2	1.3	1.6	4.6	4.4	3.9	4.5
5	.1	1.4	3.2	2.6	2.7	2.8	1.7	1.3	1.3	1.8
6	.0	.1	.3	.2	.2	.2	.1	.1	.1	.1
7	.1	1.4	2.7	2.3	2.5	.3	.4	1.2	1.2	1.2
8	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
9	.2	1.8	3.6	3.0	3.1	.7	.8	3.8	3.8	3.7
10	.2	.0	.0	.2	.4	.2	.2	.5	.4	.0
11	.4	.0	.0	.0	.0	.0	.0	.0	.1	.0
12	.8	.0	.0	.1	.2	.1	.2	.4	.7	.0
13	1.6	.0	.0	.0	.0	.0	.1	.1	.3	.0
14	.3	.7	.0	.2	.1	.1	.0	.0	.0	.0
15	.2	.8	.0	.3	.2	.1	.0	.1	.0	.0
16	.1	.5	.0	.1	.0	.0	.0	.0	.0	.0
17	.5	2.0	.0	.3	.2	.2	.0	.1	.0	.0
18	.1	.9	.0	.2	.1	.1	.0	.0	.0	.0
19	.9	.1	.0	.0	.0	.0	.0	.1	.1	.0

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut1

DATE : 5/20/96
TIME : 10:38:53

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

SITE & METEOROLOGICAL VARIABLES

VS = .0 CM/S VD = .0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 626. M AMB = 5.0 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. SR99 NB Approach	*	-41.7	-300.0	-3.1	-8.0	*	295.	8.	AG	2265.	28.3	.0	12.0		
2. SR99 NB Queue	*	3.1	-8.0	-92.8	-633.0	*	632.	189.	AG	703.	100.0	.0	6.0	1.17	105.4
3. SR99 NB Queue Left	*	-1.4	-7.3	-36.3	-232.5	*	228.	189.	AG	698.	100.0	.0	3.0	1.27	38.0
4. SR99 NB Depart	*	4.4	-.7	66.4	300.3	*	307.	12.	AG	2466.	28.3	.0	12.0		
5. SR99 SB Appr TH L	*	53.9	303.2	-6.0	11.2	*	298.	192.	AG	2462.	28.3	.0	12.0		
6. SR99 SB Appr RT	*	49.8	304.1	-10.6	12.2	*	298.	192.	AG	122.	28.3	.0	9.0		
7. SR99 SB QueueTH	*	-6.0	11.2	96.6	511.5	*	511.	12.	A	685.	100.0	.0	6.0	1.13	85.1
8. SR99 SB QueueRT	*	-10.6	12.2	-9.7	16.8	*	5.	12.	AG	102.	100.0	.0	3.0	.09	.8
9. SR99 SB Queue Left	*	.1	10.1	40.0	201.5	*	195.	12.	AG	1379.	100.0	.0	6.0	1.19	32.6
10. SR99 SB Depart	*	-8.6	2.6	-56.4	-296.4	*	303.	189.	AG	2255.	28.3	.0	15.0		
11. 160 EB Approach	*	-301.1	2.8	-14.9	-3.5	*	286.	91.	AG	709.	28.3	.0	12.0		
12. 160 EB QueueT R	*	-3.5	-14.9	-74.7	-10.7	*	71.	273.	AG	1326.	100.0	.0	6.0	.94	11.9
13. 160 EB Queue Left	*	-14.7	-1.5	-256.8	13.2	*	243.	273.	AG	690.	100.0	.0	3.0	1.26	40.4
14. 160 EB Depart	*	-2.4	-3.8	299.6	6.6	*	302.	88.	AG	868.	28.3	.0	12.0		
15. 160 WB Queue Left	*	10.5	2.0	79.8	4.4	*	69.	88.	AG	743.	100.0	.0	3.0	1.10	11.6
16. 160 WB Approach	*	299.6	14.8	10.5	5.0	*	289.	268.	AG	565.	28.3	.0	9.0		
17. 160 WB Queue TH	*	10.5	5.0	243.4	14.3	*	233.	88.	A	721.	100.0	.0	3.0	1.40	38.9
18. 160 WB Queue RT	*	10.5	8.0	63.6	9.9	*	53.	88.	A	503.	100.0	.0	3.0	.50	8.9
19. 160 WB Dep.	*	2.8	5.7	-300.7	11.6	*	304.	271.	AG	534.	28.3	.0	12.0		

Note: X1, Y1, X2, Y2 are LINK COORDINATES (M).

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut   RUN: SR99 & 160TH ST.w/mitnut1

DATE : 5/20/96
TIME : 10:38:53

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
2. SR99 NB Queue	180	79	1.0	2040	1600	298.55	1	3
3. SR99 NB Queue Left	180	157	1.0	225	1600	298.55	1	3
7. SR99 SB QueueTH	180	77	1.0	1998	1600	298.55	1	3
8. SR99 SB QueueRT	180	23	1.0	122	1600	298.55	1	3
9. SR99 SB Queue Left	180	155	1.0	464	1600	298.55	1	3
12. 160 EB QueueT R	180	149	1.0	464	1600	298.55	1	3
13. 160 EB Queue Left	180	155	1.0	246	1600	298.55	1	3
15. 160 WB Queue Left	180	167	1.0	97	1600	298.55	1	3
17. 160 WB Queue TH	180	162	1.0	186	1600	298.55	1	3
18. 160 WB Queue RT	180	113	1.0	282	1600	298.55	1	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC 1 WB1	14.0	14.0	1.8
2. REC 2 WB2	33.0	14.5	1.8
3. REC 3 WB3	80.0	15.0	1.8
4. REC 4 WB4	299.0	23.0	1.8
5. REC 5 WB5	299.0	.0	1.8
6. REC 6 WB6	80.0	-8.0	1.8
7. REC 7 WB7	33.0	-9.0	1.8
8. REC 8 NB1	9.0	-12.0	1.8
9. REC 9 NB2	4.0	-41.0	1.8
10. REC10 NB3	-4.0	-99.0	1.8
11. REC11 NB4	-35.0	-300.0	1.8
12. REC12 NB5	-66.0	-300.0	1.8
13. REC13 NB6	-33.0	-99.0	1.8
14. REC14 NB7	-25.0	-41.0	1.8
15. REC15 EB1	-19.0	-10.0	1.8
16. REC16 EB2	-125.0	-8.0	1.8
17. REC17 EB3	-235.0	-6.0	1.8
18. REC18 EB4	-300.0	-4.0	1.8
19. REC19 EB5	-300.0	18.0	1.8
20. REC20 EB6	-235.0	17.0	1.8
21. REC21 EB7	-125.0	15.0	1.8
22. REC22 SB1	-16.0	16.0	1.8
23. REC23 SB2	-12.0	28.0	1.8
24. REC24 SB3	-1.0	84.0	1.8
25. REC25 SB4	13.0	155.0	1.8
26. REC26 SB5	42.0	300.0	1.8
27. REC27 SB6	73.0	300.0	1.8
28. REC28 SB7	43.0	155.0	1.8
29. REC29 SB8	28.0	84.0	1.8
30. REC30 SB9	17.0	28.0	1.8

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut1

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.	18.7	10.8	6.2	5.0	5.7	9.1	14.3	19.0	17.1	17.1	17.9	8.1	9.2	9.8	9.6	7.1	6.8	5.7	5.0	5.0
10.	15.2	7.9	5.2	5.0	5.4	7.5	11.5	17.0	14.8	13.9	15.0	13.1	14.6	15.1	15.1	7.0	6.8	5.9	5.0	5.0
20.	8.7	5.5	5.0	5.0	5.2	7.3	9.6	11.9	9.7	8.5	8.5	14.7	17.0	17.9	19.2	7.4	6.8	5.9	5.0	5.0
30.	5.7	5.0	5.0	5.0	5.1	7.2	9.4	9.4	7.6	6.4	5.8	12.0	15.1	15.9	17.0	8.6	7.1	6.1	5.0	5.1
40.	5.3	5.0	5.0	5.0	5.1	7.5	9.6	9.5	7.4	6.0	5.5	10.5	13.6	14.1	13.2	9.5	7.6	6.3	5.2	5.5
50.	5.2	5.0	5.0	5.0	5.1	7.7	10.0	9.8	7.1	5.9	5.1	9.5	12.7	13.8	11.3	10.0	8.4	7.1	5.5	5.9
60.	5.2	5.0	5.0	5.0	5.1	8.2	10.3	10.1	6.9	5.7	5.1	8.7	11.7	13.1	11.3	10.1	8.9	7.8	6.0	6.3
70.	5.2	5.1	5.1	5.0	5.0	8.6	10.3	10.3	6.6	5.5	5.1	8.2	11.0	12.5	13.2	10.8	9.5	8.8	6.4	6.7
80.	6.5	6.4	6.2	5.0	5.0	8.4	9.6	9.3	5.9	5.0	5.0	7.5	10.4	11.3	14.2	12.2	10.3	9.8	7.4	7.6
90.	9.6	9.0	8.3	5.0	5.0	6.9	7.5	7.1	5.2	5.0	5.0	6.8	10.3	10.3	14.2	11.9	9.8	9.6	9.8	10.6
100.	12.0	11.2	9.4	5.0	5.0	5.5	5.7	5.4	5.0	5.0	5.0	6.2	10.5	10.1	14.7	9.1	7.4	7.1	9.9	12.1
110.	12.1	11.7	9.0	5.0	5.0	5.1	5.2	5.0	5.0	5.0	5.0	6.1	10.2	10.1	15.9	7.2	6.3	6.0	8.2	11.2
120.	11.4	11.4	8.5	5.0	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.0	10.4	10.3	16.4	6.7	6.1	6.1	7.5	10.0
130.	10.9	10.8	8.1	5.0	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.1	10.6	10.5	16.5	6.7	6.1	5.7	7.1	9.5
140.	10.5	10.4	7.8	5.0	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.1	11.1	11.0	16.6	6.8	6.0	5.5	6.7	9.3
150.	10.2	10.2	7.7	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.2	11.7	11.5	16.9	6.8	5.6	5.3	6.3	8.5
160.	9.9	9.7	7.7	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.4	12.6	12.4	17.4	6.6	5.3	5.2	6.1	8.1
170.	10.1	9.7	7.9	5.3	5.0	5.0	5.0	5.3	5.3	5.3	5.2	6.6	13.9	13.8	18.7	5.8	5.1	5.0	5.8	7.8
180.	12.5	10.3	8.1	5.6	5.0	5.0	5.3	7.8	8.1	7.6	6.2	6.5	13.8	13.8	19.3	5.2	5.0	5.0	5.6	7.6
190.	17.3	12.4	9.0	5.8	5.0	5.4	7.2	13.3	13.5	12.4	8.1	5.7	10.2	10.1	15.6	5.0	5.0	5.0	5.4	7.7
200.	18.8	15.0	10.6	5.9	5.0	6.3	9.4	15.8	16.2	15.2	8.8	5.1	6.6	6.3	11.1	5.0	5.0	5.0	5.2	7.8
210.	16.0	15.3	11.7	6.3	5.1	7.3	9.7	14.6	15.1	14.6	8.3	5.0	5.4	5.2	9.9	5.0	5.0	5.0	5.1	7.8
220.	13.5	15.1	12.2	6.5	5.4	7.6	9.4	13.3	13.6	13.3	7.9	5.0	5.2	5.1	10.3	5.0	5.0	5.0	5.1	8.0
230.	12.2	14.7	12.4	7.0	5.8	7.3	9.0	12.8	12.7	12.4	7.7	5.0	5.2	5.1	10.8	5.0	5.0	5.0	5.1	8.2
240.	12.4	14.2	13.2	7.5	6.0	7.4	8.9	12.7	12.1	11.8	7.5	5.0	5.1	5.0	11.7	5.0	5.0	5.0	5.0	8.5
250.	13.2	13.5	14.4	8.1	6.2	7.2	9.4	14.2	11.7	11.6	7.5	5.0	5.1	5.0	12.8	5.1	5.1	5.0	5.0	8.4
260.	14.1	12.5	14.3	9.5	7.5	8.8	11.1	16.7	11.4	11.2	7.7	5.0	5.0	5.0	14.2	5.4	5.2	5.0	5.0	7.8
270.	14.0	11.2	11.4	9.2	10.0	11.3	12.5	18.4	11.4	11.1	8.3	5.0	5.0	5.2	14.2	6.6	5.7	5.0	5.0	6.5
280.	13.2	9.9	8.6	6.8	10.2	12.6	11.3	17.0	12.7	11.1	9.2	5.0	5.0	5.9	12.5	8.0	6.2	5.0	5.0	5.5
290.	12.6	9.6	7.7	6.3	8.7	13.0	10.3	13.0	13.9	11.5	9.8	5.0	5.3	6.8	10.1	8.4	6.5	5.0	5.0	5.1
300.	12.6	9.6	7.7	6.1	7.8	12.7	11.1	9.8	15.0	11.9	10.1	5.0	5.6	7.5	8.6	8.0	6.5	5.0	5.0	5.0
310.	13.0	9.8	7.9	5.8	7.4	12.4	12.9	8.5	15.3	12.6	10.5	5.0	5.8	8.0	8.2	7.6	6.7	5.1	5.0	5.0
320.	13.4	10.0	7.9	5.5	6.9	11.9	13.8	8.4	15.4	13.3	11.2	5.0	5.9	8.1	8.0	7.5	6.9	5.1	5.0	5.0
330.	14.2	10.4	8.2	5.2	6.5	11.7	14.3	9.8	15.2	14.2	12.1	5.2	6.2	8.1	7.7	7.3	6.9	5.1	5.0	5.0
340.	15.4	11.0	8.2	5.1	6.1	11.3	14.4	12.5	15.2	15.1	13.3	5.4	6.6	8.0	7.4	7.0	6.8	5.2	5.0	5.0
350.	17.2	11.5	7.6	5.0	6.0	10.7	15.2	15.7	15.7	16.2	15.6	5.7	7.0	8.0	7.6	7.0	6.8	5.4	5.0	5.0
360.	18.7	10.8	6.2	5.0	5.7	9.1	14.3	19.0	17.1	17.1	17.9	8.1	9.2	9.8	9.6	7.1	6.8	5.7	5.0	5.0
MAX	18.8	15.3	14.4	9.5	10.2	13.0	15.2	19.0	17.1	17.1	17.9	14.7	17.0	17.9	19.3	12.2	10.3	9.8	9.9	12.1
DEGR.	200	210	250	260	280	290	350	0	0	0	0	20	20	20	180	80	80	80	100	100

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut   RUN: SR99 & 160TH ST.w/mitnut1

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
0.	*	5.0	6.4	6.8	6.4	5.9	5.3	6.6	15.2	18.1	18.5
10.	*	5.0	11.2	11.9	10.7	9.0	6.3	5.9	11.7	14.5	14.9
20.	*	5.3	16.0	17.1	15.7	12.8	7.4	5.2	7.5	8.7	8.6
30.	*	6.1	16.5	17.5	16.7	14.5	7.4	5.0	5.6	5.8	5.7
40.	*	6.9	15.0	15.7	15.4	14.5	7.2	5.0	5.3	5.3	5.2
50.	*	7.4	13.9	14.5	14.2	13.7	7.1	5.0	5.2	5.2	5.2
60.	*	7.3	13.1	13.6	13.4	13.2	7.3	5.0	5.2	5.2	5.2
70.	*	7.3	12.7	13.0	12.8	12.6	7.6	5.0	5.1	5.1	5.1
80.	*	8.0	13.5	12.9	12.4	12.3	8.1	5.0	5.0	5.1	5.3
90.	*	10.1	15.9	13.9	12.4	12.3	8.8	5.0	5.0	5.0	6.1
100.	*	11.8	16.5	15.5	12.9	12.1	9.4	5.0	5.0	5.3	7.6
110.	*	11.8	14.1	16.3	13.1	12.3	9.6	5.0	5.0	5.7	8.2
120.	*	10.7	10.6	16.0	13.2	12.6	9.7	5.0	5.3	5.9	8.5
130.	*	9.7	8.2	14.9	13.8	13.0	9.9	5.0	5.6	6.0	8.5
140.	*	9.4	8.3	13.5	14.3	13.5	10.3	5.0	5.6	6.1	8.3
150.	*	9.3	9.7	12.5	15.3	14.4	11.0	5.4	5.7	6.4	8.4
160.	*	8.9	12.1	12.4	16.3	15.6	11.9	5.5	5.8	6.6	8.4
170.	*	8.2	15.1	14.4	17.5	17.3	13.2	5.8	6.2	7.0	8.4
180.	*	7.4	16.4	16.0	17.7	18.1	15.9	8.2	9.0	9.5	10.6
190.	*	7.2	13.5	13.3	13.7	14.8	14.3	14.1	15.0	15.0	15.2
200.	*	7.2	9.6	9.3	8.5	8.6	8.6	16.6	19.4	18.3	16.6
210.	*	7.3	8.6	7.9	6.6	6.0	5.7	14.6	19.0	18.3	14.6
220.	*	7.5	8.7	7.9	6.1	5.6	5.4	12.3	16.7	17.3	13.9
230.	*	7.6	8.9	7.8	6.0	5.5	5.1	11.1	15.2	16.1	14.6
240.	*	8.0	8.9	7.5	5.9	5.4	5.0	10.2	14.4	14.9	15.5
250.	*	8.4	8.5	7.1	5.7	5.1	5.0	9.7	13.1	14.1	15.2
260.	*	8.6	8.2	6.8	5.4	5.0	5.0	9.1	12.7	13.2	14.6
270.	*	7.7	7.1	6.0	5.0	5.0	5.0	8.4	12.7	12.7	13.6
280.	*	6.0	5.6	5.2	5.0	5.0	5.0	7.5	12.8	12.8	12.9
290.	*	5.2	5.0	5.0	5.0	5.0	5.0	6.7	12.7	12.8	12.6
300.	*	5.0	5.0	5.0	5.0	5.0	5.0	6.3	12.7	12.8	12.6
310.	*	5.0	5.0	5.0	5.0	5.0	5.0	6.3	12.9	13.1	12.8
320.	*	5.0	5.0	5.0	5.0	5.0	5.0	6.3	13.5	13.6	13.4
330.	*	5.0	5.0	5.0	5.0	5.0	5.0	6.4	14.3	14.5	14.2
340.	*	5.0	5.0	5.0	5.0	5.0	5.0	6.5	15.3	15.6	15.4
350.	*	5.0	5.1	5.2	5.1	5.1	5.0	6.6	15.8	17.3	17.1
360.	*	5.0	6.4	6.8	6.4	5.9	5.3	6.6	15.2	18.1	18.5
MAX	*	11.8	16.5	17.5	17.7	18.1	15.9	16.6	19.4	18.3	18.5
DEGR.	*	100	30	30	180	180	180	200	200	200	0

THE HIGHEST CONCENTRATION OF 19.40 PPM OCCURRED AT RECEPTOR REC28.

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut   RUN: SR99 & 160TH ST.w/mitnut1

DATE : 5/20/96
TIME : 10:38:53

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 200	REC2 210	REC3 250	REC4 260	REC5 280	REC6 290	REC7 350	REC8 0	REC9 0	REC10 0	REC11 0	REC12 20	REC13 20	REC14 20	REC15 180	REC16 80	REC17 80	REC18 80	REC19 100	REC20 100
1	2.3	1.3	.4	.2	.0	.0	.0	.0	.6	1.9	4.7	1.7	1.3	.3	2.2	.1	.0	.0	.2	.2
2	2.6	1.5	.3	.2	.0	.0	.0	.0	1.9	2.8	3.7	1.5	.8	.0	1.9	.1	.0	.0	.2	.2
3	1.9	1.1	.3	.1	.0	.0	.0	.0	.5	1.3	1.0	1.0	1.0	.1	1.4	.1	.0	.0	.2	.2
4	1.8	.0	.1	.1	.2	.6	1.6	3.8	1.9	.9	.2	.3	1.1	1.8	.0	.4	.3	.2	.1	.1
5	.0	.0	.0	.0	.2	.4	1.2	2.2	1.7	1.0	.3	.2	.8	1.7	.0	.3	.2	.2	.0	.1
6	.0	.0	.0	.0	.0	.0	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.2	.4	1.1	1.9	1.6	.9	.3	.3	.8	1.6	.0	.2	.2	.2	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.1	.1	.4	.8	2.1	4.2	2.7	1.3	.4	.3	1.3	2.7	.0	.5	.4	.4	.1	.1
10	2.0	1.2	.5	.2	.0	.0	.0	.0	.2	.9	1.8	3.8	3.8	2.3	4.3	.1	.1	.0	.2	.2
11	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.1	.0	1.3	1.3	1.4	.7	.6
12	.3	.1	.8	.2	.1	.1	.0	.0	.2	.5	.3	.1	.4	1.7	4.5	.9	.2	.1	.3	.5
13	.0	.0	.2	.2	.1	.2	.0	.0	.0	.1	.1	.0	.1	.2	.0	1.5	1.5	1.3	1.4	3.2
14	.5	.5	.7	.8	1.8	1.3	.8	.7	.3	.1	.0	.1	.1	.1	.0	.2	.1	.1	.1	.1
15	.5	1.3	1.8	.1	.1	1.6	1.2	.4	.1	.1	.0	.1	.1	.0	.0	.2	.1	.1	.1	.1
16	.2	.5	.7	.8	.6	.4	.3	.1	.0	.0	.0	.0	.0	.0	.0	.2	.1	.1	.0	.1
17	.8	1.5	2.4	1.2	1.2	1.3	1.1	.4	.1	.1	.0	.2	.2	.0	.0	.5	.2	.2	.2	.2
18	.9	1.3	.9	.1	.1	.7	.7	.2	.1	.1	.0	.1	.1	.0	.0	.2	.1	.0	.0	.1
19	.0	.0	.1	.1	.1	.1	.0	.0	.1	.1	.0	.0	.1	.2	.0	.4	.5	.5	1.1	1.1

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut1

DATE : 5/20/96
TIME : 10:38:53

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC21 100	REC22 30	REC23 30	REC24 180	REC25 180	REC26 180	REC27 200	REC28 200	REC29 200	REC30 0
1	.2	.0	.0	1.1	.5	.2	.2	.5	.9	.0
2	.2	.0	.0	1.3	.7	.3	.3	.5	.9	.0
3	.2	.0	.0	.8	.4	.2	.2	.4	.7	.0
4	.2	1.9	2.0	.8	1.4	1.8	5.1	4.9	4.5	5.1
5	.1	3.2	3.6	2.6	3.1	3.3	2.0	1.5	.8	2.1
6	.0	.2	.2	.2	.2	.2	.1	.1	.0	.1
7	.1	2.5	2.8	1.9	2.4	2.6	1.6	1.2	.6	1.9
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.2	3.7	3.9	2.0	3.1	1.5	1.5	3.8	2.6	4.3
10	.3	.0	.0	1.0	.5	.2	.3	.6	1.2	.0
11	.4	.0	.0	.0	.0	.0	.0	.1	.0	.0
12	1.1	.0	.0	.4	.2	.1	.2	.4	.5	.0
13	1.6	.0	.0	.1	.0	.0	.1	.1	.1	.0
14	.3	.0	.0	.1	.1	.1	.0	.0	.1	.0
15	.3	.0	.0	.1	.2	.1	.0	.1	.1	.0
16	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	.4	.0	.0	.1	.2	.2	.0	.1	.1	.0
18	.1	.0	.0	.1	.1	.1	.0	.0	.1	.0
19	1.0	.0	.0	.1	.0	.0	.0	.1	.1	.0

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

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut2

DATE : 5/20/96
TIME : 10:39:13

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

SITE & METEOROLOGICAL VARIABLES

VS = .0 CM/S VD = .0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 626. M AMB = 5.0 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. SR99 NB Approach	-41.7	-300.0	-3.1	-8.0	295.	8.	AG	2397.	28.3	.0	12.0		
2. SR99 NB Queue	3.1	-8.0	-110.0	-745.2	746.	189.	AG	685.	100.0	.0	6.0	1.21	124.3
3. SR99 NB Queue Left	-1.4	-7.3	-41.1	-263.6	259.	189.	AG	690.	100.0	.0	3.0	1.29	43.2
4. SR99 NB Depart	4.4	-.7	66.4	300.3	307.	12.	AG	2578.	28.3	.0	12.0		
5. SR99 SB Appr TH L	53.9	303.2	-6.0	11.2	298.	192.	AG	2552.	28.3	.0	12.0		
6. SR99 SB Appr RT	49.8	304.1	-10.6	12.2	298.	192.	AG	132.	28.3	.0	9.0		
7. SR99 SB QueueTH	-6.0	11.2	136.4	705.4	709.	12.	A	703.	100.0	.0	6.0	1.20	118.1
8. SR99 SB QueueRT	-10.6	12.2	-9.5	17.6	5.	12.	AG	111.	100.0	.0	3.0	.10	.9
9. SR99 SB Queue Left	.1	10.1	51.4	256.3	251.	12.	AG	1397.	100.0	.0	6.0	1.31	41.9
10. SR99 SB Depart	-8.6	2.6	-56.4	-296.4	303.	189.	AG	2378.	28.3	.0	15.0		
11. 160 EB Approach	-301.1	2.8	-14.9	-3.5	286.	91.	AG	763.	28.3	.0	12.0		
12. 160 EB QueueT R	-3.5	-14.9	-108.2	-8.7	105.	273.	AG	1326.	100.0	.0	6.0	1.02	17.5
13. 160 EB Queue Left	-14.7	-1.5	-290.4	15.3	276.	273.	AG	690.	100.0	.0	3.0	1.31	46.0
14. 160 EB Depart	-2.4	-3.8	299.6	6.6	302.	88.	AG	883.	28.3	.0	12.0		
15. 160 WB Queue Left	10.5	2.0	132.8	6.3	122.	88.	AG	752.	100.0	.0	3.0	1.37	20.4
16. 160 WB Approach	299.6	14.8	10.5	5.0	289.	268.	AG	571.	28.3	.0	9.0		
17. 160 WB Queue TH	10.5	5.0	263.8	15.1	253.	88.	A	721.	100.0	.0	3.0	1.44	42.2
18. 160 WB Queue RT	10.5	8.0	63.6	9.9	53.	88.	A	503.	100.0	.0	3.0	.50	8.9
19. 160 WB Dep.	2.8	5.7	-300.7	11.6	304.	271.	AG	576.	28.3	.0	12.0		

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut2

DATE : 5/20/96
TIME : 10:39:13

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
2. SR99 NB Queue	180	77	1.0	2146	1600	298.55	1	3
3. SR99 NB Queue Left	180	155	1.0	251	1600	298.55	1	3
7. SR99 SB QueueTH	180	79	1.0	2088	1600	298.55	1	3
8. SR99 SB QueueRT	180	25	1.0	132	1600	298.55	1	3
9. SR99 SB Queue Left	180	157	1.0	464	1600	298.55	1	3
12. 160 EB QueueT R	180	149	1.0	508	1600	298.55	1	3
13. 160 EB Queue Left	180	155	1.0	256	1600	298.55	1	3
15. 160 WB Queue Left	180	169	1.0	97	1600	298.55	1	3
17. 160 WB Queue TH	180	162	1.0	192	1600	298.55	1	3
18. 160 WB Queue RT	180	113	1.0	282	1600	298.55	1	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC 1 WB1	14.0	14.0	1.8
2. REC 2 WB2	33.0	14.5	1.8
3. REC 3 WB3	80.0	15.0	1.8
4. REC 4 WB4	299.0	23.0	1.8
5. REC 5 WB5	299.0	.0	1.8
6. REC 6 WB6	80.0	-8.0	1.8
7. REC 7 WB7	33.0	-9.0	1.8
8. REC 8 NB1	9.0	-12.0	1.8
9. REC 9 NB2	4.0	-41.0	1.8
10. REC10 NB3	-4.0	-99.0	1.8
11. REC11 NB4	-35.0	-300.0	1.8
12. REC12 NB5	-66.0	-300.0	1.8
13. REC13 NB6	-33.0	-99.0	1.8
14. REC14 NB7	-25.0	-41.0	1.8
15. REC15 EB1	-19.0	-10.0	1.8
16. REC16 EB2	-125.0	-8.0	1.8
17. REC17 EB3	-235.0	-6.0	1.8
18. REC18 EB4	-300.0	-4.0	1.8
19. REC19 EB5	-300.0	18.0	1.8
20. REC20 EB6	-235.0	17.0	1.8
21. REC21 EB7	-125.0	15.0	1.8
22. REC22 SB1	-16.0	16.0	1.8
23. REC23 SB2	-12.0	28.0	1.8
24. REC24 SB3	-1.0	84.0	1.8
25. REC25 SB4	13.0	155.0	1.8
26. REC26 SB5	42.0	300.0	1.8
27. REC27 SB6	73.0	300.0	1.8
28. REC28 SB7	43.0	155.0	1.8
29. REC29 SB8	28.0	84.0	1.8
30. REC30 SB9	17.0	28.0	1.8

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut2

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.	19.5	11.6	6.8	5.0	5.7	10.1	15.1	19.7	17.6	17.7	18.9	8.5	9.3	10.2	9.8	7.2	7.0	5.7	5.0	5.0
10.	16.2	8.4	5.4	5.0	5.4	8.6	11.9	17.8	15.6	14.5	15.6	13.7	15.2	15.7	16.0	7.3	7.0	6.0	5.0	5.0
20.	9.2	5.7	5.0	5.0	5.2	8.5	9.8	12.2	10.0	8.7	8.8	15.6	17.6	18.6	20.0	7.9	7.1	6.3	5.0	5.1
30.	5.7	5.0	5.0	5.0	5.1	8.6	9.5	9.4	7.6	6.5	6.0	13.0	15.4	16.1	17.6	8.9	7.4	6.8	5.1	5.3
40.	5.3	5.0	5.0	5.0	5.1	8.9	9.8	9.6	7.4	6.2	5.6	11.0	13.9	14.2	13.6	9.9	8.0	7.3	5.3	5.7
50.	5.2	5.0	5.0	5.0	5.1	9.3	10.1	10.0	7.3	6.1	5.3	9.8	13.0	14.1	11.5	10.2	8.7	8.2	5.6	6.2
60.	5.2	5.0	5.0	5.0	5.1	9.8	10.5	10.2	7.3	5.8	5.1	8.8	12.1	13.6	11.5	10.6	9.4	9.0	6.4	6.5
70.	5.2	5.1	5.1	5.0	5.0	10.1	10.9	10.8	7.0	5.5	5.1	8.1	11.3	13.2	13.5	11.7	9.7	9.6	6.7	6.7
80.	6.8	6.6	6.5	5.0	5.0	9.3	10.4	9.9	6.2	5.0	5.0	7.5	10.7	11.6	14.9	14.6	10.8	10.3	8.2	7.7
90.	10.2	9.6	8.9	5.0	5.0	7.1	8.1	7.4	5.2	5.0	5.0	6.8	10.4	10.5	14.8	15.4	10.3	10.2	11.9	11.1
100.	12.5	12.0	10.7	5.0	5.0	5.5	5.8	5.5	5.0	5.0	5.0	6.2	10.6	10.3	15.0	12.1	7.8	7.5	12.4	12.8
110.	12.3	12.2	10.8	5.0	5.0	5.1	5.2	5.0	5.0	5.0	5.0	6.1	10.3	10.2	16.0	8.7	6.3	6.2	10.2	11.5
120.	11.5	11.5	10.2	5.0	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.0	10.6	10.3	16.6	7.2	6.1	6.1	8.3	10.3
130.	10.9	10.8	9.8	5.0	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.0	10.8	10.7	16.7	6.9	6.1	5.9	7.5	9.7
140.	10.6	10.4	9.3	5.0	5.0	5.0	5.1	5.0	5.0	5.0	5.0	6.1	11.3	11.1	16.8	6.8	6.1	5.7	7.0	9.3
150.	10.3	10.2	9.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.2	11.9	11.6	17.1	7.0	5.7	5.3	6.4	8.8
160.	9.9	9.7	8.9	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.3	12.8	12.7	17.4	6.7	5.3	5.2	6.2	8.1
170.	10.2	9.8	8.9	5.4	5.0	5.0	5.0	5.3	5.3	5.3	5.2	6.6	14.3	14.0	19.0	6.0	5.2	5.1	5.9	8.0
180.	12.6	10.4	8.8	5.6	5.0	5.0	5.3	8.0	8.3	7.6	6.3	6.6	14.2	14.1	19.8	5.3	5.0	5.0	5.7	7.7
190.	17.5	12.6	9.4	5.8	5.0	5.4	7.5	13.5	13.8	12.6	8.2	5.8	10.5	10.3	15.9	5.1	5.0	5.0	5.4	7.8
200.	19.0	15.1	10.9	5.9	5.0	6.5	9.6	16.0	16.4	15.4	8.7	5.1	6.7	6.4	11.2	5.0	5.0	5.0	5.2	7.8
210.	16.2	15.5	11.8	6.3	5.2	7.6	9.8	14.8	15.3	14.7	8.2	5.0	5.4	5.2	10.0	5.0	5.0	5.0	5.1	7.8
220.	13.7	15.3	12.2	6.5	5.4	7.6	9.5	13.4	13.8	13.4	7.9	5.0	5.2	5.1	10.3	5.0	5.0	5.0	5.1	8.0
230.	12.6	14.9	12.6	7.1	5.9	7.5	9.0	12.9	12.9	12.5	7.7	5.0	5.2	5.1	10.9	5.0	5.0	5.0	5.1	8.4
240.	12.7	14.3	13.2	7.7	6.2	7.4	8.9	12.9	12.2	11.9	7.5	5.0	5.1	5.0	11.7	5.0	5.0	5.0	5.0	8.8
250.	13.8	13.8	14.8	8.8	6.2	7.5	9.5	14.4	11.9	11.5	7.5	5.0	5.1	5.0	13.0	5.1	5.1	5.0	5.0	9.1
260.	14.9	13.2	14.7	10.3	7.7	9.0	11.7	17.0	11.5	11.2	7.7	5.0	5.0	5.0	15.0	5.5	5.2	5.0	5.0	8.9
270.	14.5	11.5	11.8	9.8	10.4	11.7	13.2	19.2	11.8	11.3	8.3	5.0	5.0	5.2	15.4	6.8	5.7	5.0	5.0	7.6
280.	13.5	10.2	8.8	7.2	10.9	13.0	11.9	17.5	13.4	11.3	9.3	5.0	5.0	6.4	13.3	8.3	6.4	5.0	5.0	6.1
290.	12.7	9.8	7.8	6.4	9.2	13.2	10.3	13.4	14.8	11.6	9.8	5.0	5.4	7.8	10.5	8.6	7.3	5.0	5.0	5.2
300.	12.8	9.7	7.8	6.3	8.4	12.8	11.3	10.1	15.5	12.2	10.3	5.0	5.7	8.5	8.9	8.2	7.5	5.1	5.0	5.0
310.	13.1	9.9	7.9	6.1	7.7	12.5	13.0	8.6	15.5	13.1	10.8	5.0	6.1	8.4	8.2	7.7	7.4	5.1	5.0	5.0
320.	13.7	10.2	8.0	5.7	7.2	11.9	13.9	8.6	15.5	13.7	11.4	5.1	6.3	8.3	8.0	7.5	7.3	5.1	5.0	5.0
330.	14.6	10.6	8.3	5.3	6.6	11.9	14.5	10.2	15.4	14.5	12.4	5.4	6.7	8.2	7.7	7.3	7.1	5.1	5.0	5.0
340.	15.8	11.2	8.4	5.3	6.3	11.6	14.9	12.7	15.3	15.3	13.9	5.4	6.8	8.0	7.6	7.2	7.1	5.2	5.0	5.0
350.	17.6	12.0	8.1	5.1	6.1	11.4	15.5	16.1	15.8	16.6	16.5	5.8	7.0	8.1	7.8	7.2	7.0	5.4	5.0	5.0
360.	19.5	11.6	6.8	5.0	5.7	10.1	15.1	19.7	17.6	17.7	18.9	8.5	9.3	10.2	9.8	7.2	7.0	5.7	5.0	5.0
MAX	19.5	15.5	14.8	10.3	10.9	13.2	15.5	19.7	17.6	17.7	18.9	15.6	17.6	18.6	20.0	15.4	10.8	10.3	12.4	12.8
DEGR.	0	210	250	260	280	290	350	0	0	0	0	20	20	20	20	90	80	80	100	100

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut   RUN: SR99 & 160TH ST.w/mitnut2

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
0.	5.0	6.5	6.8	6.6	6.1	5.4	6.9	17.5	19.2	19.3
10.	5.1	11.8	12.7	11.6	10.0	6.8	6.3	13.5	15.6	15.9
20.	5.5	16.9	17.8	16.7	14.6	7.7	5.4	8.1	9.2	9.0
30.	6.4	16.9	18.2	17.5	16.2	7.6	5.0	5.6	5.9	5.7
40.	7.3	15.3	16.0	15.7	15.3	7.3	5.0	5.3	5.3	5.2
50.	7.5	14.2	14.7	14.5	14.3	7.1	5.0	5.2	5.3	5.2
60.	7.4	13.5	13.9	13.7	13.5	7.3	5.0	5.2	5.2	5.2
70.	7.3	12.9	13.2	13.0	12.9	7.6	5.0	5.1	5.2	5.1
80.	8.2	13.7	13.1	12.7	12.5	8.2	5.0	5.0	5.1	5.3
90.	10.4	16.3	14.5	12.7	12.3	9.0	5.0	5.0	5.0	6.5
100.	12.2	17.4	16.1	12.9	12.4	9.5	5.0	5.0	5.4	8.1
110.	12.8	14.4	16.6	13.5	12.4	9.8	5.0	5.0	5.7	8.7
120.	12.4	10.7	16.2	13.9	12.8	9.9	5.0	5.4	6.1	8.8
130.	11.8	8.8	15.2	14.4	13.2	10.1	5.0	5.6	6.3	8.5
140.	10.9	8.3	13.7	14.9	14.0	10.6	5.1	5.9	6.5	8.3
150.	10.2	9.8	12.8	15.9	14.8	11.4	5.5	5.9	6.6	8.4
160.	9.2	12.3	12.8	16.6	15.9	12.9	5.5	6.0	6.6	8.4
170.	8.4	15.4	14.7	17.6	17.5	15.3	5.9	6.4	7.0	8.4
180.	7.6	17.0	16.2	18.0	18.7	18.1	8.6	9.0	9.5	10.7
190.	7.3	14.0	13.6	14.0	14.9	15.4	15.4	15.4	15.4	15.5
200.	7.2	9.6	9.5	8.8	8.8	8.8	19.0	19.8	18.6	17.2
210.	7.3	8.7	7.9	6.8	6.2	5.7	16.3	19.5	19.0	15.0
220.	7.5	8.8	8.0	6.6	5.7	5.4	13.1	17.2	17.9	14.1
230.	7.8	9.1	8.2	6.4	5.5	5.1	11.4	15.6	16.7	15.0
240.	8.1	9.5	8.1	6.0	5.5	5.0	10.4	14.6	15.4	16.1
250.	8.6	9.5	7.9	5.9	5.1	5.0	9.9	13.6	14.4	16.0
260.	8.9	8.8	7.2	5.4	5.0	5.0	9.4	13.0	13.5	15.2
270.	7.9	7.4	6.1	5.0	5.0	5.0	8.5	12.9	13.1	13.9
280.	6.1	5.7	5.2	5.0	5.0	5.0	7.6	13.0	13.2	13.1
290.	5.2	5.0	5.0	5.0	5.0	5.0	6.7	12.8	13.1	12.7
300.	5.0	5.0	5.0	5.0	5.0	5.0	6.3	12.9	12.9	12.8
310.	5.0	5.0	5.0	5.0	5.0	5.0	6.3	13.1	13.3	13.1
320.	5.0	5.0	5.0	5.0	5.0	5.0	6.4	13.7	13.8	13.7
330.	5.0	5.0	5.0	5.0	5.0	5.0	6.5	14.6	14.8	14.6
340.	5.0	5.0	5.0	5.0	5.0	5.0	6.5	15.8	16.0	15.8
350.	5.0	5.1	5.2	5.2	5.1	5.0	6.7	17.2	17.8	17.6
360.	5.0	6.5	6.8	6.6	6.1	5.4	6.9	17.5	19.2	19.3
MAX	12.8	17.4	18.2	18.0	18.7	18.1	19.0	19.8	19.2	19.3
DEGR.	110	100	30	180	180	180	200	200	0	0

THE HIGHEST CONCENTRATION OF 20.00 PPM OCCURRED AT RECEPTOR REC15.

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut2

DATE : 5/20/96
TIME : 10:39:13

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 0	REC2 210	REC3 250	REC4 260	REC5 280	REC6 290	REC7 350	REC8 0	REC9 0	REC10 0	REC11 0	REC12 20	REC13 20	REC14 20	REC15 20	REC16 90	REC17 80	REC18 80	REC19 100	REC20 100
1	.0	1.4	.4	.2	.0	.0	.0	.0	.6	2.0	4.9	1.8	1.4	.3	.0	.2	.0	.0	.2	.2
2	.0	1.4	.3	.2	.0	.0	.0	.0	1.9	2.8	3.6	1.5	.8	.0	.0	.2	.0	.0	.2	.2
3	.0	1.1	.3	.1	.0	.0	.0	.0	.5	1.3	1.6	1.4	.9	.1	.0	.2	.0	.0	.1	.2
4	5.4	.0	.2	.1	.3	.6	1.6	4.0	2.0	.9	.3	.3	1.1	1.9	2.0	.2	.3	.2	.1	.1
5	2.2	.0	.0	.0	.2	.4	1.3	2.2	1.8	1.0	.3	.2	.8	1.8	3.0	.1	.2	.2	.0	.1
6	.1	.0	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
7	2.1	.0	.0	.0	.2	.4	1.1	2.1	1.7	1.0	.4	.3	.9	1.7	2.9	.1	.2	.2	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	4.7	.0	.1	.1	.4	.8	2.3	4.5	2.9	1.5	.4	.4	1.5	3.0	4.0	.2	.4	.4	.1	.1
10	.0	1.3	.5	.2	.0	.1	.0	.0	.2	1.0	1.9	4.0	4.0	2.4	1.2	.3	.1	.0	.2	.2
11	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.1	.5	1.0	1.4	1.5	.8	.7
12	.0	.1	1.0	.3	.1	.1	.0	.0	.2	.5	.3	.1	.4	1.7	.0	5.1	.4	.2	.5	.9
13	.0	.0	.2	.2	.2	.2	.0	.0	.0	.1	.1	.0	.1	.2	.9	.9	1.5	1.5	3.6	3.2
14	.0	.6	.7	.8	1.8	1.3	.8	.7	.3	.1	.0	.1	.1	.1	.0	.4	.1	.1	.1	.1
15	.0	1.3	1.8	.3	.2	1.7	1.2	.4	.1	.1	.0	.2	.2	.0	.0	.4	.2	.1	.1	.2
16	.0	.5	.8	.8	.6	.4	.3	.1	.0	.0	.0	.0	.0	.0	.0	.2	.1	.1	.0	.1
17	.0	1.5	2.4	1.7	1.6	1.3	1.1	.4	.1	.1	.0	.2	.2	.0	.0	.6	.3	.2	.2	.2
18	.0	1.3	.9	.1	.1	.7	.7	.2	.1	.1	.0	.1	.1	.0	.0	.1	.1	.0	.0	.1
19	.0	.0	.1	.1	.1	.1	.0	.0	.1	.1	.0	.0	.1	.2	.4	.2	.5	.6	1.2	1.2

JOB: SR99 AND 160TH ST. (2010 W/mitigationnut RUN: SR99 & 160TH ST.w/mitnut2

DATE : 5/20/96
TIME : 10:39:13

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC21 110	REC22 100	REC23 30	REC24 180	REC25 180	REC26 180	REC27 200	REC28 200	REC29 0	REC30 0
1	.4	.0	.0	1.1	.6	.2	.2	.5	.0	.0
2	.3	.0	.0	1.3	.8	.4	.3	.6	.0	.0
3	.3	.0	.0	.8	.4	.2	.2	.4	.0	.0
4	.0	1.3	2.1	.8	1.5	1.9	5.3	5.1	5.4	5.3
5	.0	1.7	3.8	2.7	3.2	3.4	2.1	1.5	2.1	2.2
6	.0	.1	.3	.2	.2	.2	.1	.1	.1	.1
7	.0	1.4	2.9	2.0	2.5	2.7	1.7	1.2	2.1	2.1
8	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	1.9	4.1	2.0	3.2	3.2	3.3	3.8	4.5	4.6
10	.4	.0	.0	1.1	.5	.2	.3	.7	.0	.0
11	.7	.0	.0	.0	.0	.0	.1	.1	.0	.0
12	2.4	.0	.0	.4	.2	.1	.3	.4	.0	.0
13	2.0	.0	.0	.1	.0	.0	.1	.1	.0	.0
14	.1	.8	.0	.1	.1	.1	.0	.0	.0	.0
15	.1	1.5	.0	.1	.2	.2	.0	.1	.0	.0
16	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0
17	.1	1.9	.0	.1	.2	.2	.0	.1	.0	.0
18	.0	.9	.0	.1	.1	.1	.0	.0	.0	.0
19	1.0	.1	.0	.1	.0	.0	.0	.1	.0	.0

JOB: SR99 AND 188TH ST 2010 sdn RUN: SR99 & 188TH ST. 2010 sdn

DATE : 5/20/96
TIME : 10:30:47

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

SITE & METEOROLOGICAL VARIABLES

VS = .0 CM/S VD = .0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 626. M AMB = 5.0 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. SR99 NB Approach	9.1	-306.2	9.1	-7.3	299.	360.	AG	2585.	28.3	.0	12.0		
2. SR99 NB Queue Th	9.1	-7.3	9.1	-869.9	863.	180.	AG	1023.	100.0	.0	6.0	1.40	143.8
3. SR99 NB Queue Left	3.1	-7.3	3.1	-446.2	439.	180.	AG	1344.	100.0	.0	6.0	1.46	73.1
4. SR99 NB Queue RT	13.5	-7.3	13.5	-55.3	48.	180.	AG	356.	100.0	.0	3.0	.42	8.0
5. SR99 NB Depart	8.1	-1.2	8.1	310.6	312.	360.	AG	2883.	28.3	.0	12.0		
6. SR99 SB ApproachTH	-3.3	310.6	-3.3	11.8	299.	180.	AG	1562.	28.3	.0	12.0		
7. SR99 SB ApproachRT	-7.6	-310.6	-7.6	11.8	322.	360.	AG	185.	28.3	.0	9.0		
8. SR99 SB Queue th	-3.3	11.8	-3.3	882.6	871.	360.	AG	1121.	100.0	.0	6.0	1.50	145.1
9. SR99 SB Queue RT	-7.6	11.8	-7.6	38.9	27.	360.	AG	392.	100.0	.0	3.0	.23	4.5
10. SR99 SB Queue Left	1.4	11.8	1.4	299.3	287.	360.	AG	721.	100.0	.0	3.0	1.52	47.9
11. SR99 SB Depart	-4.5	2.9	-4.5	-306.2	309.	180.	AG	2340.	28.3	.0	15.0		
12. 188 EB Approach	-306.5	-3.0	-9.3	-3.0	297.	90.	AG	2371.	28.3	.0	12.0		
13. 188 EB Queue th	-9.3	-3.0	-906.2	-3.0	897.	270.	AG	1086.	100.0	.0	6.0	1.48	149.5
14. 188 EB Queue Left	-9.3	1.4	-558.7	1.4	549.	270.	AG	672.	100.0	.0	3.0	1.61	91.6
15. 188 EB Queue RT	-9.3	-7.7	-87.9	-7.7	79.	270.	AG	378.	100.0	.0	3.0	.68	13.1
16. 188 EB Depart	.2	-4.3	308.7	-4.3	309.	90.	AG	2007.	28.3	.0	12.0		
17. 188 WB Approach	308.7	7.7	11.4	7.7	297.	270.	AG	3005.	28.3	.0	12.0		
18. 188 WB Queue th	11.4	7.7	916.8	7.7	905.	90.	AG	1104.	100.0	.0	6.0	1.50	150.9
19. 188 WB Queue Left	11.4	1.8	419.5	1.9	408.	90.	AG	1362.	100.0	.0	6.0	1.46	68.0
20. 188 WB Queue RT	11.4	12.2	70.9	12.2	60.	90.	AG	165.	100.0	.0	3.0	.78	9.9
21. 188 WB Depart	3.3	8.4	-306.5	8.4	310.	270.	AG	2279.	28.3	.0	12.0		

JOB: SR99 AND 188TH ST 2010 sdn RUN: SR99 & 188TH ST. 2010 sdn

DATE : 5/20/96
TIME : 10:30:47

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
2. SR99 NB Queue Th	180	115	1.0	1547	1600	298.60	1	3
3. SR99 NB Queue Left	180	151	1.0	677	1600	298.60	1	3
4. SR99 NB Queue RT	180	80	1.0	360	1600	298.60	1	3
8. SR99 SB Queue th	180	126	1.0	1360	1600	298.60	1	3
9. SR99 SB Queue RT	180	88	1.0	185	1600	298.60	1	3
10. SR99 SB Queue Left	180	162	1.0	202	1600	298.60	1	3
13. 188 EB Queue th	180	122	1.0	1445	1600	298.60	1	3
14. 188 EB Queue Left	180	151	1.0	371	1600	298.60	1	3
15. 188 EB Queue RT	180	85	1.0	555	1600	298.60	1	3
18. 188 WB Queue th	180	124	1.0	1416	1600	298.60	1	3
19. 188 WB Queue Left	180	153	1.0	624	1600	298.60	1	3
20. 188 WB Queue RT	180	37	1.0	965	1600	298.60	1	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC 1 WB1	14.5	17.5	1.8
2. REC 2 WB2	55.0	17.5	1.8
3. REC 3 WB3	155.0	14.5	1.8
4. REC 4 WB4	300.0	14.5	1.8
5. REC 5 WB5	300.0	-11.0	1.8
6. REC 6 WB6	155.0	-11.0	1.8
7. REC 7 WB7	55.0	-11.0	1.8
8. REC 8 NB1	19.0	-11.0	1.8
9. REC 9 NB2	19.0	-61.0	1.8
10. REC10 NB3	15.5	-161.0	1.8
11. REC11 NB4	15.5	-300.0	1.8
12. REC12 NB5	-13.0	-300.0	1.8
13. REC13 NB6	-13.0	-161.0	1.8
14. REC14 NB7	-13.0	-61.0	1.8
15. REC15 EB1	-13.0	-13.0	1.8
16. REC16 EB2	-63.0	-13.0	1.8
17. REC17 EB3	-163.0	-9.5	1.8
18. REC18 EB4	-300.0	-9.5	1.8
19. REC19 EB5	-300.0	15.0	1.8
20. REC20 EB6	-163.0	15.0	1.8
21. REC21 EB7	-63.0	15.0	1.8
22. REC22 SB1	-13.0	15.0	1.8
23. REC23 SB2	-13.0	65.0	1.8
24. REC24 SB3	-13.0	165.0	1.8
25. REC25 SB4	-13.0	300.0	1.8
26. REC26 SB5	14.5	300.0	1.8
27. REC27 SB6	14.5	165.0	1.8
28. REC28 SB7	14.5	65.0	1.8

JOB: SR99 AND 188TH ST 2010 sdn RUN: SR99 & 188TH ST. 2010 sdn

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.	14.8	6.3	5.1	5.0	13.1	13.2	14.6	19.6	16.2	20.4	21.1	16.4	16.0	15.7	21.1	13.6	13.0	12.9	5.0	5.1
10.	8.3	5.1	5.0	5.0	12.9	13.1	13.4	14.9	10.3	11.5	11.4	20.0	19.8	17.8	23.0	15.4	13.1	12.7	5.1	5.5
20.	5.6	5.0	5.0	5.0	12.5	13.2	13.4	13.5	8.7	7.6	7.3	18.6	18.8	17.5	18.8	16.3	13.9	13.1	5.3	6.0
30.	5.3	5.0	5.1	5.0	12.2	13.4	13.5	13.6	8.6	7.2	6.7	16.9	17.3	17.8	14.6	16.5	14.6	13.7	5.6	6.5
40.	5.2	5.0	5.1	5.1	12.0	14.0	14.1	14.2	8.9	7.4	6.5	15.6	16.4	18.2	12.7	16.5	15.6	14.6	5.8	6.9
50.	5.2	5.0	5.2	5.1	12.0	14.9	15.0	15.2	9.0	7.5	6.2	14.3	15.6	17.8	13.3	17.1	16.5	15.8	6.1	6.9
60.	5.1	5.0	5.2	5.1	12.4	16.3	16.4	16.6	9.5	7.0	5.7	13.5	15.0	17.7	16.1	18.2	17.8	17.2	6.3	6.9
70.	5.2	5.2	5.8	5.3	13.0	18.1	18.4	18.5	9.7	6.3	5.3	12.7	13.7	17.5	20.6	19.5	19.9	19.4	6.5	6.8
80.	8.3	8.0	9.4	7.4	12.5	18.6	19.8	20.0	8.6	5.5	5.1	12.5	13.1	16.3	24.0	21.2	23.3	22.7	9.6	10.1
90.	16.0	15.4	17.8	12.4	9.4	14.1	15.2	15.6	6.1	5.1	5.0	12.4	12.6	13.8	21.4	17.5	20.5	20.1	16.6	17.0
100.	20.7	20.1	22.7	15.8	6.1	7.7	8.1	8.2	5.1	5.0	5.0	12.0	12.5	12.6	15.2	10.9	11.8	11.0	19.2	19.6
110.	19.3	19.0	21.0	15.6	5.1	5.5	5.5	5.5	5.0	5.0	5.0	11.2	12.4	12.4	13.0	8.8	7.6	7.1	16.8	17.6
120.	17.3	17.1	18.7	14.8	5.1	5.2	5.2	5.2	5.0	5.1	5.0	10.9	12.8	12.8	13.2	8.6	7.2	6.7	15.4	15.8
130.	16.1	15.9	17.2	14.4	5.1	5.1	5.1	5.1	5.0	5.2	5.0	10.7	13.3	13.3	13.7	8.7	7.2	6.5	14.2	14.9
140.	15.1	14.8	15.9	14.1	5.1	5.1	5.1	5.1	5.0	5.2	5.0	10.9	14.2	14.2	14.6	8.9	7.3	6.1	13.1	14.3
150.	14.6	14.4	15.2	14.2	5.0	5.1	5.1	5.1	5.0	5.2	5.0	11.2	15.5	15.5	15.7	9.2	6.9	5.7	12.3	13.7
160.	15.0	13.9	14.8	14.5	5.0	5.0	5.0	5.3	5.3	5.9	5.3	11.6	16.8	17.2	17.3	9.5	6.3	5.3	11.5	12.6
170.	19.4	14.1	14.6	14.5	5.0	5.0	5.2	8.0	7.6	9.4	7.4	11.2	17.3	18.4	18.7	8.2	5.5	5.0	11.3	11.7
180.	27.7	15.8	14.8	14.7	5.0	5.1	6.9	15.7	14.6	17.4	12.4	8.4	12.7	14.0	14.4	6.0	5.1	5.0	11.3	11.5
190.	27.7	18.7	15.3	14.7	5.1	5.6	9.7	20.4	19.0	22.2	15.5	5.7	7.2	7.6	7.7	5.0	5.0	5.0	11.0	11.2
200.	20.3	19.7	16.4	15.1	5.3	6.4	10.6	19.2	17.9	20.7	15.1	5.0	5.3	5.3	5.5	5.0	5.0	5.0	10.5	11.2
210.	14.9	19.8	17.4	15.9	5.7	7.3	10.3	17.5	16.2	18.5	14.2	5.0	5.1	5.2	5.2	5.0	5.1	5.0	10.1	11.7
220.	12.9	19.9	18.4	17.1	6.1	7.4	9.8	16.2	15.0	16.9	13.6	5.0	5.1	5.1	5.1	5.0	5.1	5.0	9.8	12.1
230.	13.4	19.8	19.4	18.5	6.4	7.3	9.7	15.1	14.0	15.8	13.2	5.0	5.1	5.1	5.1	5.0	5.2	5.0	9.8	12.9
240.	15.5	19.9	20.8	20.2	6.7	7.2	9.6	14.6	13.6	15.0	13.2	5.0	5.1	5.1	5.1	5.0	5.2	5.0	10.1	13.9
250.	18.8	19.9	23.4	22.8	6.8	7.5	9.7	14.7	13.2	14.6	13.8	5.0	5.0	5.0	5.2	5.2	5.8	5.4	10.5	15.5
260.	21.4	19.8	25.4	25.7	9.7	10.5	12.2	17.7	13.2	14.5	14.2	5.0	5.0	5.1	7.8	7.6	9.0	7.4	10.8	16.1
270.	19.1	15.7	20.7	21.5	17.9	17.2	17.7	24.0	14.5	14.7	14.4	5.0	5.1	6.2	14.5	13.6	16.0	11.8	8.7	12.7
280.	13.9	10.0	11.4	11.1	21.3	20.8	19.0	24.5	16.4	15.1	14.6	5.1	5.6	7.9	18.3	17.4	19.6	13.9	5.9	7.4
290.	12.1	8.0	7.2	6.9	19.2	19.6	17.3	18.5	17.1	15.9	14.9	5.3	6.2	8.8	17.2	16.8	18.0	13.0	5.0	5.4
300.	12.4	8.1	6.9	6.3	17.3	17.9	18.1	14.3	17.6	16.7	15.7	5.7	6.7	8.8	15.5	15.3	16.1	12.1	5.0	5.2
310.	12.8	8.2	6.9	6.2	15.9	16.6	18.1	12.7	17.9	17.5	16.6	5.9	6.8	8.5	14.4	14.3	14.8	11.7	5.0	5.2
320.	13.5	8.5	6.9	5.7	14.6	15.8	17.6	14.0	18.7	18.6	17.9	6.1	6.8	8.3	13.4	13.2	13.7	11.5	5.0	5.1
330.	14.4	8.8	6.6	5.6	13.9	15.1	17.4	16.4	19.2	20.1	19.6	6.3	6.9	8.2	13.0	12.9	13.2	11.7	5.0	5.1
340.	16.3	9.1	6.1	5.3	13.4	14.3	17.4	19.9	20.1	22.3	22.1	6.4	6.9	8.5	13.1	12.7	12.8	12.1	5.0	5.0
350.	18.0	8.3	5.5	5.1	13.2	13.6	16.8	22.1	19.9	25.1	25.1	9.0	9.4	10.7	15.3	12.6	12.6	12.4	5.0	5.0
360.	14.8	6.3	5.1	5.0	13.1	13.2	14.6	19.6	16.2	20.4	21.1	16.4	16.0	15.7	21.1	13.6	13.0	12.9	5.0	5.1
MAX	27.7	20.1	25.4	25.7	21.3	20.8	19.8	24.5	20.1	25.1	25.1	20.0	19.8	18.4	24.0	21.2	23.3	22.7	19.2	19.6
DEGR.	180	100	260	260	280	280	80	280	340	350	350	10	10	170	80	80	80	80	100	100

JOB: SR99 AND 188TH ST 2010 sdn RUN: SR99 & 188TH ST. 2010 sdn

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.	6.0	13.4	12.8	11.6	8.8	8.3	13.2	14.4
10.	7.5	17.2	16.2	15.0	10.1	6.1	7.8	8.2
20.	8.6	16.6	15.4	15.2	9.5	5.2	5.6	5.6
30.	8.6	15.2	13.9	13.9	9.2	5.2	5.3	5.3
40.	8.3	14.2	12.9	12.9	9.1	5.2	5.2	5.2
50.	8.0	13.3	12.1	12.1	9.2	5.2	5.2	5.2
60.	8.1	13.0	11.8	11.8	9.6	5.1	5.1	5.1
70.	8.5	13.3	11.6	11.6	10.0	5.0	5.0	5.0
80.	11.5	17.0	11.6	11.5	10.4	5.0	5.0	5.1
90.	18.1	25.0	13.0	11.6	10.9	5.0	5.1	6.4
100.	19.6	26.6	15.5	12.1	11.3	5.1	5.6	8.8
110.	17.5	20.4	16.6	13.2	11.9	5.4	6.3	9.8
120.	17.2	15.4	16.5	13.9	12.4	5.7	7.1	9.7
130.	17.0	13.2	16.3	14.3	13.1	6.2	7.4	9.5
140.	16.6	13.7	16.7	15.0	14.3	6.6	7.3	9.2
150.	16.3	15.6	17.4	16.0	15.3	6.7	7.4	9.0
160.	16.3	19.4	18.3	17.7	17.0	7.0	7.7	9.4
170.	15.1	22.6	20.0	19.4	18.8	10.3	10.9	12.8
180.	13.1	20.1	16.4	16.4	15.9	17.6	18.4	19.6
190.	11.6	14.0	10.2	9.3	8.8	19.9	20.4	20.6
200.	11.7	12.0	8.1	6.9	6.3	17.4	17.9	17.9
210.	12.1	12.2	8.0	6.6	6.2	15.6	16.0	17.0
220.	12.5	12.6	8.1	6.7	6.0	14.3	15.0	16.5
230.	13.1	13.4	8.2	6.7	5.8	13.3	14.2	15.9
240.	14.1	14.6	8.5	6.6	5.7	12.7	13.7	15.6
250.	15.7	16.1	8.6	6.2	5.3	11.7	12.7	15.1
260.	17.0	17.4	7.8	5.5	5.1	11.3	12.1	14.5
270.	13.7	14.0	6.0	5.1	5.0	11.1	11.8	12.8
280.	7.8	7.9	5.1	5.0	5.0	10.6	11.5	11.6
290.	5.4	5.5	5.0	5.0	5.0	10.1	11.5	11.5
300.	5.2	5.2	5.0	5.0	5.0	10.2	12.0	12.0
310.	5.2	5.2	5.0	5.0	5.0	10.0	12.5	12.5
320.	5.1	5.1	5.0	5.0	5.0	9.9	13.3	13.3
330.	5.1	5.1	5.0	5.0	5.0	9.8	14.4	14.4
340.	5.0	5.2	5.2	5.2	5.1	9.9	16.0	16.2
350.	5.1	7.4	7.2	6.8	6.2	9.9	16.8	17.7
360.	6.0	13.4	12.8	11.6	8.8	8.3	13.2	14.4
MAX	19.6	26.6	20.0	19.4	18.8	19.9	20.4	20.6
DEGR.	100	100	170	170	170	190	190	190

THE HIGHEST CONCENTRATION OF 27.70 PPM OCCURRED AT RECEPTOR REC1 .

JOB: SR99 AND 188TH ST 2010 sdn RUN: SR99 & 188TH ST. 2010 sdn

DATE : 5/20/96
TIME : 10:30:47

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

	CO/LINK (PPM) ANGLE (DEGREES)																			
	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
LINK #	180	100	260	260	280	280	80	280	340	350	350	10	10	170	80	80	80	80	100	100
1	3.0	.0	.2	.2	.0	.1	.0	1.6	2.8	5.1	5.5	1.9	1.4	1.8	.9	.2	.1	.0	.2	.2
2	4.4	.0	.3	.3	.0	.1	.0	1.8	3.0	5.1	5.5	2.3	1.7	2.8	1.0	.2	.1	.0	.3	.3
3	3.7	.0	.4	.3	.1	.1	.0	1.4	2.3	4.0	4.7	3.9	3.1	4.1	1.8	.3	.1	.1	.3	.4
4	.7	.0	.1	.0	.0	.0	.0	.8	1.2	.1	.0	.0	.1	.0	.2	.1	.0	.0	.0	.1
5	1.6	.0	.2	.1	.3	.4	.0	.0	.7	.6	.3	.3	.8	.0	.1	.4	.3	.3	.1	.1
6	.0	.0	.0	.0	.1	.1	.0	.0	.5	.4	.2	.1	.3	.0	.0	.1	.2	.1	.0	.0
7	.1	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.4	.4	.4	.2	.0	.0	.0	.0	.0
8	.0	.0	.1	.0	.3	.3	.0	.0	1.1	1.1	.6	.5	1.0	.0	.0	.1	.3	.3	.0	.1
9	.0	.0	.0	.0	.0	.1	.0	.0	.1	.1	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
10	.0	.0	.0	.0	.2	.2	.0	.0	.5	.4	.2	.2	.4	.0	.0	.1	.2	.2	.0	.0
11	1.3	.0	.3	.2	.0	.1	.0	1.2	.9	1.6	2.0	4.4	4.1	4.3	2.0	.5	.1	.0	.2	.3
12	.0	.0	.6	.3	.2	.5	.0	2.5	.2	.2	.2	.0	.1	.0	.0	1.9	4.6	5.0	2.1	1.7
13	.0	.0	1.1	.6	.5	.9	.0	3.9	.3	.3	.3	.0	.1	.0	.0	2.2	5.3	5.8	2.9	2.2
14	.0	.0	.5	.3	.2	.5	.0	1.9	.2	.2	.1	.0	.0	.0	.0	.6	1.8	2.1	1.8	1.5
15	.0	.0	.1	.0	.0	.1	.0	.7	.1	.1	.1	.0	.0	.0	.0	1.3	.2	.1	.1	.3
16	1.0	1.4	1.3	1.7	4.1	3.8	4.1	1.6	.3	.1	.0	.2	.2	.0	2.8	1.1	.4	.2	.2	.5
17	2.2	4.3	5.6	6.1	2.6	1.9	2.5	.0	.1	.1	.0	.2	.3	.0	2.4	1.7	.7	.3	.3	.6
18	2.3	5.0	5.2	5.7	2.8	2.1	3.4	.0	.1	.1	.0	.3	.3	.0	3.2	2.3	1.1	.6	.5	.9
19	2.0	4.2	3.8	4.7	4.6	3.8	4.8	.0	.1	.1	.1	.3	.4	.0	4.3	2.5	1.0	.5	.5	1.0
20	.4	.2	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0
21	.0	.0	.5	.2	.3	.6	.0	2.0	.5	.3	.2	.0	.1	.0	.0	.5	1.7	2.1	4.7	4.4

JOB: SR99 AND 188TH ST 2010 sdn RUN: SR99 & 188TH ST. 2010 sdn

DATE : 5/20/96
TIME : 10:30:47

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC21 100	REC22 100	REC23 170	REC24 170	REC25 170	REC26 190	REC27 190	REC28 190
1	.2	.0	1.5	.6	.3	.2	.5	1.2
2	.2	.0	2.2	1.1	.6	.4	.8	1.7
3	.2	.0	2.5	1.1	.5	.5	1.0	2.4
4	.1	.0	.2	.1	.0	.0	.0	.2
5	.5	1.5	.6	1.8	2.3	6.1	5.7	4.7
6	.1	.9	1.3	2.0	2.3	1.4	1.1	.4
7	.0	.0	.1	.0	.0	.0	.1	.1
8	.2	1.9	2.4	4.1	4.6	3.0	2.3	.7
9	.1	.9	.5	.1	.0	.0	.1	.1
10	.1	.6	.6	1.5	1.9	2.0	1.7	.7
11	.3	.0	1.4	.5	.2	.3	.6	1.6
12	.5	.0	.2	.1	.0	.2	.2	.1
13	.7	.0	.2	.1	.0	.3	.3	.2
14	.6	.0	.1	.0	.0	.1	.2	.1
15	.1	.0	.1	.0	.0	.1	.1	.1
16	1.3	1.7	.2	.2	.2	.0	.1	.3
17	1.4	3.4	.1	.3	.2	.0	.1	.2
18	1.9	4.3	.1	.3	.3	.0	.1	.2
19	2.4	4.5	.2	.4	.3	.1	.1	.3
20	.1	.3	.0	.0	.0	.0	.0	.0
21	3.6	1.6	.5	.1	.1	.2	.3	.3

JOB: SR99 AND 188TH ST 2010 nutl RUN: SR99 & 188TH ST. 2010 nutl

DATE : 5/20/96
TIME : 10:31: 9

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

SITE & METEOROLOGICAL VARIABLES

VS = .0 CM/S	VD = .0 CM/S	Z0 = 175. CM		
U = 1.0 M/S	CLAS = 5 (E)	ATIM = 60. MINUTES	MIXH = 626. M	AMB = 5.0 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. SR99 NB Approach	9.1	-306.2	9.1	-7.3	299.	360.	AG	2561.	28.3	.0	12.0		
2. SR99 NB Queue	9.1	-7.3	9.1	-830.9	824.	180.	AG	1023.	100.0	.0	6.0	1.38	137.3
3. SR99 NB Queue Left	3.1	-7.3	3.1	-432.8	426.	180.	AG	1344.	100.0	.0	6.0	1.45	70.9
4. SR99 NB Queue RT	13.5	-7.3	13.5	-56.5	49.	180.	AG	356.	100.0	.0	3.0	.43	8.2
5. SR99 NB Depart	8.1	-1.2	8.1	310.6	312.	360.	AG	2845.	28.3	.0	12.0		
6. SR99 SB ApproachTH	-3.3	310.6	-3.3	11.8	299.	180.	AG	1539.	28.3	.0	12.0		
7. SR99 SB ApproachRT	-7.6	-310.6	-7.6	11.8	322.	360.	AG	181.	28.3	.0	9.0		
8. SR99 SB Queue th	-3.3	11.8	-3.3	840.0	828.	360.	AG	1121.	100.0	.0	6.0	1.47	138.0
9. SR99 SB Queue RT	-7.6	11.8	-7.6	38.3	27.	360.	AG	392.	100.0	.0	3.0	.23	4.4
10. SR99 SB Queue Left	1.4	11.8	1.4	306.1	294.	360.	AG	721.	100.0	.0	3.0	1.53	49.0
11. SR99 SB Depart	-4.5	2.9	-4.5	-306.2	309.	180.	AG	2502.	28.3	.0	15.0		
12. 188 EB Approach	-306.5	-3.0	-9.3	-3.0	297.	90.	AG	2360.	28.3	.0	12.0		
13. 188 EB Queue th	-9.3	-3.0	-907.0	-3.0	898.	270.	AG	1077.	100.0	.0	6.0	1.47	149.6
14. 188 EB Queue Left	-9.3	1.4	-501.8	1.4	492.	270.	AG	672.	100.0	.0	3.0	1.53	82.1
15. 188 EB Queue RT	-9.3	-7.7	-86.4	-7.7	77.	270.	AG	378.	100.0	.0	3.0	.67	12.8
16. 188 EB Depart	.2	-4.3	308.7	-4.3	309.	90.	AG	2035.	30.2	.0	12.0		
17. 188 WB Approach	308.7	7.7	11.4	7.7	297.	270.	AG	3012.	30.2	.0	12.0		
18. 188 WB Queue th	11.4	7.7	872.4	7.7	861.	90.	AG	1086.	100.0	.0	6.0	1.46	143.5
19. 188 WB Queue Left	11.4	1.8	416.2	1.9	405.	90.	AG	1362.	100.0	.0	6.0	1.46	67.5
20. 188 WB Queue RT	11.4	12.2	71.1	12.2	60.	90.	AG	165.	100.0	.0	3.0	.78	9.9
21. 188 WB Depart	3.3	8.4	-306.5	8.4	310.	270.	AG	2272.	30.2	.0	12.0		

JOB: SR99 AND 188TH ST 2010 nut1 RUN: SR99 & 188TH ST. 2010 nut1

DATE : 5/20/96
TIME : 10:31: 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
2. SR99 NB Queue	180	115	1.0	1523	1600	298.60	1	3
3. SR99 NB Queue Left	180	151	1.0	668	1600	298.60	1	3
4. SR99 NB Queue RT	180	80	1.0	369	1600	298.60	1	3
8. SR99 SB Queue th	180	126	1.0	1335	1600	298.60	1	3
9. SR99 SB Queue RT	180	88	1.0	181	1600	298.60	1	3
10. SR99 SB Queue Left	180	162	1.0	204	1600	298.60	1	3
13. 188 EB Queue th	180	121	1.0	1462	1600	298.60	1	3
14. 188 EB Queue Left	180	151	1.0	354	1600	298.60	1	3
15. 188 EB Queue RT	180	85	1.0	544	1600	298.60	1	3
18. 188 WB Queue th	180	122	1.0	1422	1600	298.60	1	3
19. 188 WB Queue Left	180	153	1.0	622	1600	298.60	1	3
20. 188 WB Queue RT	180	37	1.0	968	1600	298.60	1	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC 1 WB1	14.5	17.5	1.8
2. REC 2 WB2	55.0	17.5	1.8
3. REC 3 WB3	155.0	14.5	1.8
4. REC 4 WB4	300.0	14.5	1.8
5. REC 5 WB5	300.0	-11.0	1.8
6. REC 6 WB6	155.0	-11.0	1.8
7. REC 7 WB7	55.0	-11.0	1.8
8. REC 8 NB1	19.0	-11.0	1.8
9. REC 9 NB2	19.0	-61.0	1.8
10. REC10 NB3	15.5	-161.0	1.8
11. REC11 NB4	15.5	-300.0	1.8
12. REC12 NB5	-13.0	-300.0	1.8
13. REC13 NB6	-13.0	-161.0	1.8
14. REC14 NB7	-13.0	-61.0	1.8
15. REC15 EB1	-13.0	-13.0	1.8
16. REC16 EB2	-63.0	-13.0	1.8
17. REC17 EB3	-163.0	-9.5	1.8
18. REC18 EB4	-300.0	-9.5	1.8
19. REC19 EB5	-300.0	15.0	1.8
20. REC20 EB6	-163.0	15.0	1.8
21. REC21 EB7	-63.0	15.0	1.8
22. REC22 SB1	-13.0	15.0	1.8
23. REC23 SB2	-13.0	65.0	1.8
24. REC24 SB3	-13.0	165.0	1.8
25. REC25 SB4	-13.0	300.0	1.8
26. REC26 SB5	14.5	300.0	1.8
27. REC27 SB6	14.5	165.0	1.8
28. REC28 SB7	14.5	65.0	1.8

JOB: SR99 AND 188TH ST 2010 nut1 RUN: SR99 & 188TH ST. 2010 nut1

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.	*	14.7	6.2	5.1	5.0	13.4	13.5	14.9	19.9	16.0	20.6	21.3	16.7	16.3	15.9	21.2	13.6	13.0	12.8	5.0	5.1
10.	*	8.2	5.1	5.0	5.0	13.2	13.3	13.6	15.1	10.4	11.5	11.4	20.5	20.1	18.1	23.2	15.4	13.2	12.8	5.0	5.4
20.	*	5.6	5.0	5.0	5.0	12.7	13.4	13.6	13.7	8.9	7.8	7.3	18.8	19.1	17.7	19.0	16.3	13.9	13.1	5.3	5.9
30.	*	5.3	5.0	5.1	5.0	12.3	13.7	13.8	13.9	8.8	7.3	6.6	17.1	17.5	18.0	14.8	16.5	14.7	13.8	5.6	6.5
40.	*	5.2	5.0	5.1	5.1	12.2	14.4	14.5	14.6	8.9	7.4	6.6	15.8	16.6	18.3	12.9	16.6	15.6	14.6	5.8	6.9
50.	*	5.2	5.0	5.2	5.1	12.2	15.3	15.4	15.6	9.2	7.5	6.2	14.5	15.8	18.2	13.6	17.2	16.4	15.8	6.1	6.9
60.	*	5.1	5.0	5.2	5.1	12.4	16.5	16.6	16.8	9.5	7.1	5.6	13.5	15.2	17.9	16.5	18.0	17.6	17.2	6.3	6.8
70.	*	5.2	5.2	5.8	5.3	13.1	18.6	18.9	19.0	9.7	6.3	5.3	12.8	13.8	17.7	20.8	19.5	20.1	19.5	6.5	6.8
80.	*	8.2	7.9	9.5	7.3	12.4	19.1	20.2	20.4	8.4	5.5	5.0	12.6	13.0	16.4	24.5	21.3	23.2	22.7	9.6	10.2
90.	*	16.2	15.6	18.1	12.2	9.3	14.2	15.5	15.9	6.1	5.1	5.0	12.5	12.7	13.9	21.6	17.5	20.7	20.2	16.9	17.2
100.	*	21.0	20.5	23.2	15.6	6.1	7.7	8.2	8.3	5.1	5.0	5.0	12.1	12.5	12.6	15.4	11.0	11.8	11.2	19.5	20.0
110.	*	19.6	19.4	21.3	15.6	5.1	5.5	5.5	5.5	5.0	5.0	5.0	11.4	12.5	12.5	13.1	8.8	7.6	7.1	17.1	17.8
120.	*	17.7	17.5	19.0	14.9	5.1	5.2	5.2	5.2	5.0	5.1	5.0	11.0	13.0	13.0	13.4	8.6	7.2	6.7	15.5	16.0
130.	*	16.4	16.2	17.5	14.6	5.1	5.1	5.1	5.1	5.0	5.2	5.0	10.8	13.5	13.5	13.9	8.7	7.2	6.5	14.4	15.0
140.	*	15.4	15.0	16.2	14.3	5.1	5.1	5.1	5.1	5.0	5.2	5.0	11.0	14.4	14.4	14.8	9.0	7.4	6.1	13.3	14.6
150.	*	14.7	14.5	15.4	14.4	5.0	5.1	5.1	5.1	5.0	5.2	5.0	11.3	15.6	15.7	15.9	9.3	6.9	5.6	12.4	13.7
160.	*	15.2	14.1	15.0	14.6	5.0	5.0	5.0	5.3	5.2	5.9	5.3	11.6	17.1	17.3	17.6	9.6	6.2	5.2	11.6	12.5
170.	*	19.4	14.2	14.8	14.8	5.0	5.0	5.2	8.0	7.6	9.4	7.4	11.0	17.5	18.7	18.9	8.3	5.4	5.0	11.4	11.9
180.	*	27.8	16.1	15.1	15.0	5.0	5.1	6.8	15.8	14.4	17.5	12.2	8.3	12.8	14.2	14.5	6.0	5.0	5.0	11.4	11.5
190.	*	28.0	18.8	15.4	15.0	5.0	5.6	9.7	20.6	19.1	22.2	15.3	5.6	7.3	7.7	7.8	5.0	5.0	5.0	11.1	11.4
200.	*	20.5	20.1	16.6	15.3	5.3	6.4	10.7	19.4	18.0	20.7	15.0	5.0	5.3	5.4	5.5	5.0	5.0	5.0	10.5	11.2
210.	*	15.1	20.0	17.7	16.1	5.6	7.3	10.4	17.6	16.3	18.6	14.2	5.0	5.2	5.2	5.2	5.0	5.1	5.0	10.2	11.7
220.	*	13.1	20.1	18.8	17.4	6.1	7.4	9.9	16.3	15.1	17.0	13.5	5.0	5.1	5.1	5.1	5.0	5.1	5.0	9.9	12.3
230.	*	13.5	20.0	19.7	18.9	6.4	7.3	9.7	15.2	14.1	15.9	13.2	5.0	5.1	5.1	5.1	5.0	5.2	5.0	9.9	13.0
240.	*	15.5	20.1	21.1	20.5	6.7	7.2	9.6	14.7	13.7	15.1	13.2	5.0	5.1	5.1	5.1	5.0	5.2	5.0	10.1	14.1
250.	*	19.0	20.1	23.8	23.2	7.0	7.5	9.6	14.8	13.3	14.7	13.7	5.0	5.0	5.0	5.2	5.2	5.8	5.4	10.5	15.7
260.	*	21.6	20.0	25.9	26.1	9.9	10.5	12.3	17.8	13.3	14.5	14.2	5.0	5.0	5.1	7.8	7.5	8.9	7.3	10.6	16.4
270.	*	19.1	15.9	21.0	21.8	18.2	17.4	17.9	24.1	14.5	14.8	14.5	5.0	5.1	6.2	14.4	13.5	15.8	11.6	8.6	12.8
280.	*	13.9	10.0	11.5	11.2	22.0	21.4	19.4	24.8	16.3	15.1	14.6	5.1	5.6	8.0	18.4	17.5	19.6	13.8	5.8	7.5
290.	*	11.9	8.0	7.2	7.0	19.7	19.9	17.8	18.8	17.4	16.0	15.0	5.3	6.2	8.7	17.2	16.8	18.0	12.9	5.1	5.4
300.	*	12.3	8.1	6.9	6.3	17.6	18.2	18.3	14.7	17.8	16.8	15.7	5.7	6.7	8.8	15.6	15.4	16.1	12.0	5.0	5.2
310.	*	12.8	8.2	6.9	6.2	16.3	17.0	18.4	13.0	18.2	17.6	16.6	5.9	6.8	8.6	14.4	14.3	14.7	11.6	5.0	5.2
320.	*	13.4	8.5	6.9	5.7	15.0	16.2	17.9	14.2	18.8	18.7	18.0	6.1	6.8	8.3	13.5	13.3	13.7	11.4	5.0	5.1
330.	*	14.4	8.8	6.6	5.6	14.2	15.4	17.7	16.6	19.4	20.2	19.8	6.4	6.9	8.4	13.1	13.0	13.3	11.8	5.0	5.1
340.	*	16.2	9.2	6.1	5.3	13.5	14.4	17.6	20.0	20.3	22.5	22.1	6.5	7.1	8.5	13.2	12.6	12.8	12.0	5.0	5.0
350.	*	17.9	8.2	5.4	5.0	13.4	13.8	17.0	22.3	20.0	25.2	25.2	9.0	9.6	10.7	15.4	12.7	12.7	12.5	5.0	5.0
360.	*	14.7	6.2	5.1	5.0	13.4	13.5	14.9	19.9	16.0	20.6	21.3	16.7	16.3	15.9	21.2	13.6	13.0	12.8	5.0	5.1
MAX	*	28.0	20.5	25.9	26.1	22.0	21.4	20.2	24.8	20.3	25.2	25.2	20.5	20.1	18.7	24.5	21.3	23.2	22.7	19.5	20.0
DEGR.	*	190	100	260	260	280	280	80	280	340	350	350	10	10	170	80	80	80	80	100	100

JOB: SR99 AND 188TH ST 2010 nutl RUN: SR99 & 188TH ST. 2010 nutl

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.	6.0	13.4	12.7	11.4	8.8	8.3	13.0	14.2
10.	7.5	17.2	16.2	15.1	10.0	5.9	7.8	8.2
20.	8.6	16.6	15.3	15.1	9.5	5.2	5.6	5.6
30.	8.6	15.2	13.9	13.9	9.1	5.2	5.3	5.3
40.	8.3	14.2	12.9	12.9	9.1	5.2	5.2	5.2
50.	8.0	13.4	12.1	12.1	9.3	5.2	5.2	5.2
60.	8.1	13.0	11.8	11.8	9.8	5.1	5.1	5.1
70.	8.5	13.3	11.6	11.6	10.6	5.0	5.0	5.0
80.	11.7	17.1	11.5	11.4	11.1	5.0	5.0	5.1
90.	18.5	25.3	12.9	11.5	11.4	5.0	5.1	6.4
100.	19.9	27.0	15.3	12.0	11.5	5.1	5.6	8.7
110.	17.7	20.8	16.7	13.1	11.9	5.3	6.2	10.0
120.	17.4	15.9	16.6	14.1	12.5	5.7	7.1	9.8
130.	17.3	13.4	16.4	14.5	13.2	6.2	7.5	9.6
140.	16.8	13.9	16.7	15.2	14.3	6.6	7.5	9.1
150.	16.5	15.9	17.4	15.9	15.4	6.8	7.4	9.2
160.	16.4	19.7	18.5	17.5	17.0	7.0	7.7	9.5
170.	15.3	23.0	20.2	19.3	18.9	10.3	11.0	12.9
180.	13.1	20.4	16.5	16.2	16.0	17.5	18.4	19.6
190.	11.8	14.2	10.2	9.1	8.8	19.8	20.5	20.7
200.	11.7	12.0	8.1	6.9	6.3	17.3	17.9	18.0
210.	12.1	12.3	8.0	6.6	6.2	15.6	16.0	17.0
220.	12.7	12.8	8.1	6.7	6.0	14.2	14.9	16.4
230.	13.2	13.5	8.3	6.7	5.8	13.3	14.2	16.0
240.	14.3	14.7	8.4	6.5	5.6	12.5	13.6	15.3
250.	15.9	16.4	8.6	6.1	5.3	11.6	12.5	15.1
260.	17.2	17.7	7.9	5.5	5.1	11.6	12.0	14.5
270.	13.9	14.2	6.0	5.1	5.0	11.6	11.7	12.7
280.	7.9	8.0	5.1	5.0	5.0	11.4	11.5	11.6
290.	5.5	5.5	5.0	5.0	5.0	10.7	11.3	11.3
300.	5.2	5.2	5.0	5.0	5.0	10.5	11.9	11.9
310.	5.2	5.2	5.0	5.0	5.0	10.2	12.5	12.5
320.	5.1	5.1	5.0	5.0	5.0	9.9	13.2	13.2
330.	5.1	5.1	5.0	5.0	5.0	9.7	14.4	14.4
340.	5.0	5.2	5.2	5.2	5.1	9.8	15.9	16.1
350.	5.1	7.4	7.3	6.9	6.2	9.8	16.7	17.6
360.	6.0	13.4	12.7	11.4	8.8	8.3	13.0	14.2
MAX	19.9	27.0	20.2	19.3	18.9	19.8	20.5	20.7
DEGR.	100	100	170	170	170	190	190	190

THE HIGHEST CONCENTRATION OF 28.00 PPM OCCURRED AT RECEPTOR REC1 .

JOB: SR99 AND 188TH ST 2010 nutl RUN: SR99 & 188TH ST. 2010 nutl

DATE : 5/20/96
TIME : 10:31: 9

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1 190	REC2 100	REC3 260	REC4 260	REC5 280	REC6 280	REC7 80	REC8 280	REC9 340	REC10 350	REC11 350	REC12 10	REC13 10	REC14 170	REC15 80	REC16 80	REC17 80	REC18 80	REC19 100	REC20 100
1	2.8	.0	.2	.2	.0	.1	.0	1.6	2.8	5.1	5.4	1.9	1.4	1.8	.9	.2	.1	.0	.2	.2
2	3.8	.0	.3	.3	.0	.1	.0	1.8	3.0	5.1	5.5	2.3	1.7	2.8	1.0	.2	.1	.0	.3	.3
3	4.7	.0	.4	.3	.1	.1	.0	1.4	2.3	4.0	4.7	3.9	3.1	4.1	1.8	.3	.1	.1	.3	.4
4	.5	.0	.1	.0	.0	.0	.0	.8	1.3	.1	.0	.0	.1	.0	.2	.1	.0	.0	.0	.1
5	2.4	.0	.2	.1	.3	.4	.0	.0	.7	.6	.3	.3	.8	.0	.1	.4	.3	.3	.1	.1
6	.0	.0	.0	.0	.1	.1	.0	.0	.5	.4	.2	.1	.3	.0	.0	.1	.1	.1	.0	.0
7	.1	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.4	.4	.4	.2	.0	.0	.0	.0	.0
8	.0	.0	.1	.0	.3	.3	.0	.0	1.1	1.1	.6	.5	.9	.0	.0	.1	.3	.3	.0	.1
9	.0	.0	.0	.0	.0	.1	.0	.0	.1	.1	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
10	.0	.0	.0	.0	.2	.2	.0	.0	.5	.4	.2	.2	.4	.0	.0	.1	.2	.2	.0	.0
11	2.3	.0	.3	.2	.1	.1	.0	1.3	1.0	1.7	2.2	4.7	4.4	4.6	2.1	.5	.1	.1	.2	.3
12	.0	.0	.6	.3	.2	.5	.0	2.5	.2	.2	.2	.0	.1	.0	.0	1.9	4.6	4.9	2.1	1.7
13	.0	.0	1.1	.6	.5	.9	.0	3.9	.3	.3	.3	.0	.1	.0	.0	2.2	5.3	5.7	2.8	2.2
14	.0	.0	.5	.2	.2	.5	.0	1.9	.2	.2	.1	.0	.0	.0	.0	.6	1.8	2.1	1.8	1.5
15	.0	.0	.1	.0	.0	.1	.0	.7	.1	.1	.1	.0	.0	.0	.0	1.3	.2	.1	.1	.3
16	1.1	1.6	1.5	1.9	4.5	4.1	4.4	1.7	.3	.1	.0	.2	.3	.0	3.1	1.2	.4	.2	.3	.6
17	1.8	4.6	6.0	6.5	2.8	2.1	2.7	.0	.1	.1	.0	.3	.3	.0	2.6	1.8	.7	.3	.3	.6
18	1.8	4.9	5.1	5.6	2.8	2.1	3.3	.0	.1	.1	.0	.3	.3	.0	3.1	2.3	1.0	.6	.5	.9
19	1.3	4.2	3.8	4.7	4.6	3.8	4.8	.0	.1	.1	.1	.3	.4	.0	4.3	2.4	1.0	.5	.5	1.0
20	.4	.2	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0
21	.0	.0	.5	.2	.3	.7	.0	2.1	.5	.3	.2	.1	.1	.0	.0	.5	1.8	2.2	5.0	4.7

JOB: SR99 AND 188TH ST 2010 nutl

RUN: SR99 & 188TH ST. 2010 nutl

DATE : 5/20/96
TIME : 10:31: 9

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

LINK #	CO/LINK (PPM) ANGLE (DEGREES) REC21 100	REC22 100	REC23 170	REC24 170	REC25 170	REC26 190	REC27 190	REC28 190
1	.2	.0	1.5	.6	.3	.2	.5	1.2
2	.2	.0	2.2	1.1	.6	.4	.8	1.7
3	.2	.0	2.5	1.1	.5	.5	1.0	2.4
4	.1	.0	.2	.1	.0	.0	.0	.2
5	.4	1.5	.6	1.7	2.2	6.0	5.7	4.7
6	.1	.9	1.3	2.0	2.3	1.4	1.1	.4
7	.0	.0	.1	.0	.0	.0	.1	.1
8	.2	1.9	2.4	4.1	4.6	3.0	2.3	.7
9	.1	.9	.5	.1	.0	.0	.1	.1
10	.1	.6	.6	1.5	1.9	2.0	1.7	.7
11	.3	.0	1.5	.5	.3	.3	.7	1.7
12	.5	.0	.2	.1	.0	.2	.2	.1
13	.6	.0	.2	.1	.0	.3	.3	.2
14	.6	.0	.1	.0	.0	.1	.2	.1
15	.1	.0	.1	.0	.0	.1	.1	.1
16	1.4	1.9	.3	.2	.2	.0	.1	.3
17	1.5	3.6	.1	.3	.3	.0	.1	.2
18	1.9	4.2	.1	.3	.3	.0	.1	.2
19	2.4	4.5	.2	.4	.3	.1	.1	.3
20	.1	.3	.0	.0	.0	.0	.0	.0
21	3.9	1.7	.5	.1	.1	.2	.3	.3

CAL3QHC: LINE SOURCE DISPERSION MODEL - VERSION 2.0 Dated 95221

JOB: SR99 AND 188TH ST 2010 nut2 RUN: SR99 & 188TH ST. 2010 nut2

DATE : 5/20/96
TIME : 10:31:31

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

SITE & METEOROLOGICAL VARIABLES

VS = .0 CM/S VD = .0 CM/S Z0 = 175. CM
U = 1.0 M/S CLAS = 5 (E) ATIM = 60. MINUTES MIXH = 626. M AMB = 5.0 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. SR99 NB Approach	9.1	-306.2	9.1	-7.3	299.	360.	AG	2675.	28.3	.0	12.0		
2. SR99 NB Queue	9.1	-7.3	9.1	-1047.9	1041.	180.	AG	1041.	100.0	.0	6.0	1.52	173.4
3. SR99 NB Queue Left	3.1	-7.3	3.1	-449.5	442.	180.	AG	1344.	100.0	.0	6.0	1.47	73.7
4. SR99 NB Queue RT	13.5	-7.3	13.5	-58.7	51.	180.	AG	365.	100.0	.0	3.0	.45	8.6
5. SR99 NB Depart	8.1	-1.2	8.1	310.6	312.	360.	AG	2976.	28.3	.0	12.0		
6. SR99 SB ApproachTH	-3.3	310.6	-3.3	11.8	299.	180.	AG	1647.	28.3	.0	12.0		
7. SR99 SB ApproachRT	-7.6	-310.6	-7.6	11.8	322.	360.	AG	184.	28.3	.0	9.0		
8. SR99 SB Queue th	-3.3	11.8	-3.3	987.6	976.	360.	AG	1121.	100.0	.0	6.0	1.57	162.6
9. SR99 SB Queue RT	-7.6	11.8	-7.6	38.8	27.	360.	AG	392.	100.0	.0	3.0	.23	4.5
10. SR99 SB Queue Left	1.4	11.8	1.4	367.2	355.	360.	AG	721.	100.0	.0	3.0	1.67	59.2
11. SR99 SB Depart	-4.5	2.9	-4.5	-306.2	309.	180.	AG	2604.	28.3	.0	15.0		
12. 188 EB Approach	-306.5	-3.0	-9.3	-3.0	297.	90.	AG	2515.	28.3	.0	12.0		
13. 188 EB Queue th	-9.3	-3.0	-1058.6	-3.0	1049.	270.	AG	1059.	100.0	.0	6.0	1.54	174.9
14. 188 EB Queue Left	-9.3	1.4	-562.1	1.4	553.	270.	AG	672.	100.0	.0	3.0	1.61	92.1
15. 188 EB Queue RT	-9.3	-7.7	-85.7	-7.7	76.	270.	AG	369.	100.0	.0	3.0	.66	12.7
16. 188 EB Depart	.2	-4.3	308.7	-4.3	309.	90.	AG	2189.	28.3	.0	12.0		
17. 188 WB Approach	308.7	7.7	11.4	7.7	297.	270.	AG	3171.	28.3	.0	12.0		
18. 188 WB Queue th	11.4	7.7	1098.0	7.7	1087.	90.	AG	1086.	100.0	.0	6.0	1.60	181.1
19. 188 WB Queue Left	11.4	1.8	479.4	1.9	468.	90.	AG	1379.	100.0	.0	6.0	1.61	78.0
20. 188 WB Queue RT	11.4	12.2	72.1	12.2	61.	90.	AG	165.	100.0	.0	3.0	.79	10.1
21. 188 WB Depart	3.3	8.4	-306.5	8.4	310.	270.	AG	2423.	28.3	.0	12.0		

JOB: SR99 AND 188TH ST 2010 nut2 RUN: SR99 & 188TH ST. 2010 nut2

DATE : 5/20/96
TIME : 10:31:31

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
2. SR99 NB Queue	180	117	1.0	1620	1600	298.60	1	3
3. SR99 NB Queue Left	180	151	1.0	678	1600	298.60	1	3
4. SR99 NB Queue RT	180	82	1.0	376	1600	298.60	1	3
8. SR99 SB Queue th	180	126	1.0	1425	1600	298.60	1	3
9. SR99 SB Queue RT	180	88	1.0	184	1600	298.60	1	3
10. SR99 SB Queue Left	180	162	1.0	222	1600	298.60	1	3
13. 188 EB Queue th	180	119	1.0	1591	1600	298.60	1	3
14. 188 EB Queue Left	180	151	1.0	372	1600	298.60	1	3
15. 188 EB Queue RT	180	83	1.0	552	1600	298.60	1	3
18. 188 WB Queue th	180	122	1.0	1560	1600	298.60	1	3
19. 188 WB Queue Left	180	155	1.0	626	1600	298.60	1	3
20. 188 WB Queue RT	180	37	1.0	985	1600	298.60	1	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. REC 1 WB1	14.5	17.5	1.8
2. REC 2 WB2	55.0	17.5	1.8
3. REC 3 WB3	155.0	14.5	1.8
4. REC 4 WB4	300.0	14.5	1.8
5. REC 5 WB5	300.0	-11.0	1.8
6. REC 6 WB6	155.0	-11.0	1.8
7. REC 7 WB7	55.0	-11.0	1.8
8. REC 8 NB1	19.0	-11.0	1.8
9. REC 9 NB2	19.0	-61.0	1.8
10. REC10 NB3	15.5	-161.0	1.8
11. REC11 NB4	15.5	-300.0	1.8
12. REC12 NB5	-13.0	-300.0	1.8
13. REC13 NB6	-13.0	-161.0	1.8
14. REC14 NB7	-13.0	-61.0	1.8
15. REC15 EB1	-13.0	-13.0	1.8
16. REC16 EB2	-63.0	-13.0	1.8
17. REC17 EB3	-163.0	-9.5	1.8
18. REC18 EB4	-300.0	-9.5	1.8
19. REC19 EB5	-300.0	15.0	1.8
20. REC20 EB6	-163.0	15.0	1.8
21. REC21 EB7	-63.0	15.0	1.8
22. REC22 SB1	-13.0	15.0	1.8
23. REC23 SB2	-13.0	65.0	1.8
24. REC24 SB3	-13.0	165.0	1.8
25. REC25 SB4	-13.0	300.0	1.8
26. REC26 SB5	14.5	300.0	1.8
27. REC27 SB6	14.5	165.0	1.8
28. REC28 SB7	14.5	65.0	1.8

JOB: SR99 AND 188TH ST 2010 nut2   RUN: SR99 & 188TH ST. 2010 nut2

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.	15.2	6.4	5.1	5.0	13.5	13.6	15.1	20.3	16.6	21.1	21.9	17.1	16.7	16.5	21.7	13.7	13.1	12.9	5.0	5.1
10.	8.5	5.1	5.0	5.0	13.2	13.3	13.6	15.1	10.6	11.6	11.5	21.0	20.6	18.4	23.7	15.6	13.4	13.0	5.1	5.5
20.	5.7	5.0	5.0	5.0	12.8	13.4	13.6	13.7	8.8	7.9	7.3	19.2	19.3	18.2	19.2	16.4	14.0	13.4	5.4	6.1
30.	5.3	5.0	5.1	5.0	12.4	13.8	13.9	14.0	8.8	7.4	6.7	17.2	17.8	18.5	15.0	16.6	14.8	13.8	5.6	6.6
40.	5.2	5.0	5.1	5.1	12.2	14.3	14.4	14.5	8.9	7.4	6.6	16.0	16.8	18.6	13.3	16.7	15.9	14.8	5.9	6.9
50.	5.2	5.0	5.2	5.1	12.3	15.4	15.4	15.6	9.2	7.5	6.3	14.8	16.0	18.4	13.8	17.4	16.6	16.0	6.1	6.9
60.	5.1	5.0	5.2	5.1	12.5	16.6	16.6	16.8	9.5	7.2	5.8	14.0	15.3	18.0	16.5	18.4	17.9	17.4	6.3	6.9
70.	5.2	5.2	5.8	5.3	13.3	18.8	18.9	19.0	9.8	6.5	5.4	13.0	14.2	17.9	21.1	19.8	20.3	19.7	6.5	6.9
80.	8.3	8.1	9.6	7.6	13.2	19.4	20.4	20.6	8.7	5.6	5.1	12.8	13.4	17.0	24.8	21.6	23.7	23.1	9.6	10.3
90.	16.5	16.0	18.6	13.1	10.3	14.7	15.8	16.1	6.3	5.1	5.0	12.7	13.0	14.4	22.1	17.9	21.1	20.4	17.2	17.4
100.	21.2	20.5	23.4	16.5	6.4	7.9	8.3	8.4	5.1	5.0	5.0	12.2	12.7	12.8	15.6	11.0	12.0	11.3	19.6	20.3
110.	19.6	19.3	21.5	15.8	5.2	5.5	5.5	5.5	5.0	5.0	5.0	11.4	12.6	12.6	13.2	8.9	7.6	7.1	17.2	18.1
120.	17.7	17.5	18.9	14.8	5.1	5.2	5.2	5.2	5.0	5.1	5.0	11.2	13.1	13.1	13.5	8.6	7.3	6.7	15.7	16.2
130.	16.4	16.2	17.4	14.5	5.1	5.1	5.1	5.1	5.0	5.2	5.0	10.9	13.7	13.7	14.1	8.9	7.3	6.5	14.6	15.3
140.	15.4	15.1	16.2	14.3	5.1	5.1	5.1	5.1	5.0	5.2	5.0	11.0	14.6	14.6	15.0	9.1	7.4	6.1	13.4	14.7
150.	14.7	14.5	15.4	14.4	5.0	5.1	5.1	5.1	5.0	5.3	5.0	11.3	15.8	15.8	16.1	9.5	7.0	5.7	12.4	13.9
160.	15.2	14.1	15.0	14.5	5.0	5.0	5.0	5.3	5.3	6.0	5.4	11.7	17.4	17.7	17.9	9.6	6.3	5.4	11.8	12.7
170.	19.7	14.3	14.9	14.8	5.0	5.0	5.3	8.2	7.9	9.5	7.5	11.4	17.9	19.1	19.4	8.4	5.6	5.1	11.6	12.1
180.	28.4	16.2	15.2	15.0	5.0	5.1	7.1	16.1	14.9	17.9	12.6	8.7	13.2	14.5	15.1	6.1	5.1	5.0	11.5	11.7
190.	28.5	19.1	15.7	15.0	5.1	5.7	9.9	20.9	19.5	22.6	15.7	5.7	7.4	7.8	8.0	5.1	5.0	5.0	11.1	11.5
200.	20.8	20.2	16.7	15.4	5.4	6.5	10.7	19.7	18.3	21.2	15.3	5.0	5.4	5.4	5.5	5.0	5.0	5.0	10.5	11.3
210.	15.5	20.1	17.7	16.1	5.8	7.3	10.6	17.8	16.5	18.8	14.3	5.0	5.2	5.2	5.2	5.0	5.1	5.0	10.3	11.8
220.	13.3	20.3	18.8	17.5	6.1	7.5	10.1	16.4	15.2	17.2	13.6	5.0	5.1	5.1	5.1	5.0	5.1	5.0	9.9	12.4
230.	13.6	20.1	19.7	18.9	6.4	7.4	9.8	15.4	14.3	16.1	13.4	5.0	5.1	5.1	5.1	5.0	5.2	5.0	9.9	13.2
240.	15.8	20.2	21.2	20.5	6.7	7.4	9.8	14.8	13.8	15.3	13.4	5.0	5.1	5.1	5.1	5.0	5.2	5.0	10.0	14.1
250.	19.1	20.2	23.8	23.3	7.0	7.6	9.9	15.0	13.5	14.9	13.8	5.0	5.0	5.0	5.2	5.2	5.8	5.4	10.4	15.8
260.	21.7	20.2	26.0	26.1	10.1	10.6	12.4	18.0	13.5	14.7	14.4	5.0	5.0	5.1	7.9	7.6	9.1	7.4	10.8	16.5
270.	19.6	16.1	21.1	21.7	18.3	17.8	18.1	24.6	14.8	14.9	14.7	5.0	5.1	6.2	14.7	13.9	16.2	12.0	8.8	13.0
280.	14.1	10.1	11.5	11.3	21.9	21.6	19.5	24.8	16.9	15.4	14.8	5.1	5.7	8.2	18.6	17.5	19.9	13.9	6.0	7.5
290.	12.1	8.2	7.3	7.0	19.7	20.0	17.9	18.8	17.9	16.2	15.3	5.4	6.3	8.7	17.4	16.9	18.1	12.9	5.1	5.4
300.	12.5	8.2	6.9	6.3	17.7	18.3	18.3	14.9	18.2	17.1	16.0	5.8	6.7	8.7	15.7	15.5	16.3	12.1	5.0	5.2
310.	12.9	8.3	6.9	6.2	16.5	17.1	18.5	13.2	18.7	17.9	16.9	5.9	6.8	8.7	14.5	14.4	14.9	11.6	5.0	5.2
320.	13.7	8.7	7.1	5.7	15.1	16.3	18.2	14.3	19.4	18.9	18.2	6.1	6.8	8.4	13.6	13.5	13.9	11.5	5.0	5.1
330.	14.7	8.9	6.7	5.6	14.3	15.5	17.9	16.9	19.8	20.5	20.0	6.4	6.9	8.5	13.1	13.0	13.3	11.8	5.0	5.1
340.	16.6	9.2	6.2	5.4	13.7	14.6	17.8	20.2	20.6	22.8	22.6	6.6	7.1	8.4	13.1	12.7	12.9	12.1	5.0	5.0
350.	18.5	8.6	5.6	5.1	13.5	13.9	17.1	22.7	20.2	25.7	25.7	9.2	9.8	10.8	15.3	12.7	12.8	12.6	5.0	5.0
360.	15.2	6.4	5.1	5.0	13.5	13.6	15.1	20.3	16.6	21.1	21.9	17.1	16.7	16.5	21.7	13.7	13.1	12.9	5.0	5.1
MAX	28.5	20.5	26.0	26.1	21.9	21.6	20.4	24.8	20.6	25.7	25.7	21.0	20.6	19.1	24.8	21.6	23.7	23.1	19.6	20.3
DEGR.	190	100	260	260	280	280	80	280	340	350	350	10	10	170	80	80	80	80	100	100

JOB: SR99 AND 188TH ST 2010 nut2 RUN: SR99 & 188TH ST. 2010 nut2

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.	*	6.1	13.8	13.0	12.1	9.2	8.9	13.7	14.8
10.	*	7.8	17.4	16.6	15.6	10.9	6.2	7.9	8.4
20.	*	8.7	16.8	15.6	15.4	10.9	5.3	5.6	5.7
30.	*	8.7	15.4	14.1	14.1	10.6	5.2	5.3	5.3
40.	*	8.4	14.4	13.1	13.1	10.4	5.2	5.2	5.2
50.	*	8.1	13.6	12.3	12.3	10.5	5.2	5.2	5.2
60.	*	8.1	13.1	11.9	11.9	10.8	5.1	5.1	5.1
70.	*	8.7	13.4	11.7	11.7	11.2	5.0	5.0	5.0
80.	*	11.8	17.2	11.7	11.6	11.4	5.0	5.0	5.1
90.	*	18.7	25.8	13.3	11.7	11.6	5.0	5.1	6.6
100.	*	20.2	27.4	15.8	12.3	11.8	5.1	5.7	8.9
110.	*	17.8	20.8	16.8	13.4	12.1	5.4	6.4	10.1
120.	*	17.3	16.0	16.7	14.2	12.7	5.8	7.2	9.8
130.	*	17.6	13.8	16.6	14.7	13.5	6.3	7.6	9.6
140.	*	17.0	14.0	16.7	15.4	14.5	6.6	7.5	9.1
150.	*	16.8	16.2	17.6	16.1	15.6	6.8	7.4	9.2
160.	*	16.5	19.9	18.6	17.8	17.2	7.1	7.7	9.5
170.	*	15.5	23.4	20.5	19.8	19.1	10.4	11.1	13.1
180.	*	13.3	20.7	16.9	16.6	16.3	18.2	18.8	20.3
190.	*	12.0	14.4	10.4	9.2	9.0	20.3	20.9	21.0
200.	*	11.7	12.0	8.1	6.9	6.4	17.7	18.2	18.3
210.	*	12.2	12.3	8.1	6.6	6.2	15.9	16.3	17.3
220.	*	12.7	12.9	8.1	6.7	6.0	14.5	15.2	16.7
230.	*	13.4	13.7	8.4	6.7	5.8	13.4	14.3	16.2
240.	*	14.4	14.8	8.5	6.7	5.7	12.8	13.8	15.7
250.	*	15.9	16.3	8.7	6.2	5.4	12.0	12.7	15.3
260.	*	17.3	17.8	8.0	5.6	5.1	11.8	12.3	14.8
270.	*	14.1	14.4	6.1	5.1	5.0	11.9	12.0	13.1
280.	*	7.9	8.0	5.1	5.0	5.0	11.6	11.7	11.8
290.	*	5.5	5.5	5.0	5.0	5.0	11.4	11.5	11.5
300.	*	5.2	5.2	5.0	5.0	5.0	11.6	12.1	12.1
310.	*	5.2	5.2	5.0	5.0	5.0	11.4	12.6	12.6
320.	*	5.1	5.1	5.0	5.0	5.0	11.4	13.5	13.5
330.	*	5.1	5.1	5.0	5.0	5.0	11.3	14.7	14.7
340.	*	5.0	5.2	5.2	5.2	5.1	11.4	16.3	16.5
350.	*	5.1	7.4	7.3	7.0	6.2	11.0	17.2	18.1
360.	*	6.1	13.8	13.0	12.1	9.2	8.9	13.7	14.8
MAX	*	20.2	27.4	20.5	19.8	19.1	20.3	20.9	21.0
DEGR.	*	100	100	170	170	170	190	190	190

THE HIGHEST CONCENTRATION OF 28.50 PPM OCCURRED AT RECEPTOR REC1 .

JOB: SR99 AND 188TH ST 2010 nut2 RUN: SR99 & 188TH ST. 2010 nut2

DATE : 5/20/96
TIME : 10:31:31

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
	190	100	260	260	280	280	80	280	340	350	350	10	10	170	80	80	80	80	100	100
1	2.9	.0	.3	.2	.0	.1	.0	1.6	2.9	5.3	5.7	2.0	1.5	1.9	.9	.2	.1	.0	.2	.3
2	4.0	.0	.3	.3	.0	.1	.0	1.9	3.1	5.2	5.6	2.3	1.7	2.9	1.0	.2	.1	.0	.3	.3
3	4.7	.0	.4	.3	.1	.1	.0	1.4	2.3	4.0	4.7	3.9	3.1	4.1	1.8	.3	.1	.1	.3	.4
4	.5	.0	.1	.0	.0	.0	.0	.8	1.4	.1	.0	.1	.2	.0	.2	.1	.0	.0	.0	.1
5	2.5	.0	.2	.1	.3	.4	.0	.0	.7	.6	.3	.4	.8	.0	.1	.4	.4	.3	.1	.1
6	.0	.0	.0	.0	.1	.2	.0	.0	.5	.4	.2	.2	.3	.0	.0	.1	.2	.1	.0	.0
7	.1	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.4	.4	.4	.2	.0	.0	.0	.0	.0
8	.0	.0	.1	.0	.3	.3	.0	.0	1.1	1.1	.6	.5	1.0	.0	.0	.1	.3	.3	.0	.1
9	.0	.0	.0	.0	.0	.1	.0	.0	.1	.1	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
10	.0	.0	.0	.0	.2	.2	.0	.0	.5	.5	.2	.2	.5	.0	.0	.1	.2	.2	.0	.0
11	2.4	.0	.3	.2	.1	.1	.0	1.3	1.0	1.8	2.3	4.9	4.5	4.8	2.2	.6	.1	.1	.2	.3
12	.0	.0	.6	.3	.2	.5	.0	2.6	.2	.2	.2	.0	.1	.0	.0	2.0	4.9	5.3	2.2	1.8
13	.0	.0	1.1	.6	.5	.9	.0	3.8	.3	.3	.3	.0	.1	.0	.0	2.2	5.2	5.7	2.8	2.2
14	.0	.0	.5	.3	.2	.5	.0	1.9	.2	.2	.1	.0	.0	.0	.0	.6	1.8	2.1	1.8	1.5
15	.0	.0	.1	.0	.0	.1	.0	.6	.1	.1	.1	.0	.0	.0	.0	1.2	.2	.1	.1	.3
16	1.1	1.6	1.5	1.9	4.5	4.2	4.4	1.7	.3	.1	.0	.2	.3	.0	3.1	1.3	.4	.2	.3	.6
17	1.8	4.5	5.9	6.4	2.7	2.1	2.6	.0	.1	.1	.0	.2	.3	.0	2.6	1.8	.7	.3	.3	.6
18	1.8	4.9	5.1	5.6	2.8	2.1	3.4	.0	.1	.1	.0	.3	.3	.0	3.2	2.3	1.1	.6	.5	.9
19	1.3	4.3	3.9	4.7	4.6	3.8	5.0	.0	.1	.1	.1	.3	.4	.0	4.4	2.5	1.0	.5	.5	1.1
20	.4	.2	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0
21	.0	.0	.5	.2	.3	.7	.0	2.1	.5	.3	.2	.1	.1	.0	.0	.5	1.8	2.2	5.0	4.7

JOB: SR99 AND 188TH ST 2010 nut2 RUN: SR99 & 188TH ST. 2010 nut2

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC21 100	REC22 100	REC23 170	REC24 170	REC25 170	REC26 190	REC27 190	REC28 190
1	.2	.0	1.5	.7	.3	.2	.5	1.2
2	.2	.0	2.3	1.1	.6	.5	.8	1.8
3	.2	.0	2.5	1.1	.5	.5	1.0	2.4
4	.1	.0	.2	.1	.0	.0	.1	.2
5	.5	1.6	.6	1.8	2.3	6.3	5.9	4.9
6	.1	.9	1.4	2.2	2.4	1.5	1.2	.4
7	.0	.0	.1	.0	.0	.0	.1	.1
8	.2	1.9	2.4	4.1	4.6	3.0	2.3	.7
9	.1	.9	.5	.1	.0	.0	.1	.1
10	.1	.6	.6	1.5	1.9	2.0	1.7	.7
11	.3	.0	1.6	.6	.3	.3	.7	1.7
12	.6	.0	.2	.1	.0	.2	.2	.1
13	.6	.0	.2	.1	.0	.3	.3	.2
14	.6	.0	.1	.0	.0	.1	.2	.1
15	.1	.0	.1	.0	.0	.1	.1	.1
16	1.4	1.9	.3	.2	.2	.0	.1	.3
17	1.5	3.6	.1	.3	.3	.0	.1	.2
18	1.9	4.3	.1	.3	.3	.0	.1	.2
19	2.5	4.7	.2	.4	.3	.1	.1	.3
20	.1	.3	.0	.0	.0	.0	.0	.0
21	3.9	1.7	.5	.1	.1	.2	.3	.3