Micro-Simulation Study
Leon Sullivan Way Interchange
Charleston WV

Gehan Elsayed

Program Planning & Administration Division

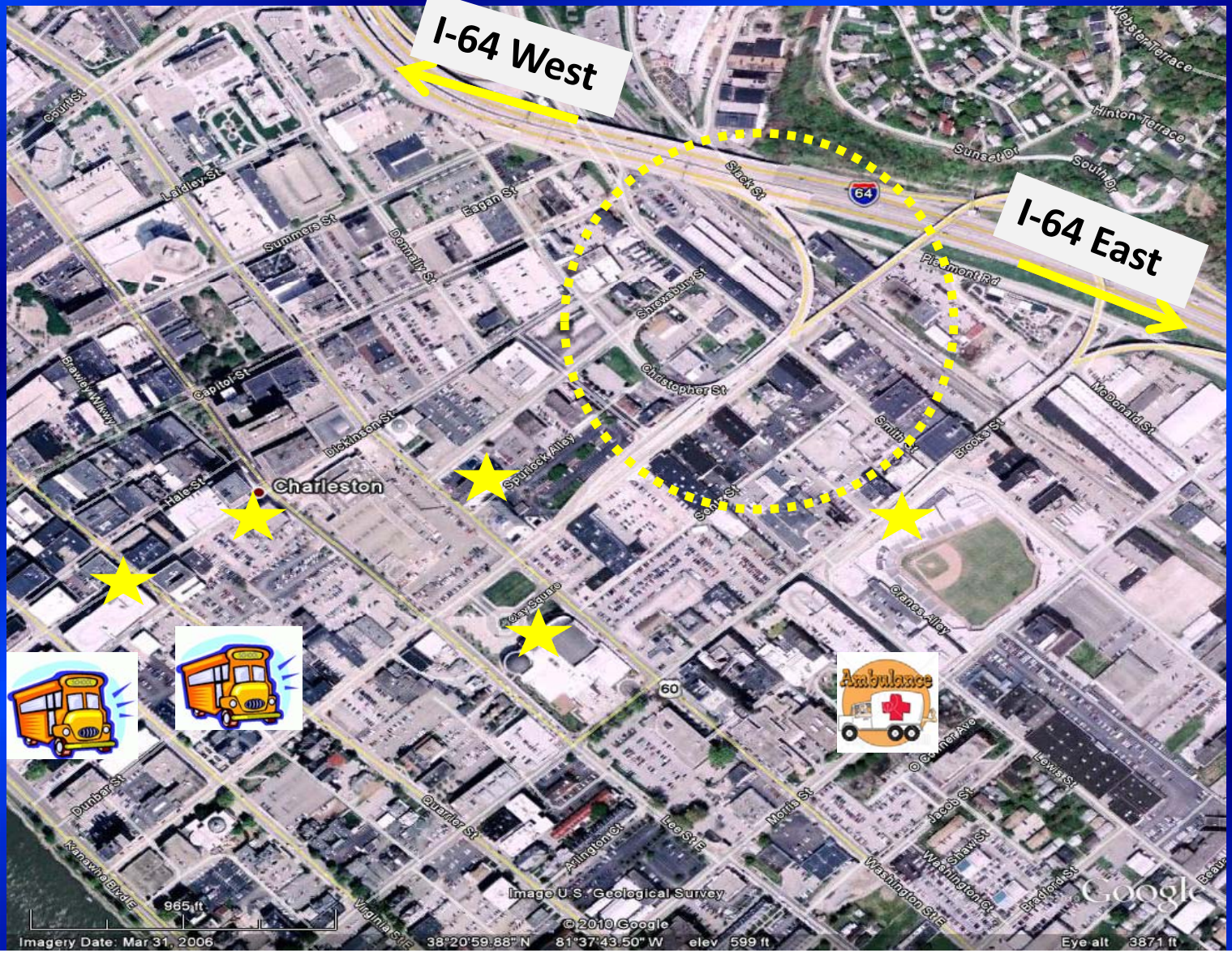
WVDOT

2010 WVDOT/MPO/FHWA Transportation Planning Conference

October 2010

Project Location

I-64 Exit 100, Charleston WV




00;00;00;00

Study Objectives

- Analysis of current traffic condition during AM peak hours
- Micro-Simulation Model :simulate traffic flow on study area
- Develop scenarios (eliminate conflict at weave, ease of traffic flow, access to anchor points,)
- Compare scenarios using simulation model (measure of performance: access to major sites, shortest path link, probabilistic route choice, travel time)

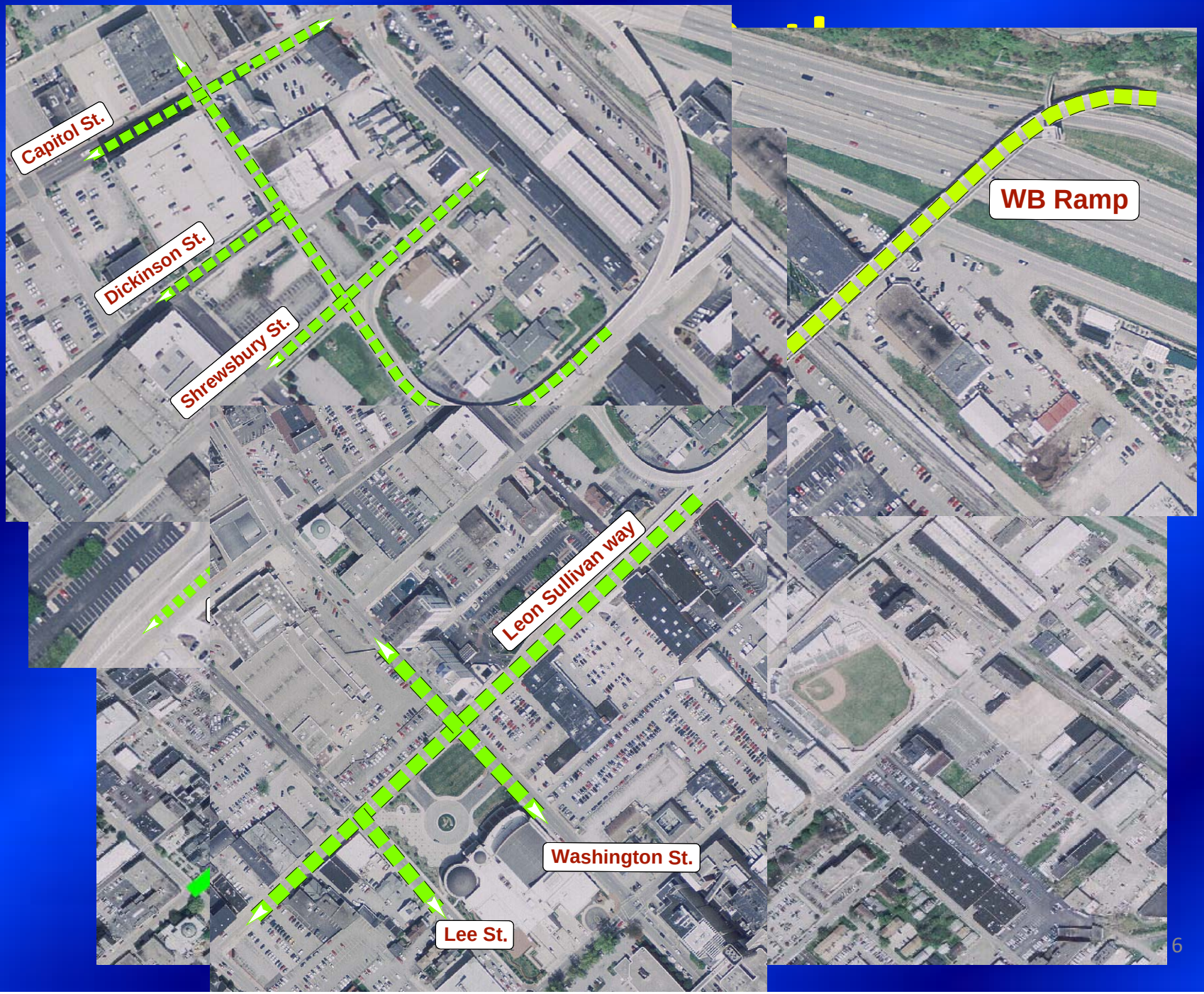
Scope of Study

Analysis of Traffic Condition

- Observation of traffic flow
- Traffic flow path identification
- Monitoring of traffic flow (peak hours 7:00-9:00 AM)
- Links & turn movement counts (10 minutes increment)
- Results

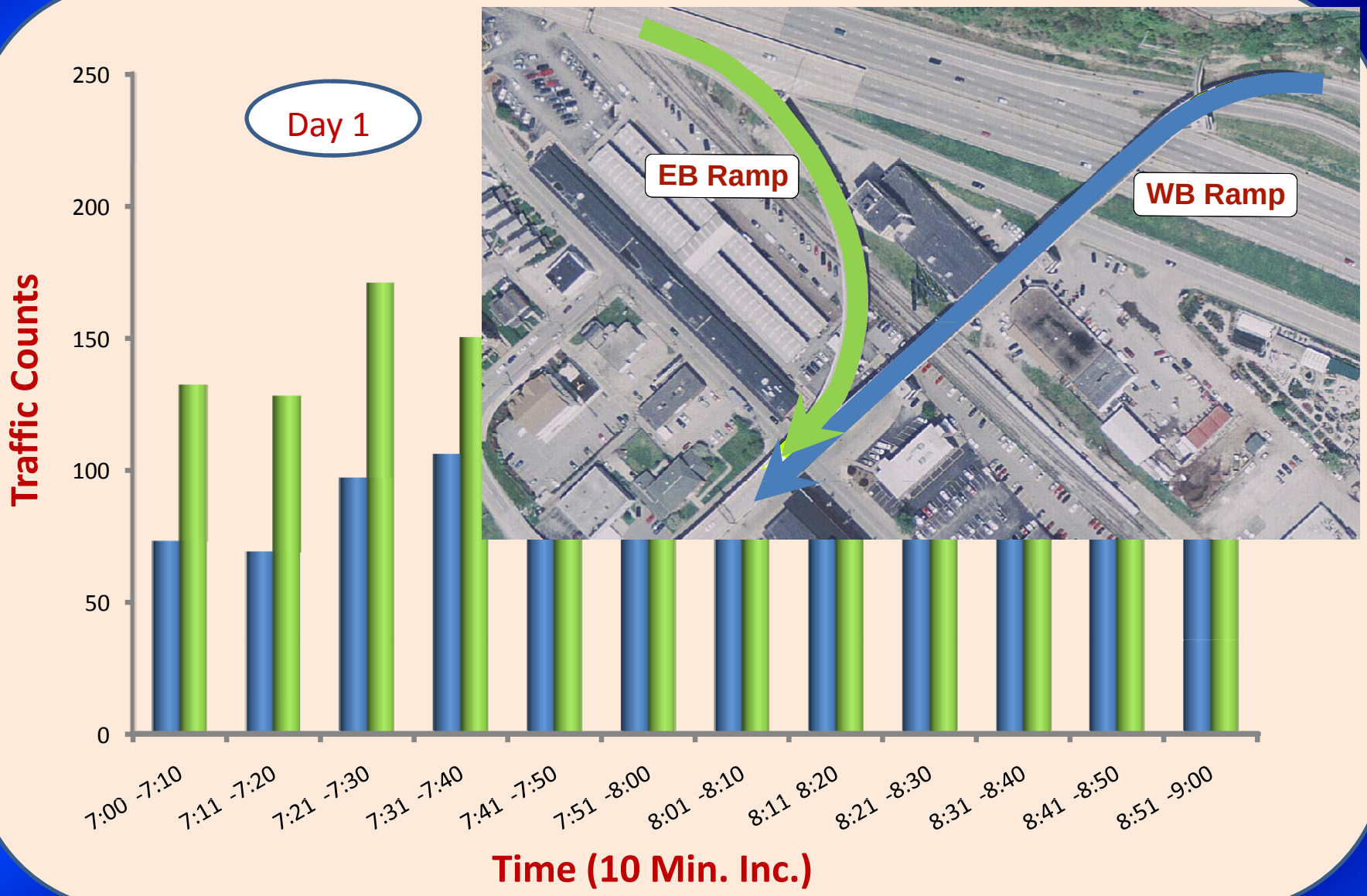
Micro-Simulation Model

- Road network
- Travel demand information
- Traffic control systems
- Parameters

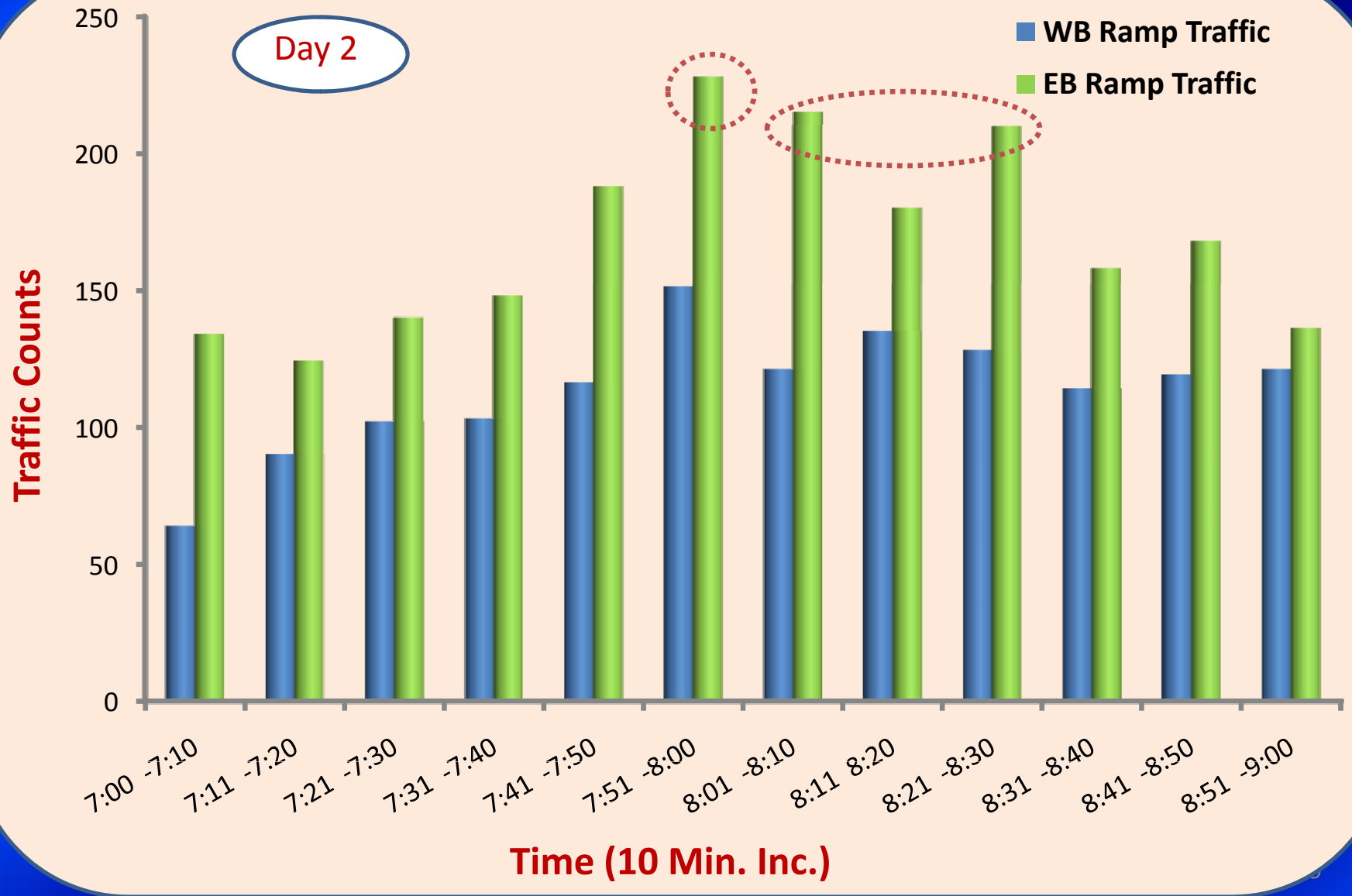

Capitol St.
Dickinson St.
Shrewsbury St.
WB Ramp
Leon Sullivan way
Washington St.
Lee St.


00;00;00;00

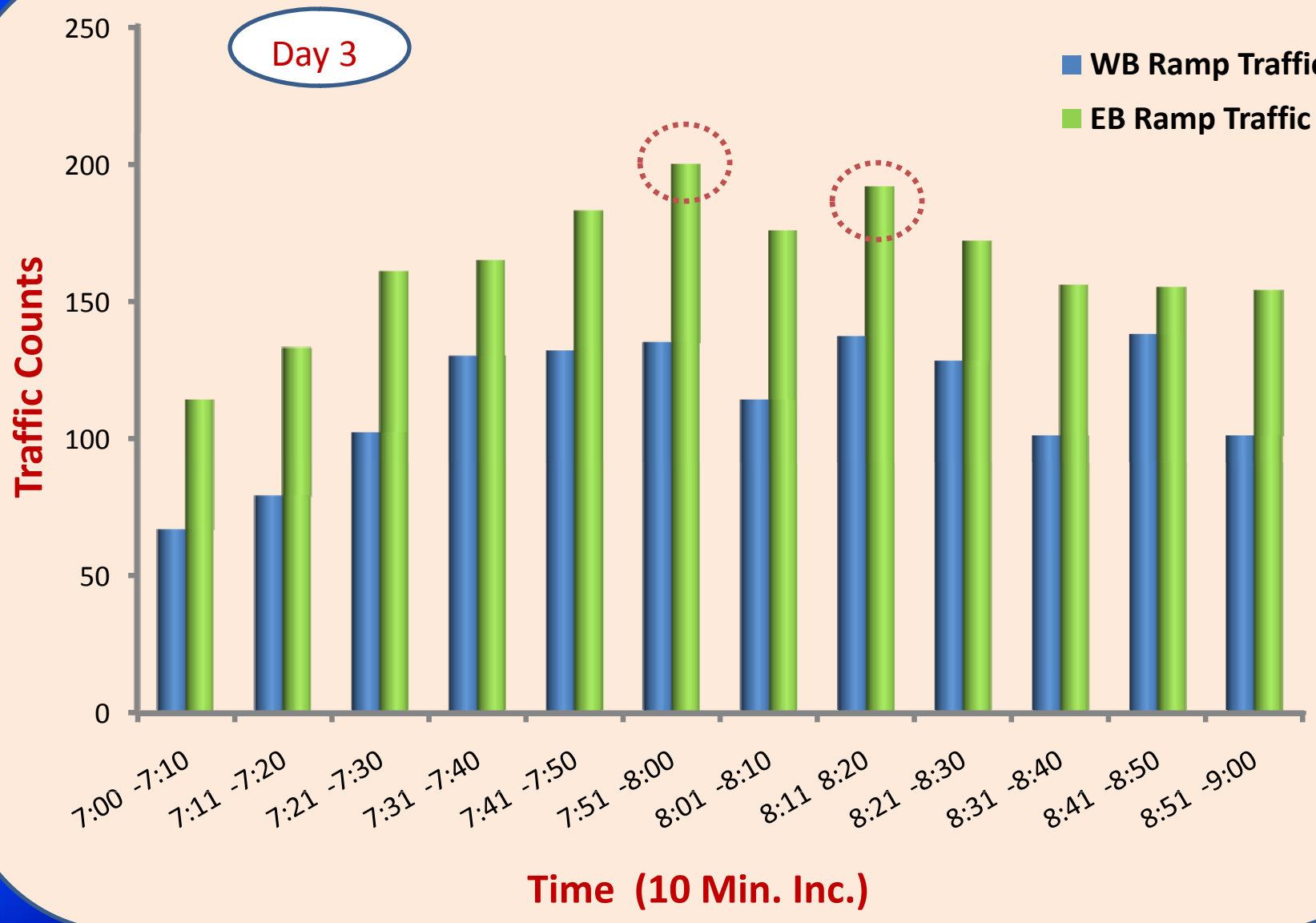
Traffic Volume on Path 1



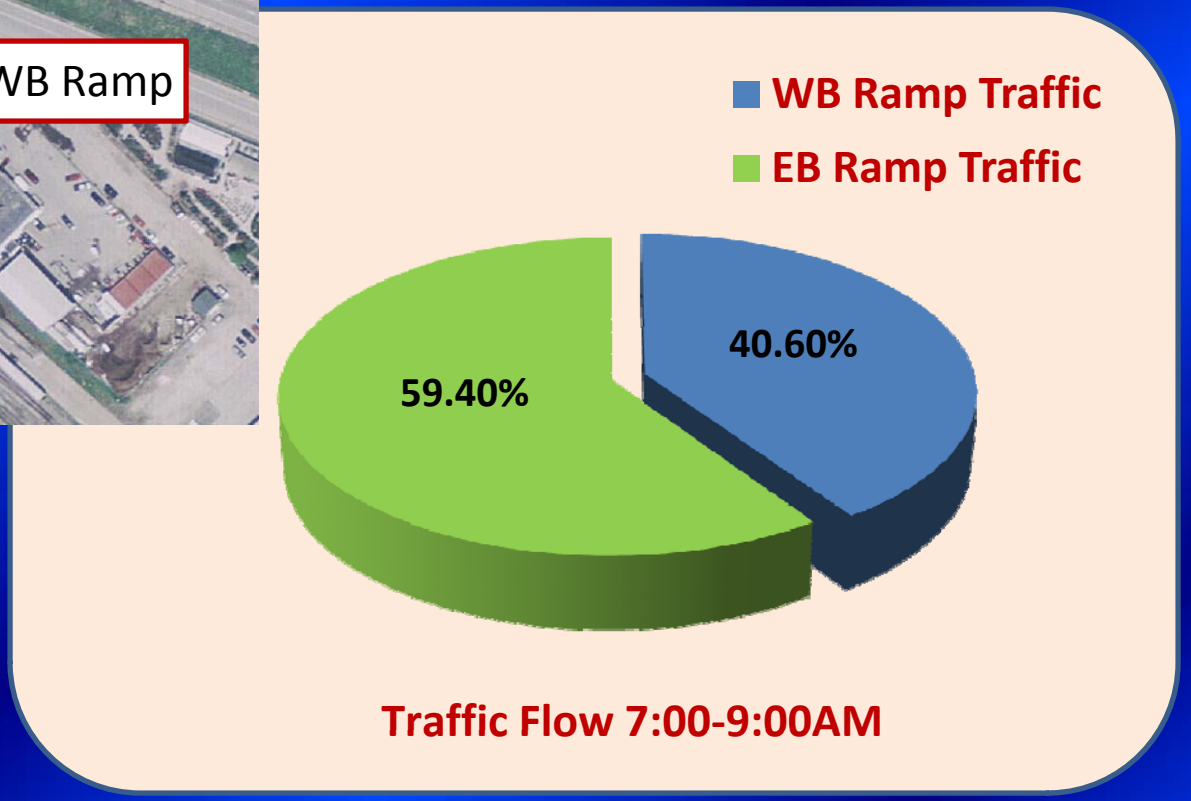
Traffic Volume on Path 1



Traffic Volume on Path 1

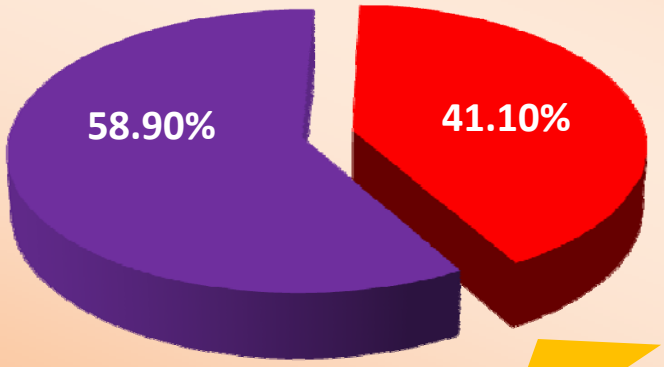


Traffic Volume on Path 1

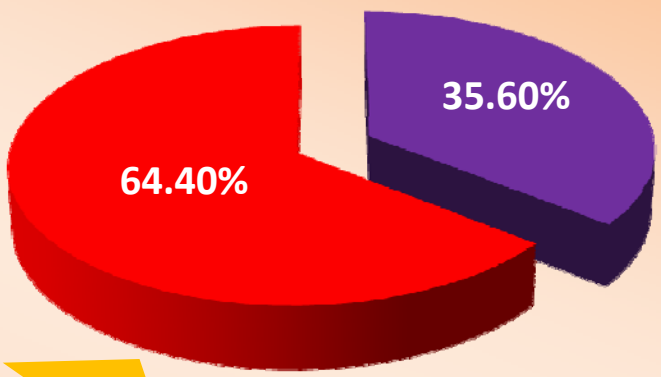


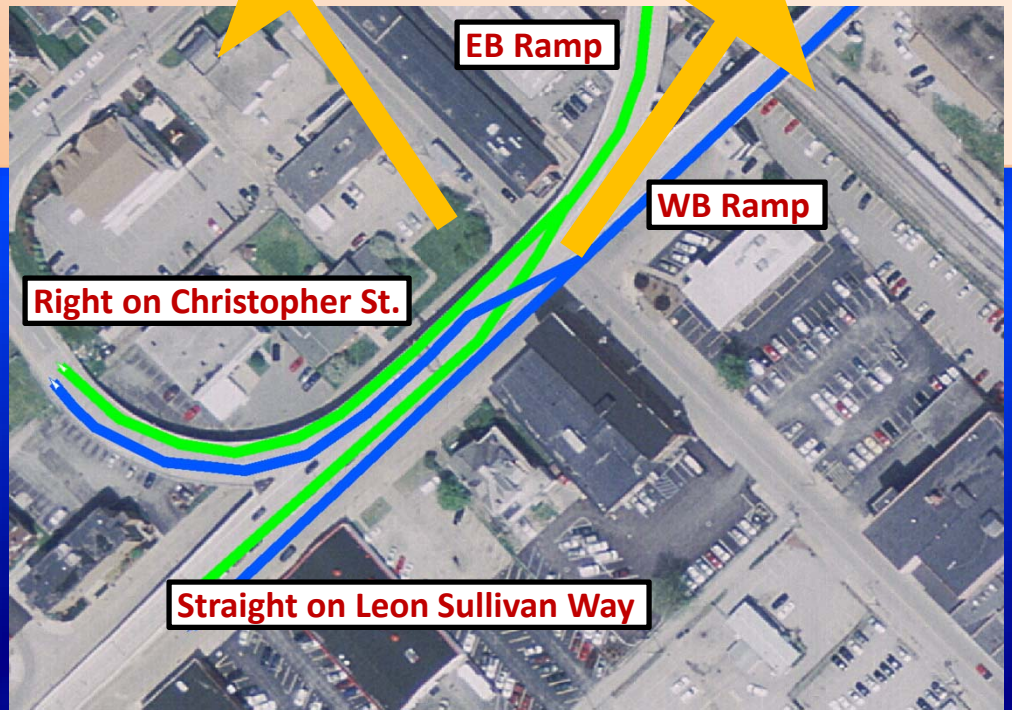
Traffic Volume on Path 2

EB Ramp

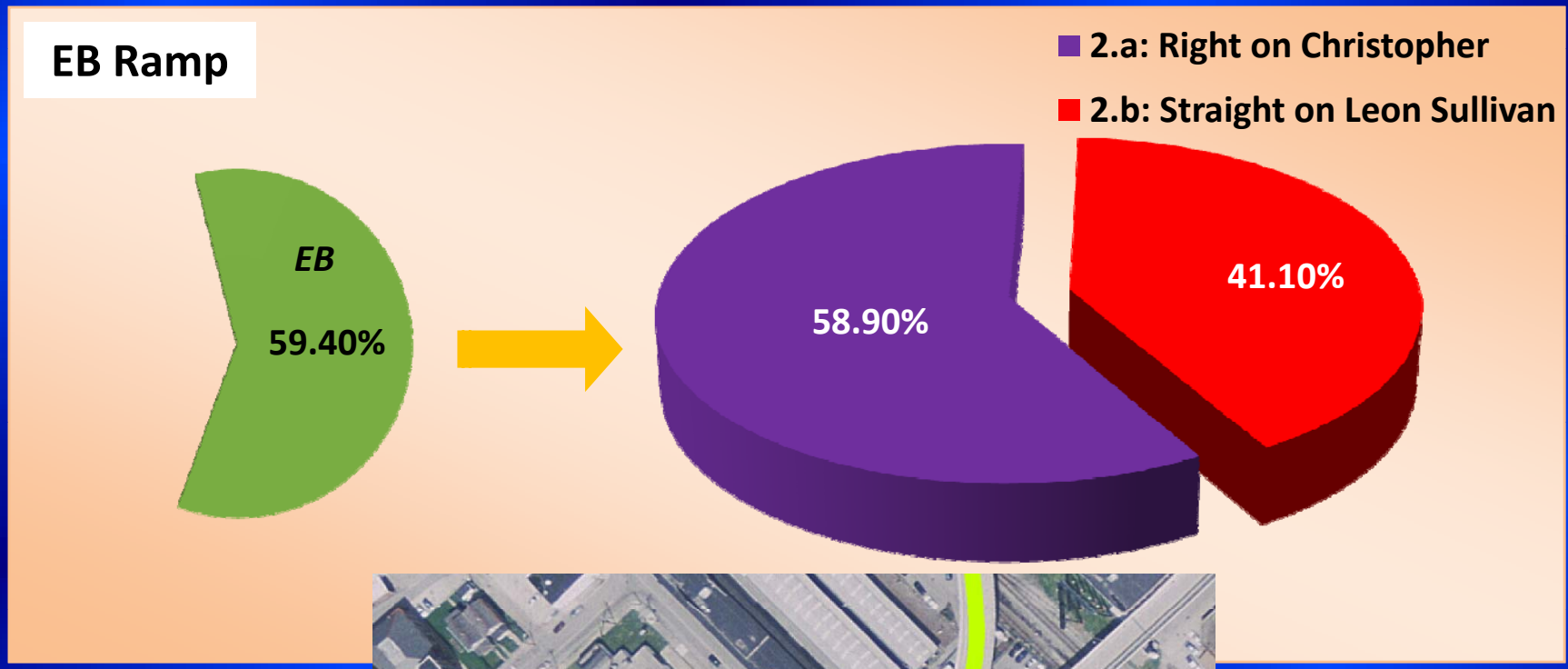


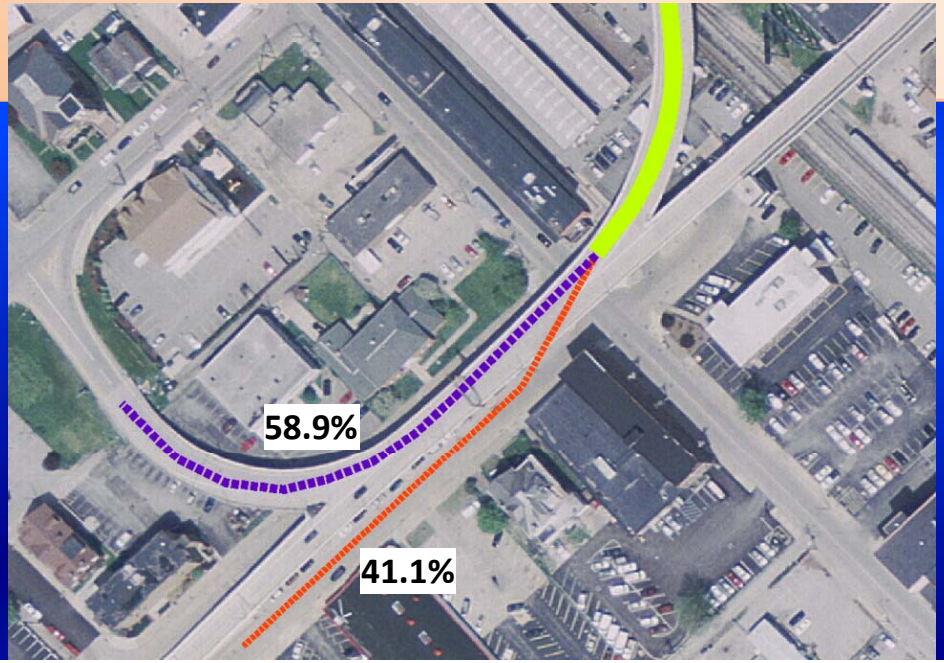
WB Ramp





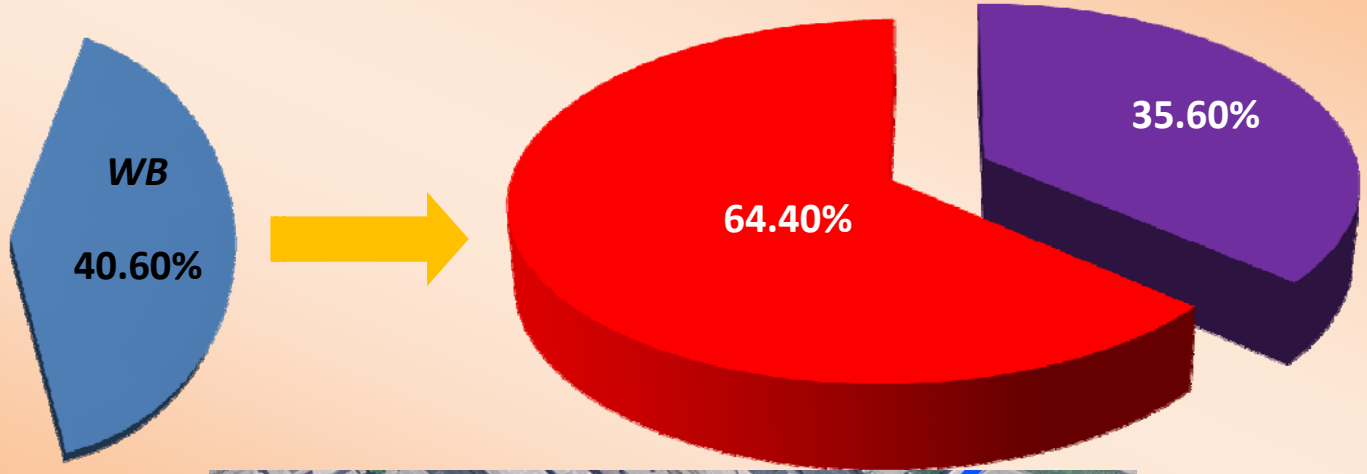
Traffic Volume on Path 2



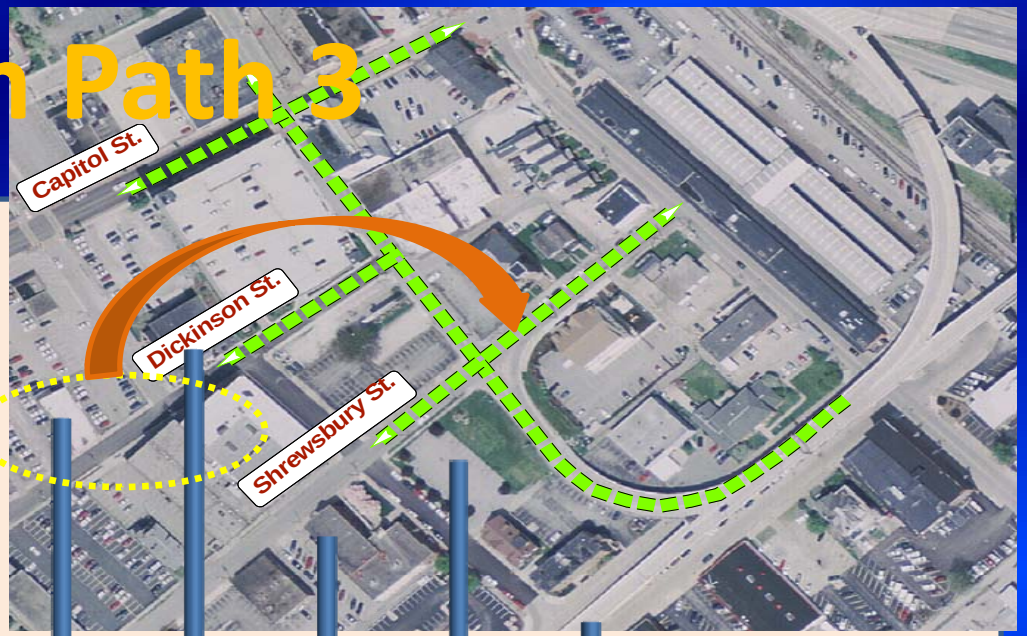


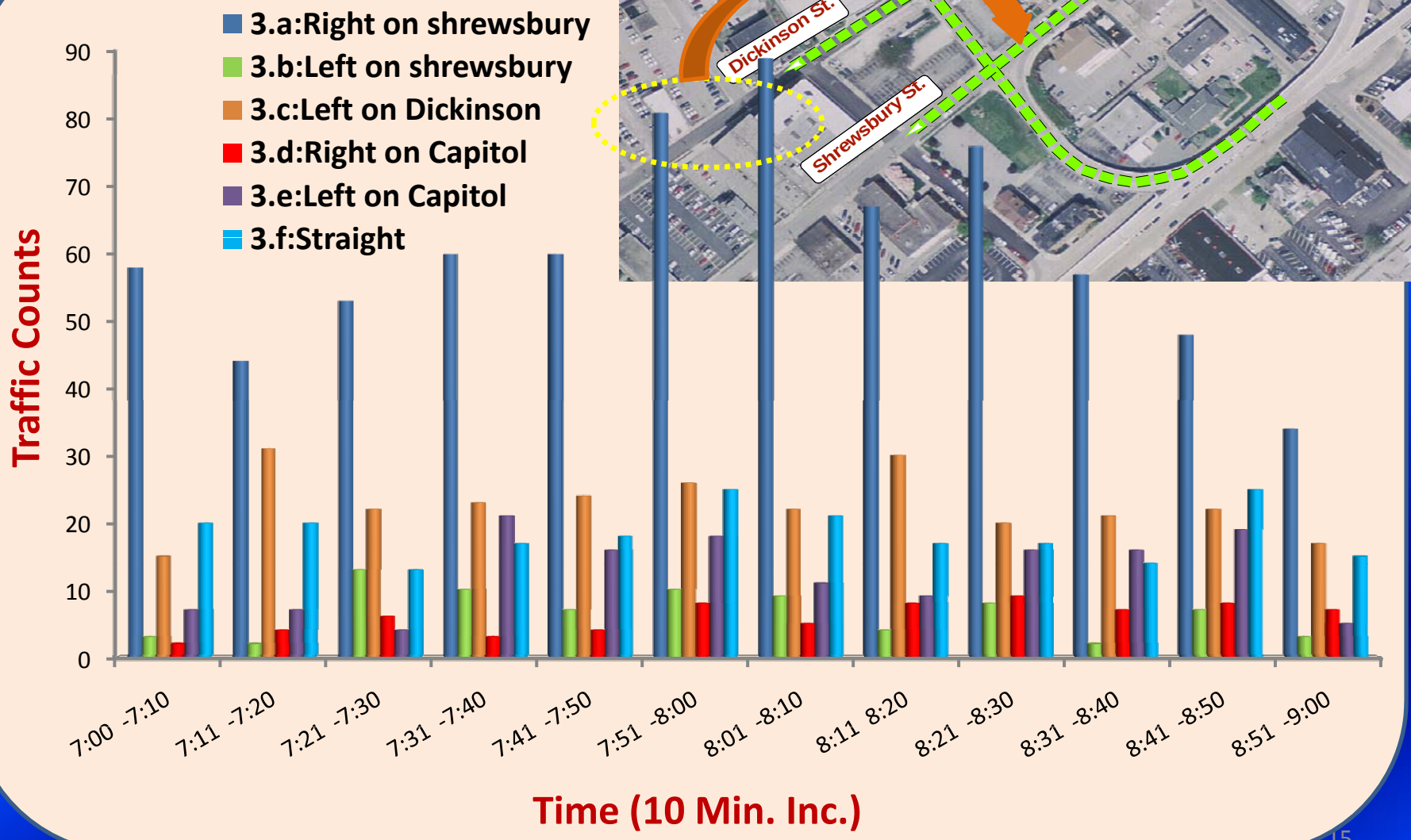
Traffic Volume on Path 2

WB Ramp

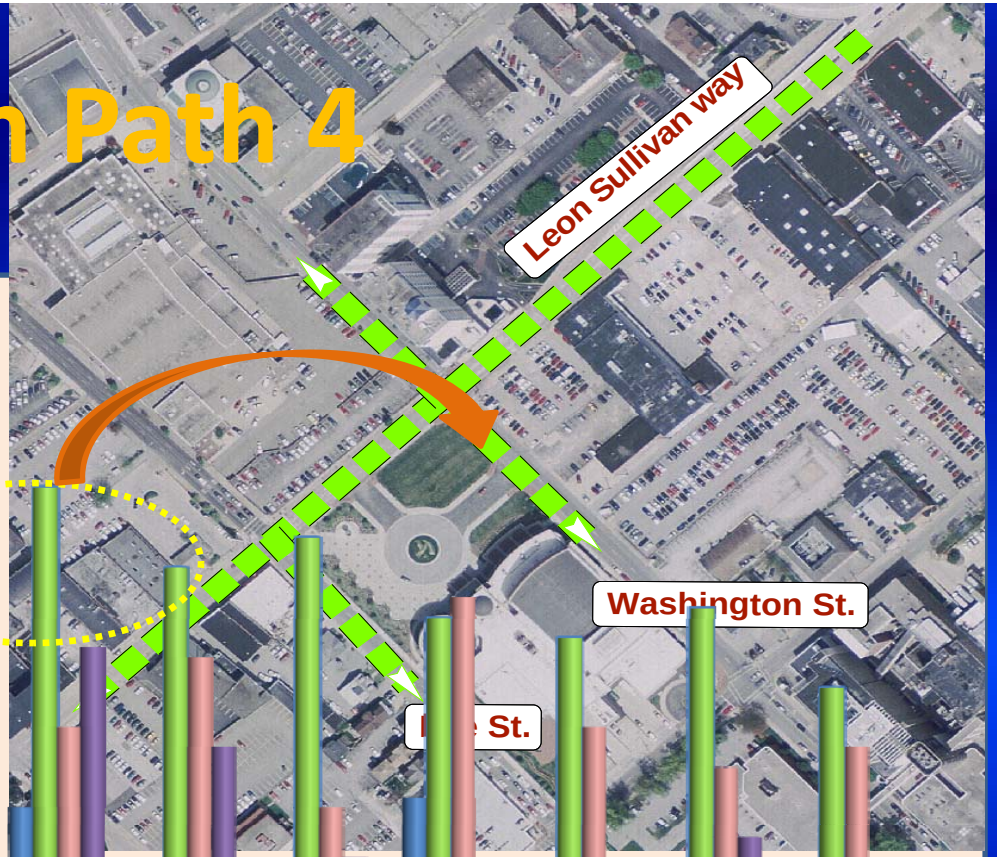


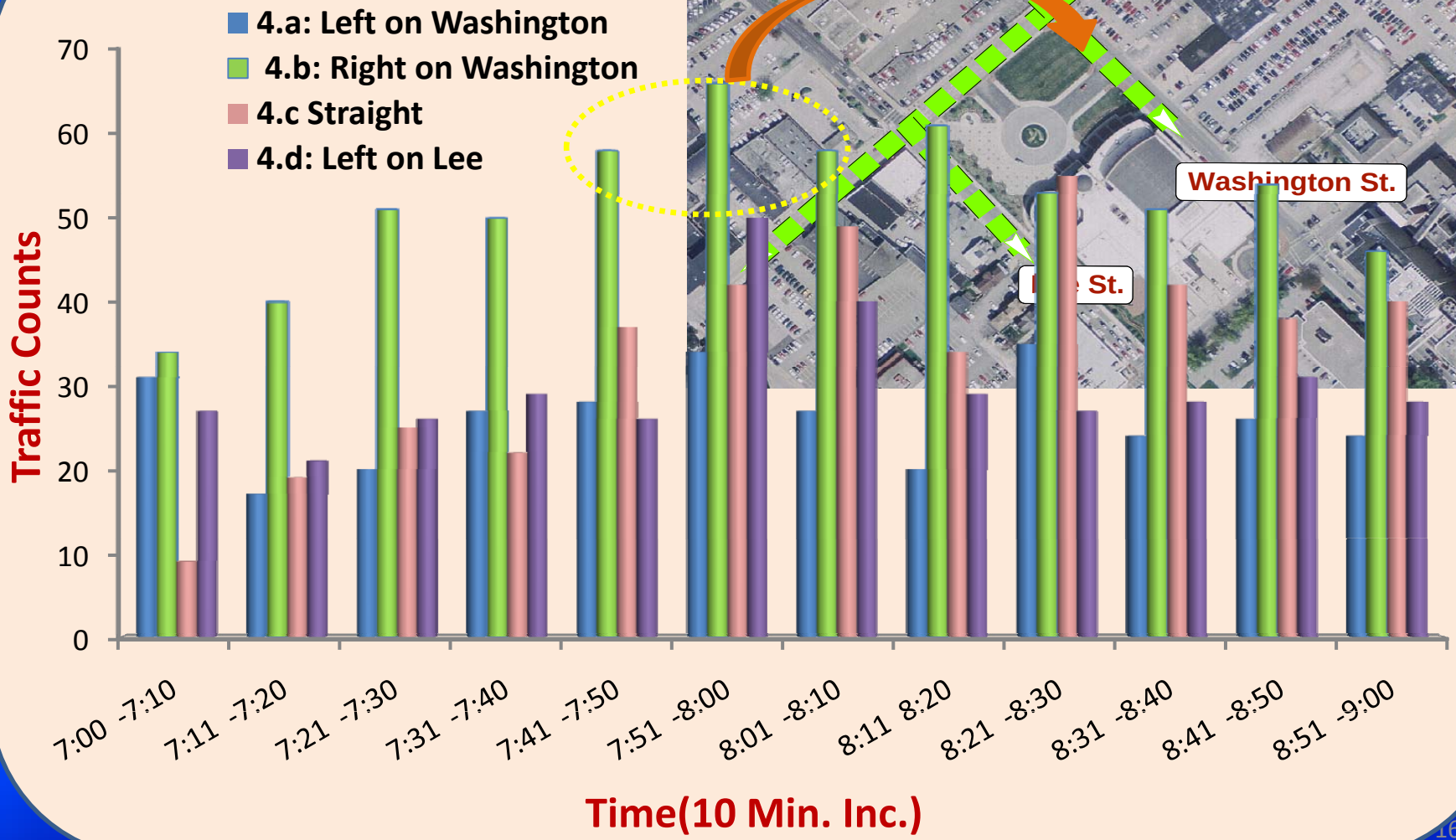
Traffic Volume on Path 3





Traffic Volume on Path 4





Micro-Simulation Model

Micro-Simulation Model Structure

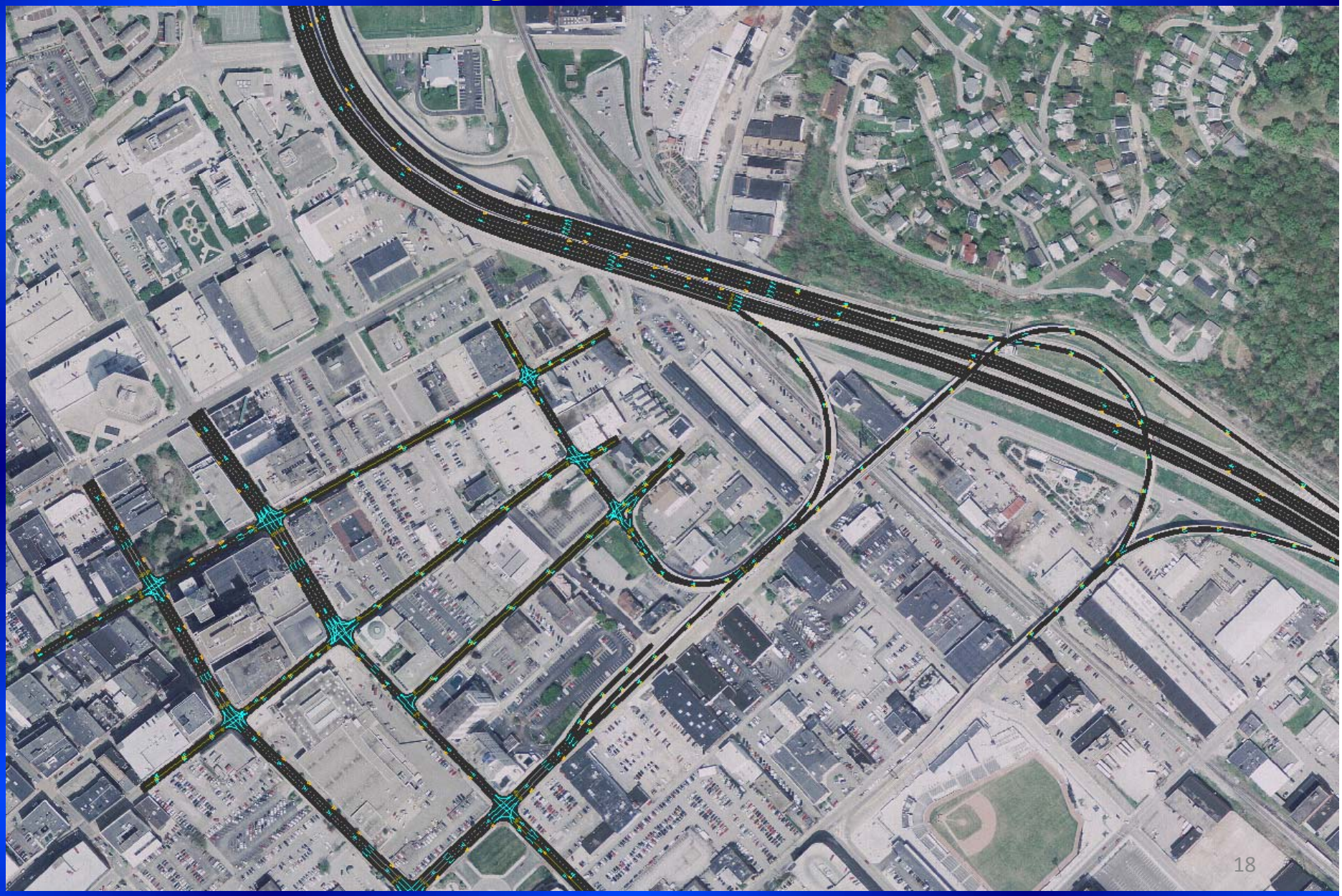
- Road network (database)
- Travel demand information (Link counts, turn movements counts, O-D matrix)
- Traffic control systems(signal timings)

M

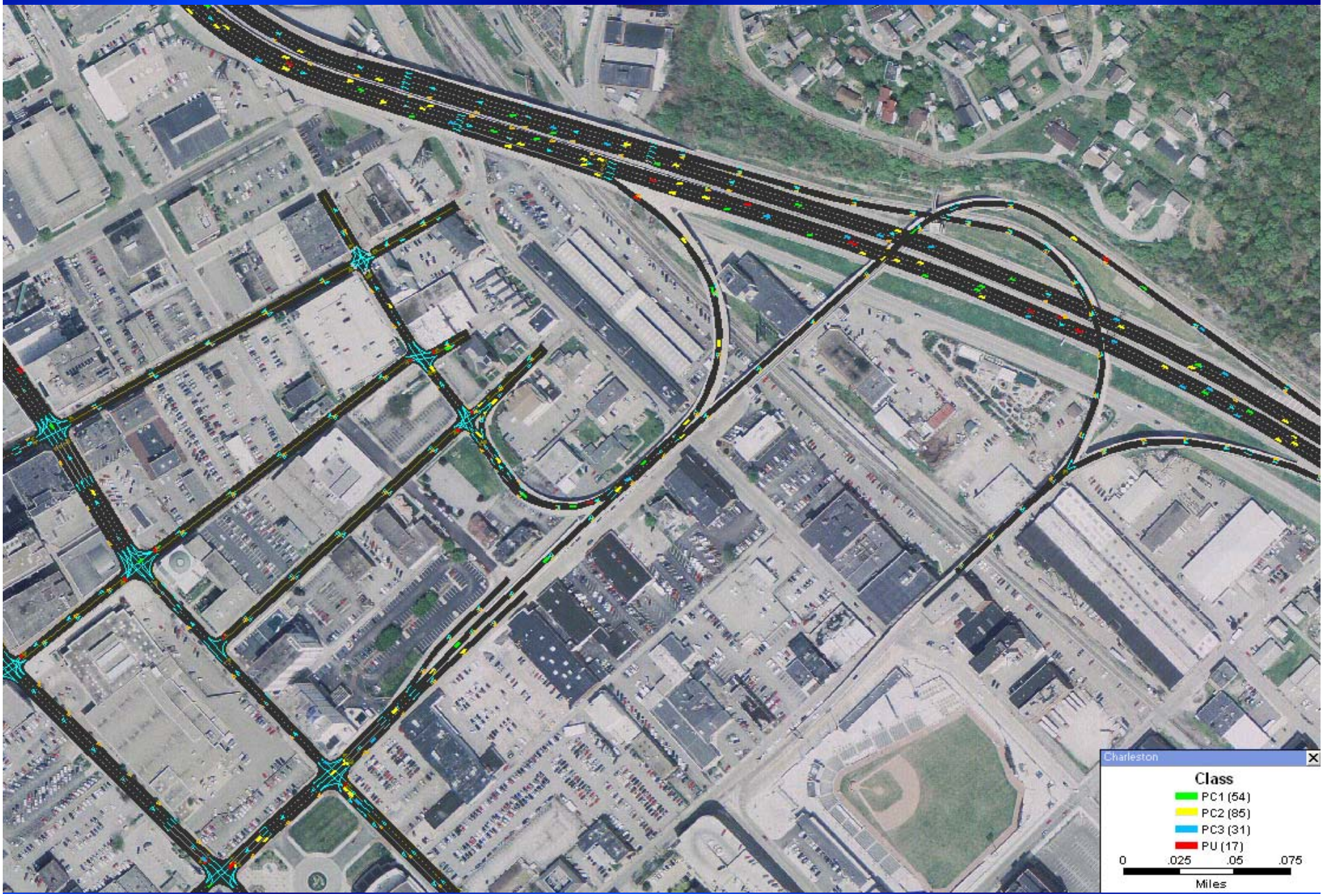
TransModeler

- Microscopic
- Traffic Demand
- Path Simulation
- Model and visualize the behavior of traffic
- Illustrates and evaluate traffic flow dynamic, traffic signals and all network performance

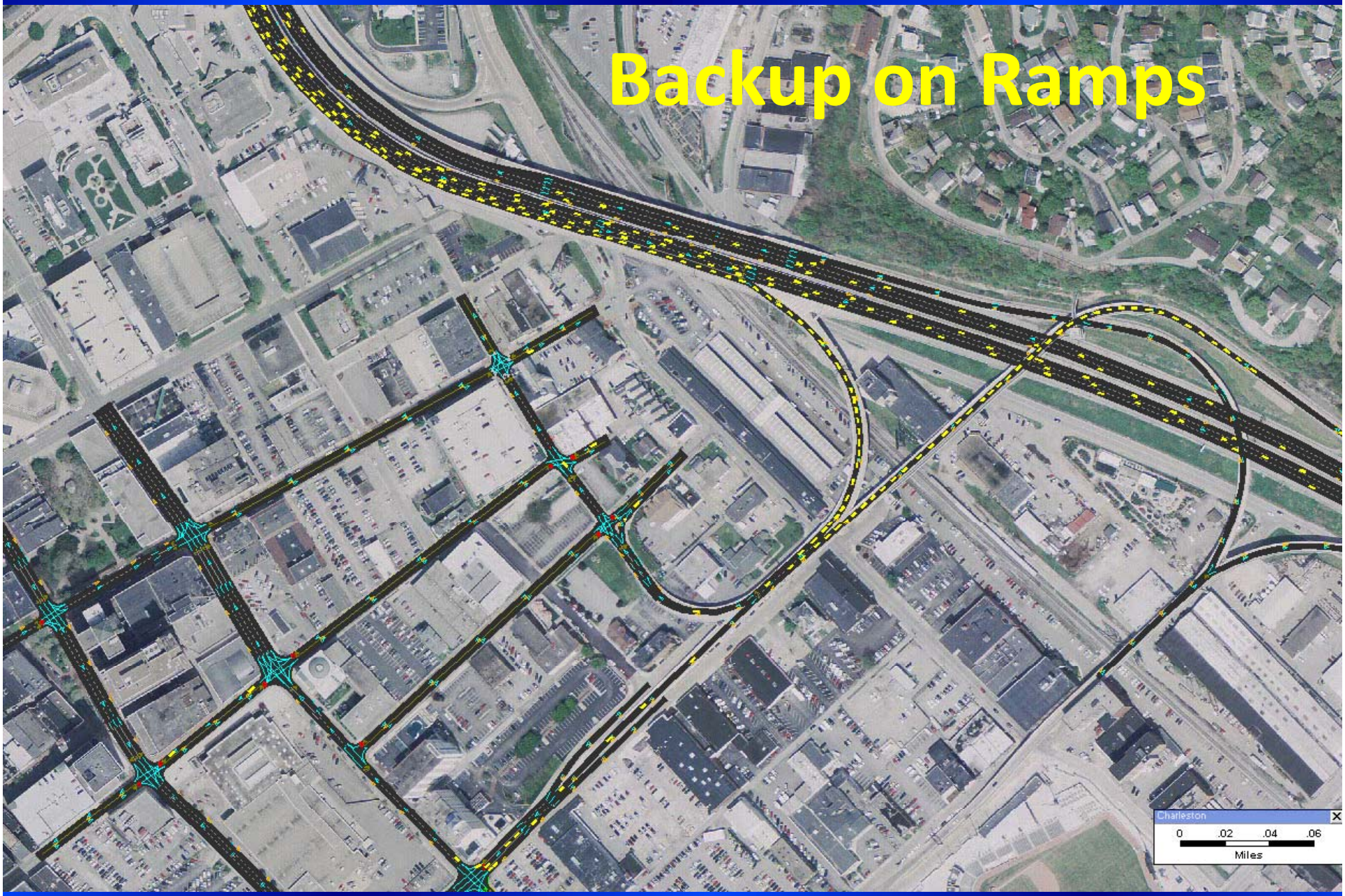
Study Area Network



Traffic Demand Simulation

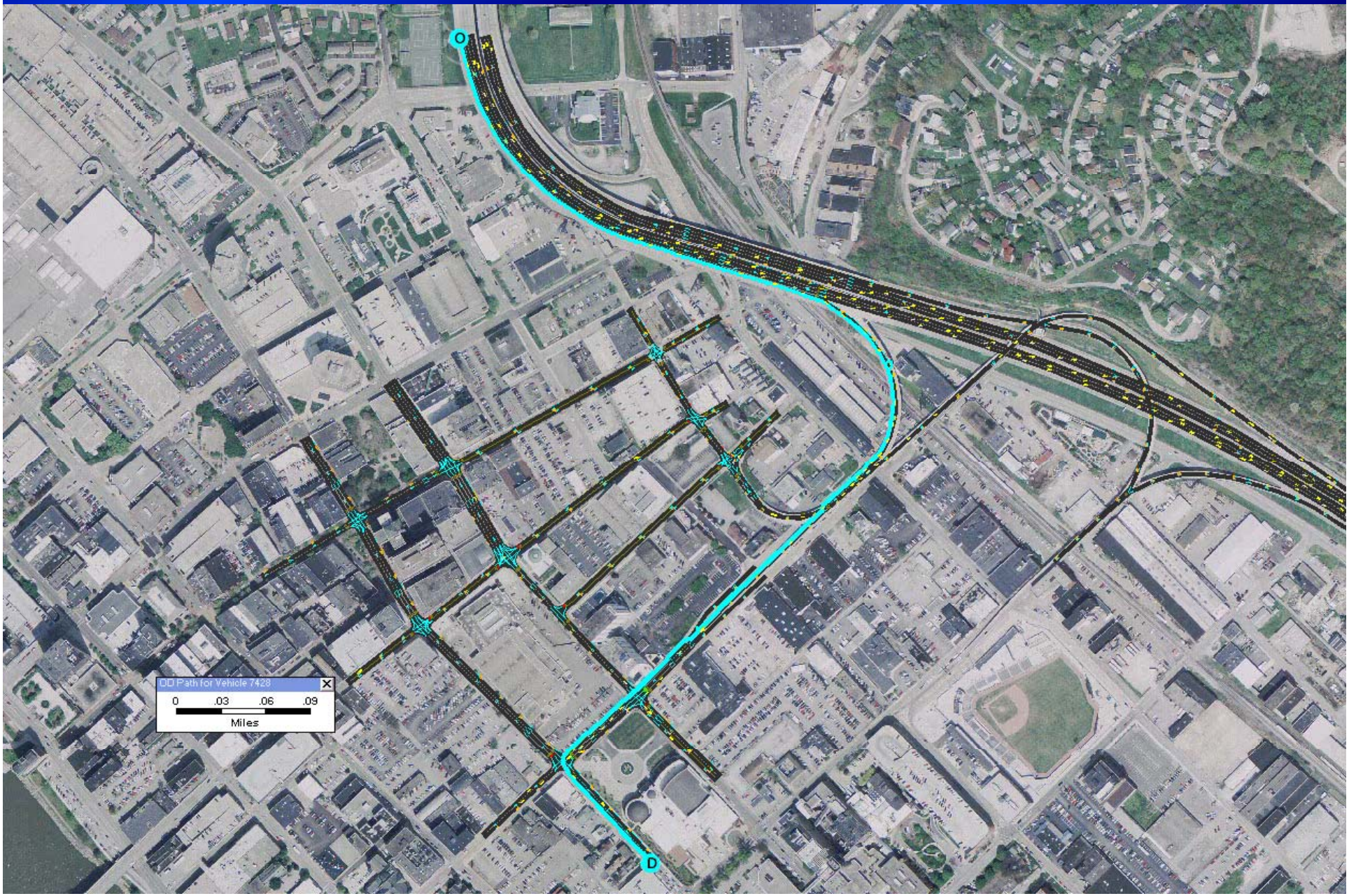


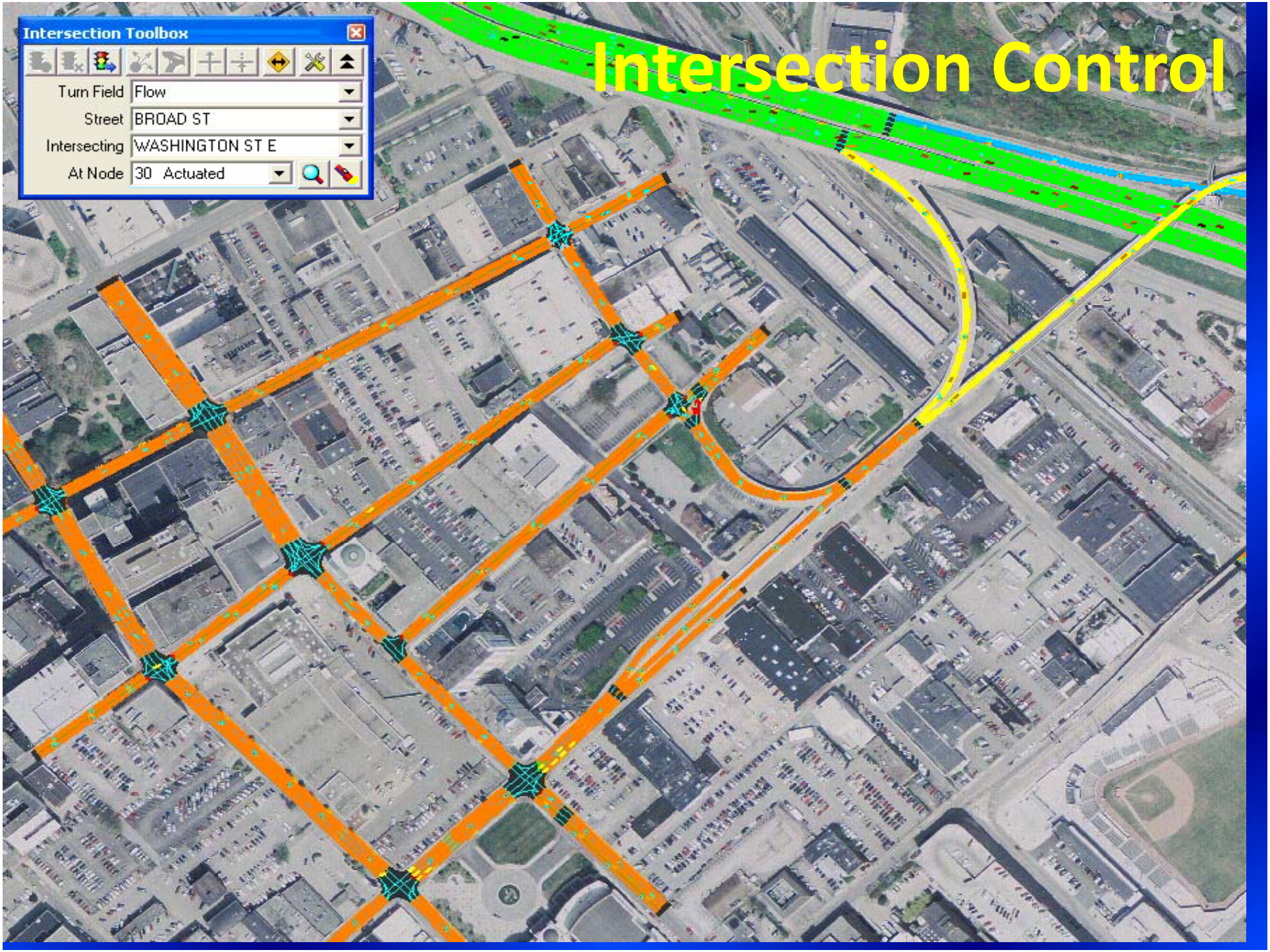
Backup on Ramps



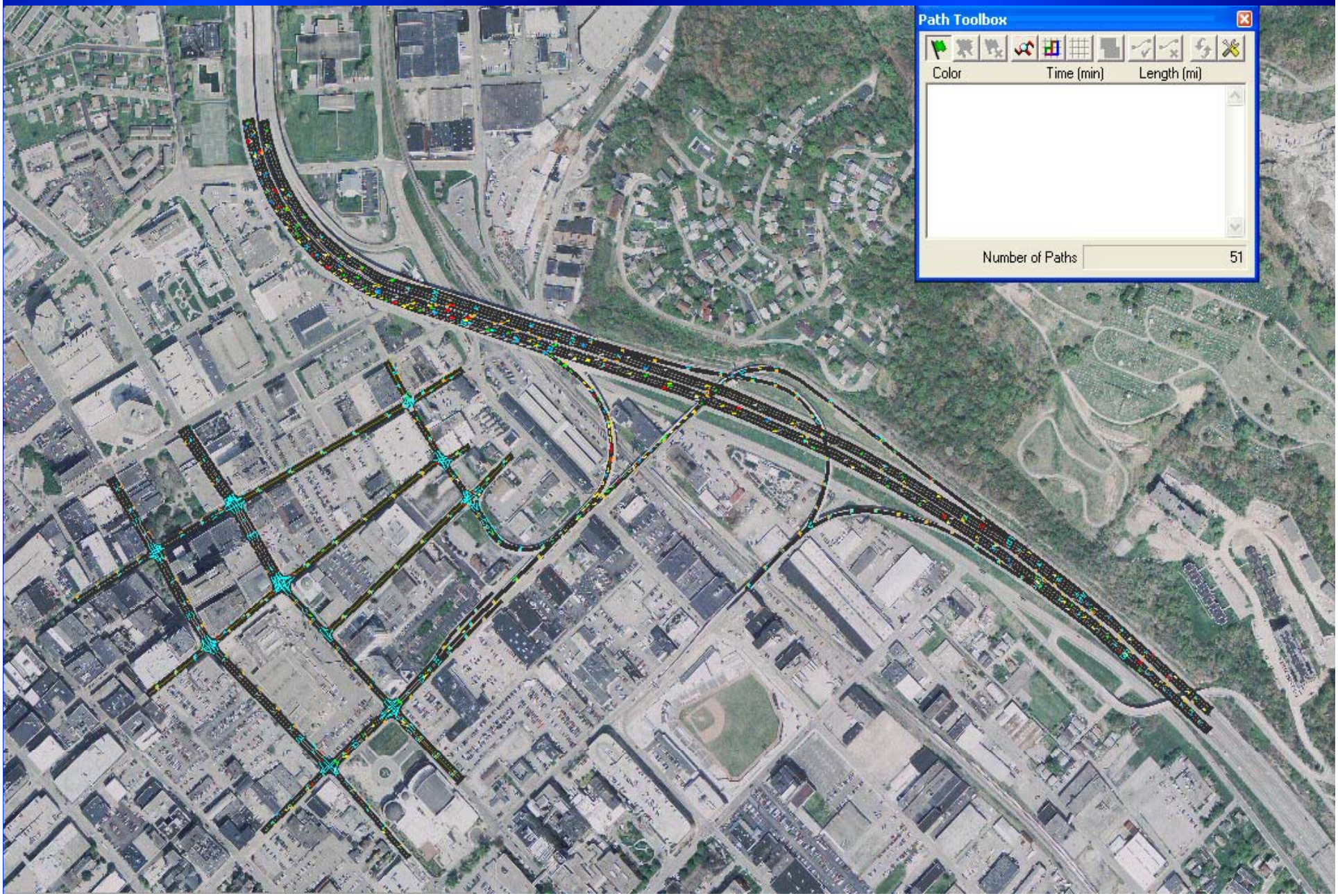

Weave Conflict

O-D (Vehicle's Path)




Intersection Toolbox
Turn Field
Flow
Street
BROAD ST
Intersecting
WASHINGTON ST E
At Node
30 Actuated
Intersection Control

Vehicles' Multiple Paths



What is next?

- Extending network
- More traffic counts
- Simulating different scenarios (alternatives)
- Comparing scenarios (measures of performance)

Outcomes

- Preliminary analysis of study area
- Desired paths identification as related to route choice and counts
- Simulation model: conflict, probabilistic paths on links, travel time estimation
- Assumptions of scenarios