CAMBRIDGE SYSTEMATICS

Think Forward

Aimsun Model Review Training

Day 2: Network Review

Caltrans On-Call Traffic Simulation Training

presented to

Caltrans District 7

presented by

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Traffic Analysis Tools: Volume III Microsimulation

- Microsimulation Model Development Process (from forthcoming update version)

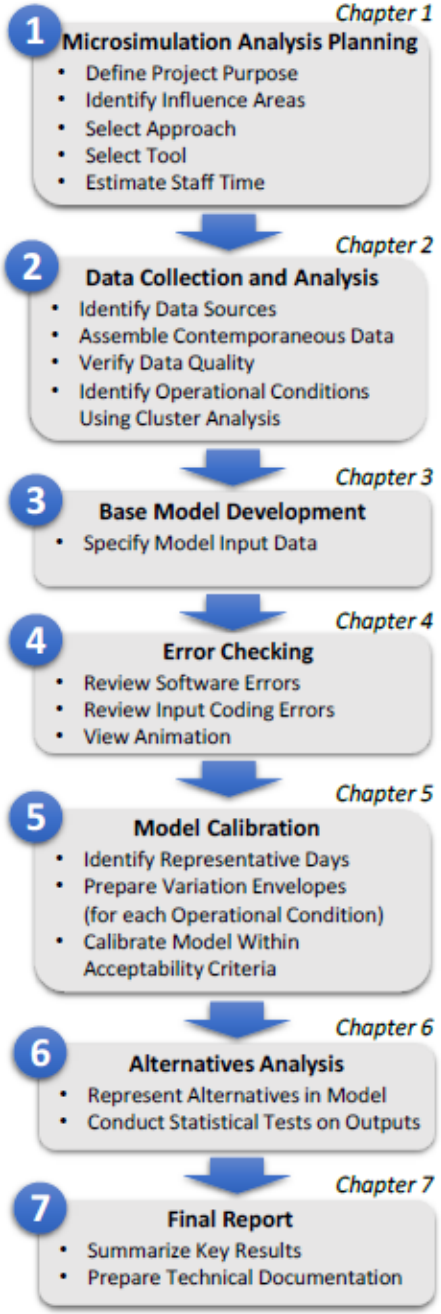

Figure 1. Diagram. The Microsimulation Analytical Process (Source: FHWA)

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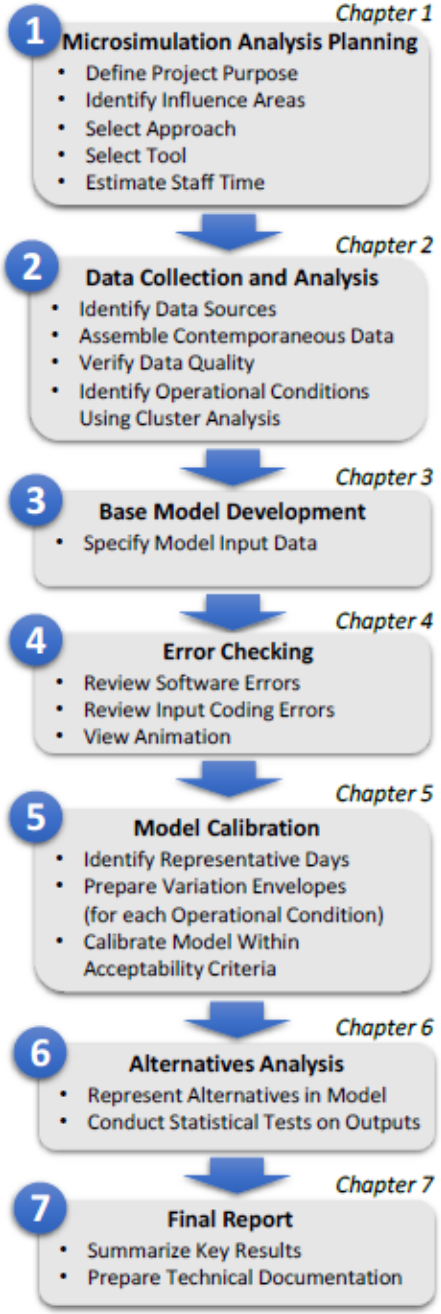

Figure 1. Diagram. The Microsimulation Analytical Process (Source: FHWA)

Network Review – Part of:

- Step 4: Error Checking
- Step 5: Calibration Details
- Step 6: Alternatives Analysis

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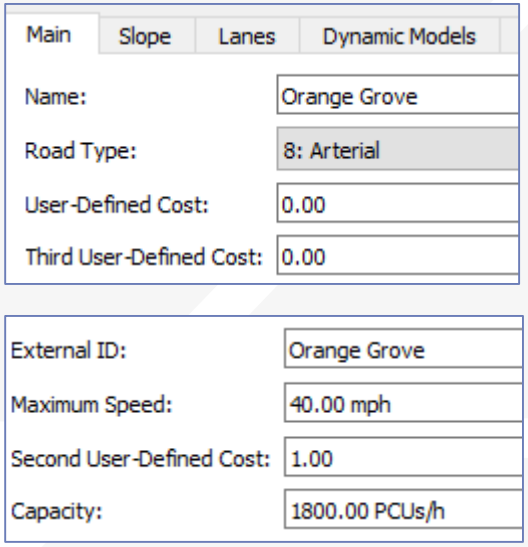
Review of Basic Network Elements

- Geometry
  - Network connectivity
    - Via diagnostic runs
  - Section/Turn Settings
    - Functional types
    - Max speed
    - Capacity
    - User-defined costs
    - Micro-/Meso- driving behaviors
    - Attractiveness



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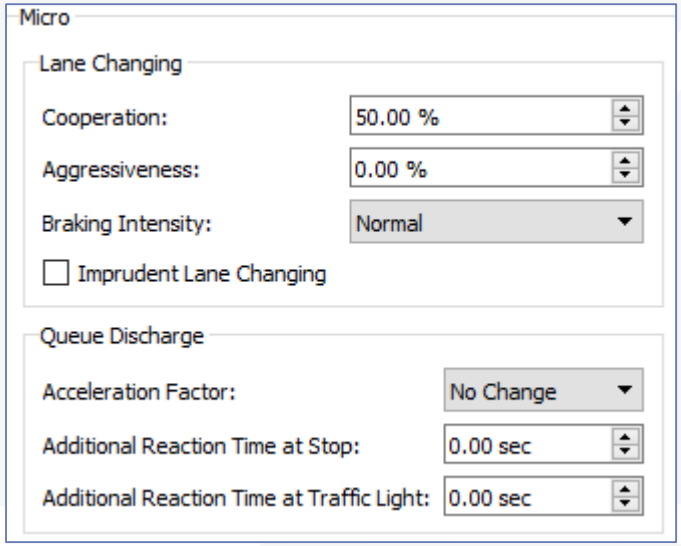
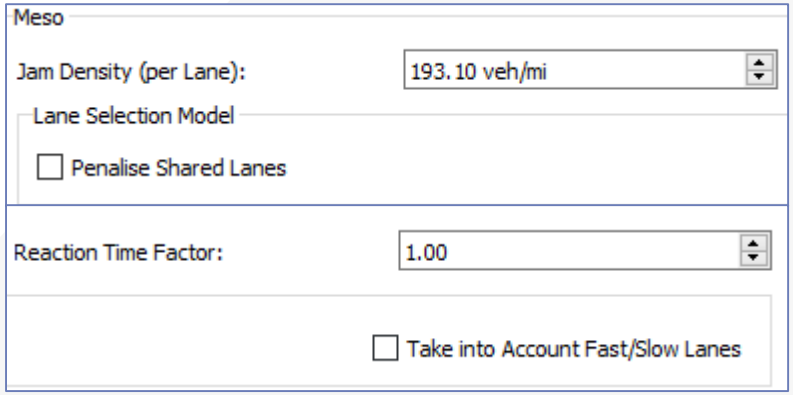
Review of Basic Network Elements

- Geometry
  - Section/Turn Settings
    - Micro- driving behaviors
      - Cooperation
      - Aggressiveness
      - Braking intensity
    - Meso- driving behaviors
      - Jam density
      - Reaction time factor
  - Turn/U-turn prohibitions





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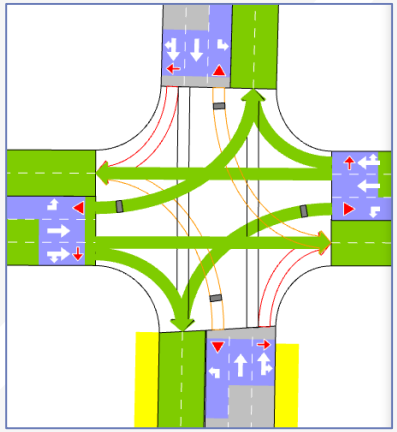
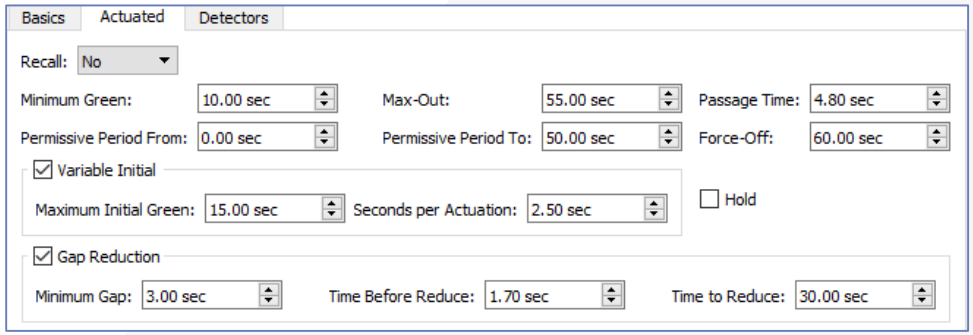
Review of Basic Network Elements

Signal Controls

- Physical movements coded for each phase
- Phases correspond to correct turn movements
- Detectors correspond to correct phases
- Actuated settings and detectors
  - Recall
  - Min green
  - Max-out
  - Passage time
  - Gap reduction





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Review of Basic Network Elements

- Signal Controls
  - Timing parameters
    - Cycle length
    - Offset
    - Green time, amber time, all red time
  - Master control plan review
- Stop/Yield Controls

Review of Basic Network Elements

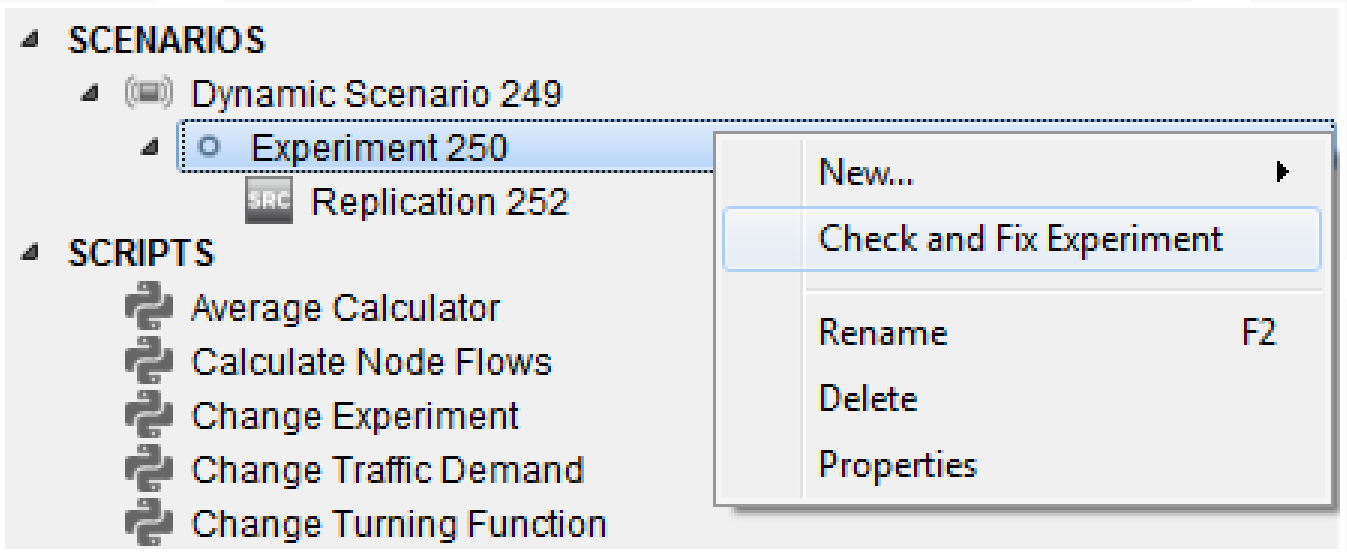
- OD Demands
  - Centroid / Centroid Connectors
    - Loading points check
    - Review locations with significant virtue queues
  - Review OD preparation and adjustment process
    - How were the OD matrices developed?
    - How were the demand profiles developed?
    - ODME used?
  - Traffic Demands
    - OD Matrices
    - Vehicle Types
    - Scaling Factors

Review of Basic Network Elements

- ITS Elements
  - Ramp metering settings
  - DMS
  - Detectors
- Traffic Management Strategies
  - Activation conditions
    - Time period
    - Trigger
  - Scenario settings
- Transit

Check and Fix Experiment

- Built in tool to help check various network elements



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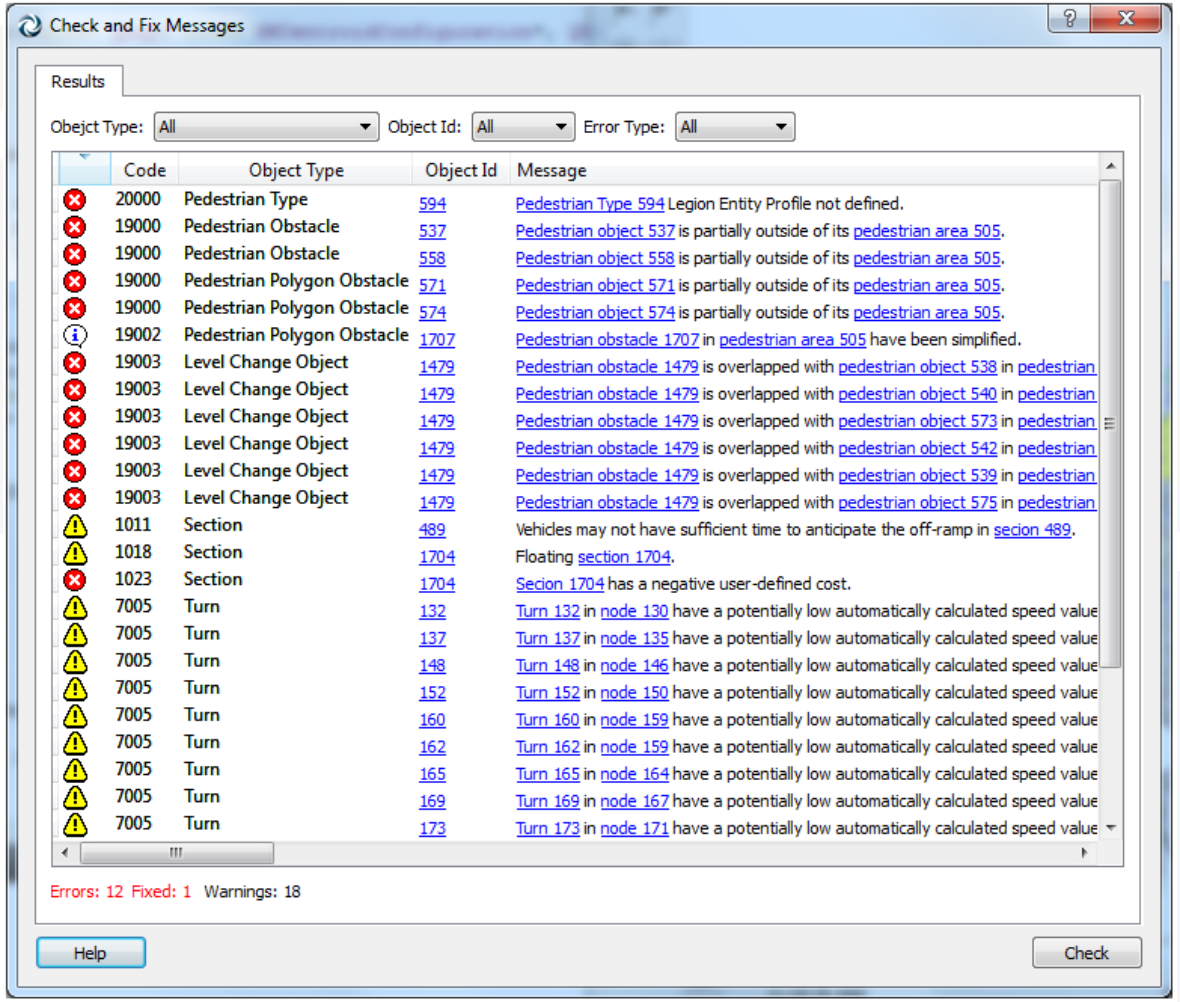
Check and Fix

- Returns:
  - Errors
  - Warnings
  - Fix
- Codes:
  - » See Help for details



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Check Exercise

- Tutorial: Traffic Management
  - Initial Model
  - Check and Fix ‘Micro Exp Match – No Strategy’

Further Review Methods

- View Modes
- Table View