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Analytical Efficiencies Through the Integration of Modeling and Simulation Tools

Steve Perone
PTV Group

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PTV **GROUP**

the mind of movement

ANALYTICAL EFFICIENCIES THROUGH THE INTEGRATION OF MODELING AND SIMULATION TOOLS

PTV Vision Traffic Suite Software

Portland State University

Spring Transportation Seminar

May 9, 2014

www.ptvgroup.com

Steve Perone, President

AGENDA

- **Who is PTV Group?**
- **Modeling Resolutions**
- **Tools & Methods to Support Integrated
Modeling**
- **The Next Frontier – Real Time Prediction**

AGENDA

- **Who is PTV Group?**
- **Multi-Resolution Modeling – The PTV Way**
- **Methodologies and Tools for Multi-Resolution Modeling**
- **The Next Frontier – Real Time Technology**

**PTV GROUP'S
INTERNATIONAL
FOOTPRINT:**

600

EMPLOYEES
ACROSS
THE WORLD



12

SUBSIDIARIES



70

MILLION EUROS
TURNOVER



ON 5 CONTINENTS



EUROPE



ASIA



AUSTRALIA



NORTH/ LATIN AMERICA

TRAFFIC SOFTWARE PRODUCTS



PTV VISSIM



PTV VISUM



PTV OPTIMA



PTV VISWALK



PTV VISTRO



PTV BALANCE

PTV VISION – BEGIN WITH THE END IN MIND



AGENDA

- Who is PTV Group?
- **Modeling Resolutions**
- Tools & Methods to Support Integrated
Modeling
- The Next Frontier – Real Time Technology

MULTI-RESOLUTION MODELING COMPONENTS

Macroscopic Modeling

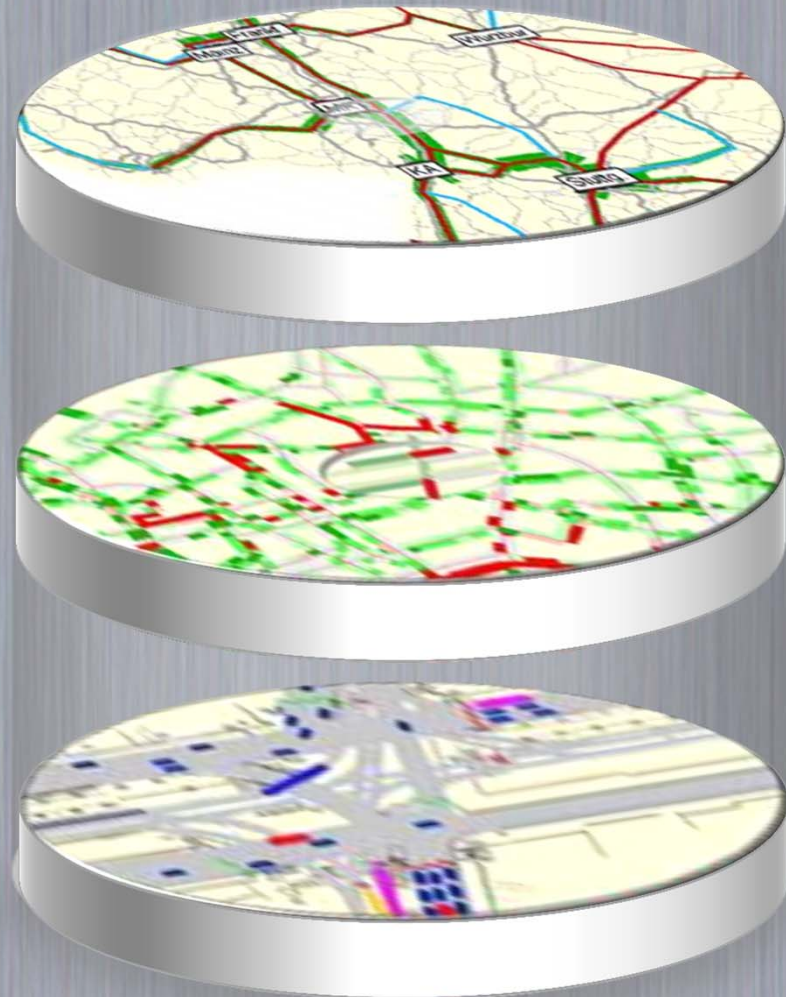
Regional Focus

Mesoscopic Modeling

Corridor Focus

Microscopic Modeling

Facility Focus



WHAT IS MULTI-RESOLUTION MODELING?

Regional



Hour

Corridor



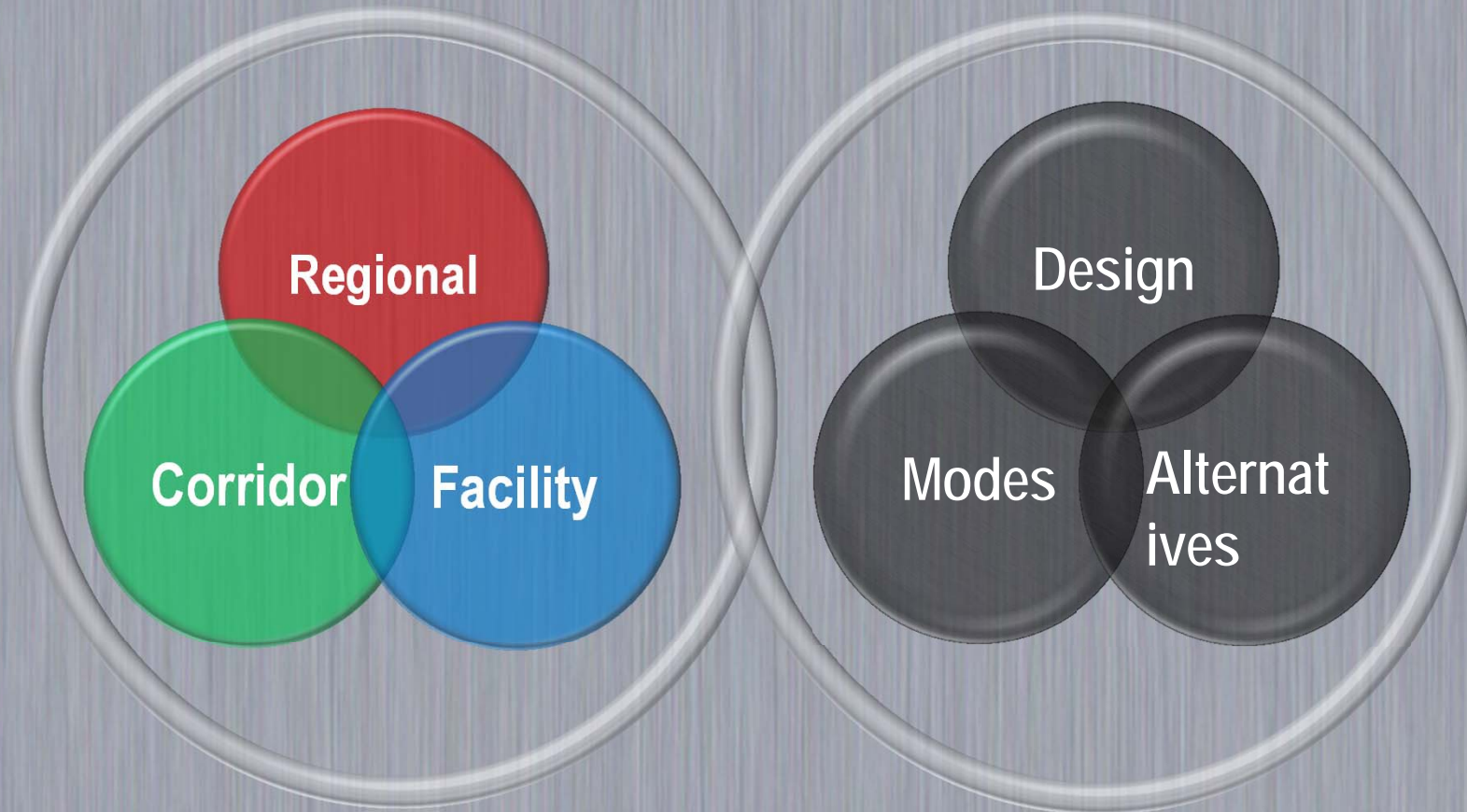
Minutes

Facility



Seconds

WHAT IS MULTI-RESOLUTION MODELING?



WHAT ARE THE BENEFITS?

1. Data Access

Networks, Performance Indicators

2. Consistency

Adopted Lane-Use &
Growth Patterns

3. Level of Details

Mode, Route, Lane Choice(s)

4. Resources (Data, Model, Staff)

Life-Cycle Analysis
Framework / Tools

WHAT ARE THE KEYS TO SUCCESS?

1. Robust &
Well-defined
Data Model

2. Support
Correct Level of
Detail

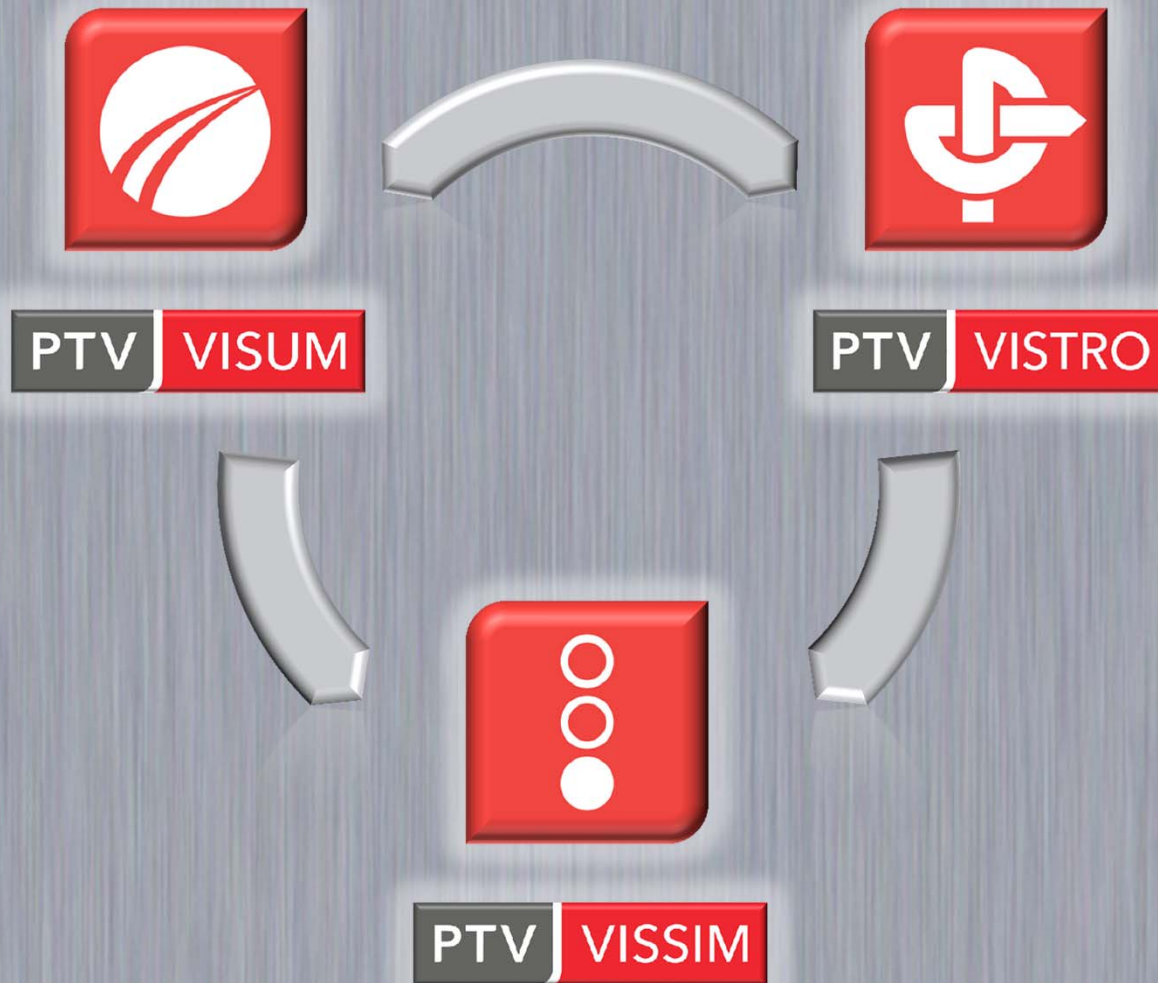
4. Ability of
Cross-Validity

3. Vertical
Consistency of
Outputs

AGENDA

- Who is PTV Group?
- Multi-Resolution Modeling – The PTV Way
- Methodologies and Tools for Multi-Resolution Modeling
- The Next Frontier – Real Time Technology

MULTI-RESOLUTION MODELING COMPONENTS – PTV



"LET PTV VISUM HELP - HOW CAN I....?"

1. Work with Travel Demand Model Data?

2. Work with Big Data?

3. Work with Detailed Network Geometry & Control Data?

4. Model Time Dynamics?

5. Fuse Data Sources?

6. Can this help a Traffic Management Center?

An aerial photograph of a city street at dusk. The street is illuminated by streetlights, and a tram is visible in the lower right. Pedestrians are walking on the sidewalks. The background shows modern buildings with lit windows. A red diagonal graphic element is in the bottom right corner.

Can I Work with Travel Demand

Travel Demand Model Data?

PTV VISUM – NATIVE & SECONDARY SUPPORT

The screenshot displays the PTV Visum software interface. The main window shows a network map with four callout boxes pointing to different elements: 'Nodes / Zones', 'Links / Connectors', 'Turns', and 'Transit'. A 'Cube import' dialog box is open in the foreground, containing the following sections:

- Nodes/Zones**
 - Select shapefile for nodes and zones: [Browse]
 - Select cube attribute for node number: [Dropdown]
 - Use cube attribute flag to identify zones: [Dropdown]
 - Maximum number for zones: [Input]
- Links/Connectors**
 - Select shapefile for links and connectors: [Browse]
 - Select cube attribute for from node number: [Dropdown]
 - Select cube attribute for to node number: [Dropdown]
- Turns (Optional)**
 - Select text file for turn penalties and blocked turns: [Browse]
 - Select units time:
 - Hours
 - Minutes
 - Seconds
- Transit(Optional)**
 - Select PT line file (*.lin, +ve numbers are stops): [Browse]

Buttons: Help, OK, Cancel

Quick view x Marking

INTEGRATE WITH OPEN STREET MAP (OSM)



A screenshot of the PTV Visum software interface. The main window displays a network editor overlaid on a satellite-style map from OpenStreetMap. The map shows a dense network of roads in Atlanta, Georgia, with various road types and colors. The network editor interface includes a toolbar at the top with icons for selection, deletion, and other editing functions. On the left side, there is a hierarchical tree view showing the network structure, including nodes, links, turns, zones, connectors, and other elements. Below the tree view is a "Quick view" table with columns for various attributes like "FromNodeNo", "ToNodeNo", "TypeNo", "TSysSet", "Length", "CapPrT", and "AddVal1". The bottom status bar shows coordinates and other technical details.

WORK DIRECTLY WITH BING AERIAL MAPS



PTV Visum 04 bit 13.00-00 Oversize mode (SAVE not possible) - Network: AKC_network.ver - [network editor]

File Edit View Lists Filters Calculate Graphics Network Demand Scripts Window Help

Network editor (Edit: links)

Network editor (Edit: links)

Nodes
Links
Turns
Zones
Connectors
Main nodes
Main turns
Main zones
Territories
OD pairs
Main OD pairs
PrT paths
POIs
GIS objects
Screenlines
Count locations
Detectors
Toll systems
Stop points
Stop areas

Network Matrices

Quick view

No	FromNodeNo	ToNodeNo	TypeNo	TSysSet	Length	CapPrT	Length	AddVal1

Quick view Marking

1-0070 -0382028.1600 3002376.3004

SUBAREA EXTRACT WITH GEOMETRY / CONTROL

PTV Vistro 2.00-02 - C:\Users\sporne\Desktop\VISTRO\ITE\ATL\ATL_007.vistro

File Edit View Optimization Simulation Help Scenario: Base Scenario

Intersection: 1 Ivan Allen Jr Blvd at Willa...

My Network, Internet Map

Traffic Control

Number: 7
 Intersection: Ivan Allen Jr Blvd at Williams St
 Control Type: Signalized
 Analysis Method: HCM 2010
 Name: [Blank]
 Approach: Northbound, Southbound, Eastbound, Westbound
 Lane Configuration: [Diagrams showing lane counts for each approach]
 Turning Movement: [Table showing left, thru, right movements for each approach]
 Base Volume Input [veh/h]: [Table showing volume data]
 Total Analysis Volume [veh/h]: [Table showing total volume data]

Intersection Settings

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Protect	Permis	Permis
Allow Lead/Lag Optimization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signal Group	0	2	0	0	6	0	0	4	0	3	8	0
Lead / Lag										Lead		
Minimum Green [s]	0	10	0	0	10	0	0	10	0	10	10	0
Maximum Green [s]	0	65	0	0	65	0	0	25	0	15	45	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	4.0	4.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	70	0	0	70	0	0	30	0	20	50	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	12	0	0	12	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Coordinated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minimum Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maximum Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pedestrian Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dual Entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

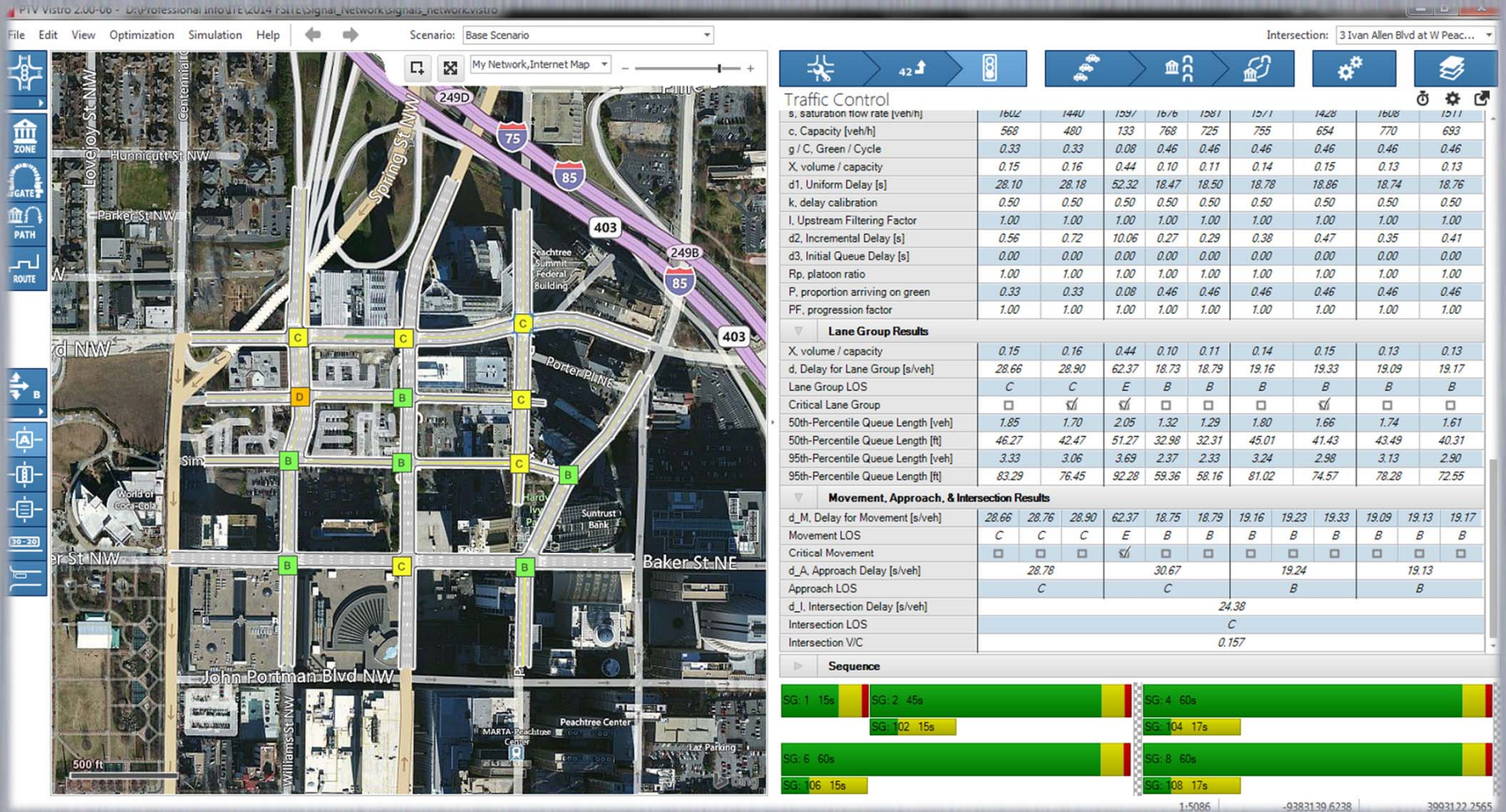
Saturation Flow

Capacity Analysis

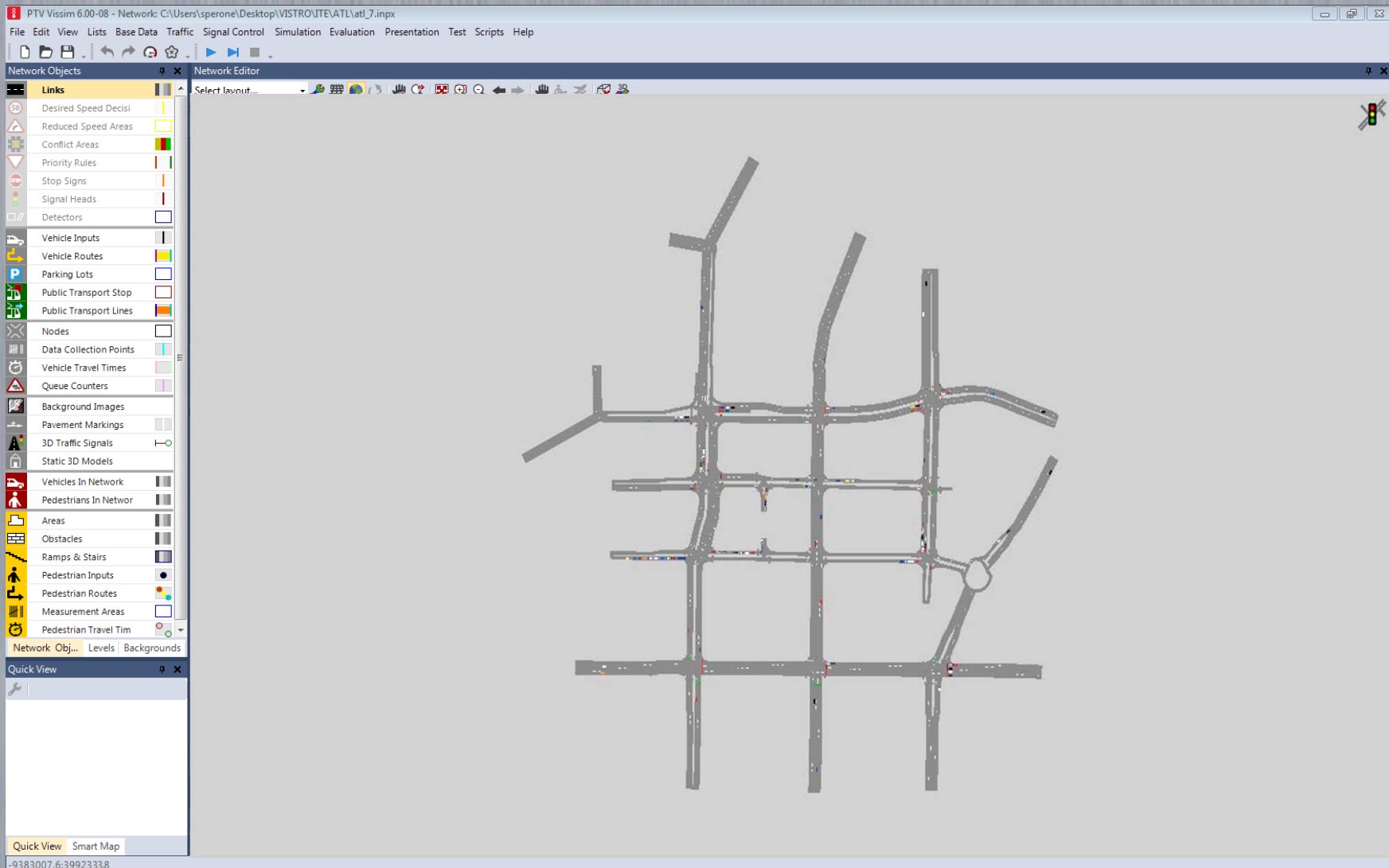
Sequence

1:8182 | -9383285.7128 | 3992280.3139

LEVEL OF SERVICE (LOS) RESULTS



EXAMINE DESIGN SOLUTIONS WITH SIMULATION



An aerial view of a city street at night, showing a tram system with several blue and white trams. The street is illuminated by streetlights, and buildings with lit windows are visible in the background. A red diagonal banner is at the bottom right.

Can I Work with

'Big Data' ?

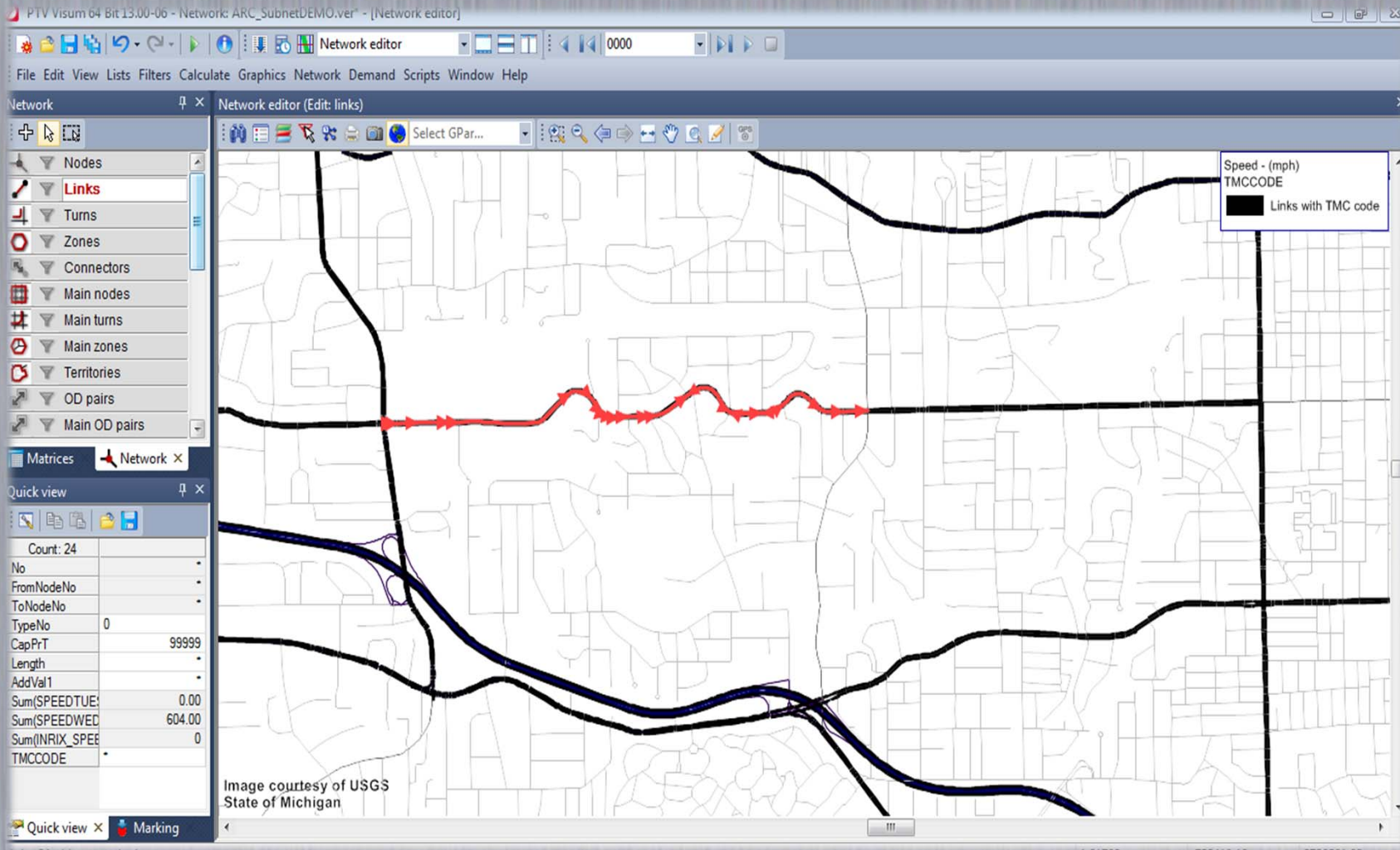
NAVIGATION NETWORKS WITH TMC CODES

The screenshot shows the PTV Visum software interface. The main window is titled 'Network editor (Edit: links)'. On the left, there is a 'Network' tree view with categories like Nodes, Links, Turns, Zones, Connectors, Main nodes, Main turns, Main zones, Territories, OD pairs, and Main OD pairs. The central area displays a map of a road network with a red dashed line indicating a specific link. A 'Quick view' window is open, showing the following data:

Quick view	
Count:	1
No	45291868
FromNodeNo	200666210
ToNodeNo	200662325
TypeNo	0
CapPrT	99999
Length	0.418mi
AddVal1	40
SPEEDTUESDAY	0.00
SPEEDWEDNES	38.00
INRIX_SPEED_T	0
TMCCODE	-101+13237

At the bottom of the window, the status bar shows: 'No. 45291868(200666210->200662325) Name 'Joseph E Boone Blvd NW' 1:60115 727826.47 3735223.22'.

NAVIGATION NETWORKS WITH TMC CODES



NAVIGATION NETWORKS WITH TMC CODES

PTV Visum 64 Bit 13.00-06 - Network: ARC_SubnetDEMO.ver* - [Network editor]

Network editor (Edit: links)

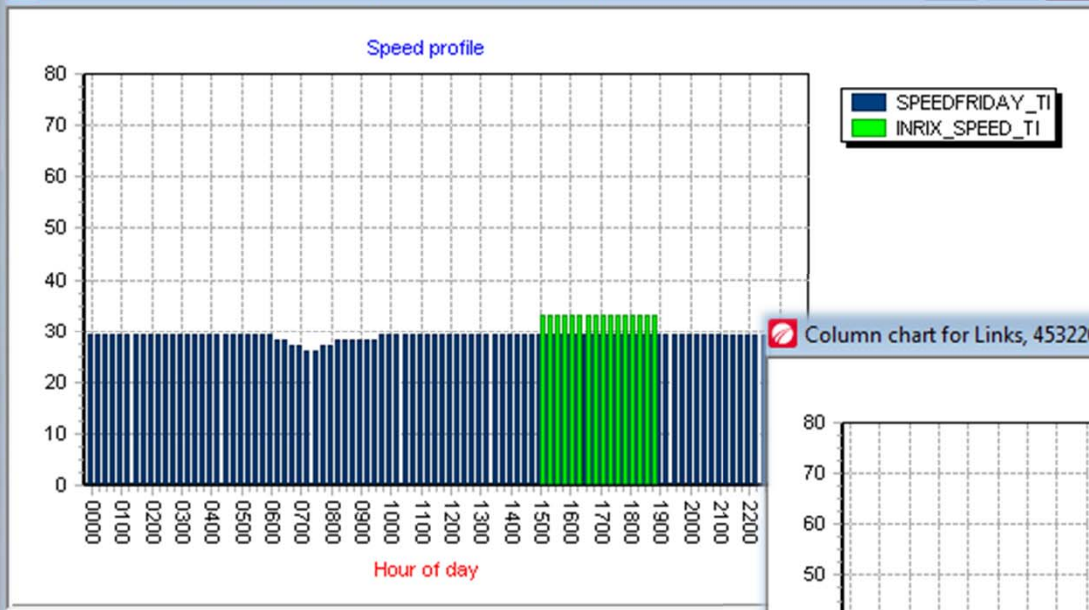
Speed - (mph)
TMCCODE
Links with TMC code

Quick view	
Count:	2
No	.
FromNodeNo	.
ToNodeNo	.
TypeNo	0
CapPrT	99999
Length	.
TMCCODE	+101-13236
Sum(INRIX_SPEE	66
Sum(SPEEDFRID	49.00

Image courtesy of USGS
State of Michigan

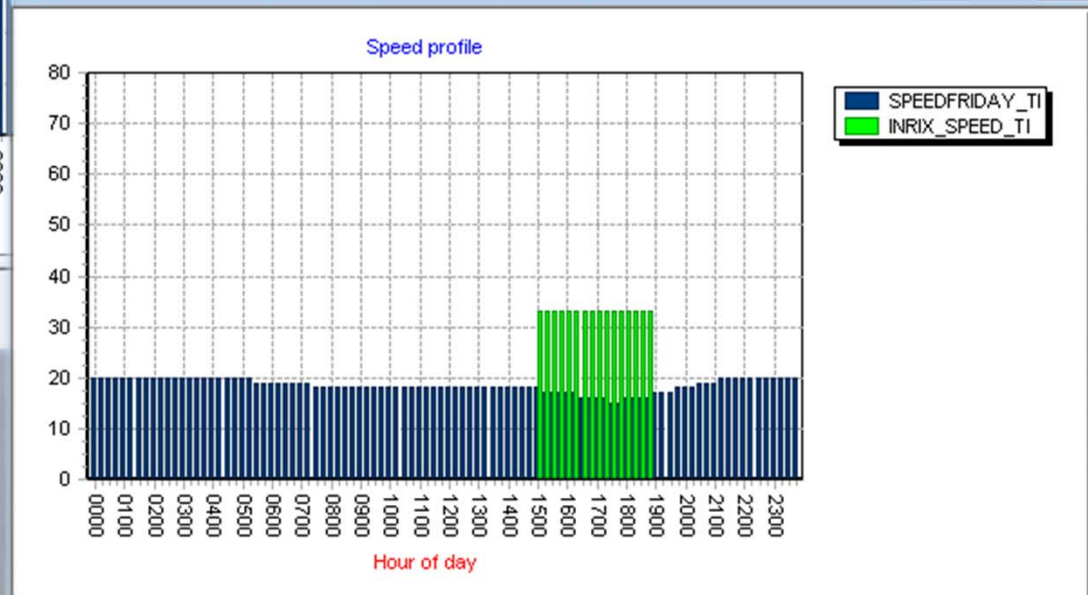
NAVIGATION NETWORK – SPEED PROFILES

Column chart for Links, 45299619(200659380->200652551)



Settings

Column chart for Links, 45322063(200653621->200070102)



Settings

Close

ACCESS COUNT & SPEED DATA WITH LINK COLUMN CHART

PTV Visum 64 Bit 13.00-06 - Network: ARC_SubnetDEMO.ver* - [Netw

Network editor

File Edit View Lists Filters Calculate Graphics Network Demand

Network Network editor (Edit: links)

- OD pairs
- Main OD pairs
- PrT paths
- POIs
- GIS objects
- Screenlines
- Count locations
- Detectors
- Toll systems
- Stop points
- Stn areas

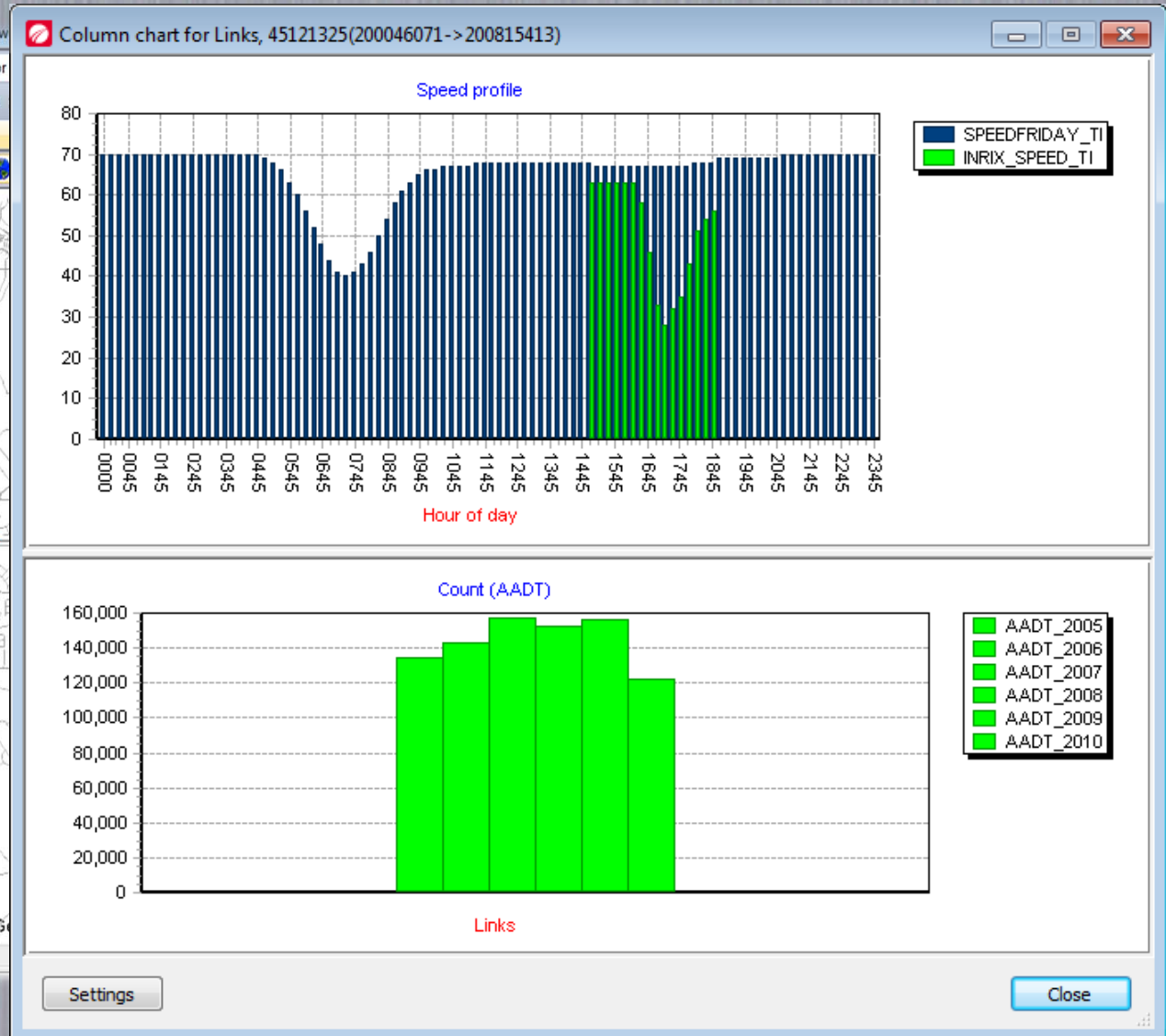
Matrices Network x

Quick view

Count: 1	
No	45121325
FromNodeNo	200046071
ToNodeNo	200815413
TypeNo	0
CapPrT	99999
Length	0.390mi
TMCCODE	-101-04183
INRIX_SPEED_T	58
SPEEDFRIDAY_T	67.00

Quick view x Marking

State of Michigan
© Harris Corp, Earthstar G



An aerial photograph of a multi-lane highway interchange in a city, with several cars visible on the road. The background shows a dense urban skyline with various high-rise buildings. A large red diagonal graphic is overlaid on the bottom right corner of the image.

Can I Add Detailed Network

Geometry / Control Data?

GEOMETRY DATA

PTV Visum 64 Bit 13.00-11 - [Network] - [Junction editor (node 3)]

Views: Node, Links, Turns, **Geometry**, Signal timing, Turn volumes

Quick view: Count: 1

Lanes: 12	1	2	3	4	5	6	7	8	9	10	11	12
LinkNo	11	11	11	11	11	11	11	9	9	519691	519691	519691
No.	1	2	3	4	5	6	7	8	9	1	2	3
Length	0.00h	0.00h	0.00h	0.00h	0.00h	0.00h	0.00h	0.00h	0.00h	0.00h	0.00h	0.00h
Width	12.00h	12.00h	12.00h	12.00h	12.00h	12.00h	12.00h	12.00h	12.00h	12.00h	12.00h	12.00h
T-Sys-Set	C	C	C	C	C	C	C	C	C	C	C	C
Signal groups												
Detectors												

PTV VISUM

PTV Vistro 200-06 - DiProfessional Info (ITE) 2014 FSTTE_Signal_Single_Signal_vistro

Intersection: 3 Iwan Allen Blvd at W Peachtree

Control Type: Signalized

Analysis Method: HCM 2010

	Northbound		Southbound		Eastbound		Westbound	
	Left	Thru	Left	Thru	Left	Thru	Left	Thru
Lane configuration								
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Base Volume (veh/h)	16	120	26	96	140	26	16	170
Peak Hour Volume (veh/h)	17	120	26	97	26	18	167	171
Lane Width [m]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [m]								
Median Length [m]	0	0	0	0	0	0	0	0
Median Width [m]	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Speed [mph]	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Green [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clearance	6E	6E	6E	6E	6E	6E	6E	6E
Clearance Width [m]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Clearance	0	0	0	0	0	0	0	0
Controlled Corral	Signalized	Signalized	Signalized	Signalized	Signalized	Signalized	Signalized	Signalized
Controlled Parkway	Signalized	Signalized	Signalized	Signalized	Signalized	Signalized	Signalized	Signalized
Right Turn on Red	0	0	0	0	0	0	0	0

PTV VISTRO

PTV Vissim 200-06 - DiProfessional Info (ITE) 2014 FSTTE_Signal_Single_Signal_vistro

Network Object: Junction Editor

- Links
- Desired Speed
- Required Speed
- Conflict Areas
- Priority Rules
- Stop Signs
- Signal Heads
- Detectors
- Vehicle Inputs
- Vehicle Routes
- Parking Lots
- Public Transport Stop
- Public Transport Lane
- Nodes
- Data Collection Point
- Vehicle Travel Times
- Queue Counters
- Sections
- Background Images
- Pavement Markings
- 3D Traffic Signals
- Static 3D Models
- Vehicles In Network
- Pedestrians In Network
- Network Levels
- Backgrounds

PTV VISSIM

SIGNAL TIMING DATA

Basic

SS Number	1	2	4	6	8
SS Name					
Min Green	10	10	10	10	10
Min Extension	3	3	3	3	3
Max 1	35	35	35	35	35
Yellow	4	4	4	4	4
Ped Clearance	1	1	1	1	1
Ped SS Number	102	104	106	108	
Walk	5	5	5	5	
Ped Clear (FCW)	10	12	10	12	
Start Up					
Min Recall					
Max Recall					
Sub Recall					

Phasing & Timing

Cycle time: 120.00 Offset: 0.00

No	Signal group	0	30	60	90	120
2		100%				
4			100%			
6				100%		
8					100%	
302	-Ped					100%
304	-Ped					100%
306	-Ped					100%
308	-Ped					100%

Traffic Control

Analyze Intersection?

Analyze Period: 15 minutes

Located in CBD:

Controller ID: 3

Signal Coordination Group: 1 - Coordination Group

Cycle Length [s]: 120

Coordination Type: Time of Day Pattern Coordinated

Actuation Type: Fixed time

Offset [s]: 0.0

Offset Tolerance: LeadGreen

Permissive Mode: Singleband

Last time [s]: 0.00

Phasing & Timing

Control Type: Permiss Protect Permiss Permiss Permiss

Signal Group: 2 1 6 4 8

Lead / Lag: Lead Lag

Minimum Green [s]: 10 10 10 10 10 10

Maximum Green [s]: 35 35 35 35 35 35

Yellow [s]: 4 4 4 4 4 4

All red [s]: 1.0 1.0 1.0 1.0 1.0 1.0

Split [s]: 45 15 60 60 60 60

Vehicle Extension [s]: 0.0 3.0 0.0 3.0 0.0 3.0

Walk [s]: 5 5 5 5 5 5

Protection Clearance [s]: 0 10 0 10 0 10

15. Start-Up (set Time [s]): 2.0 2.0 2.0 2.0 2.0 2.0

Sequence

Ring	1	2	4	6	8
Ring 1	-	-	-	-	-
Ring 2	-	6	8	-	-
Ring 3	-	-	-	-	-
Ring 4	-	-	-	-	-

Basic

SS Number	1	2	4	6	8
SS Name					
Min Green	10	10	10	10	10
Min Extension	3	3	3	3	3
Max 1	35	35	35	35	35
Yellow	4	4	4	4	4
Ped Clearance	1	1	1	1	1
Ped SS Number	102	104	106	108	
Walk	5	5	5	5	
Ped Clear (FCW)	10	12	10	12	
Start Up					
Min Recall					
Max Recall					
Sub Recall					

Phasing & Timing

Cycle time: 120.00 Offset: 0.00

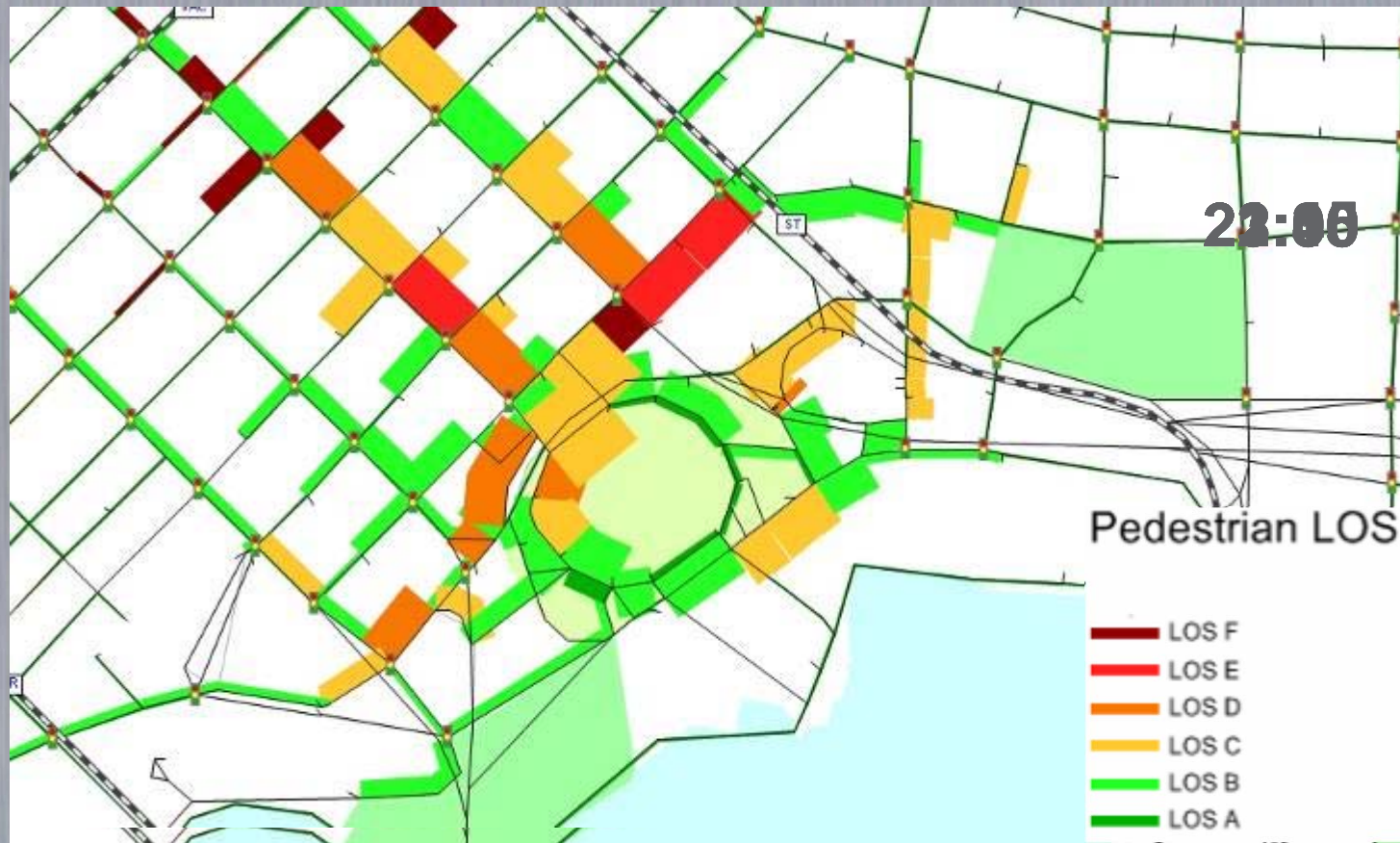
No	Name	Type
1	Ring Barrier Controller	0



Can I Model

Time Dynamics?

DYNAMIC USER EQUILIBRIUM (DUE) ASSIGNMENT



SIMULATE RESULTS

Vehicle Inputs

Link Number	Link Name	Input Name	Show Label	0 - 900	900 - 1800	1800 - 2700	2700 - 3600	3600 - 4500	4500 - 5400	
592	▼	▼	ANM	✓	344.428	355.736	359.952	376.24	379.444	379.27
					120:ANM	121:ANM	122:ANM	123:ANM	124:ANM	125:ANM
744	▼	▼	ANM	✓	23.66	24.432	24.724	25.852	26.072	26.064
					140:ANM	141:ANM	142:ANM	143:ANM	144:ANM	145:ANM
645	▼	▼	ANM	✓	652.568	673.996	681.98	712.824	718.912	718.56
					160:ANM	161:ANM	162:ANM	163:ANM	164:ANM	165:ANM
542	▼	▼	ANM	✓	192.092	198.396	200.74	209.824	211.612	211.50
					180:ANM	181:ANM	182:ANM	183:ANM	184:ANM	185:ANM
813	▼	▼	ANM	✓	1026.728	1060.432	1072.988	1121.504	1131.1	1130.5
					200:ANM	201:ANM	202:ANM	203:ANM	204:ANM	205:ANM
713	▼	▼	ANM	✓	183.524	189.552	191.796	200.472	202.184	202.06
					220:ANM	221:ANM	222:ANM	223:ANM	224:ANM	225:ANM
502	▼	▼	ANM	✓	488.64	504.688	510.668	533.764	538.32	538.06
					243:ANM	244:ANM	2543:ANM	2544:ANM	2545:ANM	2546:A
144	▼	▼	ANM	✓	925.536	955.932	967.256	1011.012	1019.636	1019.1
					2561:ANM	2562:ANM	2563:ANM	2564:ANM	2565:ANM	2566:A
494	▼	▼	ANM	✓	460.396	475.516	481.148	502.912	507.204	506.96
					2581:ANM	2582:ANM	2583:ANM	2584:ANM	2585:ANM	2586:A
654	▼	▼	ANM	✓	393.384	406.308	411.128	429.724	433.392	433.16
					2601:ANM	2602:ANM	2603:ANM	2604:ANM	2605:ANM	2606:A

Volumes are shown in veh/h. Yellow cells indicate exact (non-stochastic) volumes.

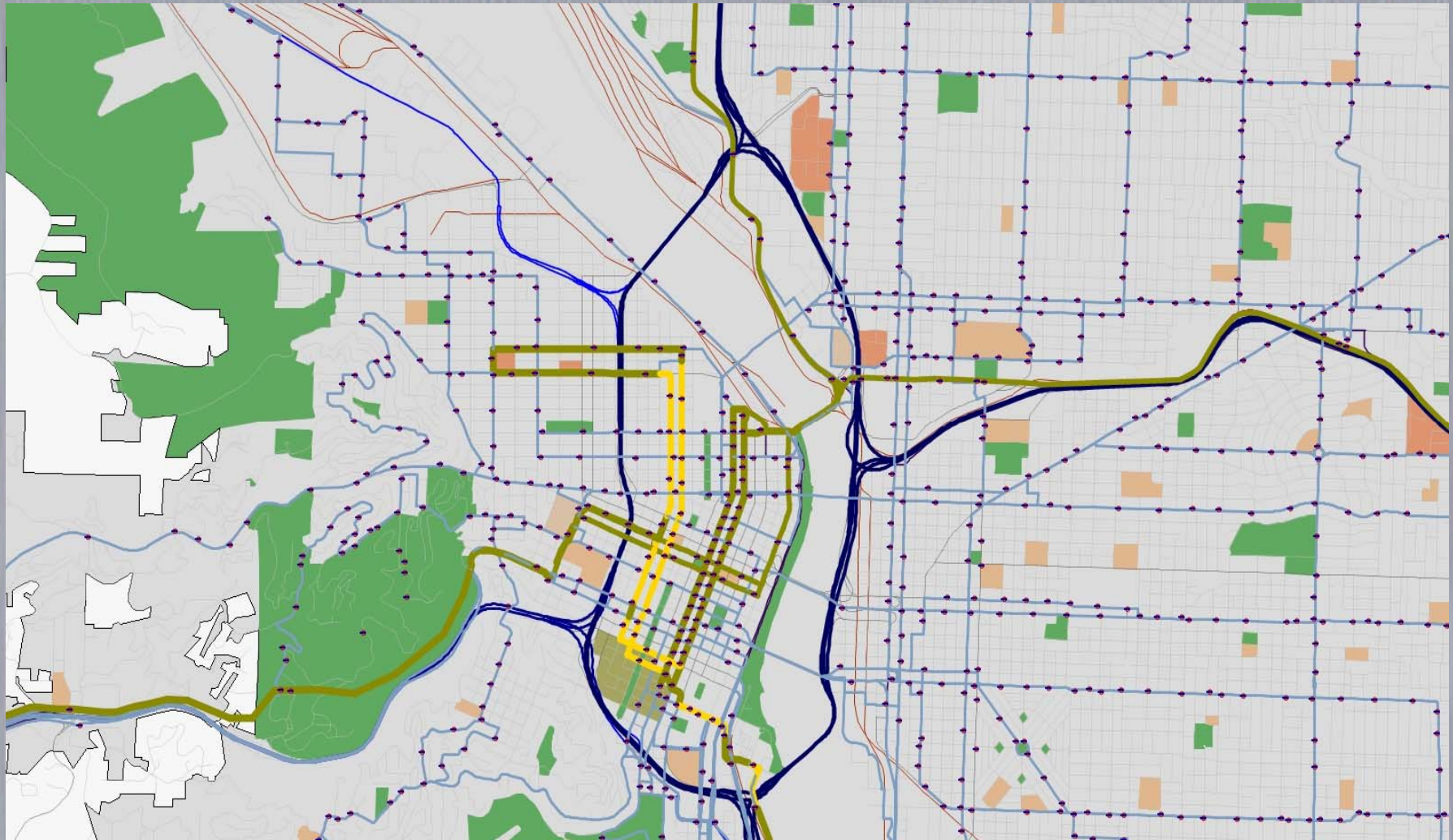
Routing Decision

Decid No.	Decision Name	Start Link	At [R]	0 - 900	900 - 1800	1800 - 2700	2700 - 3600	3600 - 4500
1	ANM from zone 101	592	838.038	25.904	26.754	27.071	28.296	28.537
2	ANM from zone 102	744	282.917	10.82	11.176	11.308	11.819	11.92
3	ANM from zone 103	645	616.335	7.795	8.051	8.147	8.515	8.588
4	ANM from zone 104	542	893.747	0.849	0.876	0.887	0.927	0.935
5	ANM from zone 105	813	297.201	19.82	20.471	20.713	21.65	21.835
6	ANM from zone 106	713	1031	237.713	0.05	0.052	0.052	0.055
7	ANM from zone 109	502	223.93	0.345	0.356	0.361	0.377	0.38
8	ANM from zone 110	144	216.663	0.008	0.008	0.008	0.008	0.009
9	ANM from zone 111	494	253.967	0.158	0.163	0.165	0.173	0.174
10	ANM from zone 112	654	222.713	0.178	0.184	0.186	0.195	0.196
11	ANM from zone 113	651	416	244.888	0.105	0.109	0.11	0.115
12	ANM from zone 114	633	223.222	2.296	2.371	2.399	2.508	2.529
13	ANM from zone 115	466	848	386.125	2.715	2.804	2.837	2.966
14	ANM from zone 116	616	757.625	5.392	5.569	5.635	5.89	5.94
15	ANM from zone 118	749	711.414	8.724	9.011	9.118	9.53	9.612
16	ANM from zone 119	138	1225.82	0.948	0.979	0.991	1.036	1.044

An aerial photograph of a complex multi-level highway interchange in a city. The highway has several lanes with cars driving. In the background, there are several tall skyscrapers and modern buildings. The foreground shows green trees and a red decorative shape in the bottom right corner.

How Do I Fuse Data?

A SINGLE INTEGRATED MULTI-MODAL NETWORK



ORIGIN-DESTINATION MATRIX ESTIMATION (ODME)

PTV Visum 64 Bit 13.00-06 - Network: A

File Edit View Lists Filters Calculate

Network

- OD pairs
 - Main OD pairs
 - PrT paths
- POIs
- GIS objects
- Screenlines
- Count locations
- Detectors
- Toll systems
- Stop points
- Stop areas

Matrices Network x

Quick view

Count: 1	
No	45121325
FromNodeNo	200046071
ToNodeNo	200815413
TypeNo	0
CapPrT	99999
Length	0.390mi
TMCCODE	-101-04183
INRIX_SPEED_T	58
SPEEDFRIDAY_T	67.00

Quick view x Marking

TFlowFuzzy

Input | Count data PrT | Distribution CX | Parameters | Output

Use only network objects with volume > 0 and counted value > 0

Zones

Take the totals of matrix rows and columns as basis

Only active zones

Row total AddValue 1 +/- AddValue 3

Column total AddValue 2 +/- AddValue 3

Links

Based on counted link volumes

Only active links

Volume AddValue 1 +/- AddValue 2

Turns and main turns

Based on counted turn and main turn volumes

Only active turns and main turns

Volume AddValue 1 +/- AddValue 2

Screenlines

Based on volumes counted in the direction of the screenline

Only active screenlines

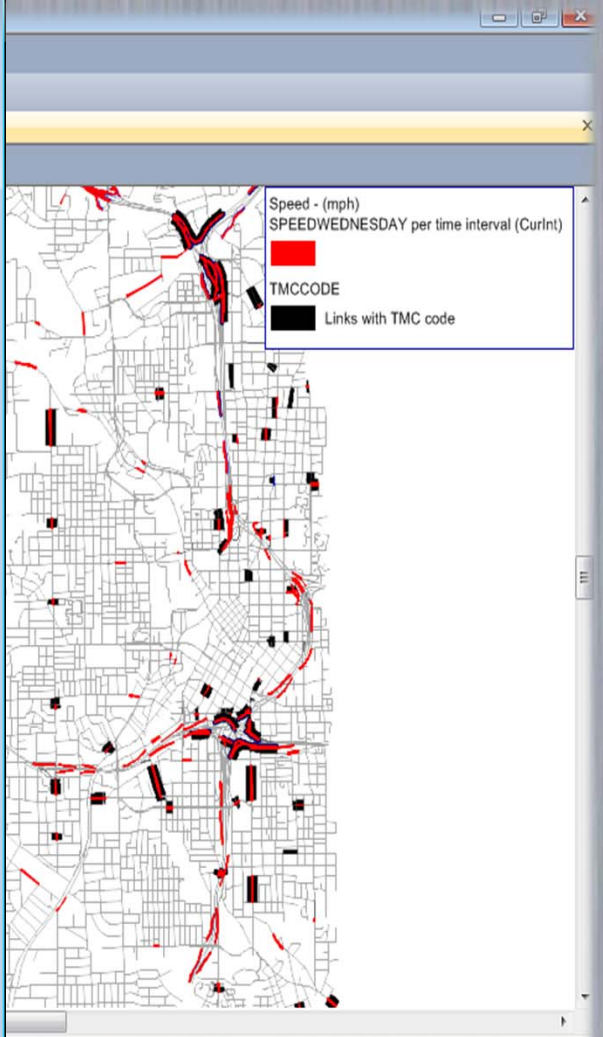
Volume ... +/- ...

Total traffic

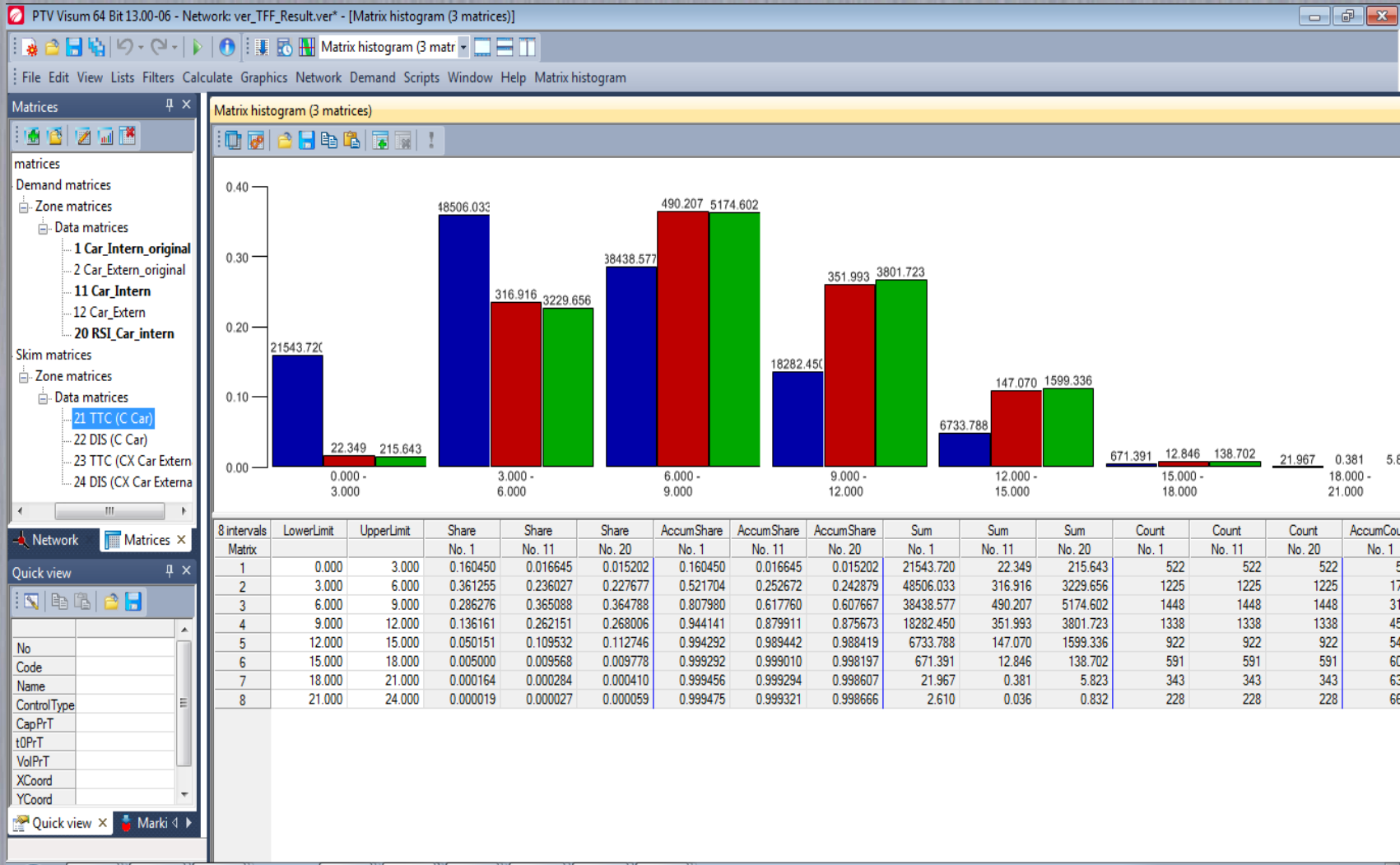
Based on counted total traffic (all demand segments)

Total traffic 1 +/- 1

Open old settings OK Cancel



ORIGIN-DESTINATION MATRIX ESTIMATION (ODME)



AGENDA

- Who is PTV Group?
- Multi-Resolution Modeling – The PTV Way
- Methodologies and Tools for Multi-Resolution Modeling
- The Next Frontier – Real Time Technology

An aerial photograph of a complex multi-level highway interchange in a city. The highway has multiple lanes with cars visible. In the background, there are several tall skyscrapers and other buildings. The image is overlaid with two dark grey text boxes containing white text. A red decorative shape is in the bottom right corner.

9. Can this help a

Traffic Mangement Center?

PTV VISION – DYNAMIC TRAFFIC MANAGEMENT ELEMENTS

sense

*measure,
collect*

check

Data Transfer
Platform

Situation
Awareness

Incident
Detection

Smart
Dynamic Traffic
Management
System

Forecast

Evaluation &
Reporting

plan

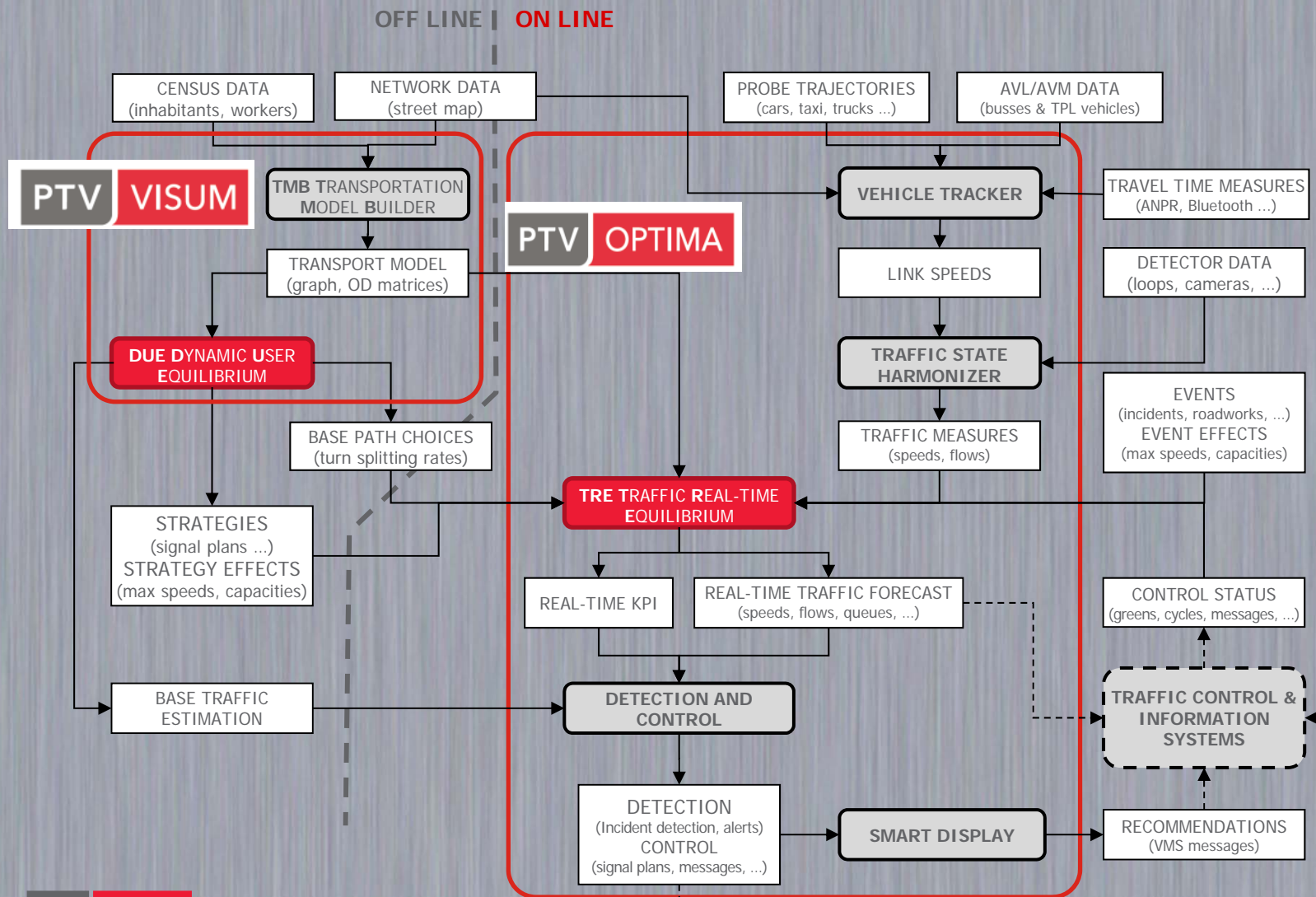
act

inform

control

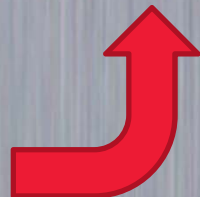
Recommen-
dation &
Execution

PTV OPTIMA – HOW DOES IT WORK



PTV OPTIMA – YOUR TRAFFIC DATA AMPLIFIER!

A traffic data AMPLIFIER



A traffic data HUB



An aerial photograph of a multi-lane highway interchange in a city. The highway has several lanes with cars driving. In the background, there are several tall skyscrapers and modern buildings. The sky is clear and blue. The overall scene is a busy urban environment.

PUTTING IT ALL TOGETHER

REALIZE THE BENEFITS

A large, curved red graphic element that starts from the bottom left and extends towards the bottom right, partially overlapping the highway image.

PTV VISION - REALIZE THE BENEFITS!

- ▶ Decision Support at Each Level
- ▶ Decision Support Across Levels

**SALEM-KEIZER
HIGH-PRIORITY TRANSPORTATION
CORRIDOR PROTOTYPE PLAN**

Like many urban areas, the Salem-Keizer region in Oregon's mid-Willamette Valley reached a point where it was no longer prudent policy to alleviate traffic congestion solely by constructing new roadway capacity. As an alternative, the local metropolitan planning organization (SKATS), for Salem-Keizer Area Transportation Study's sought to improve the viability of transit service in the corridor.

Identified specific transit treatments at several locations and their probable effects in the Broadway/North River Road corridor, which connects the downtown cores of Salem and Keizer. Key concerns were to improve transit ridership by making it a more attractive and competitive option in the corridor, keep improvement costs low, limit right-of-way impacts, preserve parking

CH2M HILL then refined the list of potential transit treatments and developed a prototype plan that

successful in the SKATS's area, and identify a corridor where the most promising features could be effectively implemented.

CH2M HILL then refined the list of potential transit treatments and developed a prototype plan that

approved area, and the plan unanimously noting that this is the first time an arterial corridor plan biased toward transit improvements has been adopted in the area. SKATS is now revising the Regional Transportation System Plan to include the improvements recommended in the plan.

This project showcases a planning process and a prototype plan that can result in the successful design and implementation of a limited-impact, yet highly effective series of enhancements that improve the viability of alternative transportation choices in a given corridor. Importantly, the plan provides the foundation for further intensification of the transit service in the selected corridor, as well as providing a prototype for initiating similar transit service improvements in other arterial corridors in the area.

CONTACT INFORMATION

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Portland State University

Spring Transportation Seminar

May 9, 2014

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Steve Perone, President