TRAQS

Transportation Air Quality System

Lakes Environmental

August 31, 2016

TRB

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Introduction

TRB - NCHRP 25-48

Combined Interface for Project Level Air Quality Analysis

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Objectives

1. TRAQS Overview
2. TRAQS Modules
3. EMFAC Overview
4. TRAQS Closure
5. Q&A

TRAQS

Overview

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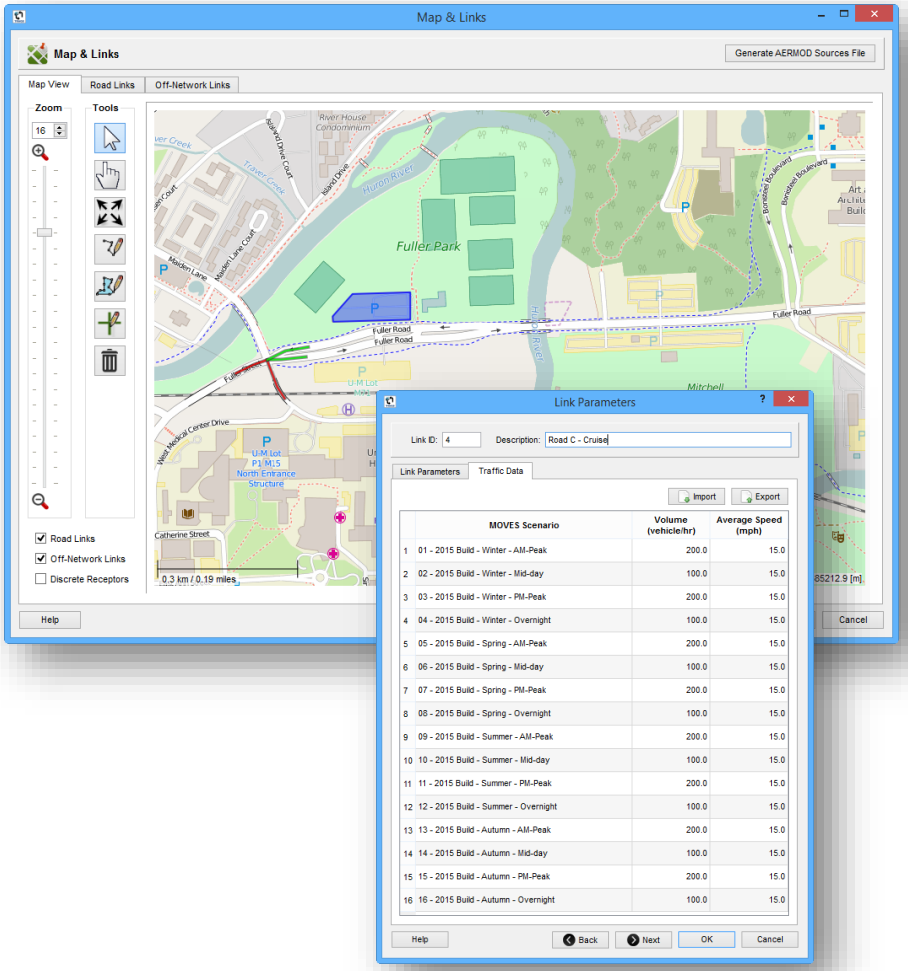
TRAQS Overview

1. PM Project-Level Hot-Spot Analysis
2. CO Project-Level Screening Analysis
3. NEPA Project-Level Analysis (MSATs and GHG)
4. Emissions Calculations using:
   - MOVES2014a or
   - EMFAC2014-PL
5. EPA AERMOD Air Dispersion Modeling

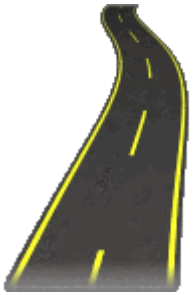
TRAQS Overview

1. Easy TRAQS Installation
2. Open Source Licensing (GPL)
3. Mapping with graphical input:
   - Project Area
   - Links
   - Receptors



TRAQS Overview

4. Developed MOVES Project Data Manager (PDM)
   a. Specification of MOVES inputs:
      - From scratch using the Map interface
      - Via importing from existing files
      - Edit files within the GUI
   b. Implemented input validation routines
   c. Auto-selection of all requisite Pollutants and Processes
   d. Implemented import / export functions



TRAQS Modules

Overview

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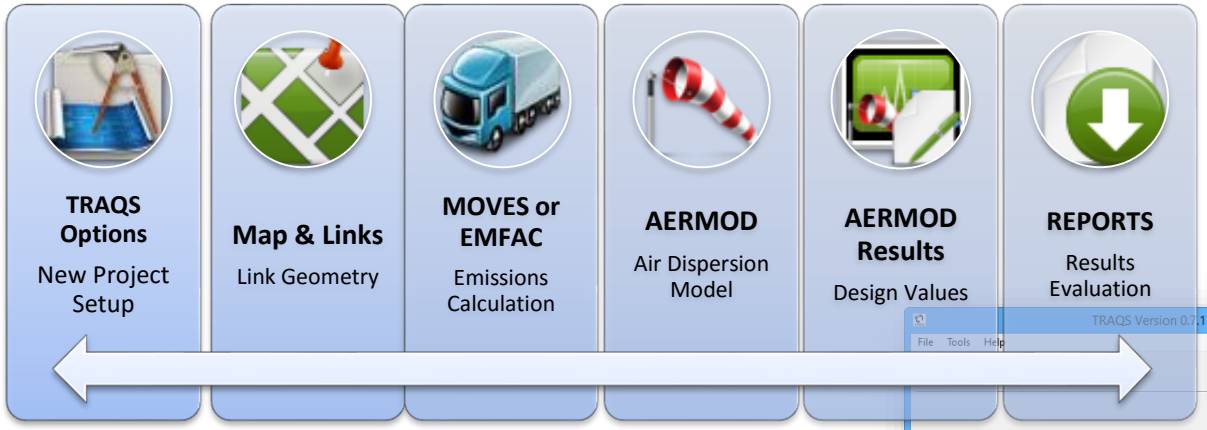
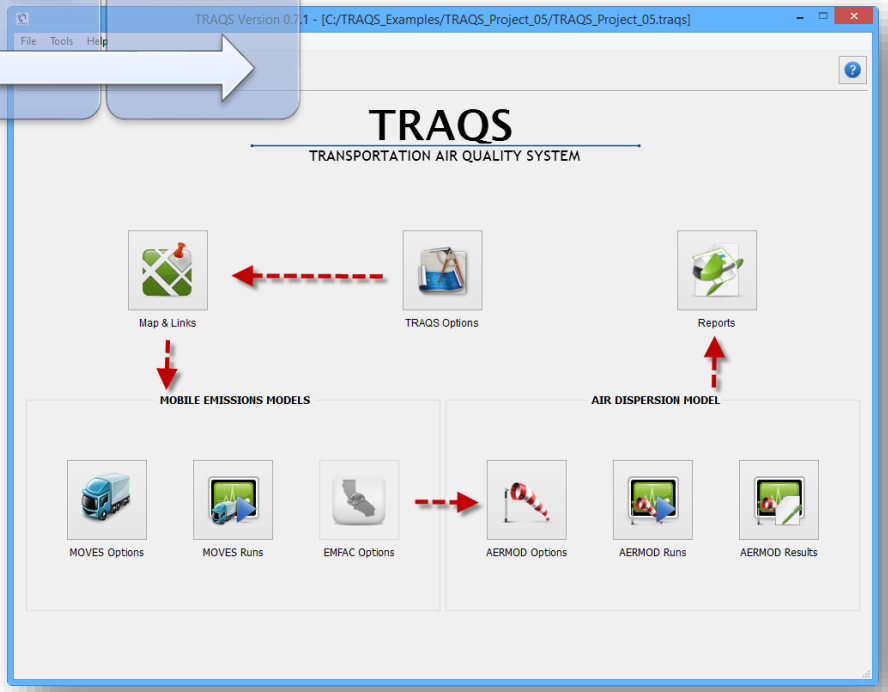
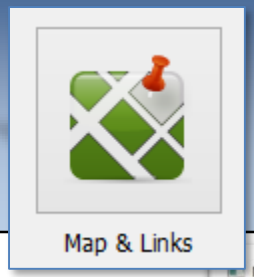
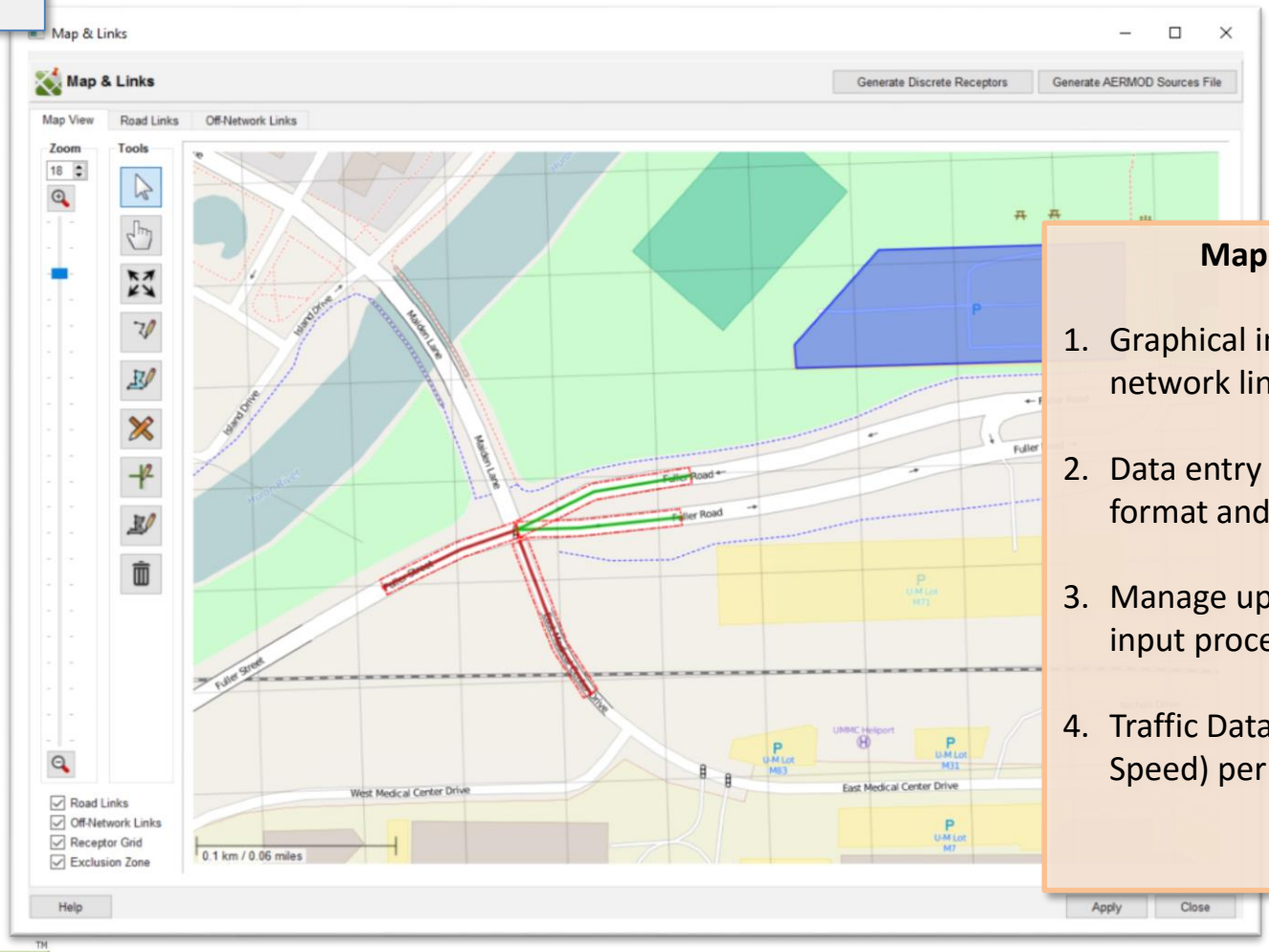
TRAQS Home Screen





Map & Links





Map Options

1. Graphical input of links, off-network links, and receptors
2. Data entry in simplified format and grid format
3. Manage up to 16-runs in one input process.
4. Traffic Data (Volume and Speed) per scenario

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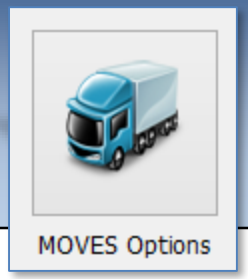
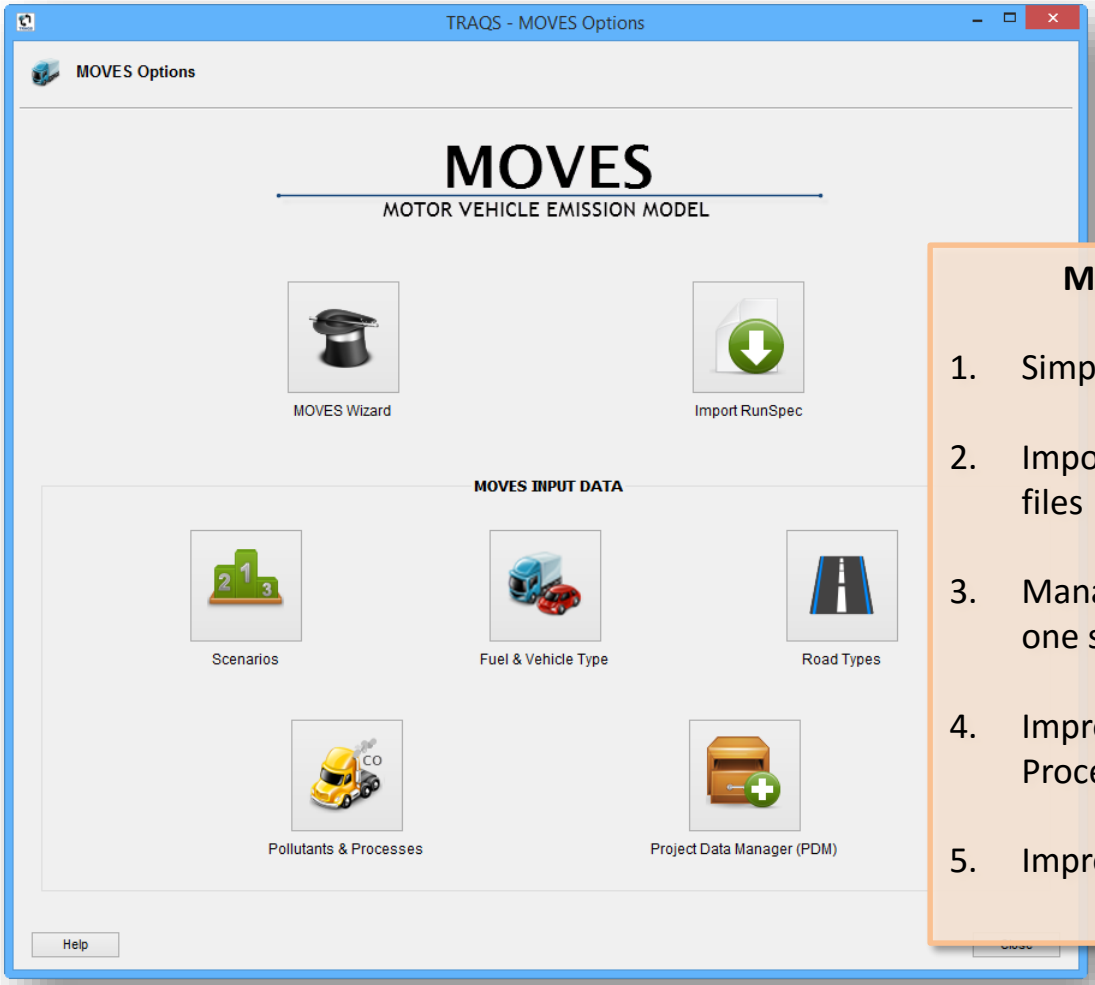


MOVES Options



MOVES Options

1. Simplified MOVES Wizard
2. Import MOVES RunSpec files
3. Manage up to 16-runs in one step
4. Improved Pollutants and Processes page
5. Improved PDM Options

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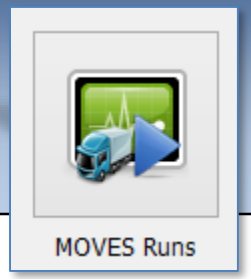

MOVES Scenarios

16 MOVES Scenarios:

- **4 Seasons:** Winter, Spring, Summer, Autumn
- **4 Weekday Time Periods**
  1. Morning Peak
  2. Midday
  3. Evening Peak
  4. Overnight

	Winter	Spring	Summer	Autumn
Month	January	April	July	October
AM-Peak	08:00	08:00	08:00	08:00
Mid-day	12:00	12:00	12:00	12:00
PM-Peak	17:00	17:00	17:00	17:00
Overnight	20:00	20:00	20:00	20:00

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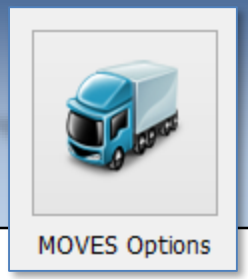
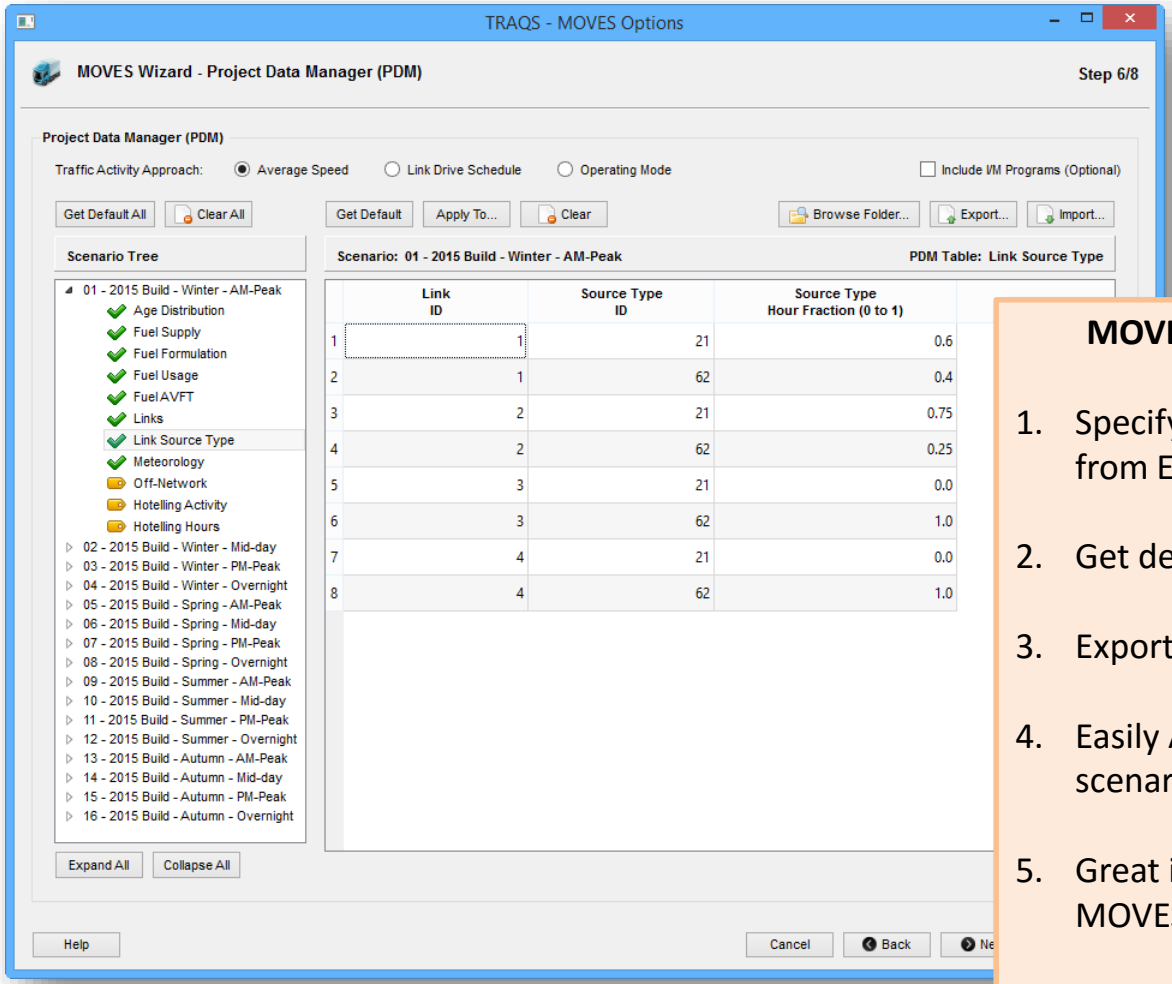
MOVES PDM Options





	Link ID	Source Type ID	Source Type Hour Fraction (0 to 1)
1	1	21	0.6
2	1	62	0.4
3	2	21	0.75
4	2	62	0.25
5	3	21	0.0
6	3	62	1.0
7	4	21	0.0
8	4	62	1.0

MOVES PDM Options

1. Specify data in tables or from Excel file
2. Get default MOVES data
3. Export Excel templates
4. Easily Apply data to all scenarios
5. Great improvement over MOVES2014 interface

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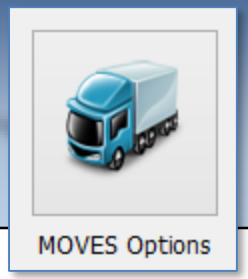
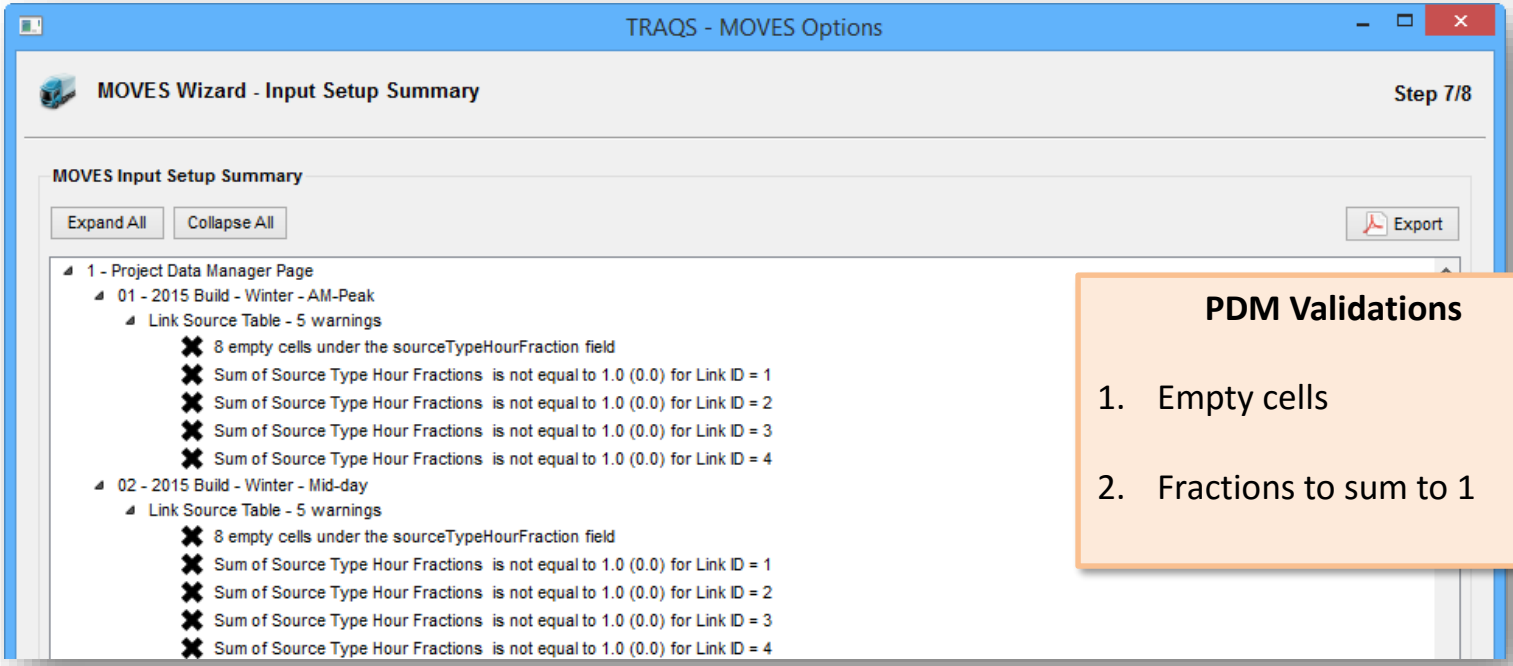


MOVES PDM Options



PDM Validations

1. Empty cells
2. Fractions to sum to 1

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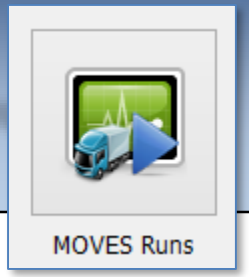
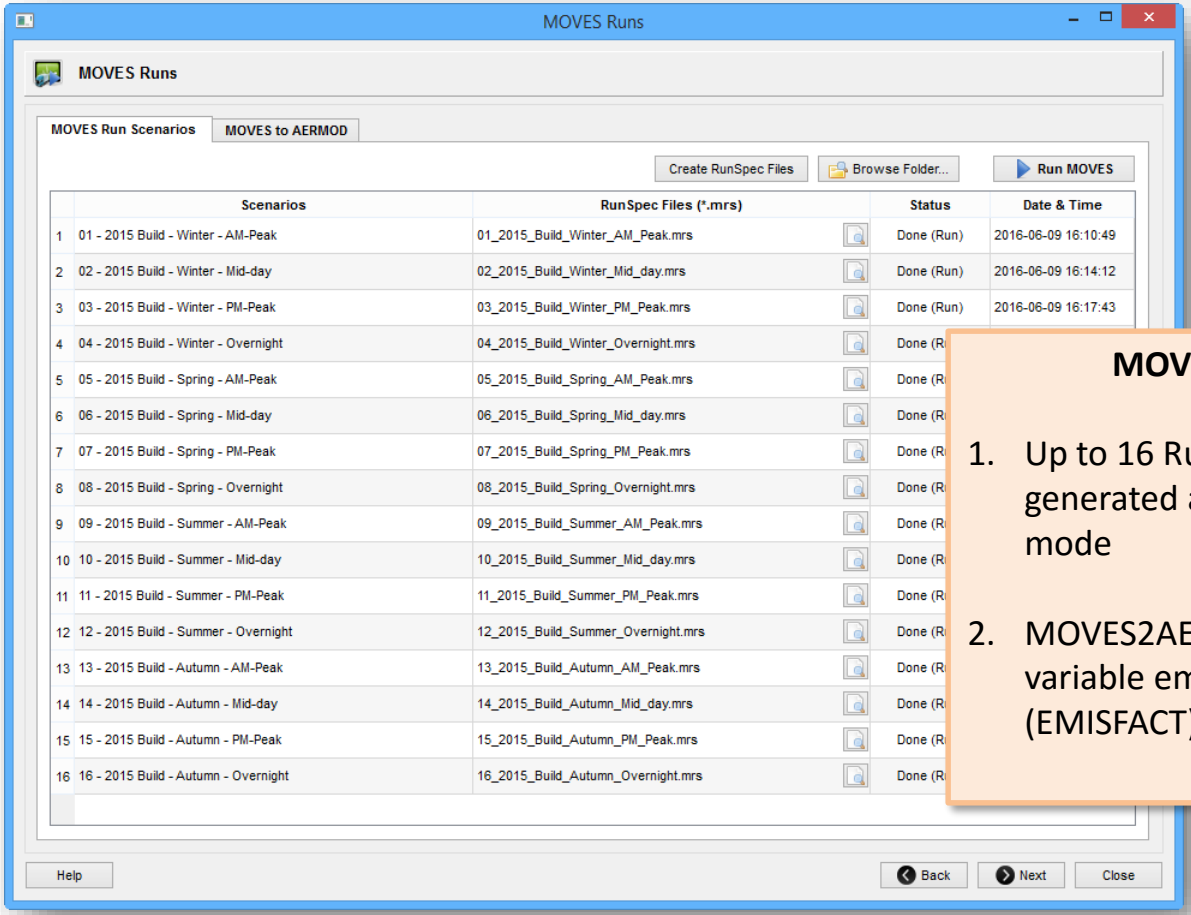
MOVES Runs





	Scenarios	RunSpec Files (*.mrs)	Status	Date & Time
1	01 - 2015 Build - Winter - AM-Peak	01_2015_Build_Winter_AM_Peak.mrs	Done (Run)	2016-06-09 16:10:49
2	02 - 2015 Build - Winter - Mid-day	02_2015_Build_Winter_Mid_day.mrs	Done (Run)	2016-06-09 16:14:12
3	03 - 2015 Build - Winter - PM-Peak	03_2015_Build_Winter_PM_Peak.mrs	Done (Run)	2016-06-09 16:17:43
4	04 - 2015 Build - Winter - Overnight	04_2015_Build_Winter_Overnight.mrs	Done (R	
5	05 - 2015 Build - Spring - AM-Peak	05_2015_Build_Spring_AM_Peak.mrs	Done (R	
6	06 - 2015 Build - Spring - Mid-day	06_2015_Build_Spring_Mid_day.mrs	Done (R	
7	07 - 2015 Build - Spring - PM-Peak	07_2015_Build_Spring_PM_Peak.mrs	Done (R	
8	08 - 2015 Build - Spring - Overnight	08_2015_Build_Spring_Overnight.mrs	Done (R	
9	09 - 2015 Build - Summer - AM-Peak	09_2015_Build_Summer_AM_Peak.mrs	Done (R	
10	10 - 2015 Build - Summer - Mid-day	10_2015_Build_Summer_Mid_day.mrs	Done (R	
11	11 - 2015 Build - Summer - PM-Peak	11_2015_Build_Summer_PM_Peak.mrs	Done (R	
12	12 - 2015 Build - Summer - Overnight	12_2015_Build_Summer_Overnight.mrs	Done (R	
13	13 - 2015 Build - Autumn - AM-Peak	13_2015_Build_Autumn_AM_Peak.mrs	Done (R	
14	14 - 2015 Build - Autumn - Mid-day	14_2015_Build_Autumn_Mid_day.mrs	Done (R	
15	15 - 2015 Build - Autumn - PM-Peak	15_2015_Build_Autumn_PM_Peak.mrs	Done (R	
16	16 - 2015 Build - Autumn - Overnight	16_2015_Build_Autumn_Overnight.mrs	Done (R	

MOVES Runs

1. Up to 16 RunSpec files are generated and run in batch mode
2. MOVES2AERMOD produces variable emission files (EMISFACT) for AERMOD

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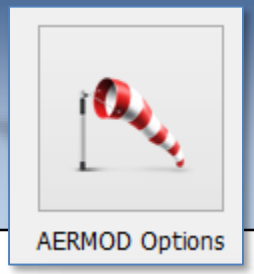
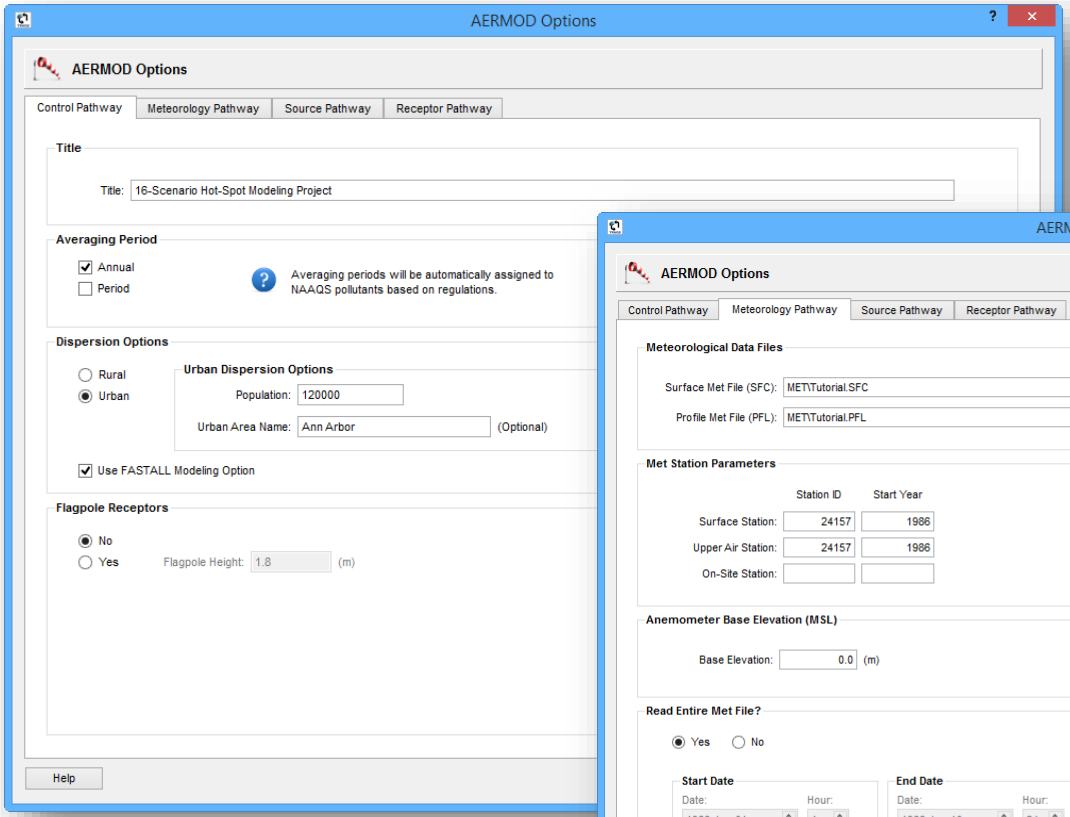
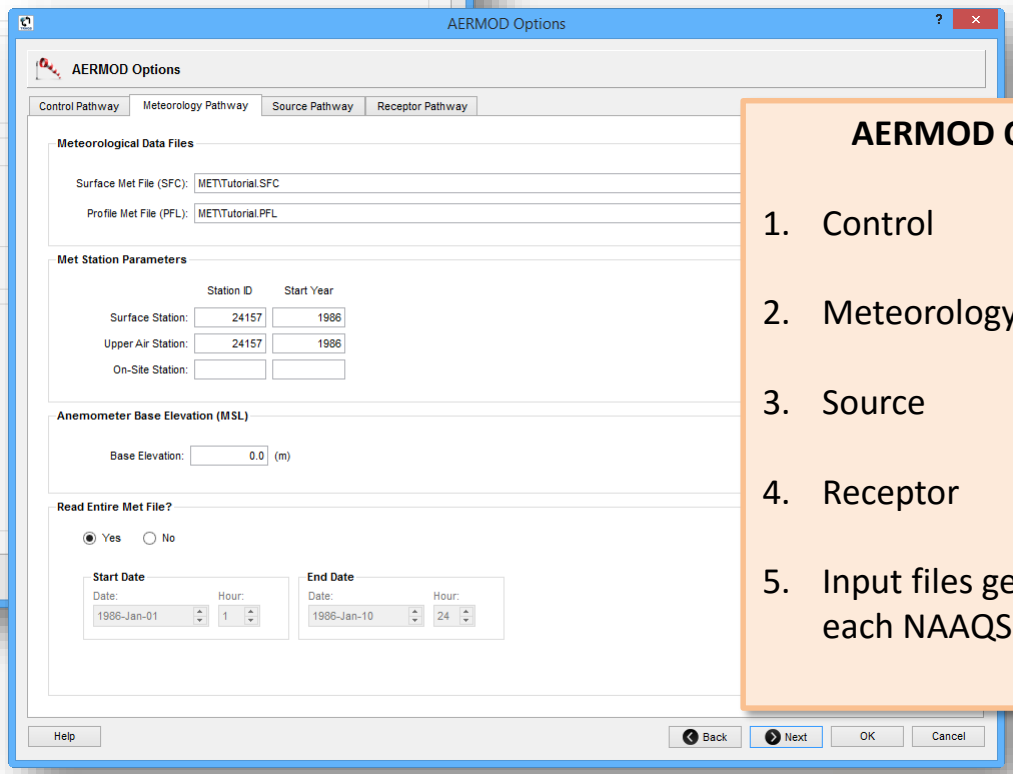
AERMOD Options







AERMOD Options

1. Control
2. Meteorology
3. Source
4. Receptor
5. Input files generated for each NAAQS Pollutant

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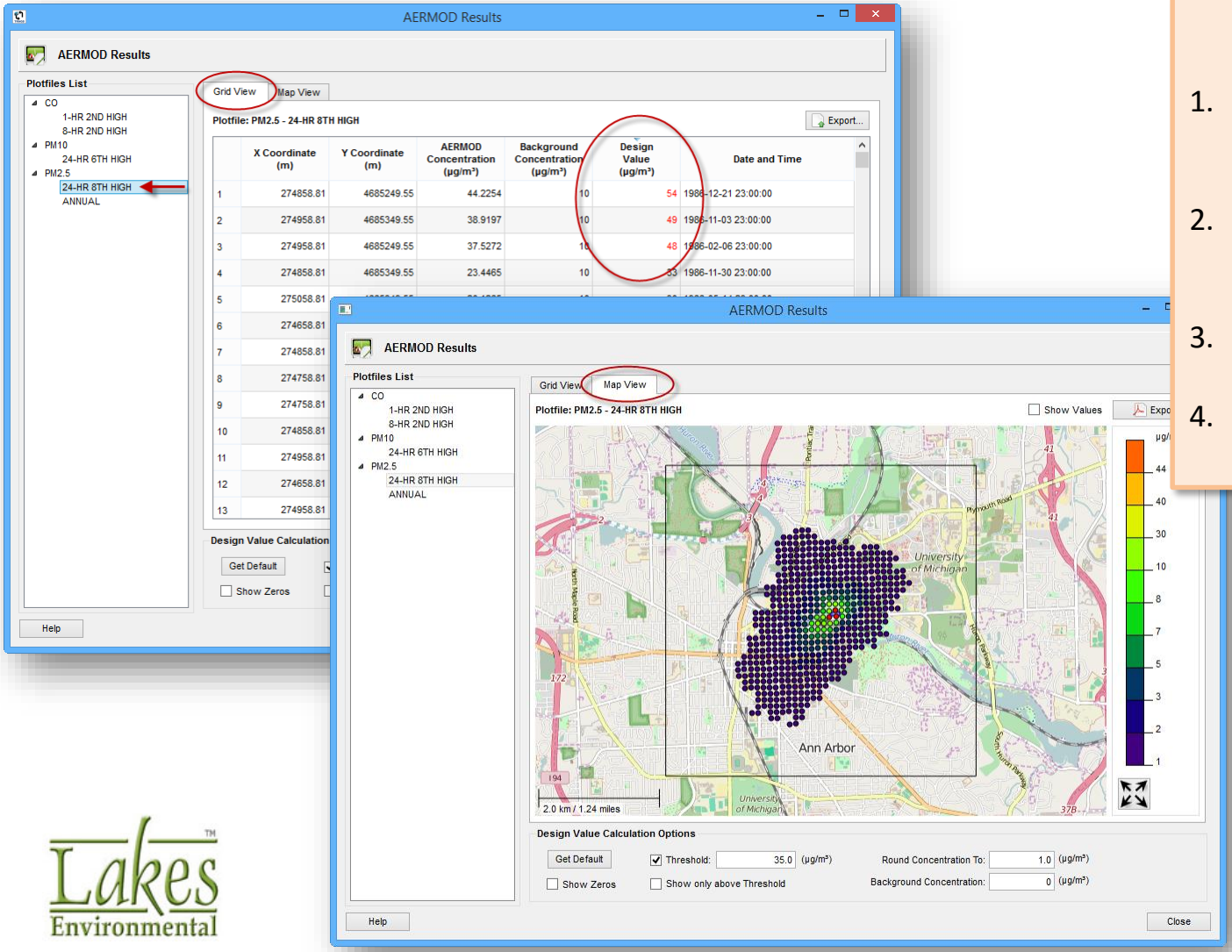
AERMOD Results



AERMOD Results

1. AERMOD Results - Grid View and Map View
2. Option to add Background Concentration
3. Design Value Calculation
4. Export to CSV file

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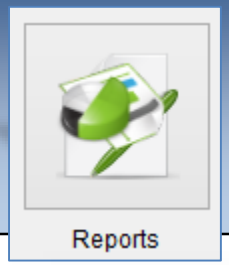
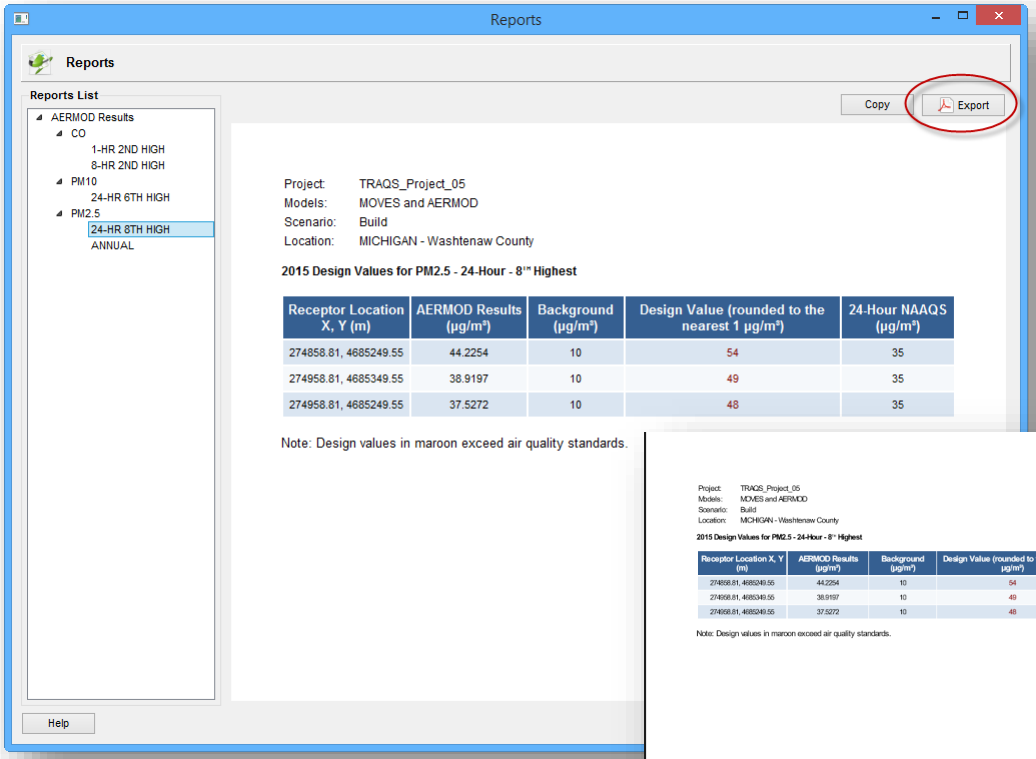
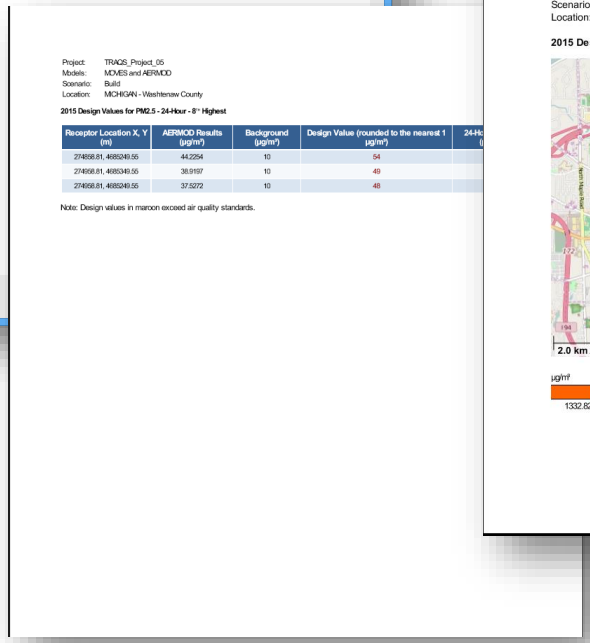
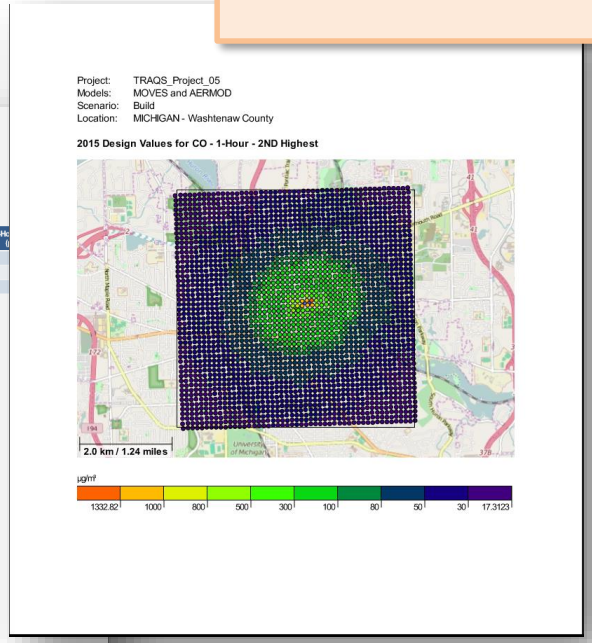
Reports









Reports

1. Design Value Reports
2. Copy/Paste to Word Doc
3. Export to PDF

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Questions?

EMFAC

Overview

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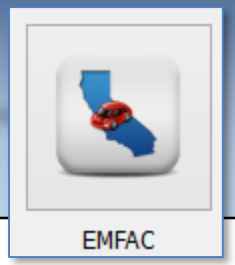
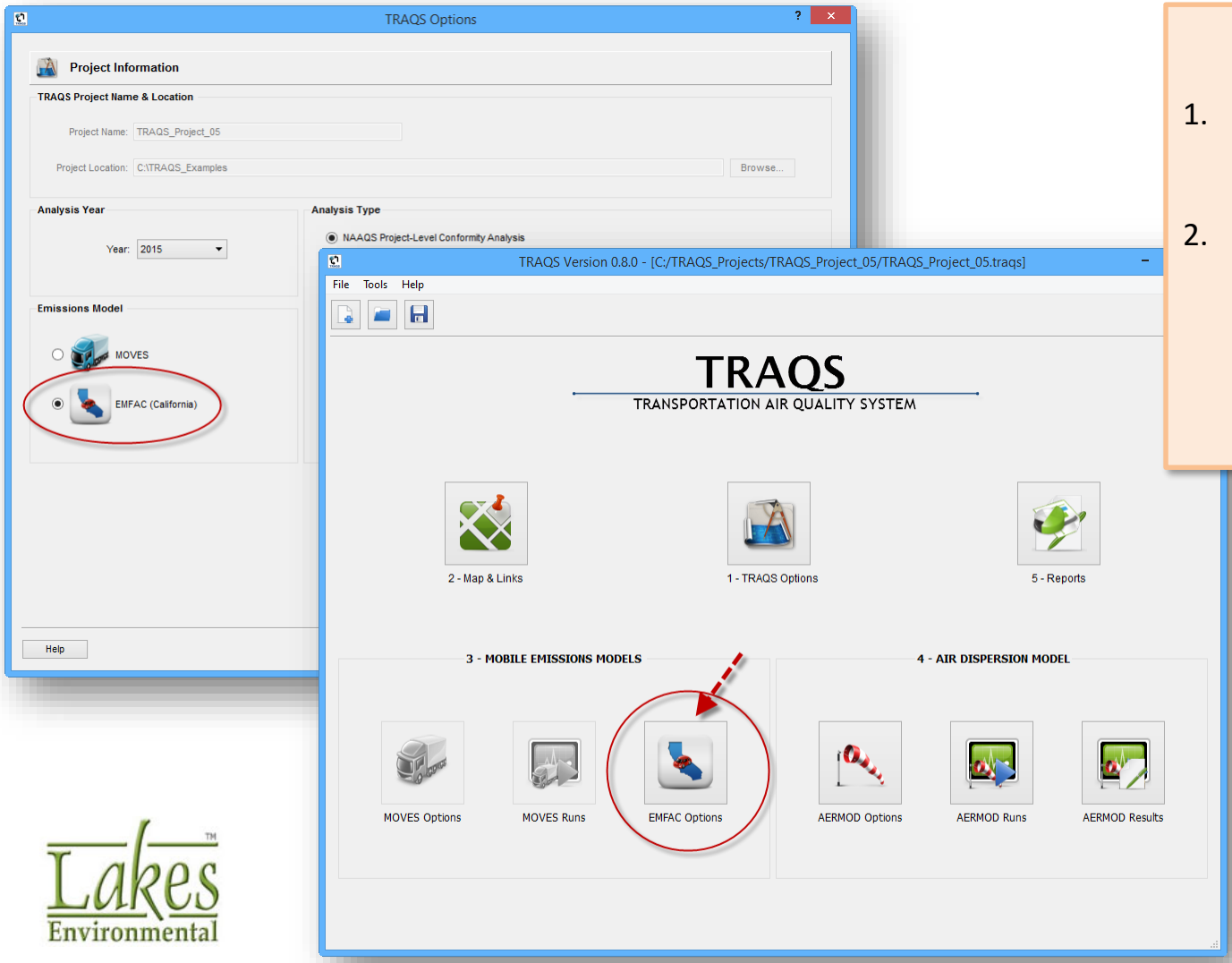
EMFAC Options





EMFAC Options

1. Selected at the New Project Wizard Step
2. EMFAC button becomes enabled while MOVES buttons become disabled

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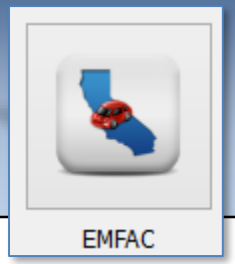
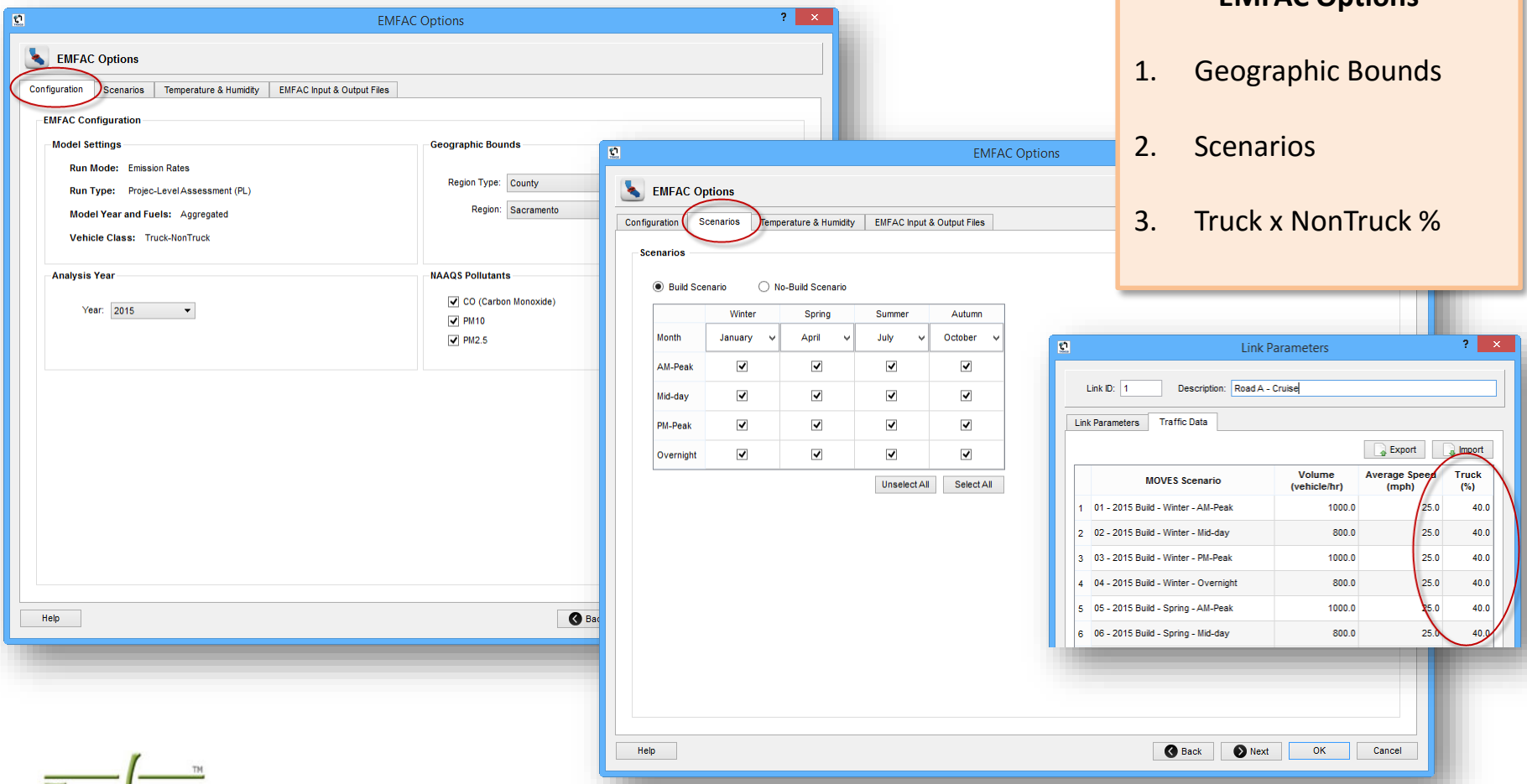
EMFAC Options

EMFAC2014-PL	ARB's Recommended Model
Vehicle Class	Truck & NonTruck
Model Year	Aggregated age distribution
Fuels	Aggregated option

EMFAC Options





EMFAC Options

1. Geographic Bounds
2. Scenarios
3. Truck x NonTruck %

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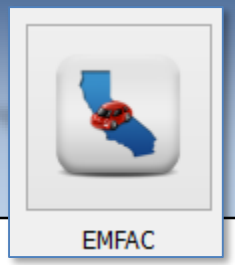
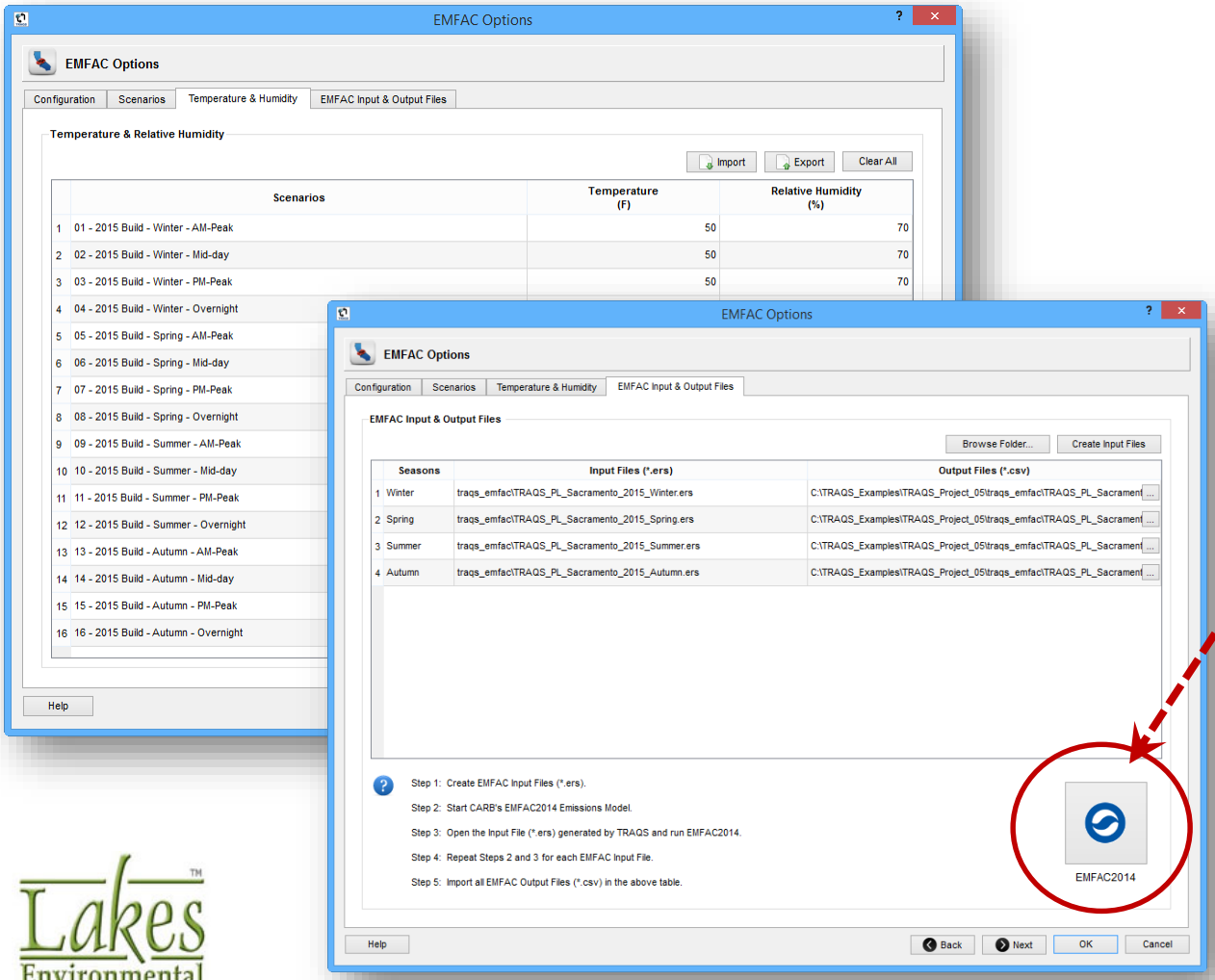
EMFAC Options





EMFAC Options

1. User inputs 16 temperature/humidity values (4 seasons x 4 weekday time periods)
2. TRAQS generates 4 EMFAC Input Files by season (*.ers)
3. User runs the input files using CARB's EMFAC interface.
4. TRAQS post-processes EMFAC results and generates variable emission files for AERMOD (EMISFACT.txt)

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Closure

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TRAQS Advantages

1. Successfully integrates MOVES with AERMOD in one package
2. Accessible to less specialized professionals
3. Data entry through mapping tools
4. Significantly reduces input errors
5. Batch running

Future Project Activity

1. Beta Release – Sep 12, 2016
2. Documentation
3. Training

Questions?

Thank You!

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