APPENDIX B. PCAPCD Tips for Using CalEEMod

The **Cal**ifornia **E**missions **E**stimator **Mod**el (CalEEMod) is a land use emissions computer model designed for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions from a variety of land use projects. The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The results from CalEEMod can assist lead agencies to determine if the project will have an impact on the environment, including air quality and climate change, and identify appropriate mitigation to mitigate those impacts.

The model was developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with the California air districts. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is free of charge and will be periodically updated when modifications are warranted.

The model is a comprehensive tool utilizing widely accepted methodologies for estimating emissions combined with default data that can be applied by users when the project-specific information is not available. The default data is derived from surveys of existing land uses which are associated with locations and types of land use categories and can be altered by customized values. For any project that substantially deviated from the types and features included in the default data, the project-specific data that are supported by substantial evidence should be used, if available.

The CalEEMod installation files, the User's Guide, and other supporting documents can be downloaded free of charge from http://www.caleemod.com/. Currently, the latest version is 2016.3.1.

PCAPCD staff developed the following Placer-specific CalEEMod modeling recommendation to assist users in recognizing critical components of the model. The recommendations are organized by input screens of CalEEMod.

Project Characteristics
CalEEMod requires minimum inputs for the "Project Characteristics and Land Use" screen in order to create a project file and calculate the project's related emissions. The District encourages the project-specific information be entered if available.

1. Project Location: Select <u>Air District</u> and <u>Placer County APCD</u>. (User may select <u>County</u> and <u>Placer-Lake Tahoe</u>, <u>Placer-Mountain Counties</u>, or <u>Placer-Sacramento</u> to look for air basin special emission estimation.)

2. Climate Zone: Choose <u>2</u> for the climate zone. (User can use the look-up button to search climate zone for the project. The most common zone for Placer County except Lake Tahoe area is 2. The zone for Lake Tahoe area is 14).

3. Land Use Setting: Select either <u>Urban</u> or <u>Rural</u>. Generally, the project is located within the incorporated area should use the Urban setting.

4. Construction Start: Select a date to reset the default construction starting date based on the proposed project description. Check that the construction timing coincides with the operational year selected for the project.

5. Operational Year: Select a year for the project. The model will round down to the nearest year and use that data if a year is not specifically listed in the drop down list.

6. Utility Company: Select Roseville Electric if the project is located within the City of Roseville jurisdiction or Pacific Gas & Electric Company if the project is located outside of City of Roseville for the utility provider. If any default energy intensity factor is modified, the rationale and justification should be provided to support its modification.

7. Pollutant Selection: At least select Reactive Organic Gases (ROG), Nitrogen Oxides (NOx), Carbon Monoxide (CO), Particulate Matter 10 μm, Particulate Matter 2.5 μm, and CO_2 equivalent GHGs (CO_2e). More pollutants can be selected if desired.

Land Use
8. Land Use Type: Select appropriate land use types based on the project's proposal. User-defined land uses are allowed, but the users must provide all data in the subsequent data input screens.

9. For commercial uses, the building size square footage should be entered into the model not the lot size.

10. If entering a mixed-use, multi-story project, enter each land use separately, then assign the total project acres to the residential portion and zero out the acreage on the commercial portions.

11. Enter parking lots, structures, and other paved areas ofr commercial uses as a separate land use than the commercial and retail land uses to accurately calculate grading and asphalt emissions.

Construction
12. Construction Phase: Review the default phases shown in the screen and delete/add phases which should or should not be in the modeling analysis. In addition, the user can modify the starting and ending date for each phase based on the project's description.

13. Off-Road Equipment: Use the default equipment with its associated default values for operation hours per day, horsepower, and load factor. The default equipment list is valid for a project with the grading area up to 35-acre and has buildings no more than 4 stories tall. If the default values being modified, the supporting information shold be provided for review.

14. Dust from Material Movement: The user should enter project specific information if the project has material haul activities.

15. Demolition: The user should enter the project specific information if the project involves building demolition.

16. Architectural Coating: Use default VOC content 100 g/l for both interior and exterior painting.

Operational (Mobile)
17. Vehicle Trips: Use the default values if no project-specific traffic study data is available or modify the default values if the project-specific data is available and be provided with modeling analysis.

18. Vehicle Emissions: Use default values. Consultant with the District before modifying any vehicle emission factor. If the defaulyt values being modified, the supporting information should be provided for review.

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19. Fleet Mix: Use default values. Consultant with the District before modifying the fleet mix. If the defaulyt values being modified, the supporting information should be provided for review.

20. Road Dust: If the project will have unpaved roads during the operational phase, select the "CARB unmitigated unpaved road statewide emission inventory method" option for calculating PM emissions from unpaved road.

Operational (Area)

21. Hearths: Use default values if the project proposes to install wood-burning appliances in the dwellings. The use can modify the #s of heating devices by wood, gas, and propane, or no fireplace. The total #s should be consistent with the project's proposal.

22. Use default values for Consumer Products, Area Architectural Coating, and Landscape Equipment. Consult with the District prior to modify any default value for these operational activities.

Operational (others)

23. Use default values for Energy use, Water and Wastewater, Solid Waste, and Off-Road Equipment. Consult with the District prior to modify any default value for these operational activities.

24. Stationary Source: Select device/equipment listed for stationary sources or enter user defined stationary sources.

Mitigation

25. Select appropriate mitigation measures for "Traffic", "Area", "Energy", "Water", and "Solid Waste" screens. The selection can be based on the project's location, design features, and proposed mitigation measures. Any special requirement from approved local ordinances such as "Limited Parking Spaces" can be selected in Mitigation screens to calculate the reduction properly.

26. The District recommends using guidance from CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* and the *CalEEMod User's Guide* to select the applicable project setting.

27. The District encourages the applicant/consultant to consult with the District in the early stage regarding the selected mitigation measures for the project and how the selected measures can be applied in CalEEMod modeling analysis.

Reporting

28. Provide the CalEEMod input files and the summer, winter, and annual reports for each model run conducted for a project for review.

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