Technical Memorandum

AIR QUALITY IMPACT ASSESSMENT

Hartford Civic Center Redevelopment Project

Hartford, CT

Prepared under contract to:

State of Connecticut

Department of Economic Community Development

By:

FITZGERALD & HALLIDAY, INC.

72 Cedar Street

Hartford, Connecticut

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TABLE OF CONTENTS

Table of contents **1**
INTRODUCTION **1**
AIR QUALITY OVERVIEW **2**
AIR QUALITY ATTAINMENT – HARTFORD COUNTY **3**
AIR QUALITY ATTAINMENT DESIGNATIONS 3
MONITORED AIR QUALITY – HARTFORD COUNTY 3
PROJECT TRAFFIc IMPACTS **6**
EMISSIONS MODELING **7**
EMISSIONS MODEL RESULTS **11**
CONCLUSIONS **12**

INTRODUCTION

The Connecticut Department of Economic and Community Development (DECD), in cooperation with the Capitol City Economic Development Authority (CCEDA), is contributing state funds in support of a proposal by a private developer to redevelop a portion of the Hartford Civic Center (HCC). This redevelopment is the Proposed Action addressed in this technical memorandum. The HCC is located on approximately 11 acres at the intersection of Trumbull and Asylum Streets in downtown Hartford, Connecticut. The site is owned by Northland Two Pillars, LLC, and the developer of the project is Northland Investment Corporation (NIC).

The Proposed Action will entail demolition of the existing HCC retail and office space and new construction of a mixed-use development called *Town Square* (Figure ES-2). Construction of the Proposed Action will involve the four following components:

1. Renovation of the Trumbull Street block. The existing building systems, interior walls, and finishes will be demolished. The structural steel frame of the existing building will be retained and reused. The exterior facade will be replaced and the interior space will be completely renovated.

2. Construction of a new residential tower above the renovated space at Trumbull and Asylum Streets.

3. Renovation of the Asylum Street block. The existing parking garage will remain. Additional parking will be constructed above this, and new ground level retail space will be constructed, extending toward the street and terminating with a two-story retail anchor at the corner of Ann and Asylum Streets.

4. The two existing sky bridges (pedestrian walkways) over Asylum and Trumbull Streets will be demolished.

The Federal Clean Air Act established National Ambient Air Quality Standards (NAAQS) for six pollutants to protect public health and welfare. Carbon monoxide (CO), one of the six pollutants, is the one air quality parameter that could be affected by traffic associated with the HCC redevelopment.

The project as proposed will not trigger state or federal air permits; therefore a quantitative analysis such as included in this report is not required by regulatory agencies. However, it is anticipated that the HCC facility will generate concern about air pollution from increased vehicle activity. In order to address local air quality concerns, this microscale analysis for CO was conducted to determine if the Proposed Action would interfere with the maintenance of the NAAQS for CO.

AIR QUALITY OVERVIEW

The Clean Air Act of 1970 and subsequent Clean Air Act Amendments established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants to ensure the protection of human health and public welfare. NAAQS were established for: carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), lead (Pb), ozone, and particulate matter (PM). The Clean Air Act also required states to monitor air quality to determine if regions meet the NAAQS. If a region shows exceedances of any of the NAAQS, that part of the state is classified as nonattainment to that pollutant, and the State must develop an air quality plan, called a State Implementation Plan (SIP), that will bring that area into compliance.

For transportation projects and projects where increases in vehicular traffic are the greatest air quality concern, the criteria pollutants of concern are CO and ozone. The NAAQS for CO are a 1-hour average concentration of 35 parts per million (ppm) and an 8-hour average concentration of 9 ppm. The NAAQS for ozone is a one-hour average of 0.12 ppm.

AIR QUALITY ATTAINMENT – HARTFORD COUNTY

AIR QUALITY ATTAINMENT DESIGNATIONS

Project-related air quality impacts are assessed in light of existing ambient air quality and attainment status in the project area. The current air quality attainment designations for all NAAQS for Hartford County are:

Carbon Monoxide: The Hartford region, and entire state of Connecticut, is designated as attainment for CO. The Hartford region was officially redesignated to attainment on January 2, 1996. Prior to that time, the region was a CO nonattainment area. CO emissions controls implemented in the region have reduced CO emissions to acceptable levels.

Ozone: The entire state of Connecticut is designated as non-attainment for the 1-hour ozone standard. The Hartford region is classified as "serious non-attainment" for the 1-hour standard. As such, it had an attainment date of 1999. However, by 1999 the region still did not meet the ozone standard. In January 2001, the U.S. Environmental Protection Agency (EPA) extended the ozone attainment date to 2007.

PM: EPA has established NAAQS for two size ranges of PM. The Hartford region is currently in attainment of PM10 (particluate matter with a diameter of 10 microns or less). In July of 1997, EPA promulgated a new NAAQS for PM2.5 (particulate matter with a diameter of 2.5 microns or less. EPA is currently establishing a nationwide monitoring network for PM2.5 and will not make attainment designations until at least 2004.

NO2: The entire state of Connecticut is in attainment for NO2.

Pb: The entire state of Connecticut is in attainment for Pb.

SO2: The entire state of Connecticut is in attainment for SO2.

MONITORED AIR QUALITY – HARTFORD COUNTY

To determine pollutant concentrations, an air quality monitoring system is established to sample the ambient air and report the level of pollution over time. The reported levels are used to designate an area as attainment or nonattainment for each pollutant. In the Hartford region, pollutants are monitored at three locations. Two CO monitors are located in Hartford, on Flatbush Avenue and on Morgan Street. One ozone monitor is located in McAuliffe Park in East Hartford.

Monitored air quality data is documented and reported by the Connecticut Department of Environmental Protection (DEP). (Connecticut Annual Air Quality Summary, State of Connecticut Department of Environmental Protection, August 2001). Data collected at the monitoring sites help establish background air quality levels. The reported status of the two pollutants of concern for this project is described below.

Carbon Monoxide

CO is the most important transportation-related pollutant of concern at the local level. CO is a colorless, odorless, gas formed from incomplete combustion of carbon-containing fuels and from oxidation of hydrocarbons in the atmosphere. CO gas does not persist in the atmosphere; it is converted by natural processes to carbon dioxide, and this is done quickly enough to prevent any general buildup. However, CO can potentially reach dangerous levels in local areas, such as city-street canyons with heavy auto traffic and little wind. These are called CO hotspots. DEP locates CO monitors throughout the state specifically to measure CO levels from high traffic areas in populated locations.

DEP's air quality summary demonstrates that CO concentrations are not problematic in the Hartford region. Specifically:

- Since 1975, ambient levels of carbon monoxide statewide have decreased by 66%.
- The primary 8-hour standard of 9 ppm was not exceeded at any of the CO monitoring sites in Connecticut during 1999. In addition, there were no exceedances of the primary 1-hour standard of 35 ppm at any site.
- At the two CO monitors in the Hartford area, the maximum average 8-hour average CO concentration was 3.3 ppm and 5.6 ppm, well below the 8-hour standard of 9.0 ppm. The maximum 1-hour average concentrations were 10.5 and 12.1 ppm, well below the 1-hour standard of 35.0 ppm.
- Using 36-month averaging periods, DEP has shown that CO levels are trending downward at all the sites in the state.
- The last measured CO exceedance in Connecticut occurred in 1995.

Ozone

Another pollutant associated with transportation sources is ozone. Ozone is a gas with a faintly bluish color. At high concentrations it irritates the mucous membranes of the respiratory system and can cause impaired lung function. Ozone is a highly reactive form of oxygen and the principal component of smog. It is not emitted into the air directly, but rather formed by chemical reactions in the air from two other pollutants: volatile organic compounds (VOC) and nitrogen oxides (NOx). Energy from sunlight is needed for these chemical reactions. This accounts for the daily variation in ozone levels, which increase during the day and decrease at night. In addition to transportation sources, VOC and NOX are emitted from numerous large and small sources.

During summer months, state and local governments monitor ozone levels and issue a color-coded daily report to describe levels. When ozone concentrations reach high levels, a Code Red is forecast, and residents are advised to limit outdoor activities.

DEP's air quality summary documents ozone concentrations in the Hartford region. Specifically:

- Since 1975, ambient levels of ozone statewide have decreased by 60%.
- Hartford's ozone monitor exceeded the ozone NAAQS on two days in 1999.
- A large percentage of the peak ozone concentrations in Connecticut are caused by the transport of ozone and/or precursors (i.e., VOC or NOx) from the New York City area and from other points west and south of Connecticut. The highest ozone levels in Connecticut occur on days with persistent winds out of the southwest. During the summer, these winds are usually accompanied by high temperatures and bright sunshine, which are important to the production of ozone. It is the combination of these factors that often produces unhealthful ozone levels in Connecticut.

PROJECT TRAFFIC IMPACTS

Air quality impacts from mobile sources (traffic) are directly related to traffic conditions. A traffic impact report was prepared as of the Environmental Impact Evaluation for the proposed Hartford Civic Center (Fitzgerald & Halliday, Inc., 2003). The traffic report projected that an increased number of vehicle trips would enter or leave the proposed development site daily. The increase in trips from No-Action to Proposed Action was estimated to be approximately 147 vehicle trips during the AM peak hour and 134 vehicle trips during the PM peak hour. Capacity and queuing analyses were done for 2006 (the year Hartford Civic Center redevelopment would open for business) for the No Action and Proposed Action scenarios at six adjacent intersections. Those results were used to assess the air quality impacts of the proposed project.

As background growth and site-generated trips flow into the transportation network surrounding the site, traffic operations will slightly decline at the Asylum Street & Trumbull Street and the Church Street & Trumbull Street intersections. However, the estimated level of service (LOS) at the study intersections was similar for the future no-build and the future build condition. As such, the traffic analysis concluded that there are no significant adverse traffic impacts attributable to the Proposed Action.

EMISSIONS MODELING

The criteria pollutants of concern from the HCC redevelopment project are ozone and CO. Ozone is formed in the presence of sunlight by a chemical reaction from volatile organic hydrocarbons and oxides of nitrogen. This reaction occurs slowly, and typically downwind of the emissions source. Ozone effects, therefore, are analyzed on a regional basis through the regional air quality conformity determination. CO, however, is examined at the site level by predicting CO emissions within a project area. This is accomplished through microscale modeling, which was performed for the Proposed Action using the CAL3QHC model.

The Federal NAAQS for CO are a one-hour average concentration of 35 parts per million (ppm) and an eight-hour average concentration of 9 ppm. Changes in CO levels would be considered unacceptable if they cause levels to exceed the one- or eight-hour standards.

In order to assess the CO impacts on air quality from the project, a microscale air quality analysis was conducted to calculate CO concentrations under 2006 No Action and Proposed Action conditions at sensitive receptor locations in the vicinity of the HCC intersections and to determine if operation of the proposed HCC facility will create violations of federal CO standards. The microscale analysis was conducted using the U.S. Environmental Protection Agency (EPA) MOBILE5b emissions factor model and the CALVIEW2 (Windows version of CAL3QHC Version 2) model.

CAL3QHC is a line source dispersion model that applies the Gaussian dispersion theory to traffic inputs and meteorological conditions to predict CO concentrations from vehicles on the roadway. Air quality impacts from mobile sources are modeled by analyzing queue links and free flow links. Queue links are those that simulate vehicles idling at the stop bar of an intersection. Free flow links simulate vehicles traveling through an intersection. Receptor locations are selected based on where people may be located who may be exposed to the CO produced by vehicles in the area (e.g., sidewalks, outdoor eating establishments). Each receptor was located at a height of 5.9 feet, per EPA guidance. Figure 1: Hartford Civic Center Receptor Locations presents an aerial view of the site. Each receptor location in the figure is indicated by the letter 'R'.

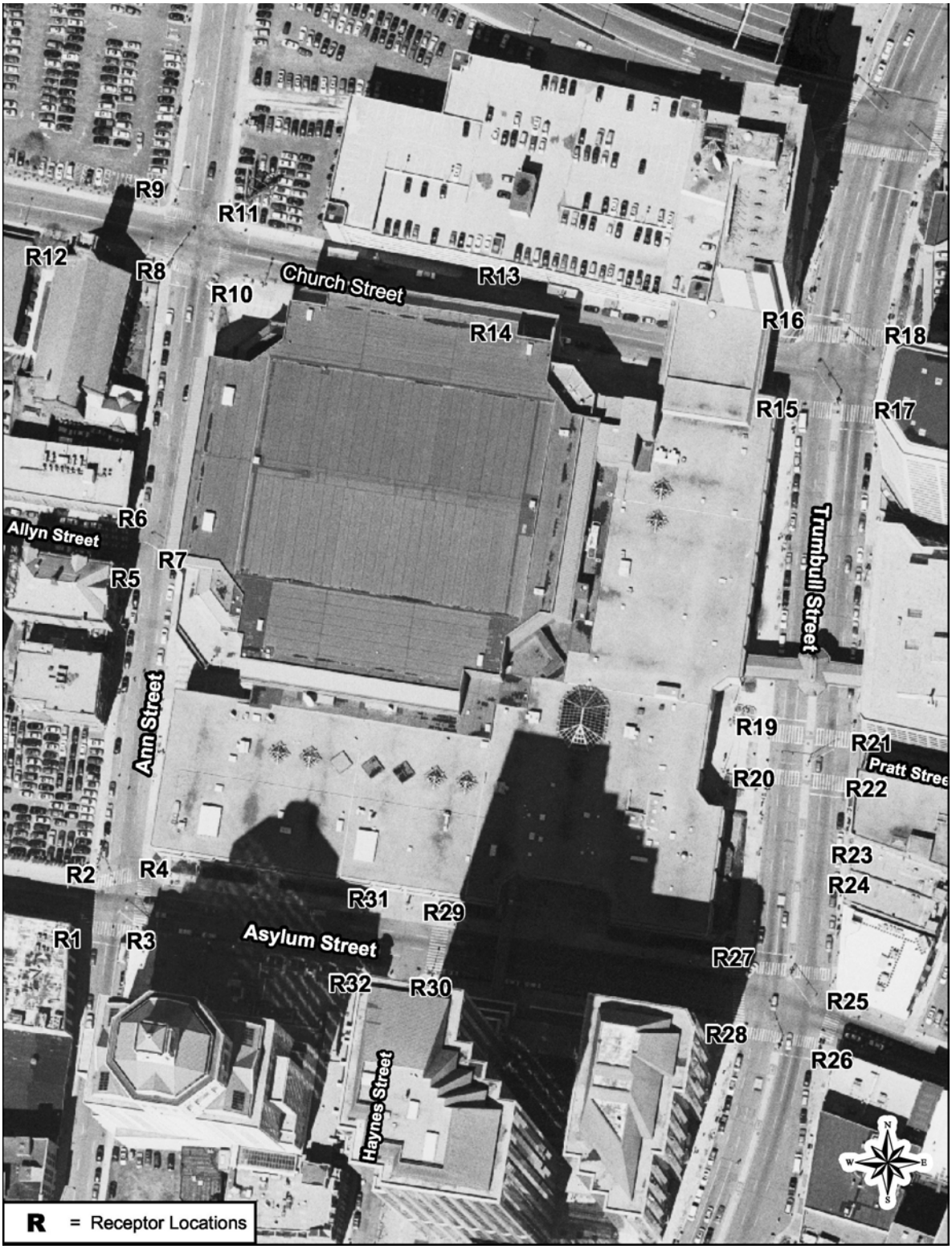

Figure 1: Hartford Civic Center Receptor Locations

The receptor locations are described as follows:

Table 1
Receptor Locations
Hartford Civic Center Redevelopment Project

Receptor #	Receptor Description
1	Asylum Street/Ann Street SW corner
2	Asylum Street/Ann Street NW corner
3	Asylum Street/Ann Street SE corner
4	Asylum Street/Ann Street NE corner
5	Ann Street/Allyn Street SW corner
6	Ann Street/Allyn Street NW corner
7	Ann Street/Allyn Street E side
8	Church Street/Ann Street SW corner
9	Church Street/Ann Street NW corner
10	Church Street/Ann Street SE corner
11	Church Street/Ann Street NE corner
12	Restaurant on Church Street west of Ann Street
13	Church Street mid-block N side
14	Church Street mid-block S side
15	Trumbull Street/Church Street SW corner
16	Trumbull Street/Church Street NW corner
17	Trumbull Street/Church Street SE corner
18	Trumbull Street/Church Street NE corner
19	Trumbull Street/Pratt Street NW corner
20	Trumbull Street/Pratt Street SW corner
21	Trumbull Street/Pratt Street NE corner
22	Trumbull Street/Pratt Street SE corner
23	Restaurant 1 on Trumbull Street south of Pratt Street
24	Restaurant 2 on Trumbull Street south of Pratt Street
25	Asylum Street/Trumbull Street NE corner
26	Asylum Street/Trumbull Street SE corner
27	Asylum Street/Trumbull Street NW corner
28	Asylum Street/Trumbull Street SW corner and Restaurant
29	Asylum Street/Haynes Street NE corner
30	Asylum Street/Haynes Street SE corner
31	Asylum Street/Haynes Street NW corner
32	Asylum Street/Haynes Street SW corner

The following information describes sources of data used for the CALQVIEW2 model:

Roadway geometry was obtained from air photographs of the project area. Traffic information for the study area, including AM and PM peak hour volumes and signal timing and phasing data, was gathered for the year 2003 by Fitzgerald & Halliday, Inc.

CALQVIEW2 meteorological and background information is listed in Table 2 below.

Table 2

CALQVIEW2 Parameters

Parameter	**Value**
Averaging time	60 mins
Surface roughness length	321 cm
Settling velocity	0
Deposition velocity	0
Scale conversion factor	0.3048 (units in ft)
Output	1 (in ft)
Wind speed	1 m/s
Wind direction	0
Stability class	4 (D) - Urban
Mixing height	1000 m
1-hour background concentration	3.0 ppm
Multiple wind directions	Yes – 10 degree increments
Receptor height	6.0 ft
Signal times	Varies (traffic analysis)
Traffic volumes	Varies (traffic analysis)

Mobile source CO emission factors were also needed for the microscale analyses and were modeled using MOBILE5b. Because the four roads within the study area fall within two different roadway classification and speed types, MOBILE5b was run with different variables entered for each of the two groups (these input files are included in Appendix A – MOBILE 5b Input and Output Files.)

EMISSIONS MODEL RESULTS

Results from the model represent the one-hour average CO concentrations at each receptor due to the modeled traffic, in addition to the one-hour background concentration of 3.0 ppm. For the eight-hour average concentration at each receptor, the one-hour dispersion result from the model is multiplied by the persistence factor of 0.6. The 2003 AM and PM and 2006 AM and PM conditions were each modeled for the entire study area, for a total of four model runs. Since the traffic impact analysis predicted more trips generated under the Proposed Action scenario, the Proposed Action 2006 predictions were assumed to be the worst case scenario over the No Build 2006 conditions. Table 3 below presents the highest CO reading for each model run. Appendix B contains the CAL3QHC model output showing all results for each run.

As shown in Table 3, the predicted future maximum one-hour and eight-hour CO concentrations are well below the CO NAAQS. Predicted concentrations in 2006 are lower than existing 2003 CO levels. Thus, the proposed project will not have an adverse impact on the surrounding CO levels.

Table 3

Highest CO Predictions for Future Proposed Action

	Highest 1-hour Concentration (ppm)	**Corresponding 8-hour Concentration (ppm)**	**Receptor Location**
NAAQS for CO	**35**	**9**	
EXISTING 2003 Peak AM	7.6	4.6	Trumbull Street/Church Street NW corner (R16) + Asylum Street/Trumbull Street SE corner (R26)
EXISTING 2003 Peak PM	8.9	5.3	Asylum Street/Trumbull Street SE corner (R26)
Proposed Action 2006 Peak AM	6.8	4.1	Trumbull Street/Church Street NW corner (R16) + Asylum Street/Trumbull Street SE corner (R26)
Proposed Action 2006 Peak PM	7.6	4.6	Asylum Street/Trumbull Street SE corner (R26)

CONCLUSIONS

Based on existing air quality conditions in the Hartford region and results of the Hartford Civic Center redevelopment air quality analysis, air quality impacts of the project are shown to be minimal for the following reasons:

- Air quality monitoring data show that existing CO levels in the area are already well below the CO NAAQS. CO hot spots are highly unlikely in the vicinity of the proposed project. Modeling performed for potential receptors in the project vicinity confirmed that CO at these receptors will not exceed the NAAQS, even under the worst case scenario.

- The air quality analysis showed that the Proposed Action does not result in any exceedances of CO, based on traffic data. The traffic analysis shows that, in general, the studied intersections under the Proposed Action will continue to operate at least as well as the No-Action alternative or will be improved with the implementation of signal optimization improvements. These measures will minimize, and even reduce, the likelihood of CO hotspots caused by idling and slow-moving vehicles.

- The low level of trips generated by the proposed development relative to total regional trips is unlikely to negatively impact regional air quality. The CRCOG Conformity Analysis shows that VOC, NOx, and CO emissions from the transportation system are currently below those allowed by DEP. Thus, the effects of increased travel can be accommodated without causing the emission budgets to be violated, and as a result, will not cause or contribute to further violations of the NAAQS. Furthermore, recent monitored ozone exceedances are primarily due to the transport of ozone and other pollutants from the southwest. The low number of additional vehicle trips is highly unlikely to cause or contribute to further ozone exceedances.

It is not anticipated that any short or long-term adverse air quality impacts will occur as a result of the project. Therefore, no air quality mitigation measures will be required.

Appendix A

MOBILE5b Input and Output Files

MOBILE5b 2002 Input File – Hartford Civic Center

```
5       PROMPT - vertical flag input, no prompting
MOB5B Hart/NW/East 1/1/2002 CO (ASMloose,Pr&Pur,RFG2,NLEV,96Reg,96RevVMT%,EPACM%,NoOxy)for ISP Stg 3
1       TAMFLG - default tampering rates
1       SPDFLG - one speed for all vehicle types per scenario
2       VMFLAG - use one CT VMT mix for each scenario
3       MYMRFG - CT specific registration distribution by age
1       NEWFLG - default bers
6       IMFLAG - Yes two I/M programs, both ASM2525, one annual, one biennial
1       ALHFLG - no additional correction factor inputs
8       ATPFLG - ATP, press, purge
5       RLFLAG - no refueling losses considered
2       LOCFLG - read in local area parameters one time
2       TEMFLG - use single temperature representative of high measured CO
3       OUTFMT - 112 column descriptive format
2       PRTFLG - CO only
2       IDLFLG - print idle emissions results
3       NMHFLG - print VOCs
1       HCFLAG - DO NOT print emission factor components
.067 .086 .073 .075 .068 .065 .071 .079 .082 .083
.069 .051 .038 .022 .013 .010 .007 .007 .006 .004
.002 .001 .002 .002 .018
.095 .102 .094 .076 .060 .058 .054 .073 .084 .077
.065 .044 .031 .017 .010 .008 .006 .012 .009 .005
.003 .002 .002 .002 .012
.091 .126 .092 .064 .045 .035 .051 .086 .098 .073
.065 .048 .034 .020 .011 .009 .007 .010 .009 .006
.003 .002 .001 .002 .011
.057 .080 .056 .033 .029 .024 .037 .069 .080 .072
.072 .050 .037 .022 .015 .015 .028 .036 .031 .023
.017 .013 .013 .013 .079
.067 .086 .073 .075 .068 .065 .071 .079 .082 .083
.069 .051 .038 .022 .013 .010 .007 .007 .006 .004
.002 .001 .002 .002 .018
.095 .102 .094 .076 .060 .058 .054 .073 .084 .077
.065 .044 .031 .017 .010 .008 .006 .012 .009 .005
.003 .002 .002 .002 .012
.069 .102 .067 .053 .042 .040 .049 .056 .068 .061
.047 .034 .024 .014 .014 .013 .030 .040 .031 .027
.010 .012 .013 .014 .069
.056 .064 .049 .049 .037 .029 .032 .036 .035 .044
.059 .511 .000 .000 .000 .000 .000 .000 .000 .000
.000 .000 .000 .000 .000
2 1 2 1
83 22 68 80 3. 3. 96. 111 2222 5211 25.0 25.0 2.0  ASM annual loose ctpts
83 22 81 50 3. 3. 96. 112 2222 5211 25.0 25.0 2.0  ASM biennial loose ctpts
83 71 50 2222 12  096 12211111                atp 2/22/95 no gas cap
83 71 50 2222 12  096                     prs 2/22/95
83 81 50 2222 12  096                     prg
      Hart    E  18.  44. 13.1 13.1 89 1 1 2       RFG

4 02 30.0 41.0 20.6 27.3 20.6  1                Urban MINOR ART 30 mph
98 21
.667.207.095.009.002.001.016.003

4 02 30.0 41.0 20.6 27.3 20.6  1                Urban COLL 30 mph
98 21
.673.209.096.009.002.001.008.002
```

MOBILE5b 2005 Input File – Hartford Civic Center

```
5       PROMPT - vertical flag input, no prompting
MOB5B Hart/NW/East 1/1/2005 CO (ASMtight,Pr&Pur,RFG2,NLEV,96Reg,96RevVMT%,EPACM%,NoOxy,HDDV'04)ISP Stg 3
1       TAMFLG - default tampering rates
1       SPDFLG - one speed for all vehicle types per scenario
2       VMFLAG - use one CT VMT mix for each scenario
3       MYMRFG - CT specific registration distribution by age
2       NEWFLG - include 2004 HDD NOx/NMHC stds in one-time-data per 1/30/98 EPA Info Sheet#5
6       IMFLAG - Yes two I/M programs, both ASM2525, one annual, one biennial
1       ALHFLG - no additional correction factor inputs
8       ATPFLG - ATP, press, purge
5       RLFLAG - no refueling losses considered
2       LOCFLG - read in local area parameters one time
2       TEMFLG - use single temperature representative of high measured CO
3       OUTFMT - 112 column descriptive format
2       PRTFLG - CO only
2       IDLFLG - print idle emissions results
3       NMHFLG - print VOCs
1       HCFLAG - DO NOT print emission factor components
.067 .086 .073 .075 .068 .065 .071 .079 .082 .083
.069 .051 .038 .022 .013 .010 .007 .007 .006 .004
.002 .001 .002 .002 .018
.095 .102 .094 .076 .060 .058 .054 .073 .084 .077
.065 .044 .031 .017 .010 .008 .006 .012 .009 .005
.003 .002 .002 .002 .012
.091 .126 .092 .064 .045 .035 .051 .086 .098 .073
.065 .048 .034 .020 .011 .009 .007 .010 .009 .006
.003 .002 .001 .002 .011
.057 .080 .056 .033 .029 .024 .037 .069 .080 .072
.072 .050 .037 .022 .015 .015 .028 .036 .031 .023
.017 .013 .013 .013 .079
.067 .086 .073 .075 .068 .065 .071 .079 .082 .083
.069 .051 .038 .022 .013 .010 .007 .007 .006 .004
.002 .001 .002 .002 .018
.095 .102 .094 .076 .060 .058 .054 .073 .084 .077
.065 .044 .031 .017 .010 .008 .006 .012 .009 .005
.003 .002 .002 .002 .012
.069 .102 .067 .053 .042 .040 .049 .056 .068 .061
.047 .034 .024 .014 .014 .013 .030 .040 .031 .027
.010 .012 .013 .014 .069
.056 .064 .049 .049 .037 .029 .032 .036 .035 .044
.059 .511 .000 .000 .000 .000 .000 .000 .000 .000
.000 .000 .000 .000 .000
004
1 7 3 90 90 05.639 00.000
1 7 3 91 97 04.598 00.000
1 7 3 98 03 03.679 00.000
1 7 3 04 50 01.840 00.000
2 1 2 1
83 22 68 80 3. 3. 96. 111 2222 5211 25.0 25.0 1.0  ASM annual tight ctpts
83 22 81 50 3. 3. 96. 112 2222 5211 25.0 25.0 1.0  ASM biennial tight ctpts
83 71 50 2222 12  096 12211111                atp 2/22/95 no gas cap
83 71 50 2222 12  096                     prs 2/22/95
83 81 50 2222 12  096                     prg
      Hart    E  18.  44. 13.1 13.1 89 1 1 2       RFG

4 05 30.0 41.0 20.6 27.3 20.6  1                Urban MINOR ART 30 mph
98 21
.667.207.095.009.002.001.016.003

4 05 30.0 41.0 20.6 27.3 20.6  1                Urban COLL 30 mph
98 21
.673.209.096.009.002.001.008.002
```

MOBILE5b 2002 Output File – Hartford Civic Center

Trumbull & Asylum

```
-M112 Warning:
+            Wintertime Reformulated Gasoline Rules Apply
             See Section 2.2.16 of the User Guide
0Emission factors are as of Jan. 1st of the indicated calendar year.
 LEV phase-in begins in 1998 using (4/8/94) Guidance Memo Credits
0LEV phase-in data read from file: nlev.d
0User supplied veh registration distributions.
0Cal. Year: 2002       I/M Program: Yes      Ambient Temp: 41.0 (F)            Region: Low
                Anti-tam. Program: Yes    Operating Mode: 20.6 / 27.3 / 20.6   Altitude:  500. Ft.
                 Reformulated Gas: Yes        ASTM Class: E
0  Veh. Type:     LDGV    LDGT1    LDGT2    LDGT     HDGV     LDDV     LDDT     HDDV      MC     All Veh
      +
 Veh. Speeds:     30.0     30.0     30.0              30.0     30.0     30.0     30.0     30.0
    VMT Mix:      0.667    0.207    0.095              0.009    0.002    0.001    0.016    0.003
   ZEV Fract:     0.00 %   0.00 %
0Composite Emission Factors (Gm/Mile)
 Exhaust  CO:     9.08     11.27    13.71    12.04    18.97     0.93     1.00     7.41    17.18    10.036
0Idle Emission Factors (Gm/Hr)
   Idle  CO:     171.16   190.26   236.20   204.71   262.70    11.64    12.50    92.42   488.52   181.328
```

Church & Ann

```
-M112 Warning:
+            Wintertime Reformulated Gasoline Rules Apply
             See Section 2.2.16 of the User Guide
0Emission factors are as of Jan. 1st of the indicated calendar year.
 LEV phase-in begins in 1998 using (4/8/94) Guidance Memo Credits
0LEV phase-in data read from file: nlev.d
0User supplied veh registration distributions.
0Cal. Year: 2002       I/M Program: Yes      Ambient Temp: 41.0 (F)            Region: Low
                Anti-tam. Program: Yes    Operating Mode: 20.6 / 27.3 / 20.6   Altitude:  500. Ft.
                 Reformulated Gas: Yes        ASTM Class: E
0  Veh. Type:     LDGV    LDGT1    LDGT2    LDGT     HDGV     LDDV     LDDT     HDDV      MC     All Veh
+
 Veh. Speeds:     25.0     25.0     25.0              25.0     25.0     25.0     25.0     25.0
    VMT Mix:      0.673    0.209    0.096              0.009    0.002    0.001    0.008    0.002
   ZEV Fract:     0.00 %   0.00 %
0Composite Emission Factors (Gm/Mile)
 Exhaust  CO:    11.34    13.80    16.75    14.73    22.88     1.13     1.21     8.96    21.05    12.450
0Idle Emission Factors (Gm/Hr)
   Idle  CO:     171.16   190.26   236.20   204.72   262.70    11.64    12.50    92.42   488.5    181.743
```

MOBILE5b 2005 Output File – Hartford Civic Center

Trumbull & Asylum

```
-M112 Warning:
+            Wintertime Reformulated Gasoline Rules Apply
            See Section 2.2.16 of the User Guide
0Emission factors are as of Jan. 1st of the indicated calendar year.
 LEV phase-in begins in 1998 using (4/8/94) Guidance Memo Credits
0LEV phase-in data read from file: nlev.d
0User supplied  basic exhaust emissions rates, veh registration distributions.
0Cal. Year: 2005       I/M Program: Yes      Ambient Temp: 41.0 (F)            Region: Low
              Anti-tam. Program: Yes    Operating Mode: 20.6 / 27.3 / 20.6   Altitude:  500. Ft.
               Reformulated Gas: Yes        ASTM Class: E
0  Veh. Type:     LDGV    LDGT1    LDGT2    LDGT     HDGV     LDDV     LDDT     HDDV     MC      All Veh
+
 Veh. Speeds:     30.0     30.0     30.0              30.0     30.0     30.0     30.0     30.0
    VMT Mix:      0.667    0.207    0.095              0.009    0.002    0.001    0.016    0.003
   ZEV Fract:     0.00 %   0.00 %
0Composite Emission Factors (Gm/Mile)
 Exhaust  CO:     6.50     8.62    11.78     9.61    14.54     0.93     0.99     7.29    17.18     7.540
0Idle Emission Factors (Gm/Hr)
   Idle  CO:    120.18   143.61   196.92   160.38   201.39    11.60    12.38    90.92   488.52   133.360
```

Church & Ann

```
-M112 Warning:
+            Wintertime Reformulated Gasoline Rules Apply
            See Section 2.2.16 of the User Guide
0Emission factors are as of Jan. 1st of the indicated calendar year.
 LEV phase-in begins in 1998 using (4/8/94) Guidance Memo Credits
0LEV phase-in data read from file: nlev.d
0User supplied  basic exhaust emissions rates, veh registration distributions.
0Cal. Year: 2005       I/M Program: Yes      Ambient Temp: 41.0 (F)            Region: Low
              Anti-tam. Program: Yes    Operating Mode: 20.6 / 27.3 / 20.6   Altitude:  500. Ft.
               Reformulated Gas: Yes        ASTM Class: E
0  Veh. Type:     LDGV    LDGT1    LDGT2    LDGT     HDGV     LDDV     LDDT     HDDV     MC      All Veh
+
 Veh. Speeds:     25.0     25.0     25.0              25.0     25.0     25.0     25.0     25.0
    VMT Mix:      0.673    0.209    0.096              0.009    0.002    0.001    0.008    0.002
   ZEV Fract:     0.00 %   0.00 %
0Composite Emission Factors (Gm/Mile)
 Exhaust  CO:     8.15    10.59    14.46    11.81    17.54     1.13     1.20     8.82    21.05     9.364
0Idle Emission Factors (Gm/Hr)
   Idle  CO:    120.18   143.61   196.92   160.39   201.39    11.60    12.38    90.92   488.52   133.349
```

Appendix 2
CALQVIEW2 Model Results

CALQVIEW2 modeling results are presented in the order indicated below. Model run names are indicated in the text of each run.

2003 AM Peak
2003 PM Peak
2006 AM Peak
2006 PM Peak

CALQVIEW2 2003 AM Peak Output File – Hartford Civic Center

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

JOB: HCC - 2003 AM Peak                                  RUN: HCC - 2003 AM Peak

DATE : 10/27/ 3
TIME : 16:34:16

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

 SITE & METEOROLOGICAL VARIABLES
 -------------------------------
 VS =    .0 CM/S       VD =    .0 CM/S       Z0 = 321. CM
  U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  3.0 PPM

 LINK VARIABLES
 --------------
   LINK DESCRIPTION     *         LINK COORDINATES (FT)          *    LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                        *   X1        Y1        X2        Y2     *     (FT)  (DEG)            (G/MI)  (FT) (FT)       (VEH)
------------------------*----------------------------------------*----------------------------------------------------------
 1. Asylum WB approach  *    696.0      55.0      50.0      55.0 *     646.   270. AG    381.  10.1    .0 20.0
 2. Asylum WB before Tru*    745.0      55.0     696.0      55.0 *      49.   270. AG    253.  10.1    .0 20.0
 3. Asylum/Ann WB R queu*    100.0      60.0      99.3      60.0 *       1.   270. AG    326. 100.0    .0 10.0  .01    .0
 4. Asylum/Ann WB T queu*    100.0      50.0      53.5      50.0 *      47.   270. AG    978. 100.0    .0 10.0  .11   2.4
 5. Ann/Asylum NB LT que*     50.0        .0      50.0      25.9 *      26.   360. AG    497. 100.0    .0 20.0  .08   1.3
 6. Ann NB approach     *     50.0      55.0      50.0     684.0 *     629.   360. AG    174.  12.5    .0 20.0
 7. Ann NB before Asylum*     50.0        .0      50.0      55.0 *      55.   360. AG    187.  12.5    .0 20.0
 8. Ann/Church NB RT    *     55.0     645.0      55.0     645.4 *       0.   360. AG    770. 100.0    .0 10.0  .00    .0
 9. Ann/Church NB L queu*     45.0     645.0      45.0     758.3 *     113.   360. AG    385. 100.0    .0 10.0  .97   5.8
10. Ann SB before Church*     50.0     735.0      50.0     684.0 *      51.   180. AG     55.  12.5    .0 20.0
11. Ann/Church SB L queu*     55.0     735.0      55.0     709.1 *      26.   180. AG    419. 100.0    .0 10.0  .49   1.3
12. Ann/Church SB RL que*     45.0     735.0      45.0     734.1 *       1.   180. AG    419. 100.0    .0 10.0  .02    .0
13. Church WB approach  *    671.0     673.0      50.0     694.0 *     621.   272. AG    192.  12.5    .0 20.0
14. Church/Ann WB R queu*    100.0     698.0      99.3     698.0 *       1.   272. AG    317. 100.0    .0 10.0  .01    .0
15. Church/Ann WB T queu*    100.0     688.0      31.8     689.4 *      68.   271. AG    317. 100.0    .0 10.0  .40   3.5
16. Chch/Tmbl WB LRT    *    720.0     667.0     629.4     670.7 *      91.   272. AG    366. 100.0    .0 10.0  .78   4.6
17. Church EB approach  *     50.0     674.0     671.0     653.0 *     621.    92. AG    191.  12.5    .0 20.0
18. Church WB before Tru*    720.0     667.0     671.0     669.0 *      49.   272. AG    216.  12.5    .0 10.0
19. Church/Ann EB T queu*       .0     671.0        .7     671.0 *       1.    92. AG    292. 100.0    .0 10.0  .00    .0
20. Church/Ann EB L queu*       .0     681.0      78.3     677.9 *      78.    92. AG    292. 100.0    .0 10.0  .45   4.0
21. Church EB before Ann*       .0     676.0      50.0     674.0 *      50.    92. AG    239.  12.5    .0 20.0
22. Church/Trumbull EB R*    620.0     649.0     620.8     649.0 *       1.    92. AG    341. 100.0    .0 10.0  .01    .0
23. Chch/Tmbl EB LT     *    620.0     659.0     693.1     656.2 *      73.    92. AG    341. 100.0    .0 10.0  .49   3.7
24. Trumbull NB         *    706.0      55.0     681.0     661.0 *     607.   358. AG    353.  10.1    .0 20.0
25. Tmbl/Chch NB LRT    *    683.0     612.0     681.0     662.0 *      50.   358. AG    506. 100.0    .0 20.0  .18   2.5
26. Trumbull SB         *    661.0     663.0     686.0      55.0 *     609.   178. AG    292.  10.1    .0 20.0
27. Trumbull SB before C*    660.0     710.0     661.0     663.0 *      47.   179. AG    435.  10.1    .0 20.0
28. Tmbl/Chch SB LRT    *    660.0     710.0     660.9     668.8 *      41.   179. AG    759. 100.0    .0 20.0  .09   2.1
29. Tmbl/Aslm SB RT     *    684.0     105.0     685.8      61.1 *      44.   178. AG    535. 100.0    .0 20.0  .13   2.2
30. Trumbull NB before A*    708.0        .0     706.0      55.0 *      55.   358. AG    557.  10.1    .0 20.0
31. Tmbl/Aslm NB LT     *    708.0        .0     706.3      47.1 *      47.   358. AG    302. 100.0    .0 20.0  .13   2.4
32. Tmbl/Aslm WB LTR    *    745.0      55.0     686.4      55.0 *      59.   270. AG    827. 100.0    .0 20.0  .50   3.0
```

JOB: HCC - 2003 AM Peak RUN: HCC - 2003 AM Peak

DATE : 10/27/ 3
TIME : 16:34:16

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
3. Asylum/Ann WB R queu*	100	67	5.0	2	1163	181.33	2	3
4. Asylum/Ann WB T queu*	100	67	5.0	381	4357	181.33	2	4
5. Ann/Asylum NB LT que*	100	51	5.0	187	2851	181.74	2	3
8. Ann/Church NB RT *	100	79	5.0	2	3004	181.74	2	3
9. Ann/Church NB L queu*	100	79	5.0	174	1287	181.74	2	3
11. Ann/Church SB L queu*	100	86	5.0	55	1608	181.74	2	3
12. Ann/Church SB RL que*	100	86	5.0	2	1439	181.74	2	3
14. Church/Ann WB R queu*	100	65	5.0	2	1163	181.74	2	3
15. Church/Ann WB T queu*	100	65	5.0	192	1710	181.74	2	4
16. Chch/Tmbl WB LRT *	100	75	5.0	216	1540	181.74	2	3
19. Church/Ann EB T queu*	100	60	5.0	2	1710	181.74	2	4
20. Church/Ann EB L queu*	100	60	5.0	239	1624	181.74	2	3
22. Church/Trumbull EB R*	100	70	5.0	2	1454	181.74	2	3
23. Chch/Tmbl EB LT *	100	70	5.0	191	1694	181.74	2	3
25. Tmbl/Chch NB LRT *	100	52	5.0	353	2420	181.33	2	4
28. Tmbl/Chch SB LRT *	100	52	5.0	435	3811	181.33	2	4
29. Tmbl/Aslm SB RT *	100	55	5.0	292	3050	181.33	2	4
31. Tmbl/Aslm NB LT *	100	31	5.0	557	3334	181.33	2	4
32. Tmbl/Aslm WB LTR *	100	85	5.0	253	3129	181.33	2	3

JOB: HCC - 2003 AM Peak RUN: HCC - 2003 AM Peak
DATE : 10/27/ 3
TIME : 16:34:16

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. Asylum/Ann SW	38.0	43.0	6.0
2. Asylum/Ann NW	38.0	67.0	6.0
3. Asylum/Ann SE	62.0	43.0	6.0
4. Asylum/Ann NE	62.0	67.0	6.0
5. Ann/Allyn SW	38.0	367.0	6.0
6. Ann/Allyn NW	38.0	391.0	6.0
7. Ann/Allyn E	62.0	379.0	6.0
8. Church/Ann SW	38.0	662.0	6.0
9. Church/Ann NW	38.0	708.0	6.0
10. Church/Ann SE	62.0	661.0	6.0
11. Church/Ann NE	62.0	707.0	6.0
12. Restaurant on Church	-40.0	665.0	6.0
13. Church Mid-Block N	335.0	697.0	6.0
14. Church Mid-Block S	335.0	652.0	6.0
15. Trumbull/Church SW	650.0	641.0	6.0
16. Trumbull/Church NW	649.0	686.0	6.0
17. Trumbull/Church SE	694.0	639.0	6.0
18. Trumbull/Church NE	692.0	684.0	6.0
19. Trumbull/Pratt NW	662.0	325.0	6.0
20. Trumbull/Pratt SW	663.0	300.0	6.0
21. Trumbull/Pratt NE	707.0	325.0	6.0
22. Trumbull/Pratt SE	708.0	300.0	6.0
23. Restaurant1 on Trumb	711.0	235.0	6.0
24. Restaurant2 on Trumb	713.0	200.0	6.0
25. Asylum/Trumbull NE	718.0	67.0	6.0
26. Asylum/Trumbull SE	719.0	43.0	6.0
27. Asylum/Trumbull NW	673.0	67.0	6.0
28. Asylum/Trumbull SW &	674.0	43.0	6.0
29. Asylum/Haynes NE	347.0	67.0	6.0
30. Asylum/Haynes SE	347.0	43.0	6.0
31. Asylum/Haynes NW	323.0	67.0	6.0
32. Asylum/Haynes SW	323.0	43.0	6.0

JOB: HCC - 2003 AM Peak RUN: HCC - 2003 AM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	3.1	3.1	6.6	3.1	3.2	3.3	3.2	5.9	4.3	5.1	4.1	3.0	3.0	3.2	5.7	4.3	4.8	3.0	3.5	3.5
10.	3.1	3.1	6.6	3.1	3.2	3.2	3.2	6.4	4.7	4.7	3.6	3.0	3.0	3.2	6.0	4.8	4.1	3.0	3.6	3.4
20.	3.2	3.1	6.5	3.0	3.1	3.1	3.0	6.6	5.1	4.5	3.2	3.0	3.0	3.2	5.9	5.1	3.9	3.0	3.3	3.3
30.	3.3	3.1	6.7	3.0	3.1	3.1	3.0	6.6	5.3	4.2	3.1	3.1	3.0	3.2	5.8	5.4	3.6	3.0	3.2	3.2
40.	3.8	3.1	7.1	3.0	3.1	3.1	3.0	6.3	5.4	4.1	3.0	3.4	3.0	3.2	5.6	5.6	3.5	3.0	3.2	3.2
50.	4.3	3.1	7.3	3.0	3.1	3.1	3.0	6.2	5.3	3.9	3.0	3.6	3.0	3.2	5.4	5.7	3.4	3.0	3.2	3.2
60.	4.9	3.1	7.4	3.0	3.1	3.1	3.0	5.8	5.2	3.7	3.0	3.8	3.0	3.2	5.3	5.6	3.1	3.0	3.2	3.2
70.	5.5	3.2	7.3	3.1	3.1	3.1	3.0	5.4	5.1	3.4	3.0	4.0	3.0	3.2	5.1	5.6	3.1	3.0	3.2	3.2
80.	5.6	3.5	6.7	3.2	3.1	3.1	3.0	5.2	5.2	3.3	3.1	4.0	3.2	3.4	4.9	5.9	3.0	3.0	3.2	3.2
90.	5.2	4.1	5.7	3.6	3.1	3.1	3.0	4.8	5.0	3.1	3.2	3.8	3.3	3.5	4.6	6.2	3.0	3.1	3.2	3.2
100.	4.5	4.6	4.6	4.0	3.1	3.1	3.0	4.5	5.3	3.1	3.4	3.5	3.6	3.2	4.4	6.5	3.0	3.2	3.2	3.2
110.	3.9	5.0	3.8	4.5	3.1	3.1	3.0	4.4	5.4	3.0	3.6	3.2	3.2	3.0	4.2	6.8	3.0	3.4	3.2	3.2
120.	3.6	5.0	3.3	5.0	3.1	3.1	3.0	4.4	5.5	3.0	3.7	3.1	3.2	3.0	4.0	7.3	3.0	3.6	3.2	3.2
130.	3.6	4.9	3.1	5.4	3.1	3.1	3.0	4.5	5.8	3.0	3.9	3.0	3.2	3.0	3.9	7.4	3.1	3.8	3.2	3.2
140.	3.8	4.5	3.1	5.5	3.1	3.1	3.0	4.5	5.9	3.0	4.1	3.0	3.2	3.0	3.6	7.6	3.1	3.9	3.2	3.2
150.	3.9	4.1	3.0	5.4	3.1	3.1	3.0	4.3	6.0	3.0	4.2	3.0	3.2	3.0	3.5	7.4	3.1	4.1	3.3	3.3
160.	4.0	3.9	3.2	5.5	3.2	3.2	3.0	4.2	6.1	3.0	4.3	3.0	3.2	3.0	3.4	7.0	3.3	4.5	3.5	3.6
170.	3.9	3.6	3.4	5.5	3.2	3.2	3.2	3.9	5.9	3.1	4.4	3.0	3.2	3.0	3.3	6.4	3.6	4.9	3.5	3.5
180.	3.7	3.4	3.7	5.6	3.2	3.2	3.2	3.6	5.6	3.1	4.7	3.0	3.2	3.0	3.2	5.8	4.2	5.4	3.3	3.3
190.	3.4	3.2	3.9	5.4	3.1	3.1	3.2	3.4	5.0	3.1	5.0	3.0	3.2	3.0	3.1	5.2	4.5	5.7	3.3	3.3
200.	3.2	3.1	4.0	5.0	3.0	3.0	3.1	3.1	4.3	3.2	5.2	3.0	3.2	3.0	3.0	4.9	4.7	5.7	3.0	3.0
210.	3.0	3.0	3.9	4.5	3.0	3.0	3.1	3.1	4.0	3.3	5.2	3.0	3.2	3.0	3.0	4.7	4.9	5.7	3.0	3.0
220.	3.0	3.0	3.8	4.1	3.0	3.0	3.1	3.0	3.6	3.5	5.1	3.0	3.2	3.0	3.0	4.4	5.0	5.5	3.0	3.0
230.	3.0	3.0	3.6	3.7	3.0	3.0	3.1	3.0	3.4	3.7	5.2	3.0	3.2	3.0	3.0	4.2	4.9	5.3	3.0	3.0
240.	3.0	3.0	3.5	3.3	3.0	3.0	3.1	3.0	3.2	3.8	4.7	3.0	3.2	3.0	3.0	3.8	4.9	5.7	3.0	3.0
250.	3.0	3.0	3.3	3.1	3.0	3.0	3.1	3.0	3.1	3.9	4.6	3.0	3.2	3.0	3.0	3.5	4.8	5.5	3.0	3.0
260.	3.0	3.0	3.3	3.1	3.0	3.0	3.1	3.0	3.1	4.1	4.5	3.0	3.4	3.1	3.1	3.3	5.0	5.5	3.0	3.0
270.	3.0	3.0	3.7	3.1	3.0	3.0	3.1	3.1	3.0	4.3	4.5	3.0	3.4	3.4	3.2	3.1	5.5	5.3	3.0	3.0
280.	3.0	3.0	4.1	3.1	3.0	3.0	3.1	3.3	3.0	4.5	4.5	3.0	3.2	3.4	3.4	3.1	5.9	4.9	3.0	3.0
290.	3.0	3.0	4.5	3.1	3.0	3.0	3.1	3.4	3.0	4.7	4.7	3.0	3.0	3.3	3.5	3.0	6.2	4.6	3.0	3.0
300.	3.0	3.0	5.0	3.1	3.0	3.0	3.1	3.6	3.0	5.0	5.0	3.0	3.0	3.2	3.8	3.1	6.8	4.3	3.0	3.0
310.	3.0	3.0	5.4	3.1	3.0	3.0	3.1	3.7	3.0	5.2	5.1	3.0	3.0	3.2	4.1	3.2	7.1	4.0	3.0	3.0
320.	3.0	3.0	5.7	3.1	3.0	3.0	3.1	3.9	3.1	5.4	5.3	3.0	3.0	3.2	4.2	3.2	7.2	3.6	3.0	3.0
330.	3.0	3.0	6.0	3.1	3.0	3.0	3.1	4.1	3.1	5.6	5.3	3.0	3.0	3.2	4.5	3.2	6.9	3.3	3.0	3.0
340.	3.0	3.0	6.2	3.1	3.0	3.0	3.1	4.5	3.4	5.6	5.1	3.0	3.0	3.2	4.8	3.4	6.2	3.1	3.0	3.0
350.	3.1	3.1	6.5	3.1	3.2	3.2	3.2	5.1	3.7	5.4	4.7	3.0	3.0	3.2	5.3	3.7	5.5	3.0	3.2	3.1
360.	3.1	3.1	6.6	3.1	3.2	3.3	3.2	5.9	4.3	5.1	4.1	3.0	3.0	3.2	5.7	4.3	4.8	3.0	3.5	3.5
MAX	5.6	5.0	7.4	5.6	3.2	3.3	3.2	6.6	6.1	5.6	5.3	4.0	3.6	3.5	6.0	7.6	7.2	5.7	3.6	3.6
DEGR.	80	110	60	180	0	0	0	30	160	330	320	70	100	90	10	140	320	190	10	160

JOB: HCC - 2003 AM Peak RUN: HCC - 2003 AM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	3.5	3.5	3.2	3.1	3.2	6.2	4.4	4.2	3.0	3.1	3.0	3.1
10.	3.1	3.1	3.1	3.1	3.1	6.0	4.8	4.6	3.0	3.1	3.0	3.1
20.	3.0	3.0	3.0	3.0	3.0	5.8	5.1	5.0	3.0	3.1	3.0	3.1
30.	3.0	3.0	3.0	3.0	3.0	5.9	5.2	5.2	3.0	3.1	3.0	3.1
40.	3.0	3.0	3.0	3.0	3.1	5.9	5.2	5.4	3.0	3.2	3.0	3.2
50.	3.0	3.0	3.0	3.0	3.2	5.9	5.2	5.5	3.0	3.2	3.0	3.2
60.	3.0	3.0	3.0	3.0	3.2	5.7	5.2	5.9	3.0	3.2	3.0	3.2
70.	3.0	3.0	3.0	3.0	3.3	5.3	5.4	6.0	3.1	3.2	3.1	3.2
80.	3.0	3.0	3.0	3.0	3.7	4.9	6.0	5.9	3.2	3.4	3.2	3.3
90.	3.0	3.0	3.0	3.0	4.3	4.2	6.7	5.3	3.4	3.3	3.3	3.3
100.	3.0	3.0	3.0	3.0	4.9	3.7	7.2	4.7	3.3	3.2	3.3	3.2
110.	3.0	3.0	3.0	3.0	5.4	3.3	7.0	4.2	3.2	3.1	3.2	3.1
120.	3.0	3.0	3.0	3.0	5.7	3.2	6.6	3.9	3.2	3.0	3.2	3.0
130.	3.0	3.0	3.0	3.0	5.9	3.2	6.0	3.6	3.2	3.0	3.2	3.0
140.	3.0	3.0	3.0	3.0	6.0	3.2	5.5	3.5	3.1	3.0	3.1	3.0
150.	3.0	3.0	3.1	3.1	6.0	3.1	4.7	3.4	3.1	3.0	3.1	3.0
160.	3.2	3.2	3.1	3.2	6.0	3.2	4.1	3.1	3.1	3.0	3.1	3.0
170.	3.3	3.4	3.5	3.6	6.3	3.5	3.5	3.1	3.1	3.0	3.1	3.0
180.	3.5	3.5	3.8	3.8	6.6	3.8	3.2	3.0	3.1	3.0	3.1	3.0
190.	3.5	3.5	3.8	3.9	6.7	4.1	3.1	3.0	3.1	3.0	3.1	3.0
200.	3.5	3.5	3.5	3.7	6.6	4.3	3.1	3.0	3.1	3.0	3.1	3.0
210.	3.3	3.3	3.4	3.6	6.7	4.3	3.1	3.0	3.1	3.0	3.1	3.0
220.	3.3	3.3	3.2	3.3	6.7	4.4	3.2	3.0	3.2	3.0	3.2	3.0
230.	3.2	3.2	3.2	3.2	6.7	4.5	3.2	3.0	3.2	3.0	3.2	3.0
240.	3.2	3.2	3.2	3.2	6.6	4.4	3.2	3.0	3.2	3.0	3.2	3.0
250.	3.2	3.2	3.2	3.2	6.2	4.6	3.2	3.1	3.3	3.1	3.3	3.1
260.	3.2	3.2	3.2	3.2	6.0	5.0	3.2	3.1	3.3	3.2	3.3	3.2
270.	3.2	3.2	3.2	3.2	5.6	5.7	3.2	3.2	3.3	3.3	3.3	3.3
280.	3.2	3.2	3.2	3.2	5.1	6.4	3.1	3.2	3.2	3.3	3.2	3.3
290.	3.2	3.2	3.2	3.2	4.6	6.9	3.1	3.2	3.1	3.3	3.1	3.3
300.	3.2	3.2	3.2	3.2	4.4	7.0	3.0	3.2	3.0	3.2	3.0	3.2
310.	3.2	3.2	3.2	3.2	4.3	7.6	3.1	3.2	3.0	3.2	3.0	3.2
320.	3.3	3.3	3.3	3.3	4.0	7.4	3.1	3.2	3.0	3.1	3.0	3.1
330.	3.3	3.3	3.3	3.3	3.7	7.1	3.1	3.2	3.0	3.1	3.0	3.1
340.	3.3	3.3	3.3	3.3	3.5	6.8	3.3	3.4	3.0	3.1	3.0	3.1
350.	3.6	3.6	3.3	3.3	3.4	6.4	3.7	3.8	3.0	3.1	3.0	3.1
360.	3.5	3.5	3.2	3.1	3.2	6.2	4.4	4.2	3.0	3.1	3.0	3.1
MAX	3.6	3.6	3.8	3.9	6.7	7.6	7.2	6.0	3.4	3.4	3.3	3.3
DEGR.	350	350	180	190	190	310	100	70	90	80	90	80

THE HIGHEST CONCENTRATION OF 7.60 PPM OCCURRED AT RECEPTOR REC16.

JOB: HCC - 2003 AM Peak RUN: HCC - 2003 AM Peak

DATE : 10/27/ 3
TIME : 16:34:16

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
	80	110	60	180	0	0	0	30	160	330	320	70	100	90	10	140	320	190	10	160
1	.2	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4	2.3	1.7	4.2	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	.1	.0	.0	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.1	.1	.1	1.9	1.8	1.1	.9	.3	.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.2	.0	.1	1.4	.1	.0	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0	.0	.6	.7	.5	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.6	1.0	.7	.9	.1	.0
17	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1	.1	.1	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.1	.0	.7	.5	.7	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.8	.5	.8	.4	.0	.0
24	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.1
25	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.7	1.6	1.1	.1	.0
26	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1	.2	.2
27	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.0	.0	.0
28	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	1.3	2.1	.9	.0	.1	.0
29	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
30	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2

JOB: HCC - 2003 AM Peak RUN: HCC - 2003 AM Peak

DATE : 10/27/ 3
TIME : 16:34:16

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC21 350	REC22 350	REC23 180	REC24 190	REC25 190	REC26 310	REC27 100	REC28 70	REC29 90	REC30 80	REC31 90	REC32 80
1	.0	.0	.0	.0	.0	.1	.1	.1	.2	.2	.2	.2
2	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	.2	.2	.2	.2	.0	.1	.1	.0	.0	.0	.0	.0
25	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	.1	.1	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	.0	.0	.2	.3	.0	.7	1.4	.1	.1	.1	.0	.0
30	.0	.0	.0	.0	.2	.1	.0	.1	.0	.0	.0	.0
31	.0	.0	.1	.1	.6	.3	.1	.2	.0	.0	.0	.0
32	.0	.0	.3	.3	2.8	3.1	2.3	2.4	.1	.1	.1	.1

CALQVIEW2 2003 PM Peak Output File – Hartford Civic Center

```
JOB: HCC - 2003 PM Peak                                    RUN: HCC - 2003 PM Peak

      DATE : 10/27/ 3
      TIME : 15:47:17

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

       SITE & METEOROLOGICAL VARIABLES
       -------------------------------
       VS =    .0 CM/S       VD =    .0 CM/S       Z0 = 321. CM
        U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  3.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (FT)          *    LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2     *     (FT)  (DEG)            (G/MI)  (FT) (FT)       (VEH)
      ------------------------*-----------------------------------------*-----------------------------------------------------------
       1. Asylum WB approach  *    696.0      55.0      50.0      55.0 *     646.   270. AG    368.  10.1    .0 20.0
       2. Asylum WB before Tru*    745.0      55.0     696.0      55.0 *      49.   270. AG    266.  10.1    .0 20.0
       3. Asylum/Ann WB R queu*    100.0      60.0      99.3      60.0 *       1.   270. AG    310. 100.0    .0 10.0  .01    .0
       4. Asylum/Ann WB T queu*    100.0      50.0      55.3      50.0 *      45.   270. AG    931. 100.0    .0 10.0  .09   2.3
       5. Ann/Asylum NB LT que*     50.0        .0      50.0      26.0 *      26.   360. AG    520. 100.0    .0 20.0  .07   1.3
       6. Ann NB approach     *     50.0      55.0      50.0     684.0 *     629.   360. AG    347.  12.5    .0 20.0
       7. Ann NB before Asylum*     50.0        .0      50.0      55.0 *      55.   360. AG    170.  12.5    .0 20.0
       8. Ann/Church NB RT que*     55.0     645.0      55.0     645.5 *       0.   360. AG    771. 100.0    .0 10.0  .00    .0
       9. Ann/Church NB L queu*     45.0     645.0      45.0    2491.0 *    1846.   360. AG    385. 100.0    .0 10.0 1.88  93.8
      10. Ann SB before Church*     50.0     735.0      50.0     684.0 *      51.   180. AG     73.  12.5    .0 20.0
      11. Ann/Church SB L queu*     55.0     735.0      55.0     379.0 *     356.   180. AG    441. 100.0    .0 10.0 1.62  18.1
      12. Ann/Church SB RL que*     45.0     735.0      45.0     734.0 *       1.   180. AG    441. 100.0    .0 10.0  .05    .1
      13. Church WB approach  *    671.0     673.0      50.0     694.0 *     621.   272. AG    241.  12.5    .0 20.0
      14. Church/Ann WB R queu*    100.0     698.0      99.3     698.0 *       1.   272. AG    302. 100.0    .0 10.0  .01    .0
      15. Church/Ann WB T queu*    100.0     688.0      14.4     689.7 *      86.   271. AG    302. 100.0    .0 10.0  .45   4.4
      16. Chch/Tmbl WB LRT    *    720.0     667.0     634.3     670.5 *      86.   272. AG    325. 100.0    .0 10.0  .59   4.4
      17. Church EB approach  *     50.0     674.0     671.0     653.0 *     621.    92. AG    375.  12.5    .0 20.0
      18. Church WB before T  *    720.0     667.0     671.0     669.0 *      49.   272. AG    224.  12.5    .0 10.0
      19. Church/Ann EB T queu*       .0     671.0        .3     671.0 *       0.    92. AG    121. 100.0    .0 10.0  .00    .0
      20. Church/Ann EB L queu*       .0     681.0      60.1     678.6 *      60.    92. AG    121. 100.0    .0 10.0  .38   3.1
      21. Church EB before Ann*       .0     676.0      50.0     674.0 *      50.    92. AG    423.  12.5    .0 20.0
      22. Church/Trumbull EB R*    620.0     649.0     620.6     649.0 *       1.    92. AG    274. 100.0    .0 10.0  .00    .0
      23. Chch/Tmbl EB LT     *    620.0     659.0     740.9     654.4 *     121.    92. AG    274. 100.0    .0 10.0  .60   6.1
      24. Trumbull NB         *    706.0      55.0     681.0     661.0 *     607.   358. AG    335.  10.1    .0 20.0
      25. Tmbl/Chch NB LRT    *    683.0     612.0     680.5     674.0 *      62.   358. AG    630. 100.0    .0 20.0  .21   3.2
      26. Trumbull SB         *    661.0     663.0     686.0      55.0 *     609.   178. AG    357.  10.1    .0 20.0
      27. Trumbull SB before C*    660.0     710.0     661.0     663.0 *      47.   179. AG    189.  10.1    .0 20.0
      28. Tmbl/Chch SB LRT    *    660.0     710.0     660.5     686.6 *      23.   179. AG    945. 100.0    .0 20.0  .05   1.2
      29. Tmbl/Aslm SB RT     *    684.0     105.0     686.5      42.8 *      62.   178. AG    593. 100.0    .0 20.0  .18   3.2
      30. Trumbull NB before A*    708.0        .0     706.0      55.0 *      55.   358. AG    471.  10.1    .0 20.0
      31. Tmbl/Aslm NB LT     *    708.0        .0     705.6      65.5 *      66.   358. AG    472. 100.0    .0 20.0  .16   3.3
      32. Tmbl/Aslm WB LTR    *    745.0      55.0     686.8      55.0 *      58.   270. AG    741. 100.0    .0 20.0  .26   3.0
```

JOB: HCC - 2003 PM Peak RUN: HCC - 2003 PM Peak

DATE : 10/27/ 3
TIME : 15:47:17

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
3. Asylum/Ann WB R queu*	105	67	5.0	2	1163	181.33	2	3
4. Asylum/Ann WB T queu*	105	67	5.0	368	4357	181.33	2	4
5. Ann/Asylum NB LT que*	105	56	5.0	170	2843	181.74	2	3
8. Ann/Church NB RT que*	105	83	5.0	2	3135	181.74	2	3
9. Ann/Church NB L queu*	105	83	5.0	347	1300	181.74	2	3
11. Ann/Church SB L queu*	105	95	5.0	73	1608	181.74	2	3
12. Ann/Church SB RL que*	105	95	5.0	2	1439	181.74	2	3
14. Church/Ann WB R queu*	105	65	5.0	2	1163	181.74	2	3
15. Church/Ann WB T queu*	105	65	5.0	241	1710	181.74	2	4
16. Chch/Tmbl WB LRT *	105	70	5.0	224	1426	181.74	2	3
19. Church/Ann EB T queu*	105	26	5.0	2	1710	181.74	2	4
20. Church/Ann EB L queu*	105	26	5.0	423	1624	181.74	2	3
22. Church/Trumbull EB R*	105	59	5.0	2	1454	181.74	2	3
23. Chch/Tmbl EB LT *	105	59	5.0	375	1691	181.74	2	3
25. Tmbl/Chch NB LRT *	105	68	5.0	335	2751	181.33	2	4
28. Tmbl/Chch SB LRT *	105	68	5.0	189	4039	181.33	2	4
29. Tmbl/Aslm SB RT *	105	64	5.0	357	3100	181.33	2	4
31. Tmbl/Aslm NB LT *	105	51	5.0	471	3205	181.33	2	4
32. Tmbl/Aslm WB LTR *	105	80	5.0	266	2968	181.33	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. Asylum/Ann SW	38.0	43.0	6.0
2. Asylum/Ann NW	38.0	67.0	6.0
3. Asylum/Ann SE	62.0	43.0	6.0
4. Asylum/Ann NE	62.0	67.0	6.0
5. Ann/Allyn SW	38.0	367.0	6.0
6. Ann/Allyn NW	38.0	391.0	6.0
7. Ann/Allyn E	62.0	379.0	6.0
8. Church/Ann SW	38.0	662.0	6.0
9. Church/Ann NW	38.0	708.0	6.0
10. Church/Ann SE	62.0	661.0	6.0
11. Church/Ann NE	62.0	707.0	6.0
12. Restaurant on Church	-40.0	665.0	6.0
13. Church Mid-Block N	335.0	697.0	6.0
14. Church Mid-Block S	335.0	652.0	6.0
15. Trumbull/Church SW	650.0	641.0	6.0
16. Trumbull/Church NW	649.0	686.0	6.0
17. Trumbull/Church SE	694.0	639.0	6.0
18. Trumbull/Church NE	692.0	684.0	6.0
19. Trumbull/Pratt NW	662.0	325.0	6.0
20. Trumbull/Pratt SW	663.0	300.0	6.0
21. Trumbull/Pratt NE	707.0	325.0	6.0
22. Trumbull/Pratt SE	708.0	300.0	6.0
23. Restaurant1 on Trumb	711.0	235.0	6.0
24. Restaurant2 on Trumb	713.0	200.0	6.0
25. Asylum/Trumbull NE	718.0	67.0	6.0
26. Asylum/Trumbull SE	719.0	43.0	6.0
27. Asylum/Trumbull NW	673.0	67.0	6.0
28. Asylum/Trumbull SW &	674.0	43.0	6.0
29. Asylum/Haynes NE	347.0	67.0	6.0
30. Asylum/Haynes SE	347.0	43.0	6.0
31. Asylum/Haynes NW	323.0	67.0	6.0
32. Asylum/Haynes SW	323.0	43.0	6.0

JOB: HCC - 2003 PM Peak RUN: HCC - 2003 PM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	3.6	3.6	6.9	3.6	4.7	4.7	5.9	6.7	5.3	6.7	5.1	3.3	3.1	3.4	5.1	4.5	5.4	3.0	3.6	3.5
10.	3.5	3.6	6.6	3.3	4.8	4.9	4.7	7.3	5.7	5.6	4.2	3.5	3.0	3.3	5.4	5.0	4.7	3.0	3.5	3.4
20.	3.4	3.3	6.5	3.2	4.7	4.7	3.9	7.4	5.7	4.5	3.5	3.5	3.0	3.3	5.2	5.6	4.4	3.0	3.4	3.3
30.	3.3	3.2	6.5	3.0	4.4	4.6	3.3	7.3	5.6	4.0	3.1	3.5	3.0	3.3	5.3	5.9	4.2	3.0	3.3	3.3
40.	3.7	3.2	6.7	3.0	4.1	4.4	3.1	7.1	5.5	3.9	3.1	3.6	3.0	3.3	5.4	6.0	4.1	3.0	3.2	3.2
50.	4.1	3.2	7.1	3.0	3.9	4.3	3.0	6.7	5.4	3.7	3.0	3.8	3.0	3.3	5.6	6.0	4.0	3.0	3.2	3.2
60.	4.6	3.2	7.2	3.0	3.6	4.3	3.0	6.6	5.4	3.6	3.0	4.0	3.0	3.3	5.7	5.8	3.7	3.0	3.2	3.2
70.	5.1	3.3	7.0	3.1	3.4	4.1	3.0	6.3	5.4	3.5	3.0	4.2	3.0	3.3	5.7	5.4	3.5	3.0	3.2	3.2
80.	5.3	3.5	6.5	3.2	3.2	4.1	3.0	6.0	5.6	3.5	3.1	4.4	3.1	3.7	5.4	5.3	3.3	3.0	3.2	3.2
90.	5.0	4.1	5.6	3.5	3.2	4.2	3.0	5.9	5.7	3.3	3.3	4.3	3.6	3.6	5.2	5.2	3.2	3.1	3.2	3.2
100.	4.4	4.5	4.5	4.0	3.1	4.0	3.0	5.5	6.0	3.2	3.5	3.9	3.6	3.2	4.7	5.3	3.1	3.3	3.2	3.2
110.	3.8	4.8	3.8	4.5	3.1	3.9	3.0	5.5	6.1	3.1	3.6	3.5	3.4	3.1	4.5	5.5	3.0	3.5	3.2	3.2
120.	3.6	4.8	3.3	4.9	3.2	3.8	3.0	5.6	6.4	3.0	3.7	3.6	3.2	3.0	4.3	5.8	3.0	3.8	3.2	3.2
130.	3.6	4.6	3.1	5.3	3.2	3.7	3.0	5.7	6.6	3.0	3.8	3.5	3.2	3.0	4.0	6.0	3.1	4.1	3.2	3.2
140.	3.8	4.4	3.1	5.3	3.2	3.5	3.0	5.8	7.0	3.1	4.0	3.5	3.2	3.0	3.8	6.2	3.1	4.3	3.3	3.3
150.	4.0	4.1	3.0	5.3	3.2	3.4	3.0	5.7	7.1	3.3	4.2	3.5	3.2	3.0	3.6	6.0	3.2	4.6	3.4	3.4
160.	4.0	3.9	3.2	5.3	3.3	3.4	3.1	5.7	7.4	3.8	4.6	3.4	3.2	3.0	3.4	5.5	3.4	4.9	3.6	3.6
170.	3.9	3.6	3.4	5.4	3.3	3.3	3.2	5.4	7.2	4.5	5.5	3.2	3.2	3.0	3.3	5.1	3.7	5.6	3.6	3.8
180.	3.6	3.4	3.6	5.3	3.3	3.3	3.3	4.6	6.5	5.3	6.7	3.1	3.2	3.0	3.3	4.9	4.3	6.2	3.4	3.5
190.	3.4	3.2	3.9	5.1	3.1	3.1	3.3	3.9	5.4	5.8	7.4	3.0	3.2	3.0	3.1	4.5	4.7	6.6	3.2	3.3
200.	3.2	3.1	4.0	4.9	3.1	3.1	3.2	3.4	4.5	5.8	7.5	3.0	3.2	3.0	3.0	4.3	5.1	6.7	3.0	3.0
210.	3.0	3.0	4.0	4.4	3.0	3.0	3.2	3.1	4.1	5.6	7.3	3.0	3.2	3.0	3.0	4.2	5.3	6.5	3.0	3.0
220.	3.0	3.0	3.8	3.9	3.0	3.0	3.3	3.0	3.9	5.6	7.2	3.0	3.3	3.1	3.0	4.0	5.4	6.2	3.0	3.0
230.	3.0	3.0	3.6	3.5	3.0	3.0	3.3	3.0	3.6	5.6	6.9	3.0	3.4	3.1	3.0	3.7	5.4	5.7	3.0	3.0
240.	3.0	3.0	3.4	3.3	3.0	3.0	3.4	3.0	3.4	5.5	6.4	3.0	3.4	3.2	3.0	3.6	5.3	5.3	3.0	3.0
250.	3.0	3.0	3.2	3.1	3.0	3.0	3.4	3.0	3.3	5.5	6.2	3.0	3.5	3.3	3.2	3.6	5.4	5.0	3.0	3.0
260.	3.0	3.0	3.2	3.1	3.0	3.0	3.6	3.0	3.1	5.6	5.8	3.0	3.7	3.3	3.2	3.4	5.7	4.7	3.0	3.0
270.	3.0	3.0	3.4	3.2	3.0	3.0	4.0	3.1	3.0	5.8	5.6	3.0	3.5	3.6	3.6	3.5	6.0	4.6	3.0	3.0
280.	3.0	3.0	3.8	3.1	3.0	3.0	4.1	3.2	3.0	5.8	5.5	3.0	3.4	3.6	3.7	3.3	6.3	4.5	3.1	3.1
290.	3.0	3.0	4.1	3.2	3.0	3.0	4.3	3.3	3.0	6.2	5.4	3.0	3.2	3.7	3.8	3.2	6.6	4.4	3.1	3.1
300.	3.0	3.0	4.5	3.2	3.0	3.0	4.6	3.5	3.0	6.4	5.5	3.0	3.2	3.5	3.8	3.2	6.9	4.4	3.2	3.2
310.	3.0	3.0	4.9	3.2	3.0	3.0	4.8	3.7	3.0	6.7	5.7	3.0	3.2	3.5	4.0	3.3	7.3	4.1	3.1	3.1
320.	3.0	3.0	5.2	3.2	3.0	3.0	5.1	3.9	3.1	7.1	5.9	3.0	3.2	3.5	4.2	3.3	7.4	3.8	3.1	3.1
330.	3.0	3.0	5.5	3.2	3.0	3.0	5.4	4.1	3.2	7.3	5.9	3.0	3.2	3.5	4.4	3.4	7.2	3.5	3.1	3.1
340.	3.1	3.1	6.1	3.4	3.4	3.4	5.8	4.8	3.7	7.3	5.9	3.0	3.2	3.5	4.6	3.6	7.0	3.2	3.2	3.2
350.	3.3	3.3	6.5	3.7	4.0	3.9	6.1	5.7	4.5	7.4	5.7	3.1	3.2	3.5	4.8	3.9	6.2	3.0	3.2	3.2
360.	3.6	3.6	6.9	3.6	4.7	4.7	5.9	6.7	5.3	6.7	5.1	3.3	3.1	3.4	5.1	4.5	5.4	3.0	3.6	3.5
MAX	5.3	4.8	7.2	5.4	4.8	4.9	6.1	7.4	7.4	7.4	7.5	4.4	3.7	3.7	5.7	6.2	7.4	6.7	3.6	3.8
DEGR.	80	110	60	170	10	10	350	20	160	350	200	80	260	80	60	140	320	200	0	170

JOB: HCC - 2003 PM Peak RUN: HCC - 2003 PM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	3.3	3.3	3.3	3.3	3.3	6.5	4.5	5.1	3.1	3.2	3.1	3.2
10.	3.2	3.2	3.1	3.1	3.1	5.9	5.0	5.7	3.0	3.1	3.0	3.1
20.	3.0	3.0	3.0	3.0	3.0	5.6	5.3	6.1	3.0	3.1	3.0	3.1
30.	3.0	3.0	3.0	3.0	3.0	5.7	5.5	6.6	3.0	3.1	3.0	3.1
40.	3.0	3.0	3.0	3.0	3.1	5.8	5.5	7.1	3.0	3.1	3.0	3.1
50.	3.0	3.0	3.0	3.0	3.1	5.6	5.4	7.5	3.0	3.2	3.0	3.2
60.	3.0	3.0	3.0	3.0	3.2	5.4	5.3	7.5	3.0	3.2	3.0	3.2
70.	3.0	3.0	3.0	3.0	3.3	5.1	5.6	7.9	3.1	3.2	3.1	3.2
80.	3.0	3.0	3.0	3.0	3.6	4.7	6.5	7.6	3.3	3.4	3.3	3.4
90.	3.0	3.0	3.0	3.0	4.1	4.1	7.4	6.8	3.5	3.5	3.5	3.5
100.	3.0	3.0	3.0	3.0	4.7	3.6	8.1	5.8	3.5	3.3	3.5	3.3
110.	3.0	3.0	3.0	3.0	5.1	3.3	8.2	4.9	3.2	3.1	3.2	3.1
120.	3.0	3.0	3.0	3.0	5.5	3.2	8.1	4.4	3.2	3.0	3.2	3.0
130.	3.0	3.0	3.0	3.0	5.7	3.2	7.8	4.1	3.2	3.0	3.2	3.0
140.	3.0	3.0	3.0	3.0	5.8	3.2	7.2	3.8	3.1	3.0	3.1	3.0
150.	3.0	3.0	3.0	3.1	5.8	3.1	6.3	3.5	3.1	3.0	3.1	3.0
160.	3.2	3.2	3.2	3.3	5.9	3.3	5.3	3.2	3.1	3.0	3.1	3.0
170.	3.4	3.4	3.5	3.7	6.5	3.7	4.4	3.1	3.1	3.0	3.1	3.0
180.	3.6	3.7	3.7	3.9	7.1	4.1	3.9	3.0	3.1	3.0	3.1	3.0
190.	3.6	3.7	3.9	4.2	7.5	4.5	3.4	3.0	3.1	3.0	3.1	3.0
200.	3.4	3.5	3.7	3.9	7.6	4.9	3.3	3.0	3.1	3.0	3.1	3.0
210.	3.3	3.3	3.4	3.6	7.9	5.0	3.2	3.0	3.1	3.0	3.1	3.0
220.	3.2	3.2	3.2	3.3	8.2	5.1	3.2	3.0	3.1	3.0	3.1	3.0
230.	3.2	3.2	3.2	3.2	8.2	5.1	3.3	3.0	3.2	3.0	3.2	3.0
240.	3.2	3.2	3.2	3.2	8.2	5.1	3.2	3.0	3.2	3.0	3.2	3.0
250.	3.2	3.2	3.2	3.2	7.7	5.3	3.2	3.1	3.3	3.0	3.3	3.0
260.	3.2	3.2	3.2	3.2	7.4	6.0	3.2	3.1	3.3	3.2	3.3	3.2
270.	3.2	3.2	3.2	3.2	6.4	6.8	3.2	3.2	3.3	3.3	3.3	3.3
280.	3.3	3.3	3.2	3.2	5.7	7.9	3.1	3.2	3.2	3.3	3.2	3.3
290.	3.3	3.3	3.3	3.3	5.0	8.2	3.1	3.2	3.1	3.2	3.1	3.3
300.	3.4	3.4	3.3	3.3	4.7	8.8	3.1	3.3	3.0	3.2	3.0	3.2
310.	3.3	3.3	3.4	3.4	4.6	8.9	3.2	3.4	3.1	3.2	3.0	3.2
320.	3.4	3.4	3.4	3.3	4.1	8.7	3.3	3.4	3.1	3.2	3.1	3.2
330.	3.4	3.4	3.4	3.4	3.8	8.2	3.3	3.4	3.2	3.3	3.2	3.3
340.	3.5	3.4	3.4	3.4	3.6	7.5	3.5	3.8	3.3	3.4	3.3	3.4
350.	3.5	3.5	3.4	3.4	3.4	7.0	3.9	4.3	3.2	3.3	3.2	3.3
360.	3.3	3.3	3.3	3.3	3.3	6.5	4.5	5.1	3.1	3.2	3.1	3.2
MAX	3.6	3.7	3.9	4.2	8.2	8.9	8.2	7.9	3.5	3.5	3.5	3.5
DEGR.	180	180	190	190	220	310	110	70	90	90	90	90

THE HIGHEST CONCENTRATION OF 8.90 PPM OCCURRED AT RECEPTOR REC26.

JOB: HCC - 2003 PM Peak RUN: HCC - 2003 PM Peak

DATE : 10/27/ 3
TIME : 15:47:17

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
	80	110	60	170	10	10	350	20	160	350	200	80	260	80	60	140	320	200	0	170
1	.2	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4	2.0	1.5	4.0	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	.1	.0	.0	.2	.2	.2	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.3	.3	.3	2.3	1.8	1.4	.8	.3	.1	.0	.0	.0	.1	.0	.0	.0
10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	1.3	1.3	2.6	1.0	1.4	2.0	2.5	.4	.2	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.2	.1	.0	.1	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.1	.0	.5	.7	.5	.7	.3	.1	.0	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.9	.6	.8	.1	.0
17	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0	.1	.1	.3	.1	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0	.0	.3	.2	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0	.0	.2	.1	.0	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.8	.5	.7	.5	.1	.0
24	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.1	.1	.1
25	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	1.2	1.2	2.4	2.1	.1	.0
26	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.1	.2	.2
27	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.2	.5	.0	.0	.0
29	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
30	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
32	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2

JOB: HCC - 2003 PM Peak RUN: HCC - 2003 PM Peak

DATE : 10/27/ 3
TIME : 15:47:17

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

CO/LINK (PPM)
ANGLE (DEGREES)

LINK #	REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
	180	180	190	190	220	310	110	70	90	90	90	90
1	.0	.0	.0	.0	.0	.0	.1	.1	.2	.2	.2	.2
2	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	.2	.2	.2	.2	.1	.1	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	.1	.1	.1	.1	.0	.1	.1	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	.1	.1	.3	.4	.4	1.2	1.9	1.6	.1	.1	.1	.1
30	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0
31	.1	.1	.1	.2	1.8	1.5	.8	.8	.1	.1	.1	.1
32	.1	.2	.2	.3	2.7	2.7	2.1	2.2	.1	.1	.1	.1

CALQVIEW2 2006 AM Peak Output File – Hartford Civic Center

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JOB: HCC - 2006 AM Peak                                    RUN: HCC - 2006 AM Peak

      DATE : 10/27/ 3
      TIME : 16:16:54

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

       SITE & METEOROLOGICAL VARIABLES
       -------------------------------
       VS =    .0 CM/S       VD =    .0 CM/S       Z0 = 321. CM
        U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  3.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (FT)          *    LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2     *     (FT)  (DEG)            (G/MI)  (FT) (FT)       (VEH)
      -----------------------*-----------------------------------------*-----------------------------------------------------------
       1. Asylum WB approach  *    696.0      55.0      50.0      55.0 *     646.   270. AG    428.   7.5    .0 20.0
       2. Asylum WB before Tru*    745.0      55.0     696.0      55.0 *      49.   270. AG    270.   7.5    .0 20.0
       3. Asylum/Ann WB R queu*    100.0      60.0      99.3      60.0 *       1.   270. AG    240. 100.0    .0 10.0  .01    .0
       4. Asylum/Ann WB T queu*    100.0      50.0      48.0      50.0 *      52.   270. AG    719. 100.0    .0 10.0  .13   2.6
       5. Ann/Asylum NB LT que*     50.0        .0      50.0      27.6 *      28.   360. AG    365. 100.0    .0 20.0  .08   1.4
       6. Ann NB approach     *     50.0      55.0      50.0     684.0 *     629.   360. AG    213.   9.4    .0 20.0
       7. Ann NB before Asylum*     50.0        .0      50.0      55.0 *      55.   360. AG    199.   9.4    .0 20.0
       8. Ann/Church NB RT que*     55.0     645.0      55.0     645.4 *       0.   360. AG    565. 100.0    .0 10.0  .00    .0
       9. Ann/Church NB L queu*     45.0     645.0      45.0    1120.8 *     476.   360. AG    283. 100.0    .0 10.0 1.18  24.2
      10. Ann SB before Church*     50.0     735.0      50.0     684.0 *      51.   180. AG     57.   9.4    .0 20.0
      11. Ann/Church SB L queu*     55.0     735.0      55.0     708.2 *      27.   180. AG    308. 100.0    .0 10.0  .51   1.4
      12. Ann/Church SB RL que*     45.0     735.0      45.0     734.1 *       1.   180. AG    308. 100.0    .0 10.0  .02    .0
      13. Church WB approach  *    671.0     673.0      50.0     694.0 *     621.   272. AG    199.   9.4    .0 20.0
      14. Church/Ann WB R queu*    100.0     698.0      99.3     698.0 *       1.   272. AG    232. 100.0    .0 10.0  .01    .0
      15. Church/Ann WB T queu*    100.0     688.0      29.3     689.4 *      71.   271. AG    232. 100.0    .0 10.0  .42   3.6
      16. Chch/Tmbl WB LRT    *    720.0     667.0     622.6     671.0 *      97.   272. AG    268. 100.0    .0 10.0  .81   5.0
      17. Church EB approach  *     50.0     674.0     671.0     653.0 *     621.    92. AG    205.   9.4    .0 20.0
      18. Church WB before Tru*    720.0     667.0     671.0     669.0 *      49.   272. AG    224.   9.4    .0 10.0
      19. Church/Ann EB T queu*       .0     671.0        .7     671.0 *       1.    92. AG    215. 100.0    .0 10.0  .00    .0
      20. Church/Ann EB L queu*       .0     681.0      81.0     677.8 *      81.    92. AG    215. 100.0    .0 10.0  .46   4.1
      21. Church EB before Ann*       .0     676.0      50.0     674.0 *      50.    92. AG    247.   9.4    .0 20.0
      22. Church/Trumbull EB R*    620.0     649.0     620.8     649.0 *       1.    92. AG    250. 100.0    .0 10.0  .01    .0
      23. Chch/Tmbl EB LT     *    620.0     659.0     698.4     656.0 *      78.    92. AG    250. 100.0    .0 10.0  .53   4.0
      24. Trumbull NB         *    706.0      55.0     681.0     661.0 *     607.   358. AG    366.   7.5    .0 20.0
      25. Tmbl/Chch NB LRT    *    683.0     612.0     680.9     664.0 *      52.   358. AG    372. 100.0    .0 20.0  .15   2.6
      26. Trumbull SB         *    661.0     663.0     686.0      55.0 *     609.   178. AG    368.   7.5    .0 20.0
      27. Trumbull SB before C*    660.0     710.0     661.0     663.0 *      47.   179. AG    487.   7.5    .0 20.0
      28. Tmbl/Chch SB LRT    *    660.0     710.0     661.0     663.9 *      46.   179. AG    558. 100.0    .0 20.0  .10   2.3
      29. Tmbl/Aslm SB RT     *    684.0     105.0     686.2      49.7 *      55.   178. AG    394. 100.0    .0 20.0  .16   2.8
      30. Trumbull NB before A*    708.0        .0     706.0      55.0 *      55.   358. AG    636.   7.5    .0 20.0
      31. Tmbl/Aslm NB LT     *    708.0        .0     706.0      53.9 *      54.   358. AG    222. 100.0    .0 20.0  .15   2.7
      32. Tmbl/Aslm WB LTR    *    745.0      55.0     682.3      55.0 *      63.   270. AG    608. 100.0    .0 20.0  .54   3.2
```

JOB: HCC - 2006 AM Peak RUN: HCC - 2006 AM Peak

DATE : 10/27/ 3
TIME : 16:16:54

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
3. Asylum/Ann WB R queu*	100	67	5.0	2	1163	133.37	2	3
4. Asylum/Ann WB T queu*	100	67	5.0	428	4357	133.37	2	4
5. Ann/Asylum NB LT que*	100	51	5.0	199	2852	133.35	2	3
8. Ann/Church NB RT que*	100	79	5.0	2	3024	133.35	2	3
9. Ann/Church NB L queu*	100	79	5.0	213	1287	133.35	2	3
11. Ann/Church SB L queu*	100	86	5.0	57	1608	133.35	2	3
12. Ann/Church SB RL que*	100	86	5.0	2	1439	133.35	2	3
14. Church/Ann WB R queu*	100	65	5.0	2	1163	133.35	2	3
15. Church/Ann WB T queu*	100	65	5.0	199	1710	133.35	2	4
16. Chch/Tmbl WB LRT *	100	75	5.0	224	1538	133.35	2	3
19. Church/Ann EB T queu*	100	60	5.0	2	1710	133.35	2	4
20. Church/Ann EB L queu*	100	60	5.0	247	1624	133.35	2	3
22. Church/Trumbull EB R*	100	70	5.0	2	1545	133.35	2	3
23. Chch/Tmbl EB LT *	100	70	5.0	205	1694	133.35	2	3
25. Tmbl/Chch NB LRT *	100	52	5.0	366	3064	133.37	2	4
28. Tmbl/Chch SB LRT *	100	52	5.0	487	3836	133.37	2	4
29. Tmbl/Aslm SB RT *	100	55	5.0	368	3016	133.37	2	4
31. Tmbl/Aslm NB LT *	100	31	5.0	636	3334	133.37	2	4
32. Tmbl/Aslm WB LTR *	100	85	5.0	270	3133	133.37	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. Asylum/Ann SW	38.0	43.0	6.0
2. Asylum/Ann NW	38.0	67.0	6.0
3. Asylum/Ann SE	62.0	43.0	6.0
4. Asylum/Ann NE	62.0	67.0	6.0
5. Ann/Allyn SW	38.0	367.0	6.0
6. Ann/Allyn NW	38.0	391.0	6.0
7. Ann/Allyn E	62.0	379.0	6.0
8. Church/Ann SW	38.0	662.0	6.0
9. Church/Ann NW	38.0	708.0	6.0
10. Church/Ann SE	62.0	661.0	6.0
11. Church/Ann NE	62.0	707.0	6.0
12. Restaurant on Church	-40.0	665.0	6.0
13. Church Mid-Block N	335.0	697.0	6.0
14. Church Mid-Block S	335.0	652.0	6.0
15. Trumbull/Church SW	650.0	641.0	6.0
16. Trumbull/Church NW	649.0	686.0	6.0
17. Trumbull/Church SE	694.0	639.0	6.0
18. Trumbull/Church NE	692.0	684.0	6.0
19. Trumbull/Pratt NW	662.0	325.0	6.0
20. Trumbull/Pratt SW	663.0	300.0	6.0
21. Trumbull/Pratt NE	707.0	325.0	6.0
22. Trumbull/Pratt SE	708.0	300.0	6.0
23. Restaurant1 on Trumb	711.0	235.0	6.0
24. Restaurant2 on Trumb	713.0	200.0	6.0
25. Asylum/Trumbull NE	718.0	67.0	6.0
26. Asylum/Trumbull SE	719.0	43.0	6.0
27. Asylum/Trumbull NW	673.0	67.0	6.0
28. Asylum/Trumbull SW &	674.0	43.0	6.0
29. Asylum/Haynes NE	347.0	67.0	6.0
30. Asylum/Haynes SE	347.0	43.0	6.0
31. Asylum/Haynes NW	323.0	67.0	6.0
32. Asylum/Haynes SW	323.0	43.0	6.0

JOB: HCC - 2006 AM Peak RUN: HCC - 2006 AM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	3.2	3.2	5.8	3.2	3.3	3.3	3.3	5.4	4.4	4.9	4.3	3.1	3.0	3.1	5.2	4.0	4.5	3.0	3.3	3.2
10.	3.3	3.2	5.7	3.2	3.2	3.2	3.2	5.9	4.8	4.5	3.8	3.2	3.0	3.1	5.5	4.3	3.9	3.0	3.3	3.3
20.	3.4	3.1	5.6	3.0	3.2	3.2	3.0	5.8	4.9	4.2	3.3	3.3	3.0	3.1	5.5	4.6	3.7	3.0	3.2	3.2
30.	3.6	3.1	5.7	3.0	3.1	3.1	3.0	5.6	4.8	3.9	3.1	3.3	3.0	3.1	5.4	4.8	3.6	3.0	3.2	3.2
40.	3.9	3.1	5.9	3.0	3.1	3.1	3.0	5.5	4.8	3.9	3.0	3.3	3.0	3.1	5.1	5.0	3.5	3.0	3.2	3.2
50.	4.4	3.1	6.1	3.0	3.1	3.1	3.0	5.1	4.7	3.7	3.0	3.6	3.0	3.1	5.0	5.0	3.2	3.0	3.2	3.2
60.	4.9	3.1	6.3	3.0	3.1	3.1	3.0	4.9	4.6	3.5	3.0	3.7	3.0	3.1	4.7	5.0	3.1	3.0	3.2	3.2
70.	5.3	3.2	6.2	3.0	3.1	3.1	3.0	4.9	4.6	3.4	3.0	3.9	3.0	3.2	4.6	4.9	3.0	3.0	3.2	3.2
80.	5.5	3.4	5.8	3.2	3.1	3.1	3.0	4.6	4.5	3.2	3.0	3.7	3.0	3.2	4.4	5.1	3.0	3.0	3.2	3.2
90.	5.0	3.8	5.1	3.5	3.1	3.1	3.0	4.4	4.6	3.1	3.2	3.5	3.2	3.3	4.3	5.3	3.0	3.1	3.2	3.2
100.	4.4	4.3	4.2	3.8	3.1	3.1	3.0	4.2	4.6	3.1	3.2	3.3	3.2	3.1	4.1	5.6	3.0	3.1	3.2	3.2
110.	3.8	4.6	3.5	4.2	3.1	3.1	3.0	4.1	4.8	3.0	3.5	3.2	3.2	3.0	3.9	5.9	3.0	3.3	3.2	3.2
120.	3.6	4.8	3.2	4.5	3.1	3.1	3.0	4.1	4.9	3.0	3.6	3.0	3.2	3.0	3.8	6.2	3.0	3.4	3.2	3.2
130.	3.5	4.7	3.1	4.7	3.1	3.1	3.0	4.1	5.0	3.0	3.7	3.0	3.1	3.0	3.7	6.6	3.1	3.5	3.2	3.2
140.	3.7	4.4	3.0	4.8	3.1	3.1	3.0	4.1	5.1	3.0	3.7	3.0	3.1	3.0	3.5	6.8	3.1	3.6	3.2	3.2
150.	3.8	4.2	3.0	4.8	3.1	3.1	3.0	4.0	5.2	3.0	3.8	3.0	3.1	3.0	3.4	6.7	3.1	3.8	3.3	3.3
160.	3.8	3.9	3.1	4.9	3.2	3.1	3.0	3.9	5.3	3.0	3.9	3.0	3.1	3.0	3.4	6.3	3.2	4.2	3.4	3.4
170.	3.7	3.7	3.3	5.0	3.2	3.2	3.2	3.7	5.2	3.1	4.1	3.0	3.1	3.0	3.3	5.8	3.4	4.6	3.4	3.4
180.	3.5	3.4	3.5	5.0	3.2	3.2	3.2	3.5	4.9	3.1	4.3	3.0	3.1	3.0	3.1	5.2	3.8	4.9	3.3	3.3
190.	3.3	3.2	3.7	5.1	3.1	3.1	3.2	3.3	4.4	3.1	4.5	3.0	3.1	3.0	3.1	4.6	4.2	5.3	3.1	3.2
200.	3.1	3.1	3.8	4.9	3.0	3.0	3.1	3.1	4.0	3.2	4.7	3.0	3.1	3.0	3.0	4.3	4.2	5.2	3.0	3.0
210.	3.0	3.0	3.8	4.7	3.0	3.0	3.1	3.0	3.7	3.3	4.6	3.0	3.1	3.0	3.0	4.3	4.4	5.2	3.0	3.0
220.	3.0	3.0	3.7	4.1	3.0	3.0	3.1	3.0	3.4	3.4	4.6	3.0	3.1	3.0	3.0	4.1	4.5	5.1	3.0	3.0
230.	3.0	3.0	3.6	3.8	3.0	3.0	3.1	3.0	3.4	3.5	4.5	3.0	3.1	3.0	3.0	3.9	4.5	5.0	3.0	3.0
240.	3.0	3.0	3.5	3.5	3.0	3.0	3.1	3.0	3.2	3.6	4.5	3.0	3.2	3.0	3.0	3.7	4.4	4.9	3.0	3.0
250.	3.0	3.0	3.4	3.2	3.0	3.0	3.1	3.0	3.1	3.7	4.2	3.0	3.2	3.0	3.0	3.6	4.4	5.3	3.0	3.0
260.	3.0	3.0	3.5	3.1	3.0	3.0	3.1	3.0	3.0	3.7	4.1	3.0	3.2	3.0	3.0	3.3	4.6	5.1	3.0	3.0
270.	3.0	3.0	3.9	3.1	3.0	3.0	3.1	3.1	3.0	3.9	4.3	3.0	3.2	3.2	3.1	3.2	4.9	4.8	3.0	3.0
280.	3.0	3.0	4.4	3.1	3.0	3.0	3.1	3.2	3.0	4.2	4.2	3.0	3.2	3.2	3.3	3.2	5.2	4.7	3.0	3.0
290.	3.0	3.0	4.8	3.1	3.0	3.0	3.1	3.4	3.0	4.4	4.4	3.0	3.1	3.2	3.5	3.1	5.6	4.3	3.0	3.0
300.	3.0	3.0	5.2	3.1	3.0	3.0	3.1	3.5	3.0	4.5	4.6	3.0	3.1	3.2	3.8	3.2	5.8	4.0	3.0	3.0
310.	3.0	3.0	5.4	3.1	3.0	3.0	3.1	3.6	3.0	4.6	4.7	3.0	3.1	3.2	3.8	3.1	6.2	3.7	3.1	3.1
320.	3.0	3.0	5.5	3.1	3.0	3.0	3.1	3.8	3.1	4.7	4.9	3.0	3.1	3.2	4.0	3.1	6.3	3.4	3.1	3.1
330.	3.0	3.0	5.6	3.1	3.0	3.0	3.1	3.9	3.2	5.0	5.0	3.0	3.1	3.2	4.2	3.2	6.0	3.2	3.0	3.0
340.	3.0	3.0	5.6	3.1	3.0	3.1	3.2	4.3	3.5	5.0	5.0	3.0	3.0	3.1	4.4	3.3	5.7	3.1	3.0	3.0
350.	3.2	3.2	5.8	3.2	3.2	3.2	3.2	5.0	3.9	5.1	4.8	3.0	3.0	3.1	4.7	3.5	5.0	3.0	3.1	3.1
360.	3.2	3.2	5.8	3.2	3.3	3.3	3.3	5.4	4.4	4.9	4.3	3.1	3.0	3.1	5.2	4.0	4.5	3.0	3.3	3.2
MAX	5.5	4.8	6.3	5.1	3.3	3.3	3.3	5.9	5.3	5.1	5.0	3.9	3.2	3.3	5.5	6.8	6.3	5.3	3.4	3.4
DEGR.	80	120	60	190	0	0	0	10	160	350	330	70	90	90	10	140	320	190	160	160

JOB: HCC - 2006 AM Peak RUN: HCC - 2006 AM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	3.1	3.1	3.1	3.1	3.1	5.5	4.0	4.4	3.0	3.1	3.0	3.1
10.	3.1	3.1	3.1	3.1	3.1	5.3	4.4	4.8	3.0	3.1	3.0	3.1
20.	3.0	3.0	3.0	3.0	3.0	5.1	4.5	5.3	3.0	3.1	3.0	3.1
30.	3.0	3.0	3.0	3.0	3.0	5.1	4.6	5.6	3.0	3.1	3.0	3.1
40.	3.0	3.0	3.0	3.0	3.1	5.2	4.7	5.9	3.0	3.1	3.0	3.1
50.	3.0	3.0	3.0	3.0	3.1	5.2	4.6	6.0	3.0	3.1	3.0	3.1
60.	3.0	3.0	3.0	3.0	3.1	5.0	4.6	6.0	3.0	3.2	3.0	3.2
70.	3.0	3.0	3.0	3.0	3.3	4.7	4.9	6.0	3.0	3.2	3.0	3.2
80.	3.0	3.0	3.0	3.0	3.5	4.3	5.4	5.7	3.2	3.3	3.2	3.3
90.	3.0	3.0	3.0	3.0	3.9	3.9	6.1	5.1	3.4	3.3	3.3	3.3
100.	3.0	3.0	3.0	3.0	4.3	3.5	6.5	4.4	3.3	3.2	3.3	3.2
110.	3.0	3.0	3.0	3.0	4.8	3.2	6.7	4.0	3.2	3.0	3.2	3.0
120.	3.0	3.0	3.0	3.0	5.0	3.1	6.7	3.6	3.2	3.0	3.2	3.0
130.	3.0	3.0	3.0	3.0	5.2	3.1	6.4	3.5	3.1	3.0	3.1	3.0
140.	3.0	3.0	3.0	3.0	5.2	3.1	6.0	3.4	3.1	3.0	3.1	3.0
150.	3.0	3.0	3.0	3.1	5.1	3.1	5.2	3.2	3.1	3.0	3.1	3.0
160.	3.1	3.1	3.1	3.2	5.2	3.1	4.6	3.1	3.1	3.0	3.1	3.0
170.	3.2	3.3	3.4	3.6	5.6	3.4	3.9	3.0	3.1	3.0	3.1	3.0
180.	3.3	3.3	3.5	3.7	5.8	3.6	3.5	3.0	3.1	3.0	3.1	3.0
190.	3.5	3.5	3.7	3.6	5.9	3.8	3.2	3.0	3.1	3.0	3.1	3.0
200.	3.2	3.4	3.4	3.5	5.8	4.0	3.2	3.0	3.1	3.0	3.1	3.0
210.	3.2	3.2	3.3	3.4	6.0	4.0	3.1	3.0	3.1	3.0	3.1	3.0
220.	3.2	3.2	3.2	3.3	6.2	4.1	3.1	3.0	3.1	3.0	3.1	3.0
230.	3.2	3.2	3.2	3.2	6.2	4.1	3.1	3.0	3.1	3.0	3.1	3.0
240.	3.2	3.2	3.2	3.2	6.2	4.2	3.2	3.0	3.2	3.0	3.2	3.0
250.	3.2	3.2	3.2	3.2	5.9	4.2	3.2	3.0	3.3	3.0	3.3	3.0
260.	3.2	3.2	3.2	3.2	5.5	4.8	3.2	3.1	3.3	3.2	3.3	3.2
270.	3.2	3.2	3.2	3.2	5.3	5.5	3.2	3.2	3.2	3.2	3.2	3.2
280.	3.2	3.2	3.2	3.2	4.7	6.1	3.1	3.2	3.2	3.3	3.2	3.3
290.	3.2	3.2	3.2	3.2	4.3	6.4	3.0	3.2	3.0	3.2	3.0	3.3
300.	3.2	3.2	3.2	3.2	4.2	6.8	3.0	3.2	3.0	3.2	3.0	3.2
310.	3.3	3.3	3.3	3.2	3.9	6.9	3.1	3.1	3.0	3.1	3.0	3.1
320.	3.2	3.2	3.2	3.2	3.8	6.8	3.1	3.1	3.0	3.1	3.0	3.1
330.	3.2	3.2	3.2	3.2	3.5	6.4	3.1	3.2	3.1	3.1	3.0	3.1
340.	3.3	3.3	3.3	3.3	3.4	6.0	3.2	3.4	3.1	3.2	3.1	3.2
350.	3.4	3.3	3.3	3.2	3.3	5.8	3.5	3.8	3.0	3.1	3.1	3.1
360.	3.1	3.1	3.1	3.1	3.1	5.5	4.0	4.4	3.0	3.1	3.0	3.1
MAX	3.5	3.5	3.7	3.7	6.2	6.9	6.7	6.0	3.4	3.3	3.3	3.3
DEGR.	190	190	190	180	240	310	110	50	90	80	90	80

THE HIGHEST CONCENTRATION OF 6.90 PPM OCCURRED AT RECEPTOR REC26.

CALQVIEW2 2006 PM Peak Output File – Hartford Civic Center

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JOB: HCC - 2006 PM Peak                                   RUN: HCC - 2006 PM Peak

      DATE : 10/28/ 3
      TIME :  8:54:15

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

       SITE & METEOROLOGICAL VARIABLES
       -------------------------------
       VS =    .0 CM/S       VD =    .0 CM/S       Z0 = 321. CM
        U =  1.0 M/S         CLAS =   4  (D)     ATIM =  60. MINUTES     MIXH =  1000. M   AMB =  3.0 PPM

       LINK VARIABLES
       --------------
         LINK DESCRIPTION     *         LINK COORDINATES (FT)          *    LENGTH  BRG TYPE   VPH    EF      H   W    V/C QUEUE
                              *   X1        Y1        X2        Y2     *     (FT)  (DEG)            (G/MI)  (FT) (FT)       (VEH)
      -------------------------*----------------------------------------*-----------------------------------------------------------
       1. Asylum WB approach  *    696.0      55.0      50.0      55.0 *     646.   270. AG    488.   7.5    .0 20.0
       2. Asylum WB before Tru*    745.0      55.0     696.0      55.0 *      49.   270. AG    280.   7.5    .0 20.0
       3. Asylum/Ann WB R queu*    100.0      60.0      99.3      60.0 *       1.   270. AG    228. 100.0    .0 10.0  .01    .0
       4. Asylum/Ann WB T queu*    100.0      50.0      40.6      50.0 *      59.   270. AG    685. 100.0    .0 10.0  .13   3.0
       5. Ann/Asylum NB LT que*     50.0        .0      50.0      28.8 *      29.   360. AG    382. 100.0    .0 20.0  .08   1.5
       6. Ann NB approach     *     50.0      55.0      50.0     684.0 *     629.   360. AG    436.   9.4    .0 20.0
       7. Ann NB before Asylum*     50.0        .0      50.0      55.0 *      55.   360. AG    189.   9.4    .0 20.0
       8. Ann/Church NB RT que*     55.0     645.0      55.0     645.5 *       0.   360. AG    565. 100.0    .0 10.0  .00    .0
       9. Ann/Church NB L queu*     45.0     645.0      45.0    3431.5 *    2787.   360. AG    283. 100.0    .0 10.0 2.36 141.6
      10. Ann SB before Church*     50.0     735.0      50.0     684.0 *      51.   180. AG     76.   9.4    .0 20.0
      11. Ann/Church SB L queu*     55.0     735.0      55.0     346.2 *     389.   180. AG    324. 100.0    .0 10.0 1.69  19.8
      12. Ann/Church SB RL que*     45.0     735.0      45.0     734.0 *       1.   180. AG    324. 100.0    .0 10.0  .05    .1
      13. Church WB approach  *    671.0     673.0      50.0     694.0 *     621.   272. AG    250.   9.4    .0 20.0
      14. Church/Ann WB R queu*    100.0     698.0      99.3     698.0 *       1.   272. AG    221. 100.0    .0 10.0  .01    .0
      15. Church/Ann WB T queu*    100.0     688.0      11.2     689.8 *      89.   271. AG    221. 100.0    .0 10.0  .47   4.5
      16. Chch/Tmbl WB LRT    *    720.0     667.0     631.3     670.6 *      89.   272. AG    238. 100.0    .0 10.0  .61   4.5
      17. Church EB approach  *     50.0     674.0     671.0     653.0 *     621.    92. AG    408.   9.4    .0 20.0
      18. Church WB before Tru*    720.0     667.0     671.0     669.0 *      49.   272. AG    232.   9.4    .0 10.0
      19. Church/Ann EB T queu*       .0     671.0        .3     671.0 *       0.    92. AG     89. 100.0    .0 10.0  .00    .0
      20. Church/Ann EB L queu*       .0     681.0      62.2     678.5 *      62.    92. AG     89. 100.0    .0 10.0  .39   3.2
      21. Church EB before Ann*       .0     676.0      50.0     674.0 *      50.    92. AG    438.   9.4    .0 20.0
      22. Church/Trumbull EB R*    620.0     649.0     620.6     649.0 *       1.    92. AG    201. 100.0    .0 10.0  .00    .0
      23. Chch/Tmbl EB LT     *    620.0     659.0     751.5     653.9 *     132.    92. AG    201. 100.0    .0 10.0  .65   6.7
      24. Trumbull NB         *    706.0      55.0     681.0     661.0 *     607.   358. AG    347.   7.5    .0 20.0
      25. Tmbl/Chch NB LRT    *    683.0     612.0     680.4     676.3 *      64.   358. AG    463. 100.0    .0 20.0  .22   3.3
      26. Trumbull SB         *    661.0     663.0     686.0      55.0 *     609.   178. AG    405.   7.5    .0 20.0
      27. Trumbull SB before C*    660.0     710.0     661.0     663.0 *      47.   179. AG    225.   7.5    .0 20.0
      28. Tmbl/Chch SB LRT    *    660.0     710.0     660.6     682.1 *      28.   179. AG    695. 100.0    .0 20.0  .06   1.4
      29. Tmbl/Aslm SB RT     *    684.0     105.0     686.8      34.4 *      71.   178. AG    436. 100.0    .0 20.0  .20   3.6
      30. Trumbull NB before A*    708.0        .0     706.0      55.0 *      55.   358. AG    508.   7.5    .0 20.0
      31. Tmbl/Aslm NB LT     *    708.0        .0     705.4      70.8 *      71.   358. AG    348. 100.0    .0 20.0  .18   3.6
      32. Tmbl/Aslm WB LTR    *    745.0      55.0     683.8      55.0 *      61.   270. AG    545. 100.0    .0 20.0  .28   3.1
```

JOB: HCC - 2006 PM Peak RUN: HCC - 2006 PM Peak

DATE : 10/28/ 3
TIME : 8:54:15

ADDITIONAL QUEUE LINK PARAMETERS

LINK DESCRIPTION	CYCLE LENGTH (SEC)	RED TIME (SEC)	CLEARANCE LOST TIME (SEC)	APPROACH VOL (VPH)	SATURATION FLOW RATE (VPH)	IDLE EM FAC (gm/hr)	SIGNAL TYPE	ARRIVAL RATE
3. Asylum/Ann WB R queu*	105	67	5.0	2	1163	133.37	2	3
4. Asylum/Ann WB T queu*	105	67	5.0	488	4357	133.37	2	4
5. Ann/Asylum NB LT que*	105	56	5.0	189	2846	133.35	2	3
8. Ann/Church NB RT que*	105	83	5.0	2	3134	133.35	2	3
9. Ann/Church NB L queu*	105	83	5.0	436	1300	133.35	2	3
11. Ann/Church SB L queu*	105	95	5.0	76	1608	133.35	2	3
12. Ann/Church SB RL que*	105	95	5.0	2	1439	133.35	2	3
14. Church/Ann WB R queu*	105	65	5.0	2	1163	133.35	2	3
15. Church/Ann WB T queu*	105	65	5.0	250	1710	133.35	2	4
16. Chch/Tmbl WB LRT *	105	70	5.0	232	1424	133.35	2	3
19. Church/Ann EB T queu*	105	26	5.0	2	1710	133.35	2	4
20. Church/Ann EB L queu*	105	26	5.0	438	1624	133.35	2	3
22. Church/Trumbull EB R*	105	59	5.0	2	1545	133.35	2	3
23. Chch/Tmbl EB LT *	105	59	5.0	408	1690	133.35	2	3
25. Tmbl/Chch NB LRT *	105	68	5.0	347	2725	133.37	2	4
28. Tmbl/Chch SB LRT *	105	68	5.0	225	4062	133.37	2	4
29. Tmbl/Aslm SB RT *	105	64	5.0	405	3081	133.37	2	4
31. Tmbl/Aslm NB LT *	105	51	5.0	508	3201	133.37	2	4
32. Tmbl/Aslm WB LTR *	105	80	5.0	280	2972	133.37	2	3

RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. Asylum/Ann SW	38.0	43.0	6.0
2. Asylum/Ann NW	38.0	67.0	6.0
3. Asylum/Ann SE	62.0	43.0	6.0
4. Asylum/Ann NE	62.0	67.0	6.0
5. Ann/Allyn SW	38.0	367.0	6.0
6. Ann/Allyn NW	38.0	391.0	6.0
7. Ann/Allyn E	62.0	379.0	6.0
8. Church/Ann SW	38.0	662.0	6.0
9. Church/Ann NW	38.0	708.0	6.0
10. Church/Ann SE	62.0	661.0	6.0
11. Church/Ann NE	62.0	707.0	6.0
12. Restaurant on Church	-40.0	665.0	6.0
13. Church Mid-Block N	335.0	697.0	6.0
14. Church Mid-Block S	335.0	652.0	6.0
15. Trumbull/Church SW	650.0	641.0	6.0
16. Trumbull/Church NW	649.0	686.0	6.0
17. Trumbull/Church SE	694.0	639.0	6.0
18. Trumbull/Church NE	692.0	684.0	6.0
19. Trumbull/Pratt NW	662.0	325.0	6.0
20. Trumbull/Pratt SW	663.0	300.0	6.0
21. Trumbull/Pratt NE	707.0	325.0	6.0
22. Trumbull/Pratt SE	708.0	300.0	6.0
23. Restaurant1 on Trumb	711.0	235.0	6.0
24. Restaurant2 on Trumb	713.0	200.0	6.0
25. Asylum/Trumbull NE	718.0	67.0	6.0
26. Asylum/Trumbull SE	719.0	43.0	6.0
27. Asylum/Trumbull NW	673.0	67.0	6.0
28. Asylum/Trumbull SW &	674.0	43.0	6.0
29. Asylum/Haynes NE	347.0	67.0	6.0
30. Asylum/Haynes SE	347.0	43.0	6.0
31. Asylum/Haynes NW	323.0	67.0	6.0
32. Asylum/Haynes SW	323.0	43.0	6.0

JOB: HCC - 2006 PM Peak RUN: HCC - 2006 PM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	CONCENTRATION (PPM) REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10	REC11	REC12	REC13	REC14	REC15	REC16	REC17	REC18	REC19	REC20
0.	4.1	3.6	6.1	3.6	4.3	4.2	5.1	5.7	4.7	5.7	4.6	3.3	3.1	3.3	4.6	4.1	4.8	3.0	3.2	3.2
10.	4.3	3.4	5.8	3.3	4.4	4.4	4.4	6.1	4.9	4.8	3.9	3.4	3.0	3.2	4.8	4.5	4.3	3.0	3.4	3.4
20.	4.6	3.3	5.6	3.1	4.3	4.3	3.7	6.2	5.0	4.1	3.4	3.4	3.0	3.2	4.9	4.8	4.1	3.0	3.3	3.3
30.	4.7	3.2	5.6	3.0	4.2	4.2	3.2	6.0	4.8	3.7	3.1	3.3	3.0	3.2	4.9	5.2	3.9	3.0	3.2	3.2
40.	5.3	3.2	5.8	3.0	4.1	4.1	3.1	6.1	4.9	3.6	3.0	3.4	3.0	3.2	4.9	5.4	3.8	3.0	3.2	3.2
50.	5.7	3.2	6.1	3.0	4.0	4.0	3.0	5.8	4.8	3.6	3.0	3.5	3.0	3.3	5.0	5.5	3.8	3.0	3.2	3.2
60.	5.9	3.1	6.1	3.0	3.9	3.9	3.0	5.6	4.7	3.5	3.0	3.8	3.0	3.3	5.1	5.4	3.6	3.0	3.2	3.2
70.	6.3	3.2	6.1	3.1	3.9	3.9	3.0	5.5	4.8	3.4	3.0	3.8	3.0	3.3	5.0	5.3	3.4	3.0	3.2	3.2
80.	6.1	3.4	5.6	3.2	3.9	3.9	3.0	5.3	4.9	3.3	3.1	4.0	3.1	3.3	4.8	5.4	3.3	3.0	3.2	3.2
90.	5.5	3.9	5.0	3.5	3.9	3.9	3.0	5.2	5.1	3.2	3.3	4.0	3.3	3.4	4.6	5.6	3.2	3.0	3.2	3.2
100.	4.5	4.3	4.1	3.8	3.8	3.9	3.0	5.0	5.3	3.1	3.3	3.6	3.3	3.2	4.3	5.7	3.1	3.2	3.2	3.2
110.	3.8	4.7	3.6	4.1	3.8	3.9	3.0	5.0	5.4	3.1	3.5	3.4	3.2	3.1	4.2	5.7	3.0	3.4	3.2	3.2
120.	3.6	4.9	3.2	4.5	3.8	3.9	3.0	4.9	5.5	3.0	3.6	3.3	3.2	3.0	4.0	5.7	3.0	3.7	3.2	3.2
130.	3.6	5.0	3.1	4.7	3.8	4.0	3.0	5.0	5.7	3.0	3.7	3.4	3.2	3.0	3.8	5.9	3.1	3.8	3.2	3.2
140.	3.8	5.0	3.0	4.7	3.7	4.0	3.0	5.1	5.9	3.1	3.8	3.4	3.2	3.0	3.6	5.6	3.1	3.9	3.2	3.2
150.	3.9	4.8	3.0	4.7	3.5	3.9	3.1	5.1	6.1	3.2	3.9	3.4	3.2	3.0	3.5	5.6	3.1	4.2	3.2	3.3
160.	3.9	4.7	3.1	4.8	3.5	3.7	3.3	5.0	6.0	3.6	4.2	3.3	3.2	3.0	3.4	5.2	3.2	4.5	3.6	3.6
170.	3.8	4.3	3.3	4.9	3.4	3.6	3.6	4.8	6.1	4.1	5.0	3.1	3.2	3.0	3.3	4.8	3.5	4.9	3.6	3.4
180.	3.5	3.8	3.5	5.0	3.3	3.5	4.1	4.3	5.6	4.8	5.8	3.0	3.2	3.0	3.1	4.4	4.0	5.6	3.4	3.4
190.	3.3	3.5	3.8	5.1	3.1	3.2	4.4	3.7	4.9	5.1	6.3	3.0	3.2	3.0	3.1	4.2	4.4	5.9	3.2	3.2
200.	3.1	3.2	3.9	5.3	3.1	3.1	4.5	3.3	4.2	5.1	6.2	3.0	3.2	3.0	3.0	4.0	4.5	5.8	3.0	3.0
210.	3.0	3.0	3.9	4.9	3.0	3.0	4.5	3.0	3.8	5.0	6.3	3.0	3.2	3.0	3.0	4.0	4.7	5.7	3.0	3.0
220.	3.0	3.0	3.8	4.6	3.0	3.0	4.5	3.0	3.6	5.0	6.1	3.0	3.3	3.1	3.0	3.8	4.8	5.5	3.0	3.0
230.	3.0	3.0	3.7	4.3	3.0	3.0	4.4	3.0	3.6	4.9	5.8	3.0	3.3	3.1	3.0	3.7	4.8	5.2	3.0	3.0
240.	3.0	3.0	3.5	3.9	3.0	3.0	4.3	3.0	3.4	4.8	5.6	3.0	3.3	3.1	3.0	3.5	4.7	5.0	3.0	3.0
250.	3.0	3.0	3.5	3.5	3.0	3.0	4.2	3.0	3.2	4.8	5.3	3.0	3.3	3.1	3.1	3.4	4.8	4.9	3.0	3.0
260.	3.0	3.0	3.7	3.3	3.0	3.0	4.2	3.0	3.1	4.8	5.1	3.0	3.4	3.2	3.2	3.3	5.1	4.7	3.0	3.0
270.	3.0	3.0	4.3	3.1	3.0	3.0	4.2	3.1	3.0	5.1	4.9	3.0	3.5	3.4	3.3	3.3	5.2	4.5	3.0	3.0
280.	3.0	3.0	4.9	3.1	3.0	3.0	4.2	3.2	3.0	5.2	4.8	3.0	3.3	3.5	3.5	3.2	5.5	4.4	3.1	3.1
290.	3.0	3.0	5.3	3.1	3.0	3.0	4.2	3.2	3.0	5.4	4.8	3.0	3.1	3.5	3.6	3.1	5.6	4.2	3.1	3.1
300.	3.0	3.0	5.6	3.1	3.0	3.0	4.3	3.4	3.0	5.7	4.9	3.0	3.1	3.4	3.7	3.2	6.0	4.1	3.1	3.1
310.	3.0	3.0	5.8	3.2	3.0	3.0	4.5	3.6	3.0	5.8	4.9	3.0	3.1	3.4	3.9	3.2	6.2	3.9	3.1	3.1
320.	3.0	3.0	5.8	3.2	3.0	3.0	4.7	3.8	3.1	6.1	5.1	3.0	3.1	3.4	4.0	3.3	6.4	3.6	3.1	3.1
330.	3.0	3.0	5.6	3.2	3.0	3.0	4.8	3.8	3.2	6.2	5.2	3.0	3.2	3.4	4.1	3.3	6.3	3.4	3.1	3.1
340.	3.2	3.1	5.7	3.3	3.3	3.3	5.1	4.2	3.5	6.4	5.2	3.0	3.2	3.4	4.3	3.4	6.0	3.2	3.1	3.1
350.	3.5	3.3	5.9	3.4	3.7	3.7	5.3	4.9	4.1	6.3	5.1	3.1	3.1	3.3	4.6	3.8	5.4	3.0	3.2	3.2
360.	4.1	3.6	6.1	3.6	4.3	4.2	5.1	5.7	4.7	5.7	4.6	3.3	3.1	3.3	4.6	4.1	4.8	3.0	3.2	3.2
MAX	6.3	5.0	6.1	5.3	4.4	4.4	5.3	6.2	6.1	6.4	6.3	4.0	3.5	3.5	5.1	5.9	6.4	5.9	3.6	3.6
DEGR.	70	130	0	200	10	10	350	20	150	340	210	80	270	280	60	130	320	190	160	160

JOB: HCC - 2006 PM Peak RUN: HCC - 2006 PM Peak

MODEL RESULTS

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

WIND ANGLE RANGE: 0.-360.

WIND ANGLE (DEGR)	* CONCENTRATION (PPM) REC21	REC22	REC23	REC24	REC25	REC26	REC27	REC28	REC29	REC30	REC31	REC32
0.	3.2	3.2	3.2	3.1	3.2	5.7	4.2	4.5	3.1	3.2	3.1	3.2
10.	3.1	3.1	3.1	3.1	3.1	5.2	4.5	5.1	3.0	3.1	3.0	3.1
20.	3.0	3.0	3.0	3.0	3.0	5.0	4.8	5.7	3.0	3.1	3.0	3.1
30.	3.0	3.0	3.0	3.0	3.0	5.0	4.8	6.1	3.0	3.1	3.0	3.1
40.	3.0	3.0	3.0	3.0	3.1	5.1	4.8	6.4	3.0	3.1	3.0	3.1
50.	3.0	3.0	3.0	3.0	3.1	4.9	4.8	6.6	3.0	3.2	3.0	3.2
60.	3.0	3.0	3.0	3.0	3.1	4.8	4.9	6.9	3.0	3.2	3.0	3.2
70.	3.0	3.0	3.0	3.0	3.2	4.5	5.1	7.1	3.1	3.2	3.1	3.2
80.	3.0	3.0	3.0	3.0	3.5	4.2	5.8	7.1	3.2	3.4	3.2	3.4
90.	3.0	3.0	3.0	3.0	3.8	3.8	6.4	6.5	3.4	3.5	3.4	3.4
100.	3.0	3.0	3.0	3.0	4.2	3.4	6.8	5.9	3.4	3.1	3.3	3.1
110.	3.0	3.0	3.0	3.0	4.6	3.2	7.0	5.2	3.2	3.1	3.2	3.1
120.	3.0	3.0	3.0	3.0	4.8	3.1	7.1	4.8	3.2	3.0	3.2	3.0
130.	3.0	3.0	3.0	3.0	5.1	3.1	7.0	4.4	3.2	3.0	3.2	3.0
140.	3.0	3.0	3.0	3.0	5.1	3.2	6.6	4.2	3.1	3.0	3.1	3.0
150.	3.0	3.0	3.0	3.1	5.0	3.1	5.9	3.7	3.1	3.0	3.1	3.0
160.	3.0	3.1	3.1	3.2	5.2	3.2	5.1	3.5	3.1	3.0	3.1	3.0
170.	3.4	3.4	3.5	3.5	5.6	3.4	4.4	3.3	3.1	3.0	3.1	3.0
180.	3.4	3.4	3.6	3.8	6.1	3.9	3.8	3.1	3.1	3.0	3.1	3.0
190.	3.5	3.5	3.7	3.8	6.4	4.1	3.4	3.0	3.1	3.0	3.1	3.0
200.	3.3	3.3	3.6	3.7	6.6	4.3	3.3	3.0	3.1	3.0	3.1	3.0
210.	3.2	3.2	3.3	3.5	6.9	4.4	3.2	3.0	3.1	3.0	3.1	3.0
220.	3.2	3.2	3.2	3.3	7.1	4.5	3.2	3.0	3.1	3.0	3.1	3.0
230.	3.2	3.2	3.2	3.2	7.4	4.6	3.2	3.0	3.2	3.0	3.2	3.0
240.	3.2	3.2	3.2	3.2	7.3	4.7	3.2	3.0	3.2	3.0	3.2	3.0
250.	3.2	3.2	3.2	3.2	6.9	4.9	3.2	3.1	3.3	3.0	3.3	3.0
260.	3.2	3.2	3.2	3.2	6.6	5.6	3.2	3.1	3.3	3.2	3.3	3.2
270.	3.2	3.2	3.2	3.2	6.1	6.1	3.2	3.2	3.3	3.3	3.3	3.3
280.	3.3	3.3	3.2	3.2	5.5	6.7	3.1	3.2	3.2	3.3	3.2	3.3
290.	3.3	3.3	3.3	3.3	4.9	7.1	3.1	3.2	3.1	3.2	3.0	3.3
300.	3.3	3.3	3.3	3.3	4.6	7.5	3.1	3.3	3.0	3.2	3.0	3.2
310.	3.3	3.3	3.3	3.3	4.4	7.6	3.2	3.4	3.1	3.2	3.1	3.2
320.	3.3	3.3	3.3	3.3	4.1	7.5	3.2	3.3	3.1	3.2	3.1	3.2
330.	3.3	3.3	3.3	3.3	3.7	7.1	3.2	3.4	3.2	3.3	3.2	3.3
340.	3.3	3.3	3.3	3.3	3.6	6.5	3.4	3.6	3.2	3.3	3.2	3.3
350.	3.4	3.4	3.3	3.3	3.4	6.2	3.7	4.0	3.1	3.2	3.1	3.2
360.	3.2	3.2	3.2	3.1	3.2	5.7	4.2	4.5	3.1	3.2	3.1	3.2
MAX	3.5	3.5	3.7	3.8	7.4	7.6	7.1	7.1	3.4	3.5	3.4	3.4
DEGR.	190	190	190	180	230	310	120	80	90	90	90	80

THE HIGHEST CONCENTRATION OF 7.60 PPM OCCURRED AT RECEPTOR REC26