APPENDIX C

HEALTH RISK ASSESSMENT

CONSTRUCTION HEALTH RISK ASSESSMENT FOR:

MAIN STREET SANTA CLARA

prepared for:

CITY OF SANTA CLARA

Contact:
Debby Fernandez
Associate Planner

prepared by:

THE PLANNING CENTER|DC&E

Contact:
Cathleen Fitzgerald
Senior Engineer

OCTOBER 2012

CONSTRUCTION HEALTH RISK ASSESSMENT FOR:

MAIN STREET SANTA CLARA

prepared for:

CITY OF SANTA CLARA

1500 Warburton Avenue
Santa Clara, CA 95050
Tel: 408.615.2450

Contact:
Debby Fernandez
Associate Planner

prepared by:

THE PLANNING CENTER|DC&E

9841 Airport Boulevard, Suite 1010
Los Angeles, CA 90045
Tel: 310.670.9221 • Fax: 310.670.9512
Website: www.planningcenter.com

Contact:
Cathleen Fitzgerald
Senior Engineer

REGISTERED PROFESSIONAL ENGINEER
CATHLEEN M. FITZGERALD
Exp. Date 12/31/13
No. C039541
CIVIL
STATE OF CALIFORNIA

Cathleen M. Fitzgerald, P.E.
Senior Engineer

BYE-01.0

OCTOBER 2012

Table of Contents

Section		Page
1.	**INTRODUCTION**	**1**
2.	**PROJECT DESCRIPTION**	**2**
3.	**METHODOLOGY AND SIGNIFICANCE THRESHOLDS**	**4**
4.	**CONSTRUCTION EMISSIONS**	**5**
5.	**DISPERSION MODELING**	**6**
6.	**RISK CHARACTERIZATIONS**	**7**
6.1	CARCINOGENIC CHEMICAL RISK	7
6.2	NONCARCINOGENIC HAZARDS	8
6.3	CRITERIA POLLUTANTS	8
7.	**CONCLUSIONS**	**9**
8.	**REFERENCES**	**10**

APPENDICES

Appendix A. CalEEMod Input Parameters and Output
Appendix B. ISCST3 Model Output Files
Appendix C. Risk Calculation Worksheet

List of Figures

Figure		Page
Figure 1	Project Location and ISCST3 Model Configuration	3

List of Tables

Table		Page
Table 1	Construction Activity	5
Table 2	Risk Summary	9

1. Introduction

Byer Properties, the Project Applicant, is proposing to renovate and reconstruct a retail shopping center. New construction and renovation would take place on a 20.89-acre site located at the southwest corner of El Camino Real and Scott Boulevard in the City of Santa Clara, California. The project is bounded by El Camino Real to the north, Scott Boulevard to the east, Harrison Street to the south, and single family residences and a restaurant (Boston Market) to the west (see Figure 1).

The latest version of the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines requires projects to evaluate the impacts of construction on sensitive receptors (BAAQMD, 2012). Construction of the project would take place starting in 2013 and will include demolition, grading, trenching, building construction, and paving. The construction phase is estimated to take place over a period of 574 days between 2013 and 2015.

The nearest residential housing is located approximately 25 feet west from the project and there are additional residences across Harrison Street to the south and across Scott Boulevard to the east. The residents at these locations could be potentially impacted from the proposed construction activities. In addition, New Valley High School and Haman Elementary School, which are located approximately 1,320 feet southwest and 1,900 feet south of the project site, were included as sensitive receptors.

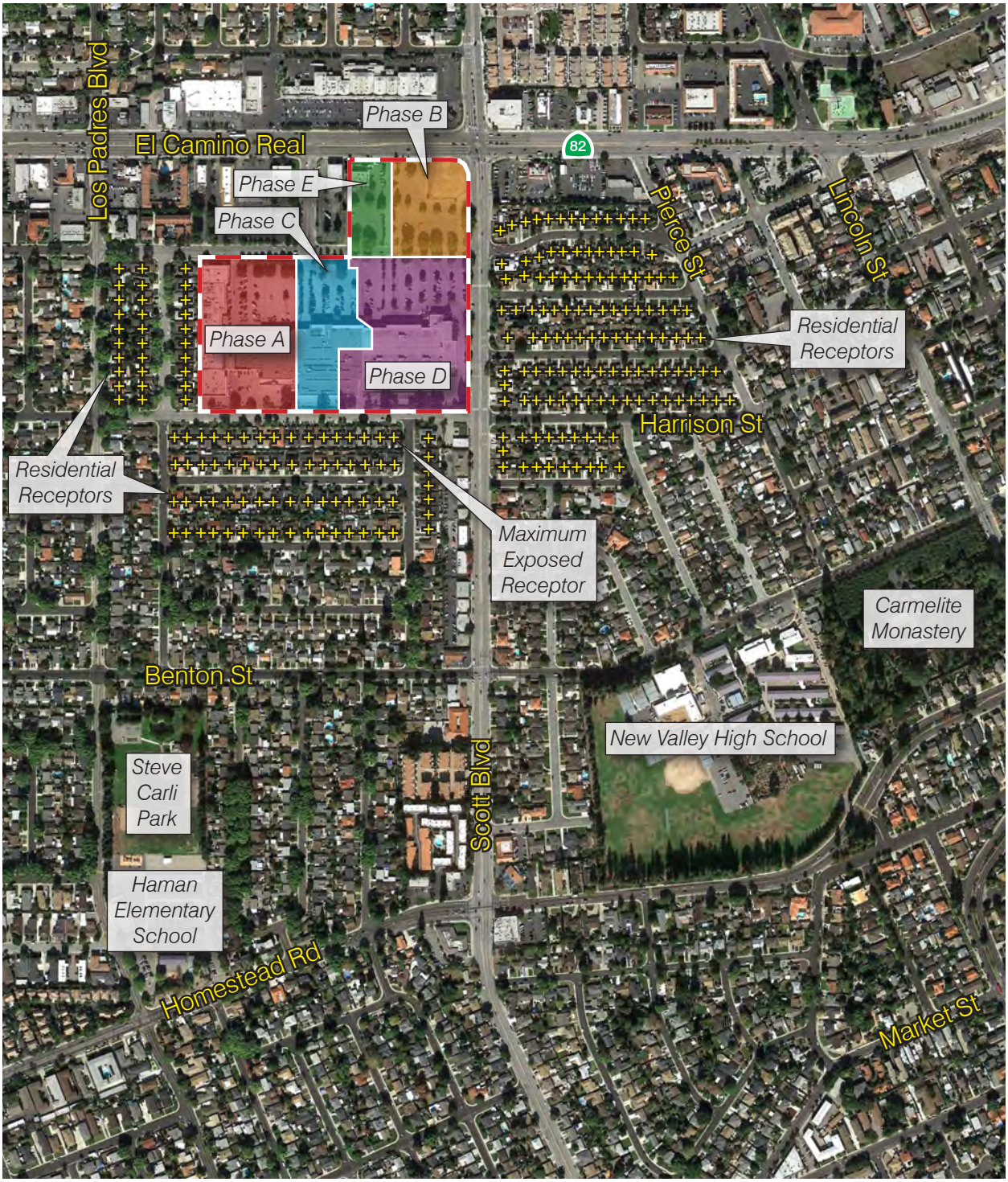
The BAAQMD has developed *Screening Tables for Air Toxics Evaluation During Construction* (2010) that evaluate construction-related health risks associated with residential, commercial, and industrial projects. According to the screening tables, the residences are closer than the distance of 175 meters (574 feet) that would screen out potential health risks. Therefore, a site-specific construction health risk assessment (HRA) was prepared for this project.

This construction HRA considers the health impact of planned construction operations at the project site to sensitive receptors (residences and students) from diesel equipment exhaust and $PM_{2.5}$.

2. Project Description

The proposed retail shopping center encompasses approximately 20.89 acres at the southwest corner of El Camino Real and Scott Boulevard in the City of Santa Clara. It is bordered on the north by El Camino Real, on the east by Scott Boulevard, on the south by Harrison Road, and on the west by single family residences and a restaurant (Boston Market). To the west, south, and east are sensitive receptors (residences). New Valley High School and Haman Elementary School are located farther to the south. The project site and vicinity are depicted in Figure 1.

Project Location and ISCST3 Model Configuration



Site Boundary

0 700
Scale (Feet)

Source: Google Earth Pro 2011

3. Methodology and Significance Thresholds

The purpose of the construction HRA is to evaluate the potential health impacts associated with diesel particulate matter (DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$) from construction activities associated with the proposed project. Construction sources evaluated in this HRA include off-road construction equipment (excavators, forklifts, graders, pavers, rollers, scrapers, dozers, tractors, loaders, and backhoes).

The BAAQMD's 2010 adopted "Thresholds of Significance" for local community risk impacts were challenged in a lawsuit and subsequently rescinded. However, lead agencies can determine that these are appropriate air quality thresholds for projects they review. The 2010 BAAQMD thresholds were used for this project as shown below:

- Non-compliance with a qualified risk reduction plan
- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic or acute) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 $\mu g/m^3$

Since Santa Clara County does not have a qualified risk reduction plan, a site-specific analysis of DPM and $PM_{2.5}$ impacts on sensitive receptors was conducted.

The methodology used in this HRA is consistent with the following BAAQMD and the Office of Environmental Health Hazard Assessment (OEHHA) guidance documents:

- BAAQMD, 2012. *California Environmental Quality Act Air Quality Guidelines.* May 2012.
- BAAQMD, 2010. *Screening Tables for Air Toxics Evaluation During Construction.* May 2010.
- BAAQMD, 2011. *Recommended Methods for Screening and Modeling Local Risks and Hazards.* Version 2.0. May 2011
- OEHHA, 2012. *Air Toxics Hot Spots Program Risk Assessment Guidelines.* June, 2012.

Potential exposures to DPM and $PM_{2.5}$ from proposed project construction activities were evaluated for off-site sensitive receptors in the vicinity of the site, including the residences to the west, south, and east, as well as the nearby school sites. Using air dispersion models, receptor concentrations were estimated and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds identified in the BAAQMD CEQA guidelines.

4. Construction Emissions

Construction emissions were calculated, using California Emissions Estimation Model (CalEEMod) and the proposed construction schedule (SCAQMD, 2011). The CalEEMod construction information, schedule, and output are provided in Appendix A.

The project was assumed to take place over an approximately 3-year period between 2013 and 2015. The construction project would take place with Phases A through D occurring during 2013 and the first eight months of 2014. Then Phase E will sequentially follow for the last four months of 2014 and into 2015.

Two model runs were conducted. The first run assumed that no mitigation measures were used to reduce emissions from the construction equipment. The second run assumed that the project would use Tier 3 standards for off-road equipment greater than 90 hp to achieve emission reductions. The construction schedule and modeled emission rates for both scenarios are summarized in Table 1.

Table 1
Construction Activity

Year	Phases	Days of Operation	Unmitigated DPM (lb/day)	Unmitigated DPM (lb/day)	Mitigated DPM (lb/day)	Mitigated $PM_{2.5}$ (lb/day)
2013	A-D	217	1.2	1.2	1.1	1.1
2014	A-D	173	1.0	1.0	0.99	0.99
2014	E	87	0.36	0.36	0.38	0.38
2015	E	97	0.29	0.29	0.27	0.27

5. Dispersion Modeling

To assess the impact of emitted compounds on sensitive receptors at the project, air quality modeling using the ISCST3 model was performed. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating ground level impacts from point and fugitive sources in simple and complex terrain. The construction emissions for Phases A-D of the project were modeled as a polyarea source and the construction emissions for Phase E were modeled as a rectangular source.

The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction phase emission rates are those described in Section 4. Meteorological data obtained from the BAAQMD for the nearest met station (San Jose Airport) and the latest available year of record (1997) were used to represent local weather conditions and prevailing winds.

DPM emissions were based on the CalEEMod unmitigated and mitigated construction runs, using annual exhaust PM_{10} construction emissions presented in lb/day. The $PM_{2.5}$ emissions were taken from the CalEEMod $PM_{2.5}$ total, which includes exhaust $PM_{2.5}$. An emission release height of 4.15 meters was used as representative of the stack exhaust height for off-road construction equipment and an initial vertical dispersion parameter of 1.93 m was used, per CARB guidance (2000).

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. The United States Geological Society 30-meter Digital Elevation Model (DEM) data were used to account for elevation differences. DEM data allowed for the direct computation of source and receptor elevations within the ISCST3 model.

To determine contaminant impacts during construction hours, the model's scalar option was invoked to predict flagpole-level concentrations (1.8 m) for emissions generated between the hours of 7:00 AM and 4:00 PM, with a one-hour break for lunch between noon and 1:00 PM. In addition, a scalar factor was applied to HROFDY in the ISCST3 model to account for the number of days of construction activity per year.

The configuration of the area sources and the receptor locations are presented in Figure 1. The ISCST3 model output data are presented in Appendix B.

6. Risk Characterizations

6.1 CARCINOGENIC CHEMICAL RISK

Carcinogenic compounds are not considered to have threshold levels (i.e., dose levels below which there are no risks). Any exposure, therefore, will have some associated risk. As a result, the BAAQMD has established a threshold of ten in a million (10E–06) as a level posing no significant risk for exposures to carcinogens.

Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Cancer risks were calculated, using BAAQMD recommended methods for a residential receptor. For the inhalation pathway, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. To calculate the contaminant dose, the following equation was used:

$$Dose = (C_{air} \times IR \times EF \times ED \times CF) / (AT)$$

where:

Dose	=	dose through inhalation pathway (mg/kg/day)
C_{air}	=	concentration of contaminant in air ($\mu g/m^3$)
IR	=	inhalation rate (302 L/kg body weight for adult)
	=	inhalation rate (581 L/kg body weight for child)
EF	=	exposure frequency (350 days/year)
ED	=	exposure duration (70 years for residential receptor)
CF	=	conversion factor (10^{-6} [mg/ug * m3/L])
AT	=	averaging time (25,550 days or 70 years)

The CPFs used in the assessment were obtained from OEHHA guidance. For DPM, a CPF of 1.1 mg/kg-day^{-1} was used.

OEHHA and BAAQMD procedures require the incorporation of age sensitivity factors into the evaluation. For estimating cancer risk for residential receptors that include exposure over a 70-year lifetime, a cancer risk adjustment factor (CRAF) of 1.7 is applied. The CRAF is used in the following equation to obtain the cancer risk:

$$Cancer\ Risk = (Dose \times Cancer\ Potency\ Factor \times CRAF)$$

where:

Cancer Risk = risk (potential chances per million)
Dose = dose through inhalation (mg/kg-day)
Cancer Potency Factor = toxicity factor (mg/kg-day^{-1})
CRAF = cancer risk adjustment factor (1.7 for residential receptor)

For the child exposure scenario, a cancer risk adjustment factor of either 10 or 3 was used, as follows:

- 2013 – ASF = 10 (children 0-2 years old)
- 2014 – ASF = 10 (children 0-2 years old)
- 2015 – ASF = 3 (children 2 to 16 years old)

The excess lifetime cancer risk to the maximally exposed individual (MEI) during the construction period was calculated, based on the factors provided above. The calculated results are provided in Appendix C.

6.2 NONCARCINOGENIC HAZARDS

An evaluation of the potential noncancer effects of chronic chemical exposures was also conducted. Adverse health effects are evaluated by comparing the annual ground level concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

To quantify noncarcinogenic impacts, the hazard index approach was used. The hazard index assumes that chronic subthreshold exposures adversely affect a specific organ or organ system (toxicological endpoint). For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds one, a health hazard is presumed to exist. In a manner consistent with the assessment of carcinogenic exposures, REL/RfC (reference concentration) values were converted to units expressed in mg/kg/day to accommodate the above intake algorithm.

The chronic hazard analysis for DPM is provided in Appendix C. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of noncarcinogenic exposures.

6.3 CRITERIA POLLUTANTS

The BAAQMD has recently incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 ug/m^3 for the annual average $PM_{2.5}$ concentration is considered to be a significant impact. The modeling results for PM2.5 are summarized in Table 2; the model runs are provided in Appendix B.

For $PM_{2.5}$, the maximum annual concentration for the unmitigated run was calculated to be 0.094 ug/m^3, which is less than the significance threshold of 0.3 ug/m^3. For the mitigated run, the $PM_{2.5}$ concentration was estimated to be 0.086 ug/m^3, which also is below the significance threshold. The results of the modeling indicate that residential receptors in the vicinity of the project would not be adversely impacted by $PM_{2.5}$ emissions during the three-year construction period.

7. Conclusions

Results of the health risk assessment indicate that the incremental cancer risk for the unmitigated project for a resident next to the project site during the construction period, based on the maximum concentration for a 70-year, 24-hour outdoor exposure duration, is 1.3 x 10^{-6} (1.3 per million), which is less than the significance threshold of 10 per million. However, the incremental cancer risk for the child for the unmitigated project was estimated to be 1.0 x 10^{-5}, which is at the significance threshold of 10 in a million. Therefore, mitigation measures are warranted.

The proposed mitigation measure is the use of Tier 3 standards for all construction equipment greater than 90 hp. With implementation of this mitigation measure, the incremental cancer risk for the maximally exposed resident next to the project site during the construction period is 1.0 x 10^{-6}. For the child resident, the maximally exposed individual was calculated to have an excess cancer risk of 9.6 x 10^{-6}, which also is less than the 10 in a million significance threshold. The excess cancer risks for students at New Valley High School and Haman Elementary School are estimated to be 8.2 x 10^{-8} and 2.9 x 10^{-8}, respectively, which also are below significance thresholds.

For non-carcinogenic effects, the hazard index identified for each toxicological endpoint totaled less than one. Therefore, chronic non-carcinogenic hazards are within acceptable limits. In addition, $PM_{2.5}$ annual concentrations are below the BAAQMD significance thresholds. The results are summarized in Table 2.

Table 2
Risk Summary

Receptor	*Value*	*BAAQMD Significance Threshold*	*Exceeds Significance Threshold?*
Unmitigated - Adult Resident	1.3E-06	10E-06	No
Unmitigated- Child Resident	**10E-06**	10E-06	Yes
Unmitigated - Chronic Hazard	0.034	1.0	No
Unmitigated - $PM_{2.5}$ Concentration (ug/m^3)	0.094	0.3	No
Mitigated - Adult Resident	1.0E-06	10E-06	No
Mitigated – Child Resident	9.6E-06	10E-06	No
Mitigated – Chronic Hazard	0.030	1.0	No
Mitigated - $PM_{2.5}$ Concentration (ug/m^3)	0.086	0.3	No
Mitigated – New Valley High School	8.2E-08	10E-06	No
Mitigated – Haman Elementary School	2.9E-08	10E-06	No

The results of this construction risk assessment indicate that the project would have a less than significant impact with respect to risk for near-by residents or students at the local schools during the three-year construction period, with the implementation of Tier 3 standards on all construction equipment greater than 90 hp.

8. References

Bay Area Air Quality Management District (BAAQMD), 2012. *California Environmental Quality Act Air Quality Guidelines.* Dated June 2010.

BAAQMD, 2010. *Screening Tables for Air Toxics Evaluation During Construction. Version 1.0.* Dated May 2010.

BAAQMD, 2011. *Recommended Methods for Screening and Modeling Local Risks and Hazards.* Version 2.0. May 2011.

California Air Resources Board (CARB), 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.*

Office of Environmental Health Hazard Assessment (OEHHA). 2010. *Toxicity Criteria Database*. http://oehha.ca.gov/risk/chemicaldb/index.asp. Accessed November 2, 2010.

OEHHA, 2012. *Air Toxic Hot Spots Program Risk Assessment Guidelines. Technical Support Document for Exposure Assessment and Stochastic Analysis.* Dated June 2012.

South Coast Air Quality Management District (SCAQMD), 2011. *California Emissions Estimator Model User's Guide. Version 2011.1* Prepared for SCAQMD, Diamond Bar, CA by ENVIRON International Corporation, Emeryville, CA. Dated February 2011.

Appendix A.
CalEEMod Input Parameters and Output

Unmitigated Emissions

Worksheet - CalEEMOD Maximum Daily to Average Daily Construction Emissions

ONSITE EMISSIONS

ONSITE -WINTER RUN			ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Type	No. Days	Year	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
1 A-Demo Facade (Area A)	10	2013	1.72	12.3	8.82	0.02	0.00	0.81	0.81	0.00	0.81	0.81
2 A-Facade Construction (A)	40	2013	0.83	5.86	4.18	0.01		0.40	0.40		0.40	0.40
3 A-Demo Sidewalk (A) & Facade (C)	10	2013	1.72	12.3	8.82	0.02		0.81	0.81		0.81	0.81
4 A-Sidewalk Construction (A)	15	2013	0.38	2.83	2.21	0.00		0.16	0.16		0.16	0.16
5 A-Facade Construction (C)	40	2013	0.73	4.94	3.21	0.01		0.39	0.39		0.39	0.39
6 A-Demo Facade (B)	10	2013	1.01	7.64	6.26	0.01		0.52	0.52		0.52	0.52
7 A-Facade Construction (B)	45	2013	0.38	2.83	2.21	0.00		0.16	0.16		0.16	0.16
8 A-Demo Sidewalk (C)	10	2013	0.84	3.59	3.19	0.00		0.30	0.30		0.30	0.30
9 B-Construction Corner Buildings	103	2013	1.08	7.84	6.02	0.01		0.60	0.60		0.60	0.60
10 C,D,SW-Demo Buildings	30	2013	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
11 A-Sidewalk Construction (C)	15	2013	0.50	3.30	2.55	0.00		0.28	0.28		0.28	0.28
12 C-Building Construction	96	2013	0.28	1.91	1.24	0.00		0.15	0.15		0.15	0.15
12 C-Building Construction	59	2014	0.26	1.79	1.23	0.00		0.14	0.14		0.14	0.14
13 SW-Rough Grade Site	21	2013	1.88	16.7	7.13	0.02	0.24	0.65	0.89	0.02	0.65	0.67
14 A-Demo Sidewalk (B)	5	2013	1.22	8.47	6.03	0.01		0.63	0.63		0.63	0.63
15 SW-Utilities	20	2013	0.65	5.84	2.10	0.01		0.20	0.20		0.20	0.20
16 D-Building Pad Prep	40	2013	0.38	2.83	2.21	0.00	0.00	0.16	0.16	0.00	0.16	0.16
17 A-Sidewalk Construction (B)	5	2013	1.68	12.0	5.78	0.01		0.52	0.52		0.52	0.52
18 SW-Finish Grade Site	15	2013	3.99	39.6	14.4	0.05	0.00	1.42	1.42	0.00	1.42	1.42
19 SW-Curbs, Islands, Sidewalk Construction	20	2013	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
20 SW-AC Paving	14	2013	3.65	16.4	7.80	0.02		0.95	0.95		0.95	0.95
21 D-Underground Slab Utilities	35	2013	4.18	35.3	13.8	0.05		1.29	1.29		1.29	1.29
22 B-Hardscape & Sitework	10	2013	1.06	4.98	4.50	0.01		0.42	0.42		0.42	0.42
22 B-Hardscape & Sitework	15	2014	0.96	4.69	4.42	0.01		0.37	0.37		0.37	0.37
23 D-Building Construction	1	2013	1.46	10.7	8.23	0.01		0.76	0.76		0.76	0.76
23 D-Building Construction	149	2014	1.31	9.87	8.18	0.01		0.66	0.66		0.66	0.66
24 C-Sidewalk & Hardscape	10	2014	6.54	49.0	23.4	0.07		2.18	2.18		2.18	2.18
25 D-Hardscape & Sitework	20	2014	6.04	49.2	24.6	0.07		2.28	2.28		2.28	2.28
E-Building Demolition	7	2014	5.10	37.8	19.1	0.06	0.00	1.66	1.66	0.00	1.66	1.66
E-Building Construction - Site Work	2	2014	11.3	98.5	45.5	0.13		4.20	4.20		4.20	4.20
E-Building Construction	78	2014	0.35	2.58	2.22	0.00		0.14	0.14		0.14	0.14
E-Building Construction	70	2015	0.32	2.28	2.22	0.00		0.12	0.12		0.12	0.12
E-Sidewalk & Hardscape	10	2015	1.72	11.0	10.3	0.02		0.77	0.77		0.77	0.77
E-Parking Lot - Paving Preparation	24	2015	0.95	6.61	5.92	0.01		0.45	0.45		0.45	0.45
E-Parking Lot - Paving Equipment	1	2015	4.02	14.1	7.49	0.02		0.79	0.79		0.79	0.79
2013 Annual (lbs) - Phases A-D, SW			635	4802	2677	5.94	5.04	261	266	0.42	261	261
2014 Annual (lbs) - Phases A-D, SW			411	3121	2083	3.74	0.00	180	180	0.00	180	180
2014 Annual (lbs) - Phase E			85.6	662	398	0.68	0.00	30.9	30.9	0.00	30.9	30.9
2015 Annual (lbs) - Phase E			66.4	442	408	0.46	0.00	27.7	27.7	0.00	27.7	27.7

Average Daily Construction Emissions (lbs/day)

ONSITE EMISSIONS	No. Days	ROG	NOx	CO	SO2	Fugitive PM10*	Exhaust PM10	PM10 Total	Fugitive PM2.5*	Exhaust PM2.5	PM2.5 Total
2013 (Phases A-D, SW)	217	2.93	22.1	12.3	0.03	0.02	1.20	1.22	0.00	1.20	1.20
2014 (Phases A-D, SW)	173	2.38	18.0	12.0	0.02	0.00	1.04	1.04	0.00	1.04	1.04
2014 (Phase E)	87	0.98	7.61	4.57	0.01	0.00	0.36	0.36	0.00	0.36	0.36
2015 (Phase E)	97	0.68	4.56	4.20	0.00	0.00	0.29	0.29	0.00	0.29	0.29
Total	575	2.08	15.7	9.68	0.02	0.01	0.87	0.88	0.00	0.87	0.87
Threshold		54	54	NA	NA	BCM	82	NA	BCM	54	NA

*Fugitive Dust Excluded from BAAQMD's daily thresholds. BAAQMD's Basic Control Measures (BCM) required.

Mitigated Emissions

Worksheet - CalEEMOD Maximum Daily to Average Daily Construction Emissions

ONSITE EMISSIONS - MITIGATED **Tier 3 Equipment over 90 HP**

ONSITE -WINTER RUN			ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Type	No. Days	Year	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
1 A-Demo Facade (Area A)	10	2013	1.69	8.80	9.34	0.02	0.00	0.68	0.68	0.00	0.68	0.68
2 A-Facade Construction (A)	40	2013	0.60	3.94	4.44	0.01		0.33	0.33		0.33	0.33
3 A-Demo Sidewalk (A) & Facade (C)	10	2013	1.69	8.80	9.34	0.02		0.68	0.68		0.68	0.68
4 A-Sidewalk Construction (A)	15	2013	0.26	1.72	2.44	0.00		0.15	0.15		0.15	0.15
5 A-Facade Construction (C)	40	2013	0.97	4.02	3.25	0.01		0.31	0.31		0.31	0.31
6 A-Demo Facade (B)	10	2013	0.89	6.53	6.49	0.01		0.51	0.51		0.51	0.51
7 A-Facade Construction (B)	45	2013	0.26	1.72	2.44	0.00		0.15	0.15		0.15	0.15
8 A-Demo Sidewalk (C)	10	2013	1.12	3.32	2.66	0.00		0.26	0.26		0.26	0.26
9 B-Construction Corner Buildings	103	2013	0.96	7.04	6.04	0.01		0.54	0.54		0.54	0.54
10 C,D,SW-Demo Buildings	30	2013	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
11 A-Sidewalk Construction (C)	15	2013	0.26	1.71	2.44	0.00		0.14	0.14		0.14	0.14
12 C-Building Construction	96	2013	0.64	1.80	1.26	0.00		0.13	0.13		0.13	0.13
12 C-Building Construction	59	2014	0.63	1.74	1.25	0.00		0.12	0.12		0.12	0.12
13 SW-Rough Grade Site	21	2013	1.33	8.66	8.66	0.02	0.10	0.50	0.60	0.01	0.50	0.51
14 A-Demo Sidewalk (B)	5	2013	1.10	7.36	6.26	0.01		0.61	0.61		0.61	0.61
15 SW-Utilities	20	2013	0.69	4.46	4.46	0.01		0.26	0.26		0.26	0.26
16 D-Building Pad Prep	40	2013	0.26	1.72	2.44	0.00	0.00	0.15	0.15	0.00	0.15	0.15
17 A-Sidewalk Construction (B)	5	2013	1.40	7.50	7.38	0.01		0.48	0.48		0.48	0.48
18 SW-Finish Grade Site	15	2013	3.68	25.0	24.0	0.05	0.00	1.44	1.44	0.00	1.44	1.44
19 SW-Curbs, Islands, Sidewalk Construction	20	2013	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
20 SW-AC Paving	14	2013	2.92	8.57	8.98	0.02		0.64	0.64		0.64	0.64
21 D-Underground Slab Utilities	35	2013	3.92	27.3	23.2	0.05		1.45	1.45		1.45	1.45
22 B-Hardscape & Sitework	10	2013	0.74	3.24	3.83	0.01		0.28	0.28		0.28	0.28
22 B-Hardscape & Sitework	15	2014	0.73	3.22	3.82	0.01		0.28	0.28		0.28	0.28
23 D-Building Construction	1	2013	1.23	8.76	8.49	0.01		0.69	0.69		0.69	0.69
23 D-Building Construction	149	2014	1.14	8.30	8.45	0.01		0.62	0.62		0.62	0.62
24 C-Sidewalk & Hardscape	10	2014	6.24	40.0	34.8	0.07		2.38	2.38		2.38	2.38
25 D-Hardscape & Sitework	20	2014	5.55	34.2	35.7	0.07		2.16	2.16		2.16	2.16
E-Building Demolition	7	2014	4.86	32.2	27.9	0.06	0.00	1.83	1.83	0.00	1.83	1.83
E-Building Construction - Site Work	2	2014	10.4	69.2	67.0	0.13		4.24	4.24		4.24	4.24
E-Building Construction	78	2014	0.26	1.72	2.44	0.00		0.15	0.15		0.15	0.15
E-Building Construction	70	2015	0.26	1.72	2.44	0.00		0.15	0.15		0.15	0.15
E-Sidewalk & Hardscape	10	2015	1.46	8.87	9.85	0.02		0.66	0.66		0.66	0.66
E-Parking Lot - Paving Preparation	24	2015	0.80	5.39	6.01	0.01		0.37	0.37		0.37	0.37
E-Parking Lot - Paving Equipment	1	2015	3.54	8.58	8.98	0.02		0.62	0.62		0.62	0.62
2013 Annual (lbs) - Phases A-D, SW			603	3524	3293	5.94	2.10	238	240	0.21	238	238
2014 Annual (lbs) - Phases A-D, SW			391	2472	2453	3.74	0.00	171	171	0.00	171	171
2014 Annual (lbs) - Phase E			75.0	498	519	0.68	0.00	33.0	33.0	0.00	33.0	33.0
2015 Annual (lbs) - Phase E			55.5	347	423	0.46	0.00	26.6	26.6	0.00	26.6	26.6

Average Daily Construction Emissions (lbs/day)

ONSITE EMISSIONS	No. Days	ROG	NOx	CO	SO2	Fugitive PM10*	Exhaust PM10	PM10 Total	Fugitive PM2.5*	Exhaust PM2.5	PM2.5 Total
2013 (Phases A-D, SW)	217	2.78	16.2	15.2	0.03	0.01	1.10	1.11	0.00	1.10	1.10
2014 (Phases A-D, SW)	173	2.26	14.29	14.18	0.02	0.00	0.99	0.99	0.00	0.99	0.99
2014 (Phase E)	87	0.86	5.72	5.97	0.01	0.00	0.38	0.38	0.00	0.38	0.38
2015 (Phase E)	97	0.57	3.58	4.36	0.00	0.00	0.27	0.27	0.00	0.27	0.27
Total	575	1.96	11.9	11.6	0.02	0.00	0.81	0.82	0.00	0.81	0.81
Threshold		54	54	NA	NA	BCM	82	NA	BCM	54	NA

*Fugitive Dust Excluded from BAAQMD's daily thresholds. BAAQMD's Basic Control Measures (BCM) required.

CONSTRUCTION DPM AND PM2.5 EMISSIONS
INPUT TO ISCST3 MODEL - UNMITIGATED

Year	2013	2014	2014	2015
DPM Emissions[1] (lbs/day)	1.2	1.0	0.36	0.29
DPM Emissions (lbs/hr)	0.1500	0.1300	0.0450	0.0363
DPM Emissions (gm/sec)	0.01890	0.01638	0.00567	0.00457
Modeled Area (acres)	19.19	19.19	1.7	1.7
Modeled Area (m2)	77659	77659	6880	6880
DPM Emission Rate (gm/sec/m2)	**2.43E-07**	**2.11E-07**	**8.24E-07**	**6.64E-07**
PM2.5 Emissions (lbs/day)	1.2	1	0.36	0.29
PM2.5 Emissions (lbs/hr)	0.1500	0.1250	0.0450	0.0363
PM2.5 Emissions (gm/sec)	0.01890	0.01575	0.00567	0.00457
Modeled Area (acres)	19.19	19.19	1.7	1.7
Modeled Area (m2)	77659	77659	6880	6880
PM2.5 Emission Rate (gm/sec/m2)	**2.43E-07**	**2.03E-07**	**8.24E-07**	**6.64E-07**

[1]DPM emissions taken as PM_{10} exhaust emissions from CalEEMod computer runs

Emissions assumed to be evenly distributed over all phases of the construction area for a given year

Phase E begins in 2014 after construction on Phases A-D is finished

	2013	2014	2014	2015
Phases	A-D	A-D	E	E
Hr/day	8	8	8	8
Total construction days	217	173	87	97
Scalar for HROFDY in ISCST3 model	0.59	0.47	0.24	0.27

Assume maximum of 8.0 hrs/day of heavy equipment operation

Operating hours between 7 am and 4 pm, with 1-hour lunch period

CONSTRUCTION DPM AND PM2.5 EMISSIONS
INPUT TO ISCST3 MODEL - MITIGATED - TIER 3 EQUIPMENT

Year	2013	2014	2014	2015
DPM Emissions[1] (lbs/day)	1.1	1.0	0.38	0.27
DPM Emissions (lbs/hr)	0.1375	0.1238	0.0475	0.0338
DPM Emissions (gm/sec)	0.01733	0.01559	0.00599	0.00425
Modeled Area (acres)	19.19	19.19	1.7	1.7
Modeled Area (m2)	77659	77659	6880	6880
DPM Emission Rate (gm/sec/m2)	**2.23E-07**	**2.01E-07**	**8.70E-07**	**6.18E-07**
PM2.5 Emissions (lbs/day)	1.1	1.0	0.38	0.27
PM2.5 Emissions (lbs/hr)	0.1375	0.1238	0.0475	0.0338
PM2.5 Emissions (gm/sec)	0.01733	0.01559	0.00599	0.00425
Modeled Area (acres)	19.19	19.19	1.7	1.7
Modeled Area (m2)	77659	77659	6880	6880
PM2.5 Emission Rate (gm/sec/m2)	**2.23E-07**	**2.01E-07**	**8.70E-07**	**6.18E-07**

[1]DPM emissions taken as PM_{10} exhaust emissions from CalEEMod computer runs

Emissions assumed to be evenly distributed over all phases of the construction area for a given year

Phase E begins in 2014 after construction on Phases A-D is finished

	2013	2014	2014	2015
Phases	A-D	A-D	E	E
Hr/day	8	8	8	8
Total construction days	217	173	87	97
Scalar for HROFDY in ISCST3 model	0.59	0.47	0.24	0.27

Assume maximum of 8.0 hrs/day of heavy equipment operation

Operating hours between 7 am and 4 pm, with 1-hour lunch period

Appendix B.
ISCST3 Model Output Files

Unmitigated Model Results


```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                    ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Unmitigated                ***        08:49:15
**MODELOPTs:                                                                                                  PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                    ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Unmitigated                ***        08:49:15
**MODELOPTs:                                                                                                  PAGE   2
CONC                    URBAN ELEV  FLGPOL DFAULT



                                              *** AREAPOLY SOURCE DATA ***

             NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER      INIT.   EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.     SZ      SCALAR VARY
     ID       CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)            (METERS)       BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  PHASESAD      0   0.24300E-06  591812.6 4134332.0    24.7     4.15       6         1.93      HROFDY
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Unmitigated                      ***        08:49:15
**MODELOPTs:                                                                                                        PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


SOURCE ID = PHASESAD ;  SOURCE TYPE = AREAPOLY :
      1   .00000E+00      2   .00000E+00      3   .00000E+00      4   .00000E+00      5   .00000E+00      6   .00000E+00
      7   .00000E+00      8   .59000E+00      9   .59000E+00     10   .59000E+00     11   .59000E+00     12   .00000E+00
     13   .59000E+00     14   .59000E+00     15   .59000E+00     16   .59000E+00     17   .00000E+00     18   .00000E+00
     19   .00000E+00     20   .00000E+00     21   .00000E+00     22   .00000E+00     23   .00000E+00     24   .00000E+00
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                        ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Unmitigated                    ***        08:49:15
**MODELOPTs:                                                                                                      PAGE  13
CONC                    URBAN ELEV  FLGPOL DFAULT

                                            *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                       ** CONC OF OTHER    IN MICROGRAMS/M**3                          **

                                                                                                         NETWORK
GROUP ID                      AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.09411 AT (  592053.00,  4134102.00,     26.46,      1.80)  DC       NA
         2ND HIGHEST VALUE IS       0.09397 AT (  592095.69,  4134102.50,     26.53,      1.80)  DC       NA
         3RD HIGHEST VALUE IS       0.09357 AT (  592017.31,  4134102.00,     26.23,      1.80)  DC       NA
         4TH HIGHEST VALUE IS       0.09228 AT (  591998.81,  4134101.50,     26.22,      1.80)  DC       NA
         5TH HIGHEST VALUE IS       0.09146 AT (  592033.19,  4134100.00,     26.30,      1.80)  DC       NA
         6TH HIGHEST VALUE IS       0.09031 AT (  591979.62,  4134100.75,     26.17,      1.80)  DC       NA
         7TH HIGHEST VALUE IS       0.08894 AT (  591961.81,  4134100.75,     26.10,      1.80)  DC       NA
         8TH HIGHEST VALUE IS       0.08691 AT (  591942.69,  4134100.75,     26.05,      1.80)  DC       NA
         9TH HIGHEST VALUE IS       0.08347 AT (  591925.38,  4134100.00,     26.00,      1.80)  DC       NA
        10TH HIGHEST VALUE IS       0.07957 AT (  591905.69,  4134100.00,     25.93,      1.80)  DC       NA

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Unmitigated                      ***        08:49:15
**MODELOPTs:                                                                                                         PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   502 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   503 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - A-D                 ***        08:52:29
**MODELOPTs:                                                                                                         PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

*** ISCST3 - VERSION 02035 *** *** Main Street Santa Clara *** 10/24/12
*** Construction HRA - 2014 - DPM - Unmitigated - A-D *** 08:52:29
**MODELOPTs: PAGE 2
CONC URBAN ELEV FLGPOL DFAULT

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	LOCATION OF AREA Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PHASESAD	0	0.21100E-06	591812.6	4134332.0	24.7	4.15	6	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                     ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - A-D           ***        08:52:29
**MODELOPTs:                                                                                                  PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


SOURCE ID = PHASESAD ;  SOURCE TYPE = AREAPOLY :
      1   .00000E+00      2   .00000E+00      3   .00000E+00      4   .00000E+00      5   .00000E+00      6   .00000E+00
      7   .00000E+00      8   .47000E+00      9   .47000E+00     10   .47000E+00     11   .47000E+00     12   .00000E+00
     13   .47000E+00     14   .47000E+00     15   .47000E+00     16   .47000E+00     17   .00000E+00     18   .00000E+00
     19   .00000E+00     20   .00000E+00     21   .00000E+00     22   .00000E+00     23   .00000E+00     24   .00000E+00
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                      ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - A-D                ***        08:52:29
**MODELOPTs:                                                                                                        PAGE  13
CONC                   URBAN ELEV  FLGPOL DFAULT

                                           *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                       ** CONC OF OTHER    IN MICROGRAMS/M**3                         **

                                                                                                    NETWORK
GROUP ID                      AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.06509 AT (  592053.00,  4134102.00,     26.46,      1.80)  DC      NA
         2ND HIGHEST VALUE IS       0.06500 AT (  592095.69,  4134102.50,     26.53,      1.80)  DC      NA
         3RD HIGHEST VALUE IS       0.06472 AT (  592017.31,  4134102.00,     26.23,      1.80)  DC      NA
         4TH HIGHEST VALUE IS       0.06383 AT (  591998.81,  4134101.50,     26.22,      1.80)  DC      NA
         5TH HIGHEST VALUE IS       0.06326 AT (  592033.19,  4134100.00,     26.30,      1.80)  DC      NA
         6TH HIGHEST VALUE IS       0.06247 AT (  591979.62,  4134100.75,     26.17,      1.80)  DC      NA
         7TH HIGHEST VALUE IS       0.06152 AT (  591961.81,  4134100.75,     26.10,      1.80)  DC      NA
         8TH HIGHEST VALUE IS       0.06011 AT (  591942.69,  4134100.75,     26.05,      1.80)  DC      NA
         9TH HIGHEST VALUE IS       0.05774 AT (  591925.38,  4134100.00,     26.00,      1.80)  DC      NA
        10TH HIGHEST VALUE IS       0.05504 AT (  591905.69,  4134100.00,     25.93,      1.80)  DC      NA

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - A-D                 ***        08:52:29
**MODELOPTs:                                                                                                         PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   502 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   503 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - E                   ***        08:57:07
**MODELOPTs:                                                                                                          PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                  ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - E                  ***        08:57:07
**MODELOPTs:                                                                                                         PAGE   2
CONC                    URBAN ELEV  FLGPOL DFAULT
```

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PHASEE	0	0.82400E-06	591998.9	4134451.8	24.4	4.15	55.90	118.30	0.00	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - E                  ***        08:57:07
**MODELOPTs:                                                                                                         PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


SOURCE ID = PHASEE   ;  SOURCE TYPE = AREA     :
      1   .00000E+00      2   .00000E+00      3   .00000E+00      4   .00000E+00      5   .00000E+00      6   .00000E+00
      7   .00000E+00      8   .24000E+00      9   .24000E+00     10   .24000E+00     11   .24000E+00     12   .00000E+00
     13   .24000E+00     14   .24000E+00     15   .24000E+00     16   .24000E+00     17   .00000E+00     18   .00000E+00
     19   .00000E+00     20   .00000E+00     21   .00000E+00     22   .00000E+00     23   .00000E+00     24   .00000E+00
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                    ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - E            ***        08:57:07
**MODELOPTs:                                                                                                  PAGE  13
CONC                    URBAN ELEV  FLGPOL DFAULT

                                           *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                       ** CONC OF OTHER    IN MICROGRAMS/M**3                         **

                                                                                                     NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.00537 AT (  592184.00,  4134359.25,     25.27,      1.80)  DC      NA
         2ND HIGHEST VALUE IS       0.00473 AT (  592191.31,  4134315.00,     25.53,      1.80)  DC      NA
         3RD HIGHEST VALUE IS       0.00441 AT (  592195.00,  4134298.25,     25.58,      1.80)  DC      NA
         4TH HIGHEST VALUE IS       0.00429 AT (  592202.00,  4134363.75,     25.26,      1.80)  DC      NA
         5TH HIGHEST VALUE IS       0.00418 AT (  592185.88,  4134258.75,     25.82,      1.80)  DC      NA
         6TH HIGHEST VALUE IS       0.00368 AT (  592186.81,  4134227.75,     26.11,      1.80)  DC      NA
         7TH HIGHEST VALUE IS       0.00363 AT (  592207.31,  4134261.00,     25.80,      1.80)  DC      NA
         8TH HIGHEST VALUE IS       0.00358 AT (  592218.31,  4134298.75,     25.58,      1.80)  DC      NA
         9TH HIGHEST VALUE IS       0.00357 AT (  592220.00,  4134321.50,     25.51,      1.80)  DC      NA
        10TH HIGHEST VALUE IS       0.00339 AT (  592221.62,  4134366.25,     25.26,      1.80)  DC      NA

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Unmitigated - E                  ***        08:57:07
**MODELOPTs:                                                                                                         PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   499 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   500 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
* ISCST3 (02035):  Main Street Santa Clara
* MODELING OPTIONS USED:
*  CONC                    URBAN ELEV  FLGPOL DFAULT                                    »
*         PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   230 RECEPTORS.
*         FORMAT: (3(1X,F13.5),1X,F8.2,2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC   ZELEV     AVE     GRP      NUM YRS   NET ID
*  ____________  ____________  ____________  ______  ______  ________  ________  ________
  591778.00000 4133519.75000       0.00012    28.00  ANNUAL  ALL       00000001     NA
  592481.50000 4133757.75000       0.00049    29.18  ANNUAL  ALL       00000001     NA
  591790.87500 4134310.50000       0.00063    24.68  ANNUAL  ALL       00000001     NA
  591790.87500 4134290.00000       0.00061    24.78  ANNUAL  ALL       00000001     NA
  591789.62500 4134275.50000       0.00059    24.84  ANNUAL  ALL       00000001     NA
  591789.00000 4134252.50000       0.00057    24.95  ANNUAL  ALL       00000001     NA
  591788.31250 4134238.50000       0.00055    24.99  ANNUAL  ALL       00000001     NA
  591787.68750 4134216.75000       0.00053    25.04  ANNUAL  ALL       00000001     NA
  591789.62500 4134202.00000       0.00051    25.07  ANNUAL  ALL       00000001     NA
  591788.31250 4134183.00000       0.00049    25.13  ANNUAL  ALL       00000001     NA
  591788.31250 4134162.00000       0.00046    25.24  ANNUAL  ALL       00000001     NA
  591789.00000 4134144.00000       0.00043    25.32  ANNUAL  ALL       00000001     NA
  591739.87500 4134313.00000       0.00047    24.58  ANNUAL  ALL       00000001     NA
  591740.50000 4134294.50000       0.00045    24.65  ANNUAL  ALL       00000001     NA
  591745.62500 4134275.50000       0.00044    24.70  ANNUAL  ALL       00000001     NA
  591741.12500 4134256.25000       0.00042    24.70  ANNUAL  ALL       00000001     NA
  591741.81250 4134236.00000       0.00041    24.81  ANNUAL  ALL       00000001     NA
  591740.50000 4134218.00000       0.00040    24.89  ANNUAL  ALL       00000001     NA
  591740.50000 4134202.75000       0.00040    24.95  ANNUAL  ALL       00000001     NA
  591741.81250 4134186.25000       0.00039    25.04  ANNUAL  ALL       00000001     NA
  591740.50000 4134165.75000       0.00038    25.16  ANNUAL  ALL       00000001     NA
  591742.37500 4134144.75000       0.00036    25.26  ANNUAL  ALL       00000001     NA
  591705.37500 4134314.50000       0.00040    24.41  ANNUAL  ALL       00000001     NA
  591705.37500 4134296.50000       0.00038    24.49  ANNUAL  ALL       00000001     NA
  591704.12500 4134279.25000       0.00036    24.56  ANNUAL  ALL       00000001     NA
  591703.50000 4134260.25000       0.00034    24.64  ANNUAL  ALL       00000001     NA
  591706.12500 4134237.75000       0.00034    24.69  ANNUAL  ALL       00000001     NA
  591704.12500 4134218.75000       0.00033    24.74  ANNUAL  ALL       00000001     NA
  591704.12500 4134200.75000       0.00032    24.86  ANNUAL  ALL       00000001     NA
  591704.81250 4134181.00000       0.00032    24.97  ANNUAL  ALL       00000001     NA
  591704.81250 4134162.00000       0.00031    25.07  ANNUAL  ALL       00000001     NA
  591708.00000 4134141.50000       0.00031    25.21  ANNUAL  ALL       00000001     NA
  591779.37500 4134099.50000       0.00036    25.51  ANNUAL  ALL       00000001     NA
  591797.87500 4134100.75000       0.00038    25.57  ANNUAL  ALL       00000001     NA
  591817.00000 4134098.25000       0.00040    25.65  ANNUAL  ALL       00000001     NA
  591834.87500 4134098.75000       0.00043    25.71  ANNUAL  ALL       00000001     NA
  591854.00000 4134099.50000       0.00047    25.80  ANNUAL  ALL       00000001     NA
  591873.12500 4134099.50000       0.00052    25.90  ANNUAL  ALL       00000001     NA
  591888.37500 4134100.00000       0.00057    25.91  ANNUAL  ALL       00000001     NA
  591905.68750 4134100.00000       0.00064    25.93  ANNUAL  ALL       00000001     NA
  591925.37500 4134100.00000       0.00072    26.00  ANNUAL  ALL       00000001     NA
  591942.68750 4134100.75000       0.00082    26.05  ANNUAL  ALL       00000001     NA
  591961.81250 4134100.75000       0.00094    26.10  ANNUAL  ALL       00000001     NA
  591979.62500 4134100.75000       0.00108    26.17  ANNUAL  ALL       00000001     NA
  591998.81250 4134101.50000       0.00125    26.22  ANNUAL  ALL       00000001     NA
  592017.31250 4134102.00000       0.00141    26.23  ANNUAL  ALL       00000001     NA
  592033.18750 4134100.00000       0.00153    26.30  ANNUAL  ALL       00000001     NA
  592053.00000 4134102.00000       0.00170    26.46  ANNUAL  ALL       00000001     NA
  592095.68750 4134102.50000       0.00201    26.53  ANNUAL  ALL       00000001     NA
  592097.31250 4134077.75000       0.00177    26.71  ANNUAL  ALL       00000001     NA
  592097.87500 4134059.50000       0.00161    26.76  ANNUAL  ALL       00000001     NA
  592099.12500 4134040.75000       0.00147    26.83  ANNUAL  ALL       00000001     NA
  591780.00000 4134069.50000       0.00033    25.62  ANNUAL  ALL       00000001     NA
  591798.81250 4134069.00000       0.00035    25.74  ANNUAL  ALL       00000001     NA
  591817.62500 4134069.50000       0.00037    25.83  ANNUAL  ALL       00000001     NA
  591835.81250 4134069.00000       0.00040    25.89  ANNUAL  ALL       00000001     NA
  591855.87500 4134067.00000       0.00044    25.93  ANNUAL  ALL       00000001     NA
  591871.62500 4134069.50000       0.00048    25.92  ANNUAL  ALL       00000001     NA
  591891.00000 4134069.50000       0.00053    26.04  ANNUAL  ALL       00000001     NA
  591909.81250 4134069.50000       0.00059    26.13  ANNUAL  ALL       00000001     NA
  591925.50000 4134068.50000       0.00065    26.19  ANNUAL  ALL       00000001     NA
  591943.00000 4134069.50000       0.00073    26.22  ANNUAL  ALL       00000001     NA
  591963.68750 4134070.25000       0.00085    26.23  ANNUAL  ALL       00000001     NA
  591980.62500 4134069.50000       0.00096    26.33  ANNUAL  ALL       00000001     NA
  591998.81250 4134070.25000       0.00109    26.42  ANNUAL  ALL       00000001     NA
  592015.81250 4134068.50000       0.00120    26.47  ANNUAL  ALL       00000001     NA
  592035.81250 4134067.75000       0.00132    26.51  ANNUAL  ALL       00000001     NA
```

MEIR - Phase E Unmitigated

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Unmitigated - E                   ***        09:01:35
**MODELOPTs:                                                                                                          PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                  ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Unmitigated - E                   ***        09:01:35
**MODELOPTs:                                                                                                          PAGE   2
CONC                    URBAN ELEV  FLGPOL DFAULT
```

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PHASEE	0	0.66400E-06	591998.9	4134451.8	24.4	4.15	55.90	118.30	0.00	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Unmitigated - E                  ***        09:01:35
**MODELOPTs:                                                                                                         PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


SOURCE ID = PHASEE   ;  SOURCE TYPE = AREA     :
      1   .00000E+00      2   .00000E+00      3   .00000E+00      4   .00000E+00      5   .00000E+00      6   .00000E+00
      7   .00000E+00      8   .27000E+00      9   .27000E+00     10   .27000E+00     11   .27000E+00     12   .00000E+00
     13   .27000E+00     14   .27000E+00     15   .27000E+00     16   .27000E+00     17   .00000E+00     18   .00000E+00
     19   .00000E+00     20   .00000E+00     21   .00000E+00     22   .00000E+00     23   .00000E+00     24   .00000E+00
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                         ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Unmitigated - E                   ***        09:01:35
**MODELOPTs:                                                                                                       PAGE  13
CONC                    URBAN ELEV  FLGPOL DFAULT

                                         *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                     ** CONC OF OTHER    IN MICROGRAMS/M**3                          **

                                                                                                   NETWORK
GROUP ID                      AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.00487 AT (  592184.00,  4134359.25,     25.27,      1.80)  DC      NA
         2ND HIGHEST VALUE IS       0.00429 AT (  592191.31,  4134315.00,     25.53,      1.80)  DC      NA
         3RD HIGHEST VALUE IS       0.00400 AT (  592195.00,  4134298.25,     25.58,      1.80)  DC      NA
         4TH HIGHEST VALUE IS       0.00389 AT (  592202.00,  4134363.75,     25.26,      1.80)  DC      NA
         5TH HIGHEST VALUE IS       0.00379 AT (  592185.88,  4134258.75,     25.82,      1.80)  DC      NA
         6TH HIGHEST VALUE IS       0.00333 AT (  592186.81,  4134227.75,     26.11,      1.80)  DC      NA
         7TH HIGHEST VALUE IS       0.00329 AT (  592207.31,  4134261.00,     25.80,      1.80)  DC      NA
         8TH HIGHEST VALUE IS       0.00325 AT (  592218.31,  4134298.75,     25.58,      1.80)  DC      NA
         9TH HIGHEST VALUE IS       0.00324 AT (  592220.00,  4134321.50,     25.51,      1.80)  DC      NA
        10TH HIGHEST VALUE IS       0.00308 AT (  592221.62,  4134366.25,     25.26,      1.80)  DC      NA

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Unmitigated - E                  ***        09:01:35
**MODELOPTs:                                                                                                         PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   499 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   500 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
* ISCST3 (02035):  Main Street Santa Clara
* MODELING OPTIONS USED:
*  CONC                    URBAN ELEV  FLGPOL DFAULT                                    »
*         PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   230 RECEPTORS.
*         FORMAT: (3(1X,F13.5),1X,F8.2,2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC   ZELEV     AVE     GRP      NUM YRS   NET ID
*  ____________  ____________  ____________  ______  _______  ________  ________  ________
  591778.00000 4133519.75000       0.00011    28.00  ANNUAL  ALL       00000001     NA
  592481.50000 4133757.75000       0.00044    29.18  ANNUAL  ALL       00000001     NA
  591790.87500 4134310.50000       0.00057    24.68  ANNUAL  ALL       00000001     NA
  591790.87500 4134290.00000       0.00055    24.78  ANNUAL  ALL       00000001     NA
  591789.62500 4134275.50000       0.00054    24.84  ANNUAL  ALL       00000001     NA
  591789.00000 4134252.50000       0.00052    24.95  ANNUAL  ALL       00000001     NA
  591788.31250 4134238.50000       0.00050    24.99  ANNUAL  ALL       00000001     NA
  591787.68750 4134216.75000       0.00048    25.04  ANNUAL  ALL       00000001     NA
  591789.62500 4134202.00000       0.00047    25.07  ANNUAL  ALL       00000001     NA
  591788.31250 4134183.00000       0.00044    25.13  ANNUAL  ALL       00000001     NA
  591788.31250 4134162.00000       0.00041    25.24  ANNUAL  ALL       00000001     NA
  591789.00000 4134144.00000       0.00039    25.32  ANNUAL  ALL       00000001     NA
  591739.87500 4134313.00000       0.00043    24.58  ANNUAL  ALL       00000001     NA
  591740.50000 4134294.50000       0.00041    24.65  ANNUAL  ALL       00000001     NA
  591745.62500 4134275.50000       0.00040    24.70  ANNUAL  ALL       00000001     NA
  591741.12500 4134256.25000       0.00038    24.70  ANNUAL  ALL       00000001     NA
  591741.81250 4134236.00000       0.00038    24.81  ANNUAL  ALL       00000001     NA
  591740.50000 4134218.00000       0.00037    24.89  ANNUAL  ALL       00000001     NA
  591740.50000 4134202.75000       0.00036    24.95  ANNUAL  ALL       00000001     NA
  591741.81250 4134186.25000       0.00035    25.04  ANNUAL  ALL       00000001     NA
  591740.50000 4134165.75000       0.00034    25.16  ANNUAL  ALL       00000001     NA
  591742.37500 4134144.75000       0.00033    25.26  ANNUAL  ALL       00000001     NA
  591705.37500 4134314.50000       0.00037    24.41  ANNUAL  ALL       00000001     NA
  591705.37500 4134296.50000       0.00034    24.49  ANNUAL  ALL       00000001     NA
  591704.12500 4134279.25000       0.00033    24.56  ANNUAL  ALL       00000001     NA
  591703.50000 4134260.25000       0.00031    24.64  ANNUAL  ALL       00000001     NA
  591706.12500 4134237.75000       0.00031    24.69  ANNUAL  ALL       00000001     NA
  591704.12500 4134218.75000       0.00030    24.74  ANNUAL  ALL       00000001     NA
  591704.12500 4134200.75000       0.00029    24.86  ANNUAL  ALL       00000001     NA
  591704.81250 4134181.00000       0.00029    24.97  ANNUAL  ALL       00000001     NA
  591704.81250 4134162.00000       0.00029    25.07  ANNUAL  ALL       00000001     NA
  591708.00000 4134141.50000       0.00028    25.21  ANNUAL  ALL       00000001     NA
  591779.37500 4134099.50000       0.00033    25.51  ANNUAL  ALL       00000001     NA
  591797.87500 4134100.75000       0.00035    25.57  ANNUAL  ALL       00000001     NA
  591817.00000 4134098.25000       0.00037    25.65  ANNUAL  ALL       00000001     NA
  591834.87500 4134098.75000       0.00039    25.71  ANNUAL  ALL       00000001     NA
  591854.00000 4134099.50000       0.00043    25.80  ANNUAL  ALL       00000001     NA
  591873.12500 4134099.50000       0.00047    25.90  ANNUAL  ALL       00000001     NA
  591888.37500 4134100.00000       0.00052    25.91  ANNUAL  ALL       00000001     NA
  591905.68750 4134100.00000       0.00058    25.93  ANNUAL  ALL       00000001     NA
  591925.37500 4134100.00000       0.00066    26.00  ANNUAL  ALL       00000001     NA
  591942.68750 4134100.75000       0.00074    26.05  ANNUAL  ALL       00000001     NA
  591961.81250 4134100.75000       0.00085    26.10  ANNUAL  ALL       00000001     NA
  591979.62500 4134100.75000       0.00098    26.17  ANNUAL  ALL       00000001     NA
  591998.81250 4134101.50000       0.00113    26.22  ANNUAL  ALL       00000001     NA
  592017.31250 4134102.00000       0.00128    26.23  ANNUAL  ALL       00000001     NA
  592033.18750 4134100.00000       0.00138    26.30  ANNUAL  ALL       00000001     NA
  592053.00000 4134102.00000       0.00154    26.46  ANNUAL  ALL       00000001     NA
  592095.68750 4134102.50000       0.00182    26.53  ANNUAL  ALL       00000001     NA
  592097.31250 4134077.75000       0.00160    26.71  ANNUAL  ALL       00000001     NA
  592097.87500 4134059.50000       0.00146    26.76  ANNUAL  ALL       00000001     NA
  592099.12500 4134040.75000       0.00134    26.83  ANNUAL  ALL       00000001     NA
  591780.00000 4134069.50000       0.00030    25.62  ANNUAL  ALL       00000001     NA
  591798.81250 4134069.00000       0.00031    25.74  ANNUAL  ALL       00000001     NA
  591817.62500 4134069.50000       0.00034    25.83  ANNUAL  ALL       00000001     NA
  591835.81250 4134069.00000       0.00036    25.89  ANNUAL  ALL       00000001     NA
  591855.87500 4134067.00000       0.00040    25.93  ANNUAL  ALL       00000001     NA
  591871.62500 4134069.50000       0.00043    25.92  ANNUAL  ALL       00000001     NA
  591891.00000 4134069.50000       0.00048    26.04  ANNUAL  ALL       00000001     NA
  591909.81250 4134069.50000       0.00054    26.13  ANNUAL  ALL       00000001     NA
  591925.50000 4134068.50000       0.00059    26.19  ANNUAL  ALL       00000001     NA
  591943.00000 4134069.50000       0.00066    26.22  ANNUAL  ALL       00000001     NA
  591963.68750 4134070.25000       0.00077    26.23  ANNUAL  ALL       00000001     NA
  591980.62500 4134069.50000       0.00087    26.33  ANNUAL  ALL       00000001     NA
  591998.81250 4134070.25000       0.00099    26.42  ANNUAL  ALL       00000001     NA
  592015.81250 4134068.50000       0.00108    26.47  ANNUAL  ALL       00000001     NA
  592035.81250 4134067.75000       0.00120    26.51  ANNUAL  ALL       00000001     NA
```

MEIR - 2015
Unmitigated

Mitigated Computer Runs


```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                     ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Mitigated                   ***        13:35:34
**MODELOPTs:                                                                                                   PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                           ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                                ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Mitigated                              ***        13:35:34
**MODELOPTs:                                                                                                              PAGE   2
CONC                    URBAN ELEV  FLGPOL DFAULT
```

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	LOCATION OF AREA Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PHASESAD	0	0.22300E-06	591812.6	4134332.0	24.7	4.15	6	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Mitigated                        ***        13:35:34
**MODELOPTs:                                                                                                         PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Mitigated                        ***        13:35:34
**MODELOPTs:                                                                                                         PAGE  13
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                      ** CONC OF OTHER    IN MICROGRAMS/M**3                        **

                                                                                                   NETWORK
GROUP ID                     AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                    ***        10/24/12
                                   ***  Construction HRA - 2013 - DPM - Mitigated                  ***        13:35:34
**MODELOPTs:                                                                                                  PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   502 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   503 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - A-D                  ***        13:38:17
**MODELOPTs:                                                                                                         PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - A-D                  ***        13:38:17
**MODELOPTs:                                                                                                         PAGE   2
CONC                    URBAN ELEV  FLGPOL DFAULT


                                          *** AREAPOLY SOURCE DATA ***

            NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER      INIT.   EMISSION RATE
   SOURCE    PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.     SZ      SCALAR VARY
     ID      CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)            (METERS)       BY
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - A-D                  ***        13:38:17
**MODELOPTs:                                                                                                         PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - A-D                  ***        13:38:17
**MODELOPTs:                                                                                                         PAGE  13
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                      ** CONC OF OTHER    IN MICROGRAMS/M**3                        **

                                                                                                   NETWORK
GROUP ID                     AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - A-D                  ***        13:38:17
**MODELOPTs:                                                                                                         PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   502 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   503 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - E                    ***        14:11:33
**MODELOPTs:                                                                                                         PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - E                    ***        14:11:33
**MODELOPTs:                                                                                                         PAGE   2
CONC                    URBAN ELEV  FLGPOL DFAULT


                                                 *** AREA SOURCE DATA ***

            NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM     Y-DIM    ORIENT.    INIT.  EMISSION RATE
   SOURCE    PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF AREA   OF AREA   OF AREA     SZ     SCALAR VARY
     ID      CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS)   (DEG.)  (METERS)      BY
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - E                    ***        14:11:33
**MODELOPTs:                                                                                                        PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


SOURCE ID = PHASEE   ;  SOURCE TYPE = AREA     :
      1   .00000E+00      2   .00000E+00      3   .00000E+00      4   .00000E+00      5   .00000E+00      6   .00000E+00
      7   .00000E+00      8   .24000E+00      9   .24000E+00     10   .24000E+00     11   .24000E+00     12   .00000E+00
     13   .24000E+00     14   .24000E+00     15   .24000E+00     16   .24000E+00     17   .00000E+00     18   .00000E+00
     19   .00000E+00     20   .00000E+00     21   .00000E+00     22   .00000E+00     23   .00000E+00     24   .00000E+00
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - E                    ***        14:11:33
**MODELOPTs:                                                                                                         PAGE  13
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                      ** CONC OF OTHER    IN MICROGRAMS/M**3                        **

                                                                                                   NETWORK
GROUP ID                     AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2014 - DPM - Mitigated - E                    ***        14:11:33
**MODELOPTs:                                                                                                         PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   499 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   500 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
* ISCST3 (02035):  Main Street Santa Clara
* MODELING OPTIONS USED:
*  CONC                    URBAN ELEV  FLGPOL DFAULT                                    »
*         PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   230 RECEPTORS.
*         FORMAT: (3(1X,F13.5),1X,F8.2,2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC   ZELEV     AVE     GRP      NUM YRS   NET ID
*  ____________  ____________  ____________  ______  ______  ________  ________  ________
  591778.00000 4133519.75000       0.00012    28.00  ANNUAL  ALL       00000001     NA
  592481.50000 4133757.75000       0.00051    29.18  ANNUAL  ALL       00000001     NA
  591790.87500 4134310.50000       0.00067    24.68  ANNUAL  ALL       00000001     NA
  591790.87500 4134290.00000       0.00064    24.78  ANNUAL  ALL       00000001     NA
  591789.62500 4134275.50000       0.00062    24.84  ANNUAL  ALL       00000001     NA
  591789.00000 4134252.50000       0.00060    24.95  ANNUAL  ALL       00000001     NA
  591788.31250 4134238.50000       0.00058    24.99  ANNUAL  ALL       00000001     NA
  591787.68750 4134216.75000       0.00056    25.04  ANNUAL  ALL       00000001     NA
  591789.62500 4134202.00000       0.00054    25.07  ANNUAL  ALL       00000001     NA
  591788.31250 4134183.00000       0.00051    25.13  ANNUAL  ALL       00000001     NA
  591788.31250 4134162.00000       0.00048    25.24  ANNUAL  ALL       00000001     NA
  591789.00000 4134144.00000       0.00046    25.32  ANNUAL  ALL       00000001     NA
  591739.87500 4134313.00000       0.00050    24.58  ANNUAL  ALL       00000001     NA
  591740.50000 4134294.50000       0.00047    24.65  ANNUAL  ALL       00000001     NA
  591745.62500 4134275.50000       0.00047    24.70  ANNUAL  ALL       00000001     NA
  591741.12500 4134256.25000       0.00045    24.70  ANNUAL  ALL       00000001     NA
  591741.81250 4134236.00000       0.00044    24.81  ANNUAL  ALL       00000001     NA
  591740.50000 4134218.00000       0.00043    24.89  ANNUAL  ALL       00000001     NA
  591740.50000 4134202.75000       0.00042    24.95  ANNUAL  ALL       00000001     NA
  591741.81250 4134186.25000       0.00041    25.04  ANNUAL  ALL       00000001     NA
  591740.50000 4134165.75000       0.00040    25.16  ANNUAL  ALL       00000001     NA
  591742.37500 4134144.75000       0.00038    25.26  ANNUAL  ALL       00000001     NA
  591705.37500 4134314.50000       0.00043    24.41  ANNUAL  ALL       00000001     NA
  591705.37500 4134296.50000       0.00040    24.49  ANNUAL  ALL       00000001     NA
  591704.12500 4134279.25000       0.00038    24.56  ANNUAL  ALL       00000001     NA
  591703.50000 4134260.25000       0.00036    24.64  ANNUAL  ALL       00000001     NA
  591706.12500 4134237.75000       0.00036    24.69  ANNUAL  ALL       00000001     NA
  591704.12500 4134218.75000       0.00035    24.74  ANNUAL  ALL       00000001     NA
  591704.12500 4134200.75000       0.00034    24.86  ANNUAL  ALL       00000001     NA
  591704.81250 4134181.00000       0.00034    24.97  ANNUAL  ALL       00000001     NA
  591704.81250 4134162.00000       0.00033    25.07  ANNUAL  ALL       00000001     NA
  591708.00000 4134141.50000       0.00033    25.21  ANNUAL  ALL       00000001     NA
  591779.37500 4134099.50000       0.00038    25.51  ANNUAL  ALL       00000001     NA
  591797.87500 4134100.75000       0.00040    25.57  ANNUAL  ALL       00000001     NA
  591817.00000 4134098.25000       0.00043    25.65  ANNUAL  ALL       00000001     NA
  591834.87500 4134098.75000       0.00046    25.71  ANNUAL  ALL       00000001     NA
  591854.00000 4134099.50000       0.00050    25.80  ANNUAL  ALL       00000001     NA
  591873.12500 4134099.50000       0.00055    25.90  ANNUAL  ALL       00000001     NA
  591888.37500 4134100.00000       0.00060    25.91  ANNUAL  ALL       00000001     NA
  591905.68750 4134100.00000       0.00067    25.93  ANNUAL  ALL       00000001     NA
  591925.37500 4134100.00000       0.00076    26.00  ANNUAL  ALL       00000001     NA
  591942.68750 4134100.75000       0.00086    26.05  ANNUAL  ALL       00000001     NA
  591961.81250 4134100.75000       0.00099    26.10  ANNUAL  ALL       00000001     NA
  591979.62500 4134100.75000       0.00114    26.17  ANNUAL  ALL       00000001     NA
  591998.81250 4134101.50000       0.00132    26.22  ANNUAL  ALL       00000001     NA
  592017.31250 4134102.00000       0.00149    26.23  ANNUAL  ALL       00000001     NA
  592033.18750 4134100.00000       0.00161    26.30  ANNUAL  ALL       00000001     NA
  592053.00000 4134102.00000       0.00179    26.46  ANNUAL  ALL       00000001     NA
  592095.68750 4134102.50000       0.00212    26.53  ANNUAL  ALL       00000001     NA
  592097.31250 4134077.75000       0.00187    26.71  ANNUAL  ALL       00000001     NA
  592097.87500 4134059.50000       0.00170    26.76  ANNUAL  ALL       00000001     NA
  592099.12500 4134040.75000       0.00156    26.83  ANNUAL  ALL       00000001     NA
  591780.00000 4134069.50000       0.00035    25.62  ANNUAL  ALL       00000001     NA
  591798.81250 4134069.00000       0.00037    25.74  ANNUAL  ALL       00000001     NA
  591817.62500 4134069.50000       0.00039    25.83  ANNUAL  ALL       00000001     NA
  591835.81250 4134069.00000       0.00042    25.89  ANNUAL  ALL       00000001     NA
  591855.87500 4134067.00000       0.00046    25.93  ANNUAL  ALL       00000001     NA
  591871.62500 4134069.50000       0.00050    25.92  ANNUAL  ALL       00000001     NA
  591891.00000 4134069.50000       0.00056    26.04  ANNUAL  ALL       00000001     NA
  591909.81250 4134069.50000       0.00063    26.13  ANNUAL  ALL       00000001     NA
  591925.50000 4134068.50000       0.00069    26.19  ANNUAL  ALL       00000001     NA
  591943.00000 4134069.50000       0.00077    26.22  ANNUAL  ALL       00000001     NA
  591963.68750 4134070.25000       0.00090    26.23  ANNUAL  ALL       00000001     NA
  591980.62500 4134069.50000       0.00101    26.33  ANNUAL  ALL       00000001     NA
  591998.81250 4134070.25000       0.00115    26.42  ANNUAL  ALL       00000001     NA
  592015.81250 4134068.50000       0.00126    26.47  ANNUAL  ALL       00000001     NA
  592035.81250 4134067.75000       0.00139    26.51  ANNUAL  ALL       00000001     NA
```

Concentration for MEIR

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Mitigated - E                    ***        13:51:00
**MODELOPTs:                                                                                                         PAGE   1
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:     1 Source(s);      1 Source Group(s); and     230 Receptor(s)

**The Model Assumes A Pollutant Type of:  OTHER

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of Concurrent Values for Postprocessing (POSTFILE Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ISCST3.INP
**Output Print File:             ISCST3.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Mitigated - E                    ***        13:51:00
**MODELOPTs:                                                                                                         PAGE   2
CONC                    URBAN ELEV  FLGPOL DFAULT
```

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PHASEE	0	0.61800E-06	591998.9	4134451.8	24.4	4.15	55.90	118.30	0.00	1.93	HROFDY

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Mitigated - E                    ***        13:51:00
**MODELOPTs:                                                                                                         PAGE   4
CONC                    URBAN ELEV  FLGPOL DFAULT

                           * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *


    HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


SOURCE ID = PHASEE   ;  SOURCE TYPE = AREA     :
      1   .00000E+00      2   .00000E+00      3   .00000E+00      4   .00000E+00      5   .00000E+00      6   .00000E+00
      7   .00000E+00      8   .27000E+00      9   .27000E+00     10   .27000E+00     11   .27000E+00     12   .00000E+00
     13   .27000E+00     14   .27000E+00     15   .27000E+00     16   .27000E+00     17   .00000E+00     18   .00000E+00
     19   .00000E+00     20   .00000E+00     21   .00000E+00     22   .00000E+00     23   .00000E+00     24   .00000E+00
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Mitigated - E                    ***        13:51:00
**MODELOPTs:                                                                                                         PAGE  13
CONC                    URBAN ELEV  FLGPOL DFAULT

                                          *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                      ** CONC OF OTHER    IN MICROGRAMS/M**3                        **

                                                                                                   NETWORK
GROUP ID                     AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - -
```

```
 *** ISCST3 - VERSION 02035 ***    ***  Main Street Santa Clara                                          ***        10/24/12
                                   ***  Construction HRA - 2015 - DPM - Mitigated - E                    ***        13:51:00
**MODELOPTs:                                                                                                         PAGE  14
CONC                    URBAN ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of           65 Informational Message(s)

A Total of           65 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
OU W565   499 PERPLT:Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
OU W565   500 PERPST:Possible Conflict With Dynamically Allocated FUNIT POSTFILE

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

```
* ISCST3 (02035):  Main Street Santa Clara
* MODELING OPTIONS USED:
*  CONC                    URBAN ELEV  FLGPOL DFAULT                                    »
*         PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF   230 RECEPTORS.
*         FORMAT: (3(1X,F13.5),1X,F8.2,2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC   ZELEV     AVE     GRP      NUM YRS   NET ID
*  ____________  ____________  ____________  ______  ______  ________  ________  ________
  591778.00000 4133519.75000       0.00010    28.00  ANNUAL  ALL       00000001     NA
  592481.50000 4133757.75000       0.00041    29.18  ANNUAL  ALL       00000001     NA
  591790.87500 4134310.50000       0.00053    24.68  ANNUAL  ALL       00000001     NA
  591790.87500 4134290.00000       0.00051    24.78  ANNUAL  ALL       00000001     NA
  591789.62500 4134275.50000       0.00050    24.84  ANNUAL  ALL       00000001     NA
  591789.00000 4134252.50000       0.00048    24.95  ANNUAL  ALL       00000001     NA
  591788.31250 4134238.50000       0.00047    24.99  ANNUAL  ALL       00000001     NA
  591787.68750 4134216.75000       0.00045    25.04  ANNUAL  ALL       00000001     NA
  591789.62500 4134202.00000       0.00043    25.07  ANNUAL  ALL       00000001     NA
  591788.31250 4134183.00000       0.00041    25.13  ANNUAL  ALL       00000001     NA
  591788.31250 4134162.00000       0.00038    25.24  ANNUAL  ALL       00000001     NA
  591789.00000 4134144.00000       0.00036    25.32  ANNUAL  ALL       00000001     NA
  591739.87500 4134313.00000       0.00040    24.58  ANNUAL  ALL       00000001     NA
  591740.50000 4134294.50000       0.00038    24.65  ANNUAL  ALL       00000001     NA
  591745.62500 4134275.50000       0.00037    24.70  ANNUAL  ALL       00000001     NA
  591741.12500 4134256.25000       0.00036    24.70  ANNUAL  ALL       00000001     NA
  591741.81250 4134236.00000       0.00035    24.81  ANNUAL  ALL       00000001     NA
  591740.50000 4134218.00000       0.00034    24.89  ANNUAL  ALL       00000001     NA
  591740.50000 4134202.75000       0.00034    24.95  ANNUAL  ALL       00000001     NA
  591741.81250 4134186.25000       0.00033    25.04  ANNUAL  ALL       00000001     NA
  591740.50000 4134165.75000       0.00032    25.16  ANNUAL  ALL       00000001     NA
  591742.37500 4134144.75000       0.00031    25.26  ANNUAL  ALL       00000001     NA
  591705.37500 4134314.50000       0.00034    24.41  ANNUAL  ALL       00000001     NA
  591705.37500 4134296.50000       0.00032    24.49  ANNUAL  ALL       00000001     NA
  591704.12500 4134279.25000       0.00030    24.56  ANNUAL  ALL       00000001     NA
  591703.50000 4134260.25000       0.00029    24.64  ANNUAL  ALL       00000001     NA
  591706.12500 4134237.75000       0.00029    24.69  ANNUAL  ALL       00000001     NA
  591704.12500 4134218.75000       0.00028    24.74  ANNUAL  ALL       00000001     NA
  591704.12500 4134200.75000       0.00027    24.86  ANNUAL  ALL       00000001     NA
  591704.81250 4134181.00000       0.00027    24.97  ANNUAL  ALL       00000001     NA
  591704.81250 4134162.00000       0.00027    25.07  ANNUAL  ALL       00000001     NA
  591708.00000 4134141.50000       0.00026    25.21  ANNUAL  ALL       00000001     NA
  591779.37500 4134099.50000       0.00031    25.51  ANNUAL  ALL       00000001     NA
  591797.87500 4134100.75000       0.00032    25.57  ANNUAL  ALL       00000001     NA
  591817.00000 4134098.25000       0.00034    25.65  ANNUAL  ALL       00000001     NA
  591834.87500 4134098.75000       0.00037    25.71  ANNUAL  ALL       00000001     NA
  591854.00000 4134099.50000       0.00040    25.80  ANNUAL  ALL       00000001     NA
  591873.12500 4134099.50000       0.00044    25.90  ANNUAL  ALL       00000001     NA
  591888.37500 4134100.00000       0.00048    25.91  ANNUAL  ALL       00000001     NA
  591905.68750 4134100.00000       0.00054    25.93  ANNUAL  ALL       00000001     NA
  591925.37500 4134100.00000       0.00061    26.00  ANNUAL  ALL       00000001     NA
  591942.68750 4134100.75000       0.00069    26.05  ANNUAL  ALL       00000001     NA
  591961.81250 4134100.75000       0.00079    26.10  ANNUAL  ALL       00000001     NA
  591979.62500 4134100.75000       0.00091    26.17  ANNUAL  ALL       00000001     NA
  591998.81250 4134101.50000       0.00105    26.22  ANNUAL  ALL       00000001     NA
  592017.31250 4134102.00000       0.00119    26.23  ANNUAL  ALL       00000001     NA
  592033.18750 4134100.00000       0.00129    26.30  ANNUAL  ALL       00000001     NA
  592053.00000 4134102.00000       0.00143    26.46  ANNUAL  ALL       00000001     NA
  592095.68750 4134102.50000       0.00170    26.53  ANNUAL  ALL       00000001     NA
  592097.31250 4134077.75000       0.00149    26.71  ANNUAL  ALL       00000001     NA
  592097.87500 4134059.50000       0.00136    26.76  ANNUAL  ALL       00000001     NA
  592099.12500 4134040.75000       0.00124    26.83  ANNUAL  ALL       00000001     NA
  591780.00000 4134069.50000       0.00028    25.62  ANNUAL  ALL       00000001     NA
  591798.81250 4134069.00000       0.00029    25.74  ANNUAL  ALL       00000001     NA
  591817.62500 4134069.50000       0.00031    25.83  ANNUAL  ALL       00000001     NA
  591835.81250 4134069.00000       0.00034    25.89  ANNUAL  ALL       00000001     NA
  591855.87500 4134067.00000       0.00037    25.93  ANNUAL  ALL       00000001     NA
  591871.62500 4134069.50000       0.00040    25.92  ANNUAL  ALL       00000001     NA
  591891.00000 4134069.50000       0.00045    26.04  ANNUAL  ALL       00000001     NA
  591909.81250 4134069.50000       0.00050    26.13  ANNUAL  ALL       00000001     NA
  591925.50000 4134068.50000       0.00055    26.19  ANNUAL  ALL       00000001     NA
  591943.00000 4134069.50000       0.00062    26.22  ANNUAL  ALL       00000001     NA
  591963.68750 4134070.25000       0.00072    26.23  ANNUAL  ALL       00000001     NA
  591980.62500 4134069.50000       0.00081    26.33  ANNUAL  ALL       00000001     NA
  591998.81250 4134070.25000       0.00092    26.42  ANNUAL  ALL       00000001     NA
  592015.81250 4134068.50000       0.00101    26.47  ANNUAL  ALL       00000001     NA
  592035.81250 4134067.75000       0.00111    26.51  ANNUAL  ALL       00000001     NA
```

Concentration for MEIR

Appendix C.
Risk Calculation Worksheet

Unmitigated Construction Risk Assessment
Resident Exposure Scenario - 70 Years

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	CDI**	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(ug/m^3)			(mg/kg/day)$^{-1}$	(mg/kg/day)		(ug/m^3)													
(a)	(b)	(d)	(e)	(f)	(g)	(h)	(i)	(k)	(l)	(m)	(n)	(o)	(p)	(q)						(r)
2013	0.0941	1.00E+00	Diesel Particulate	1.1E+00	3.9E-07	4.3E-07	5.0E+00												1.9E-02	
2014 (Phases A-D)	0.0651	1.00E+00	Diesel Particulate	1.1E+00	2.7E-07	3.0E-07	5.0E+00												1.3E-02	
2014 (Phase E)	0.0017	1.00E+00	Diesel Particulate	1.1E+00	7.0E-09	7.7E-09	5.0E+00												3.4E-04	
2015	0.0015	1.00E+00	Diesel Particulate	1.1E+00	6.4E-09	7.0E-09	5.0E+00												3.1E-04	
TOTAL						7.4E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-02	0.0E+00
BAAQMD Cancer Risk Adjustment Factor						1.70														
Adjusted Cancer Risk						1.3E-06														

* Key to Toxicological Endpoints

	Alimentary
ALI	Bone
BONE	Cardiovascular
CARDIO	Developmental
DEV	Endocrine
ENDO	Eye
EYE	Hematologic
HEME	Immune
IMM	Kidney
KID	Nervous
NERV	Reproductive
REPRO	Respiratory
RESP	Skin
SKIN	

** Exposure factors used to calculate CDI

daily breathing rate (L/kg-day)	302	
inhalation absorption factor	1	
exposure frequency (days/year)	350	
exposure duration (years)	1.00	
averaging time (days)	25,550	
cancer risk adjustment factor	1.7	
Maximum annual PM2.5 concentration	0.094	ug/m3

Unmitigated Construction Risk Assessment
Child Exposure Scenario

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	CDI**	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(ug/m^3)			(mg/kg/day)$^{-1}$	(mg/kg/day)		(ug/m^3)													
(a)	(b)	(d)	(e)	(f)	(g)	(h)	(i)	(k)	(l)	(m)	(n)	(o)	(p)	(q)						(r)
2013	0.0941	1.00E+00	Diesel Particulate	1.1E+00	6.4E-06	7.0E-06	5.0E+00												1.9E-02	
2014 (Phases A-D)	0.0651	1.00E+00	Diesel Particulate	1.1E+00	3.0E-06	3.2E-06	5.0E+00												1.3E-02	
2014 (Phase E)	0.0017	1.00E+00	Diesel Particulate	1.1E+00	3.8E-08	4.2E-08	5.0E+00												3.4E-04	
2016	0.0015	1.00E+00	Diesel Particulate	1.1E+00	2.9E-08	3.2E-08	5.0E+00												3.1E-04	
TOTAL						1.0E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-02	0.0E+00
Adjusted Cancer Risk																				

* Key to Toxicological Endpoints

	Alimentary
ALI	Bone
BONE	Cardiovascular
CARDIO	Developmental
DEV	Endocrine
ENDO	Eye
EYE	Hematologic
HEME	Immune
IMM	Kidney
KID	Nervous
NERV	Reproductive
REPRO	Respiratory
RESP	Skin
SKIN	

** Exposure factors used to calculate CDI		ASF	Time at Home
daily breathing rate (L/kg-day)	581		
inhalation absorption factor	1		
exposure frequency (days/year)	350		
exposure duration (years) - 2013	1.00	10	0.85
exposure duration (years) - 2014	0.67	10	0.85
exposure duration (years) - 2014	0.33	10	0.85
exposure duration (years) - 2015	1.00	3	0.72
averaging time (days)	25,550		
Maximum annual PM2.5 concentration	0.094	ug/m3	

Mitigated Construction Risk Assessment
Adult Exposure Scenario
Maximum Exposed Individual

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	CDI**	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(ug/m^3)			$(mg/kg/day)^{-1}$	(mg/kg/day)		(ug/m^3)													
(a)	(b)	(d)	(e)	(f)	(g)	(h)	(i)	(k)	(l)	(m)	(n)	(o)	(p)	(q)						(r)
2013	0.0864	1.00E+00	Diesel Particulate	1.1E+00	3.6E-07	3.9E-07	5.0E+00												1.7E-02	
2014 (Phases A-D)	0.0620	1.00E+00	Diesel Particulate	1.1E+00	1.7E-07	1.9E-07	5.0E+00												1.2E-02	
2014 (Phase E)	0.0018	1.00E+00	Diesel Particulate	1.1E+00	2.4E-09	2.7E-09	5.0E+00												3.6E-04	
2015	0.0014	1.00E+00	Diesel Particulate	1.1E+00	7.4E-09	8.1E-09	5.0E+00												2.9E-04	
TOTAL						5.9E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-02	0.0E+00
BAAQMD Cancer Risk Adjustment Factor						1.70														
Adjusted Cancer Risk						1.0E-06														

* Key to Toxicological Endpoints

	Alimentary
ALI	Bone
BONE	Cardiovascular
CARDIO	Developmental
DEV	Endocrine
ENDO	Eye
EYE	Hematologic
HEME	Immune
IMM	Kidney
KID	Nervous
NERV	Reproductive
REPRO	Respiratory
RESP	Skin
SKIN	

** Exposure factors used to calculate CDI

daily breathing rate (L/kg-day)	302	
inhalation absorption factor	1	
exposure frequency (days/year)	350	
exposure duration (years) - 2013	1.00	
exposure duration (years) - 2014	0.67	
exposure duration (years) - 2014	0.33	
exposure duration (years) - 2015	1.00	
averaging time (days)	25,550	
Maximum annual PM2.5 concentration	0.09	ug/m3

Mitigated Construction Risk Assessment
Child Exposure Scenario
Maximum Exposed Individual

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	CDI**	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(ug/m^3)			(mg/kg/day)$^{-1}$	(mg/kg/day)		(ug/m^3)													
(a)	(b)	(d)	(e)	(f)	(g)	(h)	(i)	(k)	(l)	(m)	(n)	(o)	(p)	(q)						(r)
2013	0.0864	1.00E+00	Diesel Particulate	1.1E+00	5.8E-06	6.4E-06	5.0E+00												1.7E-02	
2014 (Phases A-D)	0.0620	1.00E+00	Diesel Particulate	1.1E+00	2.8E-06	3.1E-06	5.0E+00												1.2E-02	
2014 (Phase E)	0.0018	1.00E+00	Diesel Particulate	1.1E+00	4.0E-08	4.4E-08	5.0E+00												3.6E-04	
2015	0.0014	1.00E+00	Diesel Particulate	1.1E+00	3.1E-08	3.4E-08	5.0E+00												2.9E-04	
TOTAL						9.6E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-02	0.0E+00

* Key to Toxicological Endpoints

	Alimentary
ALI	Bone
BONE	Cardiovascular
CARDIO	Developmental
DEV	Endocrine
ENDO	Eye
EYE	Hematologic
HEME	Immune
IMM	Kidney
KID	Nervous
NERV	Reproductive
REPRO	Respiratory
RESP	Skin
SKIN	

** Exposure factors used to calculate CDI		ASF	Time at Home
daily breathing rate (L/kg-day)	581		
inhalation absorption factor	1		
exposure frequency (days/year)	350		
exposure duration (years) - 2013	1.00	10	0.85
exposure duration (years) - 2014	0.67	10	0.85
exposure duration (years) - 2014	0.33	10	0.85
exposure duration (years) - 2015	1.00	3	0.72
averaging time (days)	25,550		
Maximum annual PM2.5 concentration	0.09	ug/m3	

Mitigated Construction Risk Assessment
School Exposure Scenario
New Valley High School

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	CDI**	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(ug/m^3)			$(mg/kg/day)^{-1}$	(mg/kg/day)		(ug/m^3)													
(a)	(b)	(d)	(e)	(f)	(g)	(h)	(i)	(k)	(l)	(m)	(n)	(o)	(p)	(q)						(r)
2013	0.0048	1.00E+00	Diesel Particulate	1.1E+00	1.5E-08	1.7E-08	5.0E+00												9.7E-04	
2014 (Phases A-D)	0.0035	1.00E+00	Diesel Particulate	1.1E+00	7.4E-09	8.1E-09	5.0E+00												6.9E-04	
2014 (Phase E)	0.0005	1.00E+00	Diesel Particulate	1.1E+00	5.4E-10	5.9E-10	5.0E+00												1.0E-04	
2015	0.0004	1.00E+00	Diesel Particulate	1.1E+00	1.6E-09	1.8E-09	5.0E+00												8.2E-05	
TOTAL						2.7E-08		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-03	0.0E+00
BAAQMD Cancer Risk Adjustment Factor						3.00														
Adjusted Cancer Risk						8.2E-08														

* Key to Toxicological Endpoints

	Alimentary
ALI	Bone
BONE	Cardiovascular
CARDIO	Developmental
DEV	Endocrine
ENDO	Eye
EYE	Hematologic
HEME	Immune
IMM	Kidney
KID	Nervous
NERV	Reproductive
REPRO	Respiratory
RESP	Skin
SKIN	

** Exposure factors used to calculate CDI

daily breathing rate (L/kg-day)	452	
inhalation absorption factor	1	
exposure frequency (days/year)	180	
exposure duration (years) - 2013	1.00	
exposure duration (years) - 2014	0.67	
exposure duration (years) - 2014	0.33	
exposure duration (years) - 2015	1.00	
averaging time (days)	25,550	
Maximum annual PM2.5 concentration	0.09	ug/m3

Mitigated Construction Risk Assessment
School Exposure Scenario
Haman Elementary School

Source	Mass GLC	Weight Fraction	Contaminant	Carcinogenic Risk			Noncarcinogenic Hazards/ Toxicological Endpoints*													
				CPF	CDI**	RISK	REL	ALI	BONE	CARDIO	DEV	ENDO	EYE	HEME	IMM	KID	NERV	REPRO	RESP	SKIN
	(ug/m^3)			$(mg/kg/day)^{-1}$	(mg/kg/day)		(ug/m^3)													
(a)	(b)	(d)	(e)	(f)	(g)	(h)	(i)	(k)	(l)	(m)	(n)	(o)	(p)	(q)						(r)
2013	0.0018	1.00E+00	Diesel Particulate	1.1E+00	5.6E-09	6.1E-09	5.0E+00												3.5E-04	
2014 (Phases A-D)	0.0013	1.00E+00	Diesel Particulate	1.1E+00	2.7E-09	2.9E-09	5.0E+00												2.5E-04	
2014 (Phase E)	0.0001	1.00E+00	Diesel Particulate	1.1E+00	1.3E-10	1.4E-10	5.0E+00												2.4E-05	
2015	0.0001	1.00E+00	Diesel Particulate	1.1E+00	3.8E-10	4.2E-10	5.0E+00												2.0E-05	
TOTAL						9.6E-09		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.4E-04	0.0E+00
BAAQMD Cancer Risk Adjustment Factor						3.00														
Adjusted Cancer Risk						2.9E-08														

* Key to Toxicological Endpoints

	Alimentary
ALI	Bone
BONE	Cardiovascular
CARDIO	Developmental
DEV	Endocrine
ENDO	Eye
EYE	Hematologic
HEME	Immune
IMM	Kidney
KID	Nervous
NERV	Reproductive
REPRO	Respiratory
RESP	Skin
SKIN	

** Exposure factors used to calculate CDI

daily breathing rate (L/kg-day)	452	
inhalation absorption factor	1	
exposure frequency (days/year)	180	
exposure duration (years) - 2013	1.00	
exposure duration (years) - 2014	0.67	
exposure duration (years) - 2014	0.33	
exposure duration (years) - 2015	1.00	
averaging time (days)	25,550	
Maximum annual PM2.5 concentration	0.09	ug/m3