Appendix A: Cumulative Toxic Air Contaminant Threshold Document

Cumulative Toxic Air Contaminant Threshold Document
Visalia Walmart Expansion Project
City of Visalia, California

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SECTION 1: ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
CAPCOA	California Air Pollution Control Officers Association
CEQA	California Environmental Quality Act
CRRP	Community Risk Reduction Plan
District	San Joaquin Valley Air Pollution Control District
DPM	diesel particulate matter
DRRP	Diesel Risk Reduction Plan
EPA	United States Environmental Protection Agency
HAP	hazardous air pollutant
MEI	maximally exposed individual
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppm	parts per million
ppt	parts per trillion
SLOAPCD	San Luis Obispo County Air Pollution Control District
TAC	toxic air contaminant

SECTION 2: EXECUTIVE SUMMARY

2.1 - Introduction

The City of Visalia released a Draft Environmental Impact Report (Draft EIR) for the Visalia Walmart Expansion Project (State Clearinghouse No. 2008121133) on October 13, 2010. The Draft EIR circulated for public review between October 13, 2010 and November 29, 2010. After closure of the public review period, the City prepared responses to comments received on the Draft EIR. The responses were provided in the Final EIR, which was released on April 15, 2011. The Visalia City Council certified the Final EIR and approved the project entitlements on June 20, 2011.[1] Following the City Council action, The Visalia Smart Growth Coalition filed a lawsuit under the California Environmental Quality Act (CEQA) challenging the EIR's adequacy in Tulare County Superior Court. The Court upheld the adequacy of the 2011 EIR in all but one discrete area related to cumulative toxic air contaminant impacts, which is the subject of this Partial Recirculated Draft EIR.

In the case of *Visalia Smart Growth Coalition vs. City of Visalia*, the Tulare County Superior Court ruled on April 12, 2012 that the cumulative impact analysis for toxic air contaminants (TAC) included in the EIR was inconsistent with the requirements of CEQA. The Court found that the EIR did not undertake a legally adequate analysis of the project's potential to result in significant cumulative TAC impacts and failed to establish an appropriate cumulative threshold of significance for a TAC impact analysis to determine significance. The purpose of this document is to provide a cumulative TAC threshold consistent with CEQA requirements, the Court's ruling and supported by substantial evidence. This document also provides a methodology and criteria to determine the significance of TAC cumulative impacts for the City of Visalia to use when evaluating the project. The threshold and methodology will be used as the basis of a cumulative TAC analysis that is included in a Partial Recirculated EIR prepared in response to the Court's ruling (attached as EIR Appendix K).

This document used the following process to identify a suitable cumulative TAC threshold for use by the City of Visalia for the project:

- Review CEQA requirements and case law related to cumulative impacts.
- Review cumulative TAC thresholds used by other jurisdictions and their consistency with CEQA to help identify an acceptable approach.
- Review methodologies used for cumulative toxic analysis.

[1] The Final EIR certified by the City on June 20, 2011 includes the written responses to public comments on the Draft Environmental Report prepared to evaluate the Visalia Walmart Expansion Project, and the Draft EIR document. Together, they constitute the EIR certified by the City on June 20, 2011. For sake of clarity, the Draft EIR is referenced as the "2010 DEIR" and the full EIR document is referenced as the 2011 EIR.

- Define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used.
- Provide criteria for determining what constitutes a cumulatively considerable contribution to an existing significant impact.

Toxic Air Contaminants

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants (TACs) are a group of substances known or suspected to cause cancer, serious illness, birth defects, or death. For this discussion, HAPs and TACs are used interchangeably. HAPs are regulated by the United States Environmental Protection Agency (EPA) under the federal Clean Air Act. TAC is the term used under the California Clean Air Act to regulate the same hazardous pollutants. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. Many of these contaminants originate from human activities, such as fuel combustion and solvent use. Mobile Source Air Toxics (MSATs) are a subset of the 188 HAPs. Of the 21 HAPs identified by EPA as MSATs, a priority list of six priority HAPs were identified that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. These six compounds comprise most of the risk from HAP emissions.

Because TACs are comprised of multiple chemicals that vary in their individual effects and are difficult to directly measure in the atmosphere, *there are no concentration based air quality standards for these pollutants*. For example, diesel particulate matter (PM) is comprised of 40 components that are listed as TACs or HAPs by the ARB and EPA. TACs are monitored at limited permanent monitoring stations and for special studies. Individual species of TACs are typically determined through laboratory analysis of samples collected from the monitoring stations. Exposure of the public to TAC emissions and related health risks are estimated through the use emission inventories based on emission estimates from individual sources of TACs and modeling to determine atmospheric concentrations and health risks. These factors lead to substantial uncertainty in the estimates of exposure and impacts and lead to the use of highly conservative analysis assumptions to avoid underestimating impacts.

In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, aside from "zero," there is no threshold level below which it could be said that there is no possibility of the potential for adverse health impacts to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards (ARB 2009). For this reason, thresholds for TAC impacts for stationary source regulatory purposes and for CEQA thresholds have been set based on the increase in risk of cancer of a specific amount at the closest receptor to the source of emissions.

Significant progress has been achieved in reducing exposure to TACs through the adoption of EPA and California Air Resources Board (ARB) toxic emission regulations since 1990. The ARB reports that statewide emissions of diesel PM, which is responsible for 79 percent of the statewide risk from TACs, dropped by 40 percent between 1990 and 2000 and is predicted to decline by 91 percent below 1990 levels by 2020 due to the implementation of the ARB Diesel Risk Reduction Plan (DRRP) (ARB 2009).

2.2 - Court Ruling

The Court's ruling describes a two-step procedure a revised EIR is to follow in order to determine cumulative significance:

> Step one is to identify and quantify all existing impacts; then to add the project's new impacts, then to add the impacts of any other potential (probable) projects. The next action in step one is to establish and justify a threshold of significance for the total of all such impacts. If the cumulative total impacts are below this threshold, a finding of non-significance can be made. If the total impacts exceed the threshold, then they are cumulatively significant and step two comes into play.

If the existing conditions without the project are already significant, then a second step is required to determine if the project's contribution is cumulatively considerable.

> Step two is to determine whether the contributions of the project are cumulatively considerable.

This approach is the standard procedure used for localized criteria pollutant assessments, for which ambient air quality standards have been set at levels that are protective of public health and existing baseline conditions have been established through regular ambient air quality monitoring. In terms of evaluating a proposed project's cumulative impacts, an air quality analysis will determine whether a project's incremental impact would contribute emissions that would result in an exceedance of the standard. If it would, then the project would be considered to have a significant cumulative impact. If the study area being evaluated already exceeds the standard due to existing sources without the project, the analysis uses Significant Impact Levels (SILs) adopted by the United States Environmental Protection Agency (EPA) for determining the significance of a proposed project's cumulative contribution to an existing exceedance. These thresholds, set for use in evaluation of criteria air pollutants such as nitrogen dioxide (NO_2) and fine particulate matter (PM_{10}), are concentration-based. They use concentrations of pollutants measured at the nearest air quality monitoring site for comparison with ambient air quality standards to determine if the existing impact is significant.

An identical approach is not possible for toxic air contaminants, since there are no ambient standards for these pollutants that would provide a basis for a concentration based threshold. There is also very limited toxic ambient concentration data collected in the region, making it extremely difficult to provide an accurate representation of the existing level of impact or "baseline" at any given location. Recognizing these limitations, the Court's ruling on page eight states:

> City here certainly could, in establishing its cumulative significance criteria, exercise its discretion to recognize the declining ambient TAC levels in assessing a reality based significant effects level. Given the lack of a precise scientific basis for the health risk projections, City certainly has wide discretion in this area. However, City cannot arbitrarily conclude that there is no significant cumulative effect. There must be discussion and analysis, fact and reason based to the extent possible.

The City has conducted the necessary analysis and developed a threshold based on fact and reason for assessing cumulative toxic air contaminant impacts as described herein.

2.3 - Cumulative Toxic Threshold

Based on the review described above, the following thresholds were identified for the analysis of the project's cumulative toxic emissions:

- **Cancer Risk to Maximally Exposed Individual.** Cumulative sources that include the proposed project and existing, planned, and probable future TAC sources located within an approximately 1,000-foot radius[2] are subject to a significance threshold of 100 in one million.
- **Cancer Risk to Maximally Exposed Individual in Areas with Cumulative Sources over 90 in Million *Without* the Project**. When existing, planned and probable future TAC sources located within an approximately 1,000-foot radius of the from the location of the new source being evaluated exceed a cancer risk of 90 in one million, a project contribution of 10 or more in one million will be considered a cumulatively considerable contribution to the significant cumulative impact.
- **Non-Cancer Risk to Maximally Exposed Individual.** Cumulative sources of risks or hazards (including the proposed project and existing, planned, and probable future sources located within an approximately 1,000-foot radius) would be subject to a significance threshold of a chronic or acute Hazard Index of greater than 10.0.

[2] The 1,000-foot analysis radius is an approximate measurement, and this is implicit in all references to this measurement whether the word "approximate" is utilized or not. Generally, at 1,000 feet, the TAC emissions sources anticipated to combine with the project's own TAC emissions will be captured. However, significant TAC emission sources such as major roadways, freeways, rail yards, and large stationary sources located just beyond the 1,000-foot radius should not be excluded from an emissions inventory because of their location just outside the 1,000-foot radius. These TAC sources should be included to provide a conservative analysis of the project study area's cumulative emissions. See Section 3.3.5 for further discussion of this issue.

The project-level threshold of significance for toxic air contaminants established at 10 in a million and the non-cancer Hazard Index established at greater than 1.0 by the SJVAPCD were not challenged in the CEQA lawsuit. The following threshold was used in the DEIR and remains unchanged for use in the Partial Recirculated EIR:

> If the health risk exceeds the threshold of significance of a carcinogenic risk equal to or greater than ten in one million or a Hazard Index (HI) equal to or greater than one (1) for non-carcinogenic chronic or acute risk, the project should be concluded to expose sensitive receptors to substantial pollutant concentrations.

SECTION 3: CEQA REQUIREMENTS AND OPTIONS FOR ADDRESSING CUMULATIVE TOXIC IMPACTS

3.1 - CEQA Requirements for Addressing Cumulative Impacts

Provisions of CEQA and the CEQA Guidelines relating to the evaluation of cumulative impacts were reviewed as a first step in determining thresholds to use for a cumulative toxic air contaminant impact analysis. Relevant excerpts from both sources are provided below.

In defining what may constitute a significant effect on the environment, CEQA 21083(b)(2) lists the following conditions for cumulative impacts:

> The possible effects of a project are individually limited but cumulatively considerable. As used in this paragraph, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

CEQA Guidelines 15064(h) provides guidance for determining the significance of environmental effects caused by the project. The following subsections provide guidance specifically addressed at cumulative impacts.

(1) When assessing whether a cumulative effect requires an EIR, the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable. An EIR must be prepared if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

(2) A lead agency may determine in an initial study that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. When a project might contribute to a significant cumulative impact, but the contribution will be rendered less than cumulatively considerable through mitigation measures set forth in a mitigated negative declaration, the initial study shall briefly indicate and explain how the contribution has been rendered less than cumulatively considerable.

(3) A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the

reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. When relying on a plan, regulation or program, the lead agency should explain how implementing the particular requirements in the plan, regulation or program ensure that the project's incremental contribution to the cumulative effect is not cumulatively considerable. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding that the project complies with the specified plan or mitigation program addressing the cumulative problem, an EIR must be prepared for the project.

(4) The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

CEQA Guidelines 15130 provides guidance for discussing cumulative impact in an EIR. The following excerpts apply:

(a) An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in Section 15065(a)(3). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.
    (1) As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.
    (2) When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting the lead agency's conclusion that the cumulative impact is less than significant.

(b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. The following elements are necessary to an adequate discussion of significant cumulative impacts:

(1) Either:

(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

(B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect.

(2) When utilizing a list, as suggested in paragraph (1) of subdivision (b), factors to consider when determining whether to include a related project should include the nature of each environmental resource being examined, the location of the project and its type. Location may be important, for example, when water quality impacts are at issue since projects outside the watershed would probably not contribute to a cumulative effect. Project type may be important, for example, when the impact is specialized, such as a particular air pollutant or mode of traffic.

(3) Lead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used.

(4) A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and

(5) A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

(c) With some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis.

For cumulative toxic air contaminant (or TAC) assessment, a list approach should be used to identify past and probable future projects producing related impacts. This allows for discrete sources of TAC emissions contributing to the cumulative impact to be identified. The location and geographic scope of the analysis is very important for TACs, because of the effects of distance from the source on exposure of sensitive receptors to these pollutants.

3.2 - Analysis of Cumulative TAC Thresholds Used by Other Jurisdictions

Three approaches to cumulative TAC thresholds were identified during preparation of this document. These are represented by the San Joaquin Valley Air Pollution Control District (SJVAPCD), the San Luis Obispo Air Pollution Control District (SLOAPCD), and the Bay Area Air Quality Management District (BAAQMD).

3.2.1 - San Joaquin Valley Air Pollution Control District

The City of Visalia along with most other jurisdictions in the San Joaquin Valley relies upon thresholds of significance adopted by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the evaluation of project level and cumulative air quality impacts. The SJVAPCD is the agency with authority over air resources in the San Joaquin Valley Air Basin (SJVAB), which includes the City of Visalia. The SJVPACD is considered a responsible agency for projects that require a discretionary stationary source air quality permit. The SJVAPCD is considered an expert commenting agency for air quality impacts and offers detailed review and comments on most development projects undergoing CEQA review through its Enhanced CEQA Review Program.

The SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) is the SJVAPCD's guidance document that implements the Enhanced CEQA Review Program[3] that was included as a control measure in the SJVAPCD's 1991 Air Quality Attainment Plan. The Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) is an advisory document that provides Lead Agencies, consultants, and project applicants with procedures for addressing air quality in environmental documents. The GAMAQI includes a separate technical document containing information for use in air quality assessments and EIR that addresses topics such as air quality data, regulatory setting, climate, topography, etc. (Technical Document). The Technical Document was intended to be updated more frequently, but the 2002 version is still in operation.

The 2002 GAMAQI includes thresholds of significance for TAC impacts (SJVAPCD 2002, on page 28). The thresholds are stated as follows:

- Probability of contracting cancer for the Maximally Exposed Individual exceeds 10 in one million.
- Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the Maximally Exposed Individual.

The SJVAPCD has not set a cumulative threshold to use when determining the significance of cumulative TAC emissions, both with and without the project. Nor has a methodology been devised to govern preparation of a cumulative analysis that inventories the TAC emissions in a project's 1-mile TAC screening area, and then evaluates the project's contribution to the existing emissions.

The current GAMAQI adopted in 2002 includes the following section regarding cumulative hazardous air pollutant impacts on page 53:

> Cumulative analysis for hazardous air pollutants (HAPs)[4] focuses on local impacts on sensitive receptors. A single source of HAPs may be insignificant, but when

[3] Control measures are future programs and regulations that the Air District implements and are listed in the "Control Measures" section of the District's Air Quality Attainment Plan.
[4] The term hazardous air pollutant (HAP) and toxic air contaminant (TAC) are used interchangeably.

> combined with emissions from neighboring sources could expose sensitive receptors to significant pollutant levels. Cumulative analysis of HAPs can be accomplished by identifying all sources of these pollutants near the project site and using a dispersion model to determine exposure levels from the combined emissions of all sources. The SJVAPCD recommends a radius of 1 mile for HAP screening. Dispersion modeling, if indicated by initial screening, should include existing sources, the project, and any reasonably foreseeable projects.

Though the 2002 GAMAQI included the above-quoted language regarding a cumulative HAP analysis, the SJVAPCD never implemented this approach in practice. The GAMAQI did not include any analysis or discussion of existing TAC emissions to help an EIR consultant determine what would appropriately constitute an existing significant cumulative impact, nor did it specifically define what would amount to a significant cumulative contribution to an existing significant impact. The GAMAQI also did not provide screening criteria with the size and type of source that would allow the identification of projects within 1 mile that would require dispersion modeling. Since the 2002 adoption of the GAMAQI, information provided by the ARB in their 2005 Air Quality Land Use Handbook supports use of a much shorter cumulative analysis distance. For example, information presented on pages 4 and 5 of the Handbook indicate that the health risk for a sensitive receptor is reduced by 80 percent with a separation of 500 feet from a freeway having 100,000 vehicle trips per day (ARB 2005). Therefore, although this provision of the 2002 GAMAQI may have provided a valid cumulative TAC analysis approach, it did not include a threshold supported by substantial evidence or guidance to allow its use without additional analysis and documentation.

To date, the SJVAPCD has instead recommended use of an incremental approach, under which if a project's TAC emissions do not exceed 10 in a million, the project's incremental increase in cancer risk would not be significant. This approach presumes that existing emissions are significant. As such, the SJVAPCD has not required a quantification of existing emissions or a separate evaluation of cumulative TAC emissions. The District views an increase in cancer risk of 10 in a million from a project represents a significant contribution to the environment—both at the project level and on a cumulative basis—regardless of the level of existing TAC emissions from other cumulative sources in the project vicinity.

The Court's ruling found the 2011 EIR's use of this incremental approach recommended by the SJVAPCD deficient because it lacked the necessary information to determine if a significant cumulative impact existed, without and with the project. Without measuring existing emissions and evaluating them against a cumulative significance threshold, it was not possible to determine whether the combination of the project together with existing, planned and probable future projects[5] resulted

[5] References to "probable future projects" include projects described as "reasonably foreseeable probable future projects" in CEQA Guidelines Section 15355.

in a significant cumulative impact, and if so, whether the project's cumulative contribution to the total emissions was significant.

The GAMAQI is currently being updated and is expected to be adopted during 2012. The draft update document has been circulated for public review and as of September 18, 2012, was in the process of being revised in response to comments. (SJVAPCD 2012). The 2012 GAMAQI update retains the project level thresholds for TAC impacts. The 2012 GAMAQI update on page 77 states that the threshold for carcinogens is excess cancer risk of 10 in one million for the maximally exposed individual. The non-carcinogenic risk is a hazard index equal or greater than one for the maximally exposed individual (SJVAPCD 2012).

On the topic of cumulative analyses, the District seeks to clarify its incremental approach to cumulative TAC analyses, and update the GAMAQI to be consistent with the direction that staff has provided for years to Lead Agencies and EIR consultants working to prepare an adequate air quality analysis, including the evaluation of TAC emissions. The draft GAMAQI at page 88 states:

- **8.7.3. Toxic Air Contaminants (TAC)**
  Impacts from hazardous air pollutants are largely localized impacts. As presented above in section 8.3 (Thresholds of Significance - Toxic Air Contaminant Emissions), the District has established thresholds of significance for toxic air contaminants (TAC) that are extremely conservative; protective of health impacts on sensitive receptors. Consequently, the District's application of thresholds of significance for TACs is relevant to the determination of whether individual project emissions of TAC would have a cumulatively significant health impact. Because the established TAC significance thresholds are highly conservative, if project specific TAC emissions would have a less than significant health impact, the project would not be expected to result in a cumulatively considerable net increase in TAC. Thus, the project and would be determined to have a less than cumulatively significant impact on air quality.

The District retains a 10-in-a-million threshold to evaluate project-level impacts and to determine if a project's contribution is cumulatively considerable. A determination of existing TAC emissions is not required. Data available from the ARB indicates that the average TAC cancer risk in the San Joaquin Valley was 586 in a million in the year 2000 (ARB 2009). This supports the conclusion that the level of existing risk exceeds the 10-in-a-million project TAC threshold at all locations. However, average risk does not reflect differences in exposure at specific locations impacted by specific sources. For example, cancer risks near California freeways and high traffic roadways are as high as 1,700 in a million at points closest to the roadway, but the risks are 70 percent lower 500 feet from the roadway, according to the California Air Resources Board (ARB) in its Air Quality Land Use Handbook on page 6 (ARB 2005). So the closest individual receptor may be exposed to a risk of 1,700 in a million, but an individual receptor at 500 feet from the freeway would be exposed to a risk of 500 in a million. Since the average risk data does not reflect actual exposure levels for individual sensitive receptors impacted by project emissions, another approach for determining the existing level of TAC risk is required.

Based on the limitations described above of the SJVAPCD's approach to evaluating TAC emissions in both the 2002 GAMAQI and the draft 2012 GAMAQI, a cumulative threshold to identify a significant cumulative impact with and without the project—and additional supporting documentation—is required to comply with the Court's ruling.

The cumulative TAC threshold adopted by the San Luis Obispo County Air Pollution Control District (SLOAPCD) for projects that involve placement of sensitive receptors near existing sources of TAC emissions is considered next.

3.2.2 - San Luis Obispo Air Pollution Control District

In April 2012, SLOAPCD adopted its updated guidance document, A Guide for Assessing the Air Quality Impacts for Projects Subject to CEQA Review (Guide) (SLOAPCD 2012). The update provided guidance for addressing toxic air contaminant impacts and was based on the approach recommended by the California Air Pollution Control Officers Association (CAPCOA) in its report, Health Risk Assessment for Proposed Land Use Projects (CAPCOA 2009). CAPCOA's 2009 guidance addresses two types of projects. Type A project are new proposed land use projects that generate TAC emissions. Type B projects are new proposed land use projects that place sensitive receptors in proximity to existing sources of TACs. The Type B projects consider the cumulative effects of existing sources on a project containing sensitive receptors; however, CAPCOA does not address the cumulative effects of Type A projects adding TACs to the existing environment—including commercial projects.

The SLOAPCD Guide on page 3-7 provides the following information describing its approach to evaluating a project's TAC significance, which varies by project type ("Type A" vs. "Type B"):

- **Type A Projects: new proposed land use projects that generate toxic air contaminants (such as gasoline stations, distribution facilities or asphalt batch plants) that impact sensitive receptors.** Air districts across California are uniform in their recommendation to use the significance thresholds that have been established under each district's "Hot Spots" and permitting programs. The APCD has defined the excess cancer risk significance threshold at 10 in a million for Type A projects in SLO County; and,
- **Type B Projects: new land use projects that will place sensitive receptors (e.g., residential units) in close proximity to existing toxics sources (e.g., freeway).** The APCD has established a CEQA health risk threshold of 89-in-a-million for the analysis of projects proposed in close proximity to toxic sources. This value represents the population weighted average health risk caused by ambient background concentrations of toxic air contaminants in San Luis Obispo County. The APCD recommends Health Risk screening and, if necessary,

Health Risk Assessment (HRA) for any residential or sensitive receptor development proposed in proximity to toxic sources.

The SLOAPCD did not set a cumulative threshold for Type A projects, instead choosing to focus on Type B projects. The 89-in-a-million threshold applies to the existing and planned probable sources that impact projects that include a sensitive receptor such as a residence. Measurements are taken at the location of the sensitive receptor that would be most affected by the existing sources of TACs within the project area. The combined emissions from sources near a sensitive receptor should not expose the receptor to risk exceeding the 89-in-a-million threshold amount.

The 89-in-a-million Type B analysis threshold is based on the population weighted average health risk caused by ambient background concentrations of TAC emissions in San Luis Obispo County that the SLOAPCD has established through its own analysis of its TAC emission inventory and monitoring data. However, the population weighted average risk does not provide background levels at any particular geographic location. Under the SLOAPCD approach, the agency assumed that risk above this average level would be considered a significant cumulative impact to the residents of a Type B project. The Guide does not provide a distance for determining the geographic scope of a Type B cumulative TAC analysis, nor does it provide a threshold for addressing Type A project's cumulative TAC emissions.

However, in a recent screening analysis that the SLOAPCD prepared for a shopping center/residential mixed-use project in San Luis Obispo County (Del Rio Road Specific Plan EIR, City of Atascadero), the SLOAPCD staff identified an analysis radius of 1,000 feet to measure the TAC emissions from the project's commercial component, a Walmart store. The District applied the 89-in-a-million threshold to cumulative impacts from existing, planned, and probable future TAC emission sources upon sensitive project receptors (residences) within the project area. Because the project itself included new residences, the receptors most affected were on the project site. The proposed residence that would be most impacted by the commercial component's TAC emissions (called the maximally exposed individual or MEI) was identified, and measurements of cumulative impact were taken at that location. The EIR's health risk assessment (HRA) evaluated the impact of TAC emissions from the project's commercial uses on the MEI. The emissions from existing, planned, and probable future TAC emissions were identified and then combined with the project TAC emissions to determine if levels exceed 89 in a million (they did not).

San Luis Obispo County has a relatively small population and few major sources of TAC emissions. In addition, its proximity to the Pacific Ocean provides atmospheric conditions that help disperse pollutants more effectively than in inland air basins. These conditions result in a low population-weighted risk level compared with other more urban locations. Therefore, the use of a population-weighted average risk as a cumulative threshold in the San Joaquin Valley would result in a much higher threshold risk value. The Air Resources Board's 2009 Air Quality Almanac indicates that the San Joaquin Valley's population weighted average TAC cancer risk in the year 2000 was 586 in a million (ARB 2009). Population-weighted risk values specifically for the City of Visalia are not available. Therefore, the SLOAPCD threshold approach is not feasible for use in the San Joaquin Valley or the City of Visalia.

The next approach considered was developed by the BAAQMD.

3.2.3 - Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) was the first air district in the State to adopt a cumulative toxic threshold that takes into account existing and planned probable sources of toxics near projects that contribute to cumulative cancer risk. The BAAQMD's CEQA Air Quality Guidelines (BAAQMD 2010) describes the cumulative TAC threshold as follows:

Cumulative Impacts

A project would have a cumulatively considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source, or from the location of a receptor, plus the contribution from the project, exceeds the following:

- Non-compliance with a qualified risk reduction plan; or
- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.

The BAAQMD Guidelines indicate that a lead agency should enlarge the 1,000-foot radius on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the Thresholds. The Court did not determine whether the Thresholds were valid on their own merits, but it found that the adoption of the Thresholds was a project under CEQA. The Court issued a writ of mandate ordering the District to set aside the Thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. In view of the Court's order to cease dissemination, the BAAQMD cannot recommend that the Thresholds be used as a generally applicable measure of a project's significant air quality impacts at this time. The BAAQMD indicated in a statement on its website that lead agencies will need to determine appropriate air quality thresholds of significance based on substantial evidence in the record (BAAQMD 2012). However, the BAAQMD is in the process of appealing the ruling. Depending on the outcome of the appeal, the BAAQMD will comply with the Court's order and will readopt its own guidelines at the appropriate time or the guidelines will be reinstated.

When adopting the cumulative TAC thresholds contained in the BAAQMD's CEQA Guidelines on June 2, 2010, the BAAQMD relied upon detailed evidence in support of the thresholds in its CEQA Guidelines, the validity of which was called into question in the trial court's ruling. The following is an extensive and relevant extract on toxic air contaminant thresholds from the BAAQMD Revised Draft Options and Justification Report California Environmental Quality Act Thresholds of Significance beginning on page 66 (BAAQMD 2009):

> This approach is a hybrid approach that combines aspects of the health-based approach of Option 1 and the source-based approach of Option 2 described above for siting new receptors. Projects proposing a new TAC source would need to assess their impact within 1,000 feet taking into account cumulative sources (i.e. proposed project plus existing and foreseeable future projects). Projects proposing new receptors would need to assess the impact of cumulative sources located within 1,000 feet of the receptor. Cumulative sources are the combined total risk values of each individual source within the 1,000-foot evaluation zone. The significance threshold of 100 in a million increased excess cancer risk and Hazard Index of 1.0 [*adopted threshold is 10.0]* would be applied to the cumulative emissions within the 1,000-foot evaluation zone. The 100 in a million threshold is based on EPA guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level. The guidance considers an "acceptable" range of cancer risks to be from one in a million to one in ten thousand. In protecting public health with an ample margin of safety, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants (HAPs) by limiting risk to a level no higher than the one in ten thousand (100 in a million) estimated risk that a person living near a source would be exposed to at the maximum pollutant concentrations for 70 years. This goal is described in the preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking (54 Federal Register 38044, September 14, 1989) and is incorporated by Congress for EPA's residual risk program under Clean Air Act (CAA) section 112(f). The 100 in a million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on the District's recent regional modeling analysis.
>
> In addition, this option would add an ambient standard for $PM_{2.5}$ of 0.8 μg/m^3 due to cumulative sources within the 1,000-foot evaluation zone. The $PM_{2.5}$ concentration level of 0.8 μg/m^3 is based on a proposed rule being evaluated by U.S. EPA in developing significant impacts levels (SILs) for prevention of significant deterioration for particulate matter less than 2.5 micrometers (Federal Register 40 CFR Parts 51 and 52, September 21, 2007). EPA is proposing a Prevention of Serious Deterioration (PSD) threshold of 0.8 μg/m^3 as the cumulative threshold for all $PM_{2.5}$ sources. The 0.8 μg/m^3 standard was developed by scaling the PM_{10} SIL

values by the ratio of direct $PM_{2.5}$ to direct PM_{10} emissions. The $PM_{2.5}/PM_{10}$ emissions ratio is based on the national average derived from the 2001 extrapolation of the EPA's 1999 National Emissions Inventory. The District believes that the 0.80 $\mu g/m^3$, which is based on direct PM emissions, is more representative of the mixture of PM sources in the Bay Area. In a recent PM study, the Air District found that direct emissions from wood burning and fossil fuel combustion contribute over one-half of annual $PM_{2.5}$ emissions. This threshold is also consistent with the estimated California background level and the estimated background level of the more remote areas of the Bay Area. The rationale for selecting 1,000 feet was explained in the discussion of Option 2 for siting new receptors above.

This threshold is also supported from several medical research studies that have linked near-road pollution exposure to a variety of adverse health outcomes impacting children and adults. One notable study conducted by Dr. Michael Kleinman and colleagues at the EPA-funded Southern California Particle Center studied the potential of roadway particles to aggravate allergic and immune responses in mice. Using mice that were not inherently susceptible, the researchers placed these mice at various distances downwind of State Road 60 and Interstate 5 freeways to test the effect these roadway particles have on their immune system. They found that within 5 meters of the roadway, there was a significant allergic response and elevated production of specific antibodies. At 150 meters (492 feet) and 500 meters (1,640 feet) downwind of the roadway, these effects were not statistically significant.

In another significant study, the University of Washington (Ven Hee et al, 2009) conducted a survey involving 3,827 participants that aimed to determine the effect of residential traffic exposure on two preclinical indicators of heart failure; left ventricular mass index (LVMI), measured by the cardiac magnetic resonance imaging (MRI), and ejection fraction. The studies classified participants based on the distance between their residence and the nearest interstate highway, state or local highway, or major arterial road. Four distance groups were defined: less than 50 meters (165 feet), 50-100 meters, 101-150 meters, and greater than 150 meters. After adjusting for demographics, behavioral, and clinical covariates, the study found that living within 50 meters of a major roadway was associated with a 1.4 g/m^2 higher LVMI than living more than 150 meters from one. This suggests an association between traffic-related air pollution and increased prevalence of a preclinical predictor of heart failure among people living near roadways.

To quantify the roadway concentrations that are contributing to the health impacts, the Air District modeled the scenario studied by Dr. Kleinman. In Dr. Kleinman's study emissions were estimated for Los Angeles using the EMFAC model. Annual average vehicle traffic data taken from Caltrans was used in the roadway model

(CAL3QHCR) to estimate the downwind $PM_{2.5}$ concentrations at 50 meters and 150 meters. Additionally, emissions were assumed to occur from 10:00 a.m. to 2:00 p.m. corresponding to the time in which the mice were exposed during the study. The results of the modeling indicate that at 150 meters, the downwind concentration is 0.78 $\mu g/m^3$, which is consistent with the EPA-recommended SIL of 0.8 $\mu g/m^3$.

[BAAQMD s]taff is recommending a threshold that combines elements of Cumulative Option 2 (Absolute Risk Approach) and Siting a New Receptor Option 4 (Consistency with Community Risk Reduction Plan). Staff recommends this approach as the cumulative threshold for siting a new source or receptor. Projects consistent with a qualified CRRP adopted by the local jurisdiction that includes enforceable measures to reduce the community risk to acceptable levels would be considered less than significant. Proposed development projects that are not consistent with a CRRP that has been adopted for the area where the project is proposed to be located would be considered to have a significant impact. Projects proposed in areas where a CRRP has not been adopted and the potential to expose sensitive receptors or the general public to emissions-related risk in excess of the following thresholds from any source would be considered to have a significant air quality.

This approach would require evaluation of cancer and non-cancer risk from cumulative mobile and stationary sources within 1,000 feet of a new source or receptor, and the use of a 100 in a million cancer risk, a non-cancer (chronic or acute) Hazard Index of 1.0, and an ambient standard for $PM_{2.5}$ of 0.8 $\mu g/m^3$ as thresholds for cumulative risk from sources within the 1,000 foot evaluation area.

As noted above, the 1,000-foot evaluation distance is supported by research-based findings concerning dispersion from roadways and large sources showing that emissions diminish substantially between 500 and 1,000 feet from large emission sources. The 100 in a million threshold is supported by EPA air toxics analysis and risk management guidelines which consider the range of acceptable cancer risk to be from one in a million to one in ten thousand (100 in a million). EPA defines this level as the level necessary to protect public health from hazardous air pollutants with an ample margin of safety. The 0.8 $\mu g/m^3$ threshold is supported by EPA's proposed cumulative PSD threshold for all $PM_{2.5}$ sources and studies that examined the potential health impacts of roadway particles. These threshold levels are appropriate for promoting review of emissions sources to prevent deterioration of air quality. Using existing and EPA-proposed environmental standards in this way to establish CEQA thresholds of significance is an appropriate and effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with other areas of environmental regulation.

The BAAQMD threshold approach includes the use of Community Risk Reduction Plans as a threshold approach for areas already heavily impacted by TAC emissions such as those near major freeways and ports. Community Risk Reduction Plans could be used in areas that already exceed the 100-in-a-million threshold without the project. Without this work-around, all projects, no matter how small their contribution of TACs, could be considered cumulatively significant. This approach has a major shortcoming. Many areas, especially those with existing residential development close to freeways that are not within a Community Risk Reduction Plan (CRRP), may have existing TAC risk levels exceeding 100 in a million. Commercial or industrial development at sites near the freeway and the existing housing could encounter situations where they are contributing to an existing significant impact but have no CRRP to use for a consistency determination. Project developers would not be in a position to require the community near their project to prepare a CRRP, so in theory they could be required to prepare an EIR because of a cumulative toxic impact, even when their TAC contribution is insignificant. This is contrary to CEQA Guidelines Section 15064(h)(4), which states that the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Because of this limitation, a CRRP consistency threshold approach was rejected from further consideration for the City of Visalia.

The BAAQMD also includes a threshold alternative based on the project's contribution of $PM_{2.5}$ emissions based on EPA significant impact levels (SIL) for Prevention of Significant Deterioration in $PM_{2.5}$ nonattainment areas. The threshold is 0.8 ug/m^3 for the combined impact of existing and reasonably foreseeable future projects and the project. This threshold is not directly applicable to the San Joaquin Valley or the City of Visalia. The mix of sources that comprise $PM_{2.5}$ are likely to be much different in the San Joaquin Valley. The fraction of emissions from diesel particulate, geologic sources, nitrates, and sulfates in the San Joaquin Valley is likely to vary because of the presence of more dairy/agricultural sources, the drier climate, and higher ambient $PM_{2.5}$ concentrations, rendering the logic for selecting 0.8 ug/m^3 used by the BAAQMD inapplicable without additional analysis. Determination of an appropriate concentration-based threshold using $PM_{2.5}$ as a surrogate for TACs is beyond the scope of this analysis and is rejected from further consideration. However, the SIL was used in the project Final Environmental Impact Report criteria pollutant analysis as a significance threshold for increases in overall $PM_{2.5}$ concentrations and found the impact to be less than significant.

Conclusion

The BAAQMD threshold approach using an excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources within 1,000 feet) greater than 10.0 is suitable for use in the San Joaquin Valley and the City of Visalia. The 100 in one million threshold is based on EPA guidance for toxic risk exposure that applies nationwide. The 1,000-foot analysis area is supported by substantial evidence that this distance is appropriate, considering the effects of dispersion on concentration and associated cancer risk.

The 100-in-a-million cumulative TAC threshold is supported by EPA air toxics analysis and risk management guidelines, which strive to provide maximum feasible protection against risks to health from HAPs by limiting to a risk that is no higher than approximately 100 in a million. EPA defines this level as the level necessary to protect public health from hazardous air pollutants with an ample margin of safety.

The BAAQMD threshold approach does not define what constitutes a cumulatively considerable contribution in areas that already exceed the cumulative threshold listed above. Instead, they rely on compliance with community risk reduction plans in impacted areas. This approach is of limited use because the plans will not be feasible in many impacted areas. The lack of a threshold that defines a cumulative contribution to an existing impact requires one to be developed for the City of Visalia for use on this project that will be used in addition to the 100-in-a-million threshold described in the previous paragraph.

3.3 - Existing Conditions for Toxic Emissions

There are no state or federal ambient air quality standards applicable to TAC emissions. In the absence of an ambient standard, another measure must be identified to determine if a significant impact already exists. Selecting this level for TACs is complicated by the fact that site-specific impacts can be far different from average impacts over a wider area. Impacts from TAC emissions are highest closest to sources of TACs, but the sources are often spread over a large area. For example, emissions from diesel engines, the largest source of risk from TACs, are found on roads, farms, businesses, and construction sites throughout the region, though emissions will have significantly dissipated at 500 feet from the source (ARB 2005). Locations where large numbers of TAC sources are concentrated such as freeways, rail yards, and distribution centers pose a higher level of risk to sensitive receptors near these facilities. Examination of the risk from TACs at national, state, regional, local, and site-specific levels is instructive for framing this issue, but site-specific analysis is ultimately required to determine existing conditions for development projects.

3.3.1 - National Air Toxic Assessment

The EPA prepared estimates of the impact from the combined effects of all sources of TACs throughout the United States for its 2005 National Air Toxic Assessment (NATA) (EPA 2005). The assessment considers the combined risk of the inhalation of 139 air toxics plus diesel, 80 of which were assessed as carcinogens. The assessment represents a snapshot in time for characterizing risks from exposure to air toxics and is not designed to characterize risks sufficiently for it to be the sole source for regulatory action. Note that in this assessment, the potential carcinogenic risk from diesel PM is not addressed because there is no federal unit risk estimate available.

NATA (page 4) estimates that all 285 million people in the U.S. have an increased cancer risk of greater than 10 in one million. It further estimates that 13.8 million people (less than 5 percent of the total U.S. population based on the 2000 census) have an increased cancer risk of greater than 100 in a million. The average, national, cancer risk for 2005 is 50 in a million. This means that, on average, approximately 1 in every 20,000 people have an increased likelihood of contracting cancer as a result of breathing air toxics from outdoor sources if they were exposed to 2005 emission levels over the course of their lifetime.

The NATA summary on page 6 identified metropolitan statistical areas and census tracts with risk values over 100 in a million for the United States. Some urbanized areas of the San Joaquin Valley, including some census tracts in Tulare County, were reported to have risks exceeding 100 in a million. As stated earlier, this does not include the risk from diesel PM. Exhibit 1 displays the results of the assessment for the entire country. The figure shows that over half of the 3,149 census tracts that experience risks in excess of 100 in a million are located in Los Angeles-Long Beach and Santa Ana metropolitan statistical areas. Fresno had a reported nine census tracts, while Bakersfield had 67 tracts with risk over 100 in a million.

3.3.2 - Toxic Risk Estimates for California

ARB's 2009 Air Quality Almanac provides the most recent available TAC risk estimates for California. The ARB Almanac Chapter 5: Toxic Air Contaminant Emissions, Air Quality and Health Risk (ARB 2009) provides estimates of the annual average concentrations and health risks for each air basin, including the San Joaquin Valley Air Basin. The latest estimate of cancer risk without accounting for diesel PM is 90 in a million in 2007. The last analysis year that included an estimate of diesel PM risk was 2000, with an estimate risk of 390 in a million from diesel alone and 196 in a million from the other sources analyzed, for a total risk of 586 in a million (see page 5-69). The report stated that more current estimates for diesel impacts were under review. Note that the Almanac reports average cancer risk in the San Joaquin Valley and does not identify locations with higher or lower than average exposure to TACs.

The Almanac shows a significant decrease in non-diesel risk between 2000 and 2007. The implementation of regulations on the non-diesel sources has reduced the risk from 196 in a million in 2000 to 90 in a million in 2007—a 54-percent reduction in just 7 years. Diesel emissions comprised 67 percent of the TAC risk in the San Joaquin Valley in the year 2000 (ARB 2009). The ARB's Diesel Risk Reduction Program (DRRP) adopted in 2000 is predicted to result in a decrease in diesel PM by 17 percent between 2000 and 2010 statewide (ARB 2000).

The ARB has adopted regulations implementing the DRRP. The regulations are being phased in over time and achieve incremental reductions as new equipment and vehicles enter the fleet and old equipment and vehicles are retired. The regulations also require emission control retrofits that are implemented for different types of equipment and vehicle over time.

3.3.3 - Toxic Risk Estimates at the Community Level

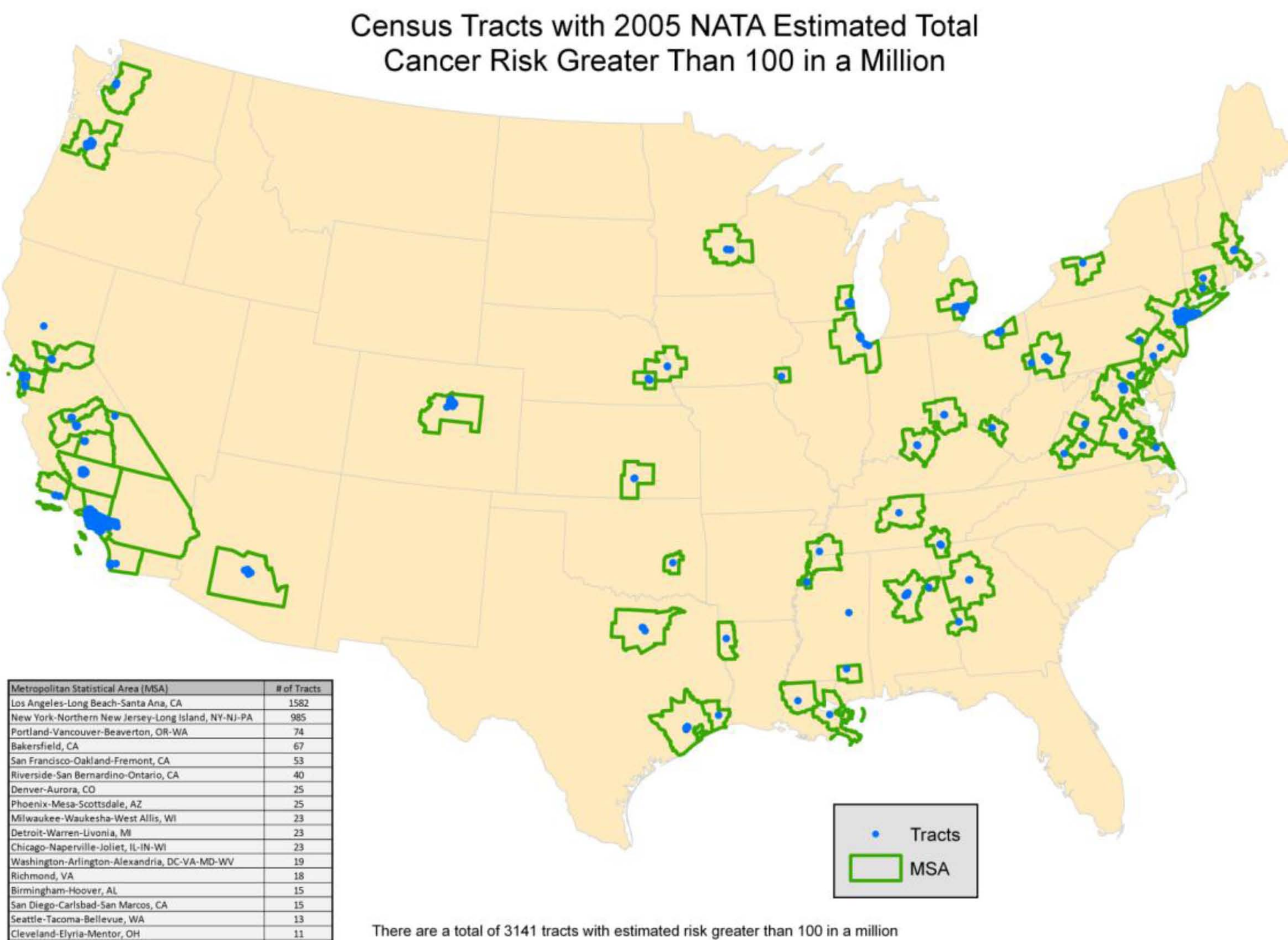
The nearest monitoring of ambient toxic emission concentrations where the ARB has collected data is the ARB monitoring station located on North First Street in Fresno. The monitoring site is relatively close to the City of Visalia, which is approximately 44 miles to the southeast.

The Fresno monitoring site is situated in the center of the largest city in the San Joaquin Valley, near a variety of commercial, residential, and high-volume roadways and a freeway (State Route 41 [SR-41] is 0.6 mile west of the site). The ARB air monitoring website states that the site was closed in 2011. From 1990 to 2011, air emissions samples were collected every 12 days to measure TAC levels. ARB averaged the data it collected over a year to provide annual average emissions. Daily and annual TAC monitoring data are available from the ARB for the years 1980 through 2009 (ARB 2012a). The ARB site did not monitor diesel PM (particulate matter), since there is no direct method available for monitoring diesel PM. However, other methods are available to provide reasonable estimates of diesel PM using PM_{10} monitoring data as a surrogate and estimating the fraction that is composed of diesel PM. The ARB used receptor modeling techniques to generate risk estimates provided in the ARB 2009 Air Quality Almanac (ARB 2009) that include risks associated with diesel PM.

ARB analyzed monitoring data from the long-term Fresno First Street monitoring site and a temporary site located at a school as part of a special study. In May 2006, the ARB published Community Air Quality Monitoring: Fresno, Fremont Elementary School (ARB 2006). This report presents the final results from a special air quality monitoring study at Fremont Elementary School in Fresno. The ARB conducted the study as part of a larger statewide evaluation of the adequacy of the State's air quality monitoring network as required by the Children's Environmental Health Protection Act (Escutia, Senate Bill 25, 1999 [SB 25]). Air monitoring at Fremont Elementary School was completed during a 15-month period, from June 2002 to August 2003. The study monitored 50 different air pollutants. As part of the study, data from Fremont Elementary School was compared with data from the nearest long-term monitoring site, Fresno–First Street, for the same time period.

Analysis of the monitoring results indicate that the potential cancer risk at Fremont Elementary School is mostly attributable to seven of the toxic air pollutants measured during the study: benzene, 1,3-butadiene, formaldehyde, acetaldehyde, perchlorethylene, carbon tetrachloride, and methylene chloride. Including the other toxic air pollutants measured at these sites does not significantly change the overall risk at each site, nor does it change the overall relationship of cancer risk between sites.

The cancer risk estimates presented in this report do not include diesel particulate matter (diesel PM). Diesel PM is believed to be the primary contributor to health risks from urban toxic air pollutants. However, the report states that from 1990 to 2000, based on ARB emission estimates, the overall potential cancer risk from diesel PM decreased 50 percent in the San Joaquin Valley Air Basin. The implementation of the ARB's Diesel Risk Reduction Plan is predicted to reduce statewide risk from diesel PM from 540 in a million in 2000 to 450 in a million by 2010 for 17 percent reduction (ARB 2000).



Metropolitan Statistical Area (MSA)	# of Tracts
Los Angeles-Long Beach-Santa Ana, CA	1582
New York-Northern New Jersey-Long Island, NY-NJ-PA	985
Portland-Vancouver-Beaverton, OR-WA	74
Bakersfield, CA	67
San Francisco-Oakland-Fremont, CA	53
Riverside-San Bernardino-Ontario, CA	40
Denver-Aurora, CO	25
Phoenix-Mesa-Scottsdale, AZ	25
Milwaukee-Waukesha-West Allis, WI	23
Detroit-Warren-Livonia, MI	23
Chicago-Naperville-Joliet, IL-IN-WI	23
Washington-Arlington-Alexandria, DC-VA-MD-WV	19
Richmond, VA	18
Birmingham-Hoover, AL	15
San Diego-Carlsbad-San Marcos, CA	15
Seattle-Tacoma-Bellevue, WA	13
Cleveland-Elyria-Mentor, OH	11
Pittsburgh, PA	11
Fresno, CA	8

Source: EPA 2005

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Exhibit 1
Census Tracts with Cancer Risk Greater Than 100 in a Million

The cancer risk attributable to the ambient concentrations of the seven TACs was estimated at 156 in a million at the Fremont School site and 139 in a million at the Fresno First Street monitoring station during the period from July 2002 through June 2003. The Special Study on page 5 indicates that higher emissions and risk at the Fremont School compared with the Fresno First monitoring station were attributed to the school's location 0.5 mile east of State Route 99 and the proximity to a parcel distribution facility and other industrial and warehousing uses along State Route 99 (ARB 2006).

ARB has not undertaken monitoring of existing TAC emissions in the City of Visalia; however, the mix of sources in Visalia is similar to that in Fresno and would experience similar ambient levels of TACs from non-diesel sources. However, Fresno is a substantially larger metropolitan area than Visalia with more sources and traffic, so risk is likely to be somewhat lower in Visalia. In addition, the presence of any large sources near a monitor or near a project site will result in substantially different impacts, which is due to the effects of distance and dispersion. Emission concentrations and related cancer risk decline rapidly with distance from the source. ARB estimates an 80-percent reduction in risk from a high-volume freeway at 500 feet (ARB 2005).

Without monitoring data, concentrations of TACs and the associated cancer risk can be estimated using emission inventories of sources of TACs and modeling. The ARB developed and maintains an inventory of toxic emissions for the entire state, which includes estimated TAC emissions from diesel engines. ARB also developed maps displaying the range of cancer risk expected based on the inventory. The ARB spatially allocated the emissions inventory in a 1-kilometer grid. ARB prepared maps displaying the risk in Central California, including Visalia, which were described in the Draft EIR prepared for the project on page 237. ARB has since removed the maps from the ARB website, and staff has indicated that this was done because the information used for the projections is out of date. The ARB's analysis was based on TAC emissions in the year 2000 and its projections of the benefits of ARB's toxic emission control program to the year 2010. Since the maps did not reflect the actual results of the TAC emission control program and needed to be updated, they were removed pending completion of this work.

The ARB does provide emission inventories for toxic air contaminant sources on the Community Health Information System (CHAPIS) website, but the associated health risk is no longer provided. According to the ARB, the reason is that the emissions reported in CHAPIS alone do not fully represent where and what extent of exposures to air pollution or possible health risks may occur at any particular location. Weather and wind can result in exposures that occur in different locations from where the emissions actually occurred, and can create new pollutants that are due to chemical reactions in the atmosphere (ARB 2012b).

Conclusion

The average risk values presented on page 5-69 of the ARB Almanac 2009 for the San Joaquin Valley show that in the year 2000, the region experienced average risk levels of 586 in a million, but this does not account for variations from community to community (ARB 2009). The ARB's gridded emissions inventory available on the CHAPIS website provides a one-kilometer spatial resolution, which is far better than a statewide or Valley-wide average, but this data still does not represent the risk at any particular point within a grid cell (ARB 2012b). Any large sources within a cell or near the grid cell boundary would result in higher than average risk for receptors close to the source and lower than average risk for those farthest from the discrete sources. This makes this information of limited to use for a project-specific cumulative analysis of TAC emissions. Estimates based on a gridded emission inventory provide average TAC impacts in the grid cell, community, region, or state. This is of value for determining population-weighted exposures to TACs and to compare average risks at different locations, but not project cumulative impact.

3.3.4 - Toxic Risk Estimates at the Project Level

The most appropriate way to identify a project's cumulative TAC risk at a specific receptor location is to determine the zone of impact of all sources that contribute risk within a specified radius of the sensitive receptor that is most impacted by the project. The BAAQMD guidelines recommended analyzing the cumulative impact of sources within a 1,000-foot radius measured at the sensitive receptor nearest the project's TAC emissions source to capture the cumulative impact. A larger radius may be appropriate if a particularly large source is located beyond 1,000 feet from the project and should be considered on a project-by-project basis.

3.3.5 - Justification for the Geographic Scope of the Analysis

For assessing the cumulative impacts of a new source of TAC emissions associated with a project in combination with existing sources and probable future sources, a project radius is necessary Proximity to sources of toxics is critical to determining the impact. In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70-percent drop-off in particulate pollution levels at 500 feet. Based on ARB and South Coast District emissions and modeling analyses, an 80-percent drop-off in pollutant concentrations is estimated at approximately 1,000 feet from a distribution center (ARB 2005).

The BAAQMD identified several factors to support a 1,000-foot distance:

> A summary of research findings in ARB's Land Use Compatibility Handbook (ARB 2005) indicates that traffic-related pollutants were higher than regional levels within approximately 1,000 feet downwind and that differences in health-related effects (such as asthma, bronchitis, reduced lung function, and increased medical visits) could be attributed in part to the proximity to heavy vehicle and truck traffic within 300 to 1,000 feet of receptors. Although ARB has recommended avoiding siting sensitive land uses within 500 feet of a freeway or high-volume urban roads, this option uses 1,000 feet based on research that has indicated attributable increased health effects in some cases out to as far as 1,000 feet. In the same study, ARB recommended avoiding siting sensitive land uses within 1,000 feet of a distribution

> center and major rail yard, which supports the use of a 1,000 feet evaluation distance in case such sources may be relevant to a particular project setting. A second consideration is that studies have shown that the concentrations of particulate matter tends to be reduced substantially or can even be indistinguishable from upwind background concentrations a distance 1,000 feet downwind from sources such as freeways or large distribution centers (Zhu et al. 2002, ARB 2005). Finally, a 1,000 foot zone of influence is also supported by Health & Safety Code §42301.6 (Notice for Possible Source Near School) (BAAQMD 2009).

As noted above, the 1,000-foot evaluation distance is supported by research-based findings concerning TAC emission dispersion rates from roadways and large sources showing that emissions diminish substantially between 500 and 1,000 feet from emission sources. Assessment of impacts from existing sources within 1,000 feet of the new source in combination with risks and hazards from the new source is recommended.

Although studies and research described above indicate that a 1,000-foot impact area is normally appropriate for a cumulative TAC analysis, the area around a project site should be examined to identify any substantial sources that may be located just beyond the 1,000-foot radius but whose emissions can be detected in the analysis radius. Because of rapid dispersion rate with distance—70 percent at 500 feet for emissions from freeways (ARB 2005)—only very large sources would be expected to contribute a substantial increase beyond 1,000 feet. The ARB Air Quality and Land Use Handbook on page 4 (ARB 2005) identified the following sources that warrant special consideration:

- Freeways and High Traffic Roadways
- Distribution Centers (100 trucks per day/40 trucks with TRUs per day)
- Rail Yards
- Refineries
- Chrome Plating Facilities
- Dry Cleaners
- Large Gasoline Dispensing Facilities (3.6 million gallon/year throughput)

If these facilities are located beyond 1,000 feet of the project site but close enough to indicate that their emissions may be detected in the analysis radius, they sources should be examined to see if this is in fact the case. Such an examination would estimate the facility's size, level of activity, and distance from the maximally exposed individual receptor impacted by the project to determine whether to include the source in the project's cumulative TAC analysis. Exhibit 2 displays the range of risk that could be encountered from different types of cumulative sources of diesel PM. The size of the TAC source and distance to the sensitive receptor result in a large range of potential impacts.

3.3.6 - Application of Cumulative TAC Threshold

At the outset of a cumulative TAC analysis, the location of the sensitive receptor most impacted by the project's TAC emissions must be identified. The receptor most impacted by the project is used for the cumulative analysis so that the assessment is based on the maximum impact of the project on sensitive receptors, not on the maximum impact of the existing and planned sources that are not the responsibility of the project.

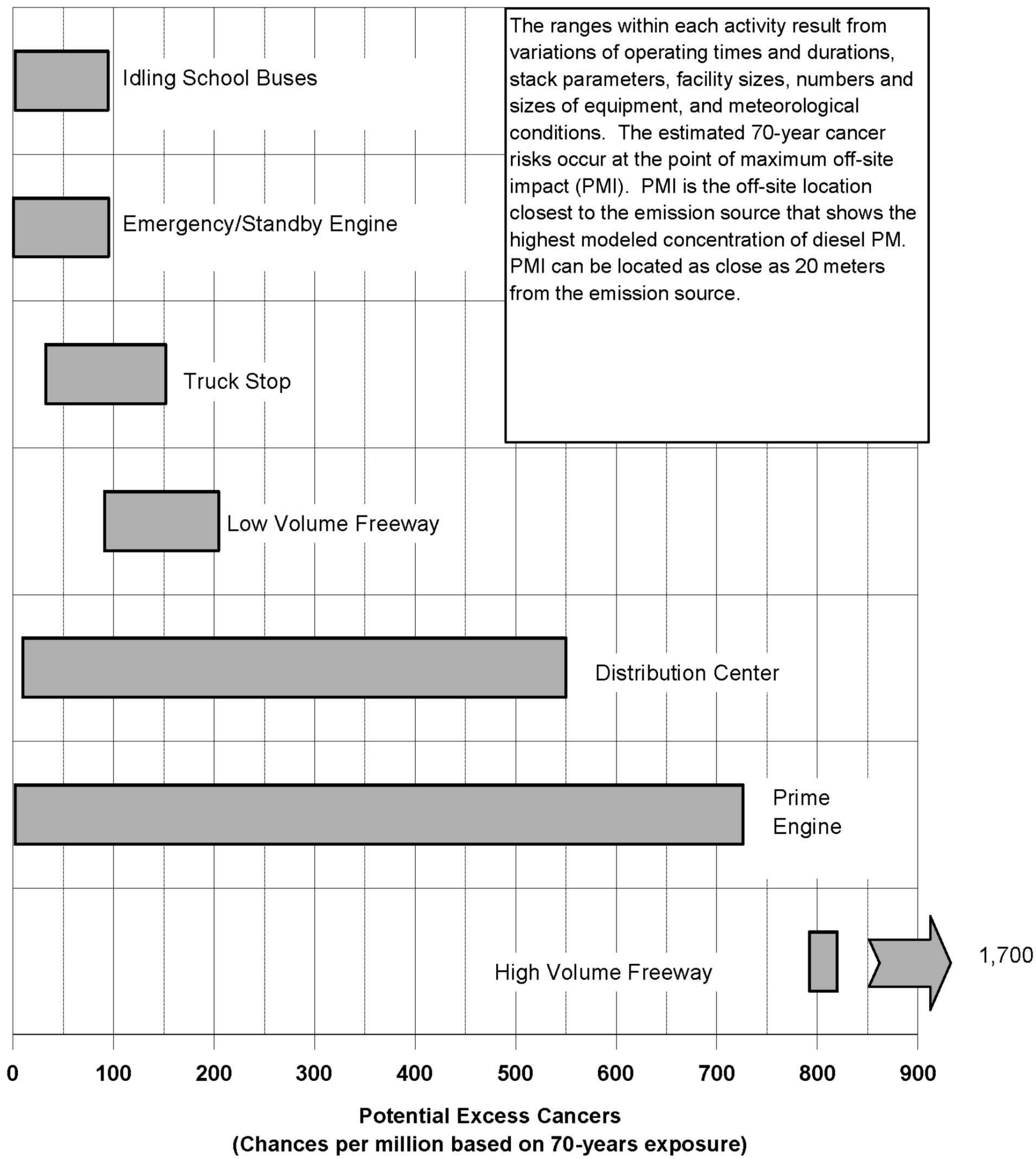
The location of the most impacted receptor can be identified quantitatively, using the results of the project TAC assessment, if one was completed; or qualitatively, by identifying the locations of sensitive receptors closest to the project and using a screening tool to identify the most impacted receptor. Air Districts have developed spreadsheet-based screening tools to provide a conservative estimate of risk from commonly encountered sources. The screening tools use worse-case assumptions and basic facility information to estimate cancer risk. Dispersion modeling provides more accurate estimates but requires a modeling technician skilled in the use of these models and is much more costly to prepare than a screening analysis. Once the location of the maximally impacted receptor is identified, the cumulative TAC emissions from other existing and planned sources within the analysis radius of the project boundary (i.e., not the receptor) are assessed at that location. Assessments sum individual hazards or risks to identify the cumulative impact at the location of the maximally impacted receptor from the new source.

A cumulative TAC impact is then determined by first identifying in the project's analysis radius area any large, existing, or planned sources of TACs. The sources with the greatest potential cumulative TAC impact include high-volume roadways and freeways, distribution centers, rail yards, and large industrial facilities with stationary-source TAC emissions.

Other, smaller sources within the analysis radius with lesser impacts (such as commercial businesses with loading docks, gasoline stations, restaurants, and local roadways providing truck access) should also be included in the cumulative analysis to provide assurance that all sources with the potential of a substantial contribution have been included.

Once the facilities in the analysis radius have been identified, a TAC emissions estimate is prepared for each facility based on traffic volumes for vehicle-related sources, the number of diesel trucks accessing the facility, EPA emission factors, and permit information for facilities permitted by the Air District. Dispersion modeling is then accomplished using the emission data for all existing sources, planned probable projects, and the project to estimate the ambient TAC concentration at the maximally impacted receptor and associated cancer risk.

Figure 2: Potential Cancer Risk Range of Activities Using Diesel-Fueled Engines



The ranges within each activity result from variations of operating times and durations, stack parameters, facility sizes, numbers and sizes of equipment, and meteorological conditions. The estimated 70-year cancer risks occur at the point of maximum off-site impact (PMI). PMI is the off-site location closest to the emission source that shows the highest modeled concentration of diesel PM. PMI can be located as close as 20 meters from the emission source.

Source: ARB 2000

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Exhibit 2
Potential Cancer Risk Range of Activities Using Diesel Fueled Engines

Once the cumulative TAC emissions or "baseline" is determined, the cumulative TAC threshold is applied to determine whether a significant cumulative impact exists without the project, as illustrated in Table 1.

Table 1: Risk Analysis Scenarios when Existing TAC Impact is Less than Significant

Example 1		Example 2	
Sources within 1,000 feet	**Risk per Million**	**Sources within 1,000 feet**	**Risk per Million**
Existing Road	15	Existing Freeway	60
Existing Commercial with Loading Dock	5	Existing Distribution Center	15
Existing Gas Station	5	Existing Gas Station	5
Total Existing Risk	**25**	**Total Existing Risk**	**80**
Planned Commercial	5	Planned Commercial	5
Planned Restaurant	1	Planned Restaurant	1
Total Probable Future Projects	**6**	**Total Probable Future Projects**	**6**
Total Existing and Probable Future Projects	**31**	**Total Existing and Probable Future Projects**	**86**
Project	5	Project	15
Total from All Sources	**36**	**Total from All Sources**	**101**
Cumulatively Significant?	No	Cumulatively Significant?	Yes
Source: Michael Brandman Associates			

If the combined impact from existing sources, planned probable projects, and the project are less than 100 in a million, the cumulative TAC impact would be less than significant.

In the following scenario, the need for an incremental threshold to determine whether a project's contribution is cumulatively considerable becomes evident: the existing and planned sources within the analysis radius are between 90 and 100 in a million without the project and the project's contribution is 10 or higher.[6]

Cumulative Impacts Without Project Total 90 in a Million or Greater

Under this scenario, the existing sources, planned and probable future projects within the analysis radius result in a cumulative impact of at least 90 in a million but still less than 100 in a million and, therefore, not cumulatively significant. A project contribution of 10 in a million would bring the level to 100 in a million, resulting in a significant cumulative impact.

[6] An incremental threshold would also be necessary where a significant cumulative impacts exists without the project and the significance of its contribution must be determined.

As the existing cumulative impact approaches 100 in a million, the situation arises where the project's contribution is not cumulatively considerable, but the combined impact of the existing cumulative and the project exceed 100 in a million. For example, if the existing cumulative risk is 99 in a million and still below the cumulative threshold, a project contribution of 1 or more in a million would cause the cumulative risk to reach the 100-in-a-million threshold. In this case, the significance of the project's incremental contribution must be evaluated to determine if it is cumulatively considerable. Treating a project contribution of 1 in a million as a cumulatively considerable contribution is not warranted, in light of the amount of existing cumulative impact already in existence.

Identification of a specific amount of risk that constitutes a cumulatively considerable contribution to an existing impact is necessary to avoid a potential conflict with CEQA provisions that state that increases in emissions in already impacted areas greater than zero are not necessarily significant. To evaluate the significance of the project's contribution in either situation, a threshold based on the project's cumulative contribution is required. When existing plus planned and future projects within the 1,000-foot analysis radius exceed 90 in a million, a 10-in-a-million project contribution—or 10 percent of the cumulative impact—will be considered cumulatively considerable. Ten in a million has been determined to be the appropriate incremental threshold to apply in the cases where the existing risk is between 90 and 100 in a million, and where the existing risk *exceeds* 100 in a million, as explained in the section below.

Table 2 illustrates the application of a 10-in-a-million incremental risk threshold to two situations where the existing sources and planned future sources within the 1,000-foot analysis radius would exceed 90 in a million. The first example depicts a risk from existing and probable future projects of 96 in a million and a project contribution of 5 in a million. Although the total risk is 101 in a million, the project's contribution to the exceedances would not be cumulatively considerable (since the 5-in-a-million contribution is less than 10 in a million). The second example results in impacts from the existing and planned sources of 96 in a million and a project contribution of 15 in a million (over 10 in a million). With this example, the project's contribution is cumulatively considerable and results in a significant cumulative impact.

Table 2: Hypothetical Risk Analysis Scenarios Cumulative Contribution to Existing Sources with Risk Between 90 and 100 in a Million

Example 3		Example 4	
Sources within 1,000 feet	**Risk per Million**	**Sources within 1,000 feet**	**Risk per Million**
Existing Freeway	60	Existing Freeway	60
Existing Roadway	20	Existing Roadway	20
Existing Commercial with Loading Dock	5	Existing Commercial with Loading Dock	5
Existing Gas Station	5	Existing Gas Station	5

Table 2 (cont.): Hypothetical Risk Analysis Scenarios Cumulative Contribution to Existing Sources with Risk Between 90 and 100 in a Million

Example 3		Example 4	
Sources within 1,000 feet	**Risk per Million**	**Sources within 1,000 feet**	**Risk per Million**
Total Existing Risk	**90**	**Total Existing Risk**	**90**
Planned Commercial	5	Planned Commercial	5
Planned Restaurant	1	Planned Restaurant	1
Total Planned	**6**	**Total Planned**	**6**
Total Existing and Planned	**96**	**Total Existing and Planned**	**96**
Project	5	Project	15
Total from All Sources	**101**	**Total from All Sources**	**111**
Cumulatively Significant?	No	Cumulatively Significant?	Yes

Note:
When existing, planned and probable future projects exceed 90 in a million, the project's cumulative contribution must be less than 10 in a million to be less than cumulative TAC threshold of 100 in a million.
Source: Michael Brandman Associates

3.3.7 - Justification for Cumulative Contribution Threshold

MBA reviewed CAPCOA and air district CEQA guidance to identify potential cumulative contribution thresholds and found none that have been adopted. Only the SJVAPCD draft GAMAQI update proposes its project threshold as a cumulatively considerable net increase in cancer risk due to TAC emissions. The BAAQMD has adopted a cumulative TAC threshold that fully addresses existing sources, yet it has not adopted a cumulative contribution threshold. In the absence of adopted guidance, MBA considered the threshold levels that could be used as a cumulative contribution threshold when existing sources already have a significant cumulative impact or will be due to the project's contribution to an impact from existing sources and planned probable projects of 90 in a million or more.

Cumulative Contribution Based on Toxic Best Available Control Technology Threshold

MBA first considered a TAC cancer risk contribution threshold amount of one in a million. The SJVAPCD Risk Management Policy for Permitting New and Modified Sources, last revised March 2, 2001 (SJVAPCD 2001), requires new and modified sources with a greater than a *de minimis* increase in cancer risk (one in a million) to apply Toxic Best Available Control Technology (T-BACT) to control emissions to the maximum extent feasible. This threshold applies to each emission unit at a stationary source. For example, a facility could have multiple engines, boilers, and other equipment—each of which would be subject to its own one in a million threshold and T-BACT determination. If applied in a similar fashion to a development project, each diesel truck servicing the project would be subject to the one in a million threshold for requiring the equivalent of T-BACT for mobile sources, and so facilities with multiple trucks could contribute a combined risk from all trucks that is greater than one in a million and still be in under this threshold.

The equivalent regulatory regime to T-BACT for mobile sources are the regulations adopted by the ARB to implement its Diesel Risk Reduction Plan (ARB 2000). New trucks must comply with increasingly stringent engine and fuel standards. Owners of existing trucks must comply with the requirements of ARB emission retrofit and vehicle retirement regulations. Stationary sources such as gas stations, dry cleaners, and restaurants within a land use project would be subject to SJVAPCD permit and would comply with T-BACT. In addition, the owner or operator of the project would have no ability to control emissions from some or all of the vehicles accessing the project site, and its own fleet vehicles would be subject to ARB regulations. In effect, land use projects are already complying with TAC control requirements that are substantially equivalent to T-BACT for stationary sources.

Setting a cumulative contribution threshold at one in a million at the project level would result in a threshold that is much more stringent than is currently applied to individual pieces of equipment at industrial facilities subject to SJVAPCD permit. It is not practical or desirable to apply this threshold to individual trucks accessing the site. Therefore, a one-in-a-million cumulative contribution threshold was eliminated from further consideration.

SJVAPCD Risk Management Policy Significant Increase Threshold

The next threshold considered is the SJVAPCD's 10-in-a-million project threshold that was adopted in the SJVAPCD Risk Management Policy for Permitting New and Modified Sources, last revised March 2, 2001 (SJVAPCD 2001). This became the basis of the project threshold used for SJVAPCD's CEQA compliance for land use projects adopted in the GAMAQI.

The purpose of the District's Risk Management Policy is to minimize the increase that new or modified stationary sources add to the existing toxic load in the public's breathing air. This threshold only includes emissions from a facility's stationary sources and does not include mobile and area sources not subject to SJVAPCD permitting authority. As stated in the ARB Almanac described earlier, the average risk from TACs in the San Joaquin Valley was 586 in a million in the year 2000, which is about the same time the current Risk Management Policy was being prepared. In adopting this threshold, the SJVAPCD was aware that the average existing toxic risk was over 500 in a million (which is already significant) and concluded that 10 in a million was an appropriate cumulative contribution to the existing impact that would be protective of public health. In addition, the SJVAPCD draft GAMAQI also proposes 10 in a million as the level for its cumulative contribution threshold.

The 10 in a million TAC threshold has been widely accepted and used exclusively by Lead Agencies for projects requiring health risk assessments in the San Joaquin Valley and other air basins in California for over 15 years. According to page 11 of the CAPCOA Health Risk Assessments for Proposed Land Use Projects Guidance Document, air districts are uniform in their recommendation to use the significance thresholds that have been established under each district's Hot Spots and permitting programs. For the majority of the air districts the excess cancer risk significance threshold is set at 10 in a million (CAPCOA 2009). CEQA documents for these projects have disclosed the level of risk to decision makers and the judgment has been made each time that 10 in a million is an acceptable level of increased risk. It has also been determined to be an acceptable threshold in the context of programs and regulations that seek to reduce exposure of the public to toxics. For example, SJVAPCD Rule 2201 New and Modified Stationary Source Review uses this threshold for toxics for new and modified stationary sources and other air districts also use this threshold for similar permitting regulations.

EPA guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level considers a range of "acceptable" cancer risks from one in a million to one in ten thousand. In protecting public health with an ample margin of safety, EPA strives to provide maximum feasible protection against risks to health from Hazardous Air Pollutants (HAPs) by limiting to a no higher than approximately one in ten thousand (100 in a million) the estimated risk that a person living near a source would be exposed to the maximum pollutant concentrations for 70 years. This goal is described in the preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking (54 Federal Register 38044, September 14, 1989) and is incorporated by Congress for EPA's residual risk program under Clean Air Act (CAA) section 112(f) and was restated in the proposed decision on the National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations) in the Federal Register, Volume 70 Issue 153 on page 46454 (EPA 2005). A risk of 10 in a million is a mere one-tenth of the acceptable risk identified by EPA for a single source of TAC emissions, like the project, and less than 2 percent of the 586-in-a-million average San Joaquin Valley risk that existed in 2000.

Another factor to consider when determining the cumulative contribution threshold is the impact trend. Risk from TAC emissions is declining rapidly due to regulations adopted at the federal, state, and air district levels. The ARB's Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce diesel PM emissions by about 90 percent overall from year 2000 levels as stated on page 1 of the plan. The projected emission benefits associated with the full implementation of this plan (page 2), including federal measures, are reductions in diesel PM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020 (ARB 2000). The reductions in diesel PM emissions attributable to the Diesel Risk Reduction Plan are displayed in Exhibit 3.

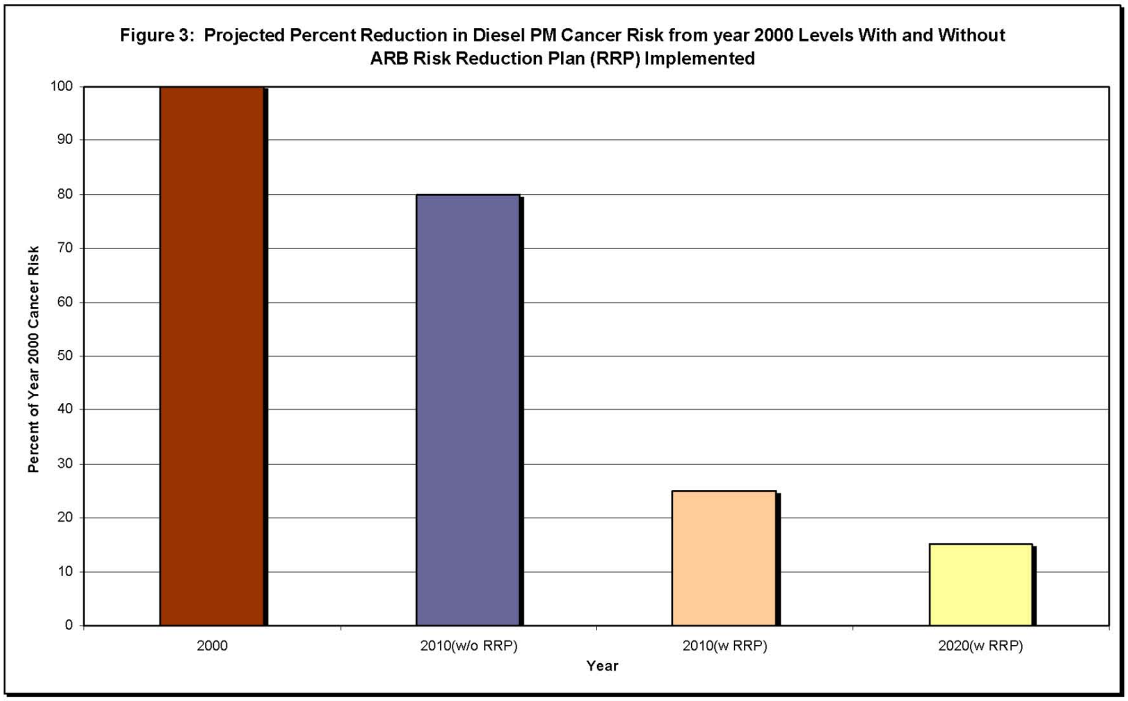
According to the ARB Almanac 2009 (page 5-69), diesel PM comprises approximately 70 percent of the risk in the San Joaquin Valley (ARB 2009). Other sources of TAC described in the ARB Almanac have achieved similar reductions and continue to achieve a downward trajectory of risk over time. The risk from the other non-diesel PM TACs reported in the ARB Almanac on page 5-69 was reduced from 196 in a million in the year 2000 to 90 in 2007, for a 54-percent reduction (ARB 2009).

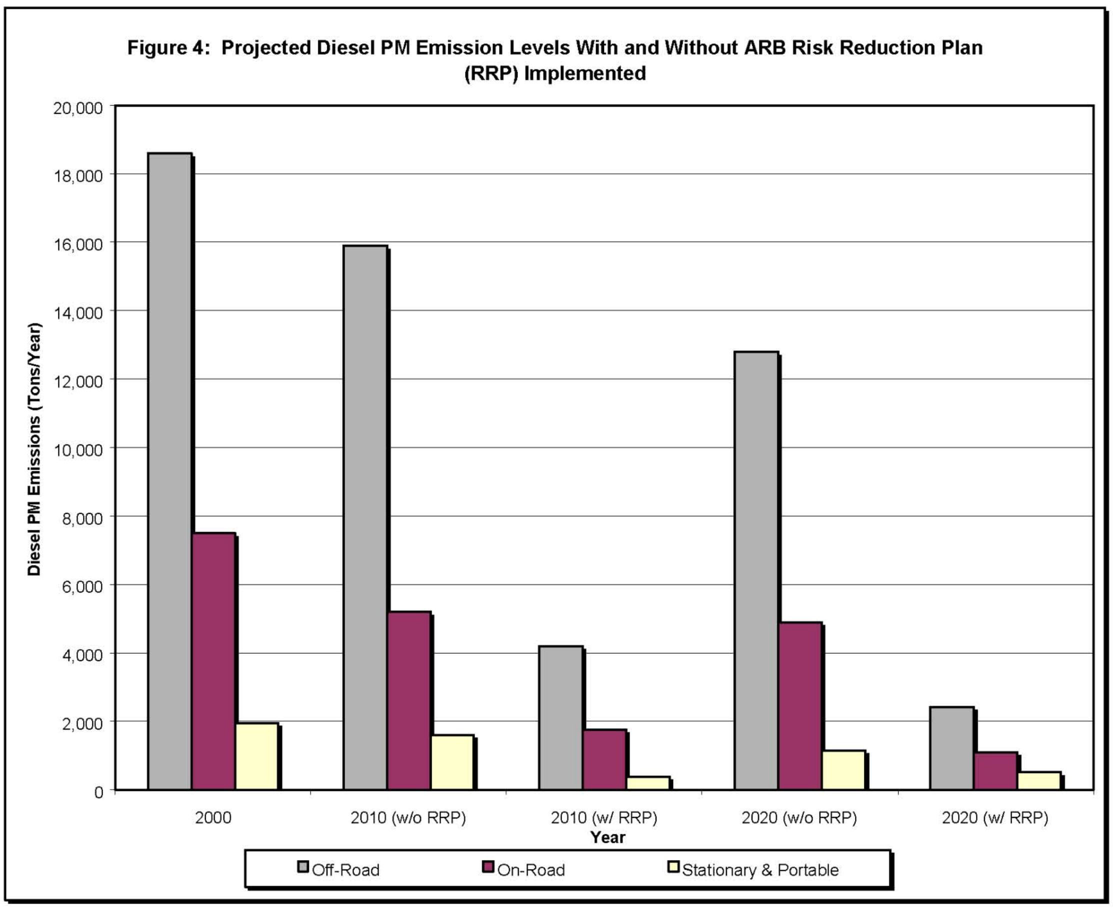
Therefore, overall reductions in cancer risk are anticipated to accrue for the foreseeable future as the regulations are implemented and old, less controlled vehicles and equipment are retired or retrofitted with required pollution control devices. Emission reductions from mobile diesel PM regulations are reflected in the ARB's mobile source emission models used to develop emission inventories and to prepare health risk assessments. ARB's EMFAC 2011 mobile source emission model addresses on road vehicle emissions (ARB 2011a). The effect of the regulations on diesel PM emissions from off-road mobile equipment is reflected in the ARB's Offroad 2011 emission model (ARB 2011b). Due to the reduced mobile emissions, risk will decline from sources such as freeways and high volume roadways even as they accommodate increases in travel. Therefore, using the emission rates from the first year of project operations represents the worst-case risk exposure when conducting health risk assessments. Modeling that includes the change in emission rates due to the benefits of adopted regulations results in substantially lower risk estimates.

The final cumulative contribution threshold considered was a 5-in-a-million increase in TAC cancer risk. This risk amount falls midway between the 1-in-a-million T-BACT threshold and the 10-in-a-million SJVAPCD project or facility threshold. The BAAQMD considered, but rejected a five-in-a-million threshold for a cumulative contribution amount in areas that are heavily impacted by TAC emissions. They chose instead a programmatic approach where projects proposed in heavily impacted areas of the region would be required to comply with the provisions of Community Risk Reduction Plans.

Visalia does not have a concentration of sources such as seaports, rail yards, and high-volume freeways that would experience risk levels approaching those in the BAAQMD. The BAAQMD Threshold Justification Document on page 57 identified risks near major freeways between 400 and 500 in a million and risks at the confluence of several major freeways, ports, and rail yards with risks over 1,200 in a million (BAAQMD 2009). In Visalia, receptors immediately adjacent to the SR-198 freeway experience the highest levels. Modeling shows that the levels exceed 100 in a million adjacent to SR-198 when all known cumulative sources are included in the tally.

Based on the review of existing TAC risk in the San Joaquin Valley as described earlier and the modeling conducted for the project, the level of risk does not rise to the point where the area impacted by the project would be considered a heavily impacted area requiring a cumulative contribution threshold that is lower than the 10-in-a-million project threshold. Therefore, a 5-in-a-million cumulative contribution was eliminated from further consideration.





Source: ARB 2000

Michael Brandman Associates

Exhibit 3
Diesel Particulate Matter Reductions 2000 to 2020

Conclusion

Based on the reasoning, evidence, and justification provided above, a TAC risk increase of 10 in a million should be used as a cumulative contribution amount where the project area's existing risk exceeds the 90 in a million and the project's contribution leads to a risk of 100 in a million or greater.

3.3.8 - Summary and Conclusion

After review of approaches that have been adopted and/or utilized to assess cumulative impacts from toxic air contaminants for compliance with the court ruling for the Visalia Walmart Expansion project, MBA has concluded that each had some merit but lacked a key feature. The BAAQMD CEQA Air Quality Guidelines' provided a well-supported threshold and analysis approach for cumulative TAC emissions. In lieu of an incremental threshold, BAAQMD Guidelines require compliance with community risk reduction plans in areas with existing significant impacts. Since community risk reduction plans are not feasible in all locations with existing significant impacts this is viewed as a weakness in the BAAQMD approach to cumulative TAC analysis. This document identifies an incremental cumulative contribution threshold of 10 in a million to address a circumstance where the cumulative emissions without the project exceed (or come close to exceeding) the cumulative 100 in a million threshold. As demonstrated in this analysis, the impacts from cumulative sources of TAC emissions in the project's 1,000-foot analysis radius do not exceed the cumulative threshold; therefore, a cumulative TAC impact will not exist with the project, and the cumulative contribution threshold was not triggered.

The approach established for use in conducting an adequate cumulative TAC analysis for the project combines the best features of the SJVAPCD and BAAQMD approaches to provide a threshold that meets the Court's requirements and complies with CEQA.

Review of data available regarding the existing level of cancer risk from TAC emissions in the region found that the data are not appropriate for use in a project level analysis.[7] The data are in the form of averages applicable to broader areas that do not reflect proximity to actual sources with sufficient accuracy to identify cumulative sources that would impact a specific sensitive receptor location. However, the data does provide two important points.

First, the average risk from TACs for the San Joaquin Valley was substantially higher than the 100 in a million cumulative TAC threshold at 586 in a million in the year 2000 (ARB 2009). An existing average risk level of this magnitude places EPA's goal of reducing risk in impacted areas to less than 100 in a million in perspective. It shows that achieving a 100-in-a-million risk level is an ambitious goal that requires reducing risk from 586 in a million to 100 in a million for an 83-percent reduction from 2000 levels.

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[7] Data reviewed included ARB Almanac data, which provides average TAC risks for the San Joaquin Valley (ARB 2009) and ARB's Community Health Air Pollutant Information System (CHAPIS) inventory data available on the ARB website (http://www.arb.ca.gov/ch/chapis1/chapis1.htm), which provides average emissions and TAC risk in map form in a 1-kilometer grid (ARB 2012b). Neither provides source-specific data needed for a cumulative analysis.

Second, the data presented in the ARB Almanac shows that state and federal regulations in place to reduce TAC emissions have already dramatically reduced risk levels since 2000 and continued improvements are expected over time with further implementation (ARB 2009).

Options for the geographic scope of the cumulative TAC analysis were assessed. Information compiled by the BAAQMD provides strong support for an analysis radius of 1,000 feet. This is not a hard and fast number. If large sources are present beyond 1,000 feet from the project, they should be included in the risk assessment.

Based on the review described above, the following thresholds have been selected for use in evaluating the project's cumulative toxic emissions:

- **Cancer Risk to Maximally Exposed Individual.** Cumulative sources (including the proposed project, existing sources and reasonably foreseeable probable future sources) would be subject to a significance threshold of 100 in one million within 1,000 feet from the location of the new source being evaluated.
- **Cancer Risk to Maximally Exposed Individual in Areas with Existing Cumulative Emissions over 90 in Million Without the Project.** When existing sources and reasonably foreseeable sources within 1,000 feet from the location of the new source being evaluated exceed a cancer risk of 90 in one million, a project contribution greater than or equal to 10 in one million will be considered a significant cumulative contribution.
- **Non-Cancer Risk to Maximally Exposed Individual.** Cumulative sources of risks or hazards would be subject to a significance threshold of a chronic or acute Hazard Index of greater than 10.0 within 1,000 feet from the location of the new source being evaluated.

These thresholds are based on the review of data and analysis regarding the extent of existing impacts in the region compiled by state and federal agencies responsible for regulating these pollutants. The threshold approaches and analysis methods considered herein were developed by regional air pollution control districts that are expert commenting agencies with regulatory responsibility for toxic emissions at the local level. The cancer risk levels selected to constitute a significant cumulative impact (100 in a million increase in cancer risk) and a significant cumulative contribution in areas that already experience a cumulative impact (10 in a million) are supported by substantial evidence as presented in this document. The geographic scope of the analysis is based on analysis conducted by ARB and confirmed by the dispersion modeling completed for the Visalia Walmart Expansion project, which illustrates the reduction in risk with distance from the TAC sources.

SECTION 4: REFERENCES

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Appendix B: Inventory of Project Sources of TAC Emissions

Emission Assumptions **DPM** Emissions
Visalia Walmart (Project Only)

Facility Operations

Buildout year: 2010

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for Tulare County
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT1)
(d) Onsite Truck and Customer Travel Speed: 15 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 5 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 34 hp
(3) Cooling time: 0.67 hr/day
(4) Load Factor: 53 %
(5) On/off Cycle Factor 1
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

Page 1

Visalia Walmart (Project Only) Emission: DPM

Processes Modeled Build-out: 2010

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart	4+ axle	1	2	2	4	3	6
Wal-Mart	2 axle	4	8	0	0	4	8
Total		**5**	**10**	**2**	**4**	**7**	**14**

Truck Operations:
Wal-Mart 18 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust @ 15 mph (g/mi)	Idle (g/hr)
4+ axle	0.205	0.407
2 axle	0.656	1.547

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.28	0.28	<----- OFFROAD2007 Fleet Average for Tulare County in 2010

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Emissions Over the Link (g/day)	Emissions Over Link (g/sec)
Wal-Mart	4+ axle	0.205	6	415	0.26	3.17E-01	3.16E-06
Wal-Mart	2 axle	0.656	8	482	0.30	1.57E+00	1.01E-05
			14				
Total						**1.89E+00**	**1.33E-05**

Truck Idling

Idle time 5 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Emissions (g/sec)
Wal-Mart	4+ axle	0.407	5	3	0.10	1.57E-06
Wal-Mart	2 axle	1.547	5	4	0.52	7.96E-06
Total				**7**	**6.17E-01**	**9.53E-06**

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)
Wal-Mart	4+ axle	34	4	0.28	53	1	15	415	0.26	0.017	3.47E-01	5.35E-06
Wal-Mart	2 axle	34	0	0.28	53	1	15	482	0.30	0.020	0.00E+00	0.00E+00
TOTAL			**4**								**3.47E-01**	**5.35E-06**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor	Cooling Time (hr/day)	Average Emissions (g/day)	Average Emissions (g/sec)
Wal-Mart	4+ axle	34	2	0.28	53	1	0.67	6.76E+00	1.04E-04
Wal-Mart	2 axle	34	0	0.28	53	1	0.67	0.00E+00	0.00E+00
TOTAL			**2**					**6.76E+00**	**1.04E-04**

Emission Summary

Facility Emission Summary	Onsite Travel Emissions (g/sec)	Onsite TRU Travel Emissions (g/sec)	Total Onsite Travel Emissions (g/sec)	Onsite Idle Emissions (g/sec)	Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart	3.16E-06	5.35E-06	8.51E-06	0.00E+00	1.04E-04	1.04E-04	1	1.04E-04	1.13E-04
Wal-Mart	1.01E-05	0.00E+00	1.01E-05	0.00E+00	0.00E+00	0.00E+00	1	0.00E+00	1.01E-05
TOTAL	**1.33E-05**	**5.35E-06**	**1.86E-05**	**0.00E+00**	**1.04E-04**	**1.04E-04**			**1.23E-04**

Emission Assumptions Emissions: DPM
Visalia Walmart (Project Only)

Total Daily Vehicle Trip - Saturday 2394 trips/day - Saturday

Store Operation 24 hrs/day

Trip Generation derived from project traffic report:

Fleet Mix Assumed in the AQ/HRA

Vehicle Class	Vehicle Mix	% Diesel Vehicles	Vehicle Trips (trips/day)	Diesel Vehicle Trips (trips/day)
LDA + LDT1	98.00%	1.35%	2346	32
MDT	2.00%	7.89%	48	4
			2394	35

Onsite Travel Exhaust Emissions

Assume that the onsite vehicle speed: 15 mph
Assume trip length: 403 m

Vehicle Class	Emission Factor @ 15 mph (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Average Emissions (grams/sec)
LDA +LDT1	0.192	32	1.5	1.757E-05
MDT	0.113	4	0.1	1.233E-06
Total		35	1.6	1.880E-05

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 5 mph by 5

Vehicle Class	Emission Factor at 5 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Average Emissions (grams/sec)
LDA + LDT1	0.27	1.37	16	0.4	4.176E-06
MDT	0.16	0.81	2	0.0	2.936E-07
Total			18	0.4	4.469E-06
Total Emissions (all facilities)			2.327E-05 grams/sec		

Parking Lots

Lot	Lot size (m2)	Average Emissions (g/sec)	Average Emission Rate (g/sec-m2)
PARK_1	15537	1.272E-05	8.188E-10
PARK_2	12880	1.055E-05	8.188E-10
Total	28417		

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Offsite Customer Vehicle Emissions Pollutant: **DPM**

Customer Fleet Mix

Vehicle Class	% Vehicle	% Diesel
LDA+LDT	98%	1.35%
MDT	2%	7.89%
Truck Operations	18	hrs/day
Customer Operations	24	hours/day

Link #	Description	Link Length (m)	Vehicle Trip (trips/day)	Daily LDA+LDT1 Trips (trips/day)	Daily Diesel LDA+LDT1 Trips (trips/day)	Daily MDT Trips (trips/day)	Daily Diesel MDT Trips (trips/day)
N-W	Noble West of Ben Maddox	317	216	212	3	4	0
NE-1	Noble - Ben Maddox to 198 Exit	260	1832	1795	24	37	3
NE-2	Noble - 198 Exit to West Drive	240	2130	2087	28	43	3
NE-3	Noble - West to East Drive	105	1197	1173	16	24	2
NE-4	Noble - East Drive to Lovers Lane	651	264	259	3	5	0
BM-N	Ben Maddox - North of Noble	219	898	880	12	18	1
BM-S	Ben Maddox - South of Noble	711	719	705	10	14	1
198 E-1	198 East Prior to Exit	232	216	212	3	4	0
198 Exit	198 East - Exit to Noble	382	216	212	3	4	0
198-Entr	198 East - Noble Entrance to 198	406	60	59	1	1	0
198-E-2	198 East - East of Entrance	629	60	59	1	1	0
198-W-1	198 West - Prior to Exit to Mineral	705	60	59	1	1	0
198-W-2	198 West - Exit Segment	266	60	59	1	1	0
198-W-3	198 West - Entrance Segment	319	216	212	3	4	0
198-W-4	198 West - After Mineral Entrance	269	216	212	3	4	0

Customer Emissions

Speed (mph)	Emission Factors LDA + LDT (g/mi)	MDT (g/mi)
25	0.129	0.076
35	0.095	0.056
55	0.067	0.040

Link #	Description	Vehicle Speed (mph)	Emission Factor LDA+LDT (g/mi)	Daily Emissions LDA+LDT (g/day)	Ave Emissions LDA+LDT (g/sec)	Emission Factor MDT (g/mi)	Daily Emissions MDT (g/day)	Ave Emissions MDT (g/sec)	Total Emissions LHA+LDT+MDT (g/sec)
N-W	Noble West of Ben Maddox	35	0.095	0.053	6.176E-07	5.588E-02	3.751E-03	4.341E-08	6.61E-07
NE-1	Noble - Ben Maddox to 198 Exit	35	0.095	0.371	4.296E-06	5.588E-02	2.609E-02	3.020E-07	4.60E-06
NE-2	Noble - 198 Exit to West Drive	35	0.095	0.398	4.611E-06	5.588E-02	2.800E-02	3.241E-07	4.94E-06
NE-3	Noble - West to East Drive	25	0.129	0.133	1.542E-06	7.584E-02	9.344E-03	1.081E-07	1.65E-06
NE-4	Noble - East Drive to Lovers Lane	35	0.095	0.134	1.550E-06	5.588E-02	9.415E-03	1.090E-07	1.66E-06
BM-N	Ben Maddox - North of Noble	35	0.095	0.153	1.774E-06	5.588E-02	1.077E-02	1.247E-07	1.90E-06
BM-S	Ben Maddox - South of Noble	35	0.095	0.398	4.611E-06	5.588E-02	2.800E-02	3.241E-07	4.94E-06
198 E-1	198 East Prior to Exit	55	0.067	0.028	3.197E-07	4.013E-02	1.971E-03	2.281E-08	3.42E-07
198 Exit	198 East - Exit to Noble	25	0.129	0.087	1.012E-06	7.584E-02	6.134E-03	7.100E-08	1.08E-06
198-Entr	198 East - Noble Entrance to 198	25	0.129	0.026	2.988E-07	7.584E-02	1.811E-03	2.096E-08	3.20E-07
198-E-2	198 East - East of Entrance	55	0.067	0.021	2.408E-07	4.013E-02	1.484E-03	1.718E-08	2.58E-07
198-W-1	198 West - Prior to Exit to Mineral	55	0.067	0.023	2.698E-07	4.013E-02	1.664E-03	1.926E-08	2.89E-07
198-W-2	198 West - Exit Segment	25	0.129	0.017	1.957E-07	7.584E-02	1.186E-03	1.373E-08	2.09E-07
198-W-3	198 West - Entrance Segment	25	0.129	0.073	8.451E-07	7.584E-02	5.122E-03	5.929E-08	9.04E-07
198-W-4	198 West - After Mineral Entrance	55	0.067	0.032	3.707E-07	4.013E-02	2.285E-03	2.645E-08	3.97E-07

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Offsite Truck Vehicle Emissions

Pollutant: **DPM**

Truck Fleet Mix

Vehicle Class	% Vehicle	% Diesel
MHDT	52%	100%
HHDT	48%	100%
Truck Operations	18 hrs/day	

Link #	Description	Link Length (m)	Daily Truck Trips (trips/day)	Daily MHDT Trips (trips/day)	Daily Diesel MHDT Trips (trips/day)	Daily HHDT Trips (trips/day)	Daily Diesel HHDT Trips (trips/day)
N-W-T	Noble West of Ben Maddox	317	0	0	0	0	0
NE-1-T	Noble - Ben Maddox to 198 Exit	260	4	2	2	2	2
NE-2-T	Noble - 198 Exit to West Drive	240	12	6	6	6	6
NE-3-T	Noble - West to East Drive	105	12	6	6	6	6
NE-4-T	Noble - East Drive to Lovers Lane	651	4	2	2	2	2
BM-N-T	Ben Maddox - North of Noble	219	4	2	2	2	2
BM-S-T	Ben Maddox - South of Noble	711	0	0	0	0	0
198 E-1-T	198 East Prior to Exit	232	4	2	2	2	2
198 Exit-T	198 East - Exit to Noble	382	4	2	2	2	2
198-Entr-T	198 East - Noble Entrance to 198	406	4	2	2	2	2
198-E-2-T	198 East - East of Entrance	629	4	2	2	2	2
198-W-1-T	198 West - Prior to Exit to Mineral	705	0	0	0	0	0
198-W-2-T	198 West - Exit Segment	266	0	0	0	0	0
198-W-3-T	198 West - Entrance Segment	319	0	0	0	0	0
198-W-4-T	198 West - After Mineral Entrance	269	4	2	2	2	2

Truck Emissions

Speed (mph)	Emission Factors MHDT (g/mi)	HHDT (g/mi)
25	0.347	0.176
35	0.264	0.180
55	0.289	0.276

<----- HHDT assume model years 2006 and newer for Walmart trucks

Link #	Description	Vehicle Speed (mph)	Emission Factor MHDT (g/mi)	Daily Emissions MHDT (g/day)	Ave Emissions MHDT (g/sec)	Emission Factor HHDT (g/mi)	aily Emission HHDT (g/day)	Ave Emissions HHDT (g/sec)	Total Emissions MHDT+HHDT (g/sec)
N-W-T	Noble West of Ben Maddox	35	0.264	0.000	0.000E+00	1.804E-01	0.000E+00	0.000E+00	0.00E+00
NE-1-T	Noble - Ben Maddox to 198 Exit	35	0.264	0.089	1.368E-06	1.804E-01	5.596E-02	8.635E-07	2.23E-06
NE-2-T	Noble - 198 Exit to West Drive	35	0.264	0.245	3.789E-06	1.804E-01	1.550E-01	2.391E-06	6.18E-06
NE-3-T	Noble - West to East Drive	25	0.347	0.141	2.178E-06	1.757E-01	6.601E-02	1.019E-06	3.20E-06
NE-4-T	Noble - East Drive to Lovers Lane	35	0.264	0.222	3.426E-06	1.804E-01	1.401E-01	2.162E-06	5.59E-06
BM-N-T	Ben Maddox - North of Noble	35	0.264	0.075	1.152E-06	1.804E-01	4.713E-02	7.273E-07	1.88E-06
BM-S-T	Ben Maddox - South of Noble	35	0.264	0.000	0.000E+00	1.804E-01	0.000E+00	0.000E+00	0.00E+00
198 E-1-T	198 East Prior to Exit	55	0.289	0.087	1.335E-06	2.757E-01	7.628E-02	1.177E-06	2.51E-06
198 Exit-T	198 East - Exit to Noble	25	0.347	0.171	2.641E-06	1.757E-01	8.005E-02	1.235E-06	3.88E-06
198-Entr-T	198 East - Noble Entrance to 198	25	0.347	0.182	2.807E-06	1.757E-01	8.508E-02	1.313E-06	4.12E-06
198-E-2-T	198 East - East of Entrance	55	0.289	0.235	3.620E-06	2.757E-01	2.068E-01	3.192E-06	6.81E-06
198-W-1-T	198 West - Prior to Exit to Mineral	55	0.289	0.000	0.000E+00	2.757E-01	0.000E+00	0.000E+00	0.00E+00
198-W-2-T	198 West - Exit Segment	25	0.347	0.000	0.000E+00	1.757E-01	0.000E+00	0.000E+00	0.00E+00
198-W-3-T	198 West - Entrance Segment	25	0.347	0.000	0.000E+00	1.757E-01	0.000E+00	0.000E+00	0.00E+00
198-W-4-T	198 West - After Mineral Entrance	55	0.289	0.100	1.548E-06	2.757E-01	8.845E-02	1.365E-06	2.91E-06

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