Technical Report
LAX Master Plan Supplement to the Draft EIS/EIR

9a. Supplemental Human Health Risk Assessment Technical Report

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Prepared for:

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EXECUTIVE SUMMARY

Activities such as air traffic and surface traffic are expected to increase at the Los Angeles International Airport (LAX) with or without implementation of the proposed LAX Master Plan as compared to the environmental baseline. Increased activity levels may result in increased emissions of Toxic Air Pollutants (TAPs). Potential impacts associated with the increased release of TAPs to air in the South Coast Air Basin may include increased cancer risks and non-cancer health hazards from inhalation of TAPs by people working, living, recreating, or attending school on or near the airport.

Possible impacts to human health can be assessed through a human health risk assessment (HHRA). An HHRA was conducted for TAP emissions associated with the environmental baseline and each alternative of the proposed LAX Master Plan, as required under State of California statutes and regulations. The HHRA was conducted in four steps as defined in California Environmental Protection Agency (CalEPA) and U.S. Environmental Protection Agency (USEPA) guidance, consisting of:

- Identification of chemicals (in this case, TAPs) that may be released in sufficient quantities to present a public health risk (Hazard Identification).
- Analysis of ways in which people might be exposed to chemicals (TAPs) (Exposure Assessment).
- Evaluation of the toxicity of chemicals (TAPs) that may present public health risks (Toxicity Assessment).
- Characterization of the magnitude and location of potential health risks for the exposed community (Risk Characterization).

This Technical Report is provided in support of Section 4.24.1, *Human Health Risk Assessment*, of the Supplement to the Draft EIS/EIR. The basic methods used to conduct the HHRA did not change between the Draft EIS/EIR and the Supplement to the Draft EIS/EIR; therefore, methods previously described in detail are not repeated in this report. This report should be viewed as a supplement to the technical report used to support the Draft EIS/EIR for the LAX Master Plan (Technical Report 14a, *Human Health Risk Assessment Technical Report*). However, changes to mitigation measures and the addition of analyses for possible acute non-cancer health hazards required many analyses conducted for the Draft EIS/EIR to be revised. Thus the results presented here and in Section 4.24.1 of the Supplement to the Draft EIS/EIR replace those presented in the Draft EIS/EIR. Analyses for the Supplement to the Draft EIS/EIR address the following issues, and provide additional information on potential for human health impacts:

- Reassessment of health risks and hazards using a comparison against airport operating conditions in the Year 2000 (in addition to the comparison to 1996 baseline conditions).
- Assessment of a fourth build alternative (Alternative D).
- Re-evaluation of health risks after mitigation measures are implemented using a revised set of mitigation measures.
- Evaluation of cumulative impacts for health hazards other than cancer.
- Evaluation of possible acute non-cancer hazards due to release of acrolein during airport operations.
- Evaluation of possible cumulative impacts of release of acrolein on potential acute health effects.
- Evaluation of possible impacts of TAP emissions on a community-by-community basis.
- Re-evaluation of health risks for Alternatives A, B, and C under pre-mitigation conditions compared to 1996 baseline using a 70 year exposure duration.

Conservative methods are used to estimate human health risks and hazards. That is, methods are used that are much more likely to overestimate than underestimate possible health risks. For example, risks are calculated for individuals at locations where TAP concentrations are predicted to be highest (maximally exposed individual [MEI]). Further, these individuals are assumed to be exposed to TAPs for almost all days of the year and for many years to maximize estimates of possible exposure. Resulting incremental risk estimates represent upper-bound predictions of exposure, and therefore health risk, that may be associated with living near, and breathing emissions from, LAX during and after implementation of the Master Plan. By protecting hypothetical individuals that receive the highest exposures, the risk

assessment will also be protective for actual members of the population near LAX that are not as highly exposed.

1. INTRODUCTION

This technical report presents supplemental information on methodology and baseline conditions important for the further analysis of human health risks associated with proposed development at LAX. Specifically, this technical report provides additional data and analysis in support of the Supplement to the Draft EIS/EIR for the LAX Master Plan prepared pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

This technical report should be viewed as a supplement to the technical report developed to support the Draft EIS/EIR for the LAX Master Plan (Technical Report 14a, *Human Health Risk Assessment*). This latter report provides information on the basic methods and data used in developing the HHRA. Since the basic methods used did not change between the Draft EIS/EIR and the Supplement to the Draft EIS/EIR, methods previously described in detail are not repeated in this report. Only new methods and data, or those methods and approaches that changed between the draft and supplemental documents, are described in detail. Some brief summary information taken from Technical Report 14a, *Human Health Risk Assessment Technical Report*, is included, however, to provide appropriate context.

2. GENERAL APPROACH

Generally, methods used in preparation of the assessment provided in the Draft EIS/EIR were again used in the supplemental analysis. In some cases, however, additional analyses were performed for the Supplement to the Draft EIS/EIR. These additional analyses are described briefly below and details of methods for these analyses are provided in subsequent sections.

The Draft EIS/EIR concluded that emissions of 1,3-butadiene, benzene, and acrolein from aircraft, and of diesel particulates from trucks and construction equipment, are responsible for nearly all potential health threats posed by airport operations. Based on analysis of cumulative impacts, the Draft EIS/EIR concluded that the airport is a relatively minor source of these TAPs, and that improvements in airport operations as a result of implementing build alternatives could reduce the overall contribution below that anticipated for the No Action/No Project Alternative.

Analyses for the Supplement to the Draft EIS/EIR address the following issues, and provide additional information on potential for human health impacts.

- Reassessment of health risks and hazards using a comparison against airport operating conditions in the Year 2000 (in addition to the comparison to 1996 baseline conditions).
- Assessment of a fourth build alternative (Alternative D).
- Re-evaluation of health risks after mitigation measures are implemented using a revised set of mitigation measures.
- Evaluation of cumulative impacts for health hazards other than cancer.
- Evaluation of possible acute non-cancer hazards due to release of acrolein during airport operations.
- Evaluation of possible cumulative impacts of release of acrolein on potential acute health effects.
- Evaluation of possible impacts of TAP emissions on a community-by-community basis.
- Re-evaluation of health risks for Alternatives A, B, and C under pre-mitigation conditions compared to 1996 baseline using a 70 year exposure duration.

Methods used to update airport emissions to Year 2000, to define a fourth build alternative, and to define a new set of mitigation measures, are described in detail in other technical reports or appendices to the Supplement to the Draft EIS/EIR (in particular, Appendix S-B, *Existing Baseline Comparison Issues - 1996 to 2000*, Appendix S-E, *Supplemental Air Quality Impact Analysis,* and Technical Report S-4, *Supplemental Air Quality Technical Report*). Use of this new information is described in Section 4.24.1, *Human Health Risk Assessment*, of the Supplement to the Draft EIS/EIR. The remaining new analyses are described in detail in the following sections.

3. SELECTION OF TAPS OF CONCERN

TAPs of concern for LAX operations were selected as described previously in Technical Report 14a of the Draft EIS/EIR. No supplemental information is available to indicate that the previous selection process is no longer valid. Thus, TAPs of concern used to evaluate health risks in this supplement are the same as those used to assess health risks for the Draft EIS/EIR.

4. EXPOSURE ASSESSMENT

As discussed in Technical Report 14a, Section 4, *Exposure Assessment,* the exposure assessment for the Draft EIS/EIR examined inhalation exposures to TAPs of concern for four populations, consisting of on-site workers, resident children, school children, and resident adults. Additional methods for exposure assessment are discussed in Section 4.1, *Supplemental Methods for Exposure Assessment,* and Section 4.2, *Revised Exposure Assumptions and Methods Used to Quantify Exposures*, below.

4.1 Supplemental Methods for Exposure Assessment

Additional exposure assessment was required to:

- Develop analyses of cumulative impacts associated with non-cancer hazards, both chronic and acute.
- Develop an assessment of acute non-cancer hazards from releases of acrolein in jet exhaust.
- Develop estimates of risks and hazards on a community-by-community basis.
- Evaluate incremental risks based on comparison to Year 2000 conditions.

Each of these issues is discussed in separate subsections below.

4.1.1 Assessment of Cumulative Impacts for Chronic Non-Cancer Hazards

The South Coast Air Quality Management District (SCAQMD) Multiple Air Toxics Exposure Study (MATES-II) characterizes existing cancer risks in the South Coast Air Basin and served as the basis for the cumulative impact analysis for cancer in the Draft EIS/EIR. No equivalent study of non-cancer hazards is available to quantitatively address cumulative impacts for non-cancer effects. As indicated in Technical Report 14a of the Draft EIS/EIR, potential non-cancer risks are due almost entirely to exposure to acrolein release in jet exhaust. USEPA[1] recently completed an assessment of possible cumulative impacts of TAPs - including acrolein - nationwide using a variety of emissions estimates, such as its Toxics Release Inventory and other sources, including information from state agencies, and large-scale air dispersion modeling. Results of the effort can be used in a general way to predict where the highest air concentrations might occur on a state level, but cannot predict with any confidence where the locally highest concentrations might be found. Thus, the USEPA estimates can be used in a semi-quantitative way to illustrate the possible range of incremental impacts of LAX operations, but cannot provide any location-specific information.

USEPA estimates for emissions were made by census tract and used to estimate annual average ambient air concentrations. These estimates by census tract are subject to high uncertainty, and USEPA warns against using them to predict local concentrations. Thus, for the analysis of cumulative risks, no location-specific estimates of total acrolein concentrations were made. Instead, estimates for each census tract within the study area were identified, and the range of concentrations was used as an estimate of the possible range of annual average concentrations in the general vicinity of the airport. This range of concentrations was converted to a range of chronic non-cancer hazard indices using the same methods as previously used for calculation of chronic hazards in the Draft EIS/EIR. This range of hazard indices was then used as a basis for comparison with estimated maximum hazards calculated among the build alternatives and the No Action/No Project Alternative. The relative magnitudes of the hazards

[1] US Environmental Protection Agency, National Air Toxics Assessment, 2002. Available: // www.epa.gov/ttn/atw/nata/roy/page9.html

calculated on the basis of the USEPA estimates and the incremental hazards estimated for the various alternatives were taken as a general measure of relative cumulative impacts. Emphasis must be placed on the relative nature of these estimates. Uncertainties in the analysis preclude estimation of absolute impacts. Uncertainties in the methods are further discussed in Section 7, *Uncertainties*, below.

The USEPA estimates were also used to estimate possible cumulative acute non-cancer hazards.

4.1.2 Assessment of Acute Non-Cancer Hazards

Non-cancer hazards associated with releases of acrolein in jet exhaust are responsible for almost all chronic non-cancer hazard associated with LAX operations. This TAP is also one of only a few TAPs of concern for LAX for which an acute reference exposure level (REL) has been developed by the CalEPA Office of Environmental Health Hazard Assessment (OEHHA). This chemical may cause acute effects - mild irritation of mucus membranes - at very low concentrations. Acrolein is the only TAP of concern in emissions from LAX that might be present at concentrations approaching a threshold for acute effects. Thus, acrolein was further assessed for possible acute hazards associated with the No Action/No Project Alternative and all four build alternatives (Alternatives A, B, C, and D). **Table S1**, Comparison of Acute RELs with Maximum Predicted Incremental 1-Hour Concentrations Under the No Action/No Project Alternative, demonstrates that only acrolein, among TAPs of concern, might be released during LAX operations in amounts that could exceed acute hazard thresholds.

Table S1

Comparison of Acute RELs with Maximum Predicted Incremental 1-Hour Concentrations Under the No Action/No Project Alternative

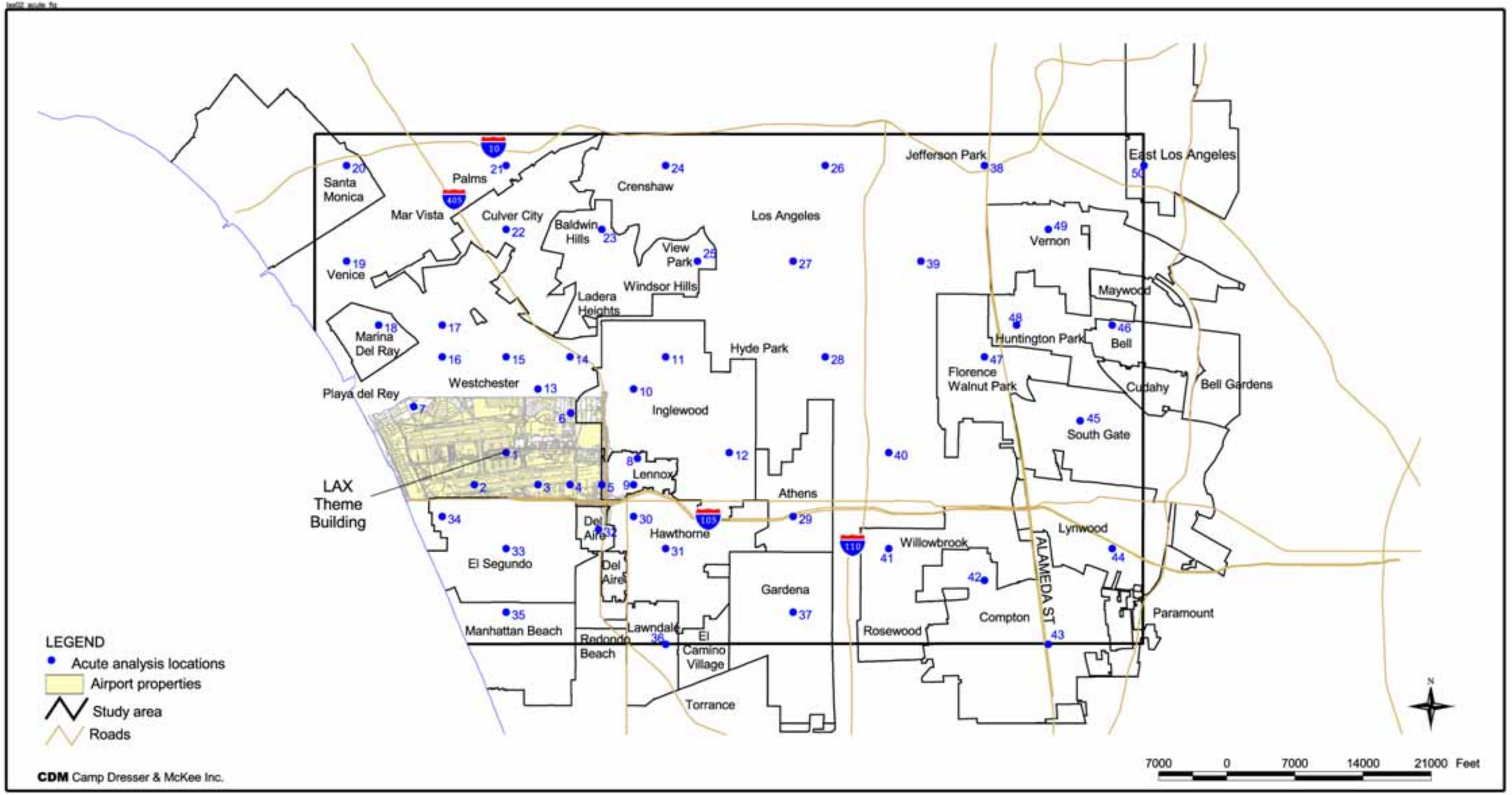
TAP of Concern	Maximum 1-Hour Concentration, Increment Above 1996 Baseline Conditions ($\mu g/m^3$)	Maximum 1-Hour Concentration, Increment Above Year 2000 Conditions ($\mu g/m^3$)	Reference Exposure Level ($\mu g/m^3$)
Acrolein	0.14	0.09	0.19
Arsenic	0.0001	0.00006	0.19
Benzene	0.5	0.2	1,300
Formaldehyde	1	0.95	94
Xylenes	0.7	0.2	22,000

REL = Reference Exposure Level
TAP = Toxic Air Pollutant
$\mu g/m^3$ = microgram per cubic meter

Source: Camp Dresser & McKee Inc., 2003.

Short-term concentrations for acrolein were estimated using the same air dispersion model (Industrial Source Complex Air Dispersion Model, ISC3) used to estimate annual average concentrations, but with the model option for 1-hour maximum concentrations selected. This dispersion modeling used the same modeling domain (study area) and modeling nodes as used for the predictions of annual average concentrations. Separate modeling runs were performed for 1996 baseline and Year 2000 conditions and for the four build alternatives and the No Action/No Project Alternative. For each of these sets of airport operations scenarios, modeling was also performed for horizon year 2015, for pre-mitigation conditions. Short-term concentrations for acrolein were not modeled for post-mitigation conditions since none of the proposed mitigation measures would affect aircraft emissions, which are responsible for almost all acrolein releases to air associated with LAX operations. Therefore, short-term concentrations for acrolein under pre- and post mitigation conditions would be essentially the same.

For the assessment of possible acute non-cancer hazards, approximately 50 grid nodes in the study area were selected for quantitative assessment. These nodes consisted of several locations for sensitive receptors (schools near LAX), locations on the airport where workers might be exposed, and representative locations throughout the study area. These locations illustrate the range of potential acute non-cancer hazards associated with the build alternatives and the No Action/No Project Alternative. Locations for the acute hazard analysis are shown in **Figure S1**, Acute Analysis Model Grid Points.



LAX Master Plan - Supplement to the Draft EIS/EIR	**Acute Analysis Model Grid Points**	Figure **S-1**

These grid nodes are part of the modeling of LAX emissions and are completely independent of the estimates of acute hazards for LA County discussed in Section 4.1.1, *Assessment of Cumulative Impacts for Chronic Non-Cancer Hazards,* above.

Incremental acrolein concentrations in ISC3 output from the build alternatives and the No Action/No Project Alternative were calculated by subtracting baseline concentrations (either 1996 baseline or Year 2000 conditions) at each of the selected grid nodes. These concentrations represent the increment above current impacts that might be associated with each of the alternatives. Incremental acute non-cancer hazards were then estimated at each grid point by comparison with the acute REL for acrolein as described in Section 6, *Risk Characterization,* below.

4.1.3 Evaluation of Cancer Risks and Chronic Non-Cancer Hazards on a Community Basis

Cancer risks and chronic non-cancer hazards in the Draft EIS/EIR were presented graphically as "risk or hazard isopleths." These isopleths provided an illustration of how risk and hazards might be distributed in communities around the airport. Additional clarification is provided herein about risks for individual communities. To better illustrate these risks, larger maps showing the boundaries of each community were produced and used as the basis for overlays of risk and hazard isopleths. The isopleths are based on residential exposures. These maps characterize estimated incremental risk and chronic non-cancer hazards and are provided in Section 4.24.1, *Human Health Risk Assessment,* of the Supplement to the Draft EIS/EIR (Figure S4.24.1-13 Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Post-Mitigation Conditions, Alternative A; Figure S4.24.1-16, Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Post-Mitigation Conditions, Alternative B; Figure S4.24.1-17, Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Post-Mitigation Conditions, Alternative C; and Figure S4.24.1-18, Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Post-Mitigation Conditions, Alternative D). Incremental risks and hazards for the 2015 horizon year and 1996 baseline year represent the maximum estimates of ongoing risk and hazards after implementation of the Master Plan or under the No Action/No Project Alternative. Incremental risks are greatest when compared with 1996 baseline, and horizon year 2015 represents highest predicted airport activity. Finally, since mitigation options will be implemented if any of the build alternatives are approved, post-mitigation conditions are likely to be the most representative of possible future conditions. Additional figures showing the boundaries of each community overlaying incremental risk and incremental hazard isopleths based on residential exposures for the No Action/No Project Alternative and Alternatives A, B, C, and D for an interim year and horizon year 2015 under pre-mitigation conditions and for an interim year under post-mitigation conditions are presented in Attachment B of this supplemental technical report.

Certain subpopulations may be more sensitive or susceptible to negative health impacts caused by environmental contaminants than the population at large.[2] These critical subpopulations were also considered in the exposure assessment. On-site occupational workers were evaluated in Technical Report 14a of the Draft EIS/EIR, (Section 6.3.1, *Comparison of On-Airport Air Concentrations with OSHA Standards for Workers).* Results of the evaluation suggest that air concentrations from airport emissions with or without implementation of the LAX Master Plan would not exceed worker threshold levels. Therefore, on-site workers were not evaluated herein.

During this evaluation, the following sensitive receptor locations were reevaluated:

- Schools: School children include all students enrolled in kindergarten through high school. A survey conducted of the study area in 1996, and reviewed for changes through the year 2000, identified 99 schools. Of these, approximately 20 schools lie within one mile of the LAX fence line. Elementary school children are a critical population for evaluation of non-cancer health hazards from exposure to TAPs of concern for LAX operations. Locations of schools where the highest concentrations of TAPs were predicted for No Action/No Project Alternative and Alternatives A, B, C and D for an interim year and 2015 under pre-mitigation and post-mitigation conditions are shown on figures in Attachment B of this technical report (**Figure B-1,** Locations for Maximally Exposed Residents and School Children,

[2] USEPA Office of Emergency and Remedial Response, Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual Interim Final, December 1989.

All Years, Cancer Risks, Pre-Mitigation Conditions; **Figure B-2,** Locations for Maximally Exposed Residents and School Children, All Years, Hazard Indices, Pre-Mitigation Conditions; **Figure B-3,** Locations for Maximally Exposed Residents and School Children, All Years, Cancer Risks, Post-Mitigation Conditions; and **Figure B-4,** Locations for Maximally Exposed Residents and School Children, All Years, Hazard Indices, Post-Mitigation Conditions). Elementary school children at these schools were, therefore, quantitatively evaluated for cancer risks and health hazards. Cancer risks are proportional to the duration of exposure. Thus, cancer risks to adult and child residents, who are exposed for many years, will be higher than for any school population. Protection of residents living adjacent to LAX for carcinogenic effects will also protect all school populations. Incremental cancer risks and incremental non-cancer health hazards for maximally exposed school children and residents are presented in Attachment A of this supplemental technical report.

- Day care centers and preschools: Day care centers and preschools within the noise impact area for LAX were also identified. Forty-one preschool/day care centers were identified. Of these centers, 14 facilities are located within one mile of the LAX fence line. The center nearest the LAX fence line is St. John's Lutheran Child Development Center at 16111 East Sycamore Avenue in El Segundo.
- Hospitals, nursing homes, and retirement communities: Patients and residents in hospitals, nursing homes, and retirement communities are critical subpopulations with possibly increased sensitivity to environmental contaminants. According to the 1990 census, 8 percent of the local population is in excess of 65 years of age in the area surrounding LAX. No hospitals are, however, located within one mile of LAX. The nearest hospital, Centinela Hospital, lies approximately 1.6 miles to the east.
- Residential areas with children: Children living in the immediate vicinity of the site or within the potential impact zones are probably more sensitive or susceptible to effects of many TAPs. The area surrounding LAX includes mixed use and residential communities. The 1990 census reported a population of 441,375 within an area subject to noise impacts from LAX. Of this population, 131,794 people were less than 16 years of age. Incremental cancer risks and incremental noncancer health hazards for maximally exposed residential children are presented in Attachment A of this supplemental technical report.

Of these several sensitive receptors, school children and children in residential areas were assessed quantitatively. Methods to estimate exposures and risks for these populations are well defined in guidance as discussed in Technical Report 14a of the Draft EIS/EIR, (Section 4.2*, Exposure Assumptions and Methods Used to Quantify Exposures)*. Methods to separately assess populations in hospitals, nursing homes, and retirement communities have not been defined in guidance and methods for quantitative evaluation are not readily available. Instead, toxicity criteria (cancer slope factors and reference doses or RELs) protective of sensitive subpopulations of people defined by CalEPA or USEPA are used to estimate cancer risks and chronic and acute non-cancer hazards for sensitive receptors. Thus, if protection based on these toxicity criteria is provided for the most heavily exposed people, sensitive subpopulations should also be protected. Children in day care centers and preschools were not separately evaluated because children in this age range were evaluated as residents living immediately adjacent to the airport. When these children are protected, children in day cares and preschools close to LAX, who spend only part of their day at the school in these locations, will also be protected.

4.1.4 Incremental Risks Based on Year 2000 Conditions

For purposes of CEQA, the baseline year for analysis is 1996. However, in order to evaluate incremental health risk impacts against a more current year, conditions in the Year 2000 were quantified by scaling 1996 emissions to the level of operations at LAX actually observed in 2000. Methods used to update airport emissions to Year 2000 are described in detail in other technical reports or appendices to the Supplement to the Draft EIS/EIR, including Appendix S-B, *Existing Baseline Comparison Issues - 1996 to 2000*, Appendix S-E, *Supplemental Air Quality Impact Analysis,* and Technical Report S-4, *Supplemental Air Quality Technical Report*. Year 2000 emissions were used to model possible air concentrations of TAPs associated with LAX operations. Modeled concentrations were then used to estimate incremental risks and hazards for all alternatives. However, incremental risks from 1996 continue to serve as the basis of the significance determinations.

When the Draft EIS/EIR was produced, the most recent year for which detailed emissions data were available was 1996. Thus, the year 1996 was used to provide a baseline against which to judge possible human health impacts. Use of the 1996 baseline year as the basis for significance is conservative, in part because the incremental impact of the existing facility is in large measure a function of the number of

aircraft operations in the baseline year. The increase in passenger level in the Year 2000 effectively reduces the increment in emissions and predicted air concentrations between the baseline (1996) and those predicted for the No Action/No Project Alternative and any of the build alternatives. That is, the larger the number of baseline aircraft operations, the smaller the incremental impact of any of the alternatives. In assessing impacts of the Master Plan, incremental risks and incremental hazards measured against Year 2000 provide useful comparisons to baseline (1996) conditions.

4.2 Revised Exposure Assumptions and Methods Used to Quantify Exposures

The Draft EIS/EIR used an exposure duration of 30 years for residents living near LAX when estimating possible cancer risks. This period represents an upper range estimate of the time a person in the US might spend at one address. The value is very commonly used to estimate "reasonable maximum exposure" (RME). As defined by USEPA, RME is an exposure well above the average, but still within the range of those possible. The SCAQMD often uses an exposure duration of 70 years (a lifetime) to represent an upper bound of exposure. In the supplemental analyses, an exposure duration of 70 years was used for consistency with SCAQMD and to provide an upper bound estimate on possible cancer risks. The contribution of childhood exposure (0 to 6 years) to possible cancer risks using the lifetime 70-year exposure duration is small. Use of a 70-year exposure duration introduces uncertainty as discussed in Section 7, *Uncertainties*, below.

5. TOXICITY ASSESSMENT

The Draft EIS/EIR presents the basic toxicity assessment information. This assessment was not changed materially and still forms the basis for the analyses in the Supplement to the Draft EIS/EIR. Some aspects of the toxicity assessment were modified slightly and these modifications are discussed below.

5.1 California Reference Exposure Levels (RELs)

The Draft EIS/EIR used a hierarchy of information to establish toxicity criteria for use in the HHRA. Top priority was placed on cancer criteria developed by OEHHA. USEPA was used as the primary sources for other toxicity criteria, in particular inhalation reference doses (RfDs). During the time that the Draft EIS/EIR was completed, chronic RELs developed by OEHHA were still in developmental stages. These criteria were used in selection of TAPs of concern for LAX and were considered in conclusions on magnitude and significance of possible impacts. Chronic RELs are, in essence, analogous to inhalation RfDs developed by USEPA.

OEHHA has also developed acute RELs for a smaller number of chemicals, including acrolein. USEPA has no analogous criteria for acute toxicity. These criteria are intended to protect people from short-term impacts (usually from exposures on the order of 1-hour). Acute RELs are concentrations above which some health impacts might occur if inhalation exposure continues for an hour or more. Acute RELs are applicable to all receptors, children and adults, and hazards are simply the ratio of estimated or measured concentrations and the REL. Many RELs have been formally adopted by OEHHA at this time and these criteria were used in supplemental risk calculations unless USEPA criteria were more restrictive. For example, of the two inhalation criteria for acrolein from CalEPA and USEPA (0.06 and 0.02 micrograms per cubic meter [$\mu g/m^3$], respectively), the lower USEPA value was used in the calculations. In particular, the acute REL for acrolein was used in calculations of acute hazards associated with the build alternatives.

Of particular importance for the supplemental analysis is the acute inhalation criterion for acrolein. This acute REL is 0.19 $\mu g/m^3$ and is based on mild irritation of mucous membranes (eyes and upper respiratory tract). The acute REL for acrolein includes an uncertainty factor of 60 which was applied to an estimated lowest-observable-adverse-effect-level (LOAEL) to account for potentially more sensitive individuals.

6. RISK CHARACTERIZATION

In the Draft EIS/EIR, risks were characterized for workers on-site, and for residents and school children in areas surrounding LAX. Methods are described in detail in Technical Report 14a, of the Draft EIS/EIR.

Results of the on-site worker evaluation indicated that air concentrations from airport emissions with or without implementation of the LAX Master Plan would not exceed worker thresholds. Further, estimated emissions and associated air concentrations for Alternative D were always less than those of the other build alternatives. This observations indicates that no exceedances of worker thresholds would be anticipated for this build alternative. Therefore, on-site workers were not reevaluated.

Methods used to evaluate pre-mitigation risks and hazards have not changed. Results of these analyses are presented in Section 4.24.1, *Human Health Risk Assessment*, of the Supplement to the Draft EIS/EIR. Attachment A of this technical report presents calculations and results for incremental cancer risks and incremental noncancer chronic hazards for residents and school children based on new emissions data; these data include the following:

- No Action/No Project Alternative and Alternatives A, B, C and D measured against 1996 baseline for an interim year and year 2015 under post-mitigation conditions.
- Alternative D measured against 1996 baseline for an interim year and 2015 under pre- and post-mitigation conditions,
- No Action/No Project Alternative and Alternatives A, B, C and D measured against year 2000 for an interim year and 2015 under pre- and post-mitigation conditions,

Locations for maximally exposed residents, school children, and on-site workers associated with LAX Master Plan alternatives are presented in Attachment B of this technical report. Also presented in Attachment B are figures presenting the geographical extent of cancer risk and non-cancer hazards for communities within the study area for the No Action/No Project Alternative and the four build alternatives during the interim year and 2015 for 1996 baseline conditions and Year 2000 conditions not presented in Section 4.24.1 of the Supplement to the Draft EIS/EIR.

Cumulative cancer risks were evaluated previously in the Draft EIS/EIR; methods have not changed. Methods used to evaluate cumulative non-cancer hazards are discussed below, along with other additional new methods used in the supplemental analyses.

6.1 Cumulative Non-Cancer Hazards Associated with LAX Operations

The Draft EIS/EIR used the results of the MATES-II study to address cumulative cancer risks associated with the build alternatives and the No Action/No Project Alternative. No equivalent study of possible non-cancer hazards is available for use in assessing cumulative impacts. However, USEPA did complete a modeling exercise to estimate non-cancer hazards on a statewide basis. The estimates provided by USEPA are too general to allow quantitative estimation of local impacts (i.e., in the vicinity of LAX), but do provide some general sense of the range of possibilities. The assessment of cumulative hazards, therefore, is only semi-quantitative and does not allow valid predictions of possible hazards on a local basis. No significance determination can be made for cumulative non-cancer hazards, either chronic or acute, because of lack of adequate data. Thus, any adverse impact would be speculative, as per Section 15145 of the State CEQA Guidelines.

6.1.1 Cumulative Chronic Non-Cancer Hazards

Recently, USEPA[3] conducted an independent study of possible annual average air concentrations within the South Coast Air Basin associated with a variety of TAPs. This work was not based on empirical measurements of air quality. Instead, USEPA used a variety of sources of emissions information, and large-scale air dispersion modeling to predict annual average air concentrations. Results of this modeling can be used on a regional (e.g., by county) basis as an indication of air quality. These estimates provide a means for assessing cumulative non-cancer impacts of airport operations in much the same manner as cumulative cancer risks are assessed using the MATES-II results. USEPA included in its estimates many TAPs, including acrolein, that were not evaluated in MATES-II. Since acrolein is, by far, the greatest contributor to potential non-cancer health hazards associated with LAX operations, the USEPA estimates may be the best available for estimating possible non-cancer impacts under current conditions.

[3] US Environmental Protection Agency, National Air Toxics Assessment, 2002. // www.epa.gov/ttn/atw/nata/roy/page9.html

USEPA estimates for acrolein, the TAP responsible for almost all non-cancer hazard associated with LAX, are used in the analyses below to estimate possible fractional contribution of LAX Master Plan alternatives to acrolein concentrations in air in the South Coast Basin. Because of the large uncertainties associated with the USEPA estimates, the cumulative analysis for non-cancer health impacts is semi-quantitative and based on a range of possible contributions. This cumulative analysis does not address the issue of potential interactions among acrolein and criteria pollutants. Such interactions cannot, at this time, be addressed in a quantitative fashion. However, a qualitative discussion of the issue is included in Section 7, *Uncertainties*.

The following sections discuss cumulative non-cancer hazards associated with the LAX Master Plan alternatives under pre-mitigation conditions. With mitigation, chronic non-cancer hazards would decrease for all build alternatives due to factors such as improved traffic flow. Post-mitigation chronic non-cancer hazards for Alternative A would be reduced to a less than significant level, whereas for Alternatives B and C, impacts would remain significant. In general, however, non-cancer hazards are essentially the same under pre- and post-mitigation conditions. This is because emissions from aircraft contribute almost all acrolein releases to air under all of the LAX Master Plan alternatives and none of the proposed mitigation measures affect aircraft emissions.

No Action/No Project Alternative

As indicated previously, USEPA used source emission estimates and large-scale air dispersion modeling to predict average annual concentrations of a number of TAPs, including acrolein. These estimates are sufficient for a semi-quantitative evaluation of possible cumulative non-cancer hazards associated with Master Plan alternatives. Within the study area for the HHRA, USEPA predictions for annual average acrolein concentrations yield a range of hazard indices from 35 to 221, with an average of 59, based on exposure to a child resident and calculated using the methods described in Technical Report 14a of the Draft EIS/EIR (**Table S2**, Chronic Background Hazard Indices in Study Area). Maximum incremental hazard indices associated with the No Action/No Project Alternative were estimated to be about 6 when using 1996 baseline for comparison (**Table S3**, Summary of Incremental Cancer Risks and Non-Cancer Human Health Hazards for LAX Master Plan Pre-Mitigation Assessment 1996 Baseline). This increment represents 3 to 17 percent of the estimates based on USEPA modeling. The No Action/No Project Alternative could add to total average acrolein concentrations in the Basin, and, hence, to possible chronic non-cancer health hazards associated with exposure to acrolein.

Alternatives A, B, and C

As indicated above, within the study area for the HHRA, USEPA predictions for annual average acrolein concentrations yield a range of hazard indices from 35 to 221, with an average of 59, based on exposure to a child resident and calculated using the methods described in Technical Report 14a, of the Draft EIS/EIR (**Table S2**). Maximum incremental hazard indices associated with Alternatives A, B, and C (pre-mitigation) were estimated to be 6, 14, and 11, respectively, when using 1996 baseline for comparison (**Table S3**). These increments range from 3 to 40 percent of estimates based on USEPA modeling. Each of the three build alternatives could add to total average acrolein concentrations in the Basin, and, hence, to possible chronic non-cancer hazards associated with exposure to acrolein.

Table S2

Chronic Background Hazard Indices in Study Area

Annual Average Acrolein Concentration ($\mu g/m^3$)	Chronic-HI
Maximum Chronic HI	221
Minimum Chronic HI	35
Average Chronic HI	59

HI = Hazard Index
$\mu g/m^3$ = microgram per cubic meter

Source: Camp Dresser & McKee Inc., 2003.

The contribution of Alternative A to cumulative impacts would be about the same as those associated with the No Action/No Project Alternative. However, for Alternatives B and C, the project-related contribution to chronic non-cancer hazards is predicted to be greater than for the No Action/No Project Alternative.

Table S3

Summary of Incremental Cancer Risks and Non-Cancer Chronic Human Health Hazards for LAX Master Plan Pre-Mitigation Assessment (Measured Against 1996 Baseline)

	Interim Year[3] Alternative			2015 Alternative				
Incremental Cancer Risks[1] (per million people)	**NA/NP**	**A, B & C[4]**	**D**	**NA/NP**	**A**	**B**	**C**	**D**
Child Resident	**27**	**14**	0.8	**23**	-7	7	0.6	2
School Child	1	0.2	0.1	1	-0.3	0.2	-0.2	0.1
Adult Resident	**39/91**	**19/44**	1/3	**33/77**	-11/-25	**10/23**	0.9/2	2/6
Incremental Chronic Non-Cancer Hazard Indices[2]								
Child Resident	5	5	-0.02	**6**	**6**	**14**	**11**	-0.02
School Child	0.2	0.2	-0.01	0.3	0.3	0.5	0.4	-0.01
Adult Resident	2	1	-0.004	2	2	4	3	-0.005

1 Values provided are changes in the number of cancer cases per million people exposed as compared to baseline conditions. All estimates are rounded to one significant figure. Two estimates are provided for cancer risk, e.g. **39/91**. The first value is based on an exposure duration of 30 years; the second value is based on an exposure duration of 70 years.

2 Hazard indices are totals for all TAPs that may affect the respiratory system. This incremental hazard index is essentially equal to the total for all TAPs.

3 Interim year is 2005 for No Action/No Project Alternative and Alternatives A, B, and C, and 2013 for Alternative D.

4 Same as FN 4 Table S4.24.1-1 of Supplement (Section 4.24.1)

Values in **BOLD** exceed thresholds of significance.
Negative values indicate a reduction in cancer risk or non-cancer hazard compared to baseline conditions.

Source: Camp Dresser & McKee Inc., 2000, 2003.

Alternative D

Maximum incremental hazard indices associated with Alternative D were estimated to be -0.02, when using 1996 baseline for comparison (**Table S3**). Incremental hazards are all negative, indicating that predicted concentrations associated with implementation of Master Plan Alternative D would be less than those predicted for baseline operations from year 1996. In all locations, therefore, implementation of Alternative D might reduce cumulative impacts and result in a beneficial impact. Moreover, the contribution of Alternative D to cumulative chronic non-cancer hazards would be lower than that associated with the No Action/No Project Alternative.

Predicted incremental chronic non-cancer hazards for Alternative D when using Year 2000 for comparison are slightly greater than those predicted for incremental hazards using 1996 baseline (**Table S4**, Summary of Incremental Cancer Risks and Non-Cancer Human Health Hazards for LAX Master Plan Pre-Mitigation Assessment Year 2000). However, chronic non-cancer hazards are below thresholds of significance. Geographically, incrementally higher health hazards would occur only in three isolated areas. In the remainder of the study area, incremental hazards, as measured by hazard index, would decrease compared to Year 2000 conditions. No formal evaluation of cumulative impacts was performed using incremental risks for Year 2000.

Table S4

Summary of Incremental Cancer Risks and Non-Cancer Chronic Human Health Hazards for LAX Master Plan Pre-Mitigation Assessment (Measured Against Year 2000)

Incremental Cancer Risks[1] (per million people)	Interim Year[3] Alternative			2015 Alternative				
	NA/NP	A, B & C[4]	D	NA/NP	A	B	C	D
Child Resident	5	-0.04	-0.07	2	-0.08	-0.07	-0.07	-0.06
School Child	0.2	-0.02	-0.04	0.1	-0.02	-0.04	-0.04	-0.03
Adult Resident	**20**	-0.2	-0.2	7	-0.3	-0.2	-0.2	-0.2
Incremental Chronic Non-Cancer Hazard Indices[2]								
Child Resident	**7**	4	0.1	**8**	4	**7**	**6**	0.1
School Child	0.4	0.3	0.01	0.4	0.4	0.6	0.5	0.01
Adult Resident	2	1	0.03	2	1	2	2	0.03

1 Values provided are changes in the number of cancer cases per million people exposed as compared to baseline conditions. All estimates are rounded to one significant figure.
2 Hazard indices are totals for all TAPs that may affect the respiratory system. This incremental hazard index is essentially equal to the total for all TAPs.
3 Interim year is 2005 for No Action/No Project Alternative and Alternatives A, B, and C, and 2013 for Alternative D.
4 Same as Table S4.24.1-2 of supplement.

Values in **BOLD** exceed thresholds of significance.
Negative values indicate a reduction in cancer risk or non-cancer hazard compared to baseline conditions.

Source: Camp Dresser & McKee Inc., 2003.

6.1.2 Cumulative Acute Non-Cancer Hazards

Acute hazards were not evaluated in the Draft EIS/EIR. Generally, predicted concentrations of TAPs released from LAX suggest that acute health hazards would not be expected. The exception might be levels of acrolein in LAX emissions. This TAP contributes almost all of the non-cancer risk that might be associated with the No Action/No Project Alternative and all of the build alternatives. The REL for this TAP for evaluation of chronic exposure (0.06 $\mu g/m^3$) and the REL for evaluation of acute (short-term, 1 hour) exposure (0.19 $\mu g/m^3$) are not greatly different. Since some estimates of non-cancer hazard following chronic (long-term, 70 years for adult resident, 6 years for child resident) exposure based on predicted annual average concentrations of acrolein are fairly high, the possibility that short-term acrolein concentrations might exceed 0.19 $\mu g/m^3$ was evaluated.

No data are available currently to characterize 1-hour maximum concentrations of TAPs in air in the South Coast Basin. Therefore, conservative (likely to underestimate) approximations of such short-term concentrations were made using generic conversion factors and the annual average estimates of acrolein in air from USEPA. USEPA used source emission estimates and large-scale air dispersion modeling to predict average annual concentrations of a number of TAPs, including acrolein, by census tract within the South Coast Basin. The estimates are subject to much uncertainty, but can be used to provide a semi-quantitative evaluation of possible 1-hour average concentrations in the Basin and the possible range of cumulative impacts. This generic conversion does not account fully for several important factors such as short-term meteorological conditions and locations where maximum concentrations might occur; however, the generic conversion is likely to underestimate peak Basin-wide 1-hour concentrations. If peak concentrations for Basin-wide concentrations are underestimated, the relative contribution of any of the Master Plan Alternatives will be overestimated. Thus, though this cumulative analysis can only be characterized as semi-quantitative, it is unlikely to underestimate the contribution of the LAX Master Plan to incremental acute health impacts. This cumulative analysis does not address the issue of potential interactions among acrolein and criteria pollutants. Such interactions cannot, at this time, be addressed in a quantitative fashion. However, a qualitative discussion of the issue is included in Section 7*, Uncertainties*.

For the assessment of possible acute hazards, 50 grid nodes in the study area were selected for quantitative assessment using air dispersion modeling of airport emissions. These nodes consisted of

several locations for sensitive receptors (e.g., schools near LAX), locations on the airport where workers might be exposed, and representative locations throughout the study area. These locations illustrate the range of potential acute hazards associated with the LAX Master Plan build alternatives and the No Action/No Project Alternative. The same 50 grid nodes were used to evaluate possible acute hazards associated with the No Action/No Project Alternative and Alternatives A, B, C, and D. Since locations of predicted maximum acrolein concentrations may vary between the No Action/No Project Alternative and Alternatives A, B, C, and D, the same 50 grid nodes may not include the location of the actual maximum predicted acrolein concentration for every alternative but a close approximation of this value. The 50 grid nodes were selected to be representative of predicted acrolein concentrations in the study area and protective of sensitive receptors (a more detailed discussion of the issue is included in Section 7, *Uncertainties)*. Locations for the acute hazard analysis are shown in **Figure S1**.

Short-term concentrations for acrolein from airport sources were estimated using the same air dispersion model (ISC3) used to estimate annual average concentrations, but with the model option for 1-hour maximum concentrations selected. This dispersion modeling used the same modeling domain (study area) and modeling nodes as used for the predictions of annual average concentrations. Separate modeling runs were performed for 1996 baseline and Year 2000 conditions, and for the four build alternatives and the No Action/No Project Alternative. For each of these sets of airport operations scenarios, modeling was performed for horizon year 2015, for pre-mitigation conditions. Since acrolein is the only TAP which predicted concentrations released from LAX may be associated with acute health hazards, and since aircraft emissions contribute the vast majority of acrolein emissions, there is no change between mitigated and unmitigated 1-hour acrolein concentrations because none of the recommended mitigation measures would affect aircraft emissions.

In some instances, as described in Section 4.24.1, *Human Health Risk Assessment,* of the Supplement to the Draft EIS/EIR, 1-hour concentrations of acrolein were not separately modeled for interim year emissions. Since aircraft are responsible for almost all acrolein emissions, off-site acrolein concentrations are proportional to the number of aircraft operations. Since operations would be higher after build-out than for interim years, 1-hour concentrations for 2015 represent the worst case for estimating potential acute impacts.

To estimate the difference between interim year and horizon year 2015 impacts, the following calculation was performed. At the location of the highest incremental 1-hour concentration for an alternative in 2015, the ratio of the modeled 1-hr concentration to the annual average concentration of acrolein was calculated. At this same location for interim year conditions, the annual average incremental concentration of acrolein was identified and multiplied by the above ratio to estimate a possible maximum 1-hour concentration for the interim year. This concentration was used qualitatively to evaluate the relative impacts of interim and build-out conditions. Results of such calculations are presented in Section 4.24.1, *Human Health Risk Assessment,* of the Supplement to the Draft EIS/EIR.

Incremental acrolein concentrations in ISC3 output from build alternatives or the No Action/No Project Alternative were calculated by subtracting baseline concentrations (either 1996 baseline or Year 2000 conditions) at each of the selected grid nodes. These concentrations represent the increment above current impacts that might be associated with each of the alternatives. Acute hazards were then estimated at each grid point by comparison with the acute REL for acrolein. All acute hazard estimates are specific for airport emissions and are independent of the county-wide estimates developed by USEPA.

No Action/No Project Alternative

When USEPA annual average estimates are converted to possible 1-hour maximum concentrations, existing acute hazard indices associated with total acrolein concentrations might range from 14 to 87, with an average of 23, for locations within the study area (**Table S5**, Acute Background Hazard Indices for Census Tracts in Study Area). Predicted incremental acute hazards for the No Action/No Project Alternative compared to 1996 baseline conditions are 7.6 and 2.5, respectively (**Table S6,** Incremental Acute Hazard Indices for the No Action/No Project Alternative and Alternative D, Horizon Year 2015 Compared to 1996 Baseline). These hazards exceed the threshold of significance. Predicted ranges for incremental acute hazards for the No Action/No Project Alternative for Year 2000 conditions are essentially the same (8 and 3, respectively); (**Table S7**, Incremental Acute Hazard Indices for the No Action/No Project Alternative and Alternatives A, B, C, and D, Horizon Year 2015 Compared to Year 2000 Conditions) Thus, on-airport, the No Action/No Project Alternative could contribute between 9 and 57

percent above current levels. Off-Airport, the No Action/No Project Alternative could add to total 1-hour maximum acrolein concentrations in the Basin, and, hence, to possible acute human health hazards associated with exposure to acrolein.

Table S5

Acute Background Hazard Indices for Census Tracts in Study Area

1-Hour Acrolein Concentration ($\mu g/m^3$)	Acute HI
Maximum Acute HI	87
Minimum Acute HI	14
Average Acute HI	23

HI = Hazard Index
$\mu g/m^3$ = microgram per cubic meter

Source: Camp Dresser & McKee Inc., 2003.

Alternatives A, B, and C

When USEPA annual average estimates are converted to possible 1-hour maximum concentrations, existing acute hazard indices associated with total acrolein concentrations might range from 14 to 87, with an average of 23, for locations within the study area (**Table S5**). Predicted maximum incremental acute hazards (1996 baseline) associated with Alternatives A, B, and C range from 1 to 9 for on-airport locations and from 3 to 7 for off-airport locations and predicted average incremental acute hazards (1996 baseline) from the three build alternatives range from 0.5 to 3 for on-airport locations and from 1 to 2 for off-airport locations **(Table S6)**. Percent contributions of the build alternatives to incremental acute health hazards measured against 1996 baseline thus might range from 1 to 64 based on maximum incremental acute hazards and from less than one to 21 based on average incremental acute hazards. Predicted maximum incremental acute hazards based on incremental concentrations from Year 2000 conditions are very similar to those predicted using1996 baseline. Predicted maximum incremental acute hazards (Year 2000 Conditions) associated with Alternatives A, B, and C range from 2 to 9 for on-airport locations and from 3 to 7 for off-airport locations **(Table S7).** Predicted average incremental acute hazards (Year 2000 conditions) for the three build alternatives range from 0.7 to 3 for on-airport locations and from 1 to 2 for off-airport locations (**Table S7).** Percent contributions of the build alternatives to incremental acute health hazards measured against 1996 baseline thus might range from 1 to 64 based on maximum incremental acute hazards and from less than one to 21 based on average incremental acute hazards. Maximum incremental acute hazards for Alternative A occur on-site (**Figure S1**), while maximum incremental acute hazards occur off-site for Alternatives B and C. Results suggest that, for Alternatives A, B, and C, cumulative impacts could increase for some locations. Compared to the No Action/No Project Alternative, maximum predicted off-site incremental acute non-cancer health hazards are the same for Alternative A and somewhat greater for Alternatives B and C. Implementing either of the latter two build alternatives might increase acute hazards over those associated with airport growth in the absence of the Master Plan.

Table S6

Summary of Incremental Acute Hazard Indices for LAX Master Plan Pre-Mitigation Assessment for Horizon Year 2015 (Measured Against 1996 Baseline)

	NA/NP	Alt A	Alt B	Alt C	Alt D
On-site					
Maximum HI	**8**	**9**	1	**3**	-2
Minimum HI	0.4	-0.6	-0.04	-0.6	-6
Average HI	**3**	**3**	0.5	0.7	-4
Off-site					
Maximum HI	**3**	**3**	**7**	**6**	-0.1
Minimum HI	0.3	-0.3	-0.8	0.3	-5
Average HI	1	1	**2**	1	-2

Values in **BOLD** exceed thresholds of significance.

Source: Camp Dresser & McKee Inc., 2003.

Alternative D

As indicated in **Table S5**, when USEPA annual average estimates are converted to possible 1-hour maximum concentrations, acute hazard indices associated with total acrolein concentrations might range from 14 to 87, with an average of 23, for locations within the study area. Predicted maximum incremental acute hazards for Alternative D are negative for all on-airport and off-site locations compared to the 1996 baseline (**Table S6**) and Year 2000 conditions (**Table S7**). Negative impacts indicate that predicted concentrations associated with implementation of Alternative D would be less than those predicted for 1996 baseline operations and Year 2000 conditions. In all locations, therefore, implementation of Alternative D might reduce cumulative acute impacts and would therefore result in a beneficial impact.

Table S7

Incremental Acute Hazard Indices for the No Action/No Project Alternative and Alternatives A, B, C, and D, Horizon Year 2015 Compared to Year 2000 Conditions

	NA/NP Alternative	Alternative A	Alternative B	Alternative C	Alternative D
Summary of Hazard Indices					
On-site					
Maximum HI	8	9	2	3	-2
Minimum HI	0.3	-0.6	-0.1	-0.7	-6
Average HI	2	3	0.7	0.7	-4
Off-site					
Maximum HI	3	3	7	6	-0.1
Minimum HI	0.2	-0.3	-0.8	0.3	-4
Average HI	1	1	2	1	-2
Hazard Indices at Specific Locations within the Study Area					
Location[1]					
1[2]	0.6	0.8	1.2	1.0	-5
2[2]	2	**9**	0.4	**3**	-4
3[2]	**8**	3	-0.1	-0.7	**-2**
4[2]	0.3	-0.6	0.5	-0.5	-6
5	0.5	2	2	0.9	-5
6	**3**	**3**	**7**	**6**	-3
7	2	0.2	2	2	-4
8	2	2	3	0.8	-3
9	0.9	1	2	1	-2
10	1	2	4	3	-2
11	1	2	3	2	-1
12	1	2	3	0.8	-2
13	1	0.02	3	3	-3
14	2	2	3	2	-1

Table S7

Incremental Acute Hazard Indices for the No Action/No Project Alternative and Alternatives A, B, C, and D, Horizon Year 2015 Compared to Year 2000 Conditions

	NA/NP Alternative	Alternative A	Alternative B	Alternative C	Alternative D
15	2	0.5	1	1	-2
16	2	0.8	1	1	-3
17	1	2	2	2	-3
18	1	0.2	0.7	0.6	-2
19	1	0.8	1	1	-2
20	1	1	2	2	-1
21	0.5	0.5	1	0.8	-0.8
22	0.7	0.5	1	1	-1
23	1	1	1	0.7	-0.7
24	0.4	0.8	0.8	1	-0.6
25	0.8	1	2	1	-0.9
26	0.9	2	2	1	-0.6
27	0.8	1	2	0.9	-1
28	2	2	3	1	-1
29	0.3	0.7	1	0.5	-1
30	0.5	0.5	0.9	0.6	-3
31	0.4	-0.3	0.3	0.4	-3
32	1	1	2	0.9	-2
33	1	0.3	-0.8	0.9	-3
34	1	0.7	0.1	0.5	-2
35	2	0.6	0.2	0.9	-0.9
36	0.6	1	1	0.6	-1
37	0.5	0.7	0.8	0.7	-2
38	0.7	0.7	2	0.8	-0.9
39	0.8	1.1	2	0.8	-1.6
40	0.8	0.8	2	0.5	-1.3
41	0.2	0.6	0.6	0.4	-0.5
42	0.2	0.5	0.4	0.3	**-0.1**
43	0.2	0.2	0.5	0.5	-0.7
44	0.3	0.5	0.9	0.5	-0.4
45	0.5	0.6	0.8	0.6	-0.8
46	0.6	2	2	1	-0.6
47	0.6	2	2	1	-0.7
48	0.9	2	2	0.9	-1
49	0.8	0.7	1	0.6	-2
50	0.5	0.7	1	0.6	-1

HI = Hazard Index
Hazard Indices in **Bold** are maximum values.

[1] Locations are identified in Figure S1, Acute Analysis Model Grid Points.
[2] Represent on-site locations.

Source: Camp Dresser & McKee Inc., 2003.

6.2 Reassessment of Contribution of Individual TAPs to Health Risks and Hazards

Total incremental cancer risks and non-cancer health hazards are discussed in Section 4.24.1, *Human Health Risk Assessment,* of both the Draft EIS/EIR and the Supplement to the Draft EIS/EIR for the No Action/No Project Alternative and build alternatives under pre-and post-mitigation conditions for interim years and 2015. Even for the new analyses, the relative contribution of individual TAPs to total incremental risks and hazards for pre- and post-mitigation remains essentially the same as previously reported. Cancer risks for adults and children associated with operations at LAX are mostly due to estimates of exposure to diesel particulates, benzene, and 1,3-butadiene. Non-cancer health hazards are due almost entirely to predicted releases of acrolein during LAX operations.

Incremental cancer risks with mitigation are presented for each TAP for Alternative D in **Table S8**, Incremental Cancer Risks for Alternative D with Mitigation, Interim Year 2013 and Horizon Year 2015, Compared to 1996 Baseline and Year 2000 Conditions. Cancer risks increase with greater exposure duration; therefore, **Table S8** presents MEI cancer risks for the adult resident as the MEI receptor with the greatest exposure potential. Diesel particulates contribute 66 percent and 88 percent of the total cancer risk for interim year 2013 compared to 1996 baseline and Year 2000, respectively. For horizon year 2015, diesel particulates contribute 44 percent to estimated cancer risks using 1996 baseline and 90 percent of cancer risk based compared to Year 2000 conditions. Benzene and 1,3-butadiene contribute about 24 percent each to the total incremental cancer risk for horizon year 2015 compared to 1996 baseline. Dioxins contribute 4 to 6 percent of the total incremental risk for Alternative D compared to 1996 baseline. Other TAPs contribute 2 percent or less to the total incremental cancer risk for Alternative D compared to 1996 baseline and Year 2000.

Table S8

Incremental Cancer Risks for Alternative D with Mitigation, Interim Year 2013 and Horizon Year 2015, Compared to 1996 Baseline and Year 2000 Conditions

Summary of Cancer Risks to Adult Resident

TAP	Interim Year 2013 Compared to 1996 Baseline	Interim Year 2013 Compared to Year 2000	Horizon Year 2015 Compared to 1996 Baseline	Horizon Year 2015 Compared to Year 2000
Acetaldehyde	4.85E-09	-2.60E-10	2.08E-08	-2.34E-10
Acrolein	NA	NA	NA	NA
Benzene	1.96E-07	-1.38E-08	5.76E-07	-1.29E-08
1,3-Butadiene	4.04E-09	-2.00E-08	5.65E-07	-1.94E-08
Formaldehyde	1.17E-08	-2.19E-09	1.07E-07	-2.06E-09
Xylene (total)	NA	NA	NA	NA
Benzo(a)pyrene (TEFs)	2.96E-11	-4.83E-11	8.93E-10	-4.82E-11
Naphthalene	NA	NA	NA	NA
TCDD equivalents	4.30E-08	-1.06E-09	9.82E-08	-9.27E-10
Diesel PM	4.87E-07	-2.81E-07	1.05E-06	-2.79E-07
Arsenic	-3.38E-10	-1.31E-11	-3.18E-10	-1.82E-11
Beryllium	-3.04E-10	4.92E-12	-3.43E-10	2.51E-12
Cadmium	3.25E-10	-1.61E-10	6.86E-10	-1.67E-10
Chromium (VI)	-3.65E-09	6.10E-11	-4.13E-09	3.19E-11
Manganese	NA	NA	NA	NA
Total Incremental Cancer Risk	**7.4E-07**	**-3.2E-07**	**2.4E-06**	**-3.1E-07**

TAP = Toxic Air Pollutant
TCDD = Chlorinated dioxins and furans
TEFs = Toxicity Equivalence Factors
NA = Not Applicable, Cancer Risk was not calculated for this TAP

Source: Camp Dresser & McKee Inc., 2003.

All chronic non-cancer health hazards for Alternative D in the interim year 2013 and in 2015 compared to 1996 baseline are negative (**Table S9**, Incremental Chronic Non-Cancer Health Hazards for Alternative D with Mitigation, Interim Year 2013 and Horizon Year 2015, Compared to 1996 Baseline and Year 2000 Conditions). The child resident has the greatest potential for non-cancer hazards; therefore, **Table S9** presents hazards for the child resident. Negative hazards indicate that predicted concentrations associated with implementation of Alternative D would be less than those predicted for 1996 baseline operations. Hazards predicted for Alternative D compared to Year 2000 are positive, but substantially below the threshold of 1; this chronic non-cancer hazard is due entirely to possible exposure to acrolein.

Table S9

Incremental Chronic Non-Cancer Health Hazards for Alternative D with Mitigation, Interim Year 2013 and Horizon Year 2015, Compared to 1996 Baseline and Year 2000 Conditions

Summary of Non-Cancer Hazards for Child Resident

TAP	Interim Year 2013 Compared to 1996 Baseline	Interim Year 2013 Compared to Year 2000	Horizon Year 2015 Compared to 1996 Baseline	Horizon Year 2015 Compared to Year 2000
Acetaldehyde	-6.67E-05	-1.18E-04	-6.32E-05	3.05E-03
Acrolein	-1.66E-02	7.64E-02	-1.71E-02	8.03E-02
Benzene	NA	NA	NA	NA
1,3-Butadiene	-2.42E-04	-4.33E-03	-2.36E-04	5.62E-03
Formaldehyde	-3.04E-06	-1.46E-05	-2.94E-06	9.65E-05
Xylene (total)	-1.08E-07	-1.41E-05	-6.20E-08	2.06E-05
Benzo(a)pyrene (TEFs)	NA	NA	NA	NA
Naphthalene	-1.06E-04	-1.98E-03	-1.07E-04	1.39E-03
TCDD equivalents	NA	NA	NA	NA
Diesel PM	-1.68E-04	-2.49E-02	-1.58E-04	-2.26E-02
Arsenic	-7.14E-08	-5.01E-07	-7.60E-08	-2.44E-07
Beryllium	-1.19E-06	2.07E-05	-1.38E-06	1.72E-06
Cadmium	-6.32E-07	-3.22E-05	-6.50E-07	-1.98E-05
Chromium (VI)	-4.66E-08	8.48E-07	-5.43E-08	7.12E-08
Manganese	-6.82E-05	-9.92E-05	-6.94E-05	7.03E-04
Total Non-Cancer Health Hazard	**-1.7E-02**	**4.5E-02**	**-1.8E-02**	**6.9E-02**

TAP = Toxic Air Pollutant
TCDD = Chlorinated dioxins and furans
TEFs = Toxicity Equivalence Factors
NA = Not Applicable, Non-cancer health hazard was not calculated for this TAP

Source: Camp Dresser & McKee Inc., 2003.

7. UNCERTAINTIES

Uncertainties are present in all facets of human health risk assessment (HHRA). Potential important uncertainties associated with the HHRA for the LAX Master Plan are discussed in detail in Technical Report 14a of the Draft EIS/EIR. These same uncertainty considerations apply to the analyses presented in the Supplement to the Draft EIS/EIR. However, because additional methods were employed in developing the Supplement to the Draft EIS/EIR, discussion of additional uncertainties is warranted.

7.1 Uncertainties Associated with Assumptions for Exposure Duration

The Draft EIS/EIR used an exposure duration of 30 years to estimate possible cancer risks associated with LAX operations. Thirty years is an upper range estimate of the time an individual in the United States is likely to spend at a single residence. Risk calculated in the Draft EIS/EIR thus assumed that an individual would spend 30 years at the location near LAX where impacts are highest, and further, that the individual would spend essentially all of their time at home, and would have an inhalation rate at the high end of those likely for residential settings. This combination of exposure factors will produce an exposure estimate in high range of those theoretically possible, and may overestimate even the highest exposures for anyone living in the vicinity of LAX.

SCAQMD, in comments on the Draft EIS/EIR, suggested a preference for use of 70 years (a lifetime) as an exposure duration in estimating possible cancer risks. This exposure duration is generally used by the SCAQMD in risk assessments performed for permitting purposes. Using a duration of 70 years, combined with other exposure parameters used in this HHRA, assumes that an individual exists that resides in the same location for 70 years; that this location is where maximum impacts from LAX occur; and that the individual is sedentary, spending essentially all of his/her time at home, and yet still breathes

at a rate consistent with relatively high activity. This combination of factors probably never occurs, and any estimates of cancer risk based on such combination will greatly overestimate possible cancer risks for almost everyone in the study area. Nevertheless, additional calculations were performed to show the effect of using an exposure duration of 70 years in the risk calculations. Significance determinations in the Supplement to the Draft EIS/EIR were made on the basis of an exposure duration of 70 years.

7.2 Uncertainties Associated with Evaluation of Cumulative Chronic Non-Cancer Hazards

Cumulative hazards for chronic exposure to TAPs from LAX could not be assessed on a quantitative basis. The only estimates for possible hazards for past and current projects in South Coast Air Basin come from very general modeling predictions made by USEPA on the basis of emissions estimates from USEPA's Toxic Release Inventory and other sources. The predictions are valid only on a regional or state level and are too uncertain to be used for quantitative estimates on a local scale (e.g., the communities east of LAX). Moreover, USEPA's estimates are based on data that are now several years old. Emissions from some important sources may have been reduced as a result of continuing efforts by SCAQMD and other agencies to improve air quality in the South Coast Air Basin. Finally, the estimates do not consider degradation of TAPs in the atmosphere. Degradation may be very important for relatively reactive chemicals such as acrolein.

A semi-quantitative evaluation was performed for the HHRA by taking a range of possible hazards calculated from USEPA estimates for census tracts in the study area, and comparing these estimates to hazards predicted from modeling of LAX emissions. The resulting comparisons are then used only to establish a range of possible relative contributions of LAX operations. These comparisons are subject to high uncertainty and could either under- or overestimate the possible impacts of LAX on cumulative chronic hazards. These uncertainties make it scientifically indefensible to establish a significance threshold for cumulative impacts. Estimated cumulative hazards can only be used to make general statements on the possible magnitude of relative contributions, and cannot be used as estimates of actual cumulative hazards for any locations around LAX.

7.3 Uncertainties Associated With Evaluation of Cumulative Acute Non-Cancer Hazards

Cumulative hazards for acute exposure to TAPs from LAX could not be assessed on a quantitative basis. In fact, uncertainties for the analysis of possible cumulative acute hazards are even more uncertain than those for cumulative chronic non-cancer hazards. The only estimates for possible hazards for past and current projects in South Coast Air Basin come from very general modeling predictions made by USEPA on the basis of emissions estimates from USEPA's Toxic Release Inventory and other sources. The predictions are valid only on a regional or state level and are too uncertain to be used for quantitative estimates on a local scale (e.g., the communities east of LAX). Further, the USEPA estimates are only for annual average concentrations. These concentrations had to be converted to an estimate of maximum 1-hour concentrations by applying a generic factor. This factor (12) is intended to convert annual average concentrations (error on the high end) to conservative 1-hour maximum concentrations. Reversing the process might result in estimates for 1-hour maximum concentrations that are too low if the starting concentrations are not already a conservatively high estimate of annual average. Given the uncertainties in the USEPA modeling, the range of 1-hour maximum concentrations calculated for the USEPA data could underestimate possible actual 1-hour maximum concentrations. If 1-hour maxima are underestimated, the incremental impact of LAX operations could be overestimated.

The semi-quantitative evaluation of acute hazards performed for the HHRA must be interpreted with great caution. The process, as described in Section 4.1.2, *Assessment of Acute Non-Cancer Hazards*, of this technical report included taking a range of possible annual average concentrations from USEPA estimates, subject to high uncertainty, for census tracts in the study area, converting these values to 1-hour maximum concentrations, and comparing these estimates to 1-hour maxima from modeling of LAX emissions. In addition a subset of the model grid, 50 grid nodes, was selected to be representative of the possible range of 1-hour maximum concentrations in the study area. Each of these steps compounds uncertainties, and resulting comparisons can only be viewed as a general assessment of relative impacts that may substantially overestimate the contribution of LAX operations. Uncertainties make it scientifically

indefensible to establish a significance threshold for cumulative impacts. Estimated cumulative hazards cannot be used as estimates of actual cumulative hazards for any locations around LAX.

Recent studies suggest that predicted concentrations of acrolein in air associated with LAX operations may be over-estimated. Acrolein is unlikely to be transported over long distances because of its high reactivity and estimated short half-life in air. A recent study at Chicago O'Hare Airport[4] found that acrolein was not a significant TAP associated with airport operations. The Illinois EPA measured airborne levels of various air contaminants in the vicinity of the O'Hare Airport as well as at other locations in the Chicago area over a seven-month period in 2000. An objective of the air toxics monitoring program was to determine if emissions associated with O'Hare Airport had a measurable impact on air quality in areas adjacent to the airport. Acrolein was not reported at measurable levels in air at locations near the airport during the air toxic monitoring program.

Acute cumulative effects are highly uncertain because of the paucity of data on acrolein emissions from jet aircraft engines. Dependence on regulatory databases with estimated acrolein emissions may have substantially overestimated possible releases of acrolein during LAX operations. A recent study of jet aircraft emissions indicates that emissions of acrolein during taxi and queue operations, when most acrolein is released, may have been overestimated by nearly 80 percent[5], suggesting that both acute and chronic non-cancer hazards may be substantially overestimated in the current analysis.

7.4 Interactions Among Acrolein and Criteria Pollutants

TAPs that act in similar way to produce toxicity may cause additive, or even greater than additive, impacts to human health. Acrolein and criteria pollutants such as oxides of nitrogen and ozone all act as irritants to the upper respiratory system. Thus, interactions among these chemicals are possible. Criteria pollutants are regulated through ambient air standards meant to protect human health. Even when several pollutants are present in air, as they often are in urban settings, these standards are thought to be protective. That is, standards do not become stricter as the number of criteria pollutants present increases. As long as all ambient air quality standards are met, no interactions are anticipated that would produce adverse health effects.

Acrolein acts, generally, in a similar manner to criteria pollutants that are respiratory irritants. Thus, one might not expect significant interactions with criteria pollutants when the latter are present at concentrations below their ambient air quality standards. Conversely, when irritant criteria pollutant concentrations exceed standards, interaction may occur, and could increase the overall impacts to human health.

Whether such interactions actually occur, and are important for emissions from LAX operations, cannot be ascertained with available information. Many uncertainties exist, including:

- Reliability of acrolein concentration estimates (see Section 7.3, *Uncertainties Associated With Evaluation of Acute Non-Cancer Cumulative Impacts*),
- Lack of information on specific mechanisms of toxicity for the chemicals in question, which will effect the potential for and degree of any interactions, and
- Lack of information on thresholds at which interactions may occur.

Without a substantial amount of additional research, the potential for impacts related to interactions among acrolein and criteria pollutants cannot be further assessed.

7.5 Uncertainties in Mitigation Impacts

Recommended mitigation measures are expected to reduce air quality impacts from LAX operations under Alternatives A, B, C, and D. These mitigation measures would also reduce impacts to human

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[4] Illinois Environmental Protection Agency, Bureau of Air, Final Report Chicago O'Hare Airport, Air Toxic Monitoring Program June-December, 2000, May 2002.

[5] Gerstle, T.; P. Virag; M. Wade; and L. Kimm. Aircraft Engine and Auxiliary Power Unit Emissions Testing: Vol. 2, Detailed Sampling Approach and Results. US Air Force, IERA-RS-BR-TR-1999-0006-Vol 2. March 1999.

health associated with exposure to TAPs. However, none of the mitigation measures is anticipated to result in a large decrease in TAP emissions in jet exhaust. Since this source of TAPs is the greatest source for the airport, mitigation would have to be focused on aircraft to have a notable effect. Since mitigation proposed does not have this focus, pre- and post-mitigation emissions of TAPs are not anticipated to change greatly.

This conclusion is particularly important for acrolein emissions. This TAP is the single greatest contributor to both potential acute and chronic non-cancer health hazards, and is almost totally associated with release in jet exhaust.

Mitigation options considered in the analysis include:

- Continued conversion of GSE to alternative fuels
- Multiple construction-related measures including use of alternative fuels and add-on emission control devices on construction equipment
- Expansion of FlyAway bus service between LAX and other locations in the South Coast Air Basin using alternative-fueled buses

All of these measures would reduce emissions of TAPS during LAX operations mainly by addressing airport operations other than aircraft. Details of the mitigation measures are provided in Section 4.6, *Air Quality*, of the Supplement to the Draft EIS/EIR.

Attachment A
Risk Calculations for Maximally Exposed Resident and School Child

Table A-1

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Pre-Mitigation Conditions, 1996 Baseline
(Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-3.34E-06	-3.34E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-2.60E-09	-2.23E-10	-8.66E-09	-1.2E-03	-1.1E-04	-3.6E-04
Acrolein	-4.49E-06	-4.49E-06	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-7.6E-01	-6.5E-02	-2.2E-01
Benzene	5.38E-06	5.38E-06	2.90E-02	1.02E-01	NA	1.71E-02	4.49E-08	3.85E-09	1.50E-07	NA	NA	NA
1,3-Butadiene	-3.67E-06	-3.67E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-1.79E-07	-1.54E-08	-5.98E-07	-6.2E-03	-5.3E-04	-1.8E-03
Formaldehyde	-1.51E-05	-1.51E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-2.60E-08	-2.23E-09	-8.67E-08	-7.2E-05	-6.2E-06	-2.1E-05
Xylene (total)	2.53E-05	2.53E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.2E-05	1.0E-06	3.5E-06
PAHs												
Benzo(a)pyrene (TEFs)	-6.25E-10	-6.25E-10	3.10E+00	3.85E+00	NA	NA	-1.98E-10	-1.70E-11	-6.60E-10	NA	NA	NA
Naphthalene	-2.73E-06	-2.73E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-3.1E-03	-2.6E-04	-8.7E-04
Dioxins												
TCDD equivalents	1.18E-12	1.18E-12	1.50E+05	1.33E+05	NA	1.10E-08	1.29E-08	1.11E-09	4.31E-08	NA	NA	NA
Diesel												
Diesel PM	1.10E-05	1.10E-05	NA	1.10E+00	1.43E-03	NA	9.97E-07	8.55E-08	3.32E-06	7.4E-03	6.3E-04	2.1E-03
Metals												
Arsenic	-3.51E-10	-3.51E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-3.33E-10	-2.85E-11	-1.11E-09	-1.1E-06	-9.6E-08	-3.2E-07
Beryllium	-4.03E-10	-4.03E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-2.78E-10	-2.38E-11	-9.27E-10	-6.8E-05	-5.8E-06	-1.9E-05
Cadmium	2.71E-10	2.71E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	3.28E-10	2.81E-11	1.09E-09	4.6E-06	3.9E-07	1.3E-06
Chromium (VI)	-7.99E-11	-7.99E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-3.35E-09	-2.87E-10	-1.12E-08	-2.7E-06	-2.3E-07	-7.7E-07
Manganese	-8.36E-10	-8.36E-10	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-5.6E-05	-4.8E-06	-1.6E-05
						Total	8.43E-07	7.2E-08	2.8E-06	-7.59E-01	-6.50E-02	-2.17E-01
NA = Not Available							TOTAL HI for Respiratory Effects			-7.50E-01	-6.43E-02	-2.14E-01

Source: Camp Dresser & McKee Inc., 2003.

Table A-2

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Pre-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-1.62E-07	-7.90E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-1.26E-10	-5.26E-11	-4.20E-10	-6.1E-05	-2.5E-05	-1.7E-05
Acrolein	-8.92E-08	-4.87E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-1.5E-02	-7.0E-03	-4.3E-03
Benzene	-1.37E-07	-5.06E-07	2.90E-02	1.02E-01	NA	1.71E-02	-1.15E-09	-3.62E-10	-3.82E-09	NA	NA	NA
1,3-Butadiene	-1.18E-07	-5.99E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-5.77E-09	-2.51E-09	-1.92E-08	-2.0E-04	-8.6E-05	-5.7E-05
Formaldehyde	-5.47E-07	-2.73E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-9.44E-10	-4.04E-10	-3.15E-09	-2.6E-06	-1.1E-06	-7.5E-07
Xylene (total)	-1.09E-07	-2.25E-09	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-5.2E-08	-9.3E-11	-1.5E-08
PAHs												
Benzo(a)pyrene (TEFs)	-3.43E-11	-1.60E-10	3.10E+00	3.85E+00	NA	NA	-1.09E-11	-4.34E-12	-3.62E-11	NA	NA	NA
Naphthalene	-8.99E-08	-4.49E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-1.0E-04	-4.3E-05	-2.9E-05
Dioxins												
TCDD equivalents	-3.05E-15	1.21E-14	1.50E+05	1.33E+05	NA	1.10E-08	-3.34E-11	1.14E-11	-1.11E-10	NA	NA	NA
Diesel												
Diesel PM	5.80E-09	2.35E-07	NA	1.10E+00	1.43E-03	NA	5.24E-10	1.82E-09	1.75E-09	3.9E-06	1.4E-05	1.1E-06
Metals												
Arsenic	-1.88E-11	-7.03E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-1.78E-11	-5.72E-12	-5.95E-11	-6.0E-08	-1.9E-08	-1.7E-08
Beryllium	-6.90E-12	-3.42E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-4.77E-12	-2.02E-12	-1.59E-11	-1.2E-06	-4.9E-07	-3.3E-07
Cadmium	-2.32E-11	-6.14E-11	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-2.81E-11	-6.36E-12	-9.36E-11	-3.9E-07	-8.8E-08	-1.1E-07
Chromium (VI)	-1.36E-12	-6.73E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-5.69E-11	-2.42E-11	-1.90E-10	-4.6E-08	-1.9E-08	-1.3E-08
Manganese	-8.54E-10	-2.76E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-5.7E-05	-1.6E-05	-1.6E-05
						Total	-7.6E-09	-1.5E-09	-2.5E-08	-1.54E-02	-7.17E-03	-4.41E-03
NA = Not Available							TOTAL HI for Respiratory Effects			-1.51E-02	-7.04E-03	-4.32E-03

Source: Camp Dresser & McKee Inc., 2003.

Table A-3

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Pre-Mitigation Conditions, 1996 Baseline
(Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.82E-06	8.82E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.85E-09	5.87E-10	2.28E-08	3.3E-03	2.8E-04	9.4E-04
Acrolein	-5.43E-07	-5.43E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-9.1E-02	-7.8E-03	-2.6E-02
Benzene	2.41E-05	2.41E-05	2.90E-02	1.02E-01	NA	1.71E-02	2.01E-07	1.72E-08	6.69E-07	NA	NA	NA
1,3-Butadiene	4.26E-06	4.26E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.08E-07	1.78E-08	6.94E-07	7.1E-03	6.1E-04	2.0E-03
Formaldehyde	2.15E-05	2.15E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.72E-08	3.19E-09	1.24E-07	1.0E-04	8.9E-06	3.0E-05
Xylene (total)	6.69E-05	6.69E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	3.2E-05	2.8E-06	9.2E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.34E-06	1.11E-09	3.10E+00	3.85E+00	NA	NA	4.24E-07	3.01E-11	1.41E-06	NA	NA	NA
Naphthalene	1.11E-09	1.34E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.2E-06	1.3E-04	3.5E-07
Dioxins												
TCDD equivalents	2.91E-12	2.91E-12	1.50E+05	1.33E+05	NA	1.10E-08	3.18E-08	2.72E-09	1.06E-07	NA	NA	NA
Diesel												
Diesel PM	8.77E-06	8.77E-06	NA	1.10E+00	1.43E-03	NA	7.93E-07	6.79E-08	2.64E-06	5.9E-03	5.0E-04	1.7E-03
Metals												
Arsenic	-3.54E-11	-3.54E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-3.36E-11	-2.88E-12	-1.12E-10	-1.1E-07	-9.7E-09	-3.2E-08
Beryllium	-1.46E-10	-1.46E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-1.01E-10	-8.65E-12	-3.36E-10	-2.5E-05	-2.1E-06	-7.0E-06
Cadmium	4.53E-10	4.53E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	5.47E-10	4.69E-11	1.82E-09	7.6E-06	6.5E-07	2.2E-06
Chromium (VI)	-2.89E-11	-2.89E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-1.21E-09	-1.04E-10	-4.04E-09	-9.7E-07	-8.3E-08	-2.8E-07
Manganese	9.07E-09	9.07E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	6.1E-04	5.2E-05	1.7E-04
						Total	1.7E-06	1.1E-07	5.7E-06	-7.42E-02	-6.23E-03	-2.12E-02
							TOTAL HI for Respiratory Effects			-8.14E-02	-6.98E-03	-2.33E-02

NA = Not Available

Source: Camp Dresser & McKee Inc., 2003.

Table A-4

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Pre-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-1.56E-07	8.82E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-1.21E-10	5.87E-10	-4.03E-10	-5.8E-05	2.8E-04	-1.7E-05
Acrolein	-9.24E-08	-5.43E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-1.6E-02	-7.8E-03	-4.4E-03
Benzene	-1.04E-07	2.41E-05	2.90E-02	1.02E-01	NA	1.71E-02	-8.64E-10	1.72E-08	-2.88E-09	NA	NA	NA
1,3-Butadiene	-1.15E-07	4.26E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-5.62E-09	1.78E-08	-1.87E-08	-1.9E-04	6.1E-04	-5.5E-05
Formaldehyde	-5.33E-07	2.15E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-9.19E-10	3.19E-09	-3.06E-09	-2.6E-06	8.9E-06	-7.3E-07
Xylene (total)	-2.08E-08	6.69E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.0E-08	2.8E-06	-2.8E-09
PAHs												
Benzo(a)pyrene (TEFs)	-3.40E-11	1.11E-09	3.10E+00	3.85E+00	NA	NA	-1.08E-11	3.01E-11	-3.59E-11	NA	NA	NA
Naphthalene	-9.14E-08	1.34E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-1.0E-04	1.3E-04	-2.9E-05
Dioxins												
TCDD equivalents	3.15E-16	2.91E-12	1.50E+05	1.33E+05	NA	1.10E-08	3.45E-12	2.72E-09	1.15E-11	NA	NA	NA
Diesel												
Diesel PM	2.63E-08	8.77E-06	NA	1.10E+00	1.43E-03	NA	2.38E-09	6.79E-08	7.94E-09	1.8E-05	5.0E-04	5.1E-06
Metals												
Arsenic	-2.12E-11	-3.54E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-2.01E-11	-2.88E-12	-6.69E-11	-6.8E-08	-9.7E-09	-1.9E-08
Beryllium	-8.05E-12	-1.46E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-5.56E-12	-8.65E-12	-1.85E-11	-1.4E-06	-2.1E-06	-3.9E-07
Cadmium	-2.59E-11	4.53E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-3.13E-11	4.69E-11	-1.04E-10	-4.3E-07	6.5E-07	-1.2E-07
Chromium (VI)	-1.59E-12	-2.89E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-6.65E-11	-1.04E-10	-2.22E-10	-5.3E-08	-8.3E-08	-1.5E-08
Manganese	-9.38E-10	9.07E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-6.3E-05	5.2E-05	-1.8E-05
						Total	-5.3E-09	1.1E-07	-1.8E-08	-1.59E-02	-6.23E-03	-4.55E-03
NA = Not Available							TOTAL HI for Respiratory Effects			-1.56E-02	-6.98E-03	-4.47E-03

Source: Camp Dresser & McKee Inc., 2003.

Table A-5

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Pre-Mitigation Conditions, 1996 Baseline
(Based on Location where Cancer Risks are Greatest, Exposure Duration for Adult is 30 years)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.82E-06	8.82E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.85E-09	5.87E-10	9.79E-09	3.3E-03	2.8E-04	4.0E-04
Acrolein	-5.43E-07	-5.43E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-9.1E-02	-7.8E-03	-1.1E-02
Benzene	2.41E-05	2.41E-05	2.90E-02	1.02E-01	NA	1.71E-02	2.01E-07	1.72E-08	2.87E-07	NA	NA	NA
1,3-Butadiene	4.26E-06	4.26E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.08E-07	1.78E-08	2.97E-07	7.1E-03	6.1E-04	8.8E-04
Formaldehyde	2.15E-05	2.15E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.72E-08	3.19E-09	5.31E-08	1.0E-04	8.9E-06	1.3E-05
Xylene (total)	6.69E-05	6.69E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	3.2E-05	2.8E-06	3.9E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.34E-06	1.11E-09	3.10E+00	3.85E+00	NA	NA	4.24E-07	3.01E-11	6.06E-07	NA	NA	NA
Naphthalene	1.11E-09	1.34E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.2E-06	1.3E-04	1.5E-07
Dioxins												
TCDD equivalents	2.91E-12	2.91E-12	1.50E+05	1.33E+05	NA	1.10E-08	3.18E-08	2.72E-09	4.54E-08	NA	NA	NA
Diesel												
Diesel PM	8.77E-06	8.77E-06	NA	1.10E+00	1.43E-03	NA	7.93E-07	6.79E-08	1.13E-06	5.9E-03	5.0E-04	7.2E-04
Metals												
Arsenic	-3.54E-11	-3.54E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-3.36E-11	-2.88E-12	-4.80E-11	-1.1E-07	-9.7E-09	-1.4E-08
Beryllium	-1.46E-10	-1.46E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-1.01E-10	-8.65E-12	-1.44E-10	-2.5E-05	-2.1E-06	-3.0E-06
Cadmium	4.53E-10	4.53E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	5.47E-10	4.69E-11	7.82E-10	7.6E-06	6.5E-07	9.3E-07
Chromium (VI)	-2.89E-11	-2.89E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-1.21E-09	-1.04E-10	-1.73E-09	-9.7E-07	-8.3E-08	-1.2E-07
Manganese	9.07E-09	9.07E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	6.1E-04	5.2E-05	7.4E-05
						Total	1.7E-06	1.1E-07	2.4E-06	-7.42E-02	-6.23E-03	-9.09E-03
NA = Not Available							TOTAL HI for Respiratory Effects			-8.14E-02	-6.98E-03	-9.97E-03

Source: Camp Dresser & McKee Inc., 2003.

Table A-6

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Pre-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest, Exposure Duration for Adult is 30 years)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-3.34E-06	-3.34E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-2.60E-09	-2.23E-10	-3.71E-09	-1.2E-03	-1.1E-04	-1.5E-04
Acrolein	-4.49E-06	-4.49E-06	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-7.6E-01	-6.5E-02	-9.3E-02
Benzene	5.38E-06	5.38E-06	2.90E-02	1.02E-01	NA	1.71E-02	4.49E-08	3.85E-09	6.41E-08	NA	NA	NA
1,3-Butadiene	-3.67E-06	-3.67E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-1.79E-07	-1.54E-08	-2.56E-07	-6.2E-03	-5.3E-04	-7.5E-04
Formaldehyde	-1.51E-05	-1.51E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-2.60E-08	-2.23E-09	-3.72E-08	-7.2E-05	-6.2E-06	-8.9E-06
Xylene (total)	2.53E-05	2.53E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.2E-05	1.0E-06	1.5E-06
PAHs												
Benzo(a)pyrene (TEFs)	-6.25E-10	-6.25E-10	3.10E+00	3.85E+00	NA	NA	-1.98E-10	-1.70E-11	-2.83E-10	NA	NA	NA
Naphthalene	-2.73E-06	-2.73E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-3.1E-03	-2.6E-04	-3.7E-04
Dioxins												
TCDD equivalents	1.18E-12	1.18E-12	1.50E+05	1.33E+05	NA	1.10E-08	1.29E-08	1.11E-09	1.85E-08	NA	NA	NA
Diesel												
Diesel PM	1.10E-05	1.10E-05	NA	1.10E+00	1.43E-03	NA	9.97E-07	8.55E-08	1.42E-06	7.4E-03	6.3E-04	9.1E-04
Metals												
Arsenic	-3.51E-10	-3.51E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-3.33E-10	-2.85E-11	-4.75E-10	-1.1E-06	-9.6E-08	-1.4E-07
Beryllium	-4.03E-10	-4.03E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-2.78E-10	-2.38E-11	-3.97E-10	-6.8E-05	-5.8E-06	-8.3E-06
Cadmium	2.71E-10	2.71E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	3.28E-10	2.81E-11	4.69E-10	4.6E-06	3.9E-07	5.6E-07
Chromium (VI)	-7.99E-11	-7.99E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-3.35E-09	-2.87E-10	-4.78E-09	-2.7E-06	-2.3E-07	-3.3E-07
Manganese	-8.36E-10	-8.36E-10	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-5.6E-05	-4.8E-06	-6.9E-06
						Total	8.43E-07	7.2E-08	1.2E-06	-7.59E-01	-6.50E-02	-9.29E-02
NA = Not Available							TOTAL HI for Respiratory Effects			-7.50E-01	-6.43E-02	-9.18E-02

Source: Camp Dresser & McKee Inc., 2003.

Table A-7

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2005, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	9.21E-05	5.41E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	7.15E-08	3.60E-09	2.38E-07	3.4E-02	1.7E-03	9.8E-03
Acrolein	3.38E-05	2.61E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	5.7E+00	3.8E-01	1.6E+00
Benzene	1.15E-04	3.85E-05	2.90E-02	1.02E-01	NA	1.71E-02	9.61E-07	2.75E-08	3.20E-06	NA	NA	NA
1,3-Butadiene	5.83E-05	3.41E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.85E-06	1.43E-07	9.50E-06	9.8E-02	4.9E-03	2.8E-02
Formaldehyde	2.84E-04	1.77E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	4.90E-07	2.62E-08	1.63E-06	1.4E-03	7.3E-05	3.9E-04
Xylene (total)	2.38E-04	4.16E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.1E-04	1.7E-06	3.3E-05
PAHs												
Benzo(a)pyrene (TEFs)	1.26E-08	8.19E-09	3.10E+00	3.85E+00	NA	NA	4.00E-09	2.22E-10	1.33E-08	NA	NA	NA
Naphthalene	2.78E-05	1.71E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.1E-02	1.6E-03	8.9E-03
Dioxins												
TCDD equivalents	9.77E-12	1.56E-12	1.50E+05	1.33E+05	NA	1.10E-08	1.07E-07	1.47E-09	3.56E-07	NA	NA	NA
Diesel												
Diesel PM	1.15E-05	-1.26E-06	NA	1.10E+00	1.43E-03	NA	1.04E-06	-9.77E-09	3.47E-06	7.7E-03	-7.3E-05	2.2E-03
Metals												
Arsenic	7.32E-09	7.67E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	6.95E-09	6.24E-10	2.32E-08	2.3E-05	2.1E-06	6.7E-06
Beryllium	2.45E-09	2.19E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.69E-09	1.30E-10	5.65E-09	4.1E-04	3.2E-05	1.2E-04
Cadmium	1.15E-08	1.21E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	1.39E-08	1.26E-09	4.64E-08	1.9E-04	1.7E-05	5.5E-05
Chromium (VI)	4.88E-10	4.35E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	2.05E-08	1.56E-09	6.82E-08	1.6E-05	1.3E-06	4.7E-06
Manganese	3.47E-07	3.83E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	2.3E-02	2.2E-03	6.7E-03
						Total	5.6E-06	2.0E-07	1.9E-05	5.89	0.39	1.68
NA = Not Available							TOTAL HI for Respiratory Effects			5.8	0.38	1.65

Source: Camp Dresser & McKee Inc., 2003.

Table A-8

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2005, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.17E-05	5.41E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.35E-08	3.60E-09	2.12E-07	3.0E-02	1.7E-03	8.7E-03
Acrolein	4.03E-05	2.61E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	6.8E+00	3.8E-01	1.9E+00
Benzene	5.43E-05	3.85E-05	2.90E-02	1.02E-01	NA	1.71E-02	4.53E-07	2.75E-08	1.51E-06	NA	NA	NA
1,3-Butadiene	5.14E-05	3.41E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.52E-06	1.43E-07	8.39E-06	8.6E-02	4.9E-03	2.5E-02
Formaldehyde	2.69E-04	1.77E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	4.65E-07	2.62E-08	1.55E-06	1.3E-03	7.3E-05	3.7E-04
Xylene (total)	5.03E-05	4.16E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	2.4E-05	1.7E-06	6.9E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.34E-08	8.19E-09	3.10E+00	3.85E+00	NA	NA	4.23E-09	2.22E-10	1.41E-08	NA	NA	NA
Naphthalene	2.80E-05	1.71E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.1E-02	1.6E-03	8.9E-03
Dioxins												
TCDD equivalents	1.90E-12	1.56E-12	1.50E+05	1.33E+05	NA	1.10E-08	2.08E-08	1.47E-09	6.94E-08	NA	NA	NA
Diesel												
Diesel PM	-2.84E-06	-1.26E-06	NA	1.10E+00	1.43E-03	NA	-2.57E-07	-9.77E-09	-8.55E-07	-1.9E-03	-7.3E-05	-5.4E-04
Metals												
Arsenic	1.24E-08	7.67E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.18E-08	6.24E-10	3.94E-08	4.0E-05	2.1E-06	1.1E-05
Beryllium	3.51E-09	2.19E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	2.42E-09	1.30E-10	8.08E-09	5.9E-04	3.2E-05	1.7E-04
Cadmium	1.97E-08	1.21E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.39E-08	1.26E-09	7.95E-08	3.3E-04	1.7E-05	9.5E-05
Chromium (VI)	6.98E-10	4.35E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	2.93E-08	1.56E-09	9.75E-08	2.3E-05	1.3E-06	6.7E-06
Manganese	6.24E-07	3.83E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	4.2E-02	2.2E-03	1.2E-02
						Total	3.3E-06	2.0E-07	1.1E-05	6.97	0.39	1.99
NA = Not Available							TOTAL HI for Respiratory Effects			6.8	0.38	1.96

Source: Camp Dresser & McKee Inc., 2003.

Table A-9

Incremental Risk Calculation for Alternative C, Horizon Year 2005, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	3.06E-07	1.63E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	2.38E-10	1.09E-10	7.93E-10	1.1E-04	5.2E-05	3.3E-05
Acrolein	1.58E-07	8.32E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	2.7E-02	1.2E-02	7.6E-03
Benzene	6.17E-08	4.00E-07	2.90E-02	1.02E-01	NA	1.71E-02	5.15E-10	2.86E-10	1.72E-09	NA	NA	NA
1,3-Butadiene	1.70E-07	9.10E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	8.31E-09	3.82E-09	2.77E-08	2.9E-04	1.3E-04	8.2E-05
Formaldehyde	1.02E-06	5.39E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	1.76E-09	7.97E-10	5.85E-09	4.9E-06	2.2E-06	1.4E-06
Xylene (total)	-5.59E-08	-7.78E-08	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.7E-08	-3.2E-09	-7.7E-09
PAHs												
Benzo(a)pyrene (TEFs)	4.71E-11	2.64E-10	3.10E+00	3.85E+00	NA	NA	1.49E-11	7.16E-12	4.97E-11	NA	NA	NA
Naphthalene	1.14E-07	6.42E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.3E-04	6.2E-05	3.6E-05
Dioxins												
TCDD equivalents	-2.46E-15	-2.77E-16	1.50E+05	1.33E+05	NA	1.10E-08	-2.69E-11	-2.60E-13	-8.96E-11	NA	NA	NA
Diesel												
Diesel PM	-6.20E-07	-3.58E-06	NA	1.10E+00	1.43E-03	NA	-5.60E-08	-2.77E-08	-1.87E-07	-4.2E-04	-2.1E-04	-1.2E-04
Metals												
Arsenic	5.69E-11	3.16E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	5.40E-11	2.57E-11	1.80E-10	1.8E-07	8.7E-08	5.2E-08
Beryllium	1.67E-11	9.34E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.16E-11	5.53E-12	3.85E-11	2.8E-06	1.3E-06	8.1E-07
Cadmium	6.28E-11	3.88E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	7.58E-11	4.02E-11	2.53E-10	1.1E-06	5.6E-07	3.0E-07
Chromium (VI)	3.33E-12	1.86E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.40E-10	6.68E-11	4.66E-10	1.1E-07	5.3E-08	3.2E-08
Manganese	2.93E-09	1.63E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	2.0E-04	9.4E-05	5.6E-05
						Total	-4.5E-08	-2.3E-08	-1.5E-07	0.027	0.012	0.008
NA = Not Available							TOTAL HI for Respiratory Effects			0.027	0.012	0.008

Source: Camp Dresser & McKee Inc., 2003.

Table A-10

Incremental Risk Calculation for Alternative C, Horizon Year 2005, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	4.07E-05	3.69E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	3.16E-08	2.46E-09	1.05E-07	1.5E-02	1.2E-03	4.3E-03
Acrolein	2.13E-05	2.16E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	3.6E+00	3.1E-01	1.0E+00
Benzene	-1.38E-06	-2.36E-05	2.90E-02	1.02E-01	NA	1.71E-02	-1.15E-08	-1.69E-08	-3.84E-08	NA	NA	NA
1,3-Butadiene	2.14E-05	1.69E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.04E-06	7.08E-08	3.48E-06	3.6E-02	2.4E-03	1.0E-02
Formaldehyde	1.33E-04	1.24E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	2.30E-07	1.83E-08	7.65E-07	6.4E-04	5.1E-05	1.8E-04
Xylene (total)	-2.18E-05	-6.95E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.0E-05	-2.9E-06	-3.0E-06
PAHs												
Benzo(a)pyrene (TEFs)	5.75E-09	4.32E-09	3.10E+00	3.85E+00	NA	NA	1.82E-09	1.17E-10	6.07E-09	NA	NA	NA
Naphthalene	1.56E-05	1.34E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.7E-02	1.3E-03	5.0E-03
Dioxins												
TCDD equivalents	-8.93E-13	-3.06E-12	1.50E+05	1.33E+05	NA	1.10E-08	-9.76E-09	-2.87E-09	-3.25E-08	NA	NA	NA
Diesel												
Diesel PM	-1.12E-04	-1.28E-04	NA	1.10E+00	1.43E-03	NA	-1.01E-05	-9.91E-07	-3.36E-05	-7.5E-02	-7.4E-03	-2.1E-02
Metals												
Arsenic	7.81E-09	7.12E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	7.41E-09	5.79E-10	2.47E-08	2.5E-05	1.9E-06	7.1E-06
Beryllium	2.40E-09	2.34E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.66E-09	1.38E-10	5.52E-09	4.0E-04	3.4E-05	1.2E-04
Cadmium	1.38E-08	1.40E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	1.67E-08	1.45E-09	5.55E-08	2.3E-04	2.0E-05	6.6E-05
Chromium (VI)	4.76E-10	4.64E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	2.00E-08	1.67E-09	6.66E-08	1.6E-05	1.3E-06	4.6E-06
Manganese	4.00E-07	3.51E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	2.7E-02	2.0E-03	7.7E-03
						Total	-8.8E-06	-9.2E-07	-2.9E-05	3.61	0.31	1.03
NA = Not Available							TOTAL HI for Respiratory Effects			3.6	0.31	1.02

Source: Camp Dresser & McKee Inc., 2003.

Table A-11

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-8.24E-08	-3.20E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-6.40E-11	-2.13E-11	-2.13E-10	-3.1E-05	-1.0E-05	-8.8E-06
Acrolein	-2.73E-08	-1.04E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-4.6E-03	-1.5E-03	-1.3E-03
Benzene	-3.81E-07	-1.83E-06	2.90E-02	1.02E-01	NA	1.71E-02	-3.18E-09	-1.31E-09	-1.06E-08	NA	NA	NA
1,3-Butadiene	-9.64E-08	-4.33E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-4.71E-09	-1.81E-09	-1.57E-08	-1.6E-04	-6.2E-05	-4.6E-05
Formaldehyde	-2.90E-07	-1.17E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-5.00E-10	-1.73E-10	-1.67E-09	-1.4E-06	-4.8E-07	-4.0E-07
Xylene (total)	-6.35E-07	-3.01E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-3.0E-07	-1.2E-07	-8.7E-08
PAHs												
Benzo(a)pyrene (TEFs)	-3.56E-11	-1.57E-10	3.10E+00	3.85E+00	NA	NA	-1.13E-11	-4.26E-12	-3.75E-11	NA	NA	NA
Naphthalene	-7.28E-08	-3.12E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-8.1E-05	-3.0E-05	-2.3E-05
Dioxins												
TCDD equivalents	-2.40E-14	-1.13E-13	1.50E+05	1.33E+05	NA	1.10E-08	-2.62E-10	-1.05E-10	-8.75E-10	NA	NA	NA
Diesel												
Diesel PM	-6.81E-07	-4.17E-06	NA	1.10E+00	1.43E-03	NA	-6.16E-08	-3.23E-08	-2.05E-07	-4.6E-04	-2.4E-04	-1.3E-04
Metals												
Arsenic	-2.42E-13	1.69E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-2.30E-13	1.37E-12	-7.66E-13	-7.7E-10	4.6E-09	-2.2E-10
Beryllium	2.29E-12	1.55E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.58E-12	9.17E-13	5.28E-12	3.9E-07	2.2E-07	1.1E-07
Cadmium	-2.49E-11	-1.11E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-3.00E-11	-1.15E-11	-1.00E-10	-4.2E-07	-1.6E-07	-1.2E-07
Chromium (VI)	4.67E-13	3.13E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.96E-11	1.12E-11	6.53E-11	1.6E-08	9.0E-09	4.5E-09
Manganese	6.61E-11	1.50E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	4.4E-06	8.6E-06	1.3E-06
						Total	-7.0E-08	-3.6E-08	-2.3E-07	-0.005	-0.002	-0.002
NA = Not Available							TOTAL HI for Respiratory Effects			-0.005	-0.002	-0.001

Source: Camp Dresser & McKee Inc., 2003.

Table A-12

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	3.62E-07	3.62E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	2.81E-10	2.41E-11	9.38E-10	1.4E-04	1.2E-05	3.9E-05
Acrolein	8.37E-07	8.37E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	1.4E-01	1.2E-02	4.0E-02
Benzene	-1.33E-05	-1.33E-05	2.90E-02	1.02E-01	NA	1.71E-02	-1.11E-07	-9.49E-09	-3.69E-07	NA	NA	NA
1,3-Butadiene	-1.49E-06	-1.49E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-7.31E-08	-6.26E-09	-2.44E-07	-2.5E-03	-2.2E-04	-7.2E-04
Formaldehyde	5.04E-07	5.04E-07	4.55E-02	2.10E-02	2.00E-01	5.71E-04	8.69E-10	7.45E-11	2.90E-09	2.4E-06	2.1E-07	6.9E-07
Xylene (total)	-2.45E-05	-2.45E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.2E-05	-1.0E-06	-3.4E-06
PAHs												
Benzo(a)pyrene (TEFs)	-9.59E-10	-9.59E-10	3.10E+00	3.85E+00	NA	NA	-3.03E-10	-2.60E-11	-1.01E-09	NA	NA	NA
Naphthalene	-1.58E-06	-1.58E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-1.8E-03	-1.5E-04	-5.1E-04
Dioxins												
TCDD equivalents	-1.03E-12	-1.03E-12	1.50E+05	1.33E+05	NA	1.10E-08	-1.12E-08	-9.64E-10	-3.75E-08	NA	NA	NA
Diesel												
Diesel PM	-2.65E-05	-2.65E-05	NA	1.10E+00	1.43E-03	NA	-2.39E-06	-2.05E-07	-7.98E-06	-1.8E-02	-1.5E-03	-5.1E-03
Metals												
Arsenic	-1.39E-11	-1.39E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-1.32E-11	-1.13E-12	-4.41E-11	-4.5E-08	-3.8E-09	-1.3E-08
Beryllium	1.30E-10	1.30E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	8.94E-11	7.66E-12	2.98E-10	2.2E-05	1.9E-06	6.2E-06
Cadmium	-1.33E-09	-1.33E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-1.60E-09	-1.37E-10	-5.34E-09	-2.2E-05	-1.9E-06	-6.4E-06
Chromium (VI)	2.66E-11	2.66E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.11E-09	9.56E-11	3.72E-09	8.9E-07	7.6E-08	2.5E-07
Manganese	5.01E-09	5.01E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	3.4E-04	2.9E-05	9.6E-05
						Total	-2.6E-06	-2.2E-07	-8.6E-06	0.12	0.01	0.03
NA = Not Available							TOTAL HI for Respiratory Effects			0.1	0.01	0.04

Source: Camp Dresser & McKee Inc., 2003.

Table A-13

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	6.17E-05	5.49E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	4.79E-08	3.66E-09	1.60E-07	2.3E-02	1.8E-03	6.6E-03
Acrolein	3.39E-05	2.85E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	5.7E+00	4.1E-01	1.6E+00
Benzene	6.81E-06	2.25E-05	2.90E-02	1.02E-01	NA	1.71E-02	5.68E-08	1.61E-08	1.89E-07	NA	NA	NA
1,3-Butadiene	3.47E-05	3.29E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.70E-06	1.38E-07	5.65E-06	5.8E-02	4.7E-03	1.7E-02
Formaldehyde	2.12E-04	1.85E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.66E-07	2.73E-08	1.22E-06	1.0E-03	7.6E-05	2.9E-04
Xylene (total)	-5.42E-05	-5.18E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.6E-05	-2.1E-07	-7.4E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.55E-08	1.30E-08	3.10E+00	3.85E+00	NA	NA	4.90E-09	3.52E-10	1.63E-08	NA	NA	NA
Naphthalene	2.77E-05	2.49E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.1E-02	2.4E-03	8.9E-03
Dioxins												
TCDD equivalents	-1.30E-12	5.09E-13	1.50E+05	1.33E+05	NA	1.10E-08	-1.42E-08	4.77E-10	-4.73E-08	NA	NA	NA
Diesel												
Diesel PM	-1.65E-06	-8.30E-06	NA	1.10E+00	1.43E-03	NA	-1.49E-07	-6.43E-08	-4.96E-07	-1.1E-03	-4.8E-04	-3.2E-04
Metals												
Arsenic	1.53E-08	1.25E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.45E-08	1.01E-09	4.84E-08	4.9E-05	3.4E-06	1.4E-05
Beryllium	4.42E-09	3.65E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	3.05E-09	2.16E-10	1.02E-08	7.4E-04	5.3E-05	2.1E-04
Cadmium	2.41E-08	1.72E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.91E-08	1.78E-09	9.69E-08	4.0E-04	2.5E-05	1.2E-04
Chromium (VI)	8.82E-10	7.31E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	3.70E-08	2.63E-09	1.23E-07	3.0E-05	2.1E-06	8.4E-06
Manganese	7.69E-07	6.62E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	5.2E-02	3.8E-03	1.5E-02
						Total	2.1E-06	1.3E-07	7.0E-06	5.87	0.42	1.68
NA = Not Available							TOTAL HI for Respiratory Effects			5.8	0.42	1.65

Source: Camp Dresser & McKee Inc., 2003.

Table A-14

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.50E-05	5.49E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.60E-08	3.66E-09	2.20E-07	3.2E-02	1.8E-03	9.1E-03
Acrolein	4.43E-05	2.85E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	7.4E+00	4.1E-01	2.1E+00
Benzene	3.91E-05	2.25E-05	2.90E-02	1.02E-01	NA	1.71E-02	3.26E-07	1.61E-08	1.09E-06	NA	NA	NA
1,3-Butadiene	5.17E-05	3.29E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.53E-06	1.38E-07	8.43E-06	8.7E-02	4.7E-03	2.5E-02
Formaldehyde	2.89E-04	1.85E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	5.00E-07	2.73E-08	1.67E-06	1.4E-03	7.6E-05	4.0E-04
Xylene (total)	-3.51E-06	-5.18E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.7E-06	-2.1E-07	-4.8E-07
PAHs												
Benzo(a)pyrene (TEFs)	2.13E-08	1.30E-08	3.10E+00	3.85E+00	NA	NA	6.73E-09	3.52E-10	2.24E-08	NA	NA	NA
Naphthalene	4.25E-05	2.49E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	4.8E-02	2.4E-03	1.4E-02
Dioxins												
TCDD equivalents	7.60E-13	5.09E-13	1.50E+05	1.33E+05	NA	1.10E-08	8.31E-09	4.77E-10	2.77E-08	NA	NA	NA
Diesel												
Diesel PM	-8.28E-05	-8.30E-06	NA	1.10E+00	1.43E-03	NA	-7.49E-06	-6.43E-08	-2.50E-05	-5.6E-02	-4.8E-04	-1.6E-02
Metals												
Arsenic	1.96E-08	1.25E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.86E-08	1.01E-09	6.19E-08	6.3E-05	3.4E-06	1.8E-05
Beryllium	5.56E-09	3.65E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	3.84E-09	2.16E-10	1.28E-08	9.4E-04	5.3E-05	2.7E-04
Cadmium	2.89E-08	1.72E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	3.49E-08	1.78E-09	1.16E-07	4.9E-04	2.5E-05	1.4E-04
Chromium (VI)	1.11E-09	7.31E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	4.64E-08	2.63E-09	1.55E-07	3.7E-05	2.1E-06	1.1E-05
Manganese	1.00E-06	6.62E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	6.7E-02	3.8E-03	1.9E-02
						Total	-4.0E-06	1.3E-07	-1.3E-05	7.63	0.42	2.18
NA = Not Available							TOTAL HI for Respiratory Effects			7.5	0.42	2.14

Source: Camp Dresser & McKee Inc., 2003.

Table A-15

Incremental Risk Calculation for Alternative A, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	2.37E-07	7.34E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	1.84E-10	4.89E-10	6.15E-10	8.9E-05	2.3E-04	2.5E-05
Acrolein	1.31E-07	2.23E-06	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	2.2E-02	3.2E-02	6.3E-03
Benzene	-1.08E-07	5.70E-06	2.90E-02	1.02E-01	NA	1.71E-02	-9.02E-10	4.07E-09	-3.01E-09	NA	NA	NA
1,3-Butadiene	1.11E-07	3.28E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	5.42E-09	1.38E-08	1.81E-08	1.9E-04	4.7E-04	5.3E-05
Formaldehyde	7.45E-07	2.12E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	1.29E-09	3.13E-09	4.29E-09	3.6E-06	8.7E-06	1.0E-06
Xylene (total)	-3.24E-07	1.42E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.6E-07	5.9E-07	-4.4E-08
PAHs												
Benzo(a)pyrene (TEFs)	7.50E-11	1.76E-09	3.10E+00	3.85E+00	NA	NA	2.37E-11	4.77E-11	7.91E-11	NA	NA	NA
Naphthalene	1.68E-07	3.42E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.9E-04	3.3E-04	5.4E-05
Dioxins												
TCDD equivalents	-4.94E-15	7.55E-13	1.50E+05	1.33E+05	NA	1.10E-08	-5.40E-11	7.07E-10	-1.80E-10	NA	NA	NA
Diesel												
Diesel PM	-9.33E-07	-5.32E-06	NA	1.10E+00	1.43E-03	NA	-8.44E-08	-4.12E-08	-2.81E-07	-6.3E-04	-3.1E-04	-1.8E-04
Metals												
Arsenic	1.02E-10	1.83E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	9.69E-11	1.49E-10	3.23E-10	3.3E-07	5.0E-07	9.3E-08
Beryllium	2.72E-11	4.06E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.88E-11	2.40E-11	6.27E-11	4.6E-06	5.9E-06	1.3E-06
Cadmium	1.71E-10	4.84E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.06E-10	5.01E-10	6.87E-10	2.9E-06	7.0E-06	8.2E-07
Chromium (VI)	5.42E-12	8.07E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	2.27E-10	2.90E-10	7.57E-10	1.8E-07	2.3E-07	5.2E-08
Manganese	5.17E-09	9.57E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	3.5E-04	5.5E-04	9.9E-05
						Total	-7.8E-08	-1.8E-08	-2.6E-07	0.02	0.03	0.01
NA = Not Available							TOTAL HI for Respiratory Effects			0.02	0.03	0.01

Source: Camp Dresser & McKee Inc., 2003.

Table A-16

Incremental Risk Calculation for Alternative A, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	4.81E-05	4.56E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	3.73E-08	3.04E-09	1.24E-07	1.8E-02	1.5E-03	5.1E-03
Acrolein	2.60E-05	2.79E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	4.4E+00	4.0E-01	1.2E+00
Benzene	-1.09E-05	-4.47E-05	2.90E-02	1.02E-01	NA	1.71E-02	-9.10E-08	-3.19E-08	-3.03E-07	NA	NA	NA
1,3-Butadiene	2.44E-05	1.97E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.19E-06	8.24E-08	3.97E-06	4.1E-02	2.8E-03	1.2E-02
Formaldehyde	1.53E-04	1.44E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	2.64E-07	2.14E-08	8.79E-07	7.3E-04	5.9E-05	2.1E-04
Xylene (total)	-4.53E-05	-1.17E-04	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.2E-05	-4.8E-06	-6.2E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.59E-08	1.49E-08	3.10E+00	3.85E+00	NA	NA	5.04E-09	4.03E-10	1.68E-08	NA	NA	NA
Naphthalene	3.65E-05	3.56E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	4.1E-02	3.4E-03	1.2E-02
Dioxins												
TCDD equivalents	-1.69E-13	-3.03E-12	1.50E+05	1.33E+05	NA	1.10E-08	-1.84E-09	-2.84E-09	-6.14E-09	NA	NA	NA
Diesel												
Diesel PM	-1.50E-04	-2.02E-04	NA	1.10E+00	1.43E-03	NA	-1.36E-05	-1.56E-06	-4.53E-05	-1.0E-01	-1.2E-02	-2.9E-02
Metals												
Arsenic	1.92E-08	2.00E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.82E-08	1.63E-09	6.06E-08	6.1E-05	5.5E-06	1.7E-05
Beryllium	5.45E-09	5.95E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	3.76E-09	3.52E-10	1.25E-08	9.2E-04	8.6E-05	2.6E-04
Cadmium	6.48E-08	4.37E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	7.83E-08	4.52E-09	2.61E-07	1.1E-03	6.3E-05	3.1E-04
Chromium (VI)	1.08E-09	1.18E-09	4.20E+01	5.10E+02	2.86E-05	2.29E-07	4.54E-08	4.26E-09	1.51E-07	3.6E-05	3.4E-06	1.0E-05
Manganese	9.73E-07	1.01E-06	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	6.5E-02	5.8E-03	1.9E-02
						Total	-1.2E-05	-1.5E-06	-4.0E-05	4.44	0.40	1.27
NA = Not Available							TOTAL HI for Respiratory Effects			4.4	0.40	1.25

Source: Camp Dresser & McKee Inc., 2003.

Table A-17

Incremental Risk Calculation for Alternative B, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	3.70E-07	1.49E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	2.88E-10	9.92E-11	9.59E-10	1.4E-04	4.8E-05	3.9E-05
Acrolein	1.95E-07	7.84E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	3.3E-02	1.1E-02	9.3E-03
Benzene	-5.29E-08	-5.30E-07	2.90E-02	1.02E-01	NA	1.71E-02	-4.41E-10	-3.79E-10	-1.47E-09	NA	NA	NA
1,3-Butadiene	1.89E-07	7.11E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	9.22E-09	2.98E-09	3.07E-08	3.2E-04	1.0E-04	9.0E-05
Formaldehyde	1.18E-06	4.68E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	2.03E-09	6.92E-10	6.76E-09	5.6E-06	1.9E-06	1.6E-06
Xylene (total)	-2.68E-07	-1.47E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.3E-07	-6.1E-08	-3.7E-08
PAHs												
Benzo(a)pyrene (TEFs)	1.12E-10	4.54E-10	3.10E+00	3.85E+00	NA	NA	3.55E-11	1.23E-11	1.18E-10	NA	NA	NA
Naphthalene	2.50E-07	1.06E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	2.8E-04	1.0E-04	8.0E-05
Dioxins												
TCDD equivalents	4.26E-16	-1.08E-14	1.50E+05	1.33E+05	NA	1.10E-08	4.66E-12	-1.01E-11	1.55E-11	NA	NA	NA
Diesel												
Diesel PM	-9.37E-07	-5.48E-06	NA	1.10E+00	1.43E-03	NA	-8.48E-08	-4.25E-08	-2.83E-07	-6.3E-04	-3.2E-04	-1.8E-04
Metals												
Arsenic	1.40E-10	5.94E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.33E-10	4.84E-11	4.44E-10	4.5E-07	1.6E-07	1.3E-07
Beryllium	3.75E-11	1.59E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	2.59E-11	9.41E-12	8.62E-11	6.3E-06	2.3E-06	1.8E-06
Cadmium	2.46E-10	8.90E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.97E-10	9.21E-11	9.90E-10	4.1E-06	1.3E-06	1.2E-06
Chromium (VI)	7.45E-12	3.16E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	3.12E-10	1.14E-10	1.04E-09	2.5E-07	9.1E-08	7.1E-08
Manganese	7.14E-09	3.06E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	4.8E-04	1.8E-04	1.4E-04
						Total	-7.3E-08	-3.9E-08	-2.4E-07	0.03	0.01	0.01
NA = Not Available							TOTAL HI for Respiratory Effects			0.03	0.01	0.01

Source: Camp Dresser & McKee Inc., 2003.

Table A-18

Incremental Risk Calculation for Alternative B, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	7.09E-05	8.07E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	5.50E-08	5.37E-09	1.83E-07	2.6E-02	2.6E-03	7.6E-03
Acrolein	3.82E-05	4.29E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	6.4E+00	6.2E-01	1.8E+00
Benzene	-1.74E-05	-2.01E-05	2.90E-02	1.02E-01	NA	1.71E-02	-1.45E-07	-1.44E-08	-4.83E-07	NA	NA	NA
1,3-Butadiene	3.56E-05	3.99E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.74E-06	1.67E-07	5.81E-06	6.0E-02	5.7E-03	1.7E-02
Formaldehyde	2.26E-04	2.56E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.90E-07	3.79E-08	1.30E-06	1.1E-03	1.1E-04	3.1E-04
Xylene (total)	-6.98E-05	-7.65E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-3.3E-05	-3.1E-06	-9.6E-06
PAHs												
Benzo(a)pyrene (TEFs)	2.08E-08	2.32E-08	3.10E+00	3.85E+00	NA	NA	6.59E-09	6.29E-10	2.20E-08	NA	NA	NA
Naphthalene	4.73E-05	5.30E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	5.3E-02	5.1E-03	1.5E-02
Dioxins												
TCDD equivalents	-9.00E-13	-1.06E-12	1.50E+05	1.33E+05	NA	1.10E-08	-9.83E-09	-9.97E-10	-3.28E-08	NA	NA	NA
Diesel												
Diesel PM	-1.50E-04	-1.57E-04	NA	1.10E+00	1.43E-03	NA	-1.36E-05	-1.22E-06	-4.53E-05	-1.0E-01	-9.0E-03	-2.9E-02
Metals												
Arsenic	2.50E-08	2.75E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	2.38E-08	2.24E-09	7.92E-08	8.0E-05	7.5E-06	2.3E-05
Beryllium	7.01E-09	7.68E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	4.84E-09	4.54E-10	1.61E-08	1.2E-03	1.1E-04	3.4E-04
Cadmium	6.60E-08	8.15E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	7.98E-08	8.44E-09	2.66E-07	1.1E-03	1.2E-04	3.2E-04
Chromium (VI)	1.40E-09	1.53E-09	4.20E+01	5.10E+02	2.86E-05	2.29E-07	5.85E-08	5.49E-09	1.95E-07	4.7E-05	4.4E-06	1.3E-05
Manganese	1.27E-06	1.39E-06	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	8.5E-02	8.0E-03	2.4E-02
						Total	-1.1E-05	-1.0E-06	-3.8E-05	6.55	0.63	1.87
NA = Not Available							TOTAL HI for Respiratory Effects			6.4	0.62	1.84

Source: Camp Dresser & McKee Inc., 2003.

Table A-19

Incremental Risk Calculation for Alternative C, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	3.78E-07	2.04E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	2.94E-10	1.36E-10	9.79E-10	1.4E-04	6.5E-05	4.0E-05
Acrolein	1.99E-07	1.05E-06	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	3.3E-02	1.5E-02	9.5E-03
Benzene	-4.55E-08	-1.31E-07	2.90E-02	1.02E-01	NA	1.71E-02	-3.80E-10	-9.35E-11	-1.27E-09	NA	NA	NA
1,3-Butadiene	1.96E-07	1.07E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	9.60E-09	4.47E-09	3.20E-08	3.3E-04	1.5E-04	9.4E-05
Formaldehyde	1.20E-06	6.44E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	2.07E-09	9.53E-10	6.90E-09	5.8E-06	2.6E-06	1.6E-06
Xylene (total)	-2.44E-07	-9.96E-07	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.2E-07	-4.1E-08	-3.3E-08
PAHs												
Benzo(a)pyrene (TEFs)	1.14E-10	6.22E-10	3.10E+00	3.85E+00	NA	NA	3.62E-11	1.69E-11	1.21E-10	NA	NA	NA
Naphthalene	2.62E-07	1.43E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	2.9E-04	1.4E-04	8.4E-05
Dioxins												
TCDD equivalents	1.09E-15	2.00E-14	1.50E+05	1.33E+05	NA	1.10E-08	1.20E-11	1.87E-11	3.99E-11	NA	NA	NA
Diesel												
Diesel PM	-9.32E-07	-5.49E-06	NA	1.10E+00	1.43E-03	NA	-8.43E-08	-4.25E-08	-2.81E-07	-6.3E-04	-3.2E-04	-1.8E-04
Metals												
Arsenic	1.37E-10	7.39E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.30E-10	6.01E-11	4.35E-10	4.4E-07	2.0E-07	1.3E-07
Beryllium	3.72E-11	2.00E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	2.57E-11	1.19E-11	8.56E-11	6.3E-06	2.9E-06	1.8E-06
Cadmium	1.98E-10	1.39E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.40E-10	1.44E-10	7.99E-10	3.3E-06	2.0E-06	9.5E-07
Chromium (VI)	7.41E-12	3.99E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	3.10E-10	1.43E-10	1.03E-09	2.5E-07	1.1E-07	7.1E-08
Manganese	7.07E-09	3.83E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	4.7E-04	2.2E-04	1.4E-04
						Total	-7.2E-08	-3.7E-08	-2.4E-07	0.03	0.02	0.01
NA = Not Available							TOTAL HI for Respiratory Effects			0.03	0.02	0.01

Source: Camp Dresser & McKee Inc., 2003.

Table A-20

Incremental Risk Calculation for Alternative C, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	6.05E-05	6.59E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	4.70E-08	4.39E-09	1.57E-07	2.3E-02	2.1E-03	6.4E-03
Acrolein	3.34E-05	3.68E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	5.6E+00	5.3E-01	1.6E+00
Benzene	-2.85E-05	-3.71E-05	2.90E-02	1.02E-01	NA	1.71E-02	-2.38E-07	-2.65E-08	-7.94E-07	NA	NA	NA
1,3-Butadiene	2.91E-05	3.10E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.42E-06	1.30E-07	4.75E-06	4.9E-02	4.5E-03	1.4E-02
Formaldehyde	1.92E-04	2.09E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.31E-07	3.09E-08	1.10E-06	9.2E-04	8.6E-05	2.6E-04
Xylene (total)	-8.17E-05	-1.01E-04	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-3.9E-05	-4.1E-06	-1.1E-05
PAHs												
Benzo(a)pyrene (TEFs)	1.72E-08	1.87E-08	3.10E+00	3.85E+00	NA	NA	5.44E-09	5.06E-10	1.81E-08	NA	NA	NA
Naphthalene	4.12E-05	4.55E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	4.6E-02	4.4E-03	1.3E-02
Dioxins												
TCDD equivalents	-1.73E-12	-2.42E-12	1.50E+05	1.33E+05	NA	1.10E-08	-1.90E-08	-2.26E-09	-6.32E-08	NA	NA	NA
Diesel												
Diesel PM	-1.61E-04	-1.87E-04	NA	1.10E+00	1.43E-03	NA	-1.46E-05	-1.45E-06	-4.87E-05	-1.1E-01	-1.1E-02	-3.1E-02
Metals												
Arsenic	2.16E-08	2.36E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	2.05E-08	1.92E-09	6.85E-08	6.9E-05	6.5E-06	2.0E-05
Beryllium	6.03E-09	6.60E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	4.16E-09	3.90E-10	1.39E-08	1.0E-03	9.5E-05	2.9E-04
Cadmium	3.36E-08	3.96E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	4.06E-08	4.11E-09	1.35E-07	5.6E-04	5.7E-05	1.6E-04
Chromium (VI)	1.20E-09	1.31E-09	4.20E+01	5.10E+02	2.86E-05	2.29E-07	5.03E-08	4.71E-09	1.68E-07	4.0E-05	3.8E-06	1.1E-05
Manganese	1.11E-06	1.21E-06	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	7.4E-02	6.9E-03	2.1E-02
						Total	-1.3E-05	-1.3E-06	-4.3E-05	5.70	0.54	1.63
NA = Not Available							TOTAL HI for Respiratory Effects			5.6	0.53	1.60

Source: Camp Dresser & McKee Inc., 2003.

Table A-21

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-7.62E-08	-2.49E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-5.92E-11	-1.66E-11	-1.97E-10	-2.8E-05	-8.0E-06	-8.1E-06
Acrolein	-3.00E-08	-1.14E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-5.0E-03	-1.6E-03	-1.4E-03
Benzene	-3.50E-07	-1.58E-06	2.90E-02	1.02E-01	NA	1.71E-02	-2.92E-09	-1.13E-09	-9.73E-09	NA	NA	NA
1,3-Butadiene	-1.52E-11	-6.44E-11	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-7.43E-13	-2.70E-13	-2.48E-12	-2.6E-08	-9.3E-09	-7.3E-09
Formaldehyde	-2.77E-07	-9.98E-07	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-4.78E-10	-1.48E-10	-1.59E-09	-1.3E-06	-4.1E-07	-3.8E-07
Xylene (total)	-5.53E-07	-2.36E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.7E-07	-9.7E-08	-7.6E-08
PAHs												
Benzo(a)pyrene (TEFs)	-3.59E-11	-1.54E-10	3.10E+00	3.85E+00	NA	NA	-1.14E-11	-4.16E-12	-3.79E-11	NA	NA	NA
Naphthalene	-7.50E-08	-3.14E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-8.4E-05	-3.0E-05	-2.4E-05
Dioxins												
TCDD equivalents	-2.09E-14	-8.66E-14	1.50E+05	1.33E+05	NA	1.10E-08	-2.29E-10	-8.11E-11	-7.62E-10	NA	NA	NA
Diesel												
Diesel PM	-6.63E-07	-4.07E-06	NA	1.10E+00	1.43E-03	NA	-6.00E-08	-3.15E-08	-2.00E-07	-4.5E-04	-2.3E-04	-1.3E-04
Metals												
Arsenic	-3.02E-12	2.63E-12	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-2.86E-12	2.14E-13	-9.54E-12	-9.6E-09	7.2E-10	-2.8E-09
Beryllium	1.25E-12	1.01E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	8.66E-13	5.98E-13	2.89E-12	2.1E-07	1.5E-07	6.0E-08
Cadmium	-2.84E-11	-1.30E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-3.43E-11	-1.34E-11	-1.14E-10	-4.8E-07	-1.9E-07	-1.4E-07
Chromium (VI)	2.61E-13	2.05E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.09E-11	7.37E-12	3.64E-11	8.7E-09	5.9E-09	2.5E-09
Manganese	-5.21E-11	9.20E-10	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-3.5E-06	5.3E-06	-1.0E-06
						Total	-6.4E-08	-3.3E-08	-2.1E-07	-5.61E-03	-1.92E-03	-1.60E-03
NA = Not Available							TOTAL HI for Respiratory Effects			-5.53E-03	-1.89E-03	-1.58E-03

Source: Camp Dresser & McKee Inc., 2003.

Table A-22

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Pre-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.98E-06	8.98E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.97E-09	5.98E-10	2.32E-08	3.3E-03	2.9E-04	9.6E-04
Acrolein	7.18E-07	7.18E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	1.2E-01	1.0E-02	3.4E-02
Benzene	1.61E-05	1.61E-05	2.90E-02	1.02E-01	NA	1.71E-02	1.34E-07	1.15E-08	4.48E-07	NA	NA	NA
1,3-Butadiene	4.13E-06	4.13E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.02E-07	1.73E-08	6.74E-07	6.9E-03	6.0E-04	2.0E-03
Formaldehyde	2.31E-05	2.31E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.98E-08	3.41E-09	1.33E-07	1.1E-04	9.5E-06	3.2E-05
Xylene (total)	4.79E-05	4.79E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	2.3E-05	2.0E-06	6.6E-06
PAHs												
Benzo(a)pyrene (TEFs)	8.30E-10	8.30E-10	3.10E+00	3.85E+00	NA	NA	2.63E-10	2.25E-11	8.76E-10	NA	NA	NA
Naphthalene	1.45E-06	1.45E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.6E-03	1.4E-04	4.6E-04
Dioxins												
TCDD equivalents	2.08E-12	2.08E-12	1.50E+05	1.33E+05	NA	1.10E-08	2.28E-08	1.95E-09	7.59E-08	NA	NA	NA
Diesel												
Diesel PM	-2.83E-05	-2.83E-05	NA	1.10E+00	1.43E-03	NA	-2.56E-06	-2.20E-07	-8.54E-06	-1.9E-02	-1.6E-03	-5.4E-03
Metals												
Arsenic	-1.11E-11	-1.11E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-1.06E-11	-9.07E-13	-3.53E-11	-3.6E-08	-3.1E-09	-1.0E-08
Beryllium	1.33E-11	1.33E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	9.21E-12	7.90E-13	3.07E-11	2.2E-06	1.9E-07	6.4E-07
Cadmium	-8.94E-10	-8.94E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-1.08E-09	-9.26E-11	-3.60E-09	-1.5E-05	-1.3E-06	-4.3E-06
Chromium (VI)	2.75E-12	2.75E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.15E-10	9.87E-12	3.84E-10	9.2E-08	7.9E-09	2.6E-08
Manganese	1.36E-08	1.36E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	9.1E-04	7.8E-05	2.6E-04
						Total	-2.2E-06	-1.8E-07	-7.2E-06	0.11	0.01	0.03
NA = Not Available							TOTAL HI for Respiratory Effects			0.1	0.01	0.03

Source: Camp Dresser & McKee Inc., 2003.

Table A-23

Incremental Risk Calculation for Alternative C, Horizon Year 2005, Post-Mitigation Conditions, 1996 Baseline Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	4.90E-08	1.73E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	3.80E-11	1.15E-11	1.27E-10	1.8E-05	5.5E-06	5.2E-06
Acrolein	1.71E-08	4.35E-08	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	2.9E-03	6.3E-04	8.2E-04
Benzene	-7.20E-08	-3.85E-07	2.90E-02	1.02E-01	NA	1.71E-02	-6.00E-10	-2.75E-10	-2.00E-09	NA	NA	NA
1,3-Butadiene	1.05E-08	8.38E-09	9.80E-01	5.95E-01	5.71E-04	2.29E-03	5.15E-10	3.51E-11	1.72E-09	1.8E-05	1.2E-06	5.1E-06
Formaldehyde	1.67E-07	5.63E-07	4.55E-02	2.10E-02	2.00E-01	5.71E-04	2.87E-10	8.33E-11	9.58E-10	8.0E-07	2.3E-07	2.3E-07
Xylene (total)	1.58E-08	1.65E-07	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	7.6E-09	6.8E-09	2.2E-09
PAHs												
Benzo(a)pyrene (TEFs)	1.97E-12	1.14E-11	3.10E+00	3.85E+00	NA	NA	6.22E-13	3.09E-13	2.07E-12	NA	NA	NA
Naphthalene	5.39E-08	2.80E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	6.0E-05	2.7E-05	1.7E-05
Dioxins												
TCDD equivalents	-3.98E-15	-1.43E-14	1.50E+05	1.33E+05	NA	1.10E-08	-4.35E-11	-1.34E-11	-1.45E-10	NA	NA	NA
Diesel												
Diesel PM	-3.76E-07	-2.26E-06	NA	1.10E+00	1.43E-03	NA	-3.40E-08	-1.75E-08	-1.13E-07	-2.5E-04	-1.3E-04	-7.2E-05
Metals												
Arsenic	-2.06E-11	-1.11E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-1.96E-11	-9.03E-12	-6.52E-11	-6.6E-08	-3.0E-08	-1.9E-08
Beryllium	-5.70E-12	-2.91E-11	8.40E+00	7.00E+00	5.70E-06	2.86E-07	-3.28E-12	-1.44E-12	-1.09E-11	-9.6E-07	-4.2E-07	-2.7E-07
Cadmium	-2.25E-10	-1.05E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-2.72E-10	-1.09E-10	-9.06E-10	-3.8E-06	-1.5E-06	-1.1E-06
Chromium (VI)	-1.15E-12	-5.83E-12	4.20E+01	5.25E+02	2.86E-05	2.29E-07	-4.95E-11	-2.16E-11	-1.65E-10	-3.8E-08	-1.7E-08	-1.1E-08
Manganese	-6.56E-10	-3.63E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-4.4E-05	-2.1E-05	-1.3E-05
						Total	-3.4E-08	-1.8E-08	-1.1E-07	0.003	5.08E-04	7.65E-04
NA = Not Available							TOTAL HI for Respiratory Effects			0.003	4.82E-04	7.44E-04

Source: Camp Dresser & McKee Inc., 2003.

Table A-24

Incremental Risk Calculation for Alternative C, Horizon Year 2005, Post-Mitigation Conditions, 1996 Baseline Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	2.99E-05	1.41E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	2.32E-08	9.38E-10	7.75E-08	1.1E-02	4.5E-04	3.2E-03
Acrolein	1.41E-05	6.21E-06	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	2.4E+00	9.0E-02	6.8E-01
Benzene	-3.05E-05	3.44E-06	2.90E-02	1.02E-01	NA	1.71E-02	-2.54E-07	2.46E-09	-8.48E-07	NA	NA	NA
1,3-Butadiene	1.04E-05	7.27E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	5.10E-07	3.05E-08	1.70E-06	1.8E-02	1.0E-03	5.0E-03
Formaldehyde	1.02E-04	4.85E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	1.77E-07	7.17E-09	5.89E-07	4.9E-04	2.0E-05	1.4E-04
Xylene (total)	-2.92E-05	1.04E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.4E-05	4.3E-07	-4.0E-06
PAHs												
Benzo(a)pyrene (TEFs)	3.93E-09	3.20E-09	3.10E+00	3.85E+00	NA	NA	1.24E-09	8.69E-11	4.15E-09	NA	NA	NA
Naphthalene	2.13E-05	9.12E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	2.4E-02	8.7E-04	6.8E-03
Dioxins												
TCDD equivalents	-1.31E-12	4.62E-13	1.50E+05	1.33E+05	NA	1.10E-08	-1.43E-08	4.33E-10	-4.76E-08	NA	NA	NA
Diesel												
Diesel PM	-1.01E-04	-2.28E-05	NA	1.10E+00	1.43E-03	NA	-9.14E-06	-1.77E-07	-3.05E-05	-6.8E-02	-1.3E-03	-1.9E-02
Metals												
Arsenic	4.97E-09	2.36E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	4.72E-09	1.92E-10	1.57E-08	1.6E-05	6.5E-07	4.5E-06
Beryllium	1.10E-09	5.61E-10	8.40E+00	7.00E+00	5.70E-06	2.86E-07	6.32E-10	2.77E-11	2.11E-09	1.8E-04	8.1E-06	5.3E-05
Cadmium	-2.80E-08	-1.16E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-3.39E-08	-1.20E-09	-1.13E-07	-4.7E-04	-1.7E-05	-1.3E-04
Chromium (VI)	2.10E-10	1.11E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	9.08E-09	4.11E-10	3.03E-08	7.1E-06	3.2E-07	2.0E-06
Manganese	3.60E-07	1.42E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	2.4E-02	8.2E-04	6.9E-03
						Total	-8.7E-06	-1.4E-07	-2.9E-05	2.4	0.09	0.68
NA = Not Available							TOTAL HI for Respiratory Effects			2.3	0.09	0.67

Source: Camp Dresser & McKee Inc., 2003.

Table A-25

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Post-Mitigation Conditions, 1996 Baseline (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.87E-06	1.87E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	1.45E-09	1.25E-10	4.85E-09	7.0E-04	6.0E-05	2.0E-04
Acrolein	-1.45E-06	-1.45E-06	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-2.4E-01	-2.1E-02	-7.0E-02
Benzene	7.06E-06	7.06E-06	2.90E-02	1.02E-01	NA	1.71E-02	5.89E-08	5.05E-09	1.96E-07	NA	NA	NA
1,3-Butadiene	2.48E-08	2.48E-08	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.21E-09	1.04E-10	4.04E-09	4.2E-05	3.6E-06	1.2E-05
Formaldehyde	2.03E-06	2.03E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.51E-09	3.01E-10	1.17E-08	9.7E-06	8.4E-07	2.8E-06
Xylene (total)	2.63E-05	2.63E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.3E-05	1.1E-06	3.6E-06
PAHs												
Benzo(a)pyrene (TEFs)	2.81E-11	2.81E-11	3.10E+00	3.85E+00	NA	NA	8.89E-12	7.62E-13	2.96E-11	NA	NA	NA
Naphthalene	-3.29E-07	-3.29E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-3.7E-04	-3.2E-05	-1.1E-04
Dioxins												
TCDD equivalents	1.18E-12	1.18E-12	1.50E+05	1.33E+05	NA	1.10E-08	1.29E-08	1.11E-09	4.30E-08	NA	NA	NA
Diesel												
Diesel PM	1.62E-06	1.62E-06	NA	1.10E+00	1.43E-03	NA	1.46E-07	1.25E-08	4.87E-07	1.1E-03	9.3E-05	3.1E-04
Metals												
Arsenic	-1.07E-10	-1.07E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-1.01E-10	-8.69E-12	-3.38E-10	-3.4E-07	-2.9E-08	-9.8E-08
Beryllium	-1.32E-10	-1.32E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-9.12E-11	-7.82E-12	-3.04E-10	-2.2E-05	-1.9E-06	-6.3E-06
Cadmium	8.07E-11	8.07E-11	6.30E+00	1.47E+01	5.71E-05	2.86E-06	9.76E-11	8.36E-12	3.25E-10	1.4E-06	1.2E-07	3.9E-07
Chromium (VI)	-2.62E-11	-2.62E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-1.10E-09	-9.40E-11	-3.65E-09	-8.8E-07	-7.5E-08	-2.5E-07
Manganese	1.64E-09	1.64E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	1.1E-04	9.4E-06	3.1E-05
						Total	2.23E-07	1.9E-08	7.4E-07	-2.42E-01	-2.07E-02	-6.91E-02
							TOTAL HI for Respiratory Effects			-2.41E-01	-2.07E-02	-6.90E-02

NA = Not Available

Source: Camp Dresser & McKee Inc., 2003.

Table A-26

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-1.79E-07	-8.90E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-1.39E-10	-5.92E-11	-4.63E-10	-6.7E-05	-2.8E-05	-1.9E-05
Acrolein	-9.84E-08	-5.36E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-1.7E-02	-7.7E-03	-4.7E-03
Benzene	-2.52E-07	-1.12E-06	2.90E-02	1.02E-01	NA	1.71E-02	-2.10E-09	-8.02E-10	-7.01E-09	NA	NA	NA
1,3-Butadiene	-1.44E-07	-7.39E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-7.04E-09	-3.10E-09	-2.35E-08	-2.4E-04	-1.1E-04	-6.9E-05
Formaldehyde	-6.34E-07	-3.22E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-1.09E-09	-4.76E-10	-3.65E-09	-3.0E-06	-1.3E-06	-8.7E-07
Xylene (total)	-2.26E-07	-6.63E-07	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.1E-07	-2.7E-08	-3.1E-08
PAHs												
Benzo(a)pyrene (TEFs)	-4.43E-11	-2.14E-10	3.10E+00	3.85E+00	NA	NA	-1.40E-11	-5.81E-12	-4.68E-11	NA	NA	NA
Naphthalene	-9.44E-08	-4.75E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-1.1E-04	-4.6E-05	-3.0E-05
Dioxins												
TCDD equivalents	-7.89E-15	-1.54E-14	1.50E+05	1.33E+05	NA	1.10E-08	-8.63E-11	-1.45E-11	-2.88E-10	NA	NA	NA
Diesel												
Diesel PM	-2.50E-07	-1.09E-06	NA	1.10E+00	1.43E-03	NA	-2.26E-08	-8.47E-09	-7.53E-08	-1.7E-04	-6.3E-05	-4.8E-05
Metals												
Arsenic	-2.23E-11	-9.13E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-2.12E-11	-7.43E-12	-7.07E-11	-7.1E-08	-2.5E-08	-2.0E-08
Beryllium	-7.06E-12	-3.50E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-4.88E-12	-2.07E-12	-1.63E-11	-1.2E-06	-5.0E-07	-3.4E-07
Cadmium	-3.76E-11	-1.41E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-4.55E-11	-1.46E-11	-1.52E-10	-6.3E-07	-2.0E-07	-1.8E-07
Chromium (VI)	-1.39E-12	-6.89E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-5.83E-11	-2.48E-11	-1.94E-10	-4.7E-08	-2.0E-08	-1.3E-08
Manganese	-1.02E-09	-3.80E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-6.8E-05	-2.2E-05	-1.9E-05
						Total	-3.3E-08	-1.3E-08	-1.1E-07	-1.72E-02	-7.99E-03	-4.92E-03
NA = Not Available							TOTAL HI for Respiratory Effects			-1.69E-02	-7.84E-03	-4.82E-03

Source: Camp Dresser & McKee Inc., 2003.

Table A-27

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	6.97E-05	4.41E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	5.41E-08	2.94E-09	1.80E-07	2.6E-02	1.4E-03	7.4E-03
Acrolein	2.57E-05	1.87E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	4.3E+00	2.7E-01	1.2E+00
Benzene	1.37E-04	7.27E-05	2.90E-02	1.02E-01	NA	1.71E-02	1.14E-06	5.20E-08	3.81E-06	NA	NA	NA
1,3-Butadiene	4.64E-05	3.05E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.27E-06	1.28E-07	7.56E-06	7.8E-02	4.4E-03	2.2E-02
Formaldehyde	2.46E-04	1.55E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	4.24E-07	2.29E-08	1.41E-06	1.2E-03	6.4E-05	3.4E-04
Xylene (total)	1.71E-04	8.75E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	8.2E-05	3.6E-06	2.3E-05
PAHs												
Benzo(a)pyrene (TEFs)	2.47E-08	1.59E-08	3.10E+00	3.85E+00	NA	NA	7.82E-09	4.31E-10	2.61E-08	NA	NA	NA
Naphthalene	2.82E-05	2.33E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.2E-02	2.2E-03	9.0E-03
Dioxins												
TCDD equivalents	8.24E-12	4.54E-12	1.50E+05	1.33E+05	NA	1.10E-08	9.01E-08	4.26E-09	3.00E-07	NA	NA	NA
Diesel												
Diesel PM	2.44E-04	1.14E-04	NA	1.10E+00	1.43E-03	NA	2.21E-05	8.82E-07	7.36E-05	1.6E-01	6.5E-03	4.7E-02
Metals												
Arsenic	1.90E-08	1.26E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.80E-08	1.02E-09	6.00E-08	6.1E-05	3.4E-06	1.7E-05
Beryllium	2.66E-09	2.51E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.84E-09	1.49E-10	6.12E-09	4.5E-04	3.6E-05	1.3E-04
Cadmium	4.20E-08	2.56E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	5.08E-08	2.65E-09	1.69E-07	7.1E-04	3.7E-05	2.0E-04
Chromium (VI)	5.37E-10	5.03E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	2.25E-08	1.81E-09	7.50E-08	1.8E-05	1.4E-06	5.1E-06
Manganese	1.07E-06	6.66E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	7.2E-02	3.8E-03	2.0E-02
						Total	2.6E-05	1.1E-06	8.7E-05	4.69	0.29	1.34
NA = Not Available							TOTAL HI for Respiratory Effects			4.6	0.28	1.31

Source: Camp Dresser & McKee Inc., 2003.

Table A-28

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	9.99E-05	4.01E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	7.76E-08	2.67E-09	2.59E-07	3.7E-02	1.3E-03	1.1E-02
Acrolein	3.33E-05	1.82E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	5.6E+00	2.6E-01	1.6E+00
Benzene	1.75E-04	5.41E-05	2.90E-02	1.02E-01	NA	1.71E-02	1.46E-06	3.87E-08	4.87E-06	NA	NA	NA
1,3-Butadiene	6.38E-05	2.76E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	3.12E-06	1.16E-07	1.04E-05	1.1E-01	4.0E-03	3.1E-02
Formaldehyde	3.27E-04	1.38E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	5.64E-07	2.04E-08	1.88E-06	1.6E-03	5.7E-05	4.5E-04
Xylene (total)	2.92E-04	6.40E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.4E-04	2.6E-06	4.0E-05
PAHs												
Benzo(a)pyrene (TEFs)	2.93E-08	1.46E-08	3.10E+00	3.85E+00	NA	NA	9.27E-09	3.97E-10	3.09E-08	NA	NA	NA
Naphthalene	4.25E-05	2.52E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	4.8E-02	2.4E-03	1.4E-02
Dioxins												
TCDD equivalents	1.38E-11	3.68E-12	1.50E+05	1.33E+05	NA	1.10E-08	1.51E-07	3.44E-09	5.02E-07	NA	NA	NA
Diesel												
Diesel PM	1.94E-04	7.04E-05	NA	1.10E+00	1.43E-03	NA	1.76E-05	5.45E-07	5.86E-05	1.3E-01	4.0E-03	3.7E-02
Metals												
Arsenic	1.94E-08	1.24E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.84E-08	1.01E-09	6.15E-08	6.2E-05	3.4E-06	1.8E-05
Beryllium	3.84E-09	2.86E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	2.21E-09	1.41E-10	7.36E-09	6.5E-04	4.1E-05	1.8E-04
Cadmium	3.99E-08	2.44E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	4.82E-08	2.53E-09	1.61E-07	6.7E-04	3.5E-05	1.9E-04
Chromium (VI)	7.69E-10	5.68E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	3.32E-08	2.10E-09	1.11E-07	2.6E-05	1.6E-06	7.4E-06
Manganese	1.05E-06	6.24E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	7.1E-02	3.6E-03	2.0E-02
						Total	2.3E-05	7.3E-07	7.7E-05	6.0	0.28	1.71
NA = Not Available							TOTAL HI for Respiratory Effects			5.8	0.27	1.67

Source: Camp Dresser & McKee Inc., 2003.

Table A-29

Incremental Risk Calculation for Alternative A, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	4.01E-06	4.01E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	3.12E-09	2.67E-10	1.04E-08	1.5E-03	1.3E-04	4.3E-04
Acrolein	-1.11E-08	-1.11E-08	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-1.9E-03	-1.6E-04	-5.4E-04
Benzene	7.60E-06	7.60E-06	2.90E-02	1.02E-01	NA	1.71E-02	6.34E-08	5.44E-09	2.11E-07	NA	NA	NA
1,3-Butadiene	1.40E-06	1.40E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	6.85E-08	5.87E-09	2.28E-07	2.4E-03	2.0E-04	6.7E-04
Formaldehyde	9.60E-06	9.60E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	1.66E-08	1.42E-09	5.53E-08	4.6E-05	3.9E-06	1.3E-05
Xylene (total)	2.47E-05	2.47E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.2E-05	1.0E-06	3.4E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.16E-09	1.16E-09	3.10E+00	3.85E+00	NA	NA	3.67E-10	3.15E-11	1.22E-09	NA	NA	NA
Naphthalene	2.50E-06	2.50E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	2.8E-03	2.4E-04	8.0E-04
Dioxins												
TCDD equivalents	1.13E-12	1.13E-12	1.50E+05	1.33E+05	NA	1.10E-08	1.24E-08	1.06E-09	4.12E-08	NA	NA	NA
Diesel												
Diesel PM	1.97E-05	1.97E-05	NA	1.10E+00	1.43E-03	NA	1.78E-06	1.52E-07	5.93E-06	1.3E-02	1.1E-03	3.8E-03
Metals												
Arsenic	7.72E-10	7.72E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	7.33E-10	6.28E-11	2.44E-09	2.5E-06	2.1E-07	7.1E-07
Beryllium	1.42E-11	1.42E-11	8.40E+00	7.00E+00	5.70E-06	2.86E-07	8.19E-12	7.02E-13	2.73E-11	2.4E-06	2.1E-07	6.8E-07
Cadmium	-8.27E-11	-8.27E-11	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-1.00E-10	-8.57E-12	-3.33E-10	-1.4E-06	-1.2E-07	-4.0E-07
Chromium (VI)	2.75E-12	2.75E-12	4.20E+01	5.25E+02	2.86E-05	2.29E-07	1.19E-10	1.02E-11	3.96E-10	9.2E-08	7.9E-09	2.6E-08
Manganese	4.61E-08	4.61E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	3.1E-03	2.6E-04	8.8E-04
						Total	1.9E-06	1.7E-07	6.5E-06	0.021	0.002	0.006
NA = Not Available							TOTAL HI for Respiratory Effects			0.016	0.001	0.005

Source: Camp Dresser & McKee Inc., 2003.

Table A-30

Incremental Risk Calculation for Alternative A, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	4.64E-05	2.44E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	3.60E-08	1.62E-09	1.20E-07	1.7E-02	7.8E-04	4.9E-03
Acrolein	2.17E-05	1.07E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	3.7E+00	1.5E-01	1.0E+00
Benzene	-2.06E-05	-1.66E-05	2.90E-02	1.02E-01	NA	1.71E-02	-1.71E-07	-1.19E-08	-5.72E-07	NA	NA	NA
1,3-Butadiene	2.05E-05	9.25E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.00E-06	3.88E-08	3.35E-06	3.5E-02	1.3E-03	9.9E-03
Formaldehyde	1.40E-04	7.09E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	2.42E-07	1.05E-08	8.06E-07	6.7E-04	2.9E-05	1.9E-04
Xylene (total)	-2.57E-05	-1.52E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.2E-05	-6.2E-07	-3.5E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.68E-08	1.02E-08	3.10E+00	3.85E+00	NA	NA	5.31E-09	2.75E-10	1.77E-08	NA	NA	NA
Naphthalene	4.79E-05	3.03E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	5.4E-02	2.9E-03	1.5E-02
Dioxins												
TCDD equivalents	5.80E-13	3.81E-13	1.50E+05	1.33E+05	NA	1.10E-08	6.34E-09	3.57E-10	2.11E-08	NA	NA	NA
Diesel												
Diesel PM	-1.02E-04	-7.33E-05	NA	1.10E+00	1.43E-03	NA	-9.21E-06	-5.68E-07	-3.07E-05	-6.8E-02	-4.2E-03	-2.0E-02
Metals												
Arsenic	1.73E-08	9.86E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.65E-08	8.03E-10	5.48E-08	5.5E-05	2.7E-06	1.6E-05
Beryllium	4.39E-09	2.42E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	2.52E-09	1.20E-10	8.42E-09	7.4E-04	3.5E-05	2.1E-04
Cadmium	-6.97E-09	-1.58E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-8.42E-09	-1.64E-09	-2.81E-08	-1.2E-04	-2.3E-05	-3.3E-05
Chromium (VI)	8.65E-10	4.77E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	3.73E-08	1.76E-09	1.24E-07	2.9E-05	1.4E-06	8.3E-06
Manganese	9.91E-07	5.82E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	6.6E-02	3.3E-03	1.9E-02
						Total	-8.0E-06	-5.3E-07	-2.7E-05	3.8	0.16	1.07
NA = Not Available							TOTAL HI for Respiratory Effects			3.7	0.15	1.05

Source: Camp Dresser & McKee Inc., 2003.

Table A-31

Incremental Risk Calculation for Alternative B, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	1.50E+01	m3/day	6	m3/day	20	m3/day
Exposure Frequency	3.50E+02	days/year	200	days/year	350	days/year
Exposure Duration	6.00E+00	years	6	years	70	years
Body Weight	1.50E+01	kg	40	kg	70	kg
Averaging Time (Carcinogen)	2.56E+04	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2.19E+03	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	5.26E-05	2.82E-05	0.0077	0.00945	0.00257	0.00257	4.08E-08	1.87E-09	1.36E-07	0.019611	0.0009	0.005603
Acrolein	2.45E-05	1.25E-05	NA	NA	5.7E-06	5.71E-06	NA	NA	NA	4.127096	0.180792	1.17917
Benzene	3.89E-05	2.27E-05	0.029	0.1015	NA	0.0171	3.25E-07	1.62E-08	1.08E-06	NA	NA	NA
1,3-Butadiene	3.25E-05	1.71E-05	0.98	0.595	0.000571	0.00229	1.59E-06	7.17E-08	5.3E-06	0.054579	0.002462	0.015594
Formaldehyde	1.71E-04	9.06E-05	0.0455	0.021	0.2	0.000571	2.95E-07	1.34E-08	9.83E-07	0.000819	3.72E-05	0.000234
Xylene (total)	4.78E-05	3.24E-05	NA	NA	2	0.0571	NA	NA	NA	2.29E-05	1.33E-06	6.55E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.54E-08	8.93E-09	3.1	3.85	NA	NA	4.88E-09	2.42E-10	1.63E-08	NA	NA	NA
Naphthalene	3.25E-05	1.86E-05	NA	NA	0.000857	0.00257	NA	NA	NA	0.036371	0.001788	0.010392
Dioxins												
TCDD equivalents	3.00E-12	2.01E-12	150000	133000	NA	1.1E-08	3.28E-08	1.89E-09	1.09E-07	NA	NA	NA
Diesel												
Diesel PM	1.51E-06	9.85E-06	NA	1.1	0.00143	NA	1.36E-07	7.63E-08	4.54E-07	0.001011	0.000566	0.000289
Metals												
Arsenic	1.49E-08	8.58E-09	15.05	11.55	0.0003	8.57E-06	1.41E-08	6.98E-10	4.7E-08	4.75E-05	2.35E-06	1.36E-05
Beryllium	3.68E-09	2.05E-09	8.4	7	5.7E-06	2.86E-07	2.11E-09	1.01E-10	7.05E-09	0.000618	2.96E-05	0.000177
Cadmium	2.32E-08	1.35E-08	6.3	14.7	5.71E-05	2.86E-06	2.8E-08	1.39E-09	9.33E-08	0.000389	1.94E-05	0.000111
Chromium (VI)	7.31E-10	4.08E-10	42	525	2.86E-05	2.29E-07	3.15E-08	1.51E-09	1.05E-07	2.45E-05	1.17E-06	7E-06
Manganese	7.73E-07	4.48E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	0.051851	0.002573	0.014814
						Total	2.5E-06	1.85E-07	8.33E-06	4.292439	0.189173	1.226411
NA = Not Available							TOTAL HI for Respiratory Effects			4.20103	0.184899	1.200294

Source: Camp Dresser & McKee Inc., 2003.

Table A-32

Incremental Risk Calculation for Alternative B, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.31E-04	2.82E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	1.02E-07	1.87E-09	3.39E-07	4.9E-02	9.0E-04	1.4E-02
Acrolein	6.51E-05	1.25E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	1.1E+01	1.8E-01	3.1E+00
Benzene	3.14E-05	2.27E-05	2.90E-02	1.02E-01	NA	1.71E-02	2.62E-07	1.62E-08	8.73E-07	NA	NA	NA
1,3-Butadiene	7.43E-05	1.71E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	3.63E-06	7.17E-08	1.21E-05	1.2E-01	2.5E-03	3.6E-02
Formaldehyde	4.21E-04	9.06E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	7.27E-07	1.34E-08	2.42E-06	2.0E-03	3.7E-05	5.8E-04
Xylene (total)	7.90E-06	3.24E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	3.8E-06	1.3E-06	1.1E-06
PAHs												
Benzo(a)pyrene (TEFs)	3.66E-08	8.93E-09	3.10E+00	3.85E+00	NA	NA	1.16E-08	2.42E-10	3.86E-08	NA	NA	NA
Naphthalene	8.98E-05	1.86E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.0E-01	1.8E-03	2.9E-02
Dioxins												
TCDD equivalents	2.39E-12	2.01E-12	1.50E+05	1.33E+05	NA	1.10E-08	2.61E-08	1.89E-09	8.71E-08	NA	NA	NA
Diesel												
Diesel PM	-7.30E-05	9.85E-06	NA	1.10E+00	1.43E-03	NA	-6.60E-06	7.63E-08	-2.20E-05	-4.9E-02	5.7E-04	-1.4E-02
Metals												
Arsenic	3.31E-08	8.58E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	3.15E-08	6.98E-10	1.05E-07	1.1E-04	2.4E-06	3.0E-05
Beryllium	9.08E-09	2.05E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	5.22E-09	1.01E-10	1.74E-08	1.5E-03	3.0E-05	4.4E-04
Cadmium	1.88E-08	1.35E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.27E-08	1.39E-09	7.56E-08	3.2E-04	1.9E-05	9.0E-05
Chromium (VI)	1.80E-09	4.08E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	7.76E-08	1.51E-09	2.59E-07	6.0E-05	1.2E-06	1.7E-05
Manganese	1.76E-06	4.48E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	1.2E-01	2.6E-03	3.4E-02
						Total	-1.7E-06	1.9E-07	-5.7E-06	11.3	0.19	3.23
NA = Not Available							TOTAL HI for Respiratory Effects			11.1	0.18	3.16

Source: Camp Dresser & McKee Inc., 2003.

Table A-33

Incremental Risk Calculation for Alternative C, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.18E-04	1.17E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	9.19E-08	7.79E-11	3.06E-07	4.4E-02	3.7E-05	1.3E-02
Acrolein	5.50E-05	4.85E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	9.2E+00	7.0E-03	2.6E+00
Benzene	3.46E-05	3.43E-07	2.90E-02	1.02E-01	NA	1.71E-02	2.88E-07	2.45E-10	9.61E-07	NA	NA	NA
1,3-Butadiene	6.46E-05	6.02E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	3.16E-06	2.52E-09	1.05E-05	1.1E-01	8.7E-05	3.1E-02
Formaldehyde	3.74E-04	3.53E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	6.45E-07	5.23E-10	2.15E-06	1.8E-03	1.5E-06	5.1E-04
Xylene (total)	4.43E-05	1.09E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	2.1E-05	4.5E-08	6.1E-06
PAHs												
Benzo(a)pyrene (TEFs)	3.70E-08	4.77E-10	3.10E+00	3.85E+00	NA	NA	1.17E-08	1.29E-11	3.90E-08	NA	NA	NA
Naphthalene	8.97E-05	1.25E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.0E-01	1.2E-04	2.9E-02
Dioxins												
TCDD equivalents	4.73E-12	7.18E-14	1.50E+05	1.33E+05	NA	1.10E-08	5.18E-08	6.72E-11	1.73E-07	NA	NA	NA
Diesel												
Diesel PM	-4.87E-05	-1.41E-06	NA	1.10E+00	1.43E-03	NA	-4.40E-06	-1.09E-08	-1.47E-05	-3.3E-02	-8.1E-05	-9.3E-03
Metals												
Arsenic	3.76E-08	3.52E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	3.57E-08	2.86E-11	1.19E-07	1.2E-04	9.6E-08	3.4E-05
Beryllium	9.11E-09	7.85E-11	8.40E+00	7.00E+00	5.70E-06	2.86E-07	5.24E-09	3.87E-12	1.75E-08	1.5E-03	1.1E-06	4.4E-04
Cadmium	2.76E-08	-3.05E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	3.33E-08	-3.16E-11	1.11E-07	4.6E-04	-4.4E-07	1.3E-04
Chromium (VI)	1.80E-09	1.55E-11	4.20E+01	5.25E+02	2.86E-05	2.29E-07	7.78E-08	5.75E-11	2.59E-07	6.0E-05	4.5E-08	1.7E-05
Manganese	2.04E-06	2.04E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	1.4E-01	1.2E-04	3.9E-02
						Total	2.8E-09	-7.4E-09	9.3E-09	9.609	0.01	2.75
NA = Not Available							TOTAL HI for Respiratory Effects			9.399	0.01	2.69

Source: Camp Dresser & McKee Inc., 2003.

Table A-34

Incremental Risk Calculation for Alternative C, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.24E-04	4.66E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	9.66E-08	3.10E-09	3.22E-07	4.6E-02	1.5E-03	1.3E-02
Acrolein	5.85E-05	2.17E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	9.8E+00	3.1E-01	2.8E+00
Benzene	3.52E-05	4.26E-06	2.90E-02	1.02E-01	NA	1.71E-02	2.94E-07	3.05E-09	9.79E-07	NA	NA	NA
1,3-Butadiene	6.84E-05	2.44E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	3.34E-06	1.02E-07	1.11E-05	1.1E-01	3.5E-03	3.3E-02
Formaldehyde	3.94E-04	1.45E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	6.81E-07	2.15E-08	2.27E-06	1.9E-03	6.0E-05	5.4E-04
Xylene (total)	3.86E-05	8.07E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.9E-05	3.3E-07	5.3E-06
PAHs												
Benzo(a)pyrene (TEFs)	3.92E-08	1.55E-08	3.10E+00	3.85E+00	NA	NA	1.24E-08	4.19E-10	4.14E-08	NA	NA	NA
Naphthalene	9.47E-05	4.09E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.1E-01	3.9E-03	3.0E-02
Dioxins												
TCDD equivalents	4.65E-12	1.24E-12	1.50E+05	1.33E+05	NA	1.10E-08	5.08E-08	1.16E-09	1.69E-07	NA	NA	NA
Diesel												
Diesel PM	-5.29E-05	-5.51E-05	NA	1.10E+00	1.43E-03	NA	-4.79E-06	-4.27E-07	-1.60E-05	-3.5E-02	-3.2E-03	-1.0E-02
Metals												
Arsenic	3.97E-08	1.38E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	3.77E-08	1.13E-09	1.26E-07	1.3E-04	3.8E-06	3.6E-05
Beryllium	9.69E-09	3.28E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	5.57E-09	1.62E-10	1.86E-08	1.6E-03	4.7E-05	4.7E-04
Cadmium	3.02E-08	-2.22E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	3.65E-08	-2.30E-10	1.22E-07	5.1E-04	-3.2E-06	1.4E-04
Chromium (VI)	1.92E-09	6.48E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	8.28E-08	2.40E-09	2.76E-07	6.4E-05	1.9E-06	1.8E-05
Manganese	2.14E-06	7.78E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	1.4E-01	4.5E-03	4.1E-02
						Total	-1.4E-07	-2.9E-07	-4.8E-07	10.2	0.32	2.92
NA = Not Available							TOTAL HI for Respiratory Effects			10.0	0.32	2.86

Source: Camp Dresser & McKee Inc., 2003.

Table A-35

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.03E-06	8.03E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.24E-09	5.35E-10	2.08E-08	3.0E-03	2.6E-04	8.6E-04
Acrolein	-7.83E-07	-7.83E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-1.3E-01	-1.1E-02	-3.8E-02
Benzene	2.07E-05	2.07E-05	2.90E-02	1.02E-01	NA	1.71E-02	1.73E-07	1.48E-08	5.76E-07	NA	NA	NA
1,3-Butadiene	3.47E-06	3.47E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.69E-07	1.45E-08	5.65E-07	5.8E-03	5.0E-04	1.7E-03
Formaldehyde	1.86E-05	1.86E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.21E-08	2.75E-09	1.07E-07	8.9E-05	7.6E-06	2.5E-05
Xylene (total)	6.19E-05	6.19E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	3.0E-05	2.5E-06	8.5E-06
PAHs												
Benzo(a)pyrene (TEFs)	8.47E-10	8.47E-10	3.10E+00	3.85E+00	NA	NA	2.68E-10	2.30E-11	8.93E-10	NA	NA	NA
Naphthalene	1.13E-06	1.13E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.3E-03	1.1E-04	3.6E-04
Dioxins												
TCDD equivalents	2.69E-12	2.69E-12	1.50E+05	1.33E+05	NA	1.10E-08	2.95E-08	2.53E-09	9.82E-08	NA	NA	NA
Diesel												
Diesel PM	3.48E-06	3.48E-06	NA	1.10E+00	1.43E-03	NA	3.15E-07	2.70E-08	1.05E-06	2.3E-03	2.0E-04	6.7E-04
Metals												
Arsenic	-1.01E-10	-1.01E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-9.55E-11	-8.19E-12	-3.18E-10	-3.2E-07	-2.8E-08	-9.2E-08
Beryllium	-1.49E-10	-1.49E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-1.03E-10	-8.83E-12	-3.43E-10	-2.5E-05	-2.2E-06	-7.2E-06
Cadmium	1.70E-10	1.70E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.06E-10	1.76E-11	6.86E-10	2.9E-06	2.5E-07	8.2E-07
Chromium (VI)	-2.96E-11	-2.96E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-1.24E-09	-1.06E-10	-4.13E-09	-9.9E-07	-8.5E-08	-2.8E-07
Manganese	5.99E-09	5.99E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	4.0E-04	3.4E-05	1.1E-04
						Total	7.2E-07	6.2E-08	2.4E-06	-1.19E-01	-1.02E-02	-3.39E-02
NA = Not Available							TOTAL HI for Respiratory Effects			-1.26E-01	-1.08E-02	-3.60E-02

Source: Camp Dresser & McKee Inc., 2003.

Table A-36

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Post-Mitigation Conditions, 1996 Baseline
(Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-1.69E-07	-7.98E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-1.31E-10	-5.31E-11	-4.38E-10	-6.3E-05	-2.6E-05	-1.8E-05
Acrolein	-1.01E-07	-5.45E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-1.7E-02	-7.9E-03	-4.9E-03
Benzene	-2.17E-07	-8.62E-07	2.90E-02	1.02E-01	NA	1.71E-02	-1.81E-09	-6.16E-10	-6.04E-09	NA	NA	NA
1,3-Butadiene	-1.41E-07	-6.99E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-6.88E-09	-2.93E-09	-2.29E-08	-2.4E-04	-1.0E-04	-6.7E-05
Formaldehyde	-6.13E-07	-3.00E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-1.06E-09	-4.44E-10	-3.53E-09	-2.9E-06	-1.2E-06	-8.4E-07
Xylene (total)	-1.29E-07	5.28E-08	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-6.2E-08	2.2E-09	-1.8E-08
PAHs												
Benzo(a)pyrene (TEFs)	-4.38E-11	-2.08E-10	3.10E+00	3.85E+00	NA	NA	-1.38E-11	-5.64E-12	-4.62E-11	NA	NA	NA
Naphthalene	-9.56E-08	-4.74E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-1.1E-04	-4.5E-05	-3.1E-05
Dioxins												
TCDD equivalents	-4.16E-15	1.34E-14	1.50E+05	1.33E+05	NA	1.10E-08	-4.54E-11	1.26E-11	-1.51E-10	NA	NA	NA
Diesel												
Diesel PM	-2.36E-07	-1.04E-06	NA	1.10E+00	1.43E-03	NA	-2.13E-08	-8.04E-09	-7.10E-08	-1.6E-04	-6.0E-05	-4.5E-05
Metals												
Arsenic	-2.38E-11	-9.92E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-2.26E-11	-8.07E-12	-7.52E-11	-7.6E-08	-2.7E-08	-2.2E-08
Beryllium	-8.21E-12	-4.04E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	-5.67E-12	-2.39E-12	-1.89E-11	-1.4E-06	-5.8E-07	-3.9E-07
Cadmium	-3.87E-11	-1.48E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-4.67E-11	-1.53E-11	-1.56E-10	-6.5E-07	-2.1E-07	-1.9E-07
Chromium (VI)	-1.62E-12	-7.98E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	-6.78E-11	-2.87E-11	-2.26E-10	-5.4E-08	-2.3E-08	-1.6E-08
Manganese	-1.03E-09	-3.91E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-6.9E-05	-2.2E-05	-2.0E-05
						Total	-3.1E-08	-1.2E-08	-1.0E-07	-1.77E-02	-8.12E-03	-5.06E-03
NA = Not Available							TOTAL HI for Respiratory Effects			-1.74E-02	-7.97E-03	-4.96E-03

Source: Camp Dresser & McKee Inc., 2003.

Table A-37

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2005, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	9.21E-05	5.41E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	7.15E-08	3.60E-09	2.38E-07	3.4E-02	1.7E-03	9.8E-03
Acrolein	3.38E-05	2.61E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	5.7E+00	3.8E-01	1.6E+00
Benzene	1.15E-04	3.85E-05	2.90E-02	1.02E-01	NA	1.71E-02	9.61E-07	2.75E-08	3.20E-06	NA	NA	NA
1,3-Butadiene	5.83E-05	3.41E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.85E-06	1.43E-07	9.50E-06	9.8E-02	4.9E-03	2.8E-02
Formaldehyde	2.84E-04	1.77E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	4.90E-07	2.62E-08	1.63E-06	1.4E-03	7.3E-05	3.9E-04
Xylene (total)	2.38E-04	4.16E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	1.1E-04	1.7E-06	3.3E-05
PAHs												
Benzo(a)pyrene (TEFs)	1.26E-08	8.19E-09	3.10E+00	3.85E+00	NA	NA	4.00E-09	2.22E-10	1.33E-08	NA	NA	NA
Naphthalene	2.78E-05	1.71E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.1E-02	1.6E-03	8.9E-03
Dioxins												
TCDD equivalents	9.77E-12	1.56E-12	1.50E+05	1.33E+05	NA	1.10E-08	1.07E-07	1.47E-09	3.56E-07	NA	NA	NA
Diesel												
Diesel PM	1.15E-05	-1.26E-06	NA	1.10E+00	1.43E-03	NA	1.04E-06	-9.77E-09	3.47E-06	7.7E-03	-7.3E-05	2.2E-03
Metals												
Arsenic	7.32E-09	7.67E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	6.95E-09	6.24E-10	2.32E-08	2.3E-05	2.1E-06	6.7E-06
Beryllium	2.45E-09	2.19E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.69E-09	1.30E-10	5.65E-09	4.1E-04	3.2E-05	1.2E-04
Cadmium	1.15E-08	1.21E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	1.39E-08	1.26E-09	4.64E-08	1.9E-04	1.7E-05	5.5E-05
Chromium (VI)	4.88E-10	4.35E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	2.05E-08	1.56E-09	6.82E-08	1.6E-05	1.3E-06	4.7E-06
Manganese	3.47E-07	3.83E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	2.3E-02	2.2E-03	6.7E-03
						Total	5.6E-06	2.0E-07	1.9E-05	5.89	0.39	1.68
NA = Not Available							TOTAL HI for Respiratory Effects			5.8	0.38	1.65

Source: Camp Dresser & McKee Inc., 2003.

Table A-38

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2005, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.17E-05	5.41E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.35E-08	3.60E-09	2.12E-07	3.0E-02	1.7E-03	8.7E-03
Acrolein	4.03E-05	2.61E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	6.8E+00	3.8E-01	1.9E+00
Benzene	5.43E-05	3.85E-05	2.90E-02	1.02E-01	NA	1.71E-02	4.53E-07	2.75E-08	1.51E-06	NA	NA	NA
1,3-Butadiene	5.14E-05	3.41E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.52E-06	1.43E-07	8.39E-06	8.6E-02	4.9E-03	2.5E-02
Formaldehyde	2.69E-04	1.77E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	4.65E-07	2.62E-08	1.55E-06	1.3E-03	7.3E-05	3.7E-04
Xylene (total)	5.03E-05	4.16E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	2.4E-05	1.7E-06	6.9E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.34E-08	8.19E-09	3.10E+00	3.85E+00	NA	NA	4.23E-09	2.22E-10	1.41E-08	NA	NA	NA
Naphthalene	2.80E-05	1.71E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.1E-02	1.6E-03	8.9E-03
Dioxins												
TCDD equivalents	1.90E-12	1.56E-12	1.50E+05	1.33E+05	NA	1.10E-08	2.08E-08	1.47E-09	6.94E-08	NA	NA	NA
Diesel												
Diesel PM	-2.84E-06	-1.26E-06	NA	1.10E+00	1.43E-03	NA	-2.57E-07	-9.77E-09	-8.55E-07	-1.9E-03	-7.3E-05	-5.4E-04
Metals												
Arsenic	1.24E-08	7.67E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.18E-08	6.24E-10	3.94E-08	4.0E-05	2.1E-06	1.1E-05
Beryllium	3.51E-09	2.19E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	2.42E-09	1.30E-10	8.08E-09	5.9E-04	3.2E-05	1.7E-04
Cadmium	1.97E-08	1.21E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.39E-08	1.26E-09	7.95E-08	3.3E-04	1.7E-05	9.5E-05
Chromium (VI)	6.98E-10	4.35E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	2.93E-08	1.56E-09	9.75E-08	2.3E-05	1.3E-06	6.7E-06
Manganese	6.24E-07	3.83E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	4.2E-02	2.2E-03	1.2E-02
						Total	3.3E-06	2.0E-07	1.1E-05	6.97	0.39	1.99
NA = Not Available							TOTAL HI for Respiratory Effects			6.8	0.38	1.96

Source: Camp Dresser & McKee Inc., 2003.

Table A-39

Incremental Risk Calculation for Alternative C, Horizon Year 2005, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.22E-07	6.44E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	9.45E-11	4.28E-11	3.15E-10	4.5E-05	2.1E-05	1.3E-05
Acrolein	7.85E-08	4.26E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	1.3E-02	6.1E-03	3.8E-03
Benzene	-3.31E-07	-1.71E-06	2.90E-02	1.02E-01	NA	1.71E-02	-2.76E-09	-1.22E-09	-9.20E-09	NA	NA	NA
1,3-Butadiene	2.90E-08	1.75E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.42E-09	7.32E-10	4.73E-09	4.9E-05	2.5E-05	1.4E-05
Formaldehyde	4.04E-07	2.13E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	6.97E-10	3.15E-10	2.32E-09	1.9E-06	8.7E-07	5.5E-07
Xylene (total)	-5.43E-07	-2.84E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.6E-07	-1.2E-07	-7.4E-08
PAHs												
Benzo(a)pyrene (TEFs)	-2.53E-12	1.40E-11	3.10E+00	3.85E+00	NA	NA	-8.02E-13	3.80E-13	-2.67E-12	NA	NA	NA
Naphthalene	6.80E-08	4.17E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	7.6E-05	4.0E-05	2.2E-05
Dioxins												
TCDD equivalents	-2.73E-14	-1.39E-13	1.50E+05	1.33E+05	NA	1.10E-08	-2.98E-10	-1.30E-10	-9.93E-10	NA	NA	NA
Diesel												
Diesel PM	-1.07E-06	-6.67E-06	NA	1.10E+00	1.43E-03	NA	-9.66E-08	-5.17E-08	-3.22E-07	-7.2E-04	-3.8E-04	-2.0E-04
Metals												
Arsenic	-8.59E-12	-2.37E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-8.16E-12	-1.93E-12	-2.72E-11	-2.7E-08	-6.5E-09	-7.8E-09
Beryllium	2.30E-12	2.05E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.59E-12	1.22E-12	5.29E-12	3.9E-07	3.0E-07	1.1E-07
Cadmium	-2.38E-10	-1.10E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-2.88E-10	-1.14E-10	-9.59E-10	-4.0E-06	-1.6E-06	-1.1E-06
Chromium (VI)	4.41E-13	4.02E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.85E-11	1.45E-11	6.17E-11	1.5E-08	1.2E-08	4.2E-09
Manganese	-1.16E-10	6.30E-10	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-7.8E-06	3.6E-06	-2.2E-06
						Total	-9.8E-08	-5.2E-08	-3.3E-07	0.013	0.006	0.004
NA = Not Available							TOTAL HI for Respiratory Effects			0.013	0.006	0.004

Source: Camp Dresser & McKee Inc., 2003.

Table A-40

Incremental Risk Calculation for Alternative C, Horizon Year 2005, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.45E-05	2.00E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	1.12E-08	1.33E-09	3.75E-08	5.4E-03	6.4E-04	1.5E-03
Acrolein	1.99E-05	1.07E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	3.3E+00	1.5E-01	9.5E-01
Benzene	-1.69E-04	-1.22E-05	2.90E-02	1.02E-01	NA	1.71E-02	-1.41E-06	-8.75E-09	-4.71E-06	NA	NA	NA
1,3-Butadiene	-9.03E-06	9.27E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-4.42E-07	3.88E-08	-1.47E-06	-1.5E-02	1.3E-03	-4.3E-03
Formaldehyde	5.80E-05	6.76E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	1.00E-07	1.00E-08	3.34E-07	2.8E-04	2.8E-05	7.9E-05
Xylene (total)	-3.19E-04	-2.44E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.5E-04	-1.0E-06	-4.4E-05
PAHs												
Benzo(a)pyrene (TEFs)	-4.10E-09	2.38E-09	3.10E+00	3.85E+00	NA	NA	-1.30E-09	6.45E-11	-4.32E-09	NA	NA	NA
Naphthalene	1.24E-05	8.93E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.4E-02	8.6E-04	4.0E-03
Dioxins												
TCDD equivalents	-1.38E-11	-1.16E-12	1.50E+05	1.33E+05	NA	1.10E-08	-1.51E-07	-1.08E-09	-5.02E-07	NA	NA	NA
Diesel												
Diesel PM	-2.76E-04	-6.42E-05	NA	1.10E+00	1.43E-03	NA	-2.50E-05	-4.98E-07	-8.33E-05	-1.9E-01	-3.7E-03	-5.3E-02
Metals												
Arsenic	1.77E-09	2.08E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.68E-09	1.70E-10	5.61E-09	5.7E-06	5.7E-07	1.6E-06
Beryllium	1.96E-09	8.72E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.35E-09	5.16E-11	4.51E-09	3.3E-04	1.3E-05	9.4E-05
Cadmium	-4.14E-08	-1.56E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-5.00E-08	-1.62E-09	-1.67E-07	-7.0E-04	-2.2E-05	-2.0E-04
Chromium (VI)	3.79E-10	1.75E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.59E-08	6.29E-10	5.30E-08	1.3E-05	5.0E-07	3.6E-06
Manganese	1.31E-07	1.42E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	8.8E-03	8.2E-04	2.5E-03
						Total	-2.7E-05	-4.6E-07	-9.0E-05	3.17	0.15	0.91
NA = Not Available							TOTAL HI for Respiratory Effects			3.2	0.15	0.91

Source: Camp Dresser & McKee Inc., 2003.

Table A-41

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-1.00E-07	-4.19E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-7.80E-11	-2.79E-11	-2.60E-10	-3.7E-05	-1.3E-05	-1.1E-05
Acrolein	-3.65E-08	-1.53E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-6.1E-03	-2.2E-03	-1.8E-03
Benzene	-4.96E-07	-2.44E-06	2.90E-02	1.02E-01	NA	1.71E-02	-4.14E-09	-1.75E-09	-1.38E-08	NA	NA	NA
1,3-Butadiene	-1.23E-07	-5.73E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-5.99E-09	-2.40E-09	-2.00E-08	-2.1E-04	-8.2E-05	-5.9E-05
Formaldehyde	-3.80E-07	-1.65E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-6.56E-10	-2.45E-10	-2.19E-09	-1.8E-06	-6.8E-07	-5.2E-07
Xylene (total)	-7.56E-07	-3.67E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-3.6E-07	-1.5E-07	-1.0E-07
PAHs												
Benzo(a)pyrene (TEFs)	-4.58E-11	-2.11E-10	3.10E+00	3.85E+00	NA	NA	-1.45E-11	-5.73E-12	-4.83E-11	NA	NA	NA
Naphthalene	-7.75E-08	-3.38E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-8.7E-05	-3.2E-05	-2.5E-05
Dioxins												
TCDD equivalents	-2.90E-14	-1.40E-13	1.50E+05	1.33E+05	NA	1.10E-08	-3.17E-10	-1.31E-10	-1.06E-09	NA	NA	NA
Diesel												
Diesel PM	-9.33E-07	-5.50E-06	NA	1.10E+00	1.43E-03	NA	-8.43E-08	-4.26E-08	-2.81E-07	-6.3E-04	-3.2E-04	-1.8E-04
Metals												
Arsenic	-4.15E-12	-4.08E-12	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-3.94E-12	-3.32E-13	-1.31E-11	-1.3E-08	-1.1E-09	-3.8E-09
Beryllium	2.14E-12	1.47E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	1.48E-12	8.69E-13	4.92E-12	3.6E-07	2.1E-07	1.0E-07
Cadmium	-3.99E-11	-1.91E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-4.82E-11	-1.98E-11	-1.61E-10	-6.7E-07	-2.8E-07	-1.9E-07
Chromium (VI)	4.36E-13	2.96E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.83E-11	1.07E-11	6.10E-11	1.5E-08	8.5E-09	4.2E-09
Manganese	-1.25E-10	4.66E-10	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-8.4E-06	2.7E-06	-2.4E-06
						Total	-9.6E-08	-4.7E-08	-3.2E-07	-7.11E-03	-2.65E-03	-2.03E-03
NA = Not Available							TOTAL HI for Respiratory Effects			-6.82E-03	-2.54E-03	-1.95E-03

Source: Camp Dresser & McKee Inc., 2003.

Table A-42

Incremental Risk Calculation for Alternative D, Horizon Year 2013, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-3.18E-07	-3.18E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-2.47E-10	-2.11E-11	-8.22E-10	-1.2E-04	-1.0E-05	-3.4E-05
Acrolein	4.54E-07	4.54E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	7.6E-02	6.5E-03	2.2E-02
Benzene	-1.80E-05	-1.80E-05	2.90E-02	1.02E-01	NA	1.71E-02	-1.50E-07	-1.29E-08	-5.01E-07	NA	NA	NA
1,3-Butadiene	-2.58E-06	-2.58E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-1.26E-07	-1.08E-08	-4.20E-07	-4.3E-03	-3.7E-04	-1.2E-03
Formaldehyde	-3.04E-06	-3.04E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-5.24E-09	-4.49E-10	-1.75E-08	-1.5E-05	-1.2E-06	-4.2E-06
Xylene (total)	-2.93E-05	-2.93E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.4E-05	-1.2E-06	-4.0E-06
PAHs												
Benzo(a)pyrene (TEFs)	-1.38E-09	-1.38E-09	3.10E+00	3.85E+00	NA	NA	-4.35E-10	-3.73E-11	-1.45E-09	NA	NA	NA
Naphthalene	-1.77E-06	-1.77E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-2.0E-03	-1.7E-04	-5.7E-04
Dioxins												
TCDD equivalents	-1.23E-12	-1.23E-12	1.50E+05	1.33E+05	NA	1.10E-08	-1.34E-08	-1.15E-09	-4.48E-08	NA	NA	NA
Diesel												
Diesel PM	-3.71E-05	-3.71E-05	NA	1.10E+00	1.43E-03	NA	-3.36E-06	-2.88E-07	-1.12E-05	-2.5E-02	-2.1E-03	-7.1E-03
Metals												
Arsenic	-1.57E-10	-1.57E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-1.49E-10	-1.27E-11	-4.96E-10	-5.0E-07	-4.3E-08	-1.4E-07
Beryllium	1.23E-10	1.23E-10	8.40E+00	8.40E+00	5.70E-06	2.86E-07	8.49E-11	7.28E-12	2.83E-10	2.1E-05	1.8E-06	5.9E-06
Cadmium	-1.92E-09	-1.92E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-2.32E-09	-1.99E-10	-7.73E-09	-3.2E-05	-2.8E-06	-9.2E-06
Chromium (VI)	2.53E-11	2.53E-11	4.20E+01	5.10E+02	2.86E-05	2.29E-07	1.06E-09	9.09E-11	3.53E-09	8.5E-07	7.3E-08	2.4E-07
Manganese	-1.48E-09	-1.48E-09	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-9.9E-05	-8.5E-06	-2.8E-05
						Total	-3.7E-06	-3.1E-07	-1.2E-05	0.04	0.004	0.01
NA = Not Available							TOTAL HI for Respiratory Effects			0.1	0.004	0.01

Source: Camp Dresser & McKee Inc., 2003.

Table A-43

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	6.17E-05	5.49E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	4.79E-08	3.66E-09	1.60E-07	2.3E-02	1.8E-03	6.6E-03
Acrolein	3.39E-05	2.85E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	5.7E+00	4.1E-01	1.6E+00
Benzene	6.81E-06	2.25E-05	2.90E-02	1.02E-01	NA	1.71E-02	5.68E-08	1.61E-08	1.89E-07	NA	NA	NA
1,3-Butadiene	3.47E-05	3.29E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.70E-06	1.38E-07	5.65E-06	5.8E-02	4.7E-03	1.7E-02
Formaldehyde	2.12E-04	1.85E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.66E-07	2.73E-08	1.22E-06	1.0E-03	7.6E-05	2.9E-04
Xylene (total)	-5.42E-05	-5.18E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.6E-05	-2.1E-07	-7.4E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.55E-08	1.30E-08	3.10E+00	3.85E+00	NA	NA	4.90E-09	3.52E-10	1.63E-08	NA	NA	NA
Naphthalene	2.77E-05	2.49E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.1E-02	2.4E-03	8.9E-03
Dioxins												
TCDD equivalents	-1.30E-12	5.09E-13	1.50E+05	1.33E+05	NA	1.10E-08	-1.42E-08	4.77E-10	-4.73E-08	NA	NA	NA
Diesel												
Diesel PM	-1.65E-06	-8.30E-06	NA	1.10E+00	1.43E-03	NA	-1.49E-07	-6.43E-08	-4.96E-07	-1.1E-03	-4.8E-04	-3.2E-04
Metals												
Arsenic	1.53E-08	1.25E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.45E-08	1.01E-09	4.84E-08	4.9E-05	3.4E-06	1.4E-05
Beryllium	4.42E-09	3.65E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	3.05E-09	2.16E-10	1.02E-08	7.4E-04	5.3E-05	2.1E-04
Cadmium	2.41E-08	1.72E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.91E-08	1.78E-09	9.69E-08	4.0E-04	2.5E-05	1.2E-04
Chromium (VI)	8.82E-10	7.31E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	3.70E-08	2.63E-09	1.23E-07	3.0E-05	2.1E-06	8.4E-06
Manganese	7.69E-07	6.62E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	5.2E-02	3.8E-03	1.5E-02
						Total	2.1E-06	1.3E-07	7.0E-06	5.87	0.42	1.68
NA = Not Available							TOTAL HI for Respiratory Effects			5.8	0.42	1.65

Source: Camp Dresser & McKee Inc., 2003.

Table A-44

Incremental Risk Calculation for No Action/No Project Alternative, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.50E-05	5.49E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.60E-08	3.66E-09	2.20E-07	3.2E-02	1.8E-03	9.1E-03
Acrolein	4.43E-05	2.85E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	7.4E+00	4.1E-01	2.1E+00
Benzene	3.91E-05	2.25E-05	2.90E-02	1.02E-01	NA	1.71E-02	3.26E-07	1.61E-08	1.09E-06	NA	NA	NA
1,3-Butadiene	5.17E-05	3.29E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.53E-06	1.38E-07	8.43E-06	8.7E-02	4.7E-03	2.5E-02
Formaldehyde	2.89E-04	1.85E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	5.00E-07	2.73E-08	1.67E-06	1.4E-03	7.6E-05	4.0E-04
Xylene (total)	-3.51E-06	-5.18E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.7E-06	-2.1E-07	-4.8E-07
PAHs												
Benzo(a)pyrene (TEFs)	2.13E-08	1.30E-08	3.10E+00	3.85E+00	NA	NA	6.73E-09	3.52E-10	2.24E-08	NA	NA	NA
Naphthalene	4.25E-05	2.49E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	4.8E-02	2.4E-03	1.4E-02
Dioxins												
TCDD equivalents	7.60E-13	5.09E-13	1.50E+05	1.33E+05	NA	1.10E-08	8.31E-09	4.77E-10	2.77E-08	NA	NA	NA
Diesel												
Diesel PM	-8.28E-05	-8.30E-06	NA	1.10E+00	1.43E-03	NA	-7.49E-06	-6.43E-08	-2.50E-05	-5.6E-02	-4.8E-04	-1.6E-02
Metals												
Arsenic	1.96E-08	1.25E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.86E-08	1.01E-09	6.19E-08	6.3E-05	3.4E-06	1.8E-05
Beryllium	5.56E-09	3.65E-09	8.40E+00	8.40E+00	5.70E-06	2.86E-07	3.84E-09	2.16E-10	1.28E-08	9.4E-04	5.3E-05	2.7E-04
Cadmium	2.89E-08	1.72E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	3.49E-08	1.78E-09	1.16E-07	4.9E-04	2.5E-05	1.4E-04
Chromium (VI)	1.11E-09	7.31E-10	4.20E+01	5.10E+02	2.86E-05	2.29E-07	4.64E-08	2.63E-09	1.55E-07	3.7E-05	2.1E-06	1.1E-05
Manganese	1.00E-06	6.62E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	6.7E-02	3.8E-03	1.9E-02
						Total	-4.0E-06	1.3E-07	-1.3E-05	7.63	0.42	2.18
NA = Not Available							TOTAL HI for Respiratory Effects			7.5	0.42	2.14

Source: Camp Dresser & McKee Inc., 2003.

Table A-45

Incremental Risk Calculation for Alternative A, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.07E-07	5.91E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	8.30E-11	3.93E-11	2.77E-10	4.0E-05	1.9E-05	1.1E-05
Acrolein	6.90E-08	3.67E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	1.2E-02	5.3E-03	3.3E-03
Benzene	-3.54E-07	-1.75E-06	2.90E-02	1.02E-01	NA	1.71E-02	-2.96E-09	-1.25E-09	-9.86E-09	NA	NA	NA
1,3-Butadiene	1.51E-08	1.03E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	7.40E-10	4.31E-10	2.47E-09	2.5E-05	1.5E-05	7.3E-06
Formaldehyde	3.04E-07	1.68E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	5.25E-10	2.48E-10	1.75E-09	1.5E-06	6.9E-07	4.2E-07
Xylene (total)	-6.02E-07	-2.91E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.9E-07	-1.2E-07	-8.2E-08
PAHs												
Benzo(a)pyrene (TEFs)	2.71E-11	1.68E-10	3.10E+00	3.85E+00	NA	NA	8.59E-12	4.56E-12	2.86E-11	NA	NA	NA
Naphthalene	1.26E-07	7.06E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.4E-04	6.8E-05	4.0E-05
Dioxins												
TCDD equivalents	-2.42E-14	-1.13E-13	1.50E+05	1.33E+05	NA	1.10E-08	-2.64E-10	-1.06E-10	-8.80E-10	NA	NA	NA
Diesel												
Diesel PM	-9.93E-07	-5.81E-06	NA	1.10E+00	1.43E-03	NA	-8.98E-08	-4.50E-08	-2.99E-07	-6.7E-04	-3.3E-04	-1.9E-04
Metals												
Arsenic	2.61E-11	1.60E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	2.47E-11	1.30E-11	8.24E-11	8.3E-08	4.4E-08	2.4E-08
Beryllium	9.40E-12	5.49E-11	8.40E+00	7.00E+00	5.70E-06	2.86E-07	5.41E-12	2.71E-12	1.80E-11	1.6E-06	7.9E-07	4.5E-07
Cadmium	-1.77E-10	-7.64E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-2.14E-10	-7.91E-11	-7.14E-10	-3.0E-06	-1.1E-06	-8.5E-07
Chromium (VI)	1.85E-12	1.09E-11	4.20E+01	5.25E+02	2.86E-05	2.29E-07	8.00E-11	4.02E-11	2.67E-10	6.2E-08	3.1E-08	1.8E-08
Manganese	1.73E-09	1.04E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	1.2E-04	6.0E-05	3.3E-05
						Total	-9.2E-08	-4.6E-08	-3.1E-07	0.011	0.005	0.003
NA = Not Available							TOTAL HI for Respiratory Effects			0.011	0.005	0.003

Source: Camp Dresser & McKee Inc., 2003.

Table A-46

Incremental Risk Calculation for Alternative A, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	3.35E-05	3.24E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	2.60E-08	2.16E-09	8.68E-08	1.3E-02	1.0E-03	3.6E-03
Acrolein	2.75E-05	1.86E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	4.6E+00	2.7E-01	1.3E+00
Benzene	-1.50E-04	-4.43E-05	2.90E-02	1.02E-01	NA	1.71E-02	-1.25E-06	-3.17E-08	-4.17E-06	NA	NA	NA
1,3-Butadiene	3.04E-06	1.23E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.49E-07	5.16E-08	4.96E-07	5.1E-03	1.8E-03	1.5E-03
Formaldehyde	1.03E-04	9.98E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	1.77E-07	1.48E-08	5.91E-07	4.9E-04	4.1E-05	1.4E-04
Xylene (total)	-2.93E-04	-8.42E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.4E-04	-3.5E-06	-4.0E-05
PAHs												
Benzo(a)pyrene (TEFs)	9.47E-09	1.00E-08	3.10E+00	3.85E+00	NA	NA	3.00E-09	2.71E-10	9.99E-09	NA	NA	NA
Naphthalene	4.05E-05	3.15E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	4.5E-02	3.0E-03	1.3E-02
Dioxins												
TCDD equivalents	-1.09E-11	-2.78E-12	1.50E+05	1.33E+05	NA	1.10E-08	-1.19E-07	-2.60E-09	-3.97E-07	NA	NA	NA
Diesel												
Diesel PM	-2.74E-04	-1.60E-04	NA	1.10E+00	1.43E-03	NA	-2.48E-05	-1.24E-06	-8.26E-05	-1.8E-01	-9.2E-03	-5.3E-02
Metals												
Arsenic	1.42E-08	9.52E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.35E-08	7.75E-10	4.51E-08	4.6E-05	2.6E-06	1.3E-05
Beryllium	5.28E-09	3.12E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	3.04E-09	1.54E-10	1.01E-08	8.9E-04	4.5E-05	2.5E-04
Cadmium	-2.00E-08	-1.44E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-2.42E-08	-1.49E-09	-8.07E-08	-3.4E-04	-2.1E-05	-9.6E-05
Chromium (VI)	1.04E-09	6.16E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	4.48E-08	2.28E-09	1.49E-07	3.5E-05	1.8E-06	1.0E-05
Manganese	7.67E-07	5.20E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	5.1E-02	3.0E-03	1.5E-02
						Total	-2.6E-05	-1.2E-06	-8.6E-05	4.6	0.27	1.30
NA = Not Available							TOTAL HI for Respiratory Effects			4.5	0.26	1.29

Source: Camp Dresser & McKee Inc., 2003.

Table A-47

Incremental Risk Calculation for Alternative B, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	5.31E-05	2.86E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	4.12E-08	1.90E-09	1.37E-07	2.0E-02	9.1E-04	5.7E-03
Acrolein	2.51E-05	1.30E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	4.2E+00	1.9E-01	1.2E+00
Benzene	3.66E-05	2.09E-05	2.90E-02	1.02E-01	NA	1.71E-02	3.05E-07	1.50E-08	1.02E-06	NA	NA	NA
1,3-Butadiene	3.27E-05	1.72E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.60E-06	7.23E-08	5.33E-06	5.5E-02	2.5E-03	1.6E-02
Formaldehyde	1.73E-04	9.22E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	2.98E-07	1.36E-08	9.94E-07	8.3E-04	3.8E-05	2.4E-04
Xylene (total)	4.24E-05	2.83E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	2.0E-05	1.2E-06	5.8E-06
PAHs												
Benzo(a)pyrene (TEFs)	1.54E-08	8.91E-09	3.10E+00	3.85E+00	NA	NA	4.87E-09	2.42E-10	1.62E-08	NA	NA	NA
Naphthalene	3.27E-05	1.88E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	3.7E-02	1.8E-03	1.0E-02
Dioxins												
TCDD equivalents	2.77E-12	1.84E-12	1.50E+05	1.33E+05	NA	1.10E-08	3.03E-08	1.72E-09	1.01E-07	NA	NA	NA
Diesel												
Diesel PM	-6.44E-06	4.25E-06	NA	1.10E+00	1.43E-03	NA	-5.82E-07	3.30E-08	-1.94E-06	-4.3E-03	2.4E-04	-1.2E-03
Metals												
Arsenic	1.50E-08	8.66E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	1.42E-08	7.05E-10	4.73E-08	4.8E-05	2.4E-06	1.4E-05
Beryllium	3.75E-09	2.11E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	2.16E-09	1.04E-10	7.19E-09	6.3E-04	3.0E-05	1.8E-04
Cadmium	2.30E-08	1.33E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.78E-08	1.38E-09	9.26E-08	3.9E-04	1.9E-05	1.1E-04
Chromium (VI)	7.45E-10	4.19E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	3.22E-08	1.55E-09	1.07E-07	2.5E-05	1.2E-06	7.1E-06
Manganese	7.78E-07	4.52E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	5.2E-02	2.6E-03	1.5E-02
						Total	1.8E-06	1.4E-07	5.9E-06	4.4	0.20	1.25
NA = Not Available							TOTAL HI for Respiratory Effects			4.3	0.19	1.23

Source: Camp Dresser & McKee Inc., 2003.

Table A-48

Incremental Risk Calculation for Alternative B, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.20E-04	3.24E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	9.31E-08	2.16E-09	3.10E-07	4.5E-02	1.0E-03	1.3E-02
Acrolein	7.15E-05	1.86E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	1.2E+01	2.7E-01	3.4E+00
Benzene	-9.29E-05	-4.43E-05	2.90E-02	1.02E-01	NA	1.71E-02	-7.75E-07	-3.17E-08	-2.58E-06	NA	NA	NA
1,3-Butadiene	5.83E-05	1.23E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.85E-06	5.16E-08	9.50E-06	9.8E-02	1.8E-03	2.8E-02
Formaldehyde	3.90E-04	9.98E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	6.73E-07	1.48E-08	2.24E-06	1.9E-03	4.1E-05	5.3E-04
Xylene (total)	-2.52E-04	-8.42E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.2E-04	-3.5E-06	-3.4E-05
PAHs												
Benzo(a)pyrene (TEFs)	2.94E-08	1.00E-08	3.10E+00	3.85E+00	NA	NA	9.30E-09	2.71E-10	3.10E-08	NA	NA	NA
Naphthalene	8.19E-05	3.15E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	9.2E-02	3.0E-03	2.6E-02
Dioxins												
TCDD equivalents	-8.77E-12	-2.78E-12	1.50E+05	1.33E+05	NA	1.10E-08	-9.58E-08	-2.60E-09	-3.19E-07	NA	NA	NA
Diesel												
Diesel PM	-2.35E-04	-1.60E-04	NA	1.10E+00	1.43E-03	NA	-2.12E-05	-1.24E-06	-7.07E-05	-1.6E-01	-9.2E-03	-4.5E-02
Metals												
Arsenic	3.07E-08	9.52E-09	1.51E+01	1.16E+01	3.00E-04	8.57E-06	2.91E-08	7.75E-10	9.70E-08	9.8E-05	2.6E-06	2.8E-05
Beryllium	9.96E-09	3.12E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	5.73E-09	1.54E-10	1.91E-08	1.7E-03	4.5E-05	4.8E-04
Cadmium	7.14E-09	-1.44E-08	6.30E+00	1.47E+01	5.71E-05	2.86E-06	8.63E-09	-1.49E-09	2.88E-08	1.2E-04	-2.1E-05	3.4E-05
Chromium (VI)	1.97E-09	6.16E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	8.50E-08	2.28E-09	2.83E-07	6.6E-05	1.8E-06	1.9E-05
Manganese	1.58E-06	5.20E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	1.1E-01	3.0E-03	3.0E-02
						Total	-1.8E-05	-1.2E-06	-6.1E-05	12.2	0.27	3.49
NA = Not Available							TOTAL HI for Respiratory Effects			12.0	0.26	3.44

Source: Camp Dresser & McKee Inc., 2003.

Table A-49

Incremental Risk Calculation for Alternative C, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	2.67E-07	1.43E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	2.07E-10	9.51E-11	6.90E-10	9.9E-05	4.6E-05	2.8E-05
Acrolein	1.47E-07	7.75E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	2.5E-02	1.1E-02	7.1E-03
Benzene	-2.38E-07	-1.13E-06	2.90E-02	1.02E-01	NA	1.71E-02	-1.98E-09	-8.11E-10	-6.61E-09	NA	NA	NA
1,3-Butadiene	1.17E-07	6.42E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	5.74E-09	2.69E-09	1.91E-08	2.0E-04	9.2E-05	5.6E-05
Formaldehyde	8.28E-07	4.42E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	1.43E-09	6.54E-10	4.76E-09	4.0E-06	1.8E-06	1.1E-06
Xylene (total)	-4.67E-07	-2.19E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-2.2E-07	-9.0E-08	-6.4E-08
PAHs												
Benzo(a)pyrene (TEFs)	7.46E-11	4.21E-10	3.10E+00	3.85E+00	NA	NA	2.36E-11	1.14E-11	7.87E-11	NA	NA	NA
Naphthalene	2.29E-07	1.25E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	2.6E-04	1.2E-04	7.3E-05
Dioxins												
TCDD equivalents	-1.54E-14	-6.60E-14	1.50E+05	1.33E+05	NA	1.10E-08	-1.68E-10	-6.18E-11	-5.61E-10	NA	NA	NA
Diesel												
Diesel PM	-9.87E-07	-5.88E-06	NA	1.10E+00	1.43E-03	NA	-8.93E-08	-4.56E-08	-2.98E-07	-6.6E-04	-3.4E-04	-1.9E-04
Metals												
Arsenic	7.01E-11	3.96E-10	1.51E+01	1.16E+01	3.00E-04	8.57E-06	6.66E-11	3.22E-11	2.22E-10	2.2E-07	1.1E-07	6.4E-08
Beryllium	2.12E-11	1.18E-10	8.40E+00	7.00E+00	5.70E-06	2.86E-07	1.22E-11	5.83E-12	4.07E-11	3.6E-06	1.7E-06	1.0E-06
Cadmium	-1.06E-10	-3.87E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-1.28E-10	-4.01E-11	-4.28E-10	-1.8E-06	-5.6E-07	-5.1E-07
Chromium (VI)	4.21E-12	2.34E-11	4.20E+01	5.25E+02	2.86E-05	2.29E-07	1.81E-10	8.67E-11	6.05E-10	1.4E-07	6.7E-08	4.0E-08
Manganese	3.97E-09	2.24E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	2.7E-04	1.3E-04	7.6E-05
						Total	-8.4E-08	-4.3E-08	-2.8E-07	0.025	0.01	0.01
NA = Not Available							TOTAL HI for Respiratory Effects			0.024	0.01	0.01

Source: Camp Dresser & McKee Inc., 2003.

Table A-50

Incremental Risk Calculation for Alternative C, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	1.09E-04	4.89E-05	7.70E-03	9.45E-03	2.57E-03	2.57E-03	8.46E-08	3.26E-09	2.82E-07	4.1E-02	1.6E-03	1.2E-02
Acrolein	6.43E-05	2.84E-05	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	1.1E+01	4.1E-01	3.1E+00
Benzene	-1.04E-04	-5.81E-05	2.90E-02	1.02E-01	NA	1.71E-02	-8.65E-07	-4.15E-08	-2.88E-06	NA	NA	NA
1,3-Butadiene	4.89E-05	2.02E-05	9.80E-01	5.95E-01	5.71E-04	2.29E-03	2.39E-06	8.48E-08	7.98E-06	8.2E-02	2.9E-03	2.3E-02
Formaldehyde	3.50E-04	1.53E-04	4.55E-02	2.10E-02	2.00E-01	5.71E-04	6.04E-07	2.26E-08	2.01E-06	1.7E-03	6.3E-05	4.8E-04
Xylene (total)	-2.52E-04	-1.19E-04	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-1.2E-04	-4.9E-06	-3.4E-05
PAHs												
Benzo(a)pyrene (TEFs)	3.12E-08	1.23E-08	3.10E+00	3.85E+00	NA	NA	9.88E-09	3.33E-10	3.29E-08	NA	NA	NA
Naphthalene	8.57E-05	3.88E-05	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	9.6E-02	3.7E-03	2.7E-02
Dioxins												
TCDD equivalents	-7.82E-12	-4.20E-12	1.50E+05	1.33E+05	NA	1.10E-08	-8.55E-08	-3.94E-09	-2.85E-07	NA	NA	NA
Diesel												
Diesel PM	-2.28E-04	-1.58E-04	NA	1.10E+00	1.43E-03	NA	-2.06E-05	-1.23E-06	-6.88E-05	-1.5E-01	-9.1E-03	-4.4E-02
Metals												
Arsenic	3.65E-08	1.35E-08	1.51E+01	1.16E+01	3.00E-04	8.57E-06	3.46E-08	1.10E-09	1.15E-07	1.2E-04	3.7E-06	3.3E-05
Beryllium	1.05E-08	4.13E-09	8.40E+00	7.00E+00	5.70E-06	2.86E-07	6.07E-09	2.04E-10	2.02E-08	1.8E-03	6.0E-05	5.1E-04
Cadmium	1.68E-08	-7.96E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	2.03E-08	-8.25E-10	6.76E-08	2.8E-04	-1.1E-05	8.1E-05
Chromium (VI)	2.09E-09	8.16E-10	4.20E+01	5.25E+02	2.86E-05	2.29E-07	9.01E-08	3.02E-09	3.00E-07	7.0E-05	2.3E-06	2.0E-05
Manganese	1.92E-06	7.33E-07	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	1.3E-01	4.2E-03	3.7E-02
						Total	-1.8E-05	-1.2E-06	-6.1E-05	11.0	0.41	3.15
NA = Not Available							TOTAL HI for Respiratory Effects			10.8	0.41	3.10

Source: Camp Dresser & McKee Inc., 2003.

Table A-51

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Cancer Risks are Greatest)

Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	-9.04E-08	-3.28E-07	7.70E-03	9.45E-03	2.57E-03	2.57E-03	-7.02E-11	-2.18E-11	-2.34E-10	-3.4E-05	-1.0E-05	-9.6E-06
Acrolein	-3.92E-08	-1.63E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	-6.6E-03	-2.3E-03	-1.9E-03
Benzene	-4.64E-07	-2.18E-06	2.90E-02	1.02E-01	NA	1.71E-02	-3.87E-09	-1.56E-09	-1.29E-08	NA	NA	NA
1,3-Butadiene	-1.19E-07	-5.33E-07	9.80E-01	5.95E-01	5.71E-04	2.29E-03	-5.82E-09	-2.23E-09	-1.94E-08	-2.0E-04	-7.7E-05	-5.7E-05
Formaldehyde	-3.59E-07	-1.44E-06	4.55E-02	2.10E-02	2.00E-01	5.71E-04	-6.19E-10	-2.12E-10	-2.06E-09	-1.7E-06	-5.9E-07	-4.9E-07
Xylene (total)	-6.64E-07	-2.95E-06	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	-3.2E-07	-1.2E-07	-9.1E-08
PAHs												
Benzo(a)pyrene (TEFs)	-4.57E-11	-2.05E-10	3.10E+00	3.85E+00	NA	NA	-1.45E-11	-5.57E-12	-4.82E-11	NA	NA	NA
Naphthalene	-7.92E-08	-3.37E-07	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	-8.9E-05	-3.2E-05	-2.5E-05
Dioxins												
TCDD equivalents	-2.55E-14	-1.11E-13	1.50E+05	1.33E+05	NA	1.10E-08	-2.78E-10	-1.04E-10	-9.27E-10	NA	NA	NA
Diesel												
Diesel PM	-9.25E-07	-5.44E-06	NA	1.10E+00	1.43E-03	NA	-8.36E-08	-4.22E-08	-2.79E-07	-6.2E-04	-3.1E-04	-1.8E-04
Metals												
Arsenic	-5.74E-12	-1.20E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-5.45E-12	-9.73E-13	-1.82E-11	-1.8E-08	-3.3E-09	-5.2E-09
Beryllium	1.09E-12	9.25E-12	8.40E+00	8.40E+00	5.70E-06	2.86E-07	7.53E-13	5.47E-13	2.51E-12	1.8E-07	1.3E-07	5.2E-08
Cadmium	-4.14E-11	-1.98E-10	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-5.01E-11	-2.05E-11	-1.67E-10	-7.0E-07	-2.9E-07	-2.0E-07
Chromium (VI)	2.28E-13	1.88E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	9.56E-12	6.76E-12	3.19E-11	7.6E-09	5.4E-09	2.2E-09
Manganese	-1.57E-10	3.49E-10	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	-1.1E-05	2.0E-06	-3.0E-06
						Total	-9.4E-08	-4.6E-08	-3.1E-07	-0.008	-0.003	-0.002
NA = Not Available							TOTAL HI for Respiratory Effects			-0.007	-0.003	-0.002

Source: Camp Dresser & McKee Inc., 2003.

Table A-52

Incremental Risk Calculation for Alternative D, Horizon Year 2015, Post-Mitigation Conditions, Year 2000 Conditions (Based on Location where Hazard Indices Risks are Greatest)

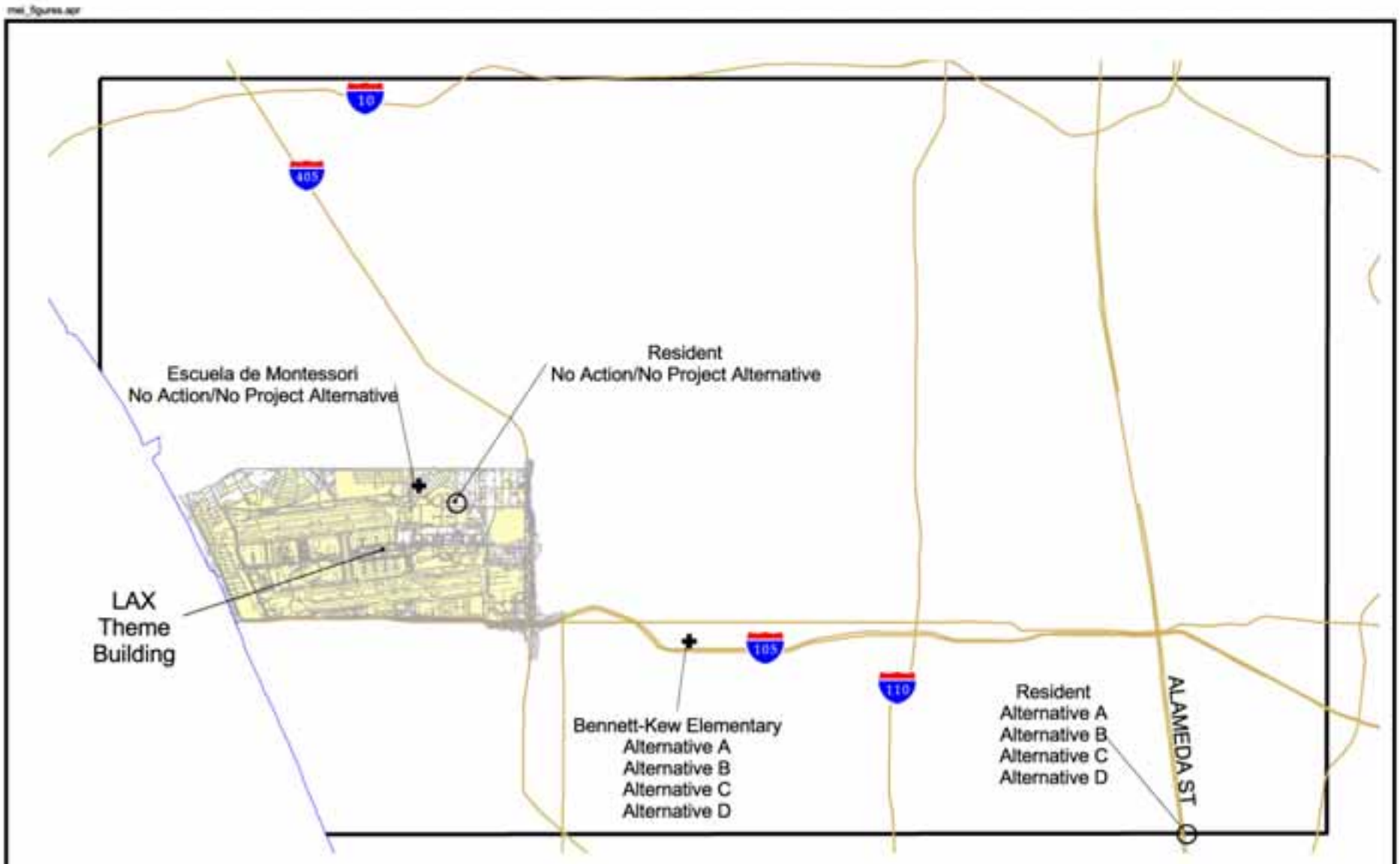
Exposure Parameters	Residential Child		School Child		Residential Adult	
Inhalation Rate	15	m^3/day	6	m^3/day	20	m^3/day
Exposure Frequency	350	days/year	200	days/year	350	days/year
Exposure Duration	6	years	6	years	70	years
Body Weight	15	kg	40	kg	70	kg
Averaging Time (Carcinogen)	25550	days	25550	days	25550	days
Averaging Time (Noncarcinogen)	2190	days	2190	days	25550	days

	Location-Specific Concentrations		Toxicity Criteria				Cancer Risks			Hazard Quotients		
TAP	Concentration at Residence (mg/m^3)	Concentration at School Location (mg/m^3)	EPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	CalEPA Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	EPA RfDi (mg/kg-d)	CalEPA Proposed REL (mg/kg-d)	Cancer Risk to Child Resident	Cancer Risk to School Child	Cancer Risk to Adult Resident	Hazard Quotient - Child Resident	Hazard Quotient - School Child	Hazard Quotient - Adult Resident
VOCs												
Acetaldehyde	8.18E-06	8.18E-06	7.70E-03	9.45E-03	2.57E-03	2.57E-03	6.36E-09	5.45E-10	2.12E-08	3.1E-03	2.6E-04	8.7E-04
Acrolein	4.77E-07	4.77E-07	NA	NA	5.70E-06	5.71E-06	NA	NA	NA	8.0E-02	6.9E-03	2.3E-02
Benzene	1.28E-05	1.28E-05	2.90E-02	1.02E-01	NA	1.71E-02	1.07E-07	9.14E-09	3.56E-07	NA	NA	NA
1,3-Butadiene	3.35E-06	3.35E-06	9.80E-01	5.95E-01	5.71E-04	2.29E-03	1.64E-07	1.40E-08	5.45E-07	5.6E-03	4.8E-04	1.6E-03
Formaldehyde	2.01E-05	2.01E-05	4.55E-02	2.10E-02	2.00E-01	5.71E-04	3.47E-08	2.98E-09	1.16E-07	9.6E-05	8.3E-06	2.8E-05
Xylene (total)	4.29E-05	4.29E-05	NA	NA	2.00E+00	5.71E-02	NA	NA	NA	2.1E-05	1.8E-06	5.9E-06
PAHs												
Benzo(a)pyrene (TEFs)	5.67E-10	5.67E-10	3.10E+00	3.85E+00	NA	NA	1.79E-10	1.54E-11	5.98E-10	NA	NA	NA
Naphthalene	1.24E-06	1.24E-06	NA	NA	8.57E-04	2.57E-03	NA	NA	NA	1.4E-03	1.2E-04	4.0E-04
Dioxins												
TCDD equivalents	1.87E-12	1.87E-12	1.50E+05	1.33E+05	NA	1.10E-08	2.05E-08	1.75E-09	6.82E-08	NA	NA	NA
Diesel												
Diesel PM	-3.36E-05	-3.36E-05	NA	1.10E+00	1.43E-03	NA	-3.04E-06	-2.61E-07	-1.01E-05	-2.3E-02	-1.9E-03	-6.4E-03
Metals												
Arsenic	-7.64E-11	-7.64E-11	1.51E+01	1.16E+01	3.00E-04	8.57E-06	-7.25E-11	-6.21E-12	-2.42E-10	-2.4E-07	-2.1E-08	-7.0E-08
Beryllium	1.02E-11	1.02E-11	8.40E+00	8.40E+00	5.70E-06	2.86E-07	7.05E-12	6.04E-13	2.35E-11	1.7E-06	1.5E-07	4.9E-07
Cadmium	-1.18E-09	-1.18E-09	6.30E+00	1.47E+01	5.71E-05	2.86E-06	-1.42E-09	-1.22E-10	-4.74E-09	-2.0E-05	-1.7E-06	-5.6E-06
Chromium (VI)	2.12E-12	2.12E-12	4.20E+01	5.10E+02	2.86E-05	2.29E-07	8.90E-11	7.63E-12	2.97E-10	7.1E-08	6.1E-09	2.0E-08
Manganese	1.05E-08	1.05E-08	NA	NA	1.43E-05	1.43E-05	NA	NA	NA	7.0E-04	6.0E-05	2.0E-04
						Total	-2.7E-06	-2.3E-07	-9.0E-06	0.07	0.01	0.02
NA = Not Available							TOTAL HI for Respiratory Effects			0.1	0.01	0.02

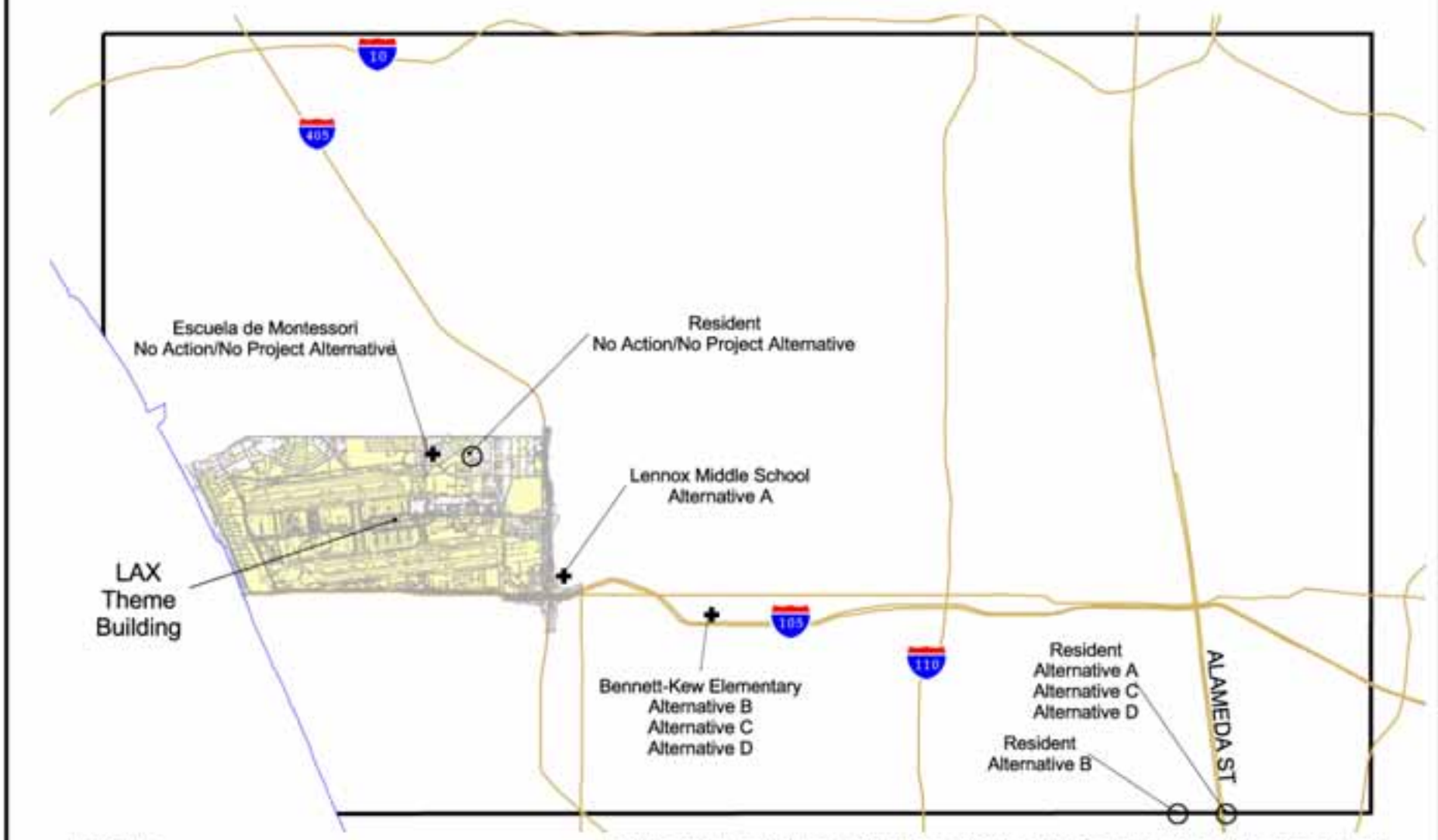
Source: Camp Dresser & McKee Inc., 2003.

Attachment B
Figures Presenting Locations of Maximally Exposed Receptors and Geographical Extent of Incremental Cancer and Non-Cancer Health Hazards

mxl_figures.apr



Location of Maximally Exposed Residents and School children, Interim Year, Pre-Mitigation



Location of Maximally Exposed Residents and School children, Horizon Year 2015, Pre-Mitigation

LEGEND
- Resident
- School Child
- Roads
- Study area
- Airport properties
- Airport boundary

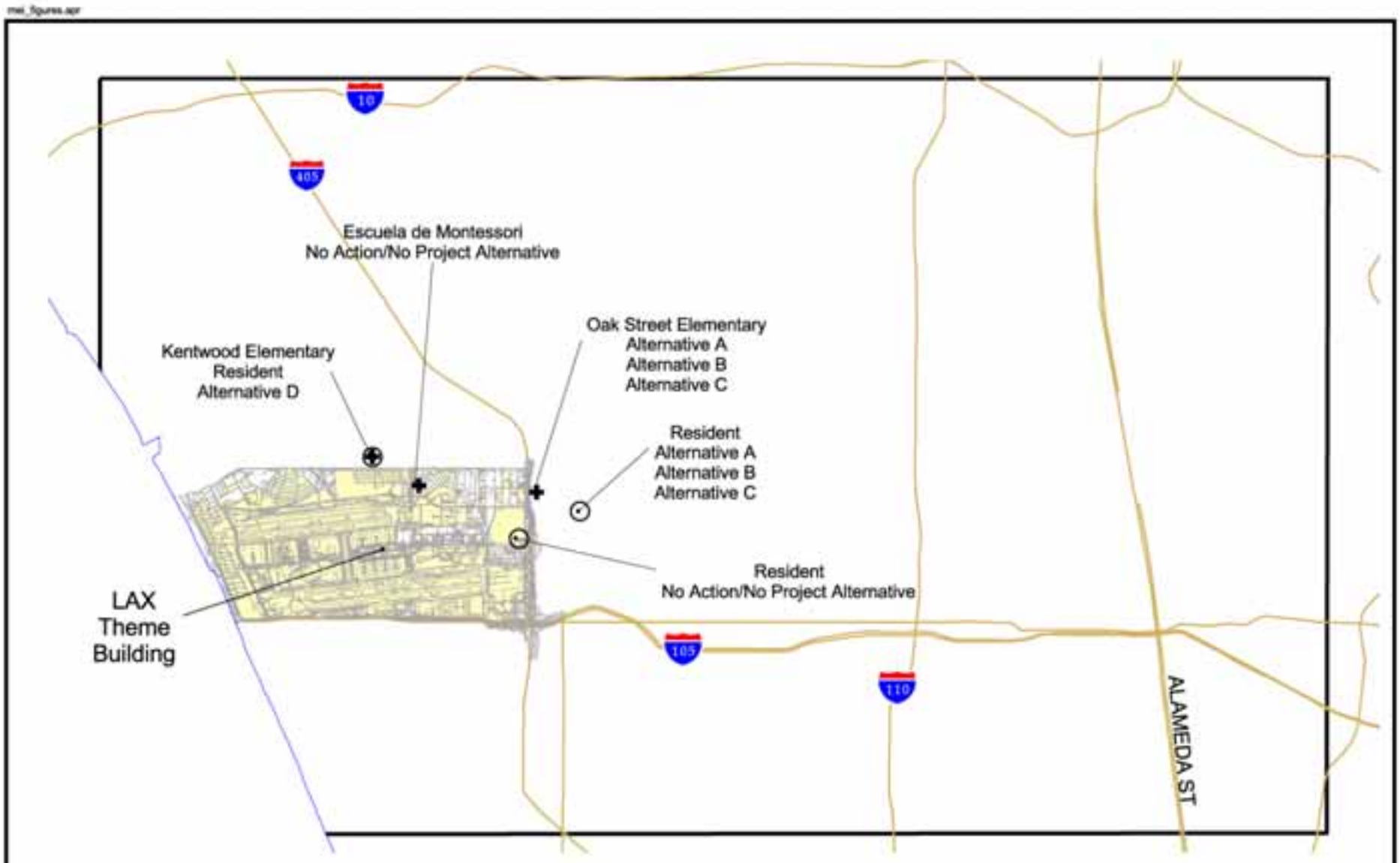
Note: Airport boundary footprint shown is for No Action/No Project Alternative

10000 0 10000 20000 Feet

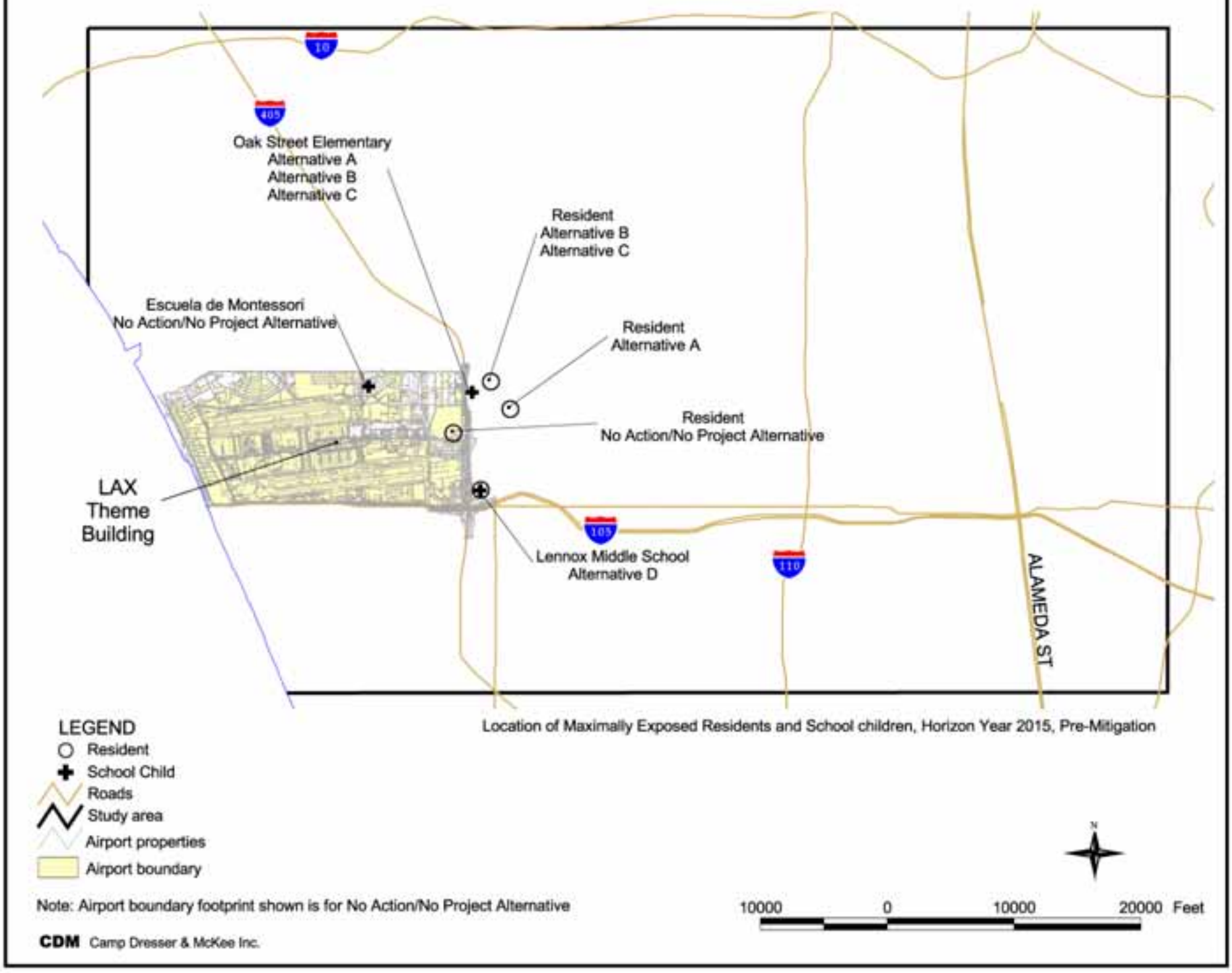
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Locations for Maximally Exposed Residents and School Children, based on Incremental Cancer Risks for all Horizon Years, Pre-Mitigation Conditions**	Figure **B-1**

mxl_figures.apr



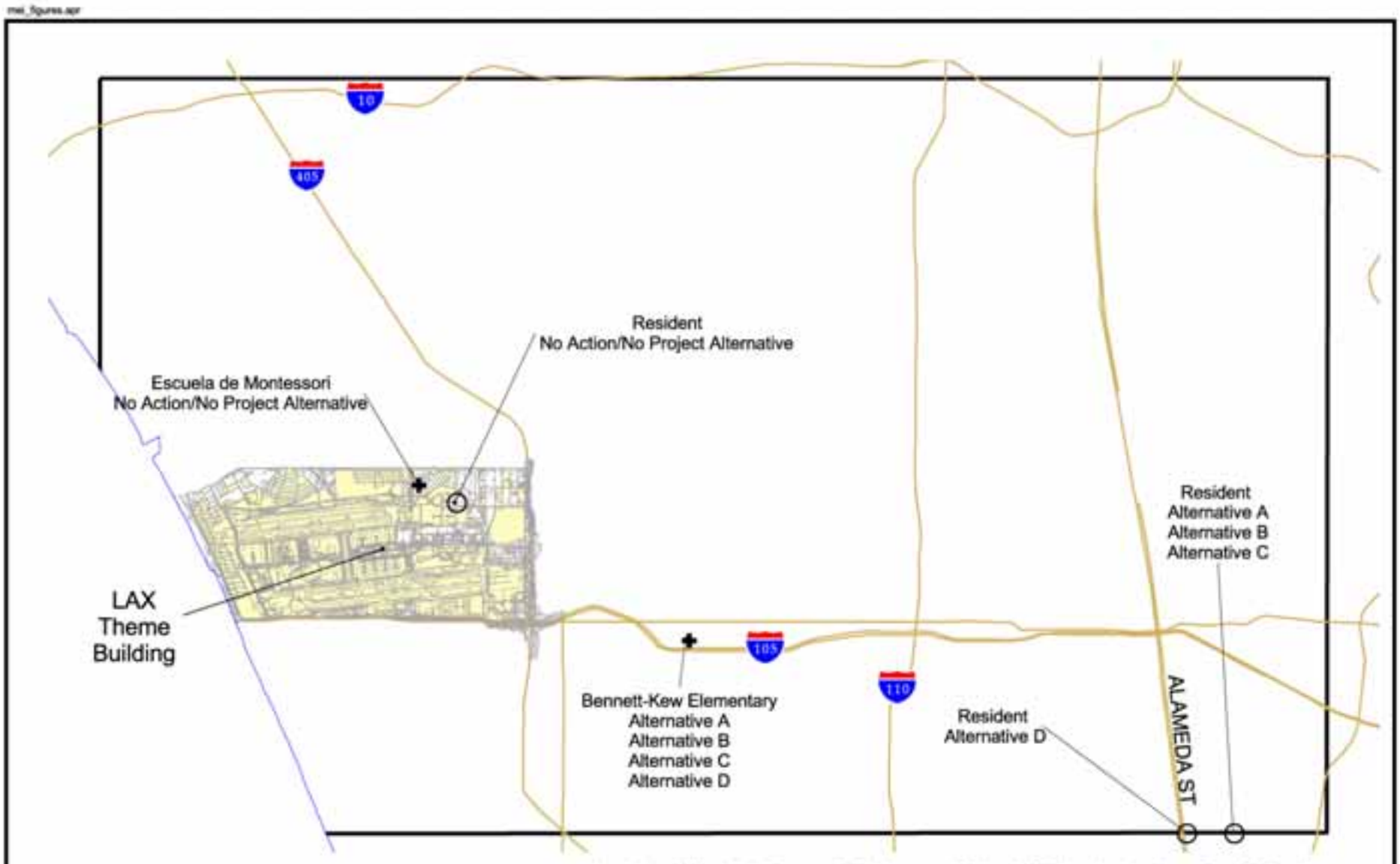
Location of Maximally Exposed Residents and School children, Interim Year, Pre-Mitigation



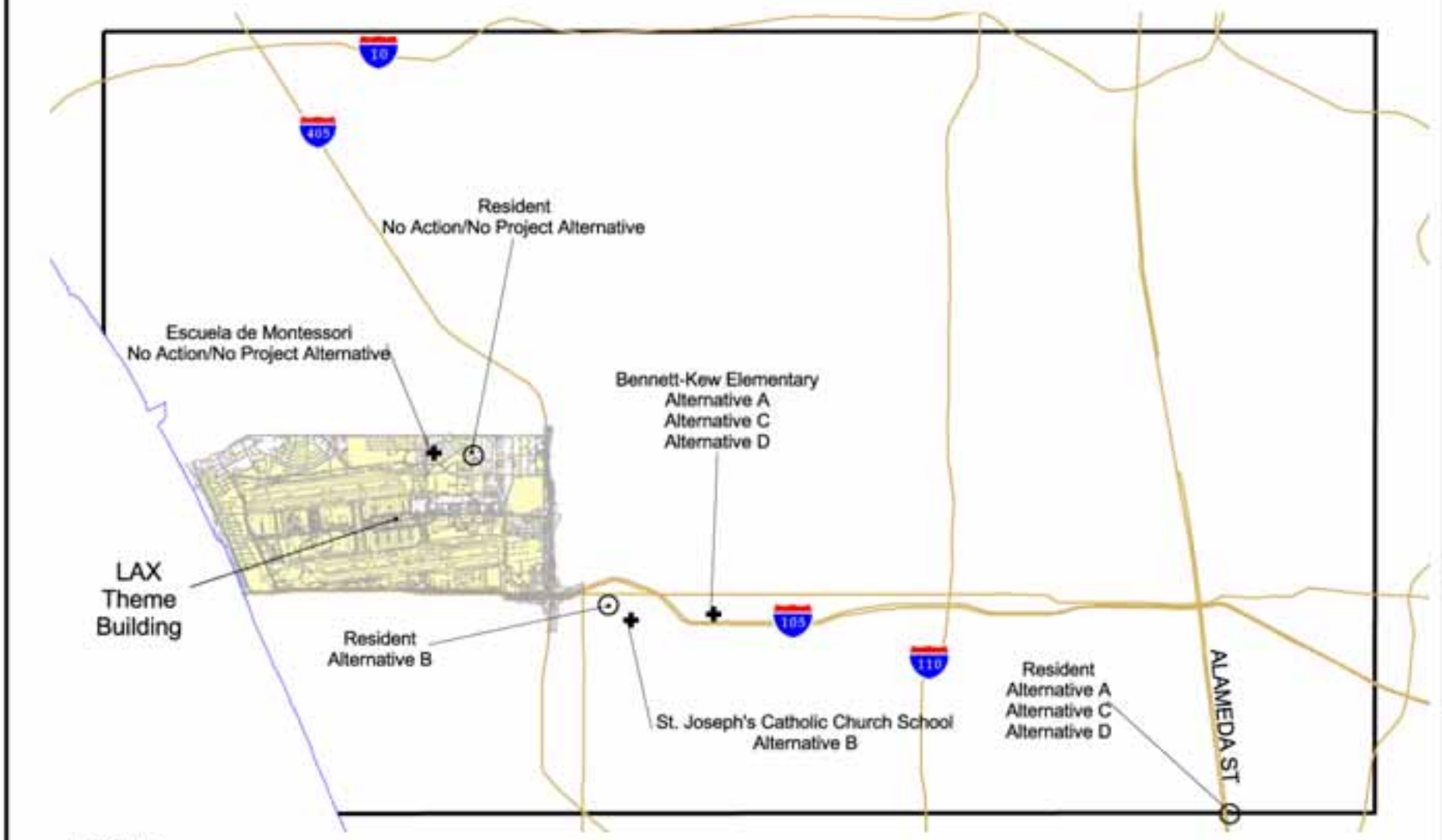
Location of Maximally Exposed Residents and School children, Horizon Year 2015, Pre-Mitigation

LAX Master Plan Supplement to the Draft EIS/EIR	**Locations for Maximally Exposed Residents and School Children, based on Hazard Indices for all Horizon Years, Pre-Mitigation Conditions**	Figure **B-2**

mxl_figures.apr



Location of Maximally Exposed Residents and School Children, Interim Year, Post-Mitigation



Location of Maximally Exposed Residents and School Children, Horizon Year 2015, Post-Mitigation

LEGEND

- Resident
- School Child
- Roads
- Study area
- Airport properties
- Airport boundary

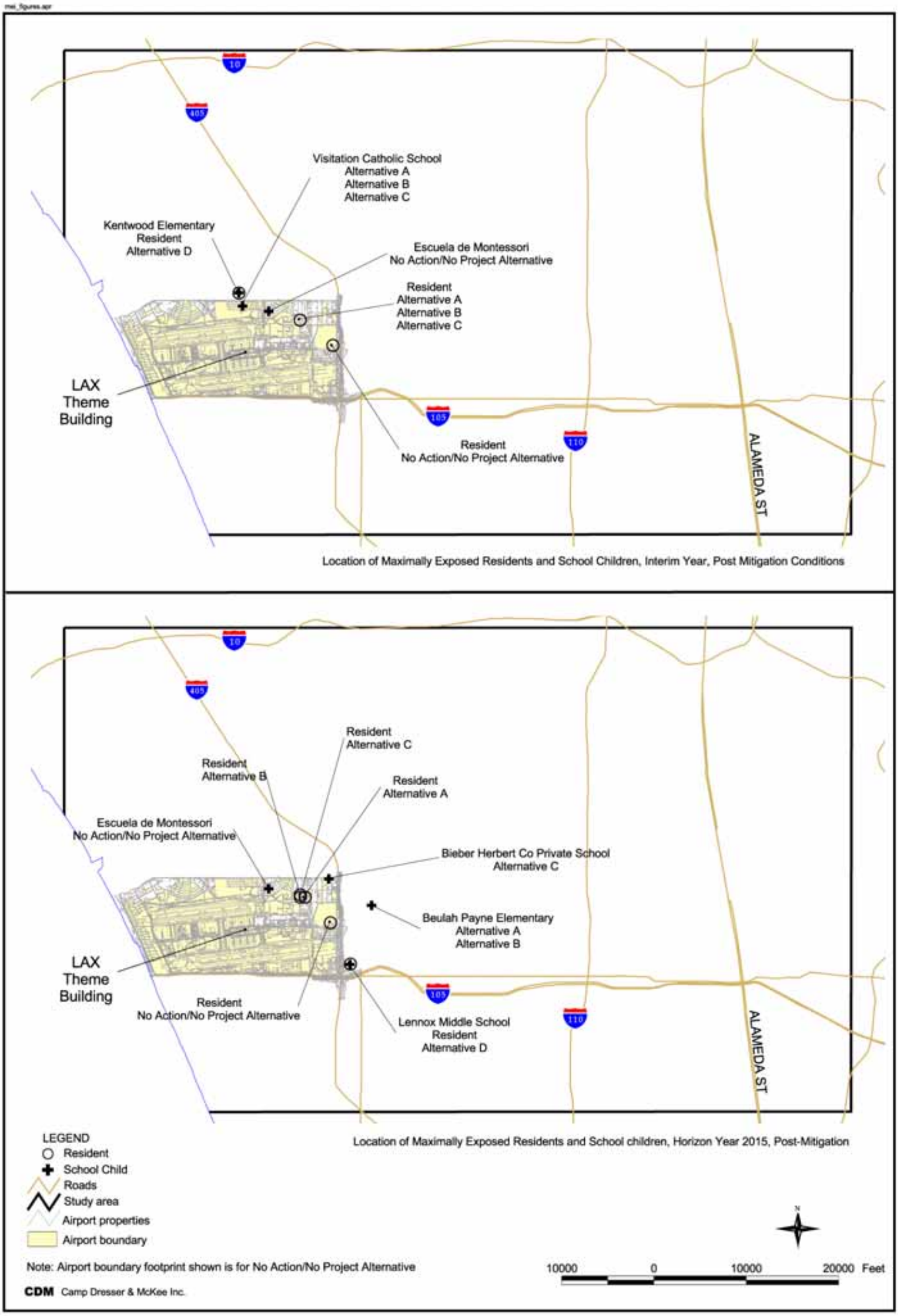
Note: Airport boundary footprint shown is for No Action/No Project Alternative

10000 0 10000 20000 Feet

CDM Camp Dresser & McKee Inc.

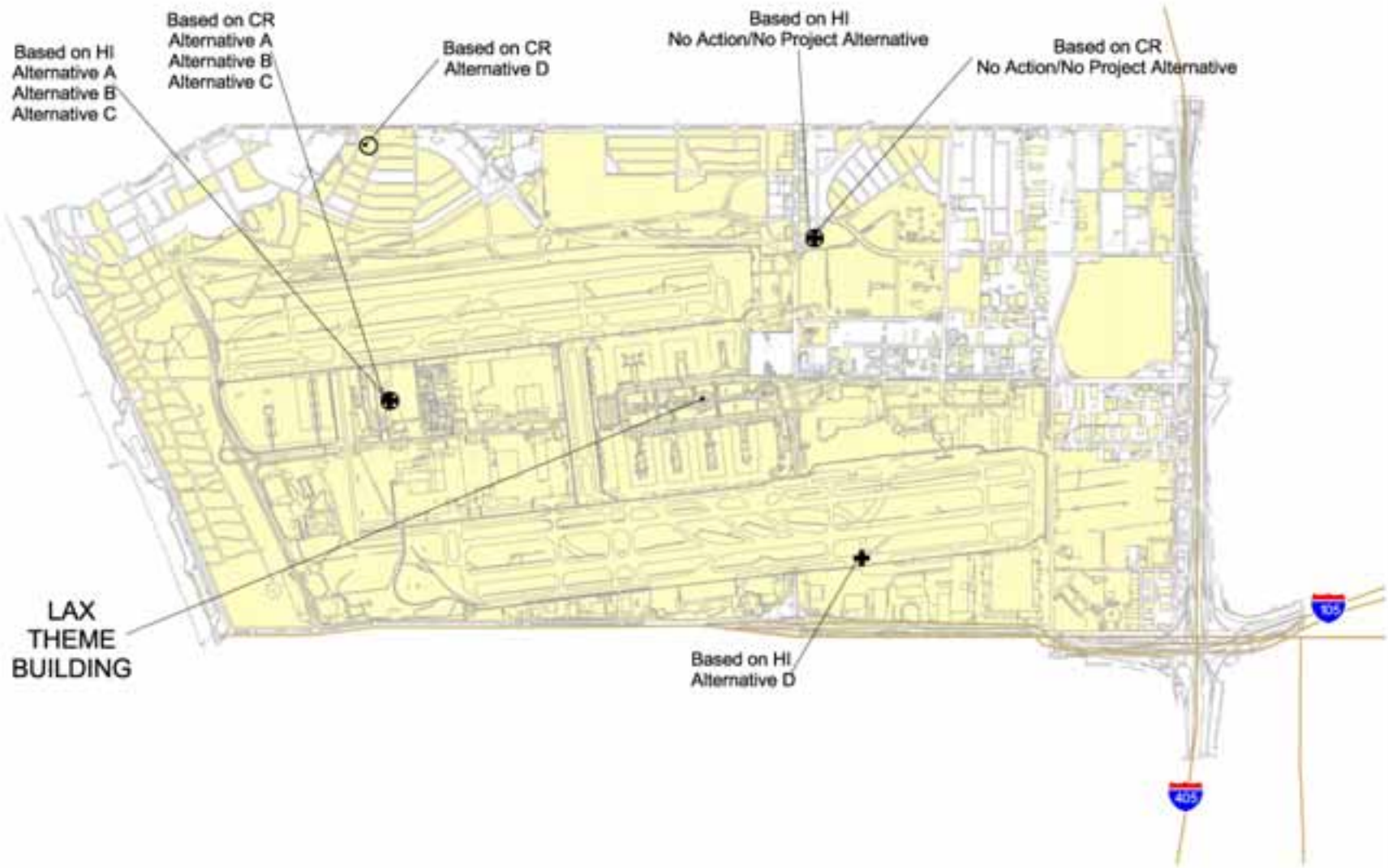
LAX Master Plan Supplement to the Draft EIS/EIR	**Locations for Maximally Exposed Residents and School Children, based on Incremental Cancer Risks for all Horizon Years, Post-Mitigation Conditions**	Figure **B-3**

mxl_figures.apr

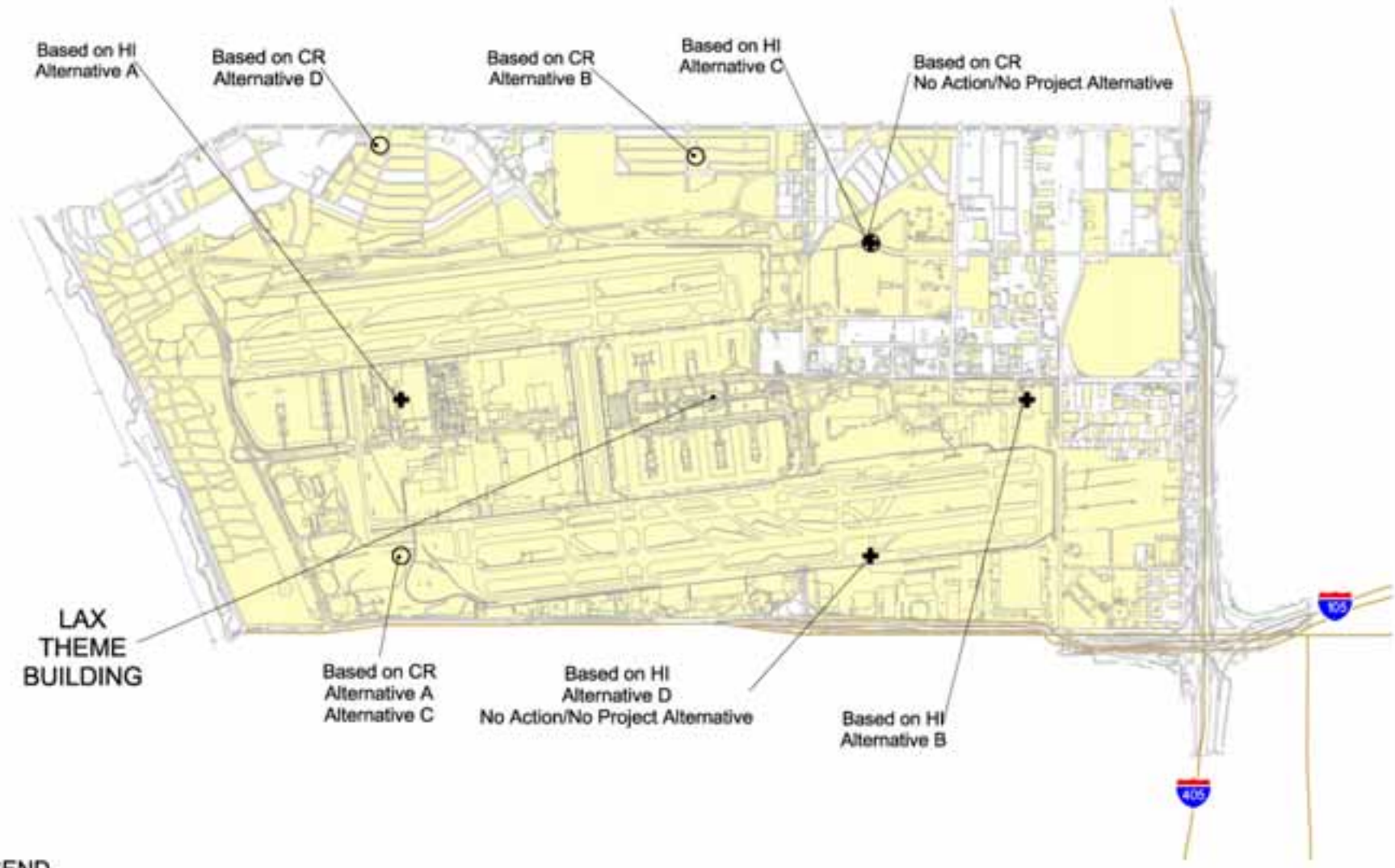


LAX Master Plan Supplement to the Draft EIS/EIR	**Locations for Maximally Exposed Residents and School Children, based on Hazard Indices for all Horizon Years, Post-Mitigation Conditions**	Figure **B-4**

mxl_figures.apr



Location of Maximally Exposed Onsite Workers, Interim Year, Pre-Mitigation



Location of Maximally Exposed Onsite Workers, Horizon Year 2015, Pre-Mitigation

LEGEND

- Maximally exposed onsite worker, based on cancer risks (CR)
- Maximally exposed onsite worker, based on hazard indices (HI)
- Roads
- Study area
- Airport properties
- Airport boundary

Note: Airport boundary footprint shown is for No Action/No Project Alternative

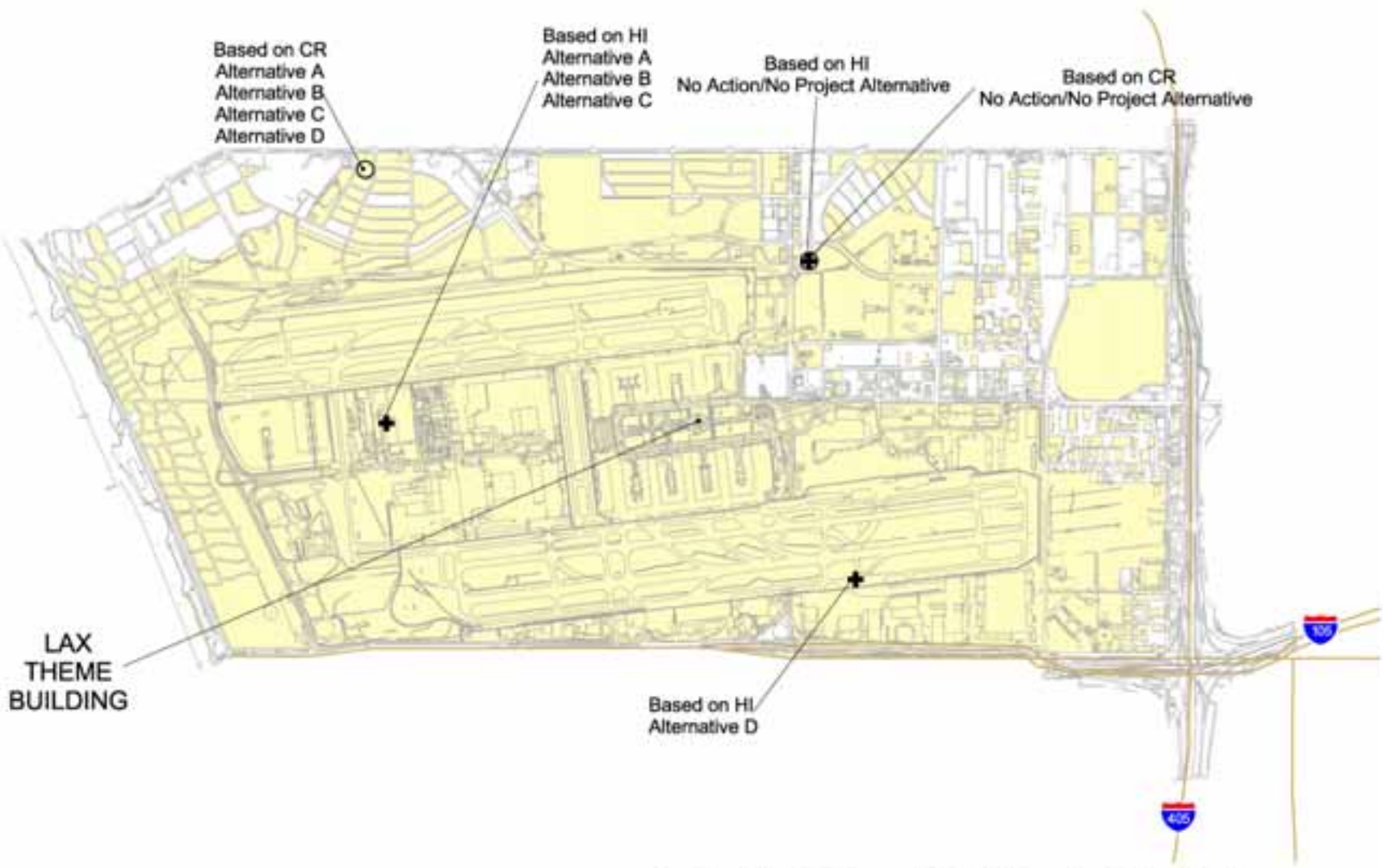
N

4000 0 4000 8000 Feet

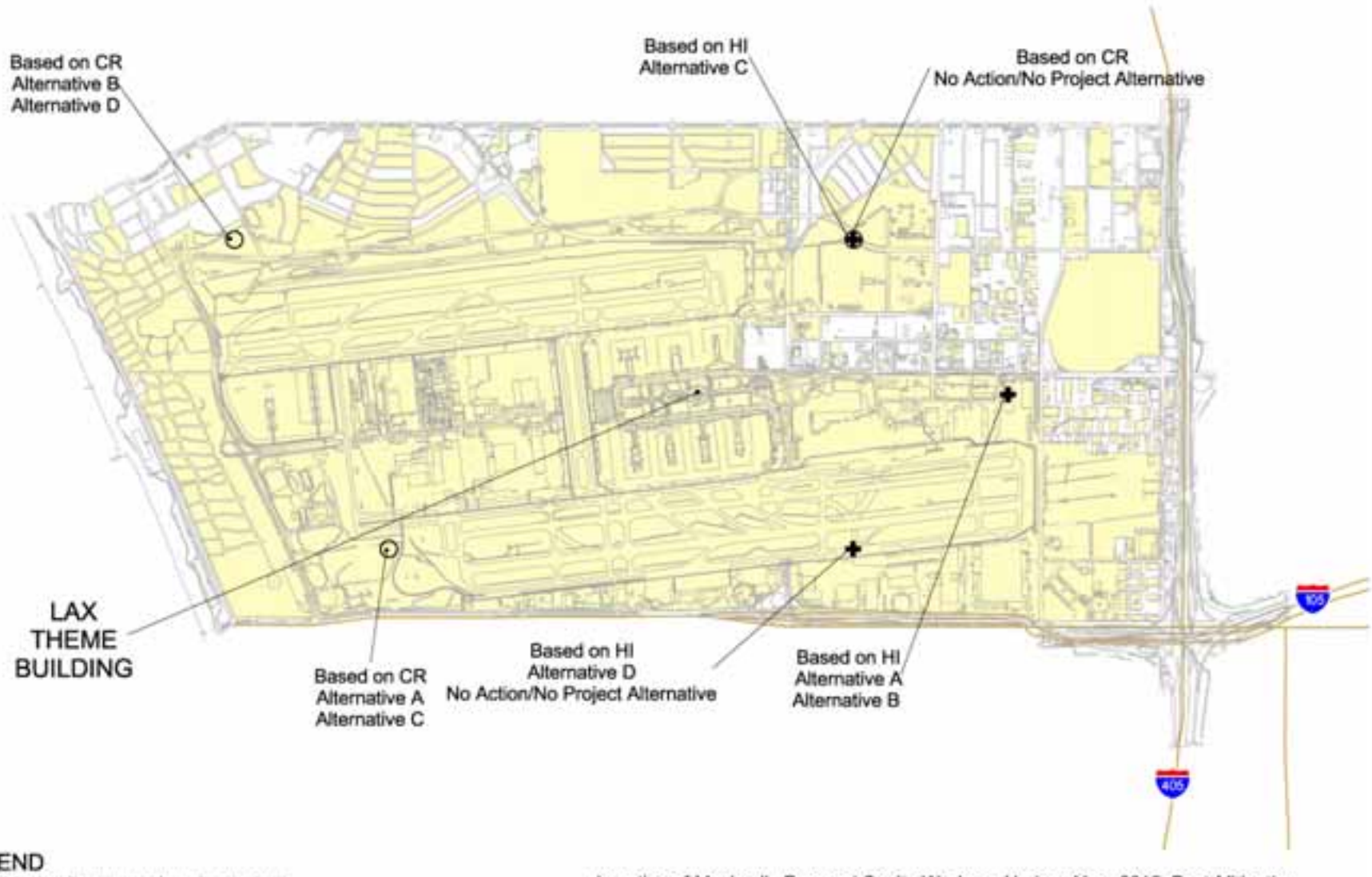
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Locations for Maximally Exposed Onsite Workers, based on Incremental Cancer Risks or Hazard Indices for all Horizon Years, Pre-Mitigation Conditions**	Figure **B-5**

mxl_figures.apr



Location of Maximally Exposed Onsite Workers, Interim Year, Post-Mitigation



Location of Maximally Exposed Onsite Workers, Horizon Year 2015, Post-Mitigation

LEGEND

- Maximally exposed onsite worker, based on cancer risks (CR)
- Maximally exposed onsite worker, based on hazard indices (HI)
- Roads
- Study area
- Airport properties
- Airport boundary

Note: Airport boundary footprint shown is for No Action/No Project Alternative

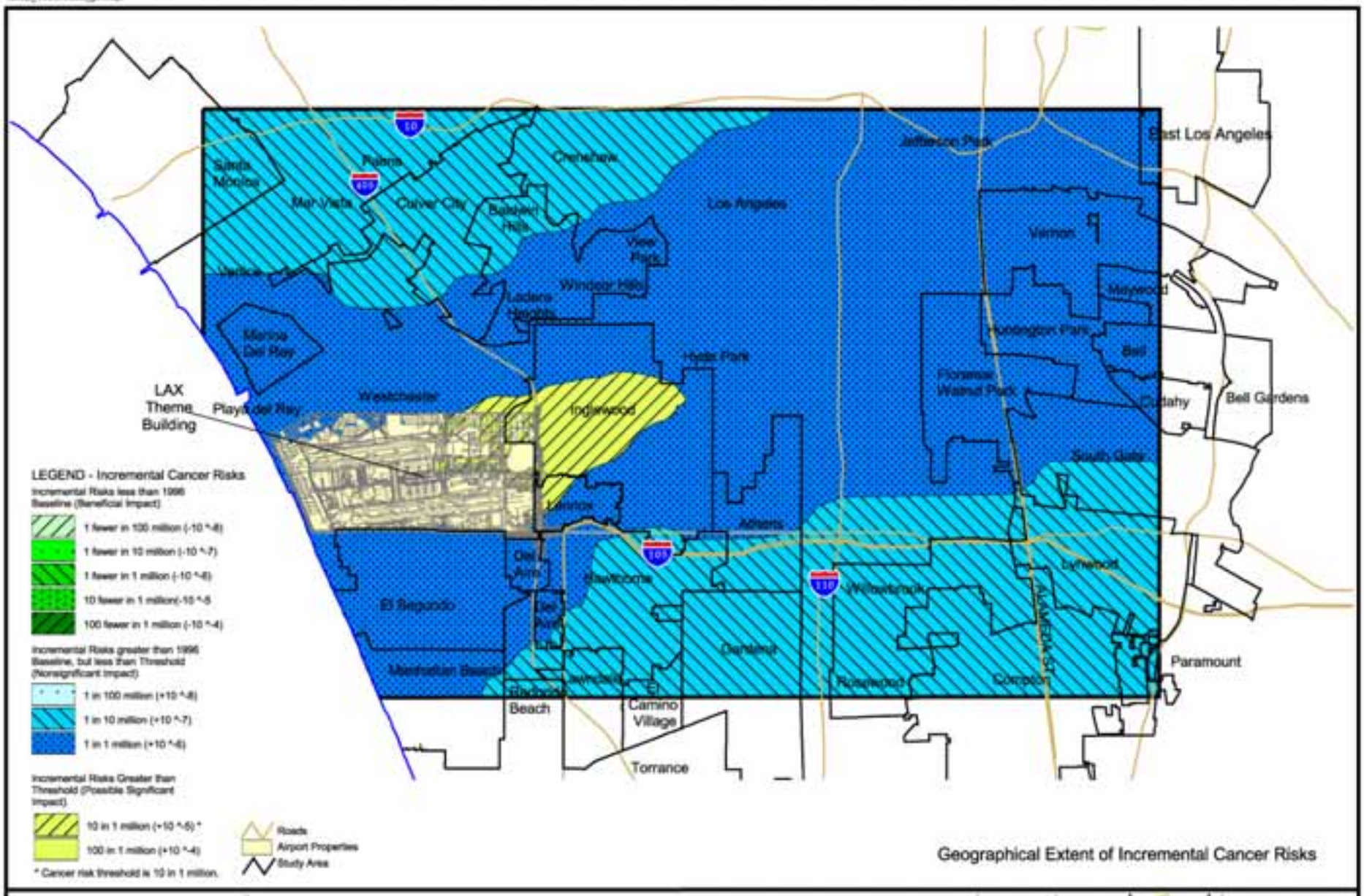
N

4000 0 4000 8000 Feet

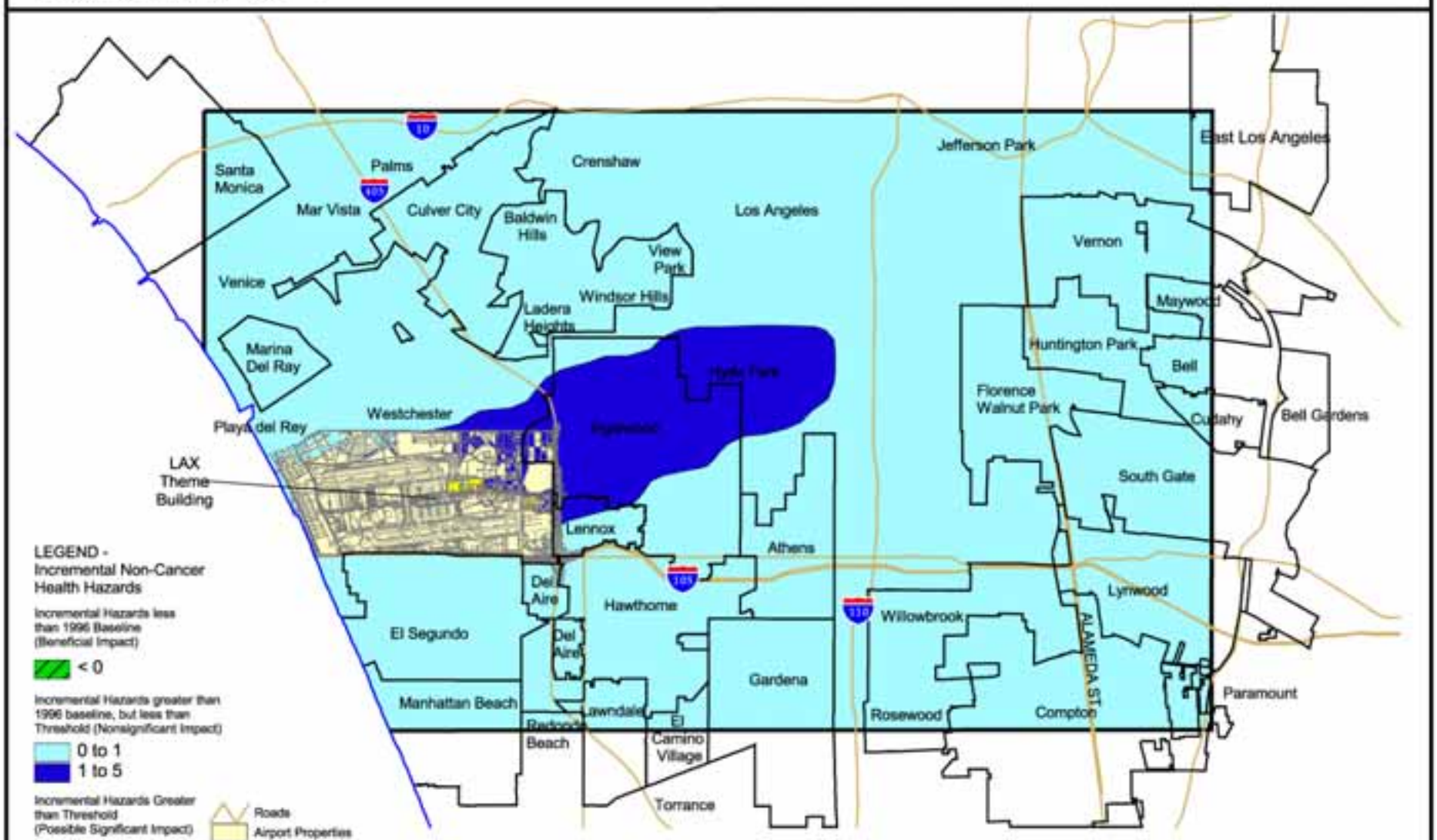
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Locations for Maximally Exposed Onsite Workers, based on Incremental Cancer Risks or Hazard Indices for all Horizon Years, Post-Mitigation Conditions**	Figure **B-6**

laxCI2_1996incalc_pnk.apr



Geographical Extent of Incremental Cancer Risks



Geographical Extent of Incremental Non-Cancer Risks

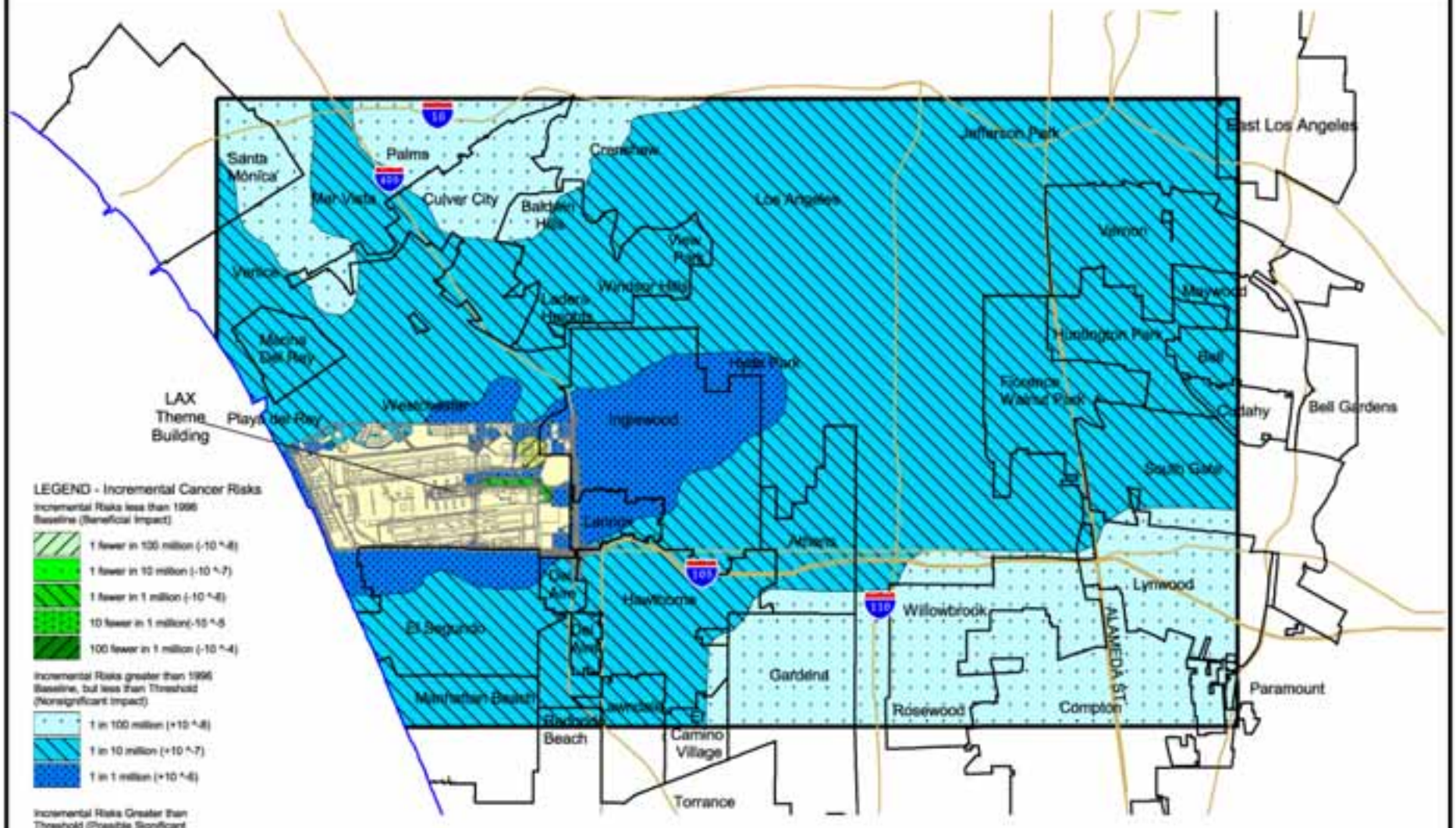
N

0 10000 20000 30000 Feet

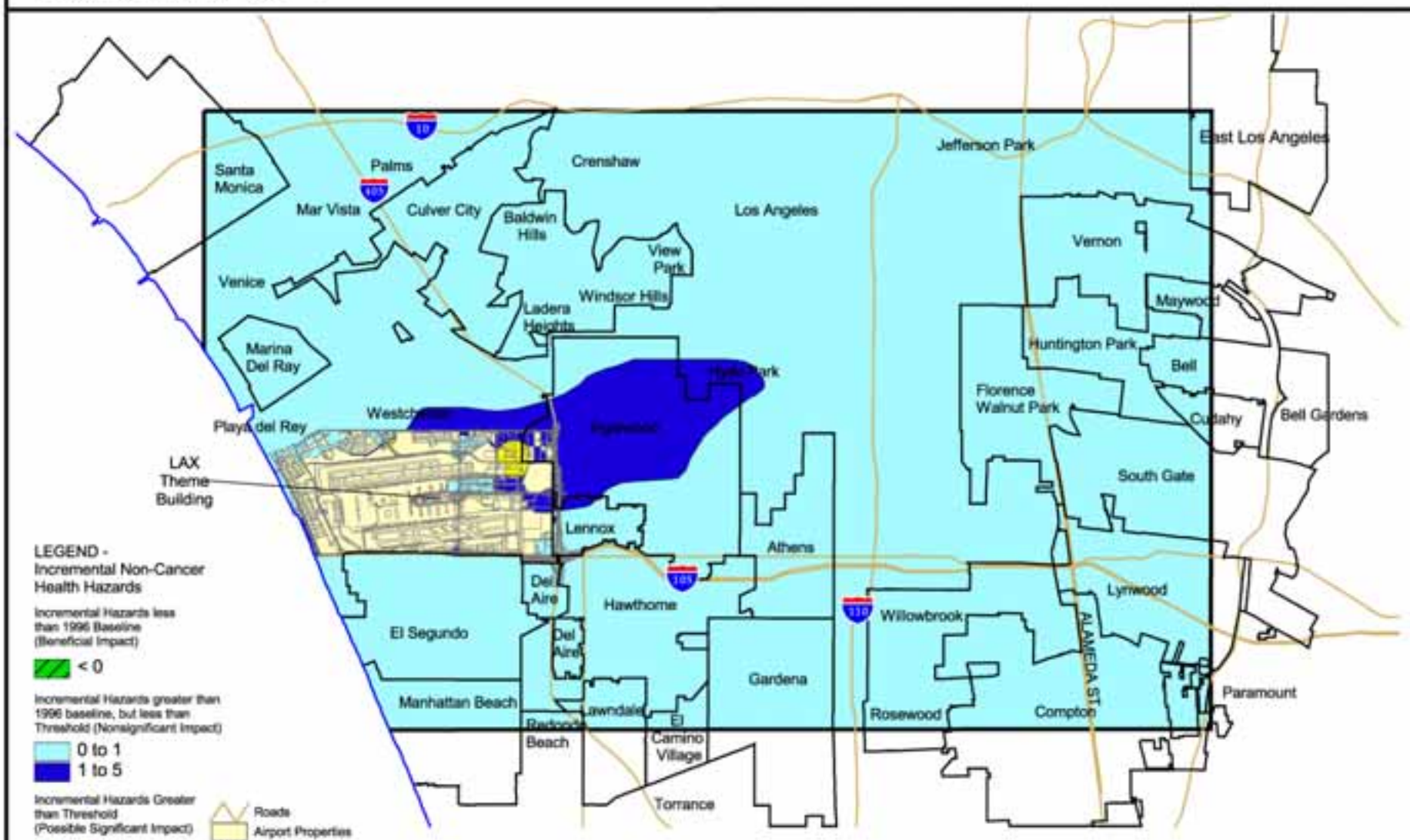
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Interim Year Pre-Mitigation Conditions, No Action/No Project Alternative**	Figure **B-7**

lax02_1996incalc_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation
Note: Airport boundary footprint shown is for Alternative C



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation
Note: Airport boundary footprint shown is for Alternative C

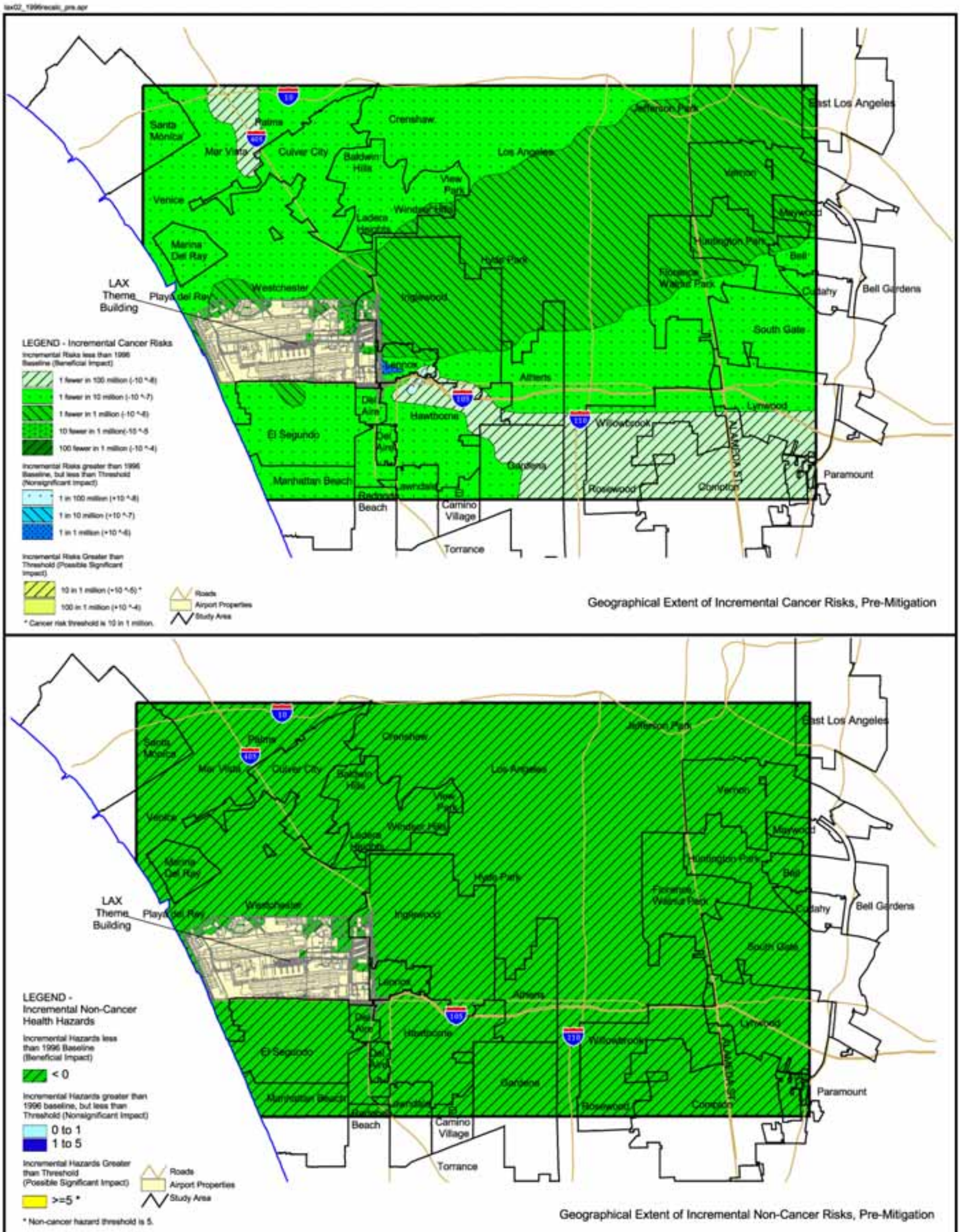
N

0 10000 20000 30000 Feet

CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Interim Year Pre-Mitigation Conditions, Alternative A, B, C**	Figure **B-8**

lax02_1996recalc_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation

Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

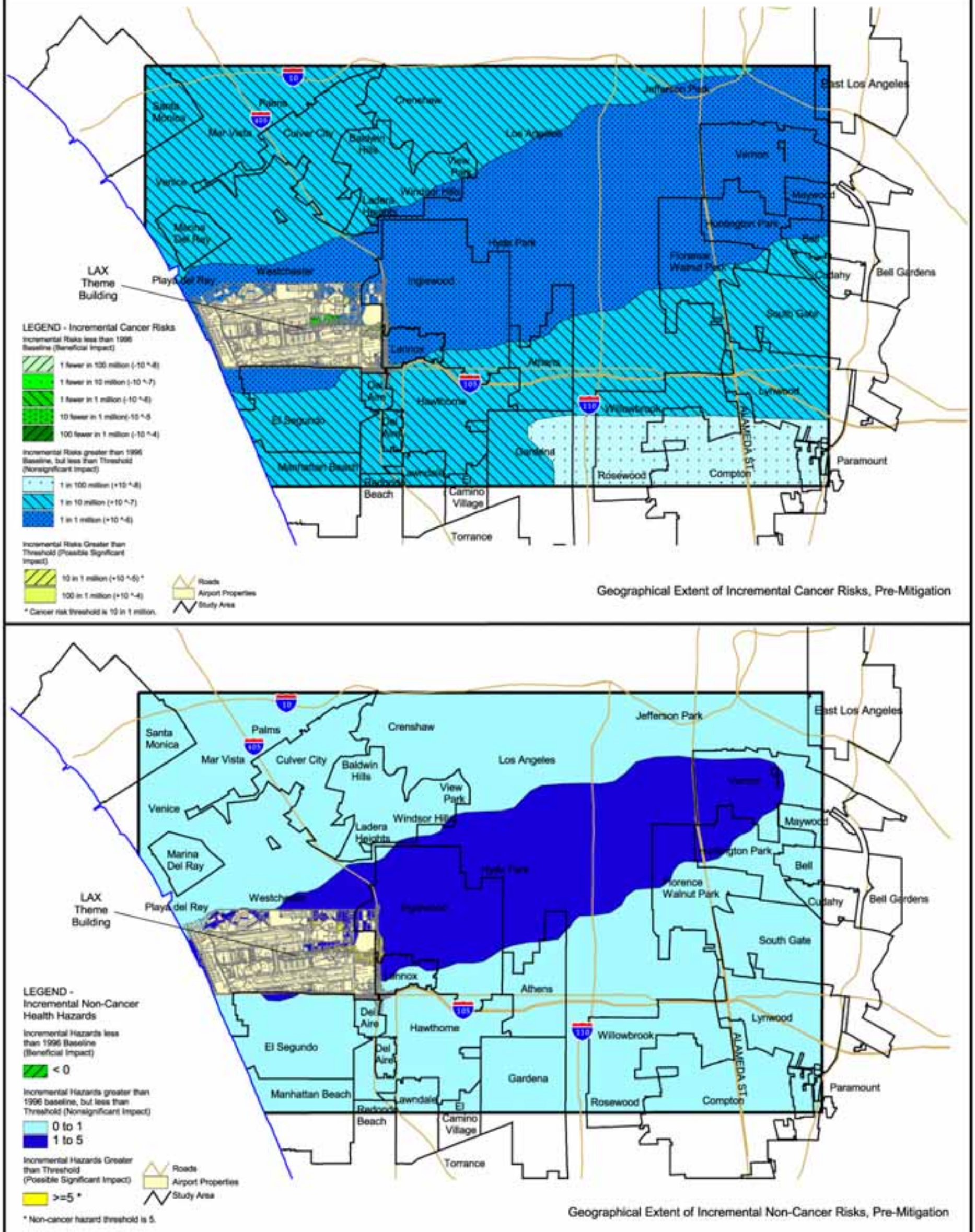
N

0 10000 20000 30000 Feet

CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Interim Year Pre-Mitigation Conditions, Alternative D**	Figure **B-9**

lax02_2005_allaffs_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation

Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

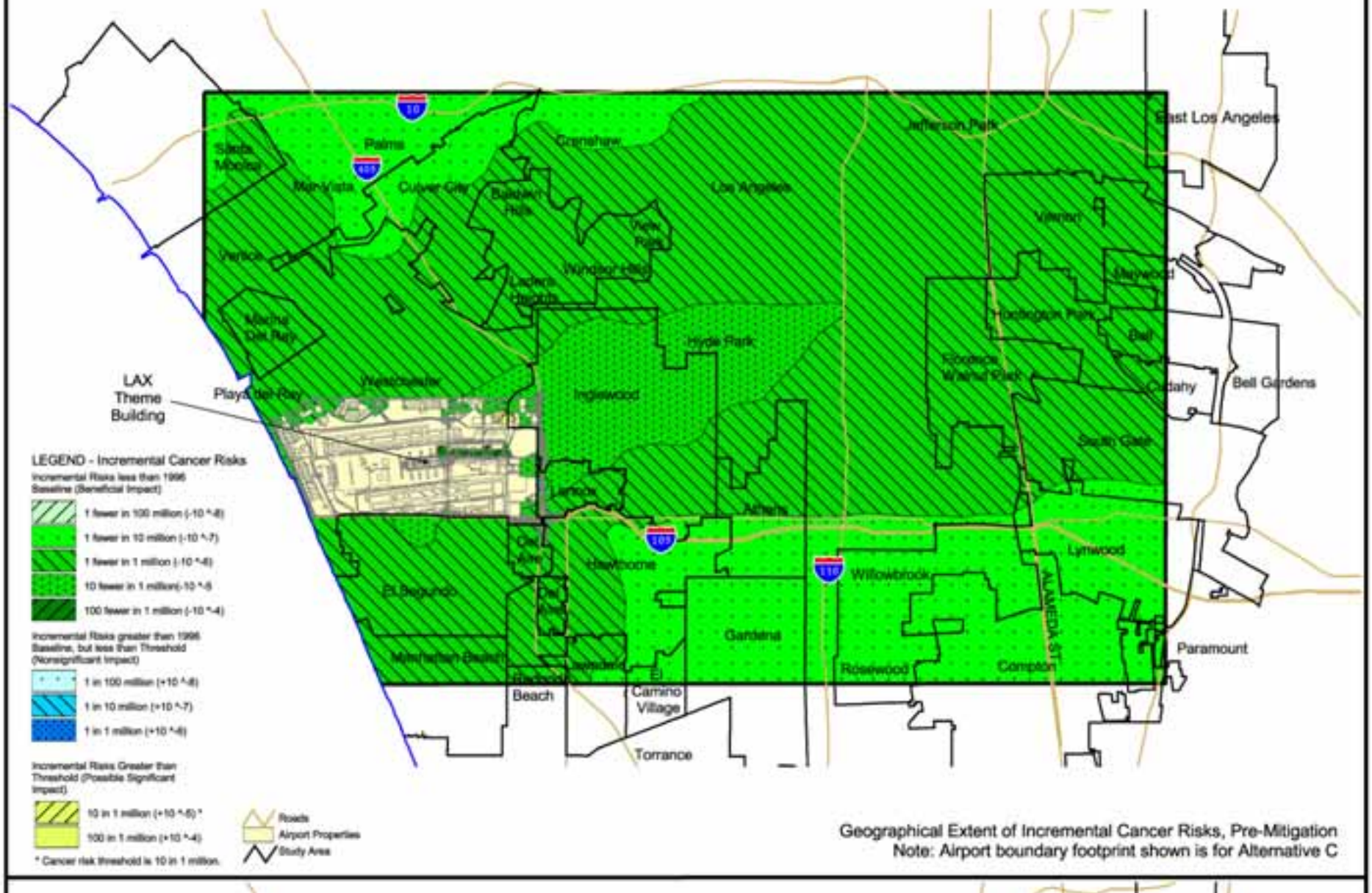
N

0 10000 20000 30000 Feet

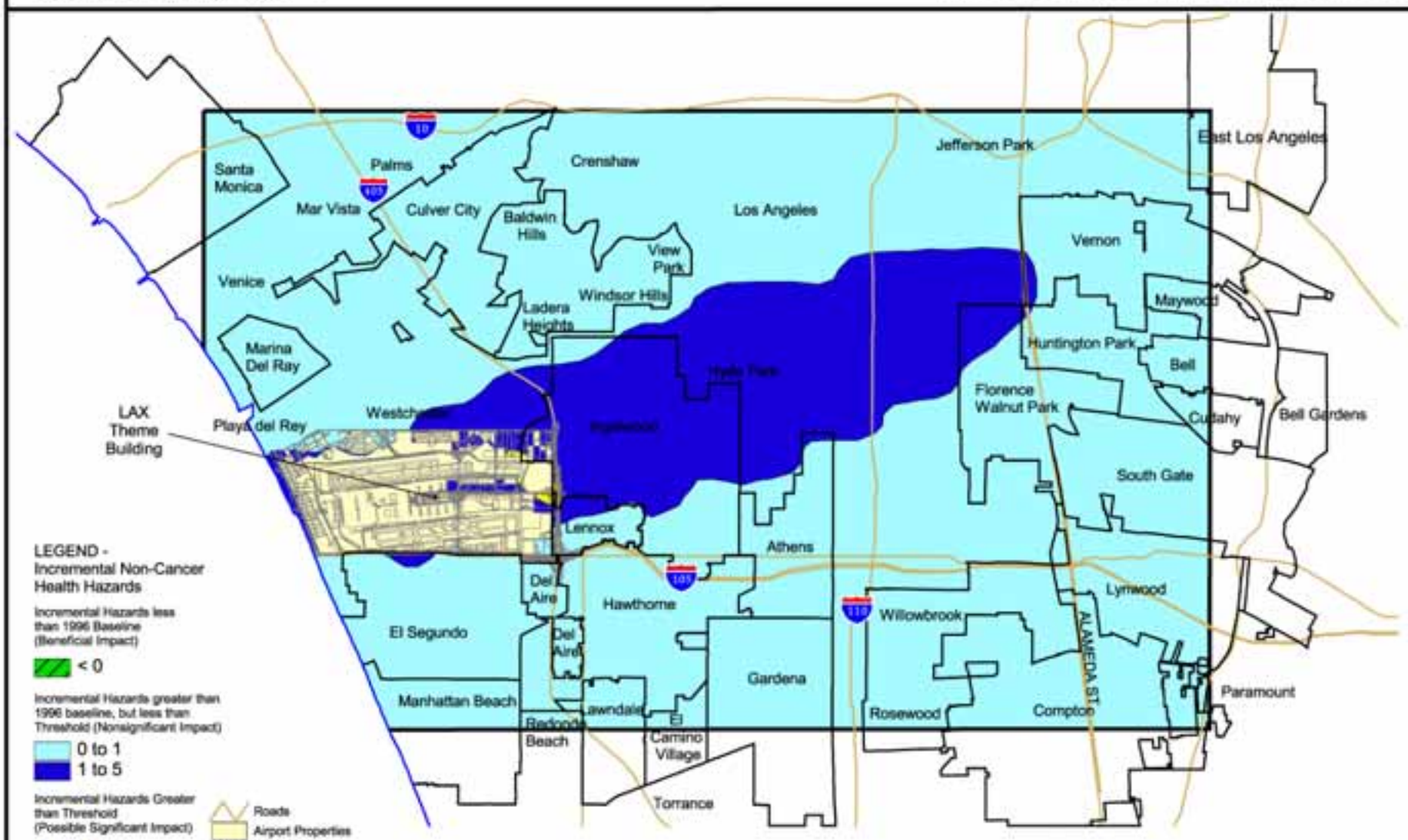
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Interim Year Pre-Mitigation Conditions, No Action/No Project Alternative**	Figure **B-10**

lax02_2005_allalts_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation
Note: Airport boundary footprint shown is for Alternative C



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation
Note: Airport boundary footprint shown is for Alternative C

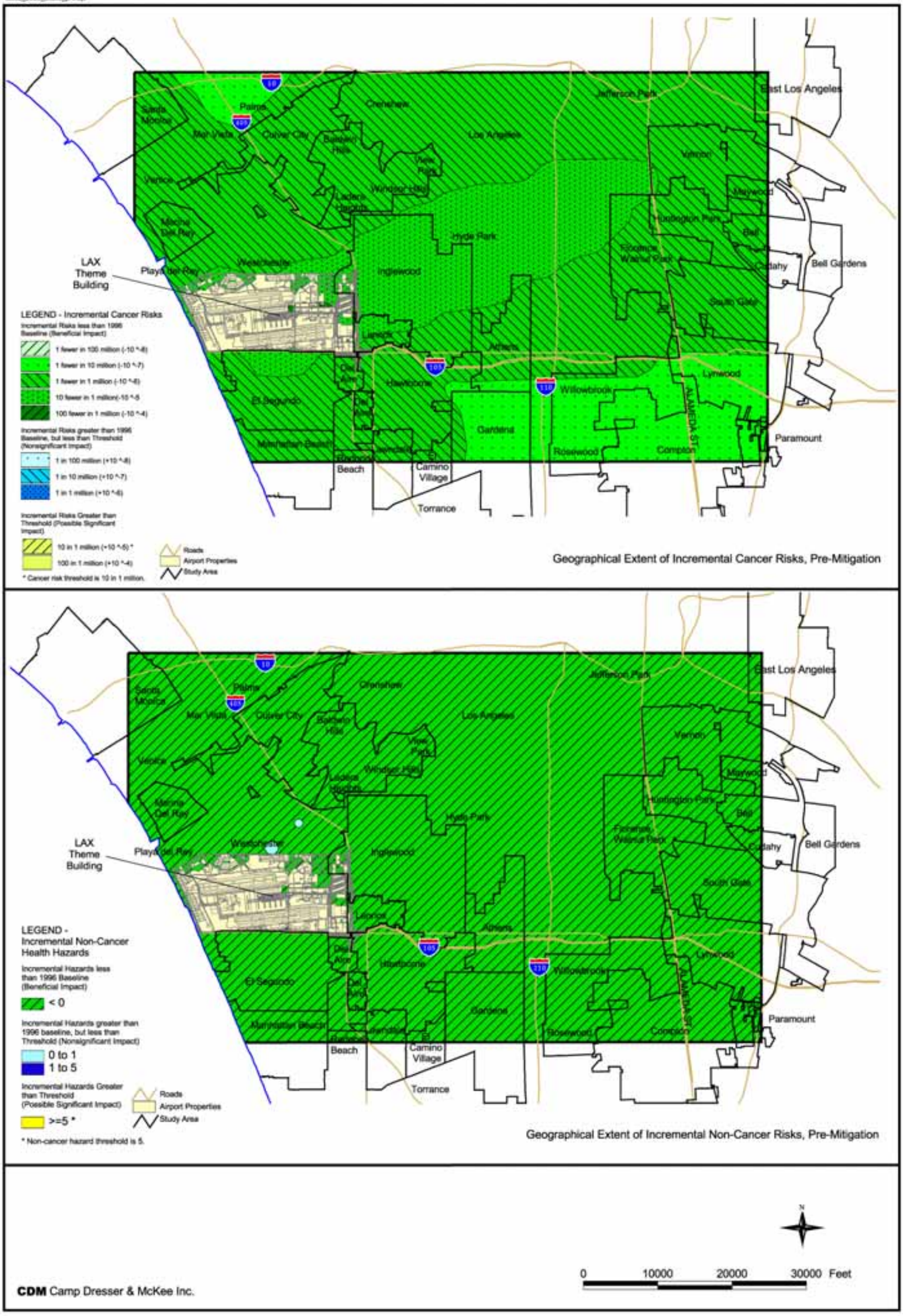
N

0 9000 18000 27000 Feet

CDM Camp Dresser & McKee Inc.

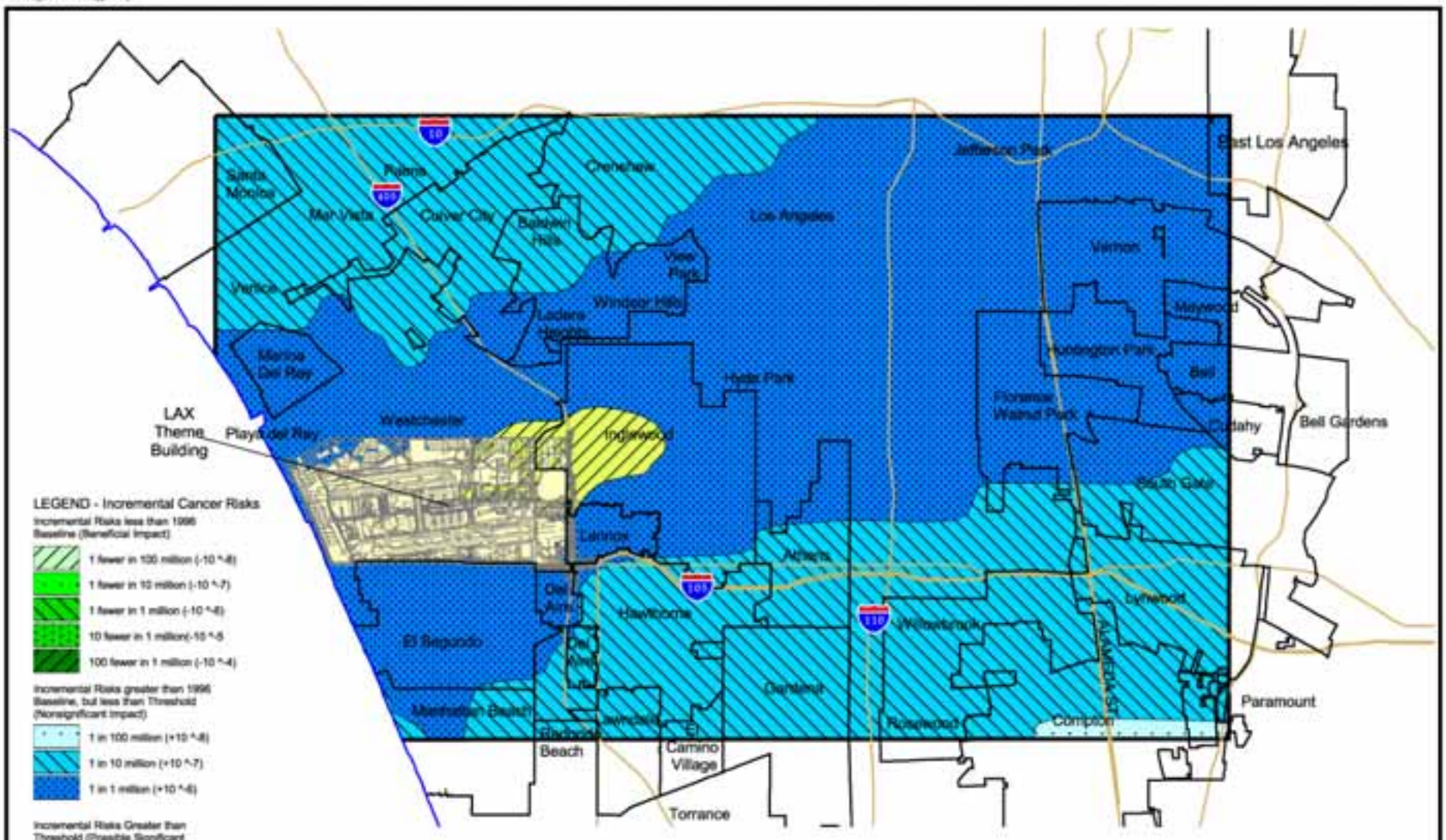
LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Interim Year Pre-Mitigation Conditions, Alternative A, B, C**	Figure **B-11**

lax02_2005_allalts_pre.apr

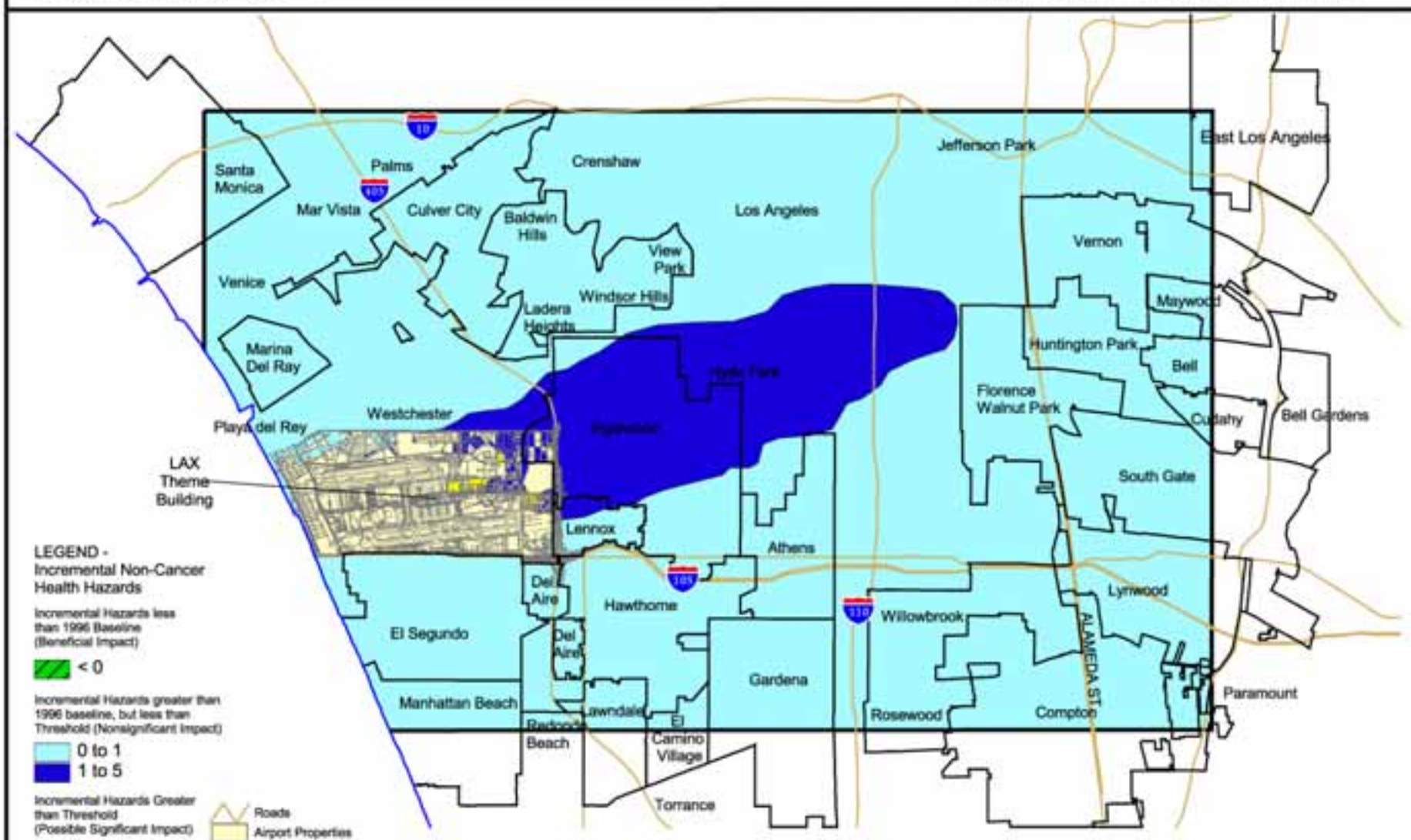


LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Interim Year Pre-Mitigation Conditions, Alternative D**	Figure **B-12**

lax02_1996incatc_pre.apr



Geographical Extent of Incremental Cancer Risks



Geographical Extent of Incremental Non-Cancer Risks

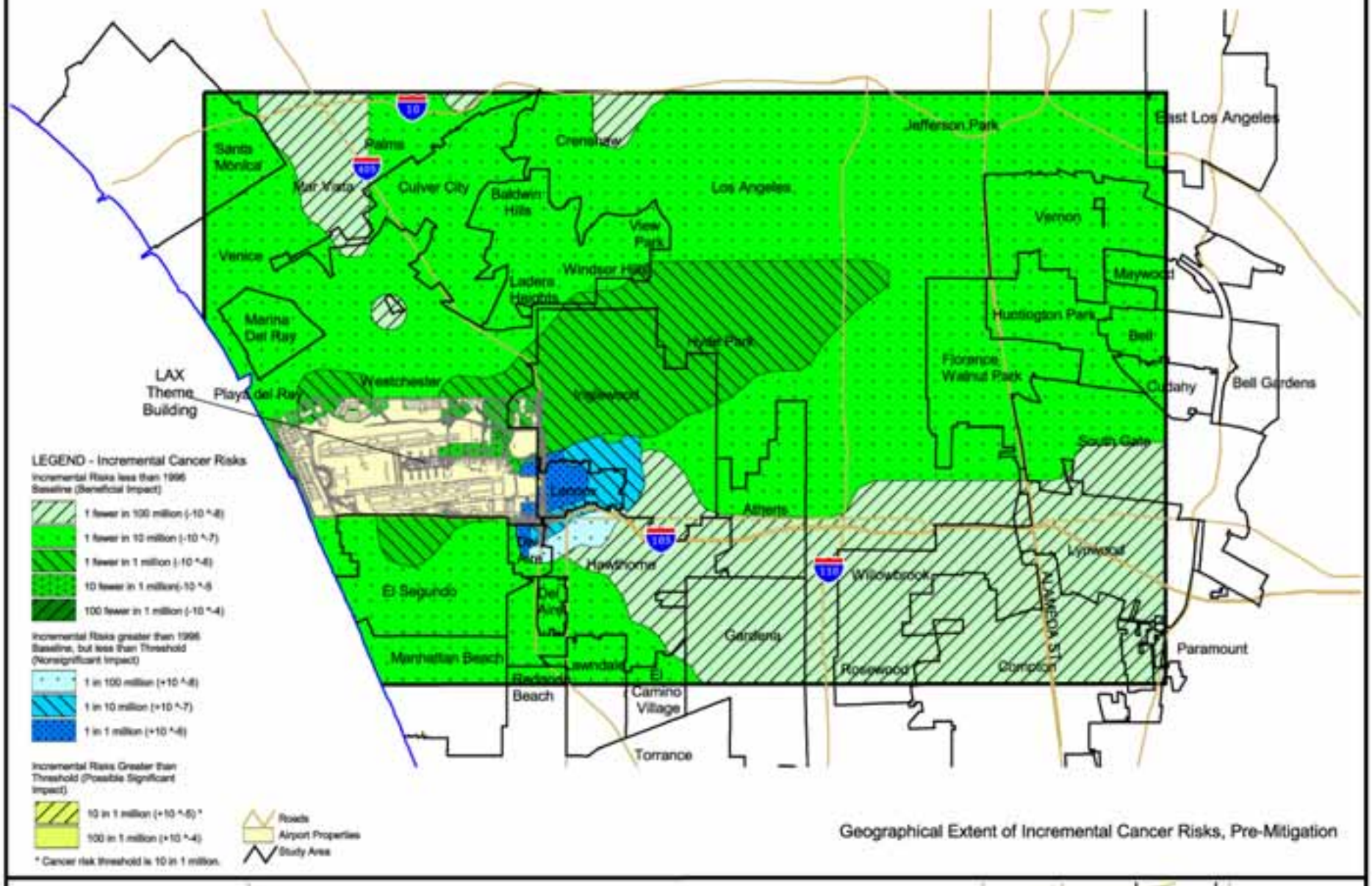
N

0 10000 20000 30000 Feet

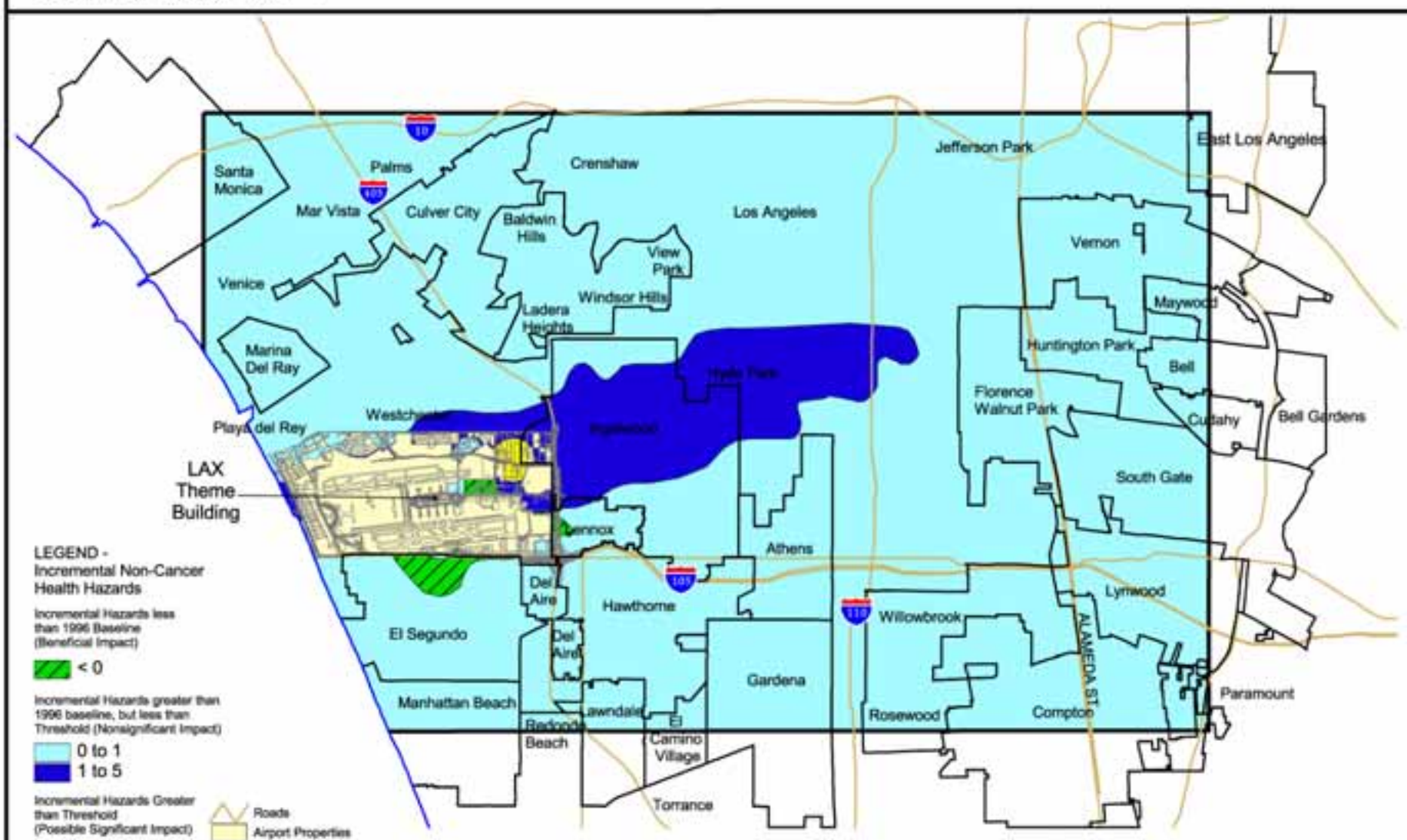
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Pre-Mitigation Conditions, No Action/No Project Alternative**	Figure **B-13**

lax02_1996incalc_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

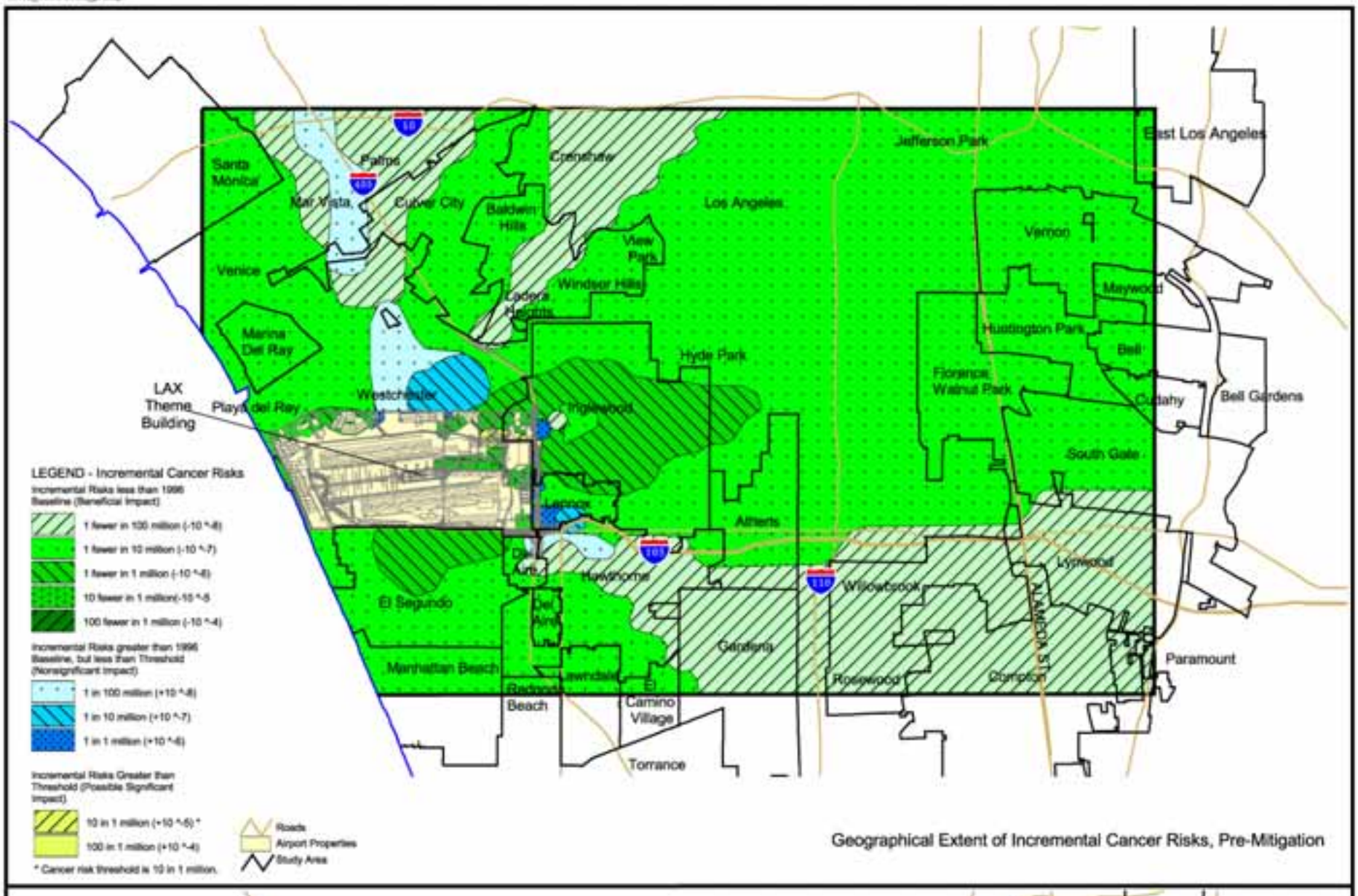
N

0 10000 20000 30000 Feet

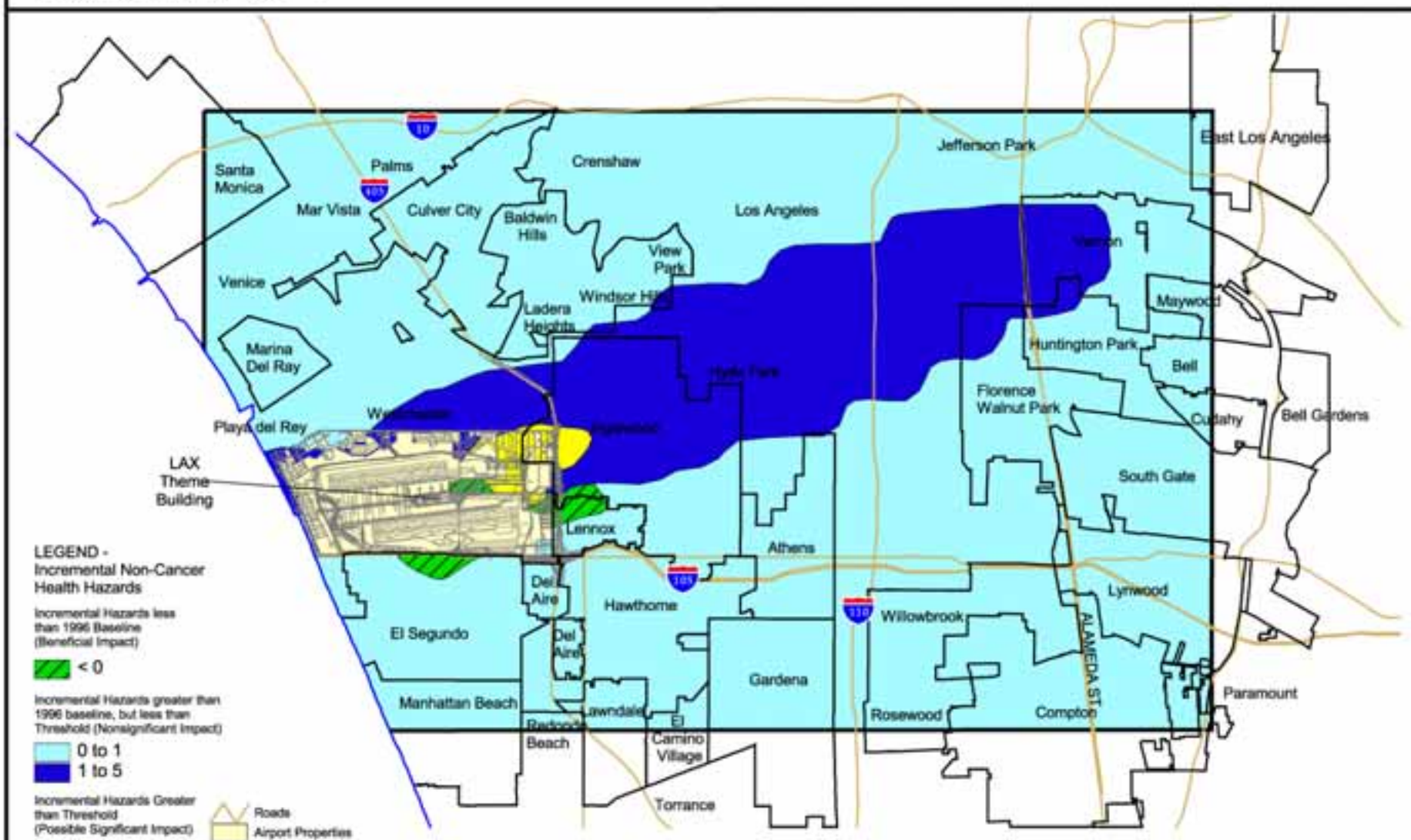
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Pre-Mitigation Conditions, Alternative A**	Figure **B-14**

lax02_1996incsic_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

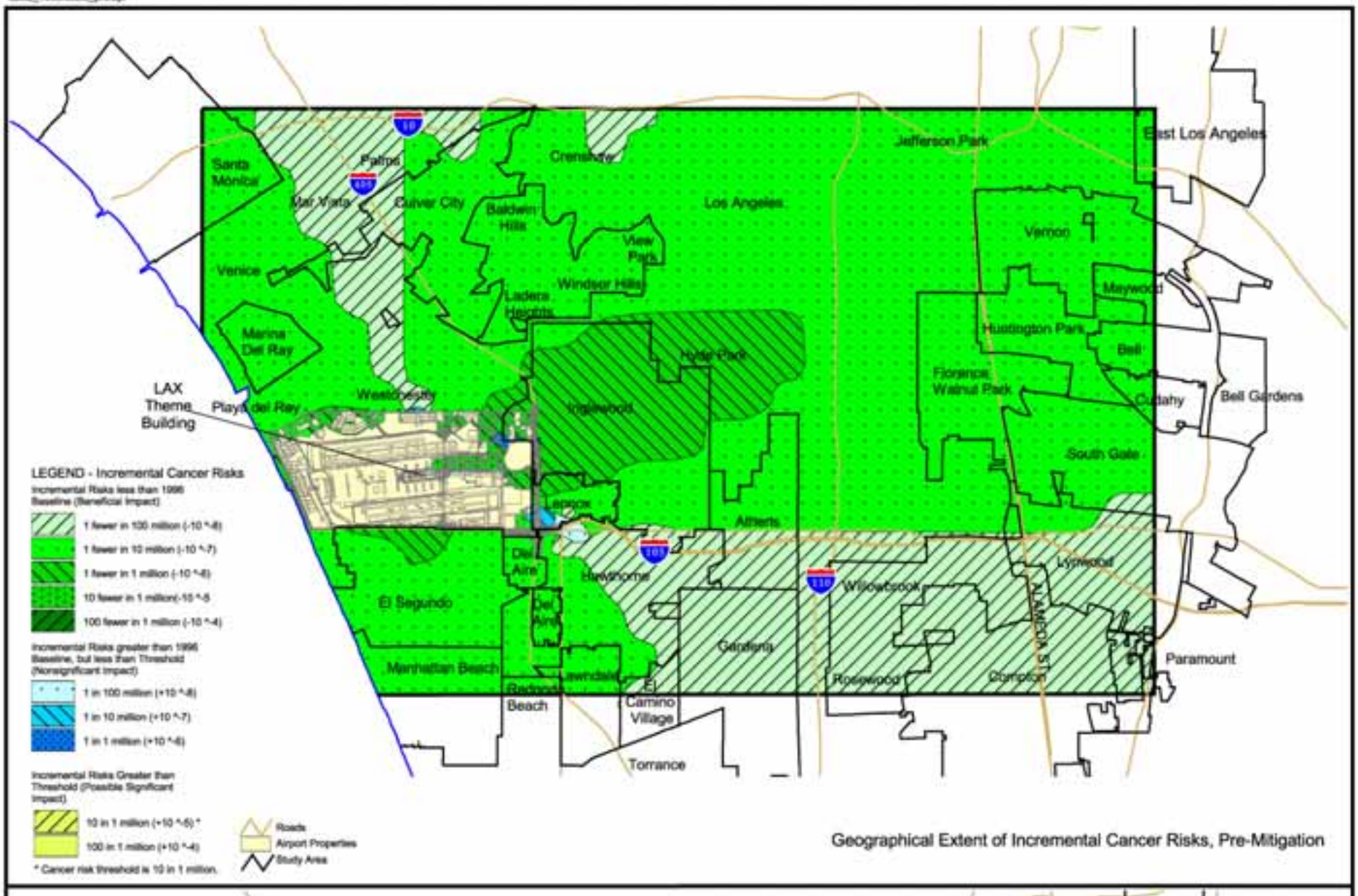
N

0 10000 20000 30000 Feet

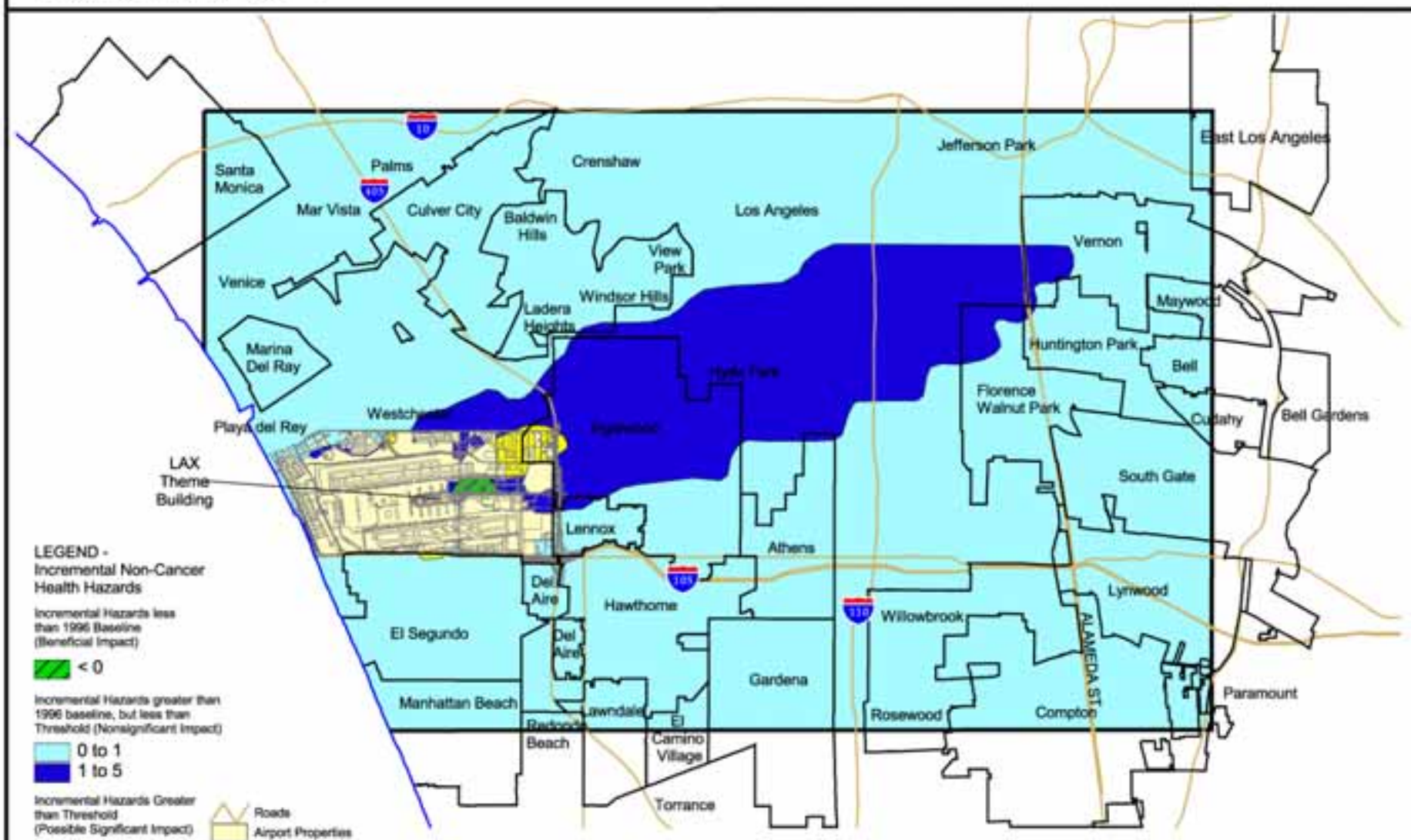
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Pre-Mitigation Conditions, Alternative B**	Figure **B-15**

las02_1996incatc_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

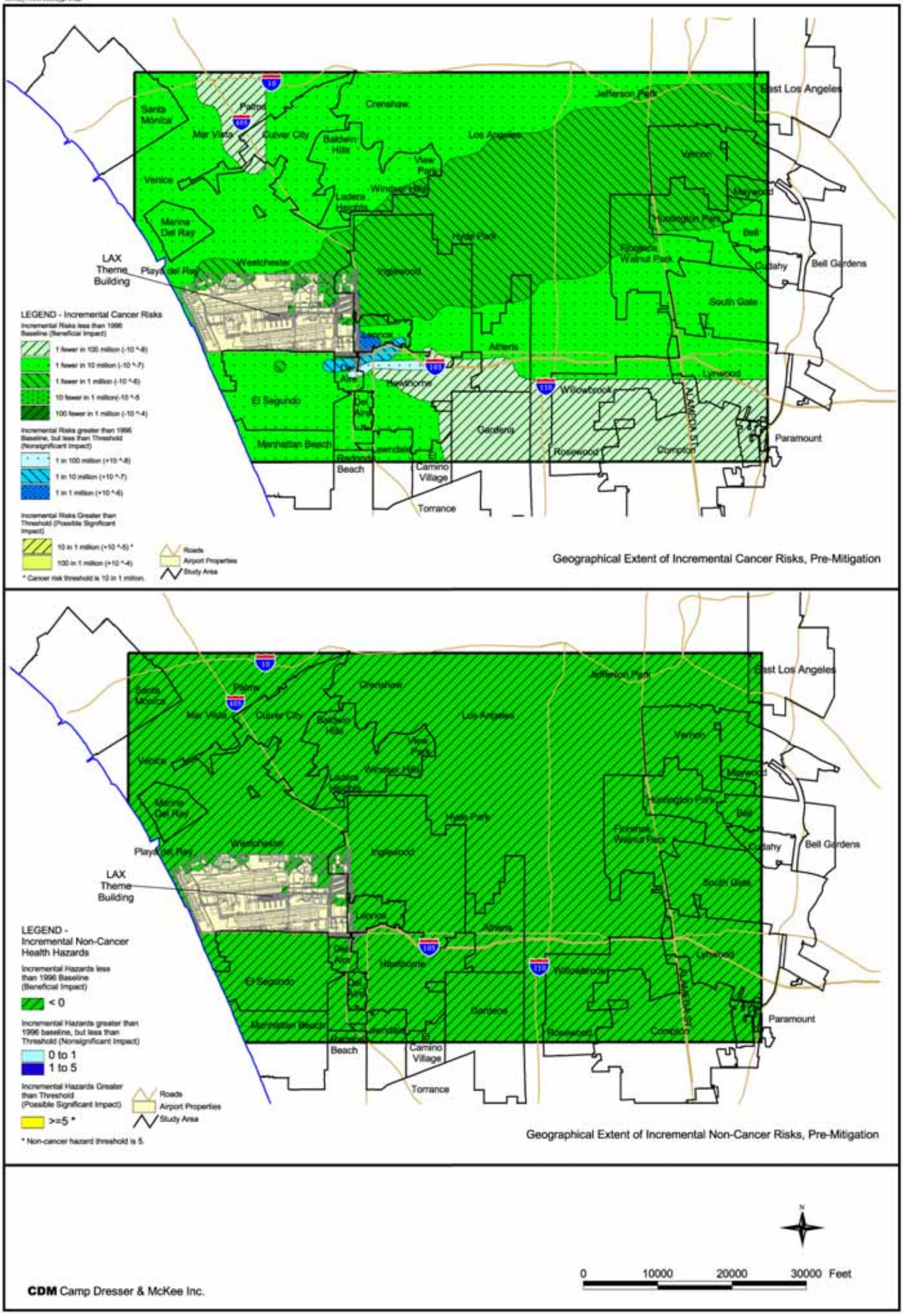
N

0 10000 20000 30000 Feet

CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Pre-Mitigation Conditions, Alternative C**	Figure **B-16**

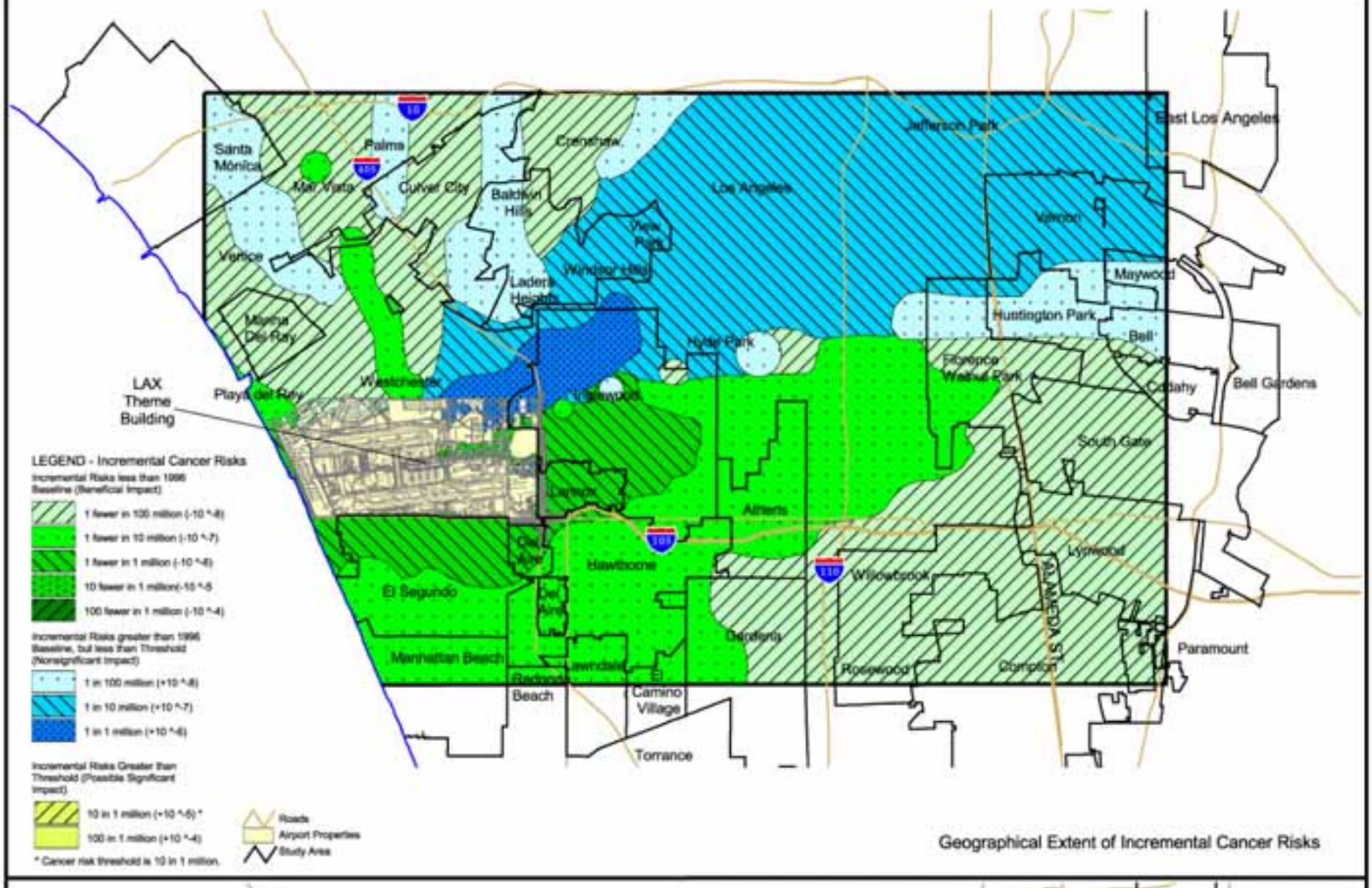
tax02_1996incalc_prs.apr



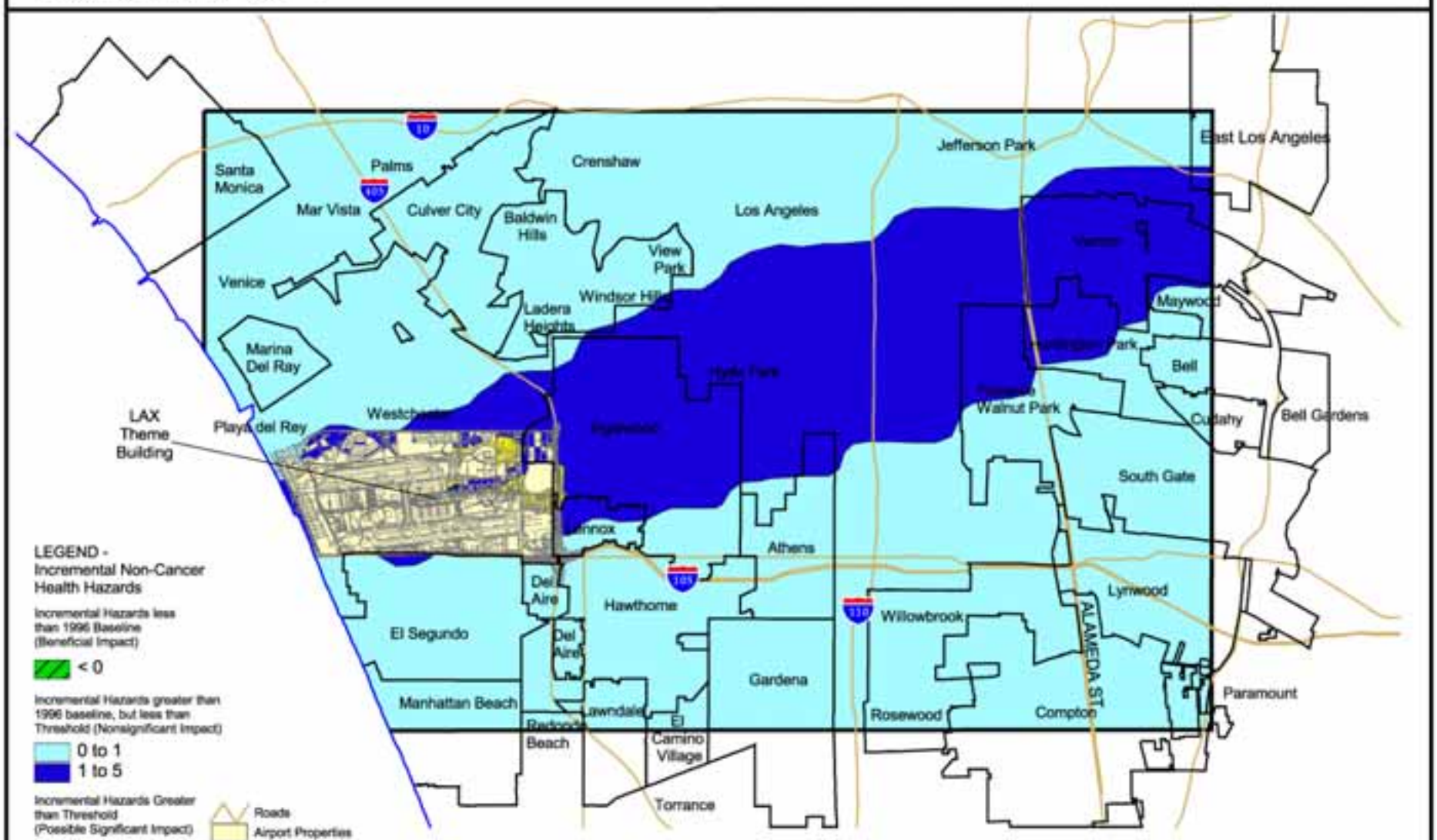
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015 Pre-Mitigation Conditions, Alternative D**	Figure **B-17**

lax02_2015_atlalts_pre.apr



Geographical Extent of Incremental Cancer Risks



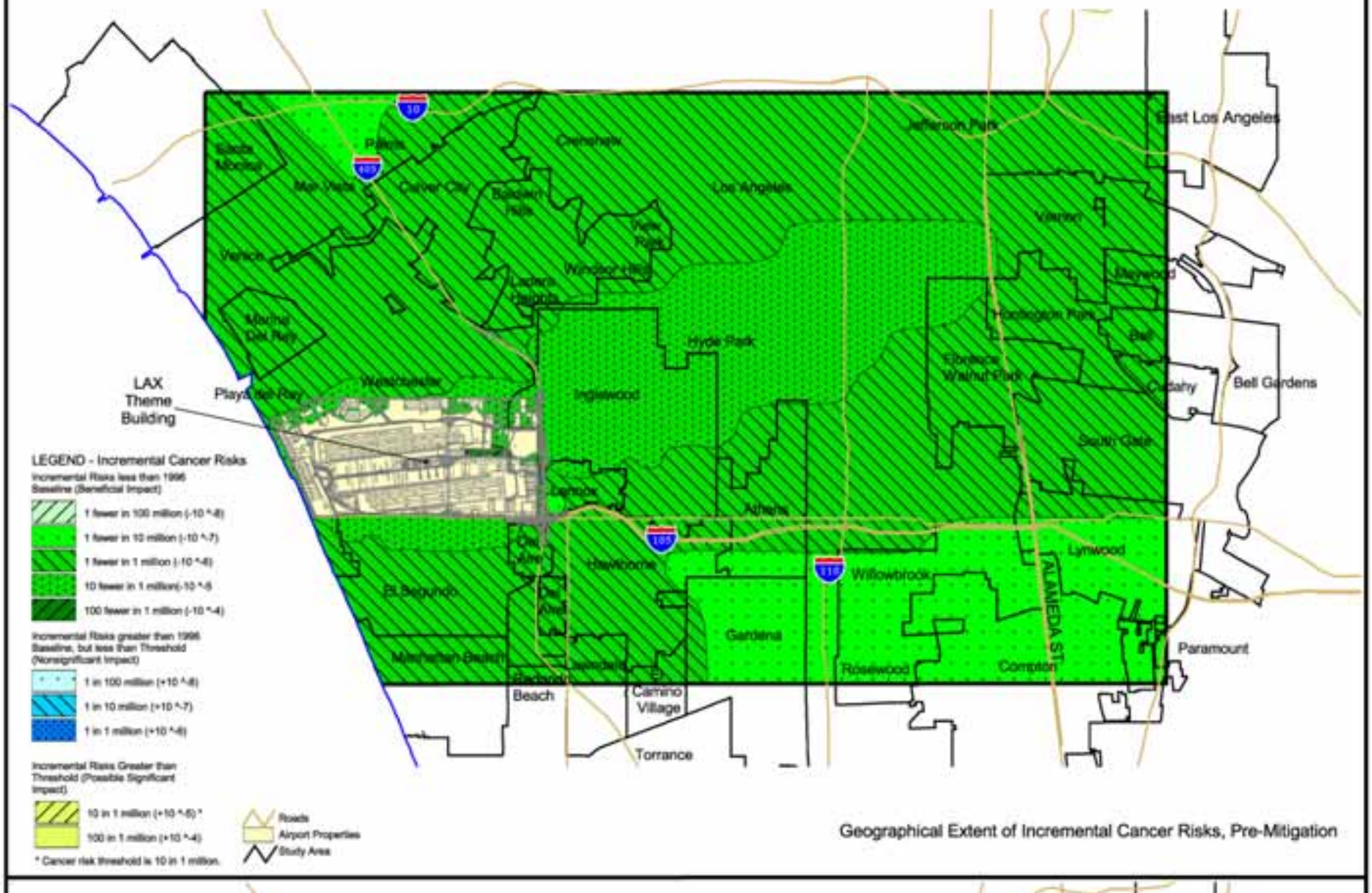
Geographical Extent of Incremental Non-Cancer Risks

0 10000 20000 30000 Feet

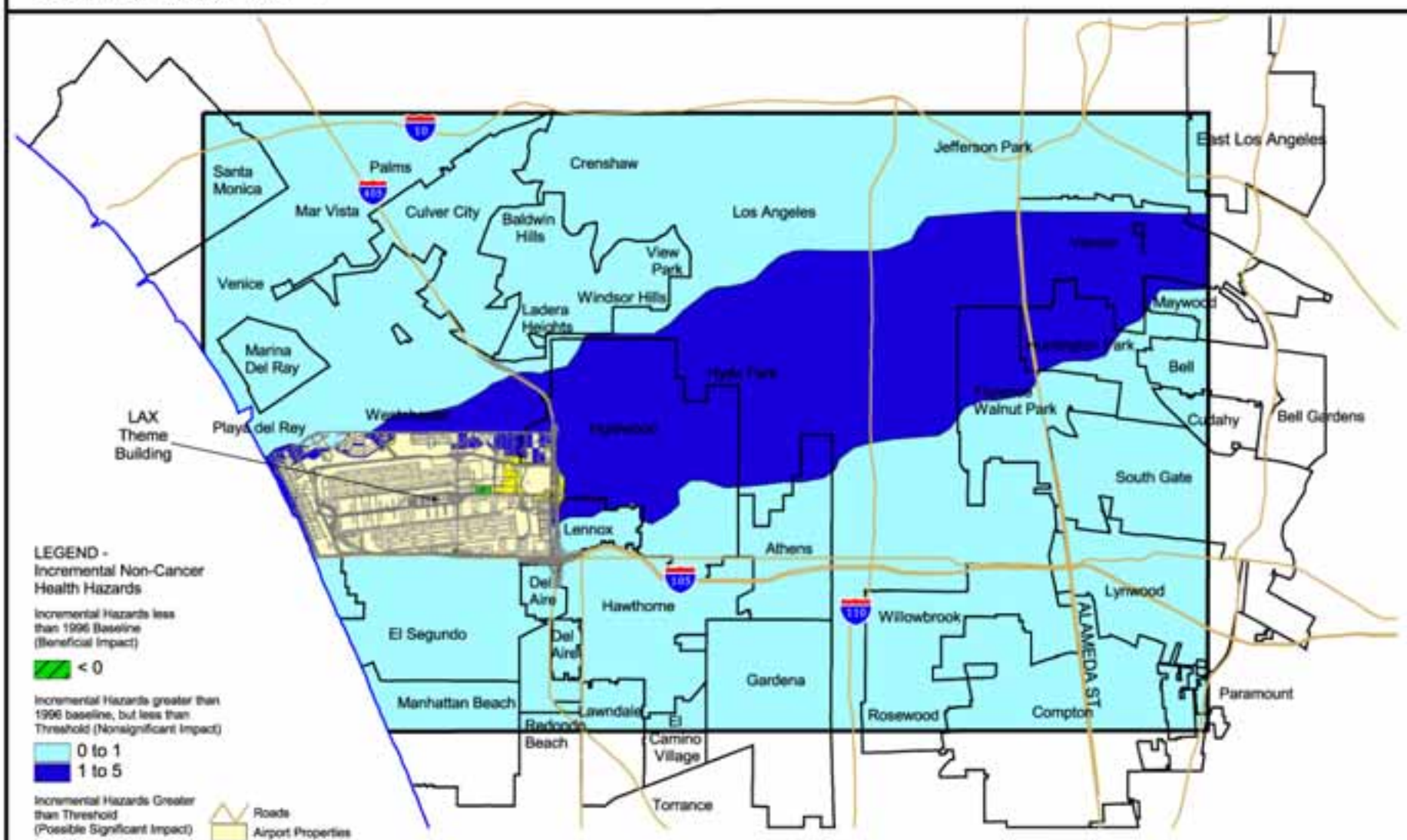
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Pre-Mitigation Conditions, No Action/No Project Alternative**	Figure **B-18**

tax02_2015_allarts_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

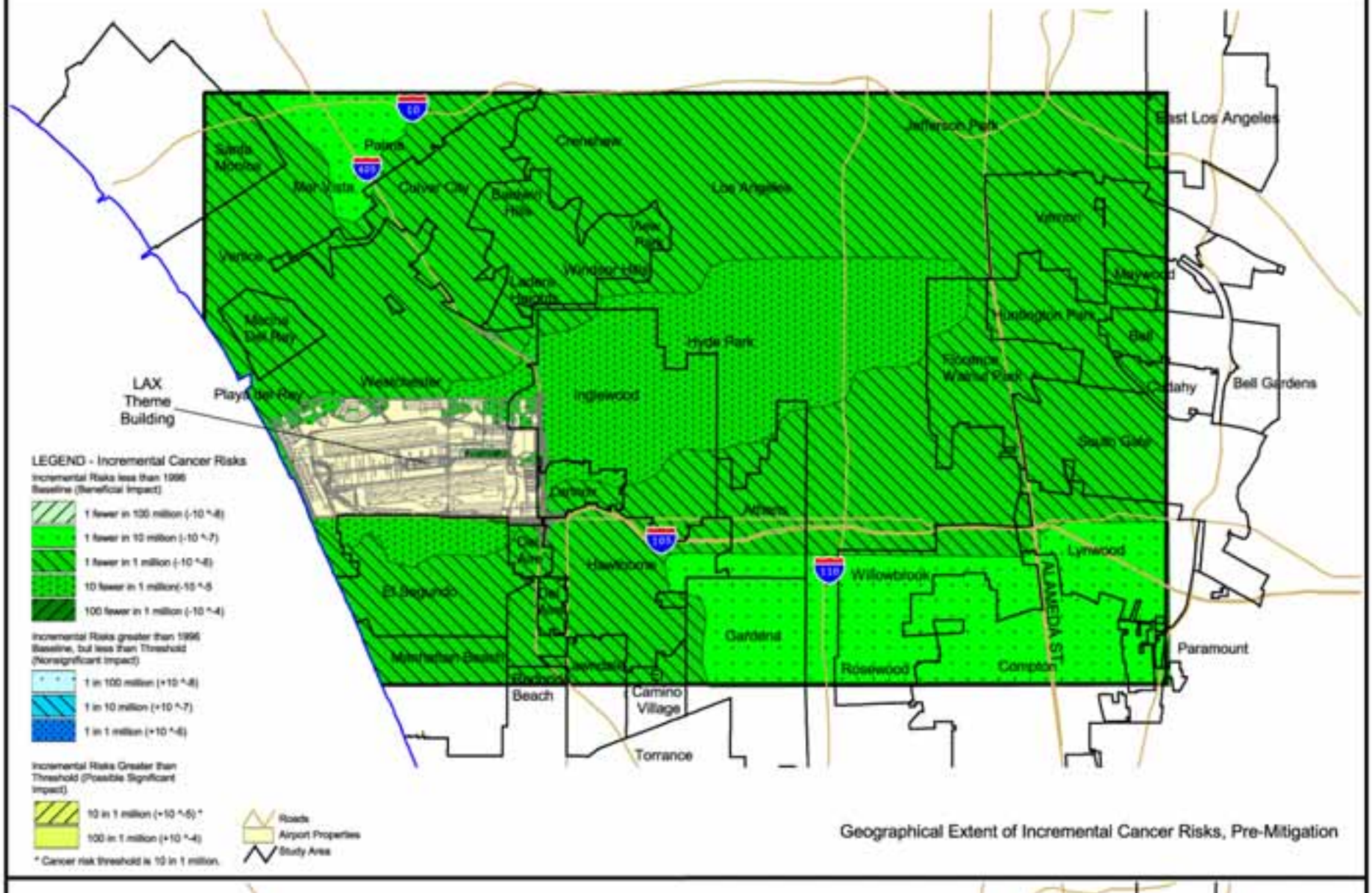
N

0 10000 20000 30000 Feet

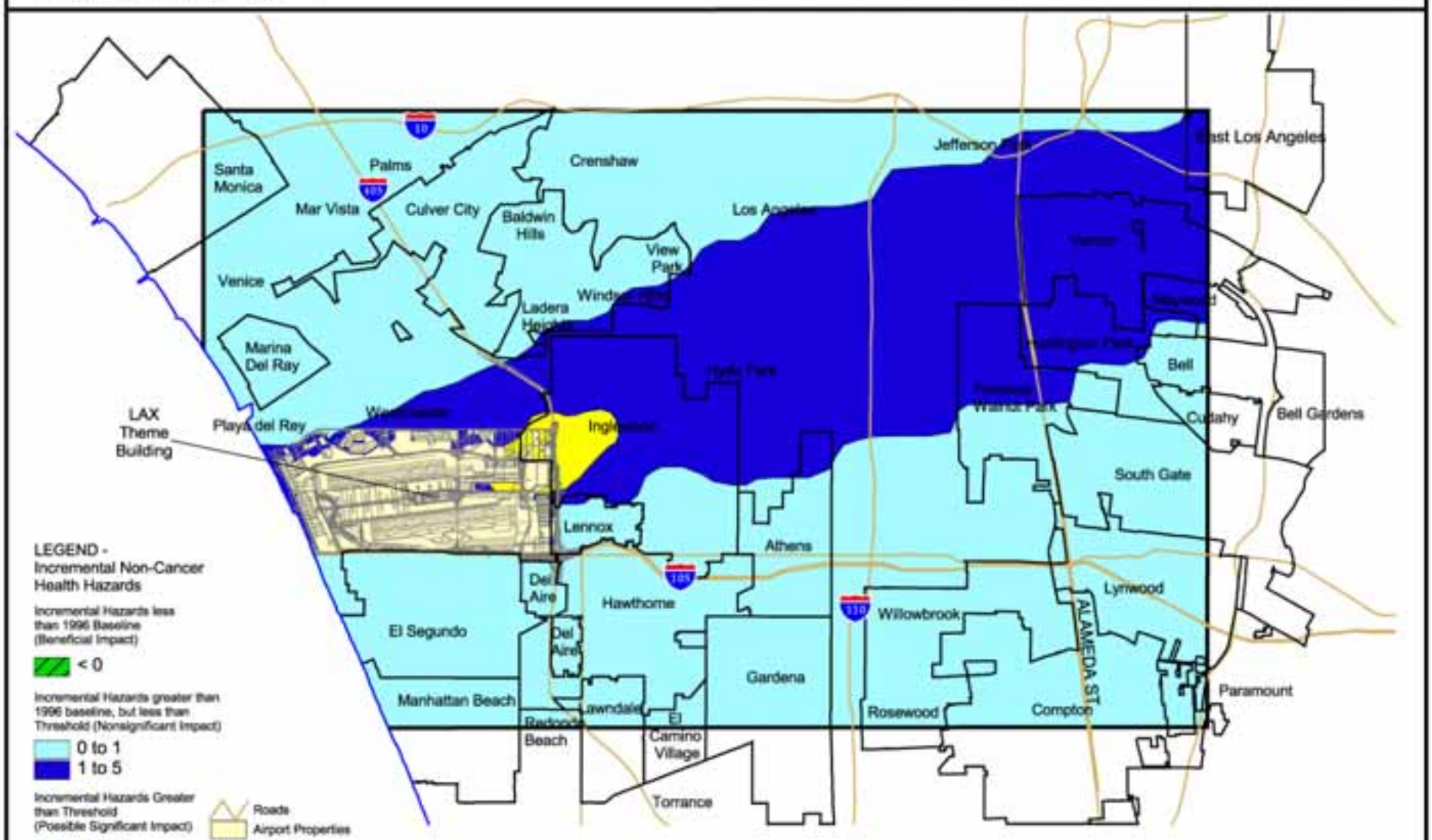
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Pre Mitigation Conditions, Alternative A**	Figure **B-19**

lax02_2015_allalts_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

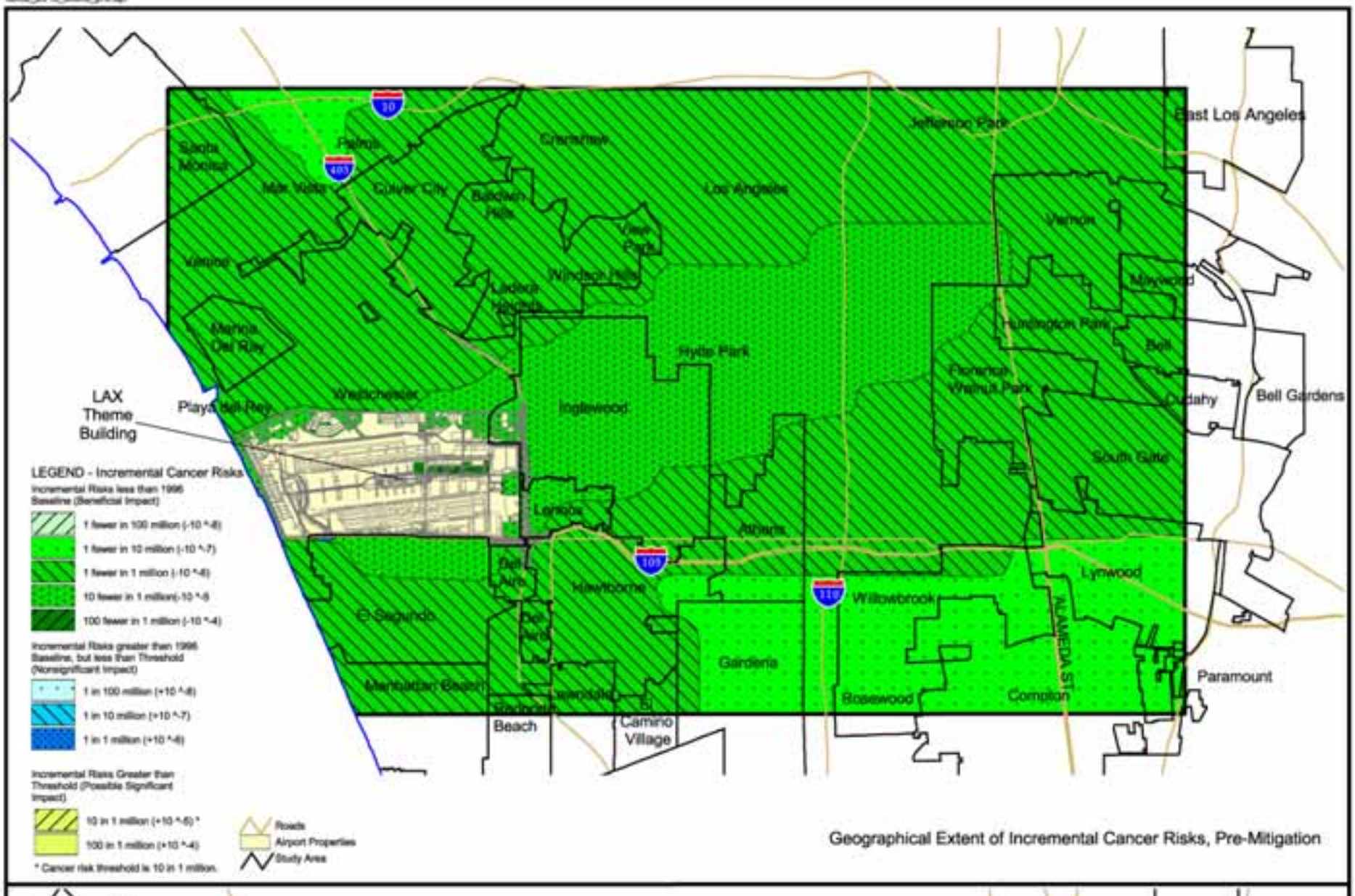
N

0 10000 20000 30000 Feet

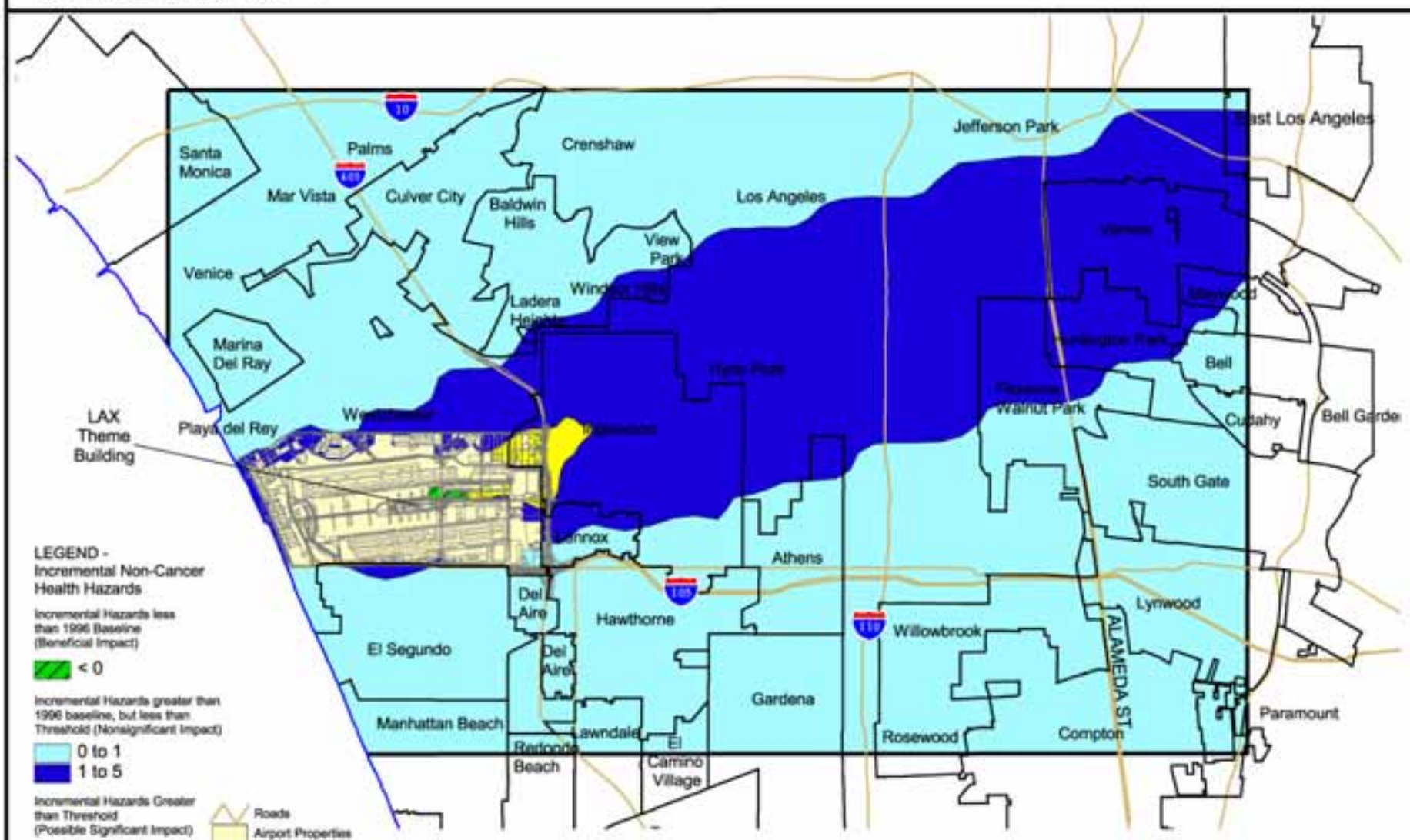
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Pre Mitigation Conditions, Alternative B**	Figure **B-20**

lax02_2015_allalts_pre.apr



Geographical Extent of Incremental Cancer Risks, Pre-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Pre-Mitigation

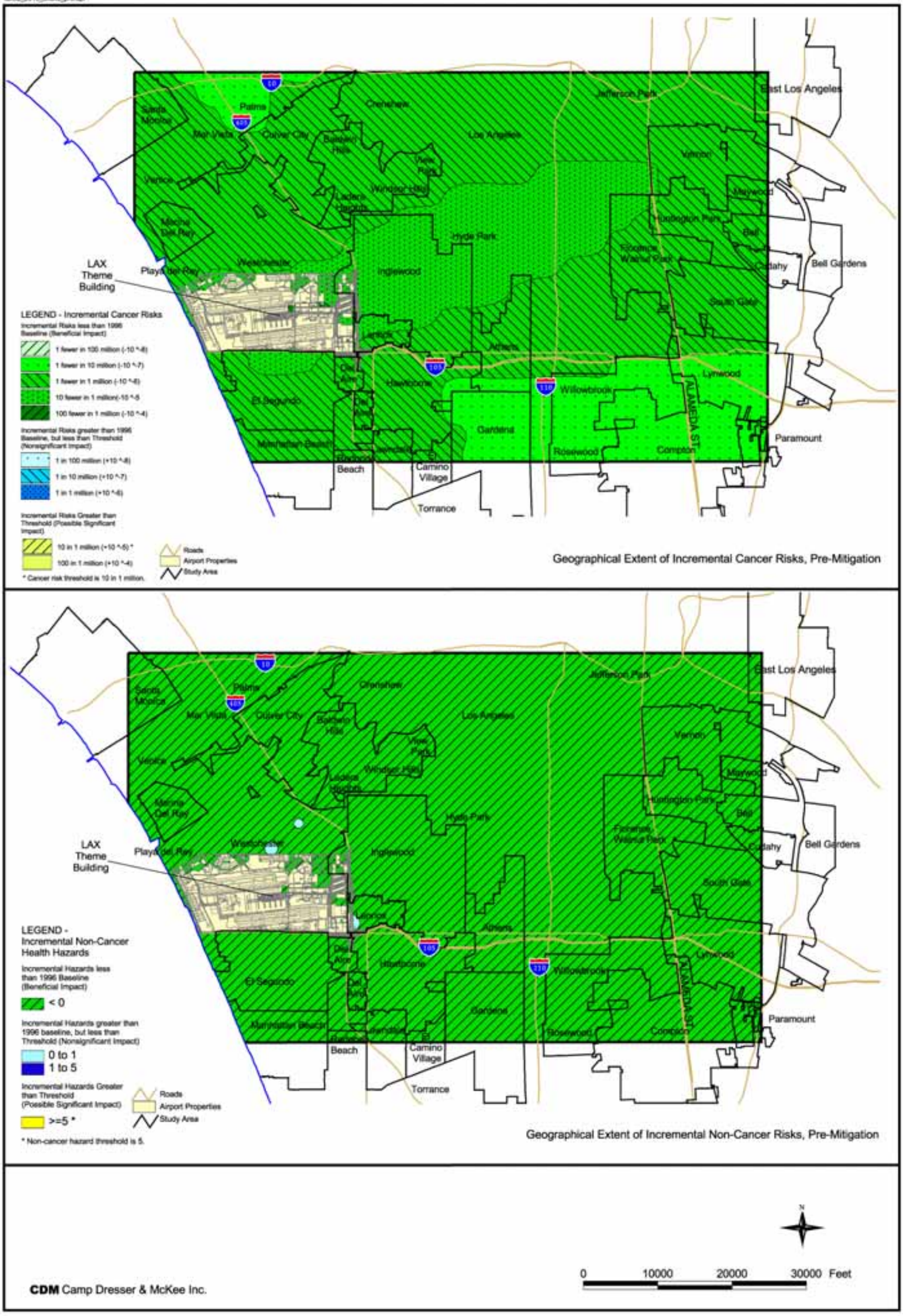
N

0 9000 18000 27000 Feet

CDM Camp Dresser & McKee Inc.

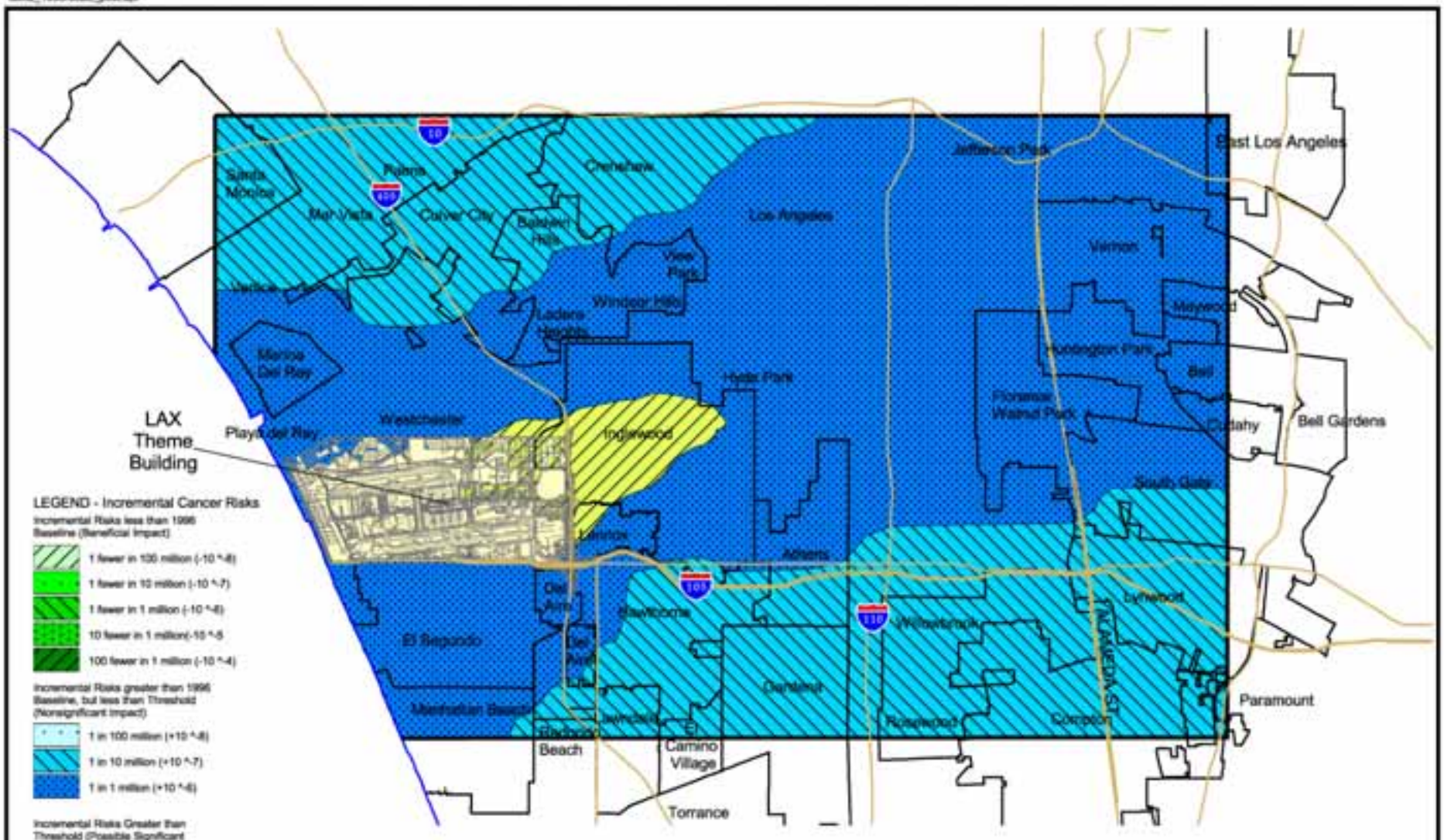
LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Pre Mitigation Conditions, Alternative C**	Figure **B-21**

lax02_2015_allalts_pre.apr

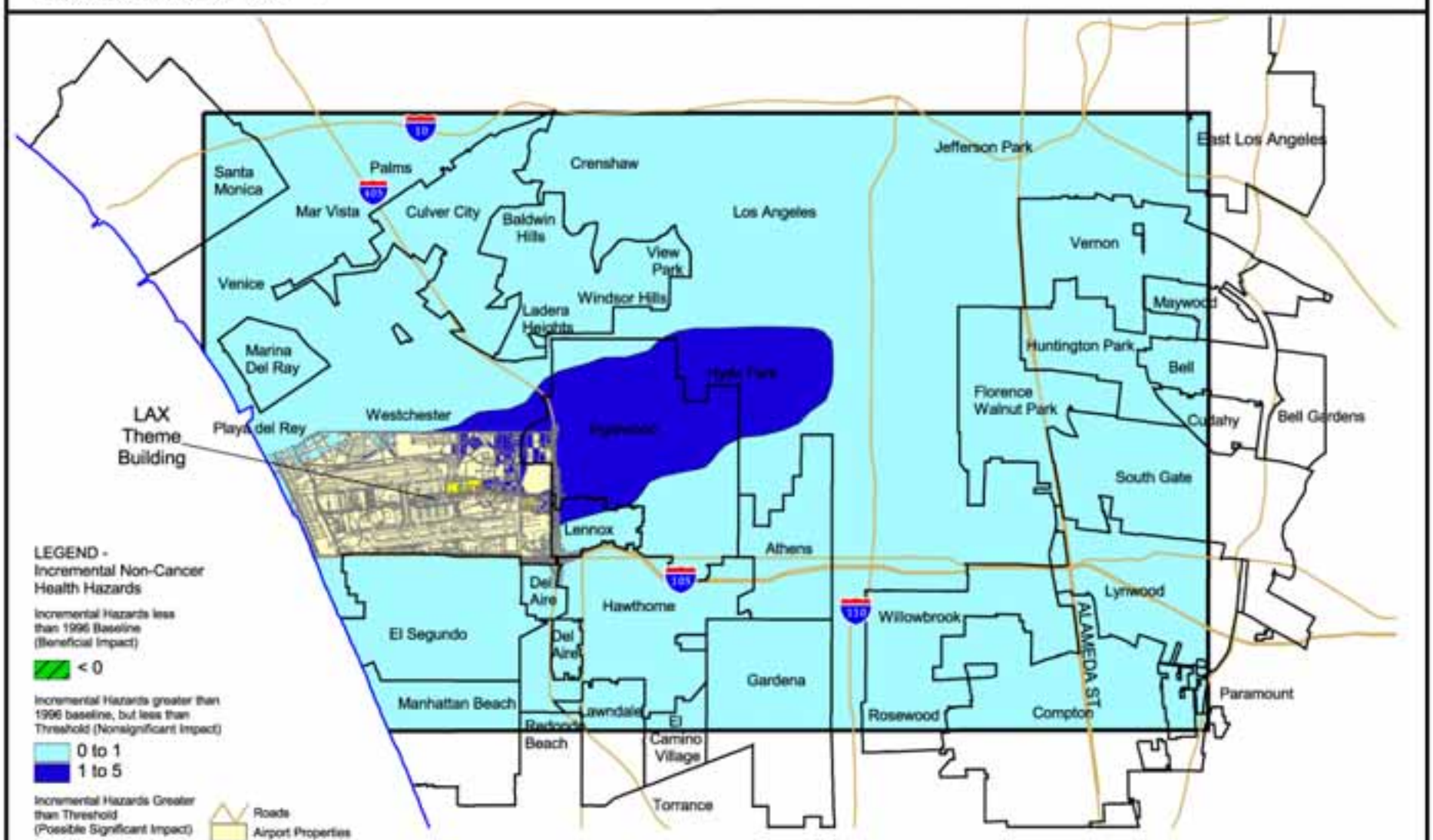


LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Pre Mitigation Conditions, Alternative D**	Figure **B-22**

lax02_1996incalc_post.apr



Geographical Extent of Incremental Cancer Risks



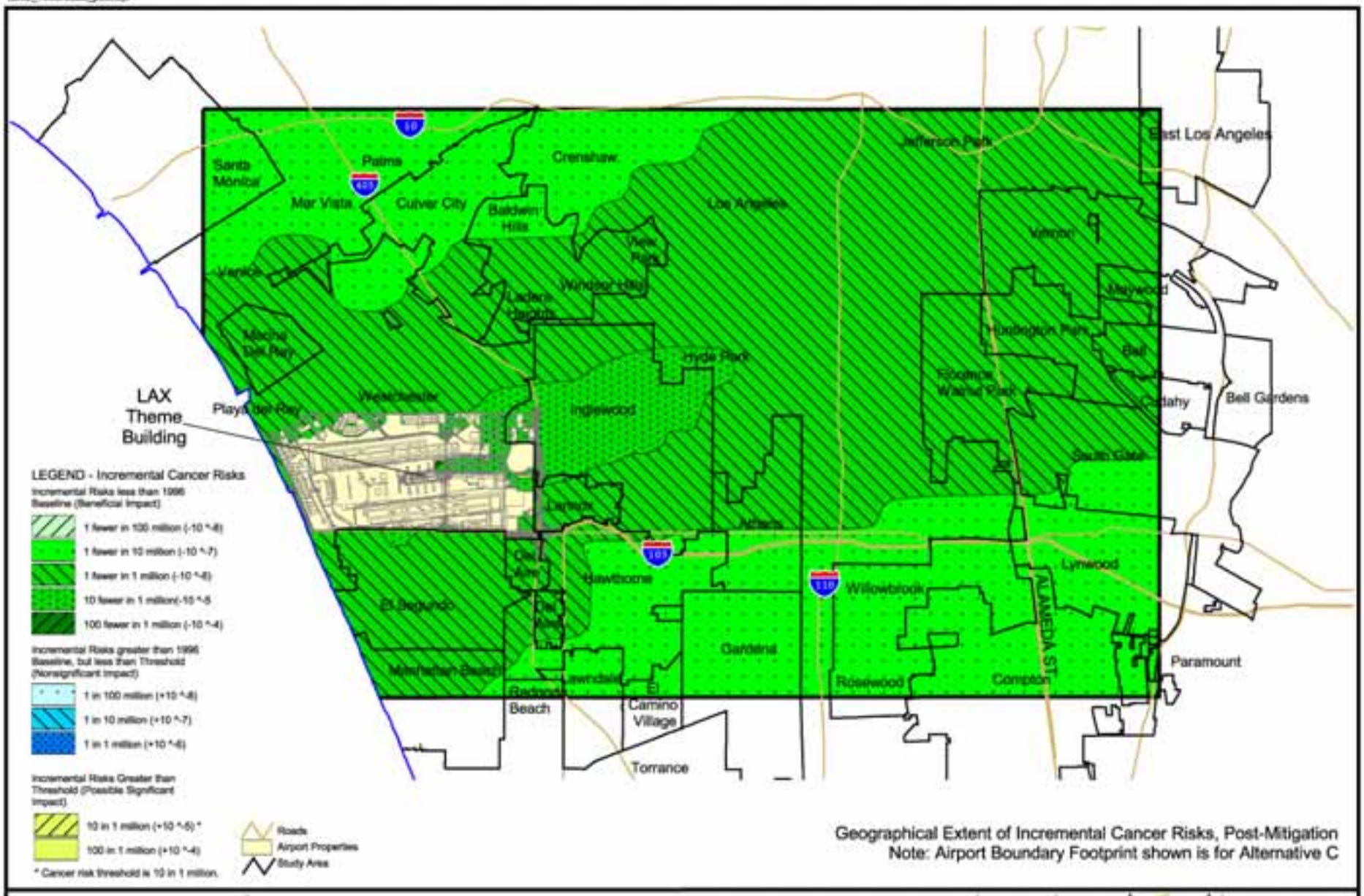
Geographical Extent of Incremental Non-Cancer Risks

0 10000 20000 30000 Feet

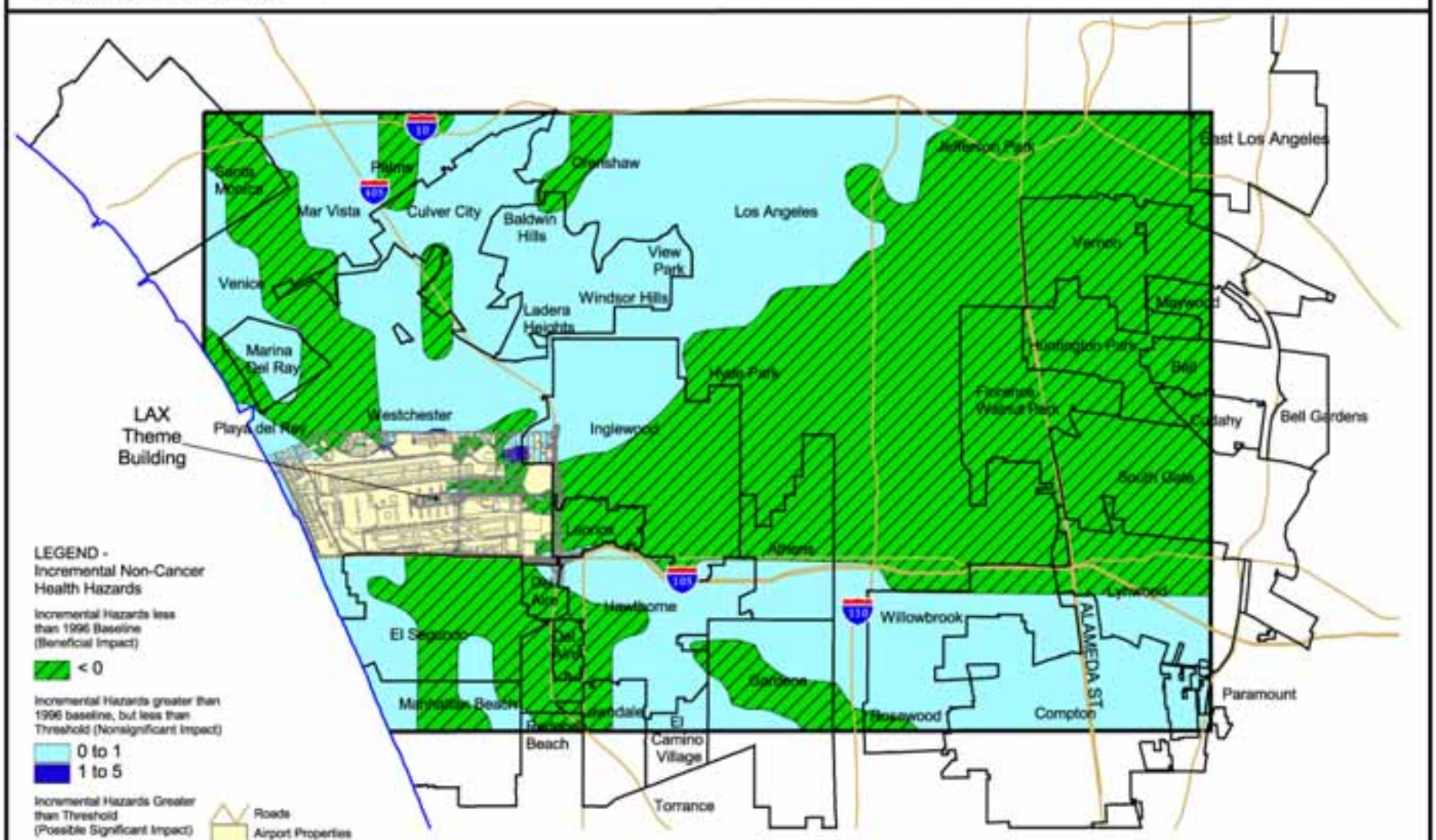
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Interim Year Post-Mitigation Conditions, No Action/No Project Alternative**	Figure **B-23**

lax02_1996recalc_post.apr



Geographical Extent of Incremental Cancer Risks, Post-Mitigation
Note: Airport Boundary Footprint shown is for Alternative C



Geographical Extent of Incremental Non-Cancer Risks, Post-Mitigation
Note: Airport Boundary Footprint shown is for Alternative C

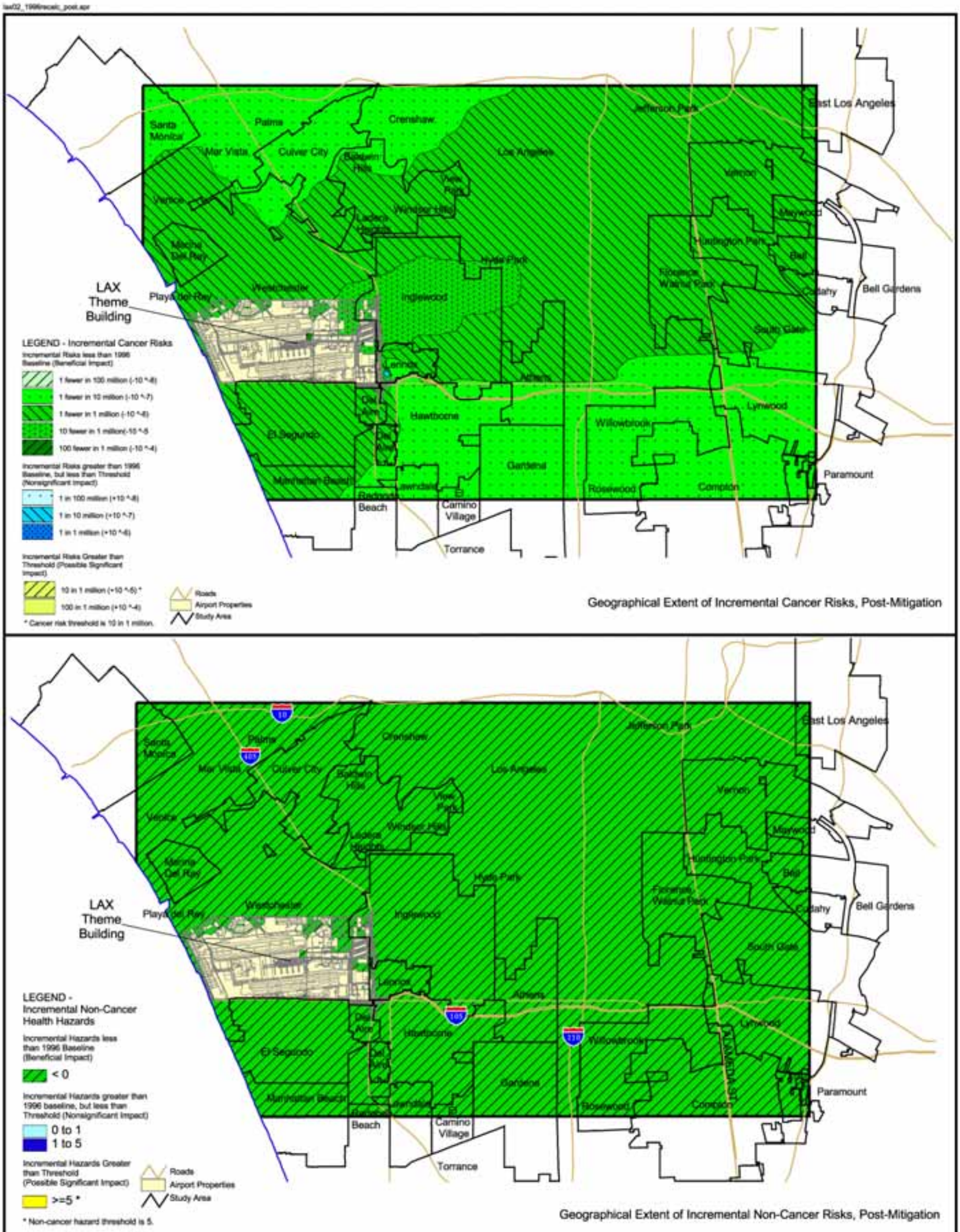
N

0 10000 20000 30000 Feet

CDM Camp Dresser & McKee Inc.

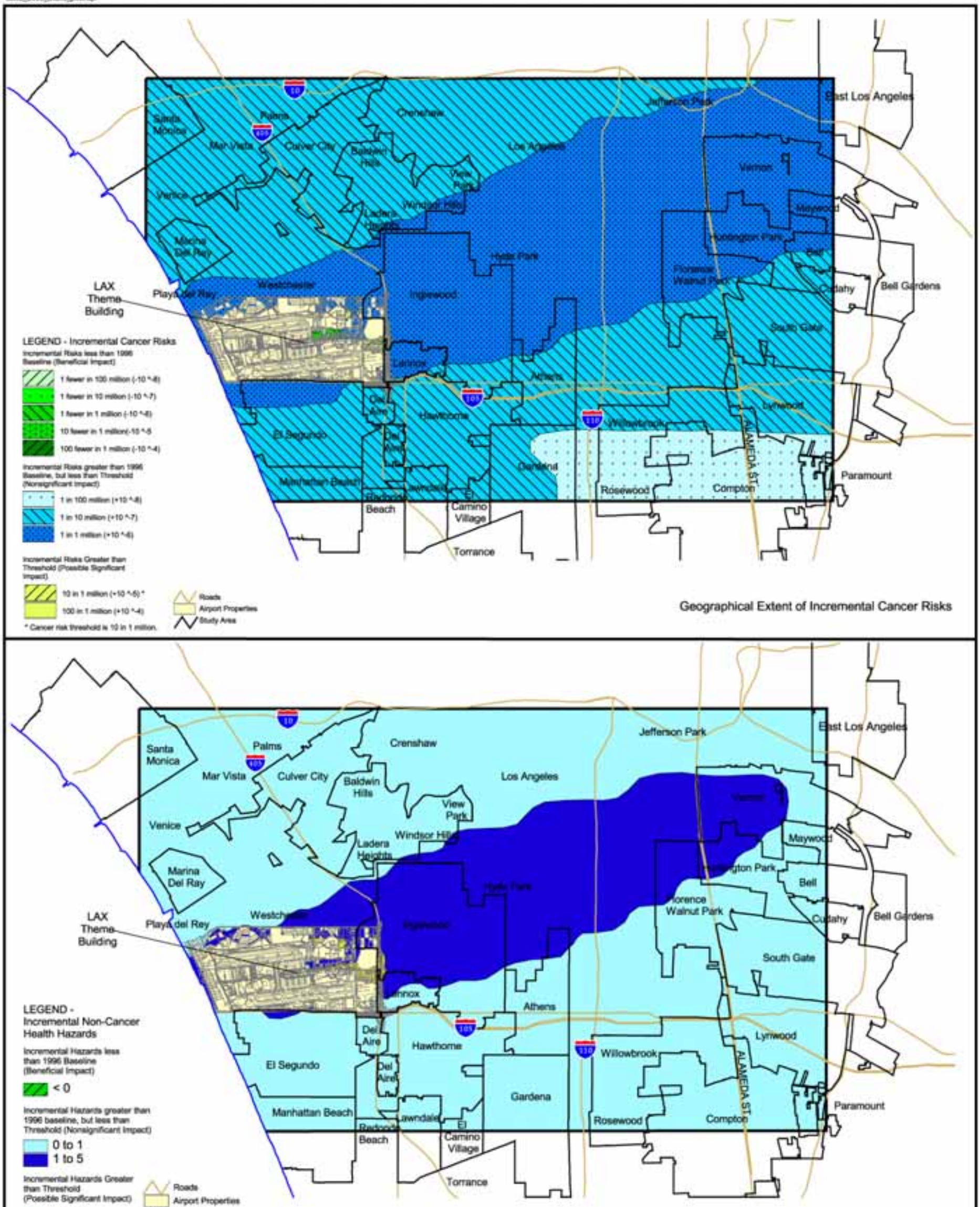
LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Interim Year Post-Mitigation Conditions, Alternative A,B,C**	Figure **B-24**

lax02_1996incelc_post.apr



LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Interim Year Post-Mitigation Conditions, Alternative D**	Figure **B-25**

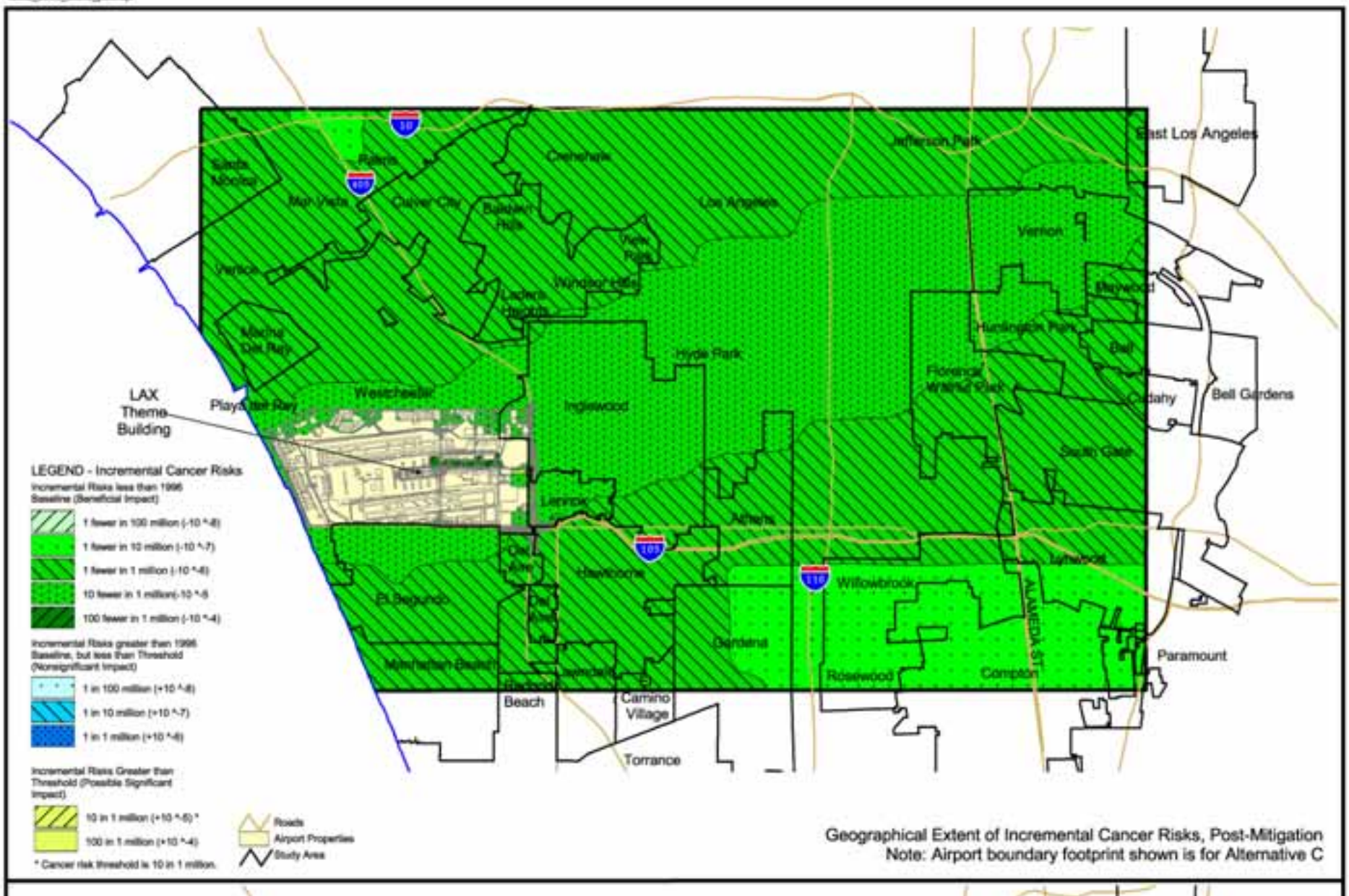
lax02_2005_allalts_post.apr



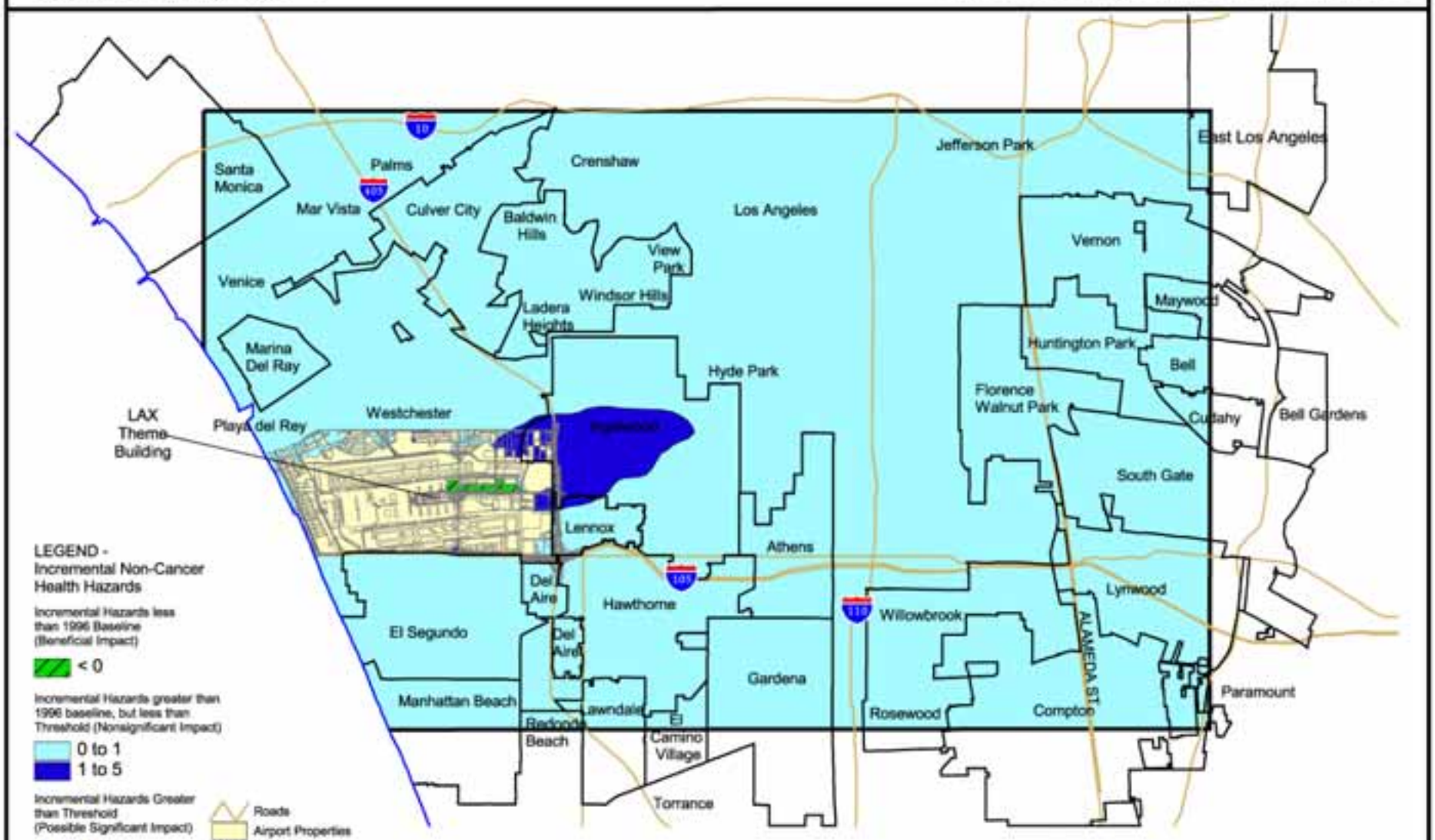
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Interim Year Post-Mitigation Conditions, No Action/No Project Alternative**	Figure **B-26**

tax02_2005_allalts_post.apr



Geographical Extent of Incremental Cancer Risks, Post-Mitigation
Note: Airport boundary footprint shown is for Alternative C



Geographical Extent of Incremental Non-Cancer Risks, Post-Mitigation
Note: Airport boundary footprint shown is for Alternative C

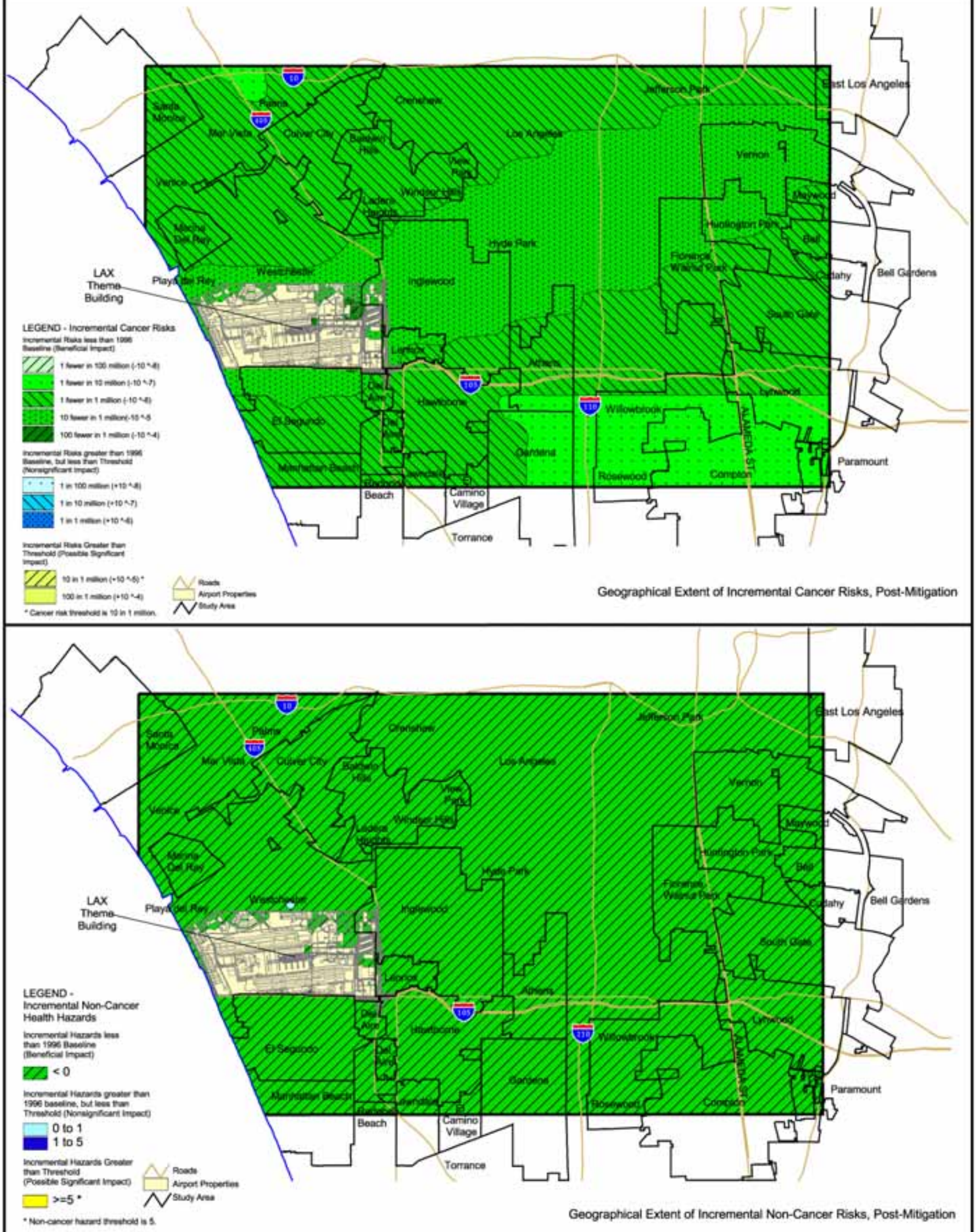
N

0 9000 18000 27000 Feet

CDM Camp Dresser & McKee Inc.

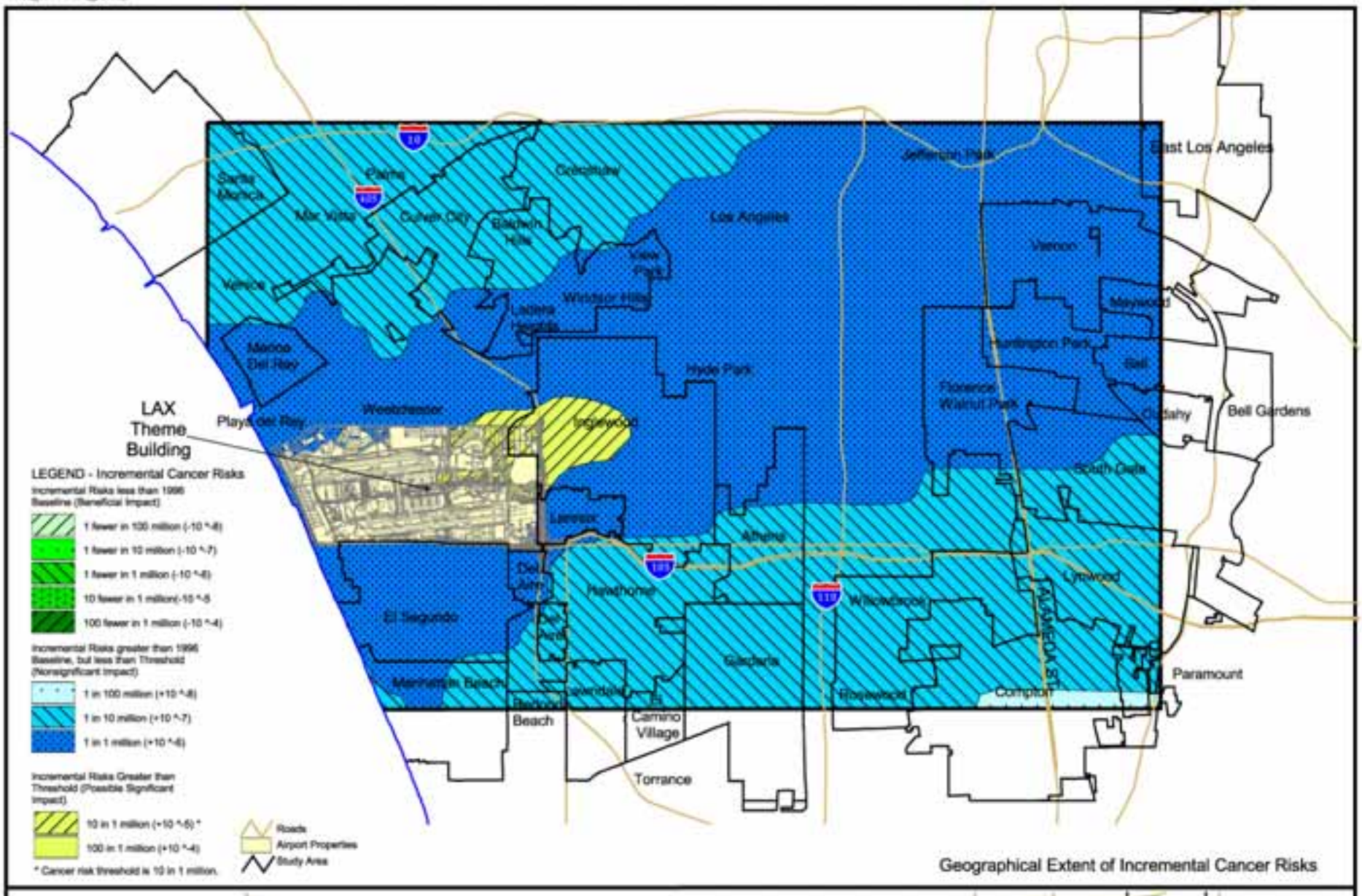
LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Interim Year Post-Mitigation Conditions, Alternative A,B,C**	Figure **B-27**

lax02_2005_atlalts_post.apr

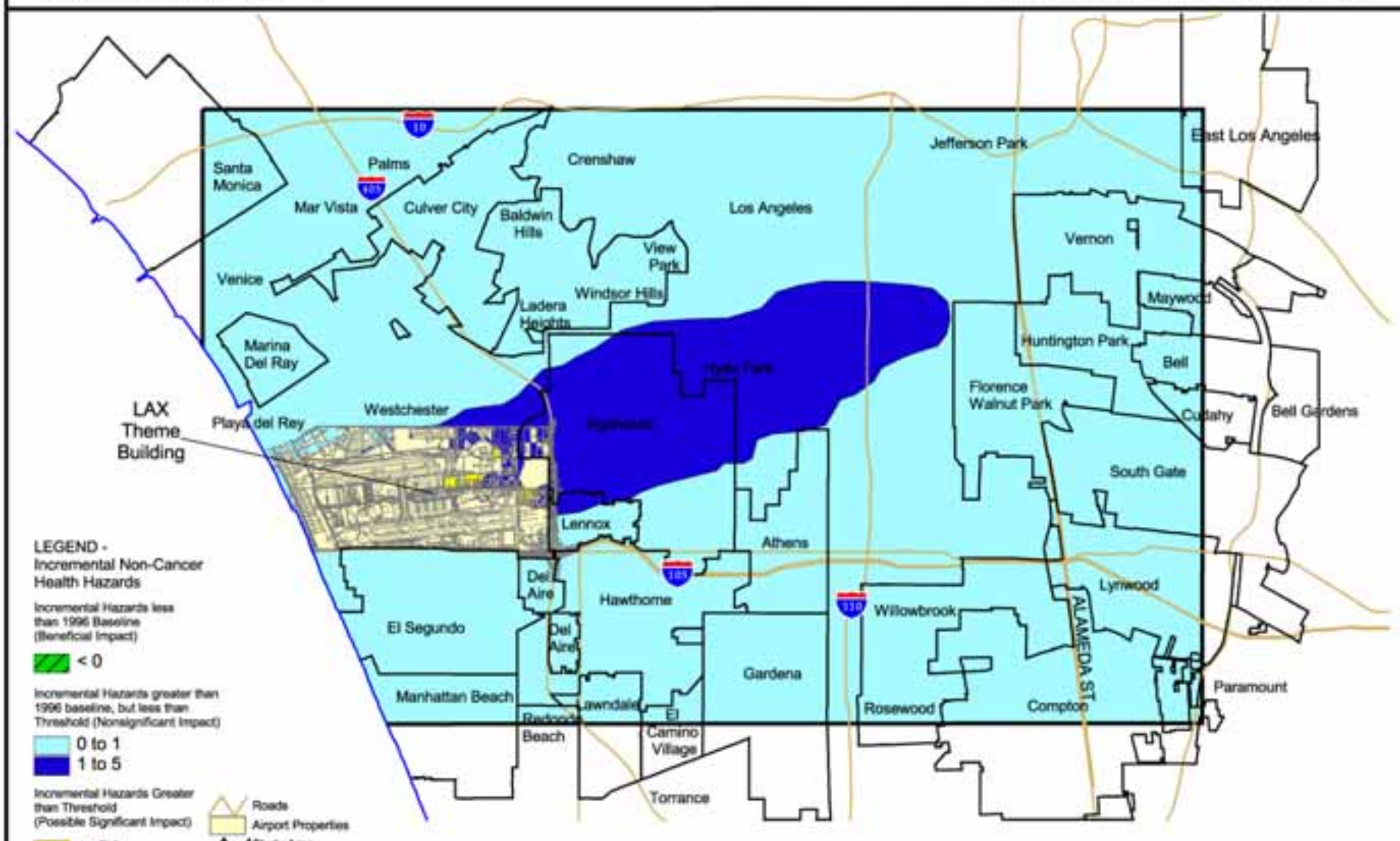


CDM Camp Dresser & McKee Inc.

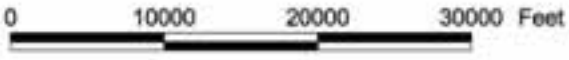
LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Interim Year Post-Mitigation Conditions, Alternative D**	Figure **B-28**



Geographical Extent of Incremental Cancer Risks



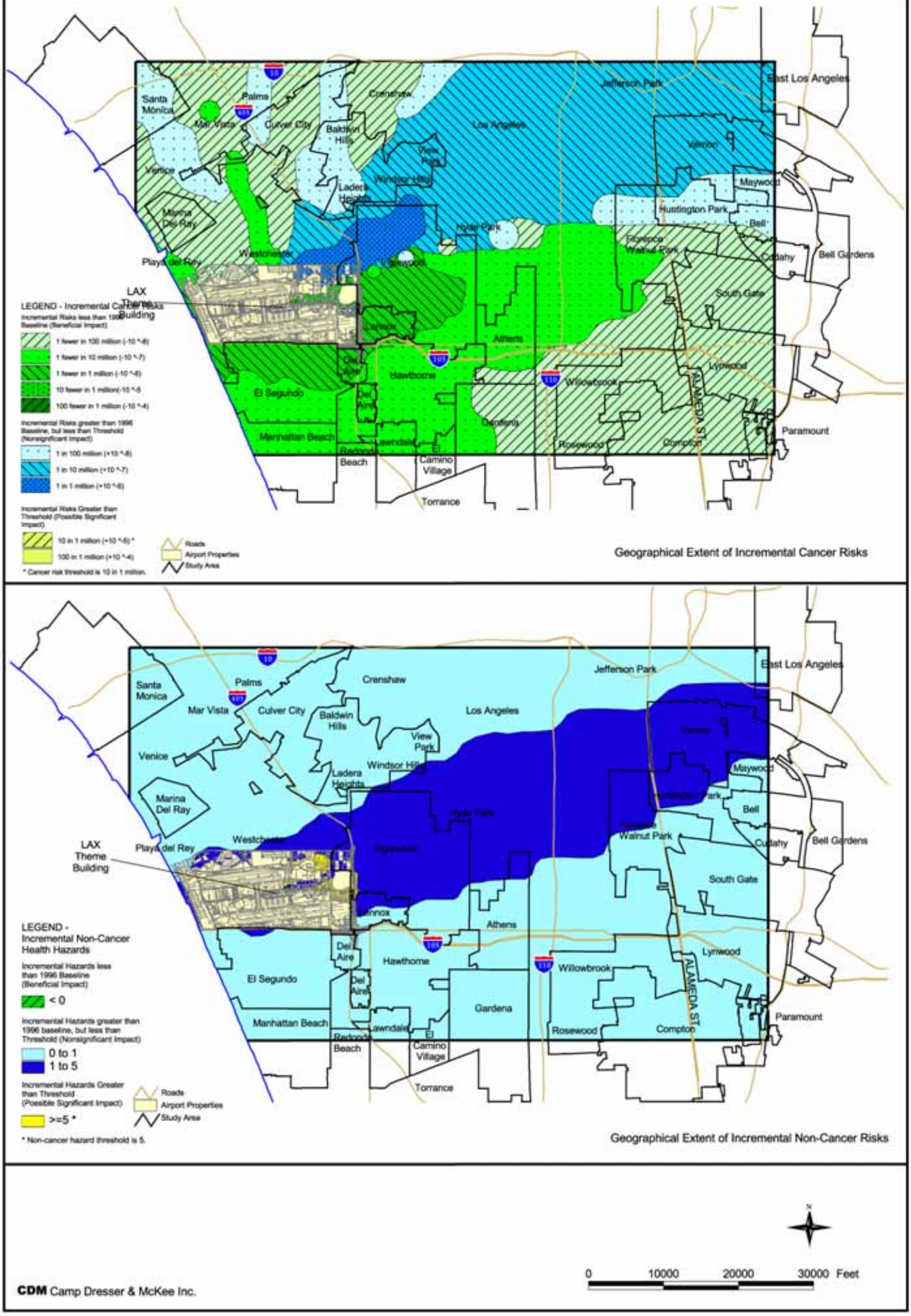
Geographical Extent of Incremental Non-Cancer Risks



CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Baseline 1996, Horizon Year 2015, Post-Mitigation Conditions, No Action/No Project Alternative**	Figure **B-29**

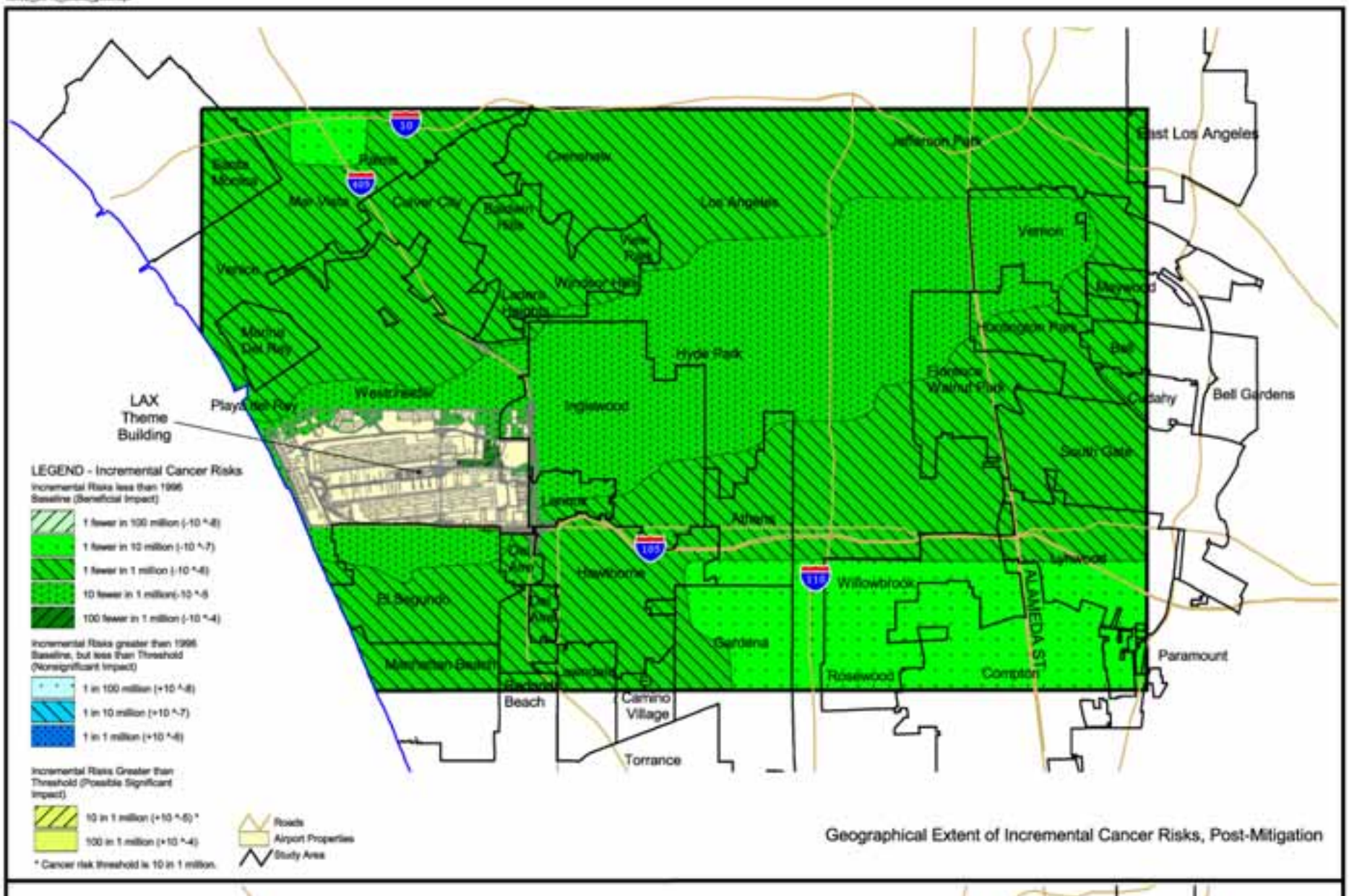
lax02_2015_allalts_post.apr



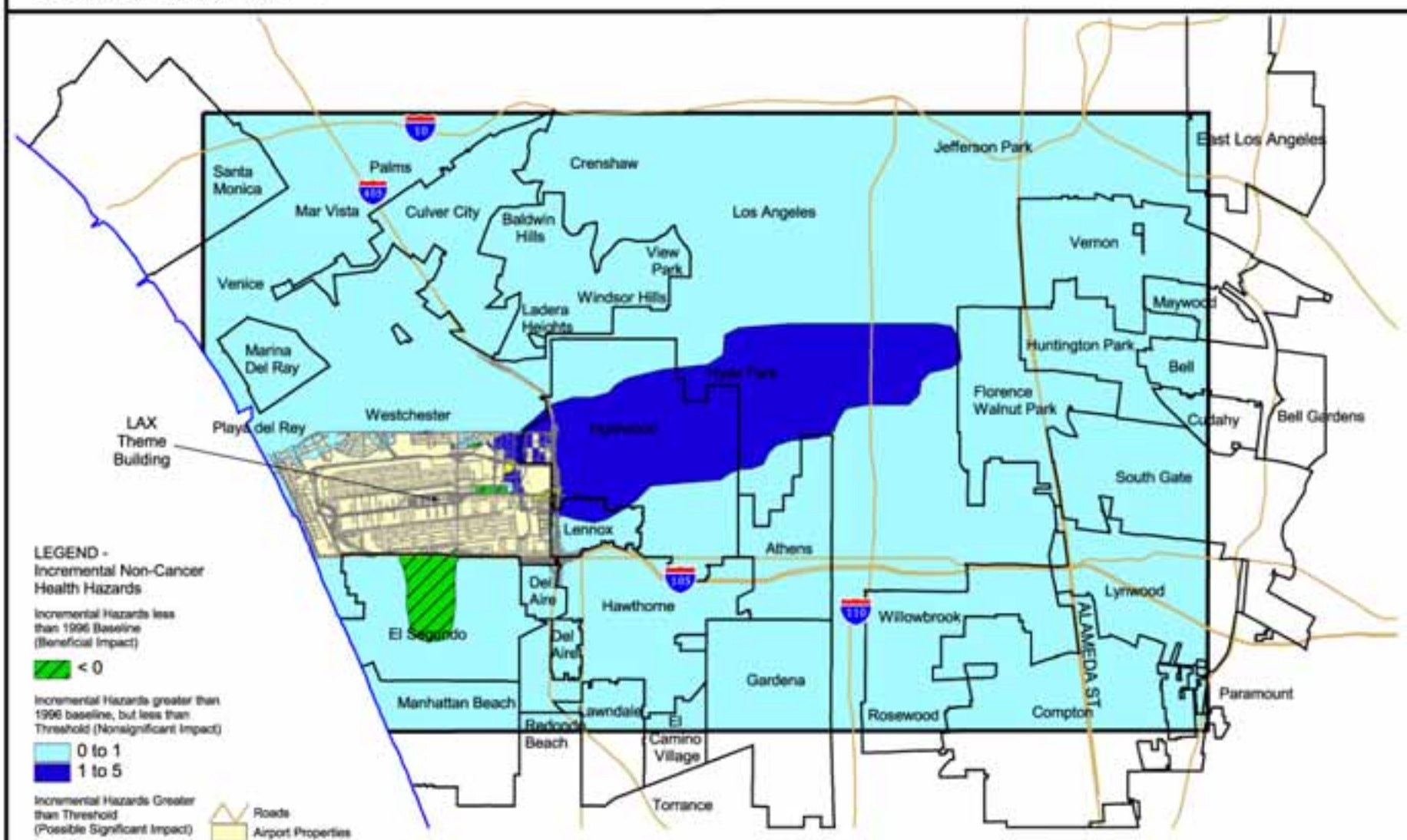
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Post Mitigation Conditions, No Action/No Project Alternative**	Figure **B-30**

lax02_2015_allalts_post.apr



Geographical Extent of Incremental Cancer Risks, Post-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Post-Mitigation

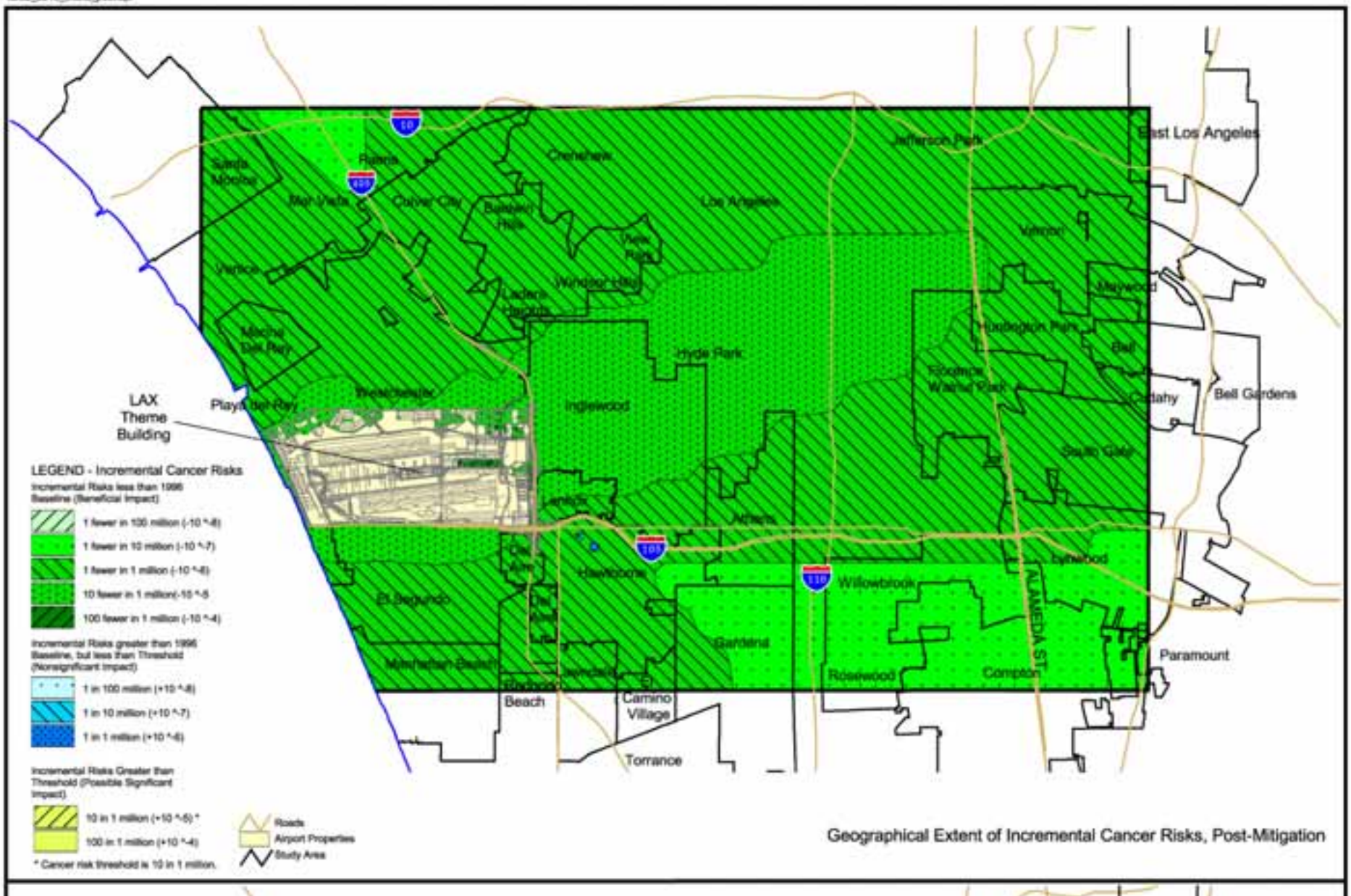
N

0 10000 20000 30000 Feet

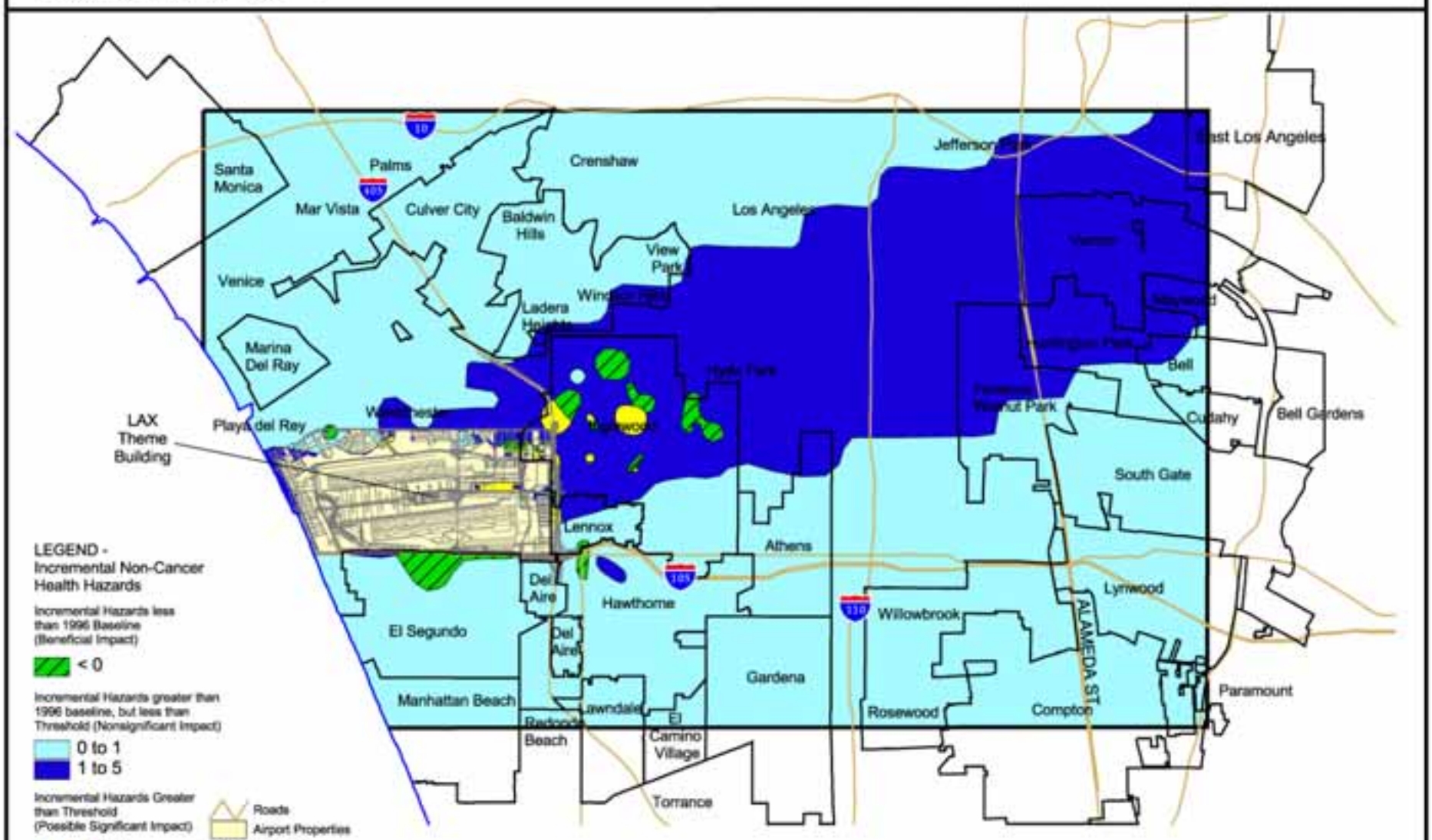
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Post Mitigation Conditions, Alternative A**	Figure **B-31**

lax02_2015_allalts_post.apr



Geographical Extent of Incremental Cancer Risks, Post-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Post-Mitigation

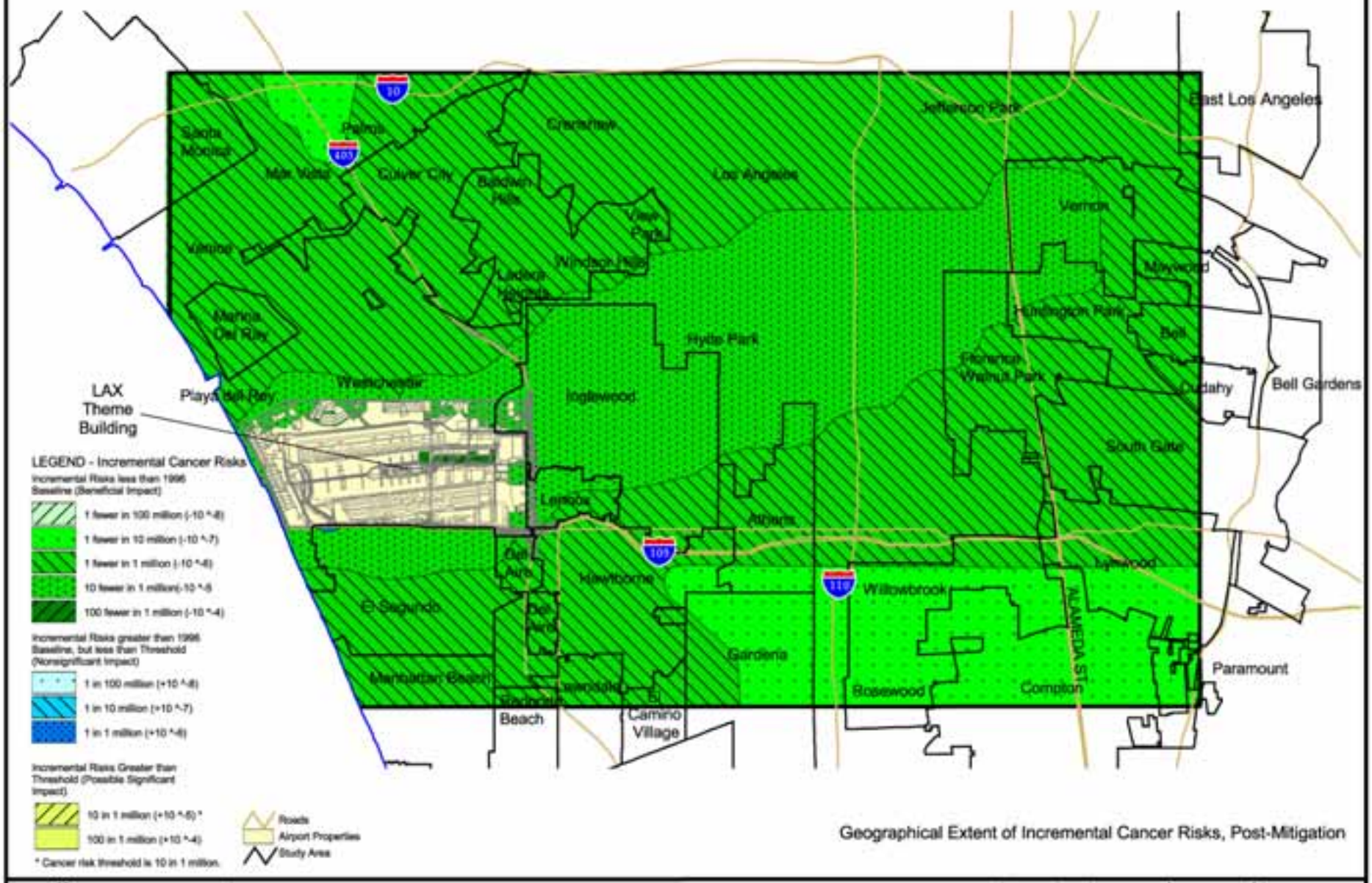
N

0 10000 20000 30000 Feet

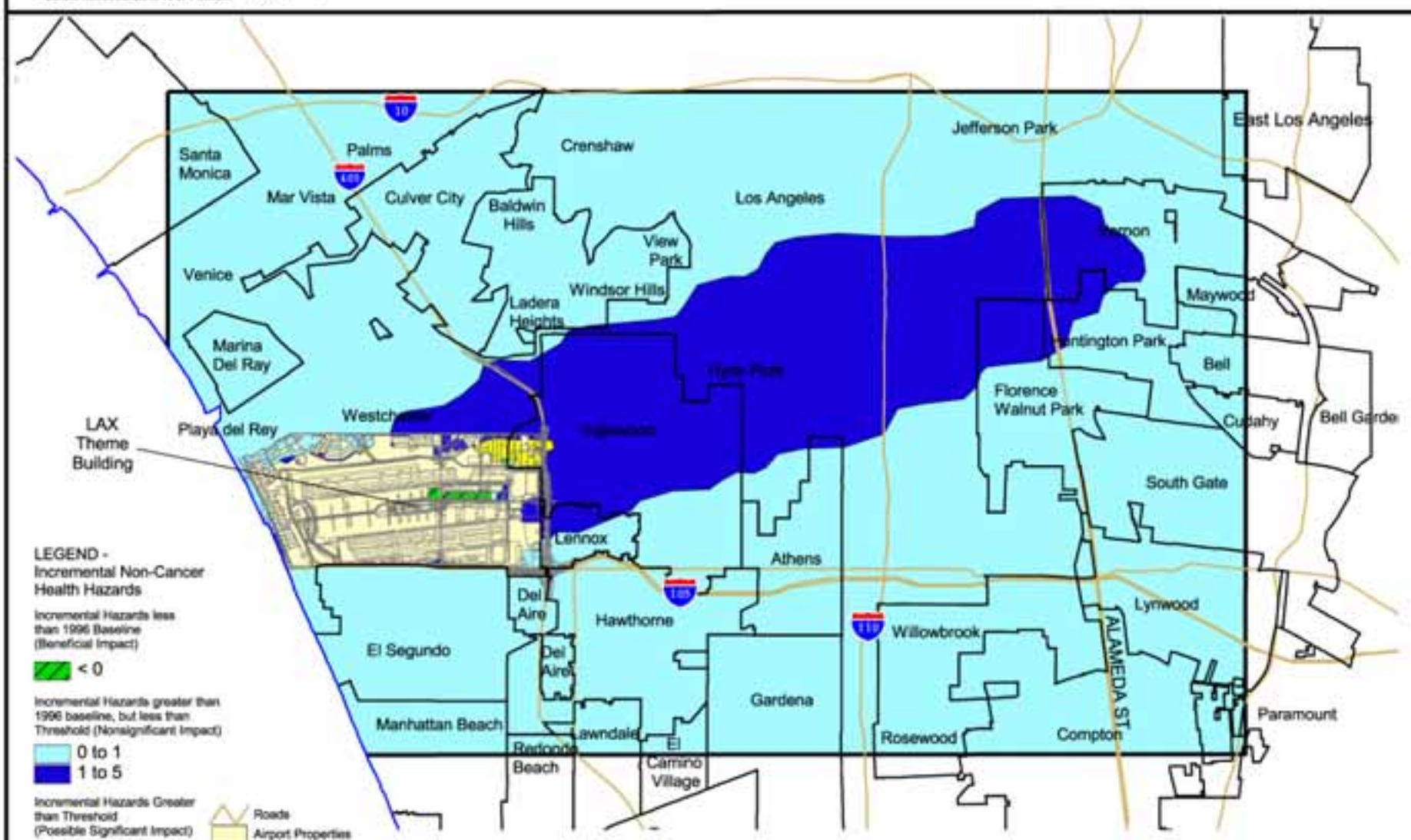
CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Post Mitigation Conditions, Alternative B**	Figure **B-32**

lax02_2015_allalts_post.apr



Geographical Extent of Incremental Cancer Risks, Post-Mitigation



Geographical Extent of Incremental Non-Cancer Risks, Post-Mitigation

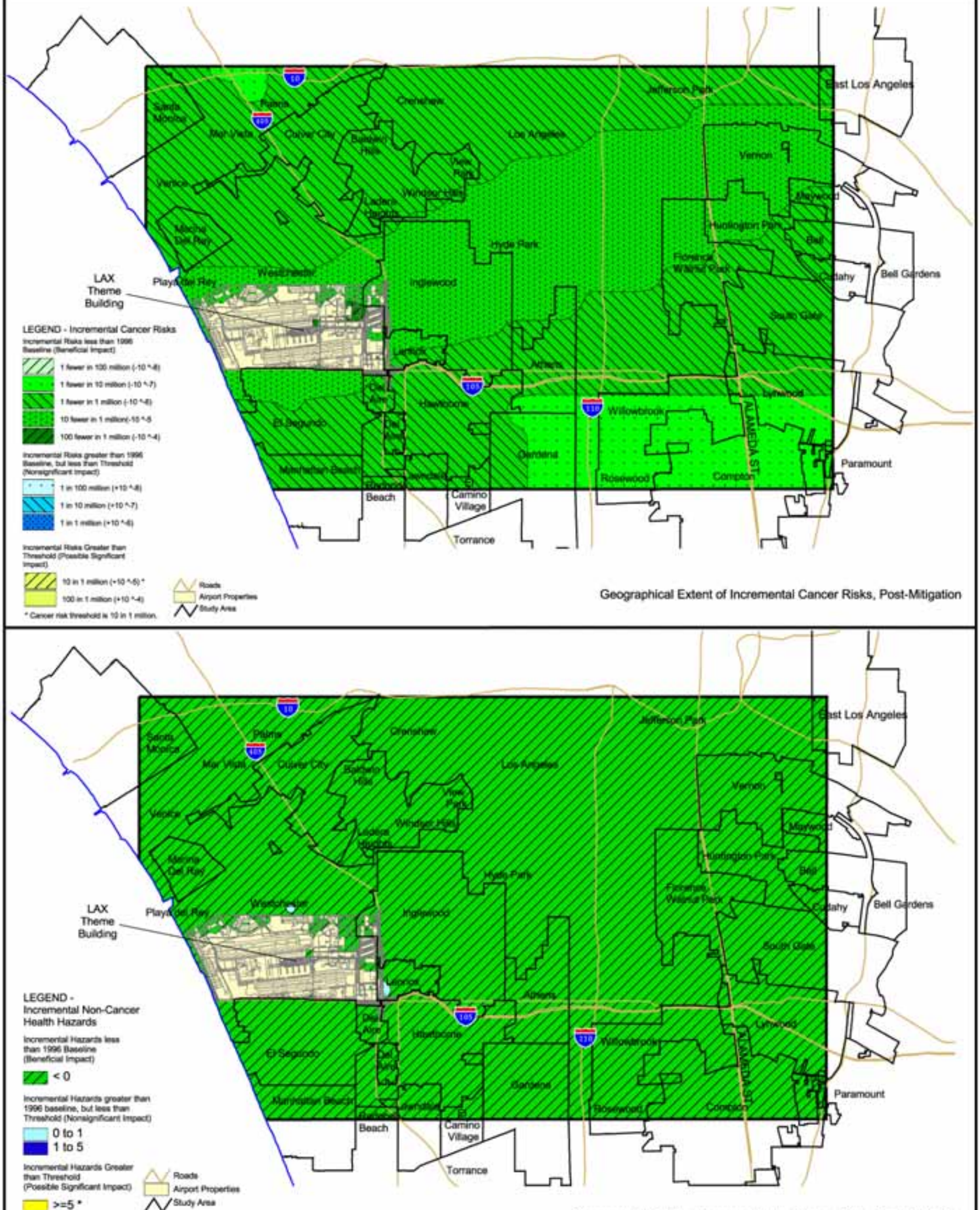
N

0 9000 18000 27000 Feet

CDM Camp Dresser & McKee Inc.

LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Post Mitigation Conditions, Alternative C**	Figure **B-33**

lax02_2015_eilathx_post.apr



LAX Master Plan Supplement to the Draft EIS/EIR	**Geographical Extent of Incremental Cancer Risks and Health Hazards, Compared to Year 2000, Horizon Year 2015 Post Mitigation Conditions, Alternative D**	Figure **B-34**