Impact Sciences, Inc., "Localized Significance Threshold Analysis for the Newhall Ranch Resource Management and Development Plan and Specific Plan" (April 2008)

Localized Significance Threshold Analysis
for the
Newhall Ranch Resource Management and Development Plan
and Specific Plan

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SUMMARY

Newhall Land has proposed to build single-family residences, townhouses, condominiums, commercial and office buildings, a business park, and recreational areas under the Newhall Ranch Specific Plan (Specific Plan). Development of Newhall Ranch also includes the Newhall Ranch Resource Management and Development Plan (RMDP), which includes alteration of the Santa Clara River and several of its tributaries, installation of new and widened bridges across the Santa Clara River and several of its tributaries, installation of water quality control facilities, and other general improvements that would support the proposed development. Construction activities associated with the Specific Plan and RMDP would result in the generation of air pollutants during construction and operational activities. Approval of the Spineflower Conservation Plan would also facilitate construction of the remaining balance of the Valencia Commerce Center (VCC) planning area and the Entrada planning area and their associated air emissions.

This study analyzes the impacts of the construction emissions (i.e., fugitive dust and motor vehicle and equipment exhaust) on ambient air quality concentrations in the vicinity of the construction site. The impacts to local ambient air quality are compared to localized thresholds of significance established by the South Coast Air Quality Management District (SCAQMD). The localized significance threshold for respirable particulate matter (PM_{10}) represents compliance with Rule 403 (Fugitive Dust). The localized significance threshold for $PM_{2.5}$ is based on the SCAQMD *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds*.[1] The localized significance thresholds for nitrogen dioxide (NO_2) and carbon monoxide (CO) represent the allowable increase in concentrations above background levels in the vicinity of the project that would not cause or contribute to an exceedance of the relevant ambient air quality standards.

The localized significance threshold analysis shows that maximum 24-hour PM_{10} and $PM_{2.5}$ concentrations would exceed the threshold of significance established by SCAQMD during each of the modeled development years. The 1-hour NO_2 concentrations would exceed the threshold of significance established by SCAQMD for all modeled years at residential receptors and at some of the sensitive receptors (schools) during 2010, 2012, and 2013. The 1-hour and 8-hour CO concentrations would not exceed their respective thresholds of significance during any of the modeled development years.

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1 South Coast Air Quality Management District, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds* (Diamond Bar, California: South Coast Air Quality Management District, October 2006)

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1.0 GENERAL

1.1 Project Description

The proposed Newhall Ranch Specific Plan (Specific Plan), which was approved by the Los Angeles County Board of Supervisors in May 2003, includes the construction of a water reclamation plant and four "villages." These include (1) Landmark Village, (2) Mission Village, (3) Homestead Village, and (4) Potrero Village. Homestead Village is subdivided into development areas called Mesas West, Onion Field, Long Canyon, Potrero Ridge, and Chiquito Canyon. Furthermore, the project includes the Newhall Ranch Resource Management and Development Plan (RMDP), which covers the alteration of the Santa Clara River and several of its tributaries, installation of new and widened bridges across the Santa Clara River and several of its tributaries, installation of water quality control facilities, and other general improvements, that would support the proposed development. (Additional details regarding the RMDP are found in Section 2.0 of the EIS/EIR.) Approval of the Spineflower Conservation Plan would also facilitate construction of the remaining balance of the Valencia Commerce Center (VCC) planning area and the Entrada planning area. The proposed Project is anticipated to begin construction in 2008 and is scheduled for completion in 2030.

1.2 Regional Air Quality

The project is located in the South Coast Air Basin (SCAB) portion of Los Angeles County, which is under the jurisdiction of the SCAQMD. The SCAB is a severe-17 nonattainment area for the federal 8-hour ozone standard and a nonattainment area for the state 1-hour and 8-hour ozone standards. It has also been designated as an attainment area for federal and state 1-hour and 8-hour CO standards. Also, it has been designated as a serious nonattainment area for the federal 24-hour PM_{10} standard and as a nonattainment area for the state 24-hour and annual PM_{10} standards. With respect to $PM_{2.5}$, the SCAB is designated as a nonattainment area for the federal 24-hour and annual standards and the state annual standard. The SCAB is an attainment area with respect to the federal annual NO_2 standard and the state 1-hour NO_2 standard.[2,3] On March 20, 2008, the revised state standards for NO_2 took effect. The revised 1-hour NO_2 standard was lowered from 0.25 parts per million (ppm) to 0.18 ppm, and a new annual arithmetic mean standard was set at 0.030 ppm. The California Air Resources Board (CARB) has not issued new area classifications based on the new state 1-hour and annual arithmetic mean NO_2 standard. Therefore, the designation of attainment is based on the previous 0.25 ppm 1-hour standard.

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2 California Air Resources Board. "Area Designation Maps (State and National)." [Online] [September 11, 2007]. http://www.arb.ca.gov/desig/adm/adm.htm.

3 U.S. Environmental Protection Agency. "Region 9: Air Programs, Air Quality Maps." [Online] [September 10, 2007]. http://www.epa.gov/region9/air/maps/maps_top.html.

1.3 Thresholds of Significance

Table 1, Peak Background Concentrations for SRA 13 for the Period of 2004 to 2006, shows the peak background concentrations of NO_2 and CO in Source Receptor Area (SRA) 13 (Santa Clarita Valley) in which the proposed Project is located. The localized significance threshold (LST) criteria for NO_2 and CO are based on these values. The LST for PM_{10} is based on compliance with SCAQMD Rule 403, and the LST for $PM_{2.5}$ is based on the SCAQMD *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds*.[4]

Table 1
Peak Background Concentrations for SRA 13 for the Period of 2004 to 2006

Pollutant	Averaging Period	Unit	2004	2005	2006	Peak Concentration
Nitrogen Dioxide (NO_2)	1 hour	ppm	0.09	0.09	0.08	0.09
Carbon Monoxide (CO)	1 hour	ppm	5	2	2	5 -
Carbon Monoxide (CO)	8 hours	ppm	3.7	1.3	1.3	3.7 -

Source: South Coast Air Quality Management District "Historical Data by Year." [Online] [October 3, 2007], http://www.aqmd.gov/smog/historicaldata.htm.
ppm = parts per million

Table 2, Localized Significance Criteria, shows the threshold criteria recommended by the SCAQMD for determining whether the emissions resulting from construction of a development project have the potential to generate significant adverse local impacts on ambient air quality. The SCAQMD's concentration-based PM_{10} threshold from its *Localized Significance Threshold Methodology* (*LST Methodology*)[5] is a 24-hour average concentration of 10.4 micrograms per cubic meter ($\mu g/m^3$) based on compliance with Rule 403. The threshold for $PM_{2.5}$, which is also 10.4 $\mu g/m^3$, is intended to constrain emissions so as to not cause or contribute to an exceedance of the ambient air quality standards. LSTs for NO_2 and CO are determined by the differences between the most stringent ambient air quality standard and the peak ambient concentration in the appropriate SRA; in this case SRA 13. The thresholds for NO_2 and CO were based on the maximum concentrations that occurred during the three previous years (2004 to 2006) as shown in **Table 1**. These thresholds represent the allowable increase in NO_2 and CO ambient concentrations above current levels that could occur in SRA 13 without causing or contributing to

4 South Coast Air Quality Management District, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds* (Diamond Bar, California: South Coast Air Quality Management District, October 2006)

5 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, June 2003.

exceedances of the California Ambient Air Quality Standards (CAAQS). For reference, the applicable CAAQS are also shown in **Table 2**.

Table 2
Localized Significance Criteria

Pollutant	Averaging Period	CAAQS/NAAQS[1]		Peak Conc.	LST Criteria[2]	
		µg/m³	ppm	in ppm	µg/m³	ppm
Respirable Particulate Matter (PM_{10})	24 hours	50	NA	NA	10.4	NA
Fine Particulate Matter ($PM_{2.5}$)	24 hours	35	NA	NA	10.4	NA
Nitrogen Dioxide (NO_2)	1 hour	338	0.18	0.09	169	0.09
Carbon Monoxide (CO)	1 hour	23,000	20	5	17,165	15
Carbon Monoxide (CO)	8 hours	10,000	9.0	3.7	6,065	5.3

Sources: *South Coast Air Quality Management District,* Final Localized Significance Threshold Methodology, *June 2003 and* Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, *October 2006.*

[1] *California has not adopted a 24-hour AAQS for $PM_{2.5}$; the 24-hour $PM_{2.5}$ AAQS shown is the national standard. All other standards are the California standards.*

[2] *LST Criteria for NO_2 and CO are the differences between CAAQS and the Peak Concentration.*

µg/m³ = micrograms per cubic meter; ppm = parts per million

2.0 EMISSION ESTIMATION METHODOLOGY

Unmitigated construction emissions during grading and other earthwork activities were estimated using spreadsheets based on emission factors obtained from the SCAQMD, OFFROAD2007 emission factors,[6] and other parameters provided in URBEMIS2007.[7] This approach was employed to analyze construction impacts using emission factors (i.e., off-road equipment and construction worker vehicles) specific to the SCAQMD, where construction activities would occur. Furthermore, URBEMIS2007 does not include construction subphases for installation of infrastructure improvements (e.g., roads, sewers and water lines) or the types of construction activities associated with the RMDP; therefore, spreadsheets also were used to estimate the equipment emissions and fugitive dust emissions associated with these activities. The emissions during the building construction phase (building construction, asphalt paving, and application of architectural coatings) were estimated using the URBEMIS2007 model directly. To estimate the building construction emissions for the villages that would be built over a period longer than five years, multiple URBEMIS runs were performed. Although URBEMIS2007 is capable of estimating

6 OFFROAD2007 is an emissions inventory model for various types of off-road equipment. The model can generate criteria air pollutant emission factors for various types of off-road equipment for different operational years.

7 URBEMIS2007 is a land use and transportation based air quality model designed to estimate air emissions from new development projects, including construction emissions.

construction emissions for periods longer than five years, the amount of construction throughout the period would vary. Therefore, because URBEMIS2007 estimates heavy-duty construction equipment based on the proposed land uses, multiple URBEMIS runs were conducted to achieve a more accurate representation of construction emissions. The emissions are estimated based on the information provided by the applicant and the assumptions discussed in the air quality section of the EIS/EIR.

Newhall Ranch has a strategic alliance with the construction contractor Altfillisch Contractors, Inc. (ACI). As such, the specific heavy-duty construction equipment and respective horsepower ratings that would be likely to be used during grading operations was known at the time of this analysis. Emissions associated with development of basins and buried bank stabilization (i.e., direct RMDP activities) and overall Specific Plan, VCC, and Entrada grading (i.e., indirect RMDP and indirect SCP) were estimated using emissions factors obtained from the SCAQMD website.[8] The construction equipment emission factors developed by the SCAQMD from OFFROAD2007 are specific to the South Coast Air Basin. The SCAQMD provides a list of each type of construction equipment including various horsepower rating cut-points for each type of equipment. A corresponding South Coast Air Basin-specific emission factor is provided for each horsepower rating. Due to the specific heavy-duty construction equipment and respective horsepower ratings for grading activities being known, emission factors for all grading equipment (i.e., direct RMDP, indirect RMDP, and indirect SCP) were interpolated for specific horsepower ratings provided by ACI.

Emission factors used to estimate construction emissions associated with infrastructure improvements were also obtained from the SCAQMD website. However, due to the uncertainty of the contractor and horsepower ratings of equipment needed, nominal horsepower ratings provided by the applicant were used to interpolate South Coast-specific emission factors. As mentioned above, emissions associated with building construction (i.e., building construction, asphalt paving, architectural coating) were estimated using URBEMIS2007. URBEMIS2007 also uses emission factors from OFFROAD2007 specific to the South Coast Air Basin. However, URBEMIS2007 uses default horsepower ratings for construction equipment.

The sources of emissions will include those typical to construction activities, including on-road and off-road heavy-duty vehicles, off-road heavy-duty construction equipment, and fugitive dust from grading, filling, and excavation. Construction emissions were estimated for each quarter of the entire construction period from 2008 to 2030. In most cases, concurrent construction activity could occur in multiple areas throughout the Newhall Ranch development. The highest daily emissions occurring in any quarter during a year were used in this analysis.

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8 South Coast Air Quality Management District, "Off-road Mobile Source Emission Factors," http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html. 2007.

This analysis also assumed that the maximum area under construction on any day would vary depending on the characteristics of the earthmoving required for each village. For instance, for areas with relatively high amounts of earthmoving, such as Potrero Village and Mission Village, the maximum area under construction on any day would be 20 acres since more soil must be moved to complete the earthmoving activity under the anticipated schedule. Areas with moderate amounts of earthmoving, such as Landmark Village, would be 12 acres and areas with less earthmoving, such as Entrada North Commercial and the Water Reclamation Plant, would be 5 acres. These acreage figures were obtained through discussions with the applicant.

The nitrogen oxides (NO_x), CO, exhaust PM_{10} and fugitive dust PM_{10}, and exhaust $PM_{2.5}$ and fugitive dust $PM_{2.5}$ emissions for each modeled construction year are included in **Appendix A**. Additional details regarding the estimated construction emissions are found in the air quality section of the EIS/EIR.

For the purposes of the dispersion modeling, it was assumed that an average workday was 9 hours. Therefore, the maximum daily emissions were divided by 9 to obtain maximum emission rates in units of pounds per hour. **Table 3, Maximum Hourly Emission Rates for Modeled Scenarios**, summarizes the maximum hourly emission rates for the modeled years. The modeled years were selected based on the four periods that would capture the maximum daily emissions for the greatest number of subareas or villages and pollutants, as well as the period (2013) in which the highest overall daily CO, NO_X, PM_{10}, and $PM_{2.5}$ emissions would occur for all construction subareas.

Table 3
Maximum Hourly Emission Rates for Modeled Scenarios

Year/Village	CO (lbs/hr)	NO_x (lbs/hr)	Diesel Exhaust PM_{10} (lbs/hr)	Fugitive Dust PM_{10} (lbs/hr)	Diesel Exhaust $PM_{2.5}$ (lbs/hr)	Fugitive Dust $PM_{2.5}$ (lbs/hr)
2010						
Landmark	33.65	82.16	3.45	288.91	3.18	60.09
Mission	59.03	149.24	5.83	281.06	5.37	58.46
2012						
Landmark	1.51	2.27	0.16	0.00	0.15	0.00
Mission	29.17	70.97	2.84	298.83	2.61	62.16
Homestead South	62.23	158.70	6.03	515.70	5.54	107.27
Potrero Valley	49.04	124.82	4.72	419.73	4.34	87.30
Entrada	14.06	34.87	1.37	247.00	1.26	51.38
Valencia Commerce Center	16.67	39.01	1.69	295.36	1.55	61.43
2013						
Landmark	1.48	2.12	0.14	0.00	0.13	0.00
Mission	27.35	65.67	2.58	298.83	2.37	62.16
Homestead South	122.79	307.08	11.64	1,211.49	10.71	251.99
Potrero Valley	32.34	79.50	3.04	419.73	2.80	87.30
Entrada	3.38	5.55	0.38	0.00	0.35	0.00
Valencia Commerce Center	2.88	5.38	0.28	0.00	0.25	0.00
2015						
Mission	23.18	51.98	2.00	298.83	1.84	62.16
Homestead South	31.79	71.51	2.76	490.97	2.54	102.12
Potrero Canyon	31.63	69.47	2.78	419.73	2.55	87.30
Entrada	3.58	4.65	0.32	0.00	0.30	0.00
Homestead North (Central)	45.52	107.59	3.99	283.99	3.67	59.07
Homestead North (Chiquito)	45.52	107.59	3.99	280.96	3.67	58.44
Homestead North (West)	0.00	0.00	0.00	0.00	0.00	0.00

Source: *Impact Sciences, Inc. (2008).*
lbs/hr = pounds per hour

3.0 LOCALIZED SIGNIFICANCE THRESHOLD ANALYSIS

3.1 Modeling Approach

Per the recommendation of the SCAQMD, ambient PM_{10}, $PM_{2.5}$, NO_2, and CO concentrations due to the construction of the proposed Project were analyzed using methods described in its *LST Methodology*.[9] The dispersion model Industrial Source Complex – Short Term (ISCST3)[10] was used to model the air quality impacts of PM_{10}, $PM_{2.5}$, NO_2, and CO emissions during construction under the RMDP and the Specific Plan, VCC, and Entrada planning areas. This model can estimate the air quality impacts of single or multiple point, area, or volume sources using actual meteorological conditions. Volume sources were used to represent the emissions from trucks and heavy-duty construction equipment. Area sources were used to model fugitive dust emissions of PM_{10} and $PM_{2.5}$. Separate model runs were conducted for each village or subarea because occupation would occur at different times.

For the purpose of the dispersion modeling, the maximum daily emissions that could occur on the Project site from any construction phase were selected for the LST analysis. For the purposes of the dispersion modeling, it was assumed that an average workday was 9 hours. Therefore, the maximum daily emissions were divided by 9 to obtain maximum emission rates in units of pounds per hour. As noted previously, the modeled years were selected based on the four periods that would capture the maximum daily emissions for the greatest number of subareas or villages and pollutants, as well as the period (2013) in which the highest overall daily CO, NO_X, PM_{10}, and $PM_{2.5}$ emissions would occur for all construction subareas.

3.1.1 Sources and Receptors

A volume source was placed in the center of each village or subarea being modeled in each scenario. An area source was collocated with each volume source in each village or subarea to model fugitive dust emissions of PM_{10} and $PM_{2.5}$. The overall area covered by the volume and area sources on any day would vary depending on the characteristics of each village or subarea as discussed in **Section 2.0**. Fugitive dust emissions from grading activities were modeled as area sources with a ground-level release height and a 1-meter initial vertical dimension. Emissions from heavy-duty vehicles and construction equipment were modeled as volume sources collocated with the area sources and with a 5-meter release height. These values are used by the SCAQMD to characterize the fugitive dust and construction equipment emissions, respectively, under its Localized Significance Threshold methodology.[11] Due to the non-uniform shape

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9 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, June 2003.

10 Lakes Environmental ISC-AERMOD VIEW Software (Version 5.8.1)

11 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, June 2003, p. 2-2.

of Homestead North, the village was split into three subareas—West, Central, and Chiquita Canyon—and a volume and area source was placed in the center of each subarea.

Discrete Cartesian receptors were used to determine air quality impacts in the vicinity of the project site. In order to model on-site receptors within each village, the receptors were placed 500 meters from the emission source within the village boundary for each village with emissions during a selected year. This 500-meter distance was based on the concept that heavy construction activity would not occur near occupied residences in any village. The receptors within each village were placed 100 meters apart. Field receptors were placed at 100-meter intervals outside the boundary of the Newhall Ranch project. Field receptors were spaced 100 meters apart, out to approximately 1.0 kilometer and 250 meters apart from 1.0 to 2.0 kilometers in order to cover the nearby community of Val Verde, California and other nearby receptors including school, offices, and residences. **Appendix B** contains diagrams of the receptor locations for the modeled years.

3.1.2 Modeled Scenarios

Year 2010

The first selected modeling scenario corresponds to construction year 2010. During this year, Landmark Village and Mission Village are scheduled to be under construction, with Landmark Village partially occupied by residents. Therefore, volume and area sources were placed in the relative centers of Landmark Village and Mission Village, as previously described. Receptors were placed interior to Landmark Village approximately 500 meters from the collocated volume and area sources. Receptors were not placed in any of the other villages or subareas because they would not be occupied during this year. Field receptors were placed outside the Newhall Ranch boundary as previously described. It should be noted that the LST analysis applies to potential air quality impacts at sensitive receptors (e.g., residences, school, hospitals). Because the specific locations of sensitive receptors and other receptors are not known at this time for all elements of the Newhall Ranch development, all receptors within Landmark Village were assumed to be sensitive receptors for the purposes of this analysis.

Year 2012

The second selected modeling scenario corresponds to construction year 2012. During this year, Landmark Village, Mission Village, Entrada, Homestead South, Potrero Valley, and the VCC are all scheduled to be under construction, with Landmark Village and Mission Village partially occupied by residents. Therefore, volume and area sources were placed in the relative centers of Landmark Village, Mission Village, Entrada, Homestead South, Potrero Valley, and the VCC, as previously described. Receptors were placed interior to Landmark Village and Mission Village approximately 500 meters from

the collocated volume and area sources. Receptors were not placed in any of the other villages or subareas because they would not be occupied during this year. Field receptors were placed outside the Newhall Ranch boundary as previously described. It should be noted that the LST analysis applies to potential air quality impacts at sensitive receptors (e.g., residences, school, hospitals). Because the specific locations of sensitive receptors and other receptors are not known at this time for all elements of the Newhall Ranch development, all receptors within each village or subarea were assumed to be sensitive receptors for the purposes of this analysis.

Year 2013

The third selected modeling scenario corresponds to construction year 2013. During this year, Landmark Village, Mission Village, Entrada, Homestead South, Potrero Valley, and the VCC are all scheduled to be under construction, with Landmark Village, Mission Village, Entrada, Homestead South, and Potrero Valley partially occupied by residents. Therefore, volume and area sources were placed in the relative centers of these villages and subareas, as previously described. Receptors were placed interior to Landmark Village, Mission Village, Entrada, Homestead South, and Potrero Valley approximately 500 meters from the collocated volume and area sources. Receptors were not placed in any of the other villages or subareas because they would not be occupied during this year. Field receptors were placed outside the Newhall Ranch boundary as previously described. It should be noted that the LST analysis applies to potential air quality impacts at sensitive receptors (e.g., residences, school, hospitals). Because the specific locations of sensitive receptors and other receptors are not known at this time for all elements of the Newhall Ranch development, all receptors within each village or subarea were assumed to be sensitive receptors for the purposes of this analysis.

Year 2015

The fourth selected modeling scenario corresponds to construction year 2015. During this year, Mission Village, Entrada, Homestead South, Potrero Valley, and Homestead North are all scheduled to be under construction, with Landmark Village fully occupied and Mission Village, Entrada, Homestead South, Potrero Valley, and Homestead North partially occupied by residents. Therefore, volume and area sources were placed in the relative centers of these villages and subareas, as previously described. Receptors were placed throughout all of Landmark Village. Receptors were placed interior to Mission Village, Entrada, Homestead South, Potrero Valley, and Homestead North approximately 500 meters from the collocated volume and area sources. Field receptors were placed outside the Newhall Ranch boundary as previously described. It should be noted that the LST analysis applies to potential air quality impacts at sensitive receptors (e.g., residences, school, hospitals). Because the specific locations of sensitive receptors and other receptors are not known at this time for all elements of the Newhall Ranch

development, all receptors within each village or subarea were assumed to be sensitive receptors for the purposes of this analysis.

3.1.2 Meteorology and Monitoring Data

Newhall was identified as the nearest meteorological monitoring station for the proposed Project. Monitoring data were obtained from SCAQMD website.[12] For the vicinity of the site, the "Newhall 1981" meteorological data file was selected. In this data set, the surface wind speeds and directions were collected at the SCAQMD's Newhall Monitoring Station (Station ID 51115), while the upper air sounding data used to estimate hourly mixing heights were gathered from the Ontario International Airport. The surface wind directions are presented graphically in a polar diagram generated by the Wind Rose software. This diagram is shown in **Figure 1, Wind Rose for the Newhall Monitoring Station**.

3.1.3 Model Options:

The following SCAQMD model options were selected:

- Urban land use with simple, intermediate and complex terrain;
- No gradual plume rise;
- No stack-tip downwash (the LST analysis does not incorporate point sources);
- Buoyancy-induced dispersion;
- Default vertical wind profile exponents;
- Default vertical potential temperature gradients;
- Dry deposition and dry plume depletion for PM_{10} only;
- No missing data processing;
- No calms processing; and
- Averaging periods: 1-hour (CO and NO_x), 8-hour (CO), 24-hour (PM_{10} and $PM_{2.5}$).

3.1.4 Terrain Data

Terrain heights for all receptors were derived from digital terrain elevations developed by the U.S. Geological Survey by using its Digital Elevation Model (DEM). The DEM data provides terrain elevations with 1-meter vertical resolution and 10-meter horizontal resolution based on a Universal Transverse Mercator (UTM) coordinate system. The UTM coordinates are referenced to either the North American Datum of 1927 (NAD 27) or NAD 83. For each receptor location, the terrain elevation was set to the elevation for the closest DEM grid point.

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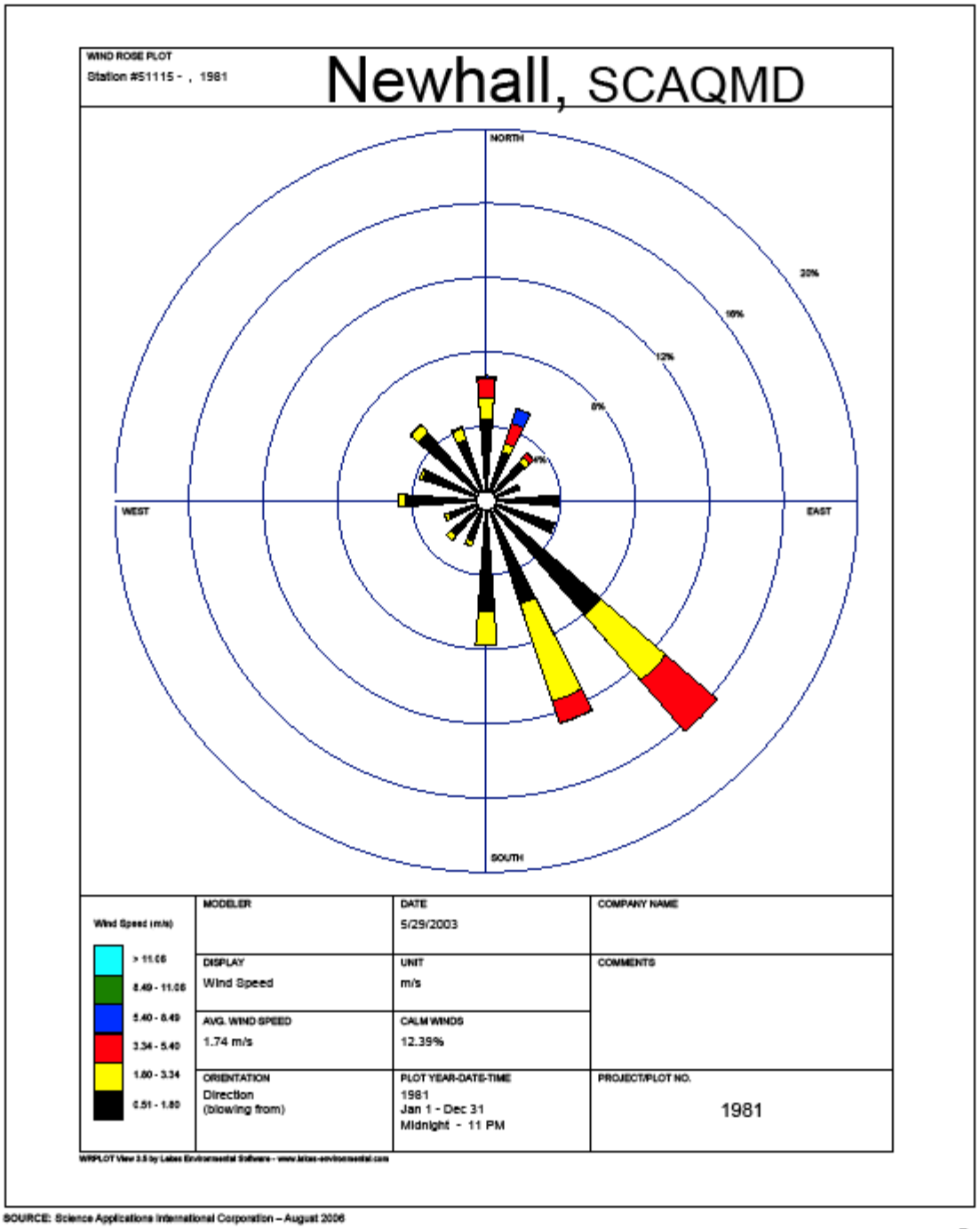
[12] Source: South Coast Air Quality Management District Meteorological Data for Dispersion Modeling http://www.aqmd.gov/smog/metdata/MetDataTable1.html.

Figure 1
Wind Rose for the Newhall Monitoring Station



SOURCE: Science Applications International Corporation – August 2006

FIGURE 1

Wind Rose – Newhall Station

32-214-04/08

3.2 Modeling Results

3.2.1 Adjustment of NO_2 Impacts

The SCAQMD's *LST Methodology* discusses an adjustment of the NO_2 impacts due to the fact that most of NO_x in the combustion exhaust will occur in the form of nitric oxide (NO), rather than as NO_2. Nitric oxide is converted in the atmosphere through chemical reactions to NO_2. The LST methodology discusses this adjustment as follows:

> *"NO_x emissions are simulated in the air quality dispersion model and the NO_2 conversion rate is treated by a NO_2-to-NO_x ratio, which is a function of downwind distance. Initially, it is assumed that only 5 percent of the emitted NO_x is NO_2. At 5,000 meters downwind, 100 percent conversion of NO-to-NO_2 is assumed."*[13]

Table 4, NO_2-toNO_x Ratio as a Function of Downwind Distance, from the *LST Methodology*, demonstrates how the NO_2-to-NO_x ratio varies with distance from the source.

Table 4
NO_2-to-NO_x Ratio as a Function of Downwind Distance

Downwind Distance	NO_2/NO_x Ratio
20	0.053
50	0.059
70	0.064
100	0.074
200	0.114
500	0.258
1000	0.467
2000	0.75
3000	0.9
4000	0.978
5000	1.0

Source: *South Coast Air Quality Management District,* Final Localized Significance Threshold Methodology, *June 2003, Table 2-4, p. 2-9.*

To determine the NO_2-to-NO_X ratios for this analysis, the maximum impacted residential and school receptors were determined. Separate modeling runs corresponding to the particular month, day, and

13 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, June 2003, p. 2-8. The NO_2 conversion rates are adapted by the SCAQMD from Arellano, J.V., A.M. Talmon, and P.J.H. Builtjes, "A Chemically Reactive Plume Model for the NO-NO_2-O_3 System," Atmospheric Environment 24A, 2237-2246.

hour on which the maximum impact occurred were done for each source location in order to determine each source's contribution to the maximum values. The distance from the center of source to the particular receptor was determined and each corresponding NO_2-to-NO_X ratio from **Table 4** was applied to the appropriate source contribution. Ratios at distances between the values in **Table 4** were interpolated. Then results were summed to obtain the NO_2 concentrations. The NO_2-to-NO_X ratio calculations are presented in **Appendix C**.

3.2.2 Project-Specific Impacts

Table 5, Modeling Results – Maximum Impacts at Residential Receptors and **Table 6, Modeling Results – Maximum Impacts at Offsite Sensitive Receptors**, shows the maximum PM_{10}, $PM_{2.5}$, NO_2, and CO concentrations at residential and sensitive receptors, respectively, due to emissions associated with construction of the proposed Project during each modeled scenario year. When the results of the modeling analysis are compared to the LST criteria presented in **Table 5 and Table 6**, PM_{10} and $PM_{2.5}$ concentrations are estimated to exceed the LST criteria of 10.4 μg/m^3 for all modeled years. The model predictions indicate that CO is not expected to exceed the CO LST criteria of 17,174 μg/m^3 (1-hour average) and 6,068 μg/m^3 (8-hour average). In addition, the model predictions indicate that NO_2 concentrations would exceed the LST criteria of 169 μg/m^3 (1-hour average) for all modeled years at residential receptors and at some of the sensitive receptors during 2010, 2012, and 2013.

A summary of these results is presented below in **Table 5**. It should be noted that the NO_2 concentrations reflect the use of the SCAQMD guidance on NO_x-to-NO_2 conversion, as outlined in the previous section.

Table 5
Modeling Results
Maximum Impacts at Residential Receptors

Pollutant	Averaging Period	Modeling Results		LST Criteria[1]		Exceeds Threshold?
		μg/m^3	ppm	μg/m^3	ppm	

Pollutant	Averaging Period	Modeling Results µg/m³	Modeling Results ppm	LST Criteria[1] µg/m³	LST Criteria[1] ppm	Exceeds Threshold?
Respirable Particulate Matter (PM_{10})	24 hours	1,107	NA	10.4	NA	**YES**
Fine Particulate Matter ($PM_{2.5}$)	24 hours	290	NA	10.4	NA	**YES**
Nitrogen Dioxide (NO_2)	1 hour	936	0.50	169	0.09	**YES**
Carbon Monoxide (CO)	1 hour	1,280	1.12	17,165	15	NO
Carbon Monoxide (CO)	8 hours	247	0.22	6,065	5.3	NO

Source: *Impact Sciences, Inc. (2008).*

[1] *South Coast Air Quality Management District,* Final Localized Significance Threshold Methodology, *June 2003 and* Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, *October 2006.*

The maximum impacts were observed at a residential receptor in Homestead South.

Table 6
Modeling Results
Maximum Impacts at Offsite Sensitive Receptors

Pollutant	Averaging Period	Modeling Results µg/m³	Modeling Results ppm	LST Criteria[1] µg/m³	LST Criteria[1] ppm	Exceeds Threshold?
Respirable Particulate Matter (PM_{10})	24 hours	146	NA	10.4	NA	**YES**
Fine Particulate Matter ($PM_{2.5}$)	24 hours	39	NA	10.4	NA	**YES**
Nitrogen Dioxide (NO_2)	1 hour	388	0.21	169	0.09	**YES**
Carbon Monoxide (CO)	1 hour	148	0.13	17,165	15	NO
	8 hours	22	0.02	6,065	5.3	NO

Source: *Impact Sciences, Inc. (2008).*

[1] *South Coast Air Quality Management District,* Final Localized Significance Threshold Methodology, *June 2003 and* Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, *October 2006.*

The maximum impacts for PM_{10}, $PM_{2.5}$, and CO were observed at Live Oak Elementary School located north of the Valencia Commerce Center. The maximum impacts for NO_2 were observed at West Ranch High School located south of the Mission Village and Entrada.

4.0 CONCLUSIONS

The LST analysis was conducted to estimate worst-case ambient air quality impacts during construction of the Newhall Ranch project. The model results indicate that PM_{10} and the $PM_{2.5}$ concentrations for the Newhall Ranch project would exceed the LST criteria of 10.4 µg/m³ for all modeled years. The model predictions indicate that CO is not expected to exceed the CO LST criteria of 17,174 µg/m³ (1-hour average) and 6,068 µg/m³ (8-hour average). The model predictions indicate that NO_2 concentrations

would exceed the LST criteria of 169 μg/m^3 (1-hour average) for all modeled years at residential receptors and at some of the sensitive receptors during 2010, 2012, and 2013.

APPENDIX A

Newhall Ranch Construction Emissions

Newhall Ranch Direct and Indirect Unmitigated Emissions
2010

Hrs/Day 9

Subsection	Development Process		Pollutants (lbs/hour) based on 9 hours per day							
			NO_x	**CO**	**Total PM_{10}**	**Diesel Exhaust PM_{10}**	**Fugitive Dust PM_{10}**	**Total $PM_{2.5}$**	**Diesel Exhaust $PM_{2.5}$**	**Fugitive PM_2**
Landmark Village (River Village)										
	Grading (Indirect)									
		On-Road								
		Off-Road								
	Improvements									
		On-Road								
		Off-Road								
	Construction									
		On-Road								
		Off-Road								
	Asphalt Paving									
		On-Road								
		Off-Road								
	LMK On-Road		0.05	0.02	0.00	0.00		0.00	0.00	
	LMK Off-Road		82.11	33.64	292.36	3.45	288.91	63.27	3.18	
	LMK Subtotal		82.16	33.65	292.36	3.45	288.91	63.27	3.18	
Mission Village (Mesas)										
	Grading (Direct)									
		On-Road								
		Off-Road								
	Grading (Indirect)									
		On-Road								
		Off-Road								
	MV On-Road									
	MV Off-Road		149.24	59.03	286.90	5.83	281.06	63.83	5.37	
	MV Subtotal		149.24	59.03	286.90	5.83	281.06	63.83	5.37	

Newhall Ranch Direct and Indirect Unmitigated Emissions
2012

Hrs/Day 9

Subsection	Development Process	Pollutants (lbs/hour) based on 9 hours per day							
		NO_x	CO	Total PM_{10}	Diesel Exhaust PM_{10}	Fugitive Dust PM_{10}	Total $PM_{2.5}$	Diesel Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Landmark Village (River Village)									
	Construction								
	On-Road								
	Off-Road								
	LMK On-Road								
	LMK Off-Road	2.27	1.51	0.16	0.16		0.15	0.15	
	LMK Subtotal	2.27	1.51	0.16	0.16		0.15	0.15	
Mission Village (Mesas)									
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Construction								
	On-Road								
	Off-Road								
	MV On-Road	0.04	0.01	0.00	0.00		0.00	0.00	
	MV Off-Road	70.93	29.16	301.66	2.83	298.83	64.76	2.61	62.16
	MV Subtotal	70.97	29.17	301.66	2.84	298.83	64.76	2.61	62.16
Mesas West	**HOMESTEAD SOUTH**								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Mesas On-Road								
	Mesas Off-Road								
	Mesas Subtotal								
Commerce Center									
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Construction								
	On-Road								
	Off-Road								
	Asphalt Paving								
	On-Road								
	Off-Road								
	VCC On-Road	0.04	0.01	0.00	0.00		0.00	0.00	
	VCC Off-Road	38.97	16.65	296.87	1.68	295.36	62.83	1.55	61.43
	VCC Subtotal	39.01	16.67	296.88	1.69	295.36	62.83	1.55	61.43
Entrada (Terrazo)	**ENTRADA**								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Entrada Terr On-Road								
	Entrada Terr Off-Road								
	Entrada Terr Subtotal								
Entrada (North Commercial)	**ENTRADA**								
	Improvements								
	On-Road								
	Off-Road								
	Entrada NC On-Road								
	Entrada NC Off-Road								
	Entrada NC Subtotal								
ENTRADA TOTAL									
	Entrada Total On-Road	0.08	0.03	0.00	0.00		0.00	0.00	
	Entrada Total Off-Road	34.79	14.03	248.32	1.36	247.00	52.59	1.25	51.38
	Entrada Total Subtotal	34.87	14.06	248.32	1.37	247.00	52.59	1.26	51.38
Long Canyon North	**HOMESTEAD SOUTH**								
	Grading (Direct)								
	On-Road								
	Off-Road								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	LC North On-Road								
	LC North Off-Road								
	LC North Subtotal								
Potrero Valley									
	Grading (Direct)								
	On-Road								
	Off-Road								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Potrero Valley On-Road								
	Potrero Valley Off-Road	124.82	49.04	422.82	4.72	419.73	90.15	4.34	87.30
	Potrero Valley Subtotal	124.82	49.04	422.82	4.72	419.73	90.15	4.34	87.30
HOMESTEAD SOUTH TOTAL									
	Homestead South On-Road	0.04	0.01	0.00	0.00		0.00	0.00	
	Homestead South Off-Road	158.66	62.22	521.73	6.02	515.70	112.82	5.54	107.27
	Homestead South Subtotal	158.70	62.23	521.74	6.03	515.70	112.82	5.54	107.27

Newhall Ranch Direct and Indirect Unmitigated Emissions
2013

Hrs/Day 9

Subsection	Development Process	Pollutants (lbs/hour) based on 9 hours per day							
		NO_x	CO	Total PM_{10}	Diesel Exhaust PM_{10}	Fugitive Dust PM_{10}	Total $PM_{2.5}$	Diesel Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Landmark Village (River Village)									
	Construction								
	On-Road								
	Off-Road								
	LMK On-Road								
	LMK Off-Road	2.12	1.48	0.14	0.14		0.13	0.13	
	LMK Subtotal	2.12	1.48	0.14	0.14		0.13	0.13	
Mission Village (Mesas)									
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Construction								
	On-Road								
	Off-Road								
	MV On-Road	0.04	0.01	0.00	0.00		0.00	0.00	
	MV Off-Road	65.64	27.34	301.40	2.57	298.83	64.52	2.37	62.16
	MV Subtotal	65.67	27.35	301.40	2.58	298.83	64.52	2.37	62.16
Homestead (Adobe Canyon)	**HOMESTEAD SOUTH**								
	Construction								
	On-Road								
	Off-Road								
	Asphalt Paving								
	On-Road								
	Off-Road								
	Homestead South Construction On-Road								
	Homestead South Construction Off-Road								
	Homestead South Construction Subtotal								
Mesas West	**HOMESTEAD SOUTH**								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Mesas On-Road								
	Mesas Off-Road								
	Mesas Subtotal								
Commerce Center									
	Improvements								
	On-Road								
	Off-Road								
	Construction								
	On-Road								
	Off-Road								
	VCC On-Road	0.04	0.01	0.00	0.00		0.00	0.00	
	VCC Off-Road	5.34	2.86	0.27	0.27		0.25	0.25	
	VCC Subtotal	5.38	2.88	0.28	0.28		0.25	0.25	
Entrada (Terrazo)									
	Improvements								
	On-Road								
	Off-Road								
	Construction								
	On-Road								
	Off-Road								
	Asphalt Paving								
	On-Road								
	Off-Road								
	Entrada Terr On-Road	0.04	0.01	0.00	0.00		0.00	0.00	
	Entrada Terr Off-Road	5.51	3.36	0.37	0.37		0.34	0.34	
	Entrada Terr Subtotal	5.55	3.38	0.38	0.38		0.35	0.35	

Subsection	Development Process	Pollutants (lbs/hour) based on 9 hours per day							
		NO_x	CO	Total PM_{10}	Diesel Exhaust PM_{10}	Fugitive Dust PM_{10}	Total $PM_{2.5}$	Diesel Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Long Canyon North	**HOMESTEAD SOUTH**								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	LC North On-Road								
	LC North Off-Road								
	LC North Subtotal								
Long Canyon South	**HOMESTEAD SOUTH**								
	Grading (Direct)								
	On-Road								
	Off-Road								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	LC South On-Road								
	LC South Off-Road								
	LC South Subtotal								
Onion Field	**HOMESTEAD SOUTH**								
	Grading (Direct)								
	On-Road								
	Off-Road								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Onion Field On-Road								
	Onion Field Off-Road								
	Onion Field Subtotal								
Potrero Ridge	**HOMESTEAD SOUTH**								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Potrero Ridge On-Road								
	Potrero Ridge Off-Road								
	Potrero Ridge Subtotal								
Potrero Valley									
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Potrero Valley On-Road	0.04	0.01	0.00	0.00		0.00	0.00	
	Potrero Valley Off-Road	79.46	32.33	422.76	3.04	419.73	90.10	2.79	87.30
	Potrero Valley Subtotal	79.50	32.34	422.76	3.04	419.73	90.10	2.80	87.30
HOMESTEAD SOUTH TOTAL									
	Homestead South On-Road	0.07	0.02	0.00	0.00		0.00	0.00	
	Homestead South Off-Road	307.00	122.76	1223.12	11.63	1211.49	262.69	10.70	251.99
	Homestead South Subtotal	307.08	122.79	1223.12	11.64	1211.49	262.70	10.71	251.99

Newhall Ranch Direct and Indirect Unmitigated Emissions
2015

Hrs/Day 9

Subsection	Development Process	Pollutants (lbs/hour) based on 9 hours per day							
		NO_x	CO	Total PM_{10}	Diesel Exhaust PM_{10}	Fugitive Dust PM_{10}	Total $PM_{2.5}$	Diesel Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Mission Village (Mesas)									
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Construction								
	On-Road								
	Off-Road								
	MV On-Road								
	MV Off-Road	51.98	23.18	300.83	2.00	298.83	64.00	1.84	62.16
	MV Subtotal	51.98	23.18	300.83	2.00	298.83	64.00	1.84	62.16
Homestead (Adobe Canyon)	**HOMESTEAD SOUTH**								
	Construction								
	On-Road								
	Off-Road								
	Homestead South On-Road								
	Homestead South Off-Road								
	Homestead South Subtotal								
Homestead (Adobe Canyon)	**HOMESTEAD NORTH**								
	Construction								
	On-Road								
	Off-Road								
	Homestead North On-Road								
	Homestead North Off-Road								
	Homestead North Subtotal								
Entrada (Terrazo)	**ENTRADA**								
	Construction								
	On-Road								
	Off-Road								
	Entrada Terr On-Road								
	Entrada Terr Off-Road								
	Entrada Terr Subtotal								
Entrada (North Commercial)	**ENTRADA**								
	Construction								
	On-Road								
	Off-Road								
	Asphalt Paving								
	On-Road								
	Off-Road								
	Entrada NC On-Road								
	Entrada NC Off-Road								
	Entrada NC Subtotal								
ENTRADA TOTAL									
	Entrada Total On-Road								
	Entrada Total Off-Road	4.65	3.58	0.20	0.32		0.18	0.30	
	Entrada Total Subtotal	4.65	3.58	0.20	0.32		0.18	0.30	

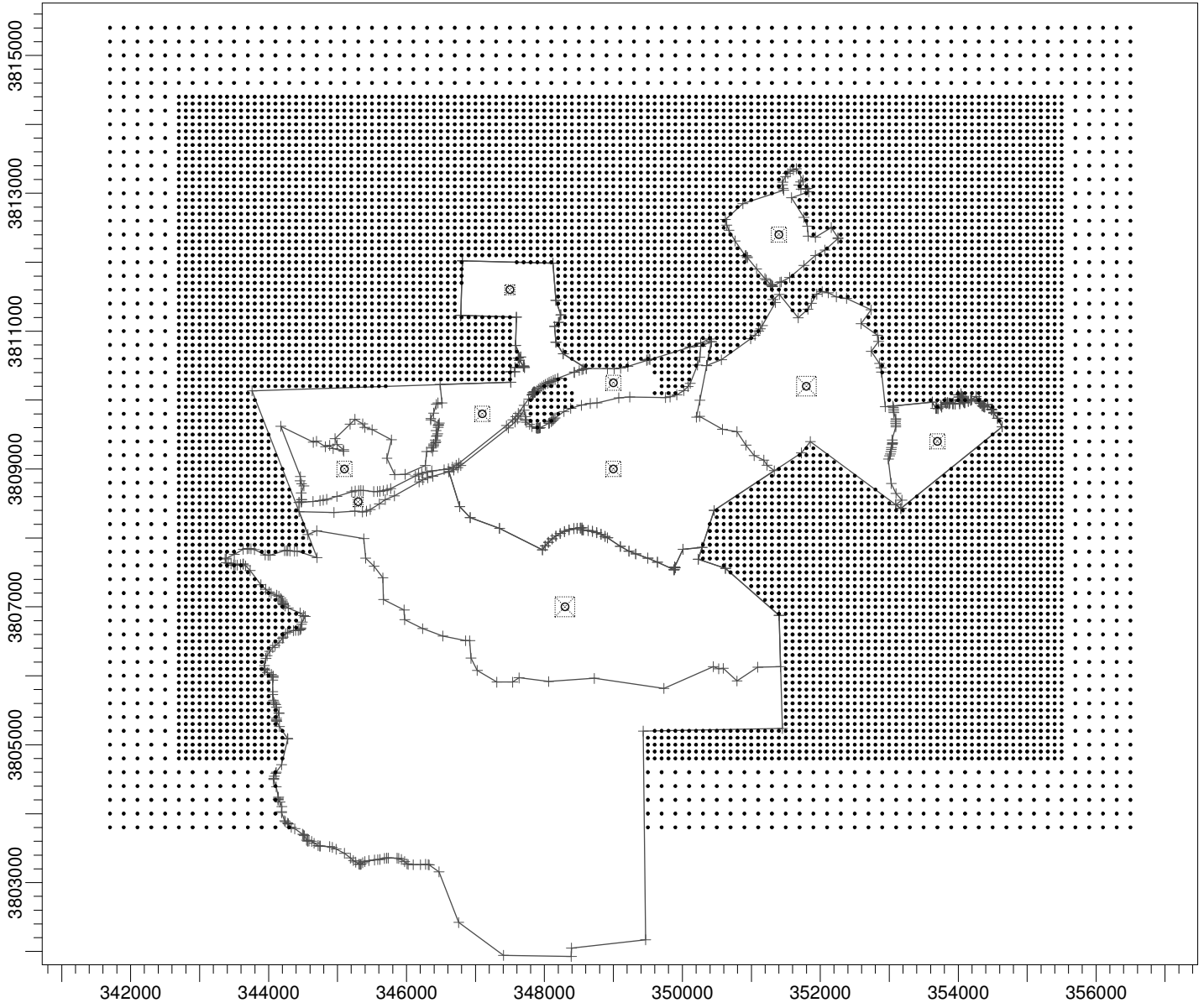
Subsection	Development Process	Pollutants (lbs/hour) based on 9 hours per day							
		NO_x	CO	Total PM_{10}	Diesel Exhaust PM_{10}	Fugitive Dust PM_{10}	Total $PM_{2.5}$	Diesel Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Long Canyon South	**HOMESTEAD SOUTH**								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	LC South On-Road								
	LC South Off-Road								
	LC South Subtotal								
Onion Field	**HOMESTEAD SOUTH**								
	Improvements								
	On-Road								
	Off-Road								
	Onion Field On-Road								
	Onion Field Off-Road								
	Onion Field Subtotal								
Potrero Ridge	**HOMESTEAD SOUTH**								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Potrero Ridge On-Road								
	Potrero Ridge Off-Road								
	Potrero Ridge Subtotal								
Homestead Central	**HOMESTEAD NORTH**								
	Grading (Direct)								
	On-Road								
	Off-Road								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Homestead Central On-Road								
	Homestead Central Off-Road								
	Homestead Central Subtotal								
Chiquita Canyon	**HOMESTEAD NORTH**								
	Grading (Direct)								
	On-Road								
	Off-Road								
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Chiquita Canyon On-Road								
	Chiquita Canyon Off-Road								
	Chiquita Canyon Subtotal								
Potrero Valley									
	Grading (Indirect)								
	On-Road								
	Off-Road								
	Improvements								
	On-Road								
	Off-Road								
	Construction								
	On-Road								
	Off-Road								
	Asphalt Paving								
	On-Road								
	Off-Road								
	Potrero Valley On-Road	0.03	0.01	0.00	0.00		0.00	0.00	
	Potrero Valley Off-Road	69.45	31.62	422.39	2.77	419.73	89.75	2.55	87.30
	Potrero Valley Subtotal	69.47	31.63	422.39	2.78	419.73	89.75	2.55	87.30
HOMESTEAD SOUTH TOTAL									
	Homestead South On-Road	0.06	0.02	0.00	0.00		0.00	0.00	
	Homestead South Off-Road	71.46	31.77	493.66	2.76	490.97	104.59	2.54	102.12
	Homestead South Subtotal	71.51	31.79	493.66	2.76	490.97	104.60	2.54	102.12
HOMESTEAD NORTH TOTAL									
	Homestead North On-Road								
	Homestead North Off-Road	215.18	91.05	572.92	7.98	564.95	124.85	7.34	117.51

APPENDIX B

Receptor Location Diagrams for Each Modeled Year

PROJECT TITLE:

Appendix B: Newhall Ranch
Year 2010 Receptors



COMMENTS:

SOURCES:

10

RECEPTORS:

9741

SCALE: 1:92,000

0 3 km

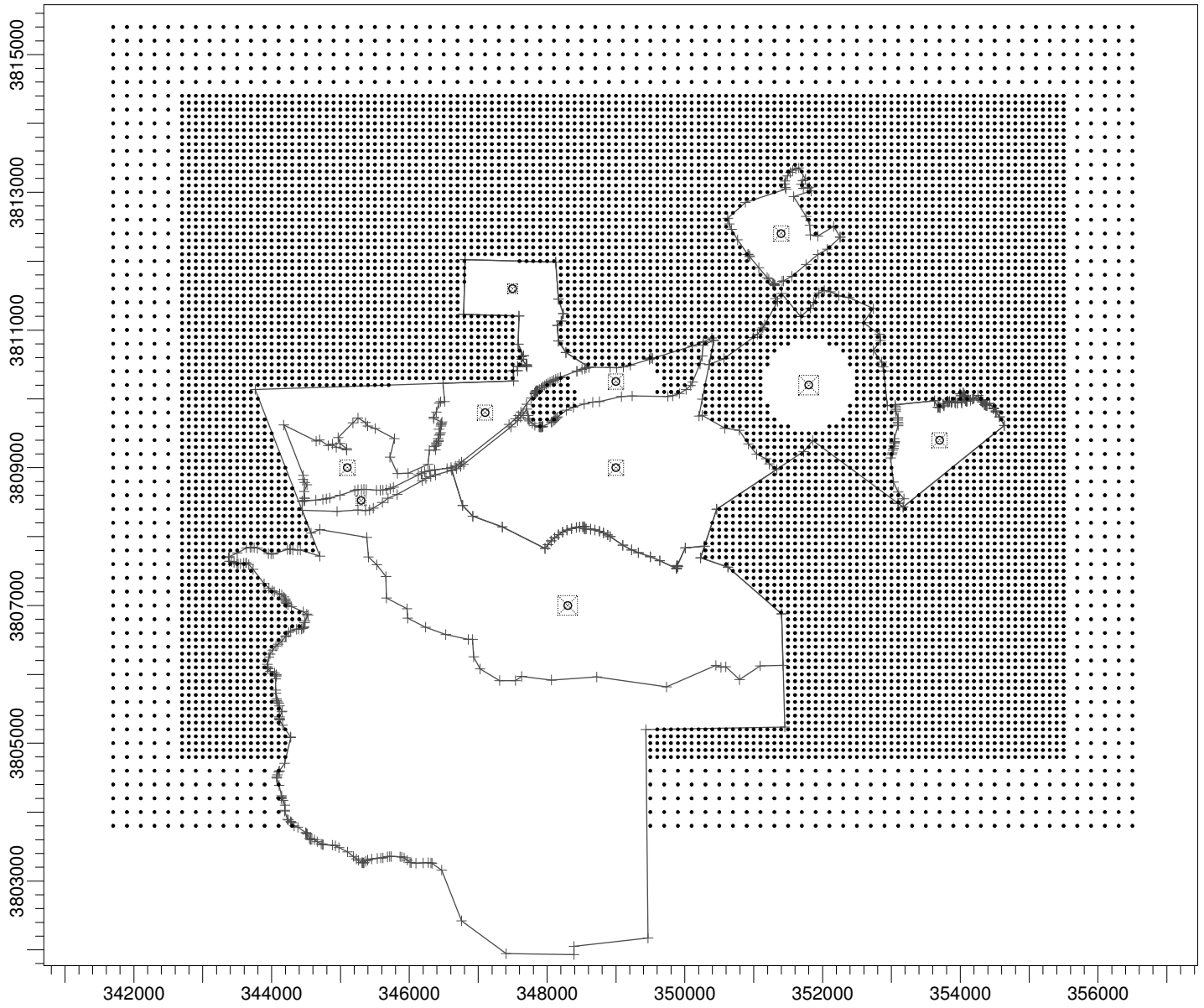
PROJECT NO.:

32.214

ISC-AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Appendix B: Newhall Ranch
Year 2012 Receptors



COMMENTS:

SOURCES:

10

RECEPTORS:

10131

SCALE: 1:92,000

0 3 km

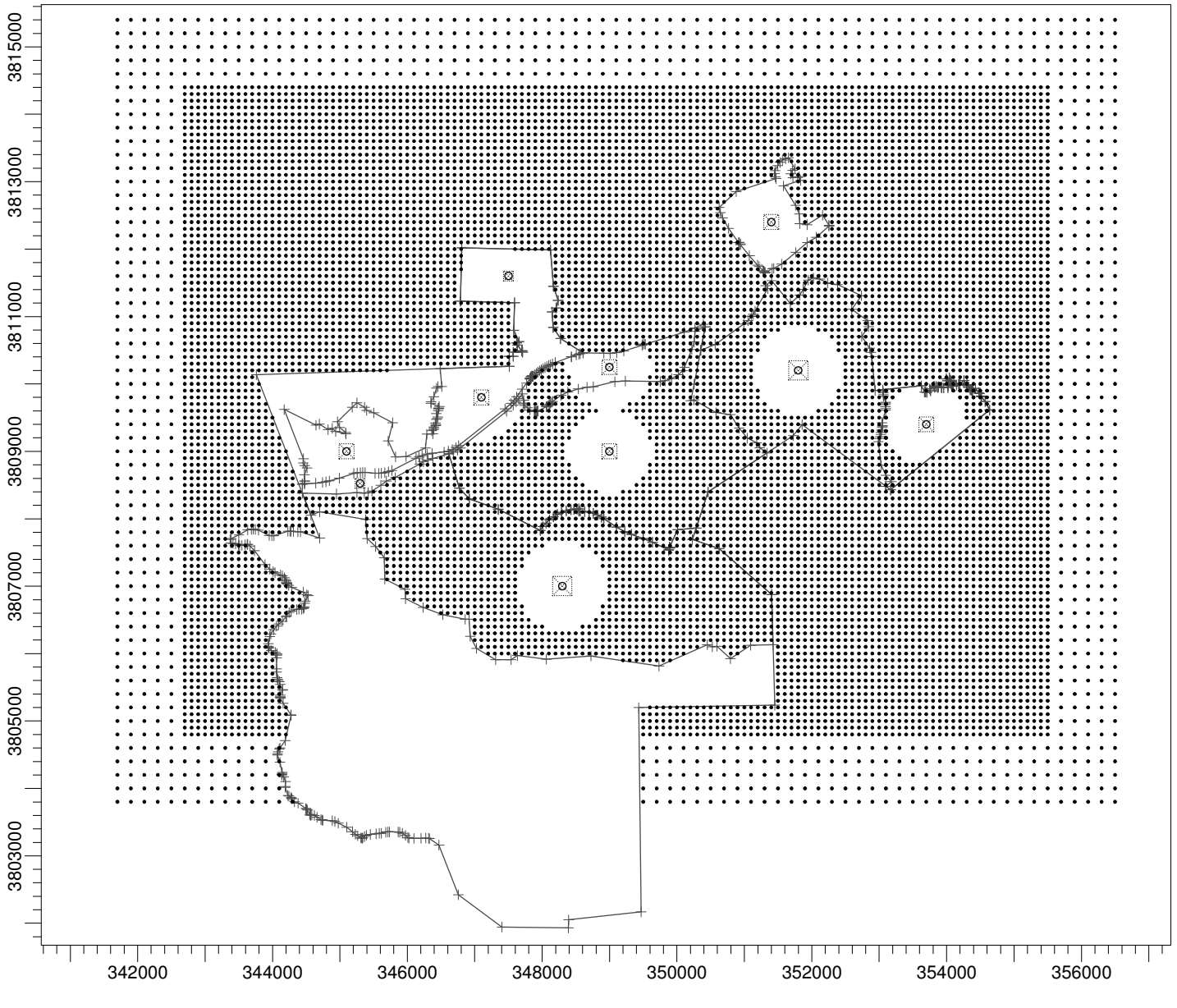
PROJECT NO.:

32.214

ISC-AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Appendix B: Newhall Ranch
Year 2013 Receptors



COMMENTS:

SOURCES:

10

RECEPTORS:

11785

SCALE: 1:92,000

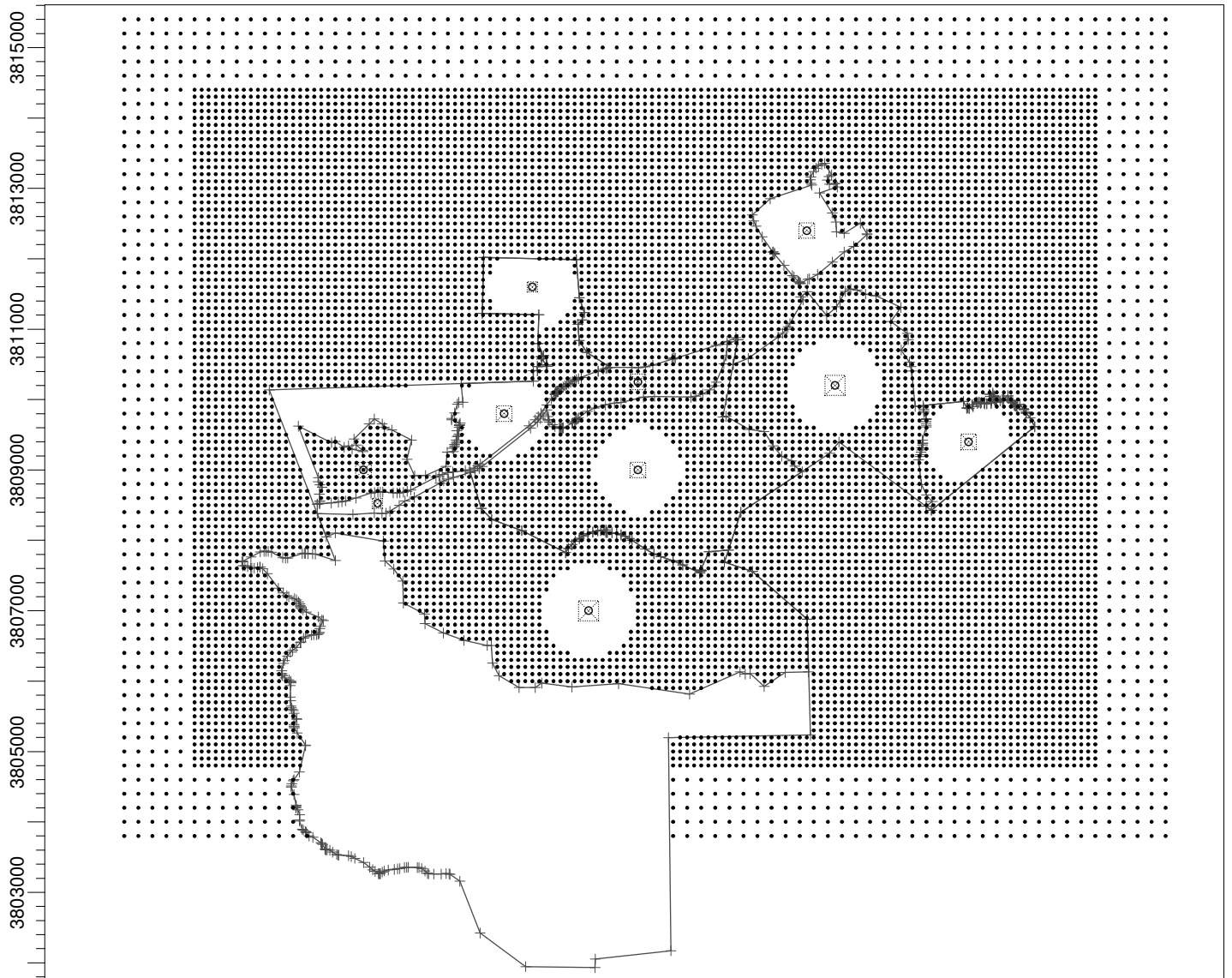
0 3 km

PROJECT NO.:

32.214

PROJECT TITLE:

Appendix B: Newhall Ranch
Year 2015 Receptors



COMMENTS:

SOURCES:

10

RECEPTORS:

12063

SCALE: 1:92,000

0 3 km

PROJECT NO.:

32.214

ISC-AERMOD View - Lakes Environmental Software

APPENDIX C

Localized Significance Threshold Calculations

Newhall Ranch EIS/EIR
ISCST3 - Localized Signifiance Threshold Model Results
Maximum Modeled Impacts at Sensitive Receptors and NO_2 Conversion

Project Construction Year	Receptor Type	Modeled Impacts at Sensitive Receptors (All Source Groups)				
		CO		NO_X	PM_{10}	$PM_{2.5}$
		1-Hr $\mu g/m^3$	8-Hr $\mu g/m^3$	1-Hr $\mu g/m^3$	24-Hr $\mu g/m^3$	24-Hr $\mu g/m^3$
2010	Residential	359.93	54.78	881.61	187.74	48.39
2010	Live Oak Elementary	79.17	11.03	200.16	15.73	4.73
2010	Oak Hills Elementary	91.36	11.68	230.97	18.07	4.80
2010	Pico Canyon Elementary	36.27	4.53	91.71	6.62	2.05
2010	Rancho Pico Junior High	95.22	11.90	240.74	17.47	5.10
2010	Stevenson Ranch Elementary	68.58	8.84	173.39	11.88	3.62
2010	West Ranch High	110.39	14.14	262.21	21.53	6.23
2012	Residential	299.68	44.75	734.77	206.65	57.90
2012	Live Oak Elementary	148.38	21.58	350.85	145.79	39.27
2012	Oak Hills Elementary	68.13	11.74	168.97	70.27	17.01
2012	Pico Canyon Elementary	39.81	5.93	101.49	15.87	4.72
2012	Rancho Pico Junior High	56.37	9.69	143.75	48.96	12.90
2012	Stevenson Ranch Elementary	48.31	7.82	123.17	24.22	6.46
2012	West Ranch High	63.45	10.47	159.65	49.74	13.43
2013	Residential	1279.82	247.19	3200.19	1106.62	289.81
2013	Live Oak Elementary	55.53	10.05	123.27	27.47	6.78
2013	Oak Hills Elementary	109.56	14.31	274.00	44.80	12.91
2013	Pico Canyon Elementary	78.52	11.19	196.33	29.13	8.33
2013	Rancho Pico Junior High	111.22	15.15	278.15	40.29	11.82
2013	Stevenson Ranch Elementary	88.77	15.30	238.28	39.85	11.10
2013	West Ranch High	123.53	16.50	308.92	44.97	12.94
2015	Residential	592.26	87.00	1399.86	447.75	116.16
2015	Live Oak Elementary	48.08	8.52	113.64	25.93	6.33
2015	Oak Hills Elementary	47.87	7.33	112.26	27.86	7.73
2015	Pico Canyon Elementary	40.74	7.43	94.05	20.84	5.15
2015	Rancho Pico Junior High	52.89	6.61	121.99	24.61	7.32
2015	Stevenson Ranch Elementary	46.03	8.97	101.39	25.36	7.46
2015	West Ranch High	54.92	7.74	126.70	24.30	6.79

Project Construction Year	Receptor Type	Maximum Modeled Impacts at Sensitive Receptors						
		CO				NO_X	PM_{10}	$PM_{2.5}$
		1-Hr		8-Hr		1-Hr	24-Hr	24-Hr
		$\mu g/m^3$	ppm	$\mu g/m^3$	ppm	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
	Residential	1280	1.12	247	0.22	3200	1107	290
	School	148	0.13	22	0.02	351	146	39

Newhall Ranch EIR/EIS, 0032.214
ISCST3 - Localized Significance Threshold Model Results
Maximum Modeled Impacts at Sensitive Receptors and NO_2 Conversion

Project Construction Year	Receptor Type	Conversion to NO_2				
		NO_X 1-Hr $\mu g/m^3$	NO_2-NO_X Distance meters	NO_2-NO_X Ratio	NO_2 1-Hr $\mu g/m^3$	ppm
2010	Residential	882	See NO_X to NO_2 conversion tables		396.9	0.21
	Live Oak Elementary	200			183.3	0.10
	Oak Hills Elementary	231			202.7	0.11
	Pico Canyon Elementary	92			91.7	0.05
	Rancho Pico Junior High	241			214.9	0.11
	Stevenson Ranch Elementary	173			167.5	0.09
	West Ranch High	262			222.2	0.12
2012	Residential	735			313.8	0.17
	Live Oak Elementary	351			206.5	0.11
	Oak Hills Elementary	169			90.9	0.05
	Pico Canyon Elementary	101			101.5	0.05
	Rancho Pico Junior High	144			143.1	0.08
	Stevenson Ranch Elementary	123			123.2	0.07
	West Ranch High	160			157.9	0.08
2013	Residential	3200			**936.2**	**0.50**
	Live Oak Elementary	123			124.6	0.07
	Oak Hills Elementary	274			347.4	0.18
	Pico Canyon Elementary	196			249.2	0.13
	Rancho Pico Junior High	278			351.5	0.19
	Stevenson Ranch Elementary	238			302.5	0.16
	West Ranch High	309			**387.8**	**0.21**
2015	Residential	1400			554.9	0.30
	Live Oak Elementary	114			111.1	0.06
	Oak Hills Elementary	112			112.2	0.06
	Pico Canyon Elementary	94			94.0	0.05
	Rancho Pico Junior High	122			157.9	0.08
	Stevenson Ranch Elementary	101			101.4	0.05
	West Ranch High	127			126.0	0.07

APPENDIX D

ISCST3 Dispersion Modeling Files
(Available Upon Request)