Argonne NATIONAL LABORATORY

Version 5 Hands-On

January 21, 2011

David Roden – AECOM

AECOM

Topics

- Three case study datasets
- Batch and configuration files
- Network conversion
- Demand conversion
- Router
- Plan processing
- Microsimulator
- Feedback
- Boost threads

Case Study Datasets

Network Name	Nodes	Links	Zones	Trips
Case1	15	13	5	4,600
TestNet	72	73	30	25,410
Alexandria	2,572	3,606	85	378,810

Batch Files

- Start with Case1\control directory
- Open the RunAll.bat with a text editor
  - Right click → Edit
- Set paths to executable programs and the configuration file
- Open the Config.txt file with a text editor to review or edit the configuration file

Configuration Files

- A configuration file can set global control keys
  - Set TRANSIMS_CONFIG_FILE=…

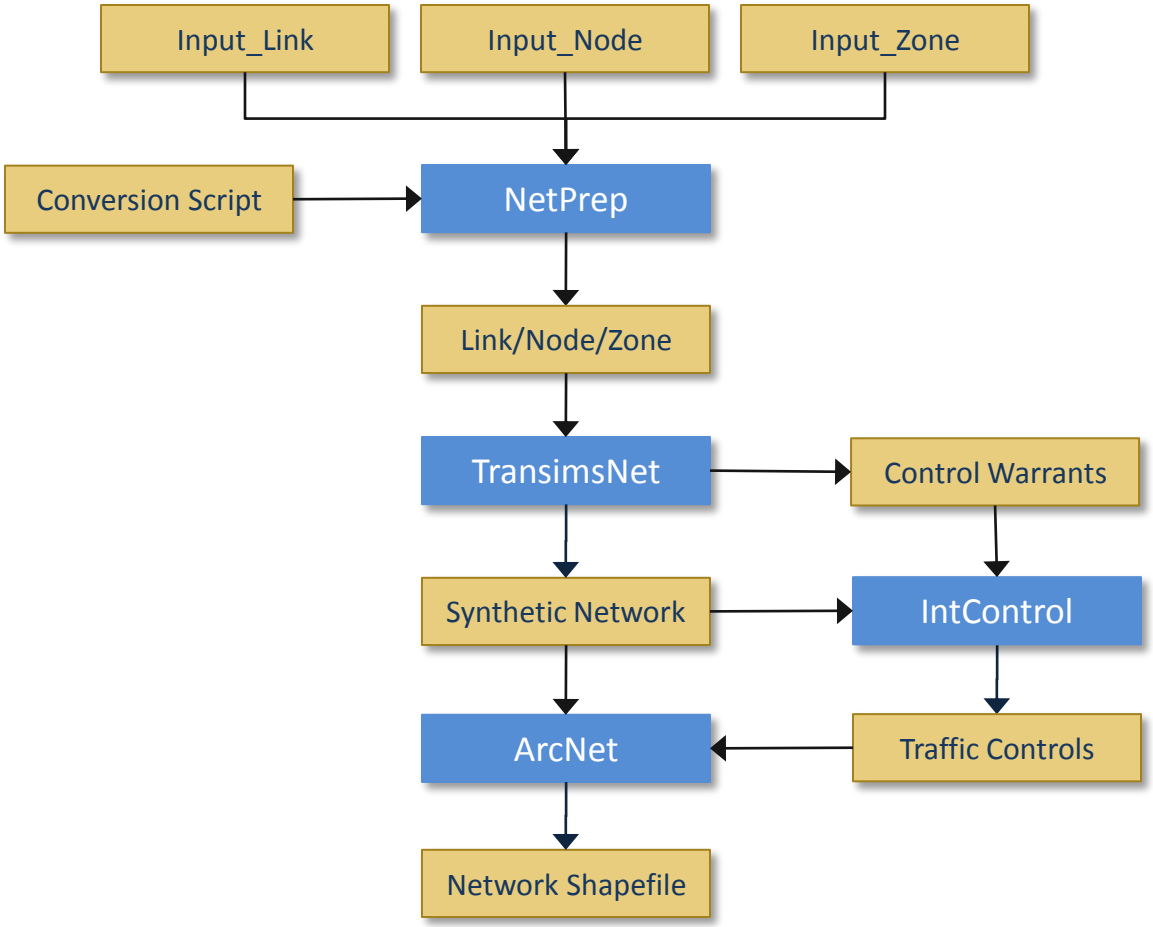
PROJECT_DIRECTORY	../
DEFAULT_FILE_FORMAT	TAB_DELIMITED
TIME_OF_DAY_FORMAT	HOUR_CLOCK
MODEL_START_TIME	0:00
MODEL_END_TIME	27:00
UNITS_OF_MEASURE	ENGLISH
NUMBER_OF_THREADS	4
NOTES_AND_NAME_FIELDS	TRUE

- Program control keys override configuration keys

Network Conversion

- NetPrep
  - Reformat network link and node data
- TransimsNet
  - Apply warrants/rules to synthesize TRANSIMS network details
  - Pocket lanes, lane connectivity, activity locations, parking lots, access links, lane use, turn prohibitions, and signal and sign warrants
- IntControl
  - Synthesize traffic controls from signal and sign warrants
  - Signal timing and phasing plans, detectors and phase offsets

Conversion Process



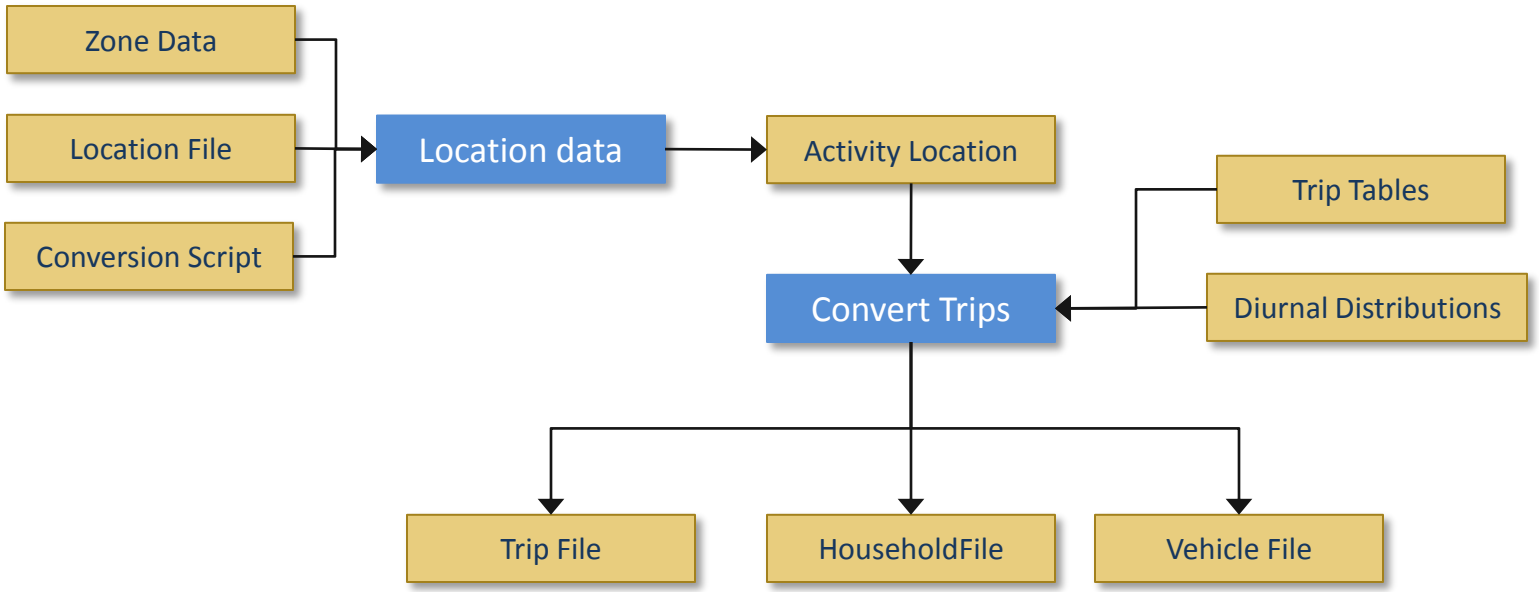
Review Control Files

- Go to the control folder and open
  - NetPrep.ctl
  - TransimsNet.ctl
  - IntControl.ctl
  - ArcNet.ctl
- Look for the input/output files and the program parameters
- Review the inputs\NetPrep_Script.txt

Demand Conversion

- Process distributes aggregate trip table data to individual travelers at specific locations and trip start times
  - Zones → activity locations within the zone
  - Daily/time period → second of the day
- Trip purpose and orientation used to allocate trips to activity locations and set travel schedules
  - Activity location distribution weights by trip type
  - Diurnal distribution curves by trip type

Demand Conversion Process

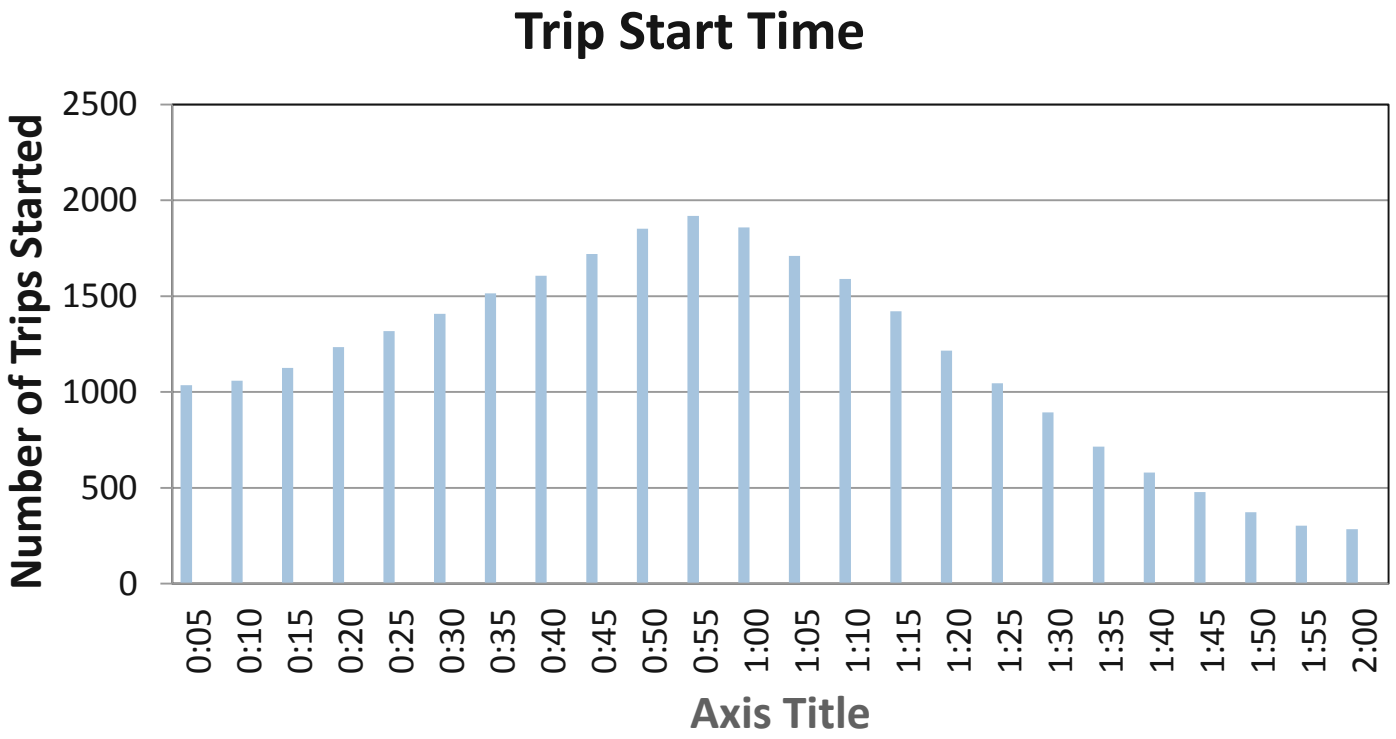


Review Demand Inputs

- Go to the input folder and open
  - Auto_Trips.txt
  - Transit_Trips.txt
  - HBW_PA.txt (Diurnal information)
  - Vehicle_Type.txt
  - LocationData_Script.txt
- Go to the control folder and open
  - LocationData.ctl
  - ConverTrips.ctl
- Look for the input/output files and the program parameters

Demand Conversion

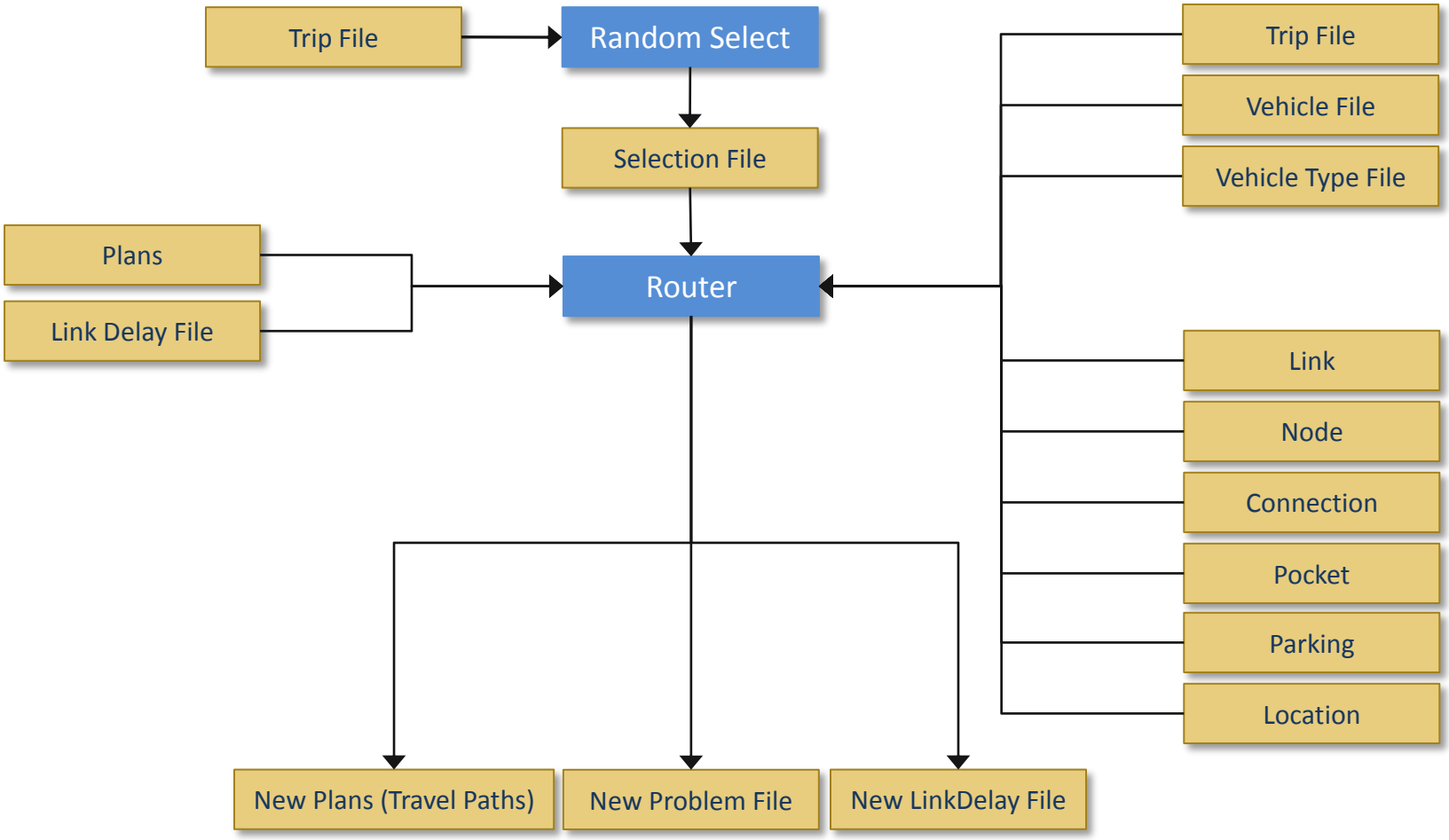
- Converting the traditional zone based demand database to the activity based demand database



Router

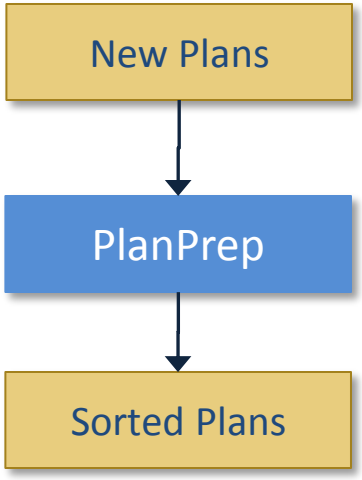
- Create partitions using “RandomSelect”
  - Divides travelers to randomly selected partitions
- Build paths for all the trips using “Router”
  - Paths built with Free Flow Speeds or an input link delay file
- Go to the control folder and open
  - RandomSelect.ctl
  - Router.ctl
- Look for the input/output files and the program parameters

Router Process



Plan Processing

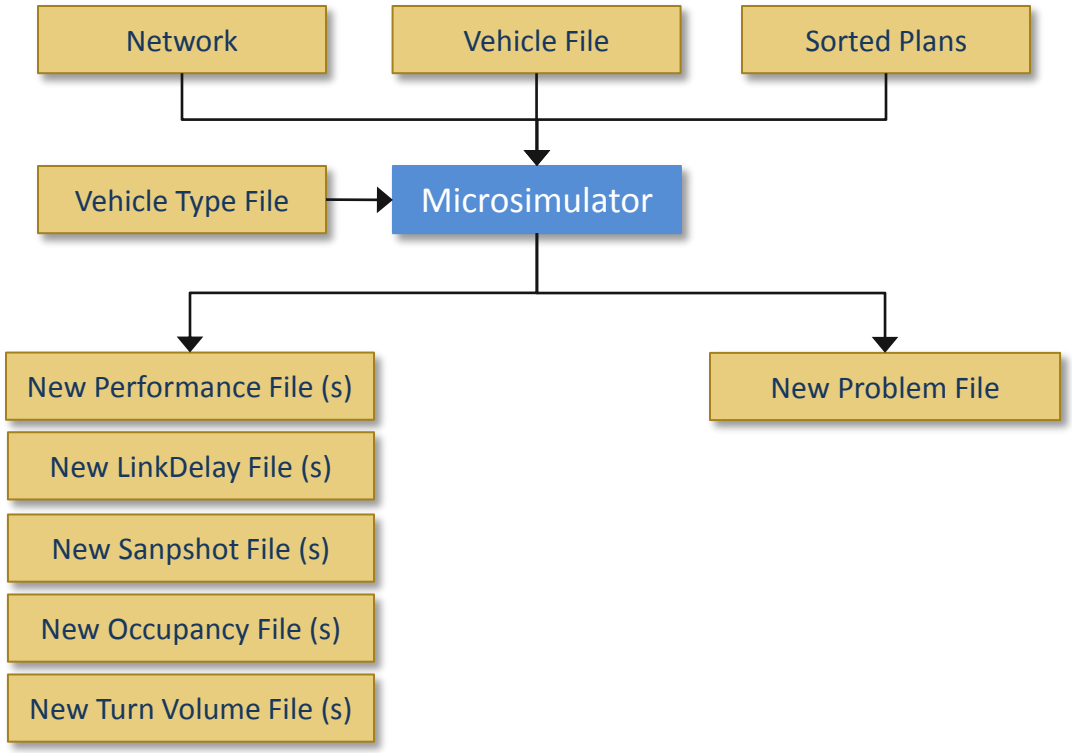
- Preparing the plans file to be read by Microsimulator
  - Plans are sorted based on their starting time
- Go to the control folder and open
  - PlanPrep.ctl
- Look for the input/output files and the Plan_Sort_Type key



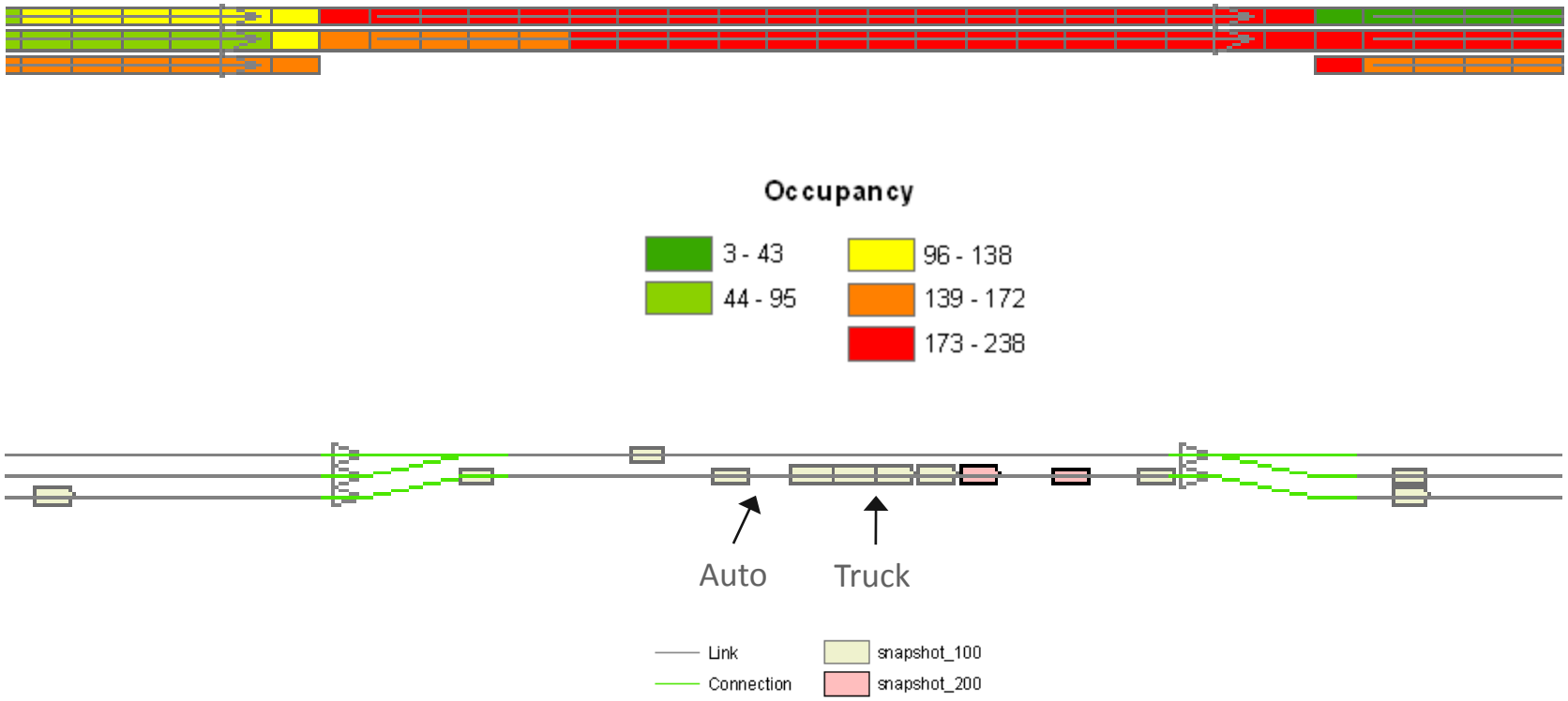
Microsimulator

- A cell-based simulator that moves vehicles between link-lane-cells on a second-by-second basis
  - Cell length are equal to the length of the smallest vehicle in the Vehicle_Type file
    - Trucks occupy multiple cells
  - Includes traffic signals and stop signs, reaction time, required and discretionary lane changing, random slow downs, permissive merge probabilities, vehicle loading and parking, plan following, bus stop interactions, etc.
  - Actual travel time of each trip is calculated

Microsimulator Process



Microsimulator Output



Feedback - Router Stabilization