The following user tips have been compiled to assist the operators of CalEEMod. The tips include operational information, proper modification of the defaults, program limitations, program flexibilities, and design features to be modified. A date has been provided as to when the User Tips was added to this list.

General Guidance

1. Due to the inclusion of default values, the model can calculate emissions from the project (Reporting screen) after input from the first two screens (Project Characteristics, Land Use). June 2011
2. The program is linear. Unless the "cascade default" box is unchecked, changing data in earlier screens will trigger the software to apply the defaults related to the new data throughout the rest of the program. July 2013
3. If the "cascade default" box is unchecked, no default values will be populated in subsequent screens. Unless all the necessary input parameters required for a proper analysis are known, it is recommended the user runs the model at least once with "cascade default" box checked to allow the defaults to be populated. Then, if the user would like to change project parameters (e.g., number of dwelling units, building square footage, etc) without cascading new defaults in later screens, then uncheck the "cascade default" box when in the land use screen. Similarly, if the user wants to preserve the 'user defined' defaults already inputted (either by hand or .xls file) and run the model with different project parameters, un-check the "cascade default" box. July 2013
4. Users who want to open/review/print a report from a previously saved file, the following is the easiest protocol to retain the changes to the CalEEMod defaults that are saved in the file:
   a. Open the file
   b. Uncheck the "Cascade Defaults" check box in the upper right hand
   c. Review any tab of interest in any order and/or run any of the project reports. July 2013
5. Users are encouraged to understand the defaults and provide site specific data (e.g., construction schedule, construction equipment type, results of traffic study, predicted water usage, etc.), if available, for a more accurate analysis. June 2011
6. The user must activate cells by clicking on the cell or using the tab key to activate the next cell. The next cell will not be activated by the enter key. June 2011
7. The ImportCSVtemplate.xls (found under User's Guide at www.caleemod.com) provides the necessary header row and dropdown lists of input characteristics down to row 100. If using this spreadsheet, be sure to delete any unused lines down to row 100 so the program does not take the time to process blank cells. June 2011
8. The "Remarks" box is limited to 255 characters due to the current capabilities of the software, so users are advised to be efficient in justifying the modification and, if need be, provide additional wording for reviewers (e.g., see attachment for further clarification). June 2011
9. When exiting the "Project Characteristics" screen to the "next" screen, dropdown boxes will temporarily show the first item on the dropdown lists. The model did not change

the user's input selection. This is a result of the programming but the input provided by the user will not change to that first listed item that flashed before the next screen appears. July 2013

Land Use Screen

10. If identifying a "User Defined" land use, the user should be prepared to supply necessary input data because the defaults are not provided in the "User Defined" options. June 2011
11. For project types that are not listed on the Land Use screen (e.g., agricultural project), please contact the local air district for guidance and recommendations on conducting an air quality analysis. April 2014
12. Non-residential land uses with parking will require the user to select a parking land use subtype (parking lot, parking structure, other asphalt surfaces, or other non-asphalt surfaces). Off-gassing emissions from paving of parking lots and other asphalt surfaces are calculated for the project construction period. A parking structure or other non-asphalt surfaces are assumed to be concrete with no off-gassing. July 2013
13. The square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). The acreage is used to determine the amount of ground to be prepared, graded, paved, etc. If the land uses are being constructed in a mixed use setting (e.g., multi-storied), the acreage should be assigned to the residential or split between non-residential land uses if no residential. June 2011
14. Recreational land uses of City Park, Golf Course, and Recreational Swimming Pool requires users to input building spaces, so that: 1) the green land of City Park and Golf Course and pool surface area of Recreational Swimming Poll are excluded from the calculation of ROG from architectural coating; 2) the green land of City Park and Golf Course and pool surface area of Recreational Swimming Poll are excluded from the calculation of ROG from general consumer products; 3) the green land of City Park and Golf Course is included in the calculation of ROG from pesticides/fertilizers. September 2016

Construction Screen

15. The model requires at least one construction phase be listed to calculate project emissions. If not interested in construction emission results, the user can delete all but one phase and zero out the default number of equipment and trip lengths. The option to output only operation will be considered in a future upgrade. June 2011
16. If a "construction only" project is desired, the user needs to enter the following land uses at a minimum to ensure proper calculation of defaults. 1) Other Asphalt Surfaces - specify the correct acreage of asphalt for off-gassing emissions. 2) User Defined Residential and User Defined Commercial - specify the correct building square footage for architectural coating emissions. 3) Ensure the total acreage at the bottom of the land use screen is accurate as this is the basis for the default construction schedule and

equipment list. The option to output only construction will be considered in a future upgrade. June 2011

17. If modifying the construction dates in the input excel spreadsheet be sure to use the format of 4-digit year/2-digit month/2-digit day. June 2011

18. If loading a different construction schedule (i.e., with .xls or .csv file), the model is unable to revert back to the original default schedule. July 2013

19. If loading an incorrect construction schedule (e.g., construction ends before it starts), the model will reset the construction phase dates to original defaults. The error can be fixed by changing the construction schedule in a separate input file (such as a .xls or .csv file) and then loading that new input file into the model. June 2011

20. For construction equipment calculations, the user should evaluate whether the default equipment list, including equipment types and numbers, horsepower ratings, hours of operation, and duration of phases, are appropriate. If changes are made to the equipment list, the program will not automatically compensate by changing the construction time. Nor will the program automatically revise the equipment list to reflect a revised construction time. Changes to one of these must accompany revisions of the other based on project-specific data. June 2011

21. When modifying off-road construction equipment types, users are recommended to either add or modify the number of units. If an equipment type is not being used, change the number of units to zero and do not delete the equipment type. The reason for this recommendation is that the model will reinsert a default equipment type if deleted and calculate emissions based on original default values. However, the emissions from that equipment will be zero if zero number of units is identified. This item will be corrected in a future upgrade. April 2014

22. Changing the off-road equipment on the construction screen does not automatically load the horsepower (HP) or load factor for the modified equipment type. The user needs to click the "default" button in order to load the appropriate default HP and load factor data. The user may also input non-default HP and load factor values as well but would be required to provide a justification of the new input data in the "Remarks" box at the bottom of the screen. July 2013

23. If changing the off-road equipment default HP to a value higher than the ranges listed in Table 3.4 of Appendix D in the User's Guide (generated from CARB's off-road inventory) the construction emissions will be zero. User is recommended to stay within the ranges provided in Table 3.4 to calculate associated emissions. A programming modification will be considered in a future upgrade. April 2014

24. Water truck(s) used during construction were counted in the vendor trip survey that was conducted for all the phases of construction (e.g., site preparation, grading, building construction, etc.). The vehicle count factor (vehicles per unit/square foot) was based on an average of the construction projects surveyed, and vendor trips calculated for the whole construction project are listed under the Building Construction phase. However, the user may manually enter any additional vehicles (on the Construction – Trips and VMT screen) under any construction phase to highlight the inclusion in the analysis. June 2011

25. Non-default values for unpaved roads during construction are not being transferred further in the model thus the mitigated emissions for on-road fugitive dust are not listed correctly in the report. To ensure correct mitigated emissions, the user is recommended to select one of the mitigation options on the 'construction mitigation' tab and then de-select it (if you don't have any mitigation) and the report will come out correct. This item will be corrected in a future upgrade. April 2014

26. Parking land use type is excluded from the calculation of ROG from non-residential interior/exterior architectural coating, but is included in the calculation of ROG from parking lot paint. September 2016.

Operational Screens

27. Trip rates reflect the vehicle activity related to a type of land use. Default residential trip rates for condos and mid- and high-rise apartments are the same as low-rise apartments, which is the baseline scenario (suburban area) from the CAPCOA GHG mitigation measure of increased diversity of urban and suburban development (mixed use). Thus, when the user applies the mitigation measure of increased diversity, the appropriate reduction in VMT will be calculated. June 2011

28. Units of the operational vehicle emission factors (on Operational-Mobile screen, Vehicle Emissions tab) are not listed because they vary depending on the action. For example, running exhaust and evaporative running loss emissions are in grams per vehicle mile traveled (VMT) and start-up, idling, and all other evaporative emissions are in grams per trip. June 2011

29. To eliminate the emissions from a specific vehicle class category, the user can zero out the emission factors (on Operational-Mobile screen, Vehicle Emissions tab). June 2011

30. The model calculates VOC emissions from consumer products from all land uses (including land uses that might not substantially use consumer products such as parking lots and golf courses), and thus requires a non-zero emission factor on the area/consumer projects screen. If the user does not want to calculate emissions from consumer products, the default emission factor can be changed to a very small value (e.g., 0.1 x 10-10) so the report will generate less than zero (or negligible) VOC emissions from consumer products. A programming modification will be considered in a future upgrade. July 2013

31. The consumer products screen shows an incorrect unit of "lbs ROG/sq ft/year" but the value is in "lbs ROG/sq ft/day." User should use caution if changing the default on this screen. This item will be corrected in a future upgrade. October 2013

32. If reducing the VOC content of architectural coatings during operation, the model will not transfer those new values to the area mitigation screen, but will highlight the boxes in yellow to alert the user the operational VOC content limits are different. If the user does not modify the VOC content limit on the mitigation screen to reflect the changed values in the operational phase, the report will list the default value as a new value under mitigation. However, the model will not calculate a mitigated value unless the box next to the architectural coating is checked on the area mitigation screen. July 2013

33. CalEEMod calculates peak daily operational phase emission levels found in the Winter/Summer Reports for projects operating wood stoves/fireplaces. Defaults for the

average number of days in a year that wood stoves/fireplaces are used for each area of the state are used to calculate annual emissions found in the Annual Report. Since peak daily emission levels do not happen every day of the year, it is inappropriate to extrapolate daily levels over one year because this would overestimate the project's annual emissions. April 2014

34. The percentage of wastewater treatment (i.e., septic, aerobic, or lagoons) should not exceed 100 percent and the waste digestion (i.e., anaerobic digestion with cogeneration or not) should total either 100 percent or zero percent. If wastewater treatment is aerobic or lagoon, there needs to be digestion to handle the waste, so digestion should total 100 percent. If the wastewater treatment is septic, digestion could be zero percent. A reminder box is triggered if input is incorrect. June 2011

35. Users are cautioned when assigning a percent of landfill types used by the project to "Landfill Capture Gas Energy Recovery" as CO2e emissions are being calculated and reported as unreasonably high. This item will be corrected in a future upgrade. April 2014

36. The green land of City Park and Golf Course and pool surface area of Recreational Swimming Poll are excluded from the calculation of ROG from architectural coating; 2) the green land of City Park and Golf Course and pool surface area of Recreational Swimming Poll are excluded from the calculation of ROG from general consumer products; 3) the green land of City Park and Golf Course is included in the calculation of ROG from pesticides/fertilizers. September 2016

37. Parking land use type is excluded from the calculation of ROG from non-residential interior/exterior architectural coating, but is included in the calculation of ROG from parking lot paint. September 2016

38. Only projects located in San Luis Obispo County APCD and Sacramento Metropolitan AQMD can select CARB's 2.0 lbs PM_{10}/VMT option. September 2016

Mitigation Screens

39. Alternative fuel options (e.g., CNG, bio-diesel) are provided for each construction equipment type. It is the responsibility of the lead agency to ensure the equipment operated by the project actually uses alternative fuel. June 2011

40. CNG equipment available for mitigation is restricted to those equipment and horsepower ranges listed in Table 3.6 of Appendix D. If CNG is selected for a non-valid piece of equipment emissions for this will not be quantified. Considering prompt to alert user of a non-valid selection. June 2011

41. Construction equipment types from all construction phases are combined on the mitigation screen. This limits the user's ability to apply different mitigation measures to the same types of equipment. For example, if the user wishes to apply diesel particulate filter mitigation to several dozers, and apply biodiesel fuel mitigation to several other dozers, this option is not available. However, the model will read separate mitigation from the same equipment type from an import CSV (excel spreadsheet) if modified to reflect the same equipment type and different mitigation. June 2011

42. The emission rates for the off-road equipment used during construction are based on statewide fleet mix from CARB's off-road inventory model per year and HP range (Table

3.4 in Appendix D of the User's Guide). Tiered engine emission factors (Table 3.5 in Appendix D of the User's Guide) are based on Carl Moyer standards to qualify for a particular tier that may be chosen to mitigate engine emissions. In some instances, the statewide fleet mix average for a particular equipment type, year, and HP may be lower than the engine tier standard generating higher mitigated emissions. User should use caution in choosing the appropriate tier mitigation so mitigation is occurring. April 2014

43. The project setting descriptions under the Traffic mitigation have been defined in the CAPCOA Quantifying GHG Mitigation Measures document (http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf) except Suburban is called Low Density Suburban in the model and Compact Infill is called Urban Center in the model. June 2011

44. Users are cautioned when checking Neighborhood Electric Vehicle as GHG mitigation because VMT reduction has not been demonstrated in the report. This item will be corrected in a future upgrade. April 2014

Report

45. An "Unhandled Exception" error message blocks the User's ability to view the report. The error is caused by an incorrect input data. For example, a mitigation input value is outside the allowable range of reductions (as outlined in CAPCOA's Quantifying GHG Mitigation Measures document) or the input is zero when model expects a positive integer. July 2013

46. The output report provides either peak daily emissions from summer or winter emission factors, or annual emissions. Quarterly emissions results are not provided but can be calculated by multiplying the peak daily by 90 days (i.e., one quarter of year), or dividing the annual by four (i.e., one quarter of year).June 2011

47. The output report for Vegetation identifies the CO2e emissions reductions (or increases) in units of metric tons, not metric tons per year. To ascertain the annual amount of emissions, the user should divide the total metric tons by the anticipated life of the project. June 2011

48. New: User can modify the excel report to get mini headers on each page by using the page set up function and choosing to repeat the top 3 lines, and then add a header – centered to show "page 1 of ?" in the place of the "Page 1 of 1" that is currently showing on the 1st page of the Excel report. July 2016

Operation of CalEEMod

49. If the following error message "*Unexpected error from external database driver (1)*" appears when importing and saving an Excel file as .xls, you are not using the most recent version of CalEEMod. To fix the error, users will need to fully uninstall CalEEMod and install version 2016.3.2.25 which is available from the Download Model tab. November 2017

50. For users who experience operation systems errors, please send an email with screenshots to CalEEMod_TechSupport@trinityconsultants.com. November 2017