TransModeler Training

2-Project Setup & Introduction to Trip Table

presented to

Caltrans, District 1-Eureka

presented by

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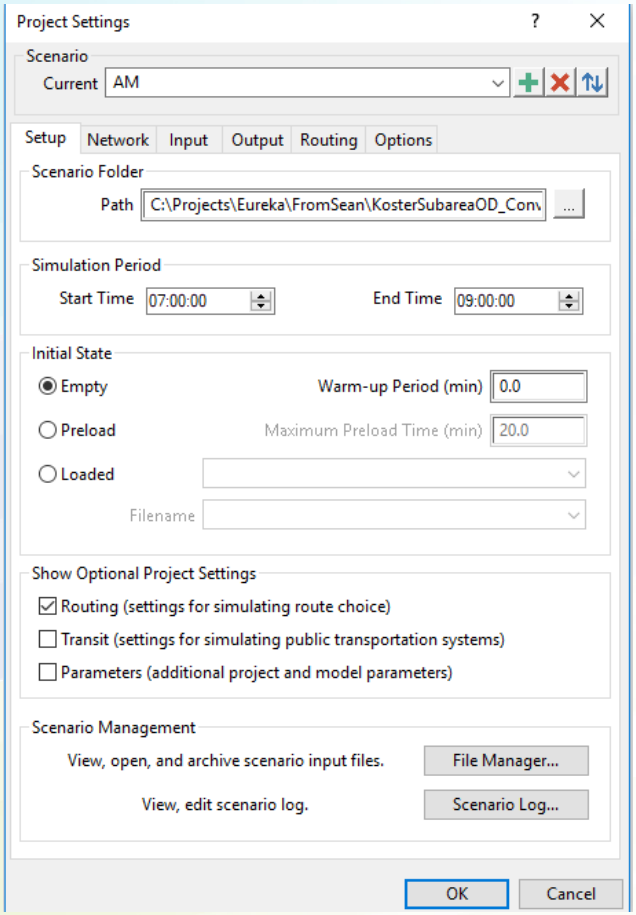
CAMBRIDGE SYSTEMATICS

Think Forward

May 2018

Project Settings - Setup



- Scenario Management
  (If scenarios have different networks, e.g. one link has additional lane, a separate folder should be created)
- Folder Location
- Simulation Period
- Initial State (please refer to the manual to understand the differences between these options)

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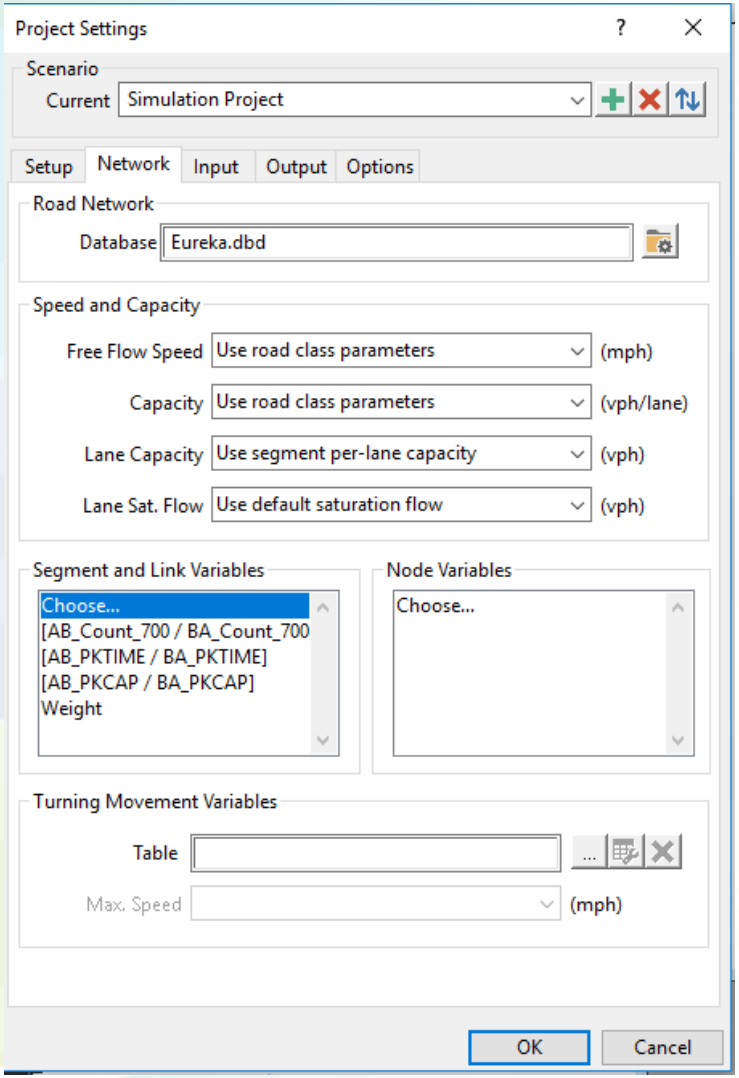
Project Settings - Network



- Database
- Speed and Capacity Allocation (in microsimulation, capacity and saturation flow rate are optional. They are used in mesoscopic, macroscopic analysis, as well as in the static ODME

  FFS is only used to create the shortest path if no historical travel time data is provided. FFS can be set at individual segment level, or at link user classification level.
- Link/Node Variable (for ODME)
- Turning Movement (comparison, ODME)

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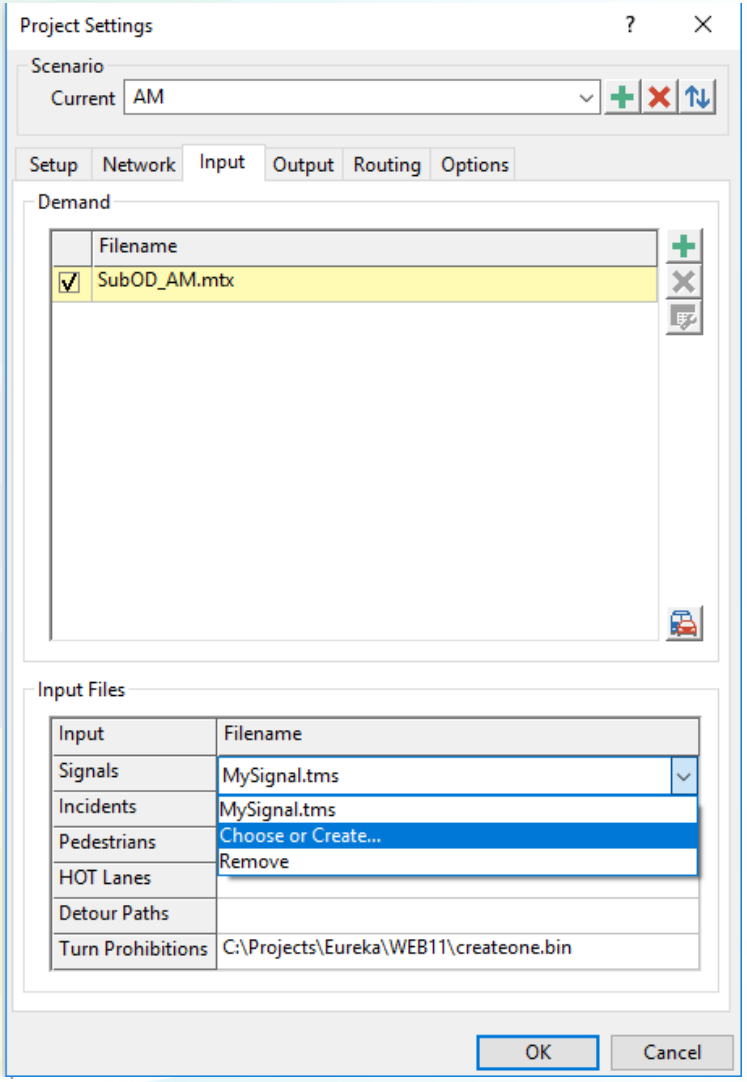
Project Settings - Input



- Add .mtx or trip.bin
- Signal (.tms)
- Pedestrian volume(.ped)
- Turn Penalties (.bin, if there is any segment sequence that should be prohibited)

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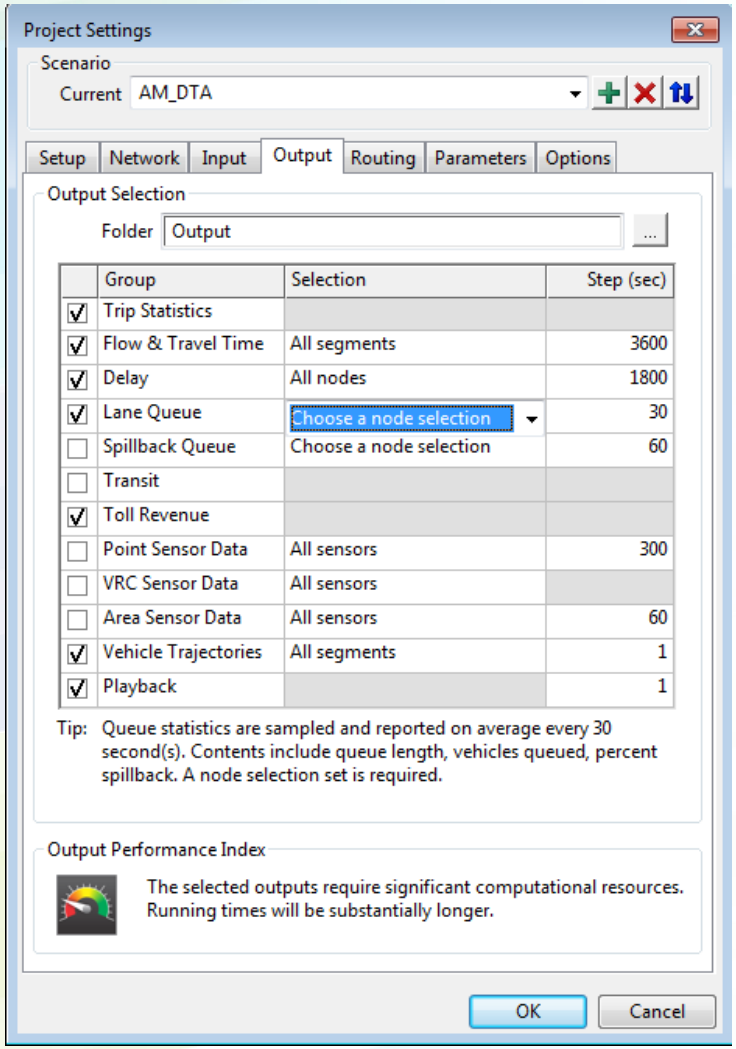
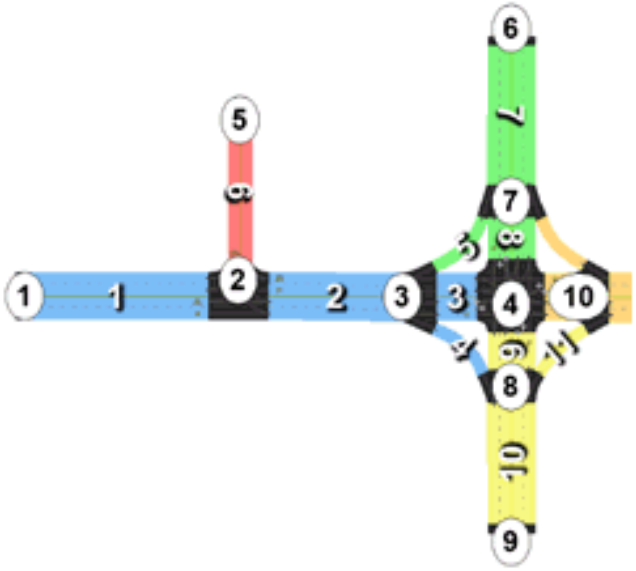
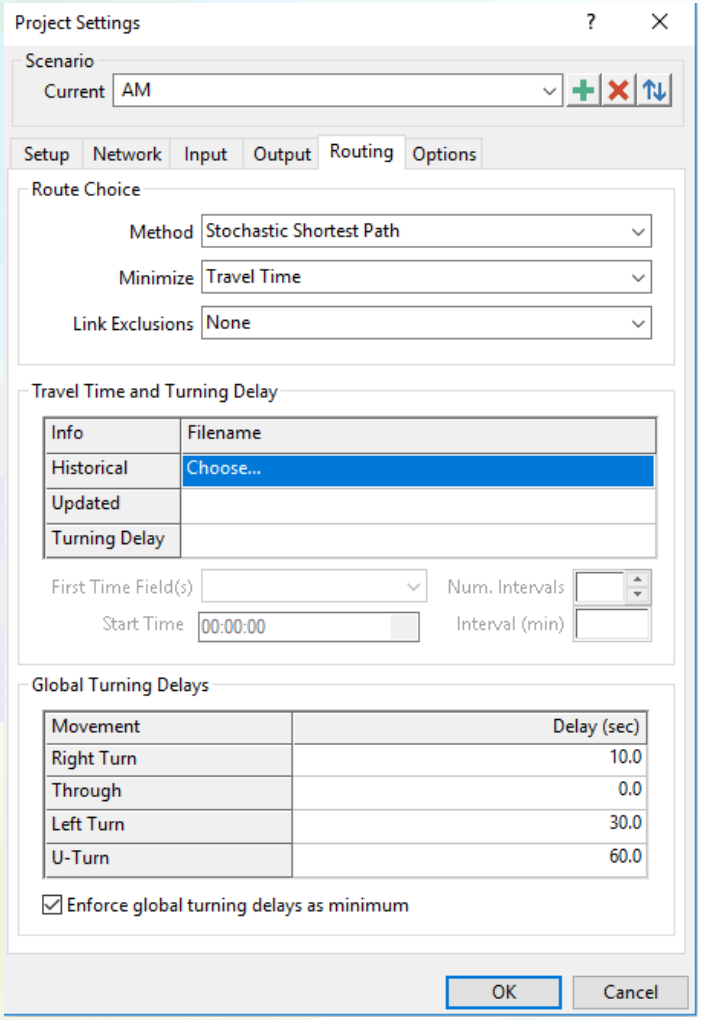
Project Settings - Output



- Selection Set (can be all)
- Duration
- Trajectory
- Playback
- Superlink



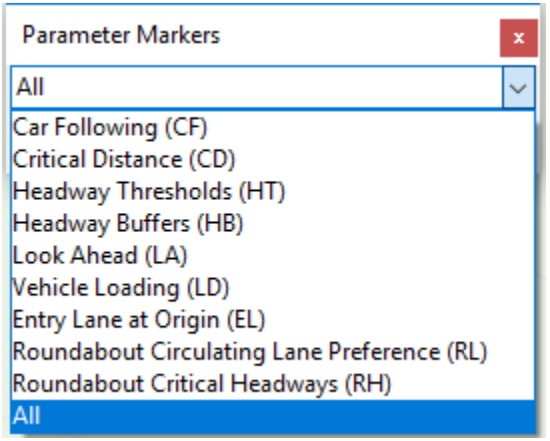
Project Settings - Routing



- Recommended method
- Use generalized cost in case of toll or operational cost
- Starting from FFS or historical travel time (from DTA) is available?
- Edit user group VOT through Parameters → Route Choice → Driver Group (only in presence of toll or operational cost)

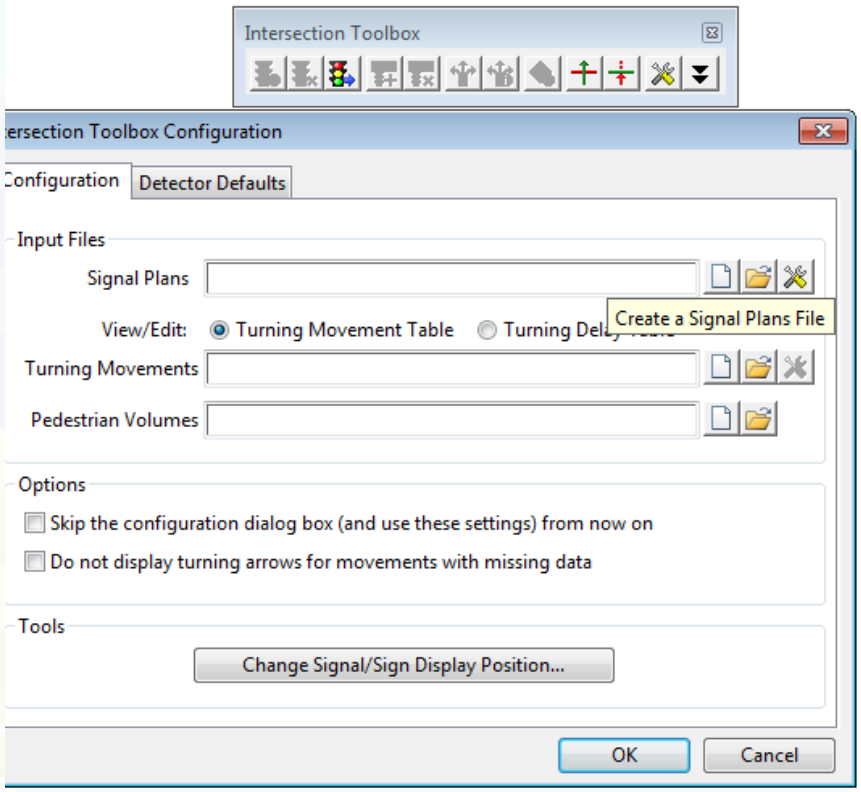
Parameters-Overview

- General (network related: model mechanics, microscopic parameters, speed distribution)
- Vehicle (fleet, mechanical characteristics)
- Driver (route choice, driving behavior, compliance)
- Route Choice (Freeway Bias, VOT distribution, etc.)
- Global mesoscopic/macroscopic parameters
- Local Parameters Adjustment (if justified) Parameters→ Parameters Markers Toolbar
- Each scenario can have a .xml file that stores all parameters.



Network Editing – Signal Timing

- Project → Intersection Control → Toolbox
  - If no .tms file is available, you can create one.



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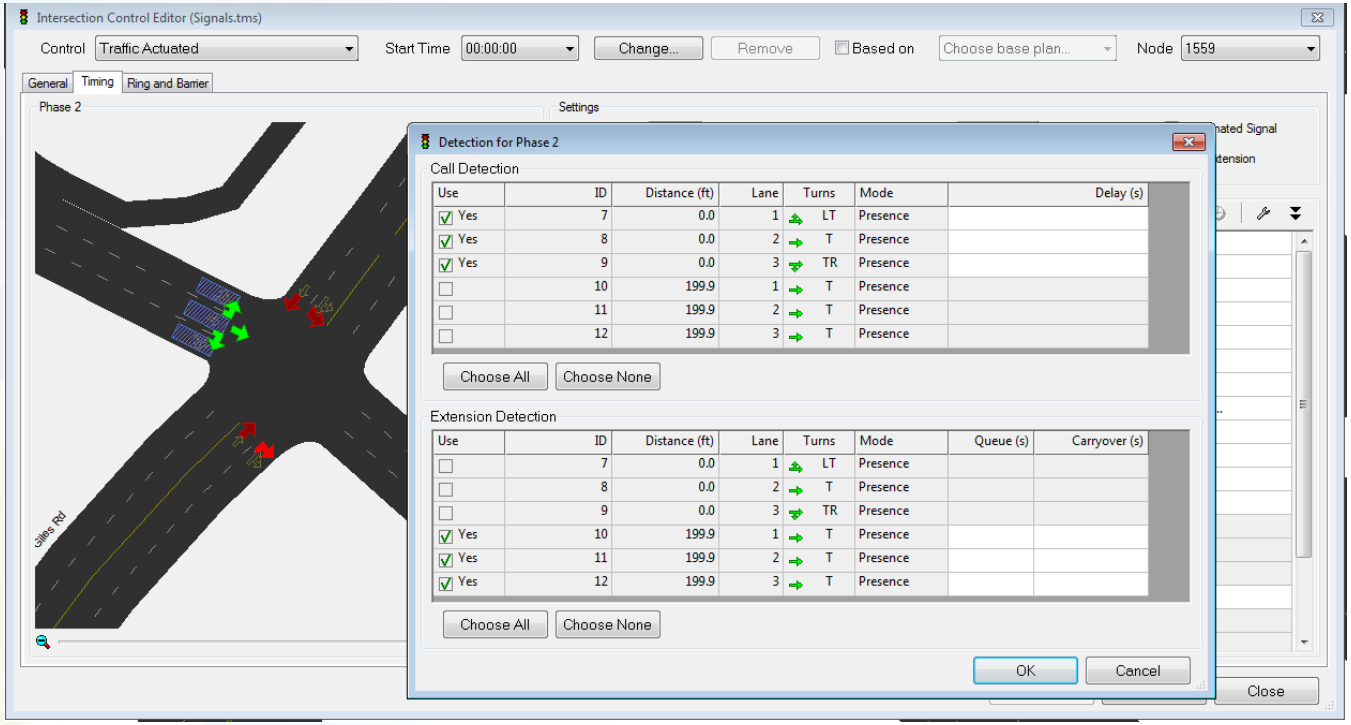
Network Editing – Signal Timing

- Detectors can be defined and assigned to the signal timing, either through road editor toolbox  or through intersection control toolbox  They are saved in a separate layer “Sensors”.



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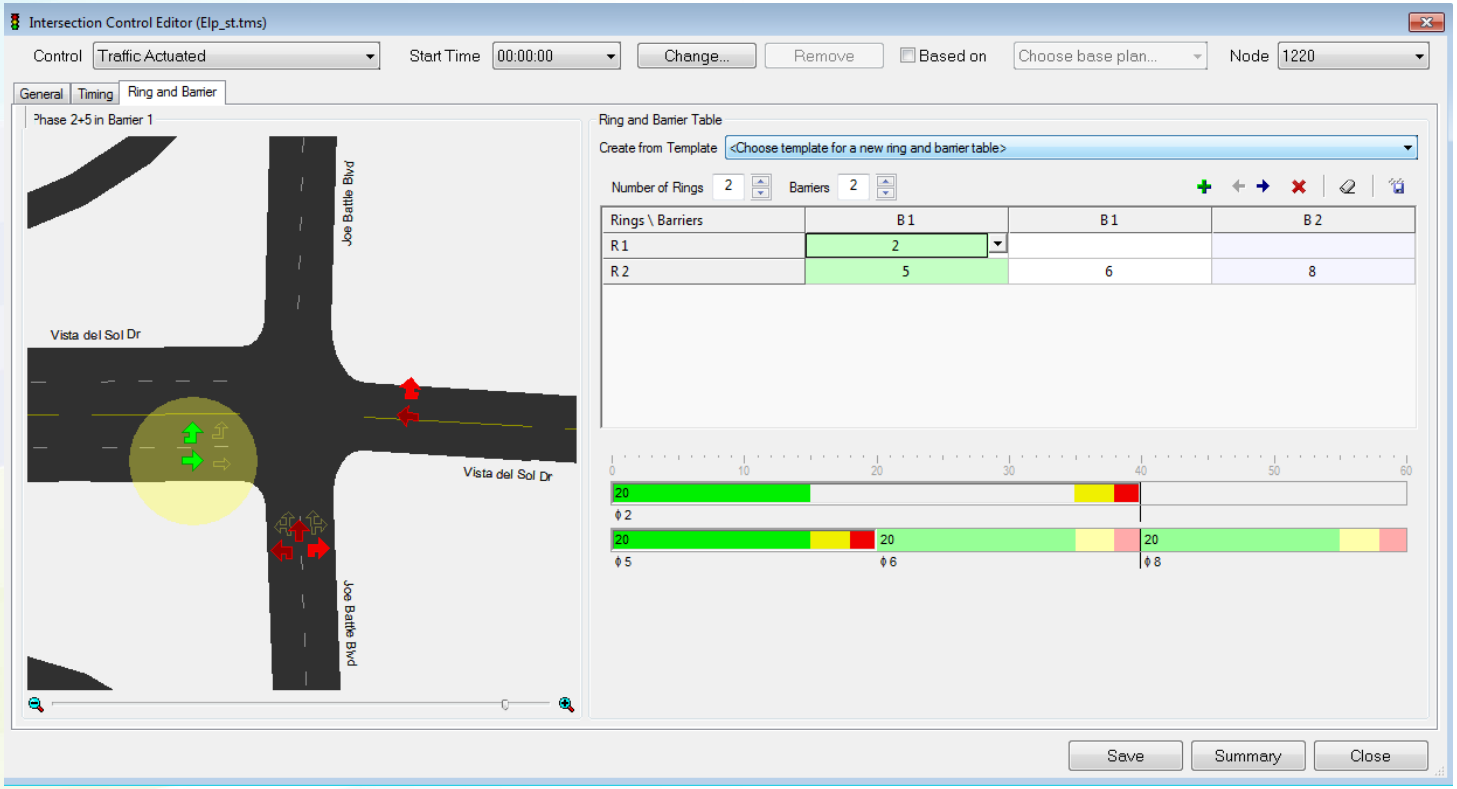
Network Editing – Signal Timing

- Creating plan from templates



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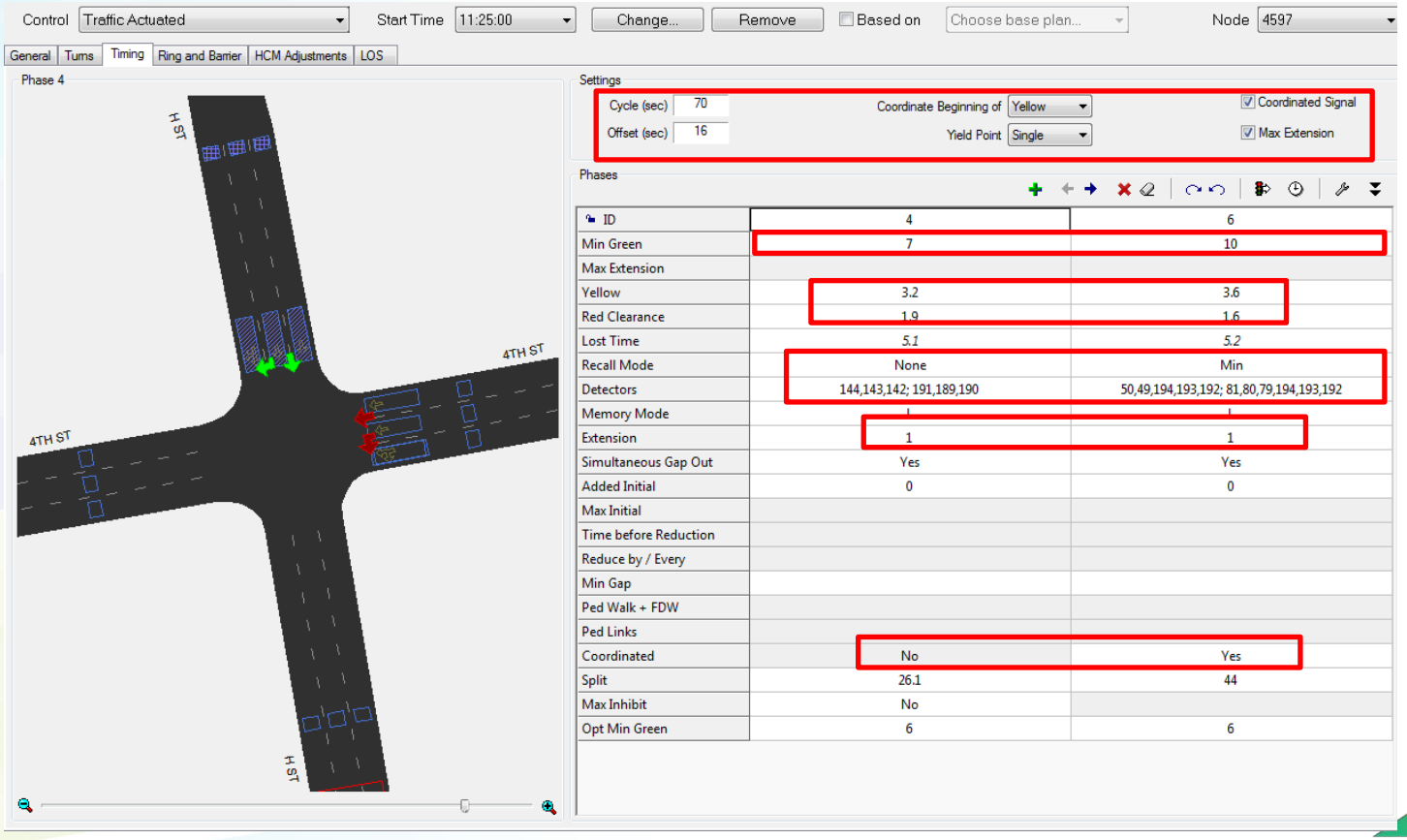
Network Editing – Signal Timing

Once you enter an intersection delay .bin file in the project settings, HCM Adjustment and LOS tabs are automatically created. If detailed information available, LOS can be calculated here, or can be calculated by the user, after outputting the intersection delays.

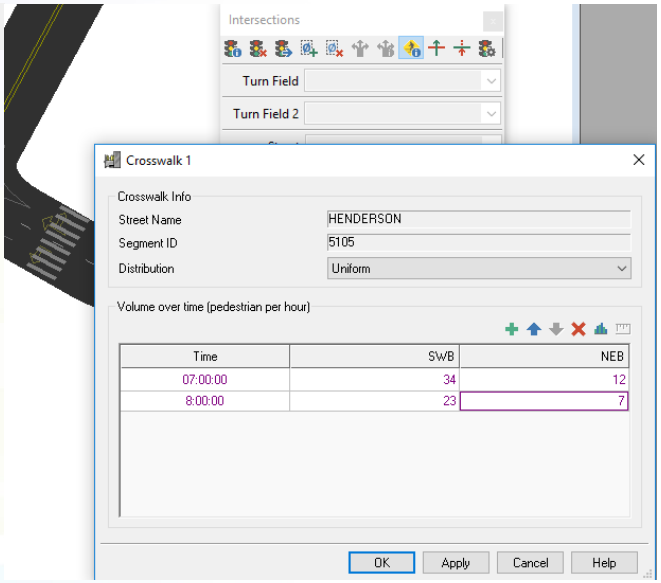


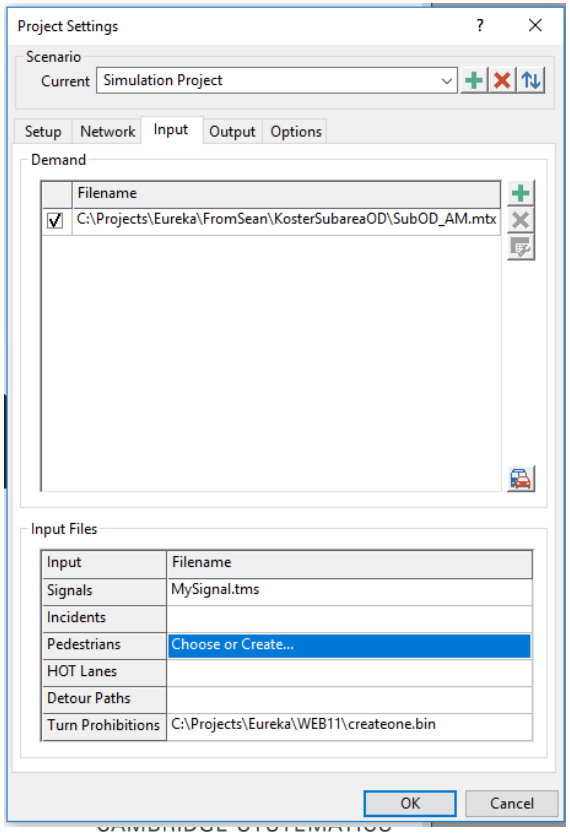
ID	4	6
Min Green	7	10
Max Extension		
Yellow	3.2	3.6
Red Clearance	1.9	1.6
Lost Time	5.1	5.2
Recall Mode	None	Min
Detectors	144,143,142; 191,189,190	50,49,194,193,192; 81,80,79,194,193,192
Memory Mode		
Extension	1	1
Simultaneous Gap Out	Yes	Yes
Added Initial	0	0
Max Initial		
Time before Reduction		
Reduce by / Every		
Min Gap		
Ped Walk + FDW		
Ped Links		
Coordinated	No	Yes
Split	26.1	44
Max Inhibit	No	
Opt Min Green	6	6

Signal Timing-Pedestrian Crossing

- Create crosswalk from the Road Editor toolbox.

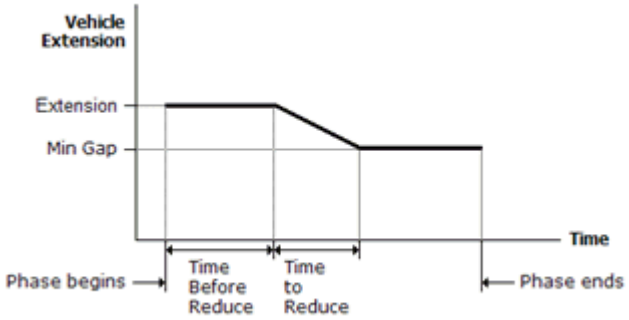
- Make sure there is a .ped file defined in the project setting, or create one.
- Via Intersection Control toolbox and by clicking at each crosswalk, you can edit the hourly pedestrian volume.





Network Editing – Signal Timing

- Refer to the Transmodeler Manual "**Glossary of Signalized Intersection Control Terms"**
- Recall mode
- Coordination
- Ped time/link
- Detection vs Extension detectors
- Extension (Maximum Green, Gap out)



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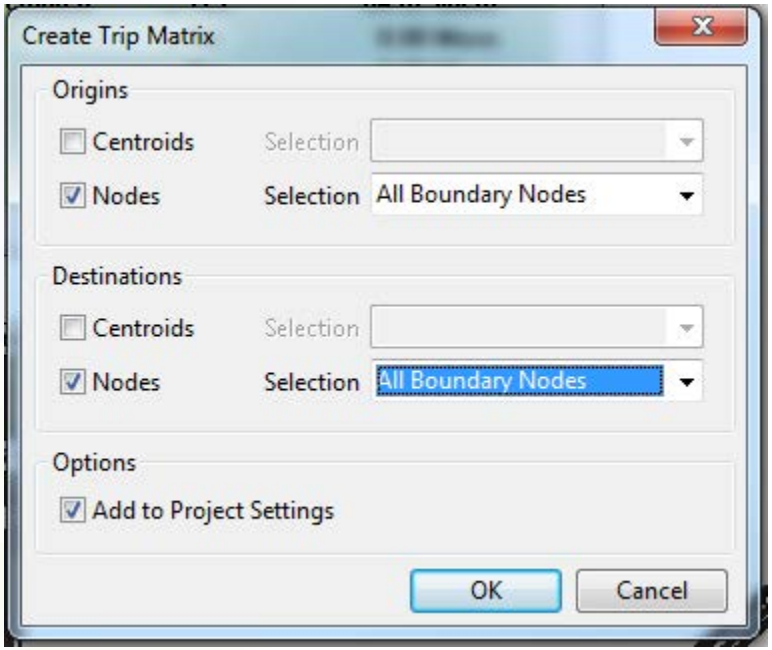
Matrix Creation

- Matrix can be created from Centroid or Node layer
- In Node layer, attribute Type = “Boundary” defines nodes that can be origin or destination.



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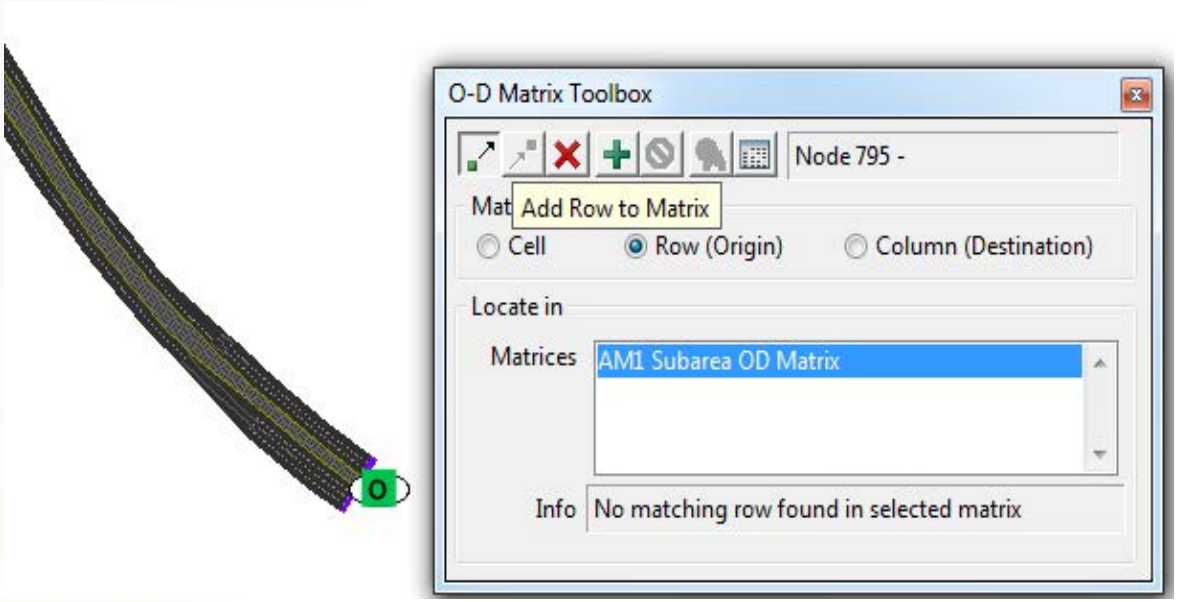
Matrix Edit

- Demand → OD Matrix → Toolbox



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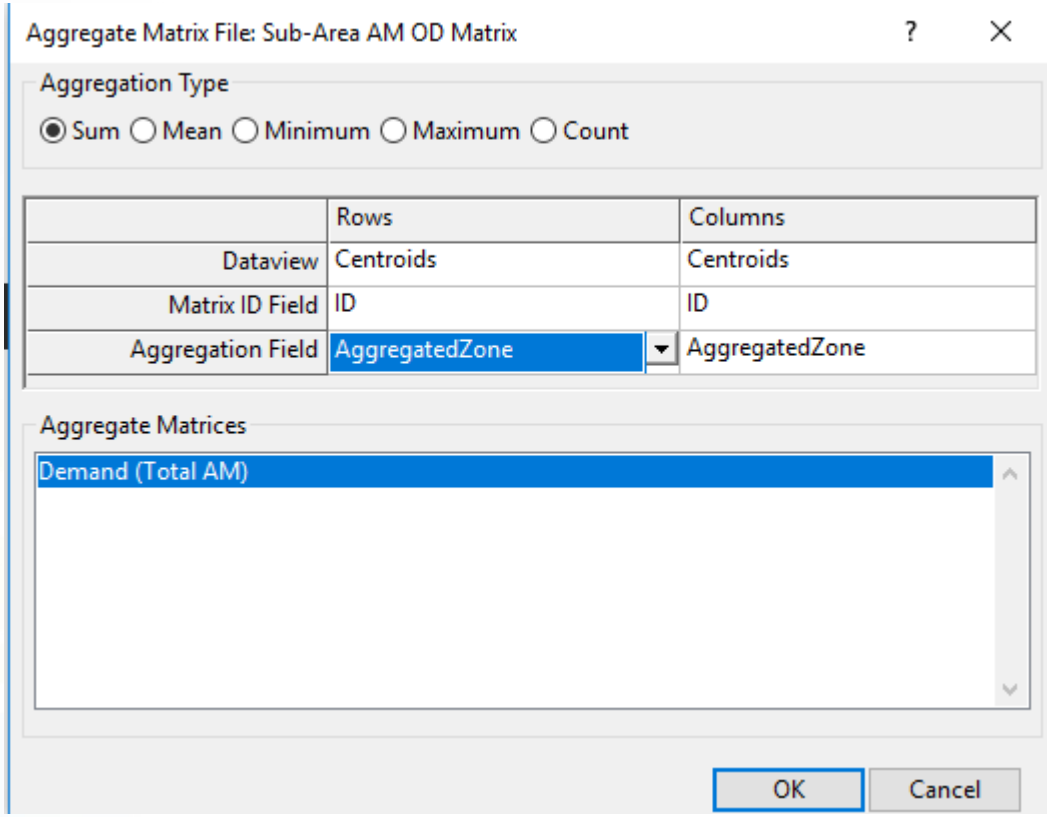
Matrix-index

- Change Matrix Index
  in the node or centroid dataview, you need to have a column that corresponds to the current matrix index (reference column), and a column based on which you want to change the index (correspond column).
- you can change the index for all ODs, or a selection set of ODs
- If you don’t want to include some of the indices in the target matrix (you want to reduce the size of matrix) you can leave the value in the correspond column as null.
- When saving a matrix, you can save current or all indices.

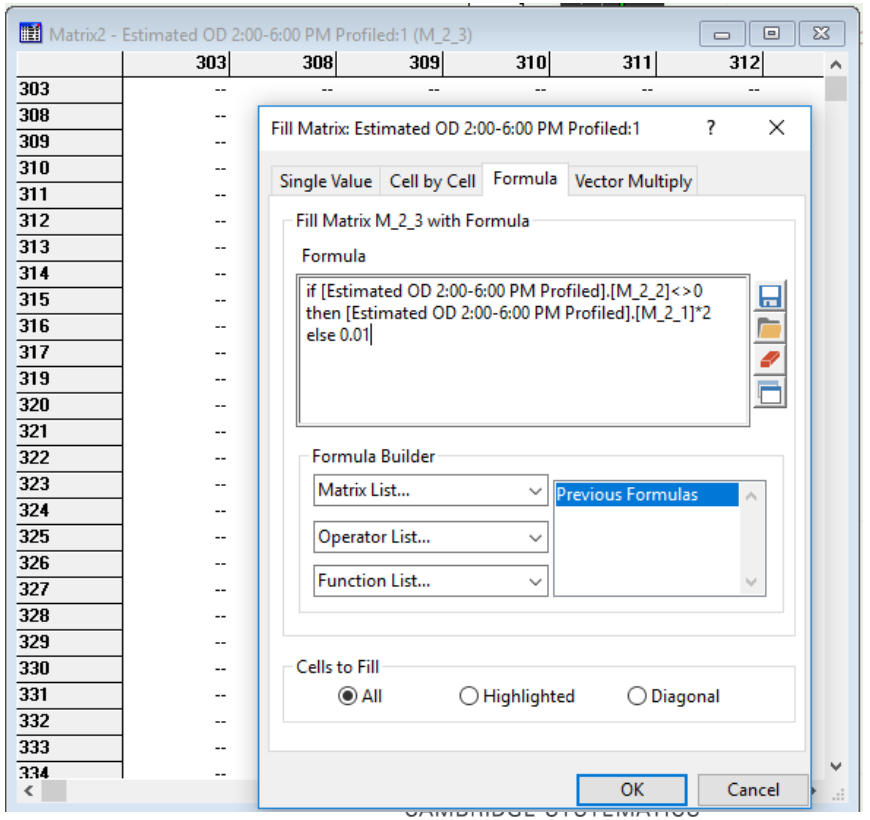
Matrix-Aggregation/disaggregation

- Similar to index change, you need to have a column in node or centroid dataview.



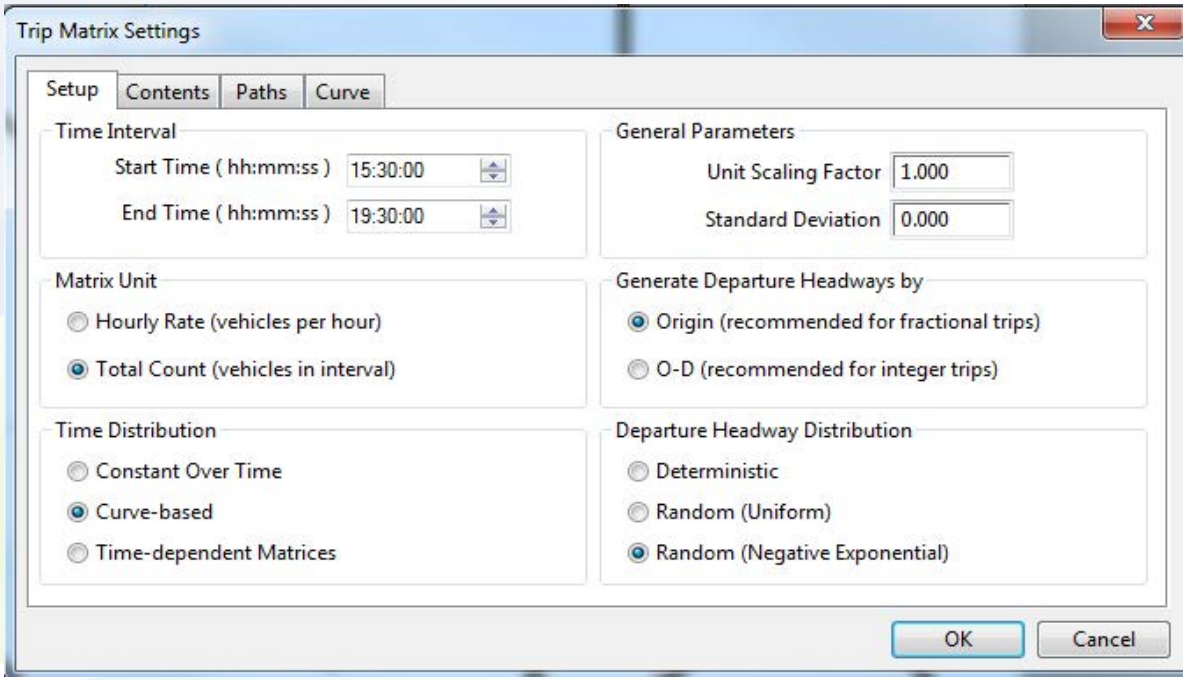
Matrix-Filling

- If two matrices have the same size, one can be calculated based on, or copied from the other one.
- Helpful when all or some cells are equal or multipliers of cells from another matrix (e.g. when a global growth is applied to current trip table to create the future trip table), or when you want to compare matrices before/after ODME, or after manual matrix adjustment.



Demand

- .mtx files from TransCAD can be used directly in TransModeler
- They can be divided into shorter intervals (e.g. 15 or 30 minutes) to better replicate the demand fluctuation in real world
- Demand→ OD Matrix → Trip Matrix settings



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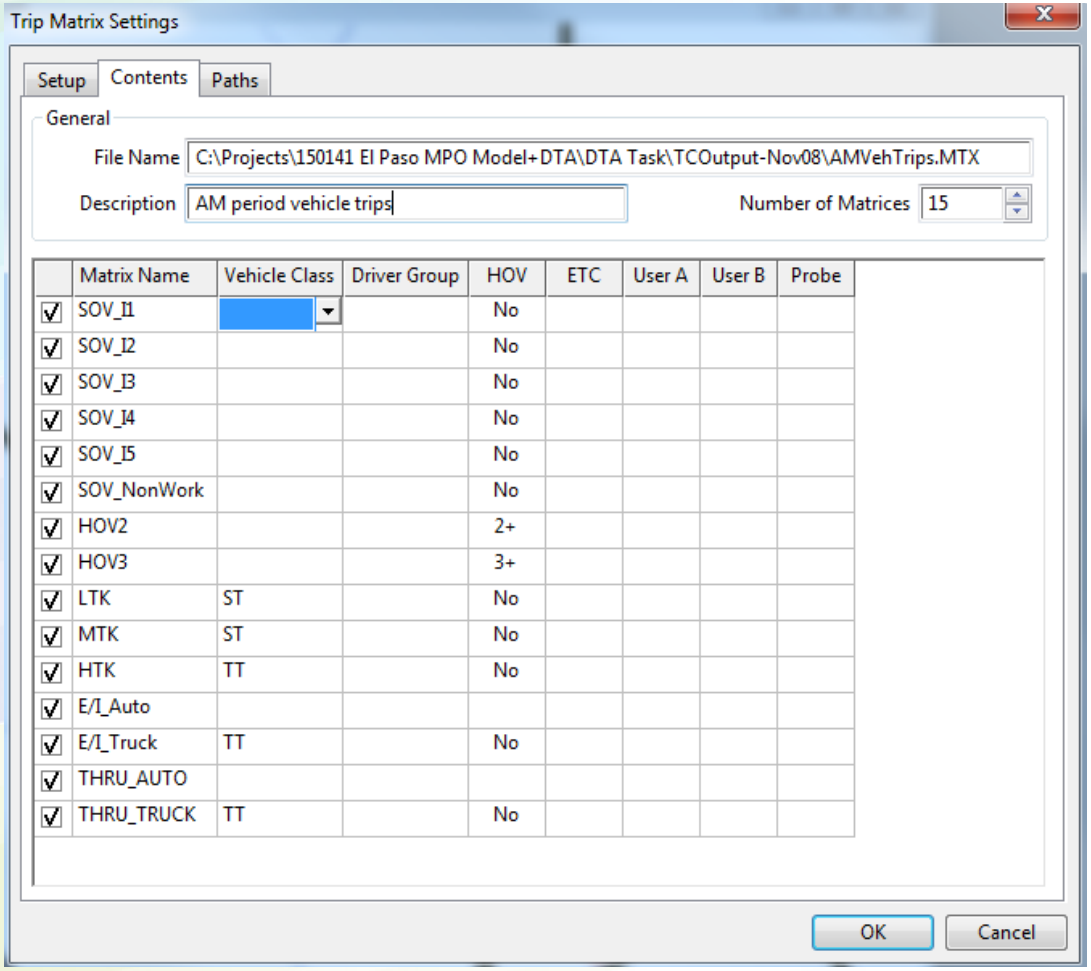
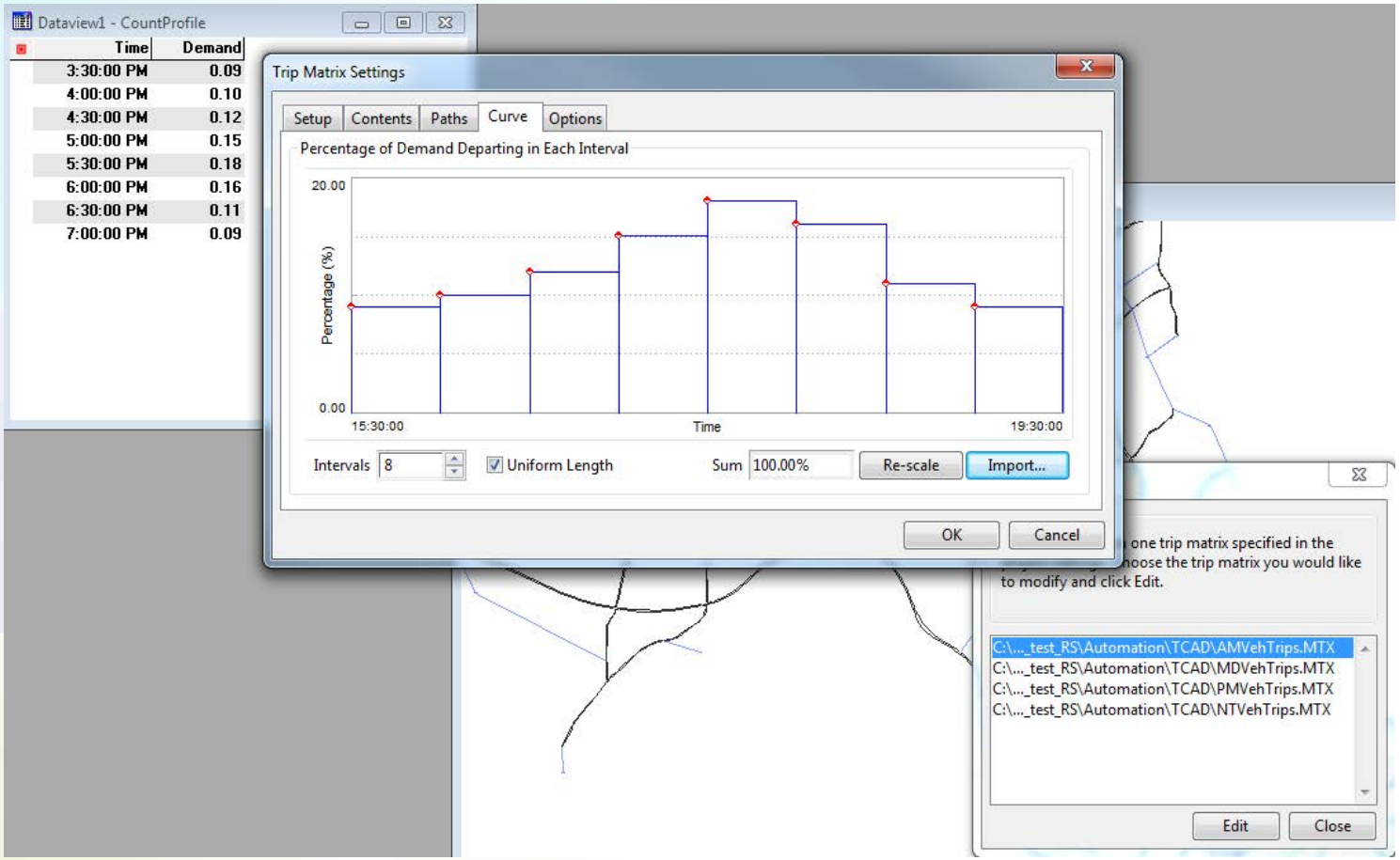
Demand – User Classes



- Vehicle Class
- Informed/Uninformed Drivers
- HOV Eligibility (Lane layer)
- User A/B for lane restriction
- Only 1 user group (passenger car) in Eureka project

Demand Profile



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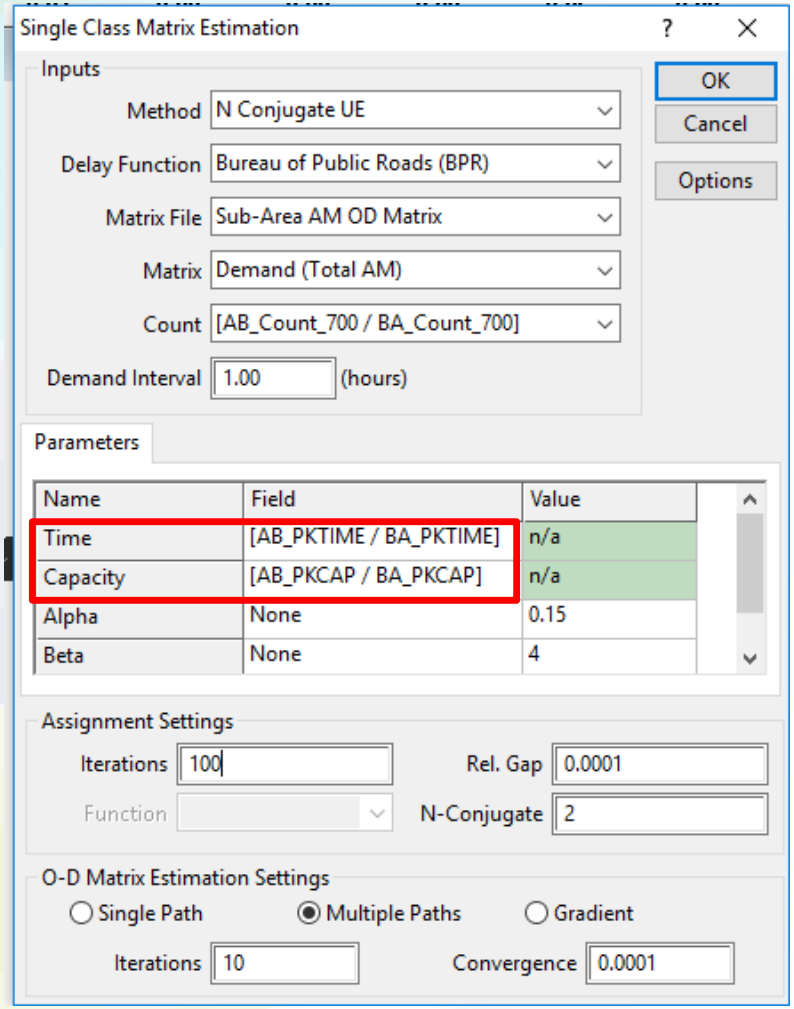
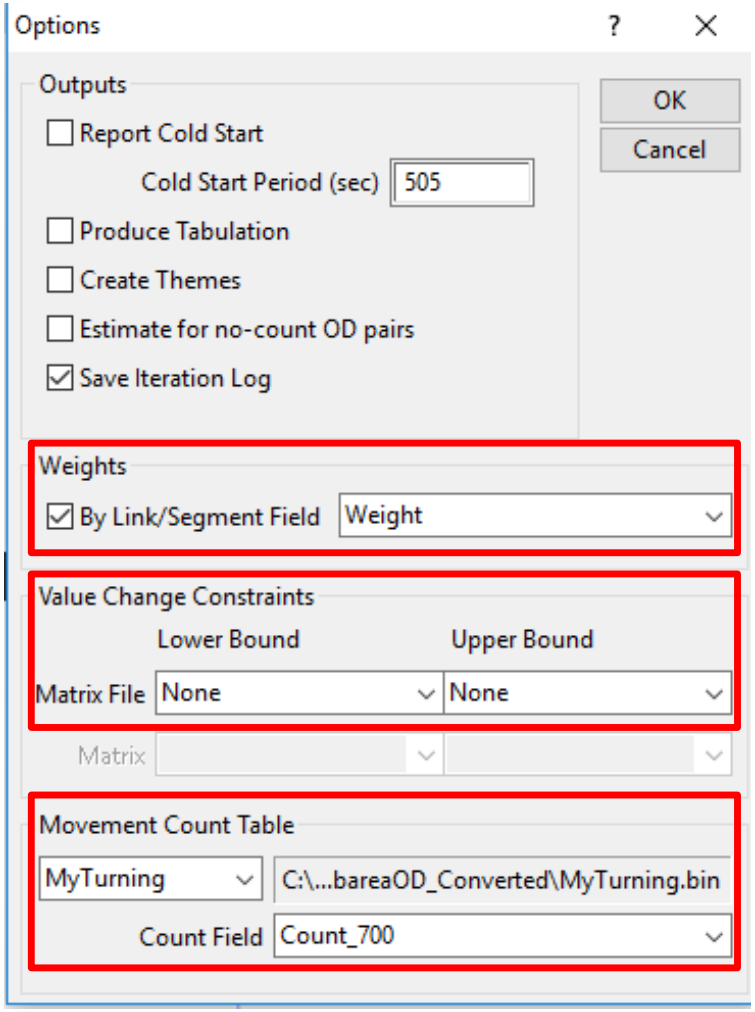
Demand – Matrix Estimation





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