Dear Attendee:

Welcome to Minneapolis. We are honored to host our 13th Annual North American Users Group Meeting.

We have expanded the program this year offering an additional day filled with technical sessions covering popular modeling topics in PTV Vissim, PTV Viswalk, and PTV Visum. Sharing and learning from user experiences is one of the most rewarding aspects of the UGM. The 2012 program is filled with a range of multi-modal modeling applications showcasing the breadth, depth, and versatility of our newly re-branded Vision Suite software. A special Thank You to all of our presenters for your contribution to making a great program!

As always we try to experience local flavors, and this year is no exception. Our Wednesday evening social will be a scenic dinner cruise on Lake Minnetonka complete with a main course of Walleye, a Minnesota staple. This will be a relaxed and enjoyable event to catch up with old colleagues and make new ones.

I hope you also take notice that we have revamped our brand. We are now the PTV Group. Considerable time and energy went into this process and more will follow as we continue this transition over the next half year or so. This new brand is intended to unify our image across the globe and across our core business lines of Traffic and Logistics software.

We have a big vision: "We plan and optimize everything that moves people and goods worldwide." PTV is proud of our 30+ year history and the innovative products we develop and support. But we are most proud of you – our customers and the success that you have utilizing our products to keep the world moving.

Please take the opportunity to speak with PTV staff regarding any questions or ideas you have about our Vision Suite software. Your input is valued as we look toward a bright future together.

Thank you for your participation and enjoy the meeting.

Steve Perone
President
PTV America, Inc.
PTV staff attending this year’s UGM are interested in meeting with you. Please feel welcome to contact your PTV colleagues.

**PTV America**

Karen Giese, P.E.  
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**PTV AG**

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Senior Modeling Expert  
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Lukas Kautzsch  
Vissim Product Manager  
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Director Business Development, Sales & Marketing, Traffic Software  
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Klaus Nökel  
Vice President Traffic Software Product Management  
klaus.noekel@ptv.de

Christoph Scheuermann  
Vice President Corporate Marketing & Corporate Projects  
christoph.scheuermann@ptv.de
## Technical Sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>PTV Vissim Track Room</th>
<th>PTV Visum Track Room</th>
<th>PTV Vision Track Room</th>
</tr>
</thead>
</table>
| 9am   | Using RBC’s Advanced Features  
Randy Johnson, Kiel Ova | Importing Your Data from Other Sources  
Klaus Nökel, Chetan Joshi | Visualize Your Logic with VisVAP  
Sven Beller, Karen Giese |
| 10am  | Why Saturation Flow is Important All the Time  
Kiel Ova, Lukas Kautzsch | Geoprocessing  
Klaus Nökel, Chetan Joshi | HCM with ICA  
Karen Giese, Randy Johnson |
| 11am  | 3rd Dimension: V3DM, 3DS Export, & Stereoscopic AVIs  
Sven Beller, Karen Giese | Making Your Equilibrium with PTV VISUM’s Assignment Procedures  
Klaus Nökel, Chetan Joshi | Walk this Way - PTV Viswalk Coding  
Lukas Kautzsch, Kiel Ova |
| 12pm  | Lunch in Stone Arch Lounge  
12:00-12:50pm | | |
| 1pm   | Getting Started with COM  
Sven Beller, Randy Johnson | Making TFlowFuzzy Less Fuzzy  
Klaus Nökel, Chetan Joshi | Walk this Way – PTV Viswalk with Calibration  
Lukas Kautzsch, Kiel Ova |
| 2pm   | Keeping Cool with HOT  
Kiel Ova, Randy Johnson | Do You DUE?  
Klaus Nökel, Chetan Joshi | Walk this Way – PTV Viswalk with Transit  
Lukas Kautzsch, Sven Beller |
| 3pm   | PTV Vissim Dynamic Traffic Assignment  
Randy Johnson, Lukas Kautzsch | PuTTing in PuT  
Klaus Nökel, Chetan Joshi | Software-in-the-Loop Controllers  
Karen Giese, Kiel Ova |
| 4pm   | Roundabout Calibration  
Karen Giese, Lukas Kautzsch | Managing PTV Visum’s Scenario Manager  
Klaus Nökel, Chetan Joshi | Tricks with ANM  
Randy Johnson, Sven Beller |
### Tuesday, July 17

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<tr>
<th>Time</th>
<th>Event</th>
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| 7:30-9:00am   | **Morning Registration** - The Depot Renaissance Minneapolis Hotel Lobby  
Pick up program, name badge, voucher, and meeting materials     |
| 7:30-8:50am   | **Breakfast at Charley’s Restaurant**  
(Voucher required - pick up voucher at UGM Registration Desk) |
| 9:00-5:00pm   | **Technical Sessions**                                                |
| 5:00-7:00pm   | **Afternoon Registration** - The Depot Renaissance Minneapolis Hotel Lobby |
| 5:00-7:00pm   | **Welcome Reception & Barbecue** - The Depot Stone Arch Lounge and Patio  
(Name badge required) |

### Wednesday, July 18

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<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>7:30-8:30am</td>
<td><strong>Registration</strong> – Winter Garden Foyer</td>
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<tr>
<td>7:30-8:30am</td>
<td><strong>Breakfast</strong> – Winter Garden Room</td>
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### Block 1

<table>
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<tr>
<th>Time</th>
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| 8:30-8:45am   | **Welcome Announcement & Introductions**  
Steve Perone, PTV America |
| 8:45-9:30am   | **New Developments in PTV Visum**  
Klaus Nökel, PTV AG |
| 9:30-10:15am  | **New Developments in PTV Vissim & PTV Viswalk**  
Lukas Kautzsch, PTV AG |
| 10:15-10:45am | **Break**                                            |
## Schedule

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>10:45-11:45am</td>
<td><strong>The Future of Traffic Software has Arrived: PTV Vistro</strong></td>
<td>Karen Giese, PTV America</td>
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<tr>
<td>11:45-12:15pm</td>
<td><strong>Road Safety in the Vision Traffic Suite</strong></td>
<td>Klaus Nökel, PTV AG</td>
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<tr>
<td>12:15-1:30pm</td>
<td><strong>Lunch</strong></td>
<td>Winter Garden Room</td>
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<tr>
<td>1:30-2:00pm</td>
<td><strong>Managing a Multi-Level Modeling Program: Using Models to Forecast Facility Capacity and Operations</strong></td>
<td>Judy Clark, City of Bellevue, Washington</td>
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<tr>
<td>2:00-2:30pm</td>
<td><strong>Adapting a Four-Step MPO Travel Model for Wildfire Evacuation Planning: A Practical Application from Colorado Springs</strong></td>
<td>Maureen Paz de Araujo, HDR Engineering, Inc.</td>
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<tr>
<td>2:30-3:00pm</td>
<td><strong>Break</strong></td>
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<tr>
<td>3:00-3:30pm</td>
<td><strong>Modeling Double-Crossover Diamond Interchanges in VISSIM – Calibration, Challenges, and Lessons Learned</strong></td>
<td>Bastian J. Schroeder, Ph.D., Institute for Transportation Research and Education</td>
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<tr>
<td>3:30-4:00pm</td>
<td><strong>Using VISSIM to Model Substandard Freeway Geometry on I-95/64</strong></td>
<td>Michael Wobken, Kimley-Horn and Associates, Inc.</td>
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<td>4:30pm</td>
<td><strong>Social Event</strong></td>
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<td><strong>Dinner Cruise on Lake Minnetonka</strong></td>
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<td>Meet in hotel lobby for transportation to Port of Excelsior</td>
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<td>8:30-9:00am</td>
<td>Innovative Intersection Analysis</td>
<td>Retaining Vehicle Type Distributions at Destination Ends in VISSIM Static Routings</td>
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<td>Using VISSIM – A Comparative</td>
<td>Zuxuan Deng and Erin Morrow, ARUP</td>
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<td>Benefit/Cost Study</td>
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<td>Dhruva Lahon, Kimley-Horn and</td>
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<td>Associates, Inc.</td>
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<td>9:00-9:30am</td>
<td>Evaluation of TSP Benefits Using</td>
<td>I-39/STH 29/Business 51 DTA Analysis Using</td>
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<td>VISSIM Modeling</td>
<td>VISSIM</td>
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<td>Ben Hao, URS Corporation</td>
<td>Leif Garnass, SRF Consulting Group, Inc.</td>
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<td>9:30-9:45am</td>
<td>Break</td>
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<td>Applying VISSIM to the Portland –</td>
<td>Pedestrian Modeling in a University Campus</td>
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<td>Milwaukie Light Rail Transit</td>
<td>Srinivas Yanamananamanda, Crawford Bunte Brammeier</td>
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<td>Project</td>
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<td>Alex Kiheri, Kittelson &amp; Associates</td>
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<tr>
<td>10:15-10:45am</td>
<td>Urban High Capacity Transit –</td>
<td>Using VISSIM to Analyze Other Geometric Features That Affect Roundabout Capacity</td>
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<td>Using VISSIM to Evaluate Mobility</td>
<td>Dennis R. Eyler, SRF Consulting Group, Inc.</td>
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<td>Scott Harmon, David Evans and</td>
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<td>Associates, Inc.</td>
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| 11:15-11:45pm| Block 6 | Great Hall        | Statewide Modeling for Local and Rural Planning Organizations  
Brian Degani, New Mexico Department of Transportation |
| 11:45-12:15pm|         |                   | Delaware’s 3-D Micro Model Process  
Scott Thompson-Graves, Whitman, Requardt, & Associates, LLP |
| 12:15-1:30pm |         | Winter Garden Room| Lunch                                                                                      |
| 1:30-2:00pm  | Block 7 | Great Hall        | Utilizing a Multi-Tiered Modeling Approach to Conduct a Consolidated Traffic Impact Analysis in Fairfax County, VA  
David Kline, Fairfax County DOT; Luc Senh and Matt Sucher, Parsons Brinckerhoff |
| 2:00-2:30pm  |         |                   | Best Abstract Award Winner 2012  
Development and Evaluation of a Cooperative Vehicle Intersection Control Algorithm under the Connected Vehicles Environment  
Joyoung Lee, Ph.D., Center for Transportation Studies, University of Virginia |
| 2:30-2:45pm  |         |                   | Break                                                                                      |
| 2:45-3:15pm  | Block 8 | Great Hall        | Hot Seat Panel Discussion  
PTV Staff                                                                                   |
| 3:15-3:45pm  |         |                   | PTV Perspectives on the Future                                                              |
| 3:45-4:00pm  |         |                   | Closing Remarks                                                                            |
Welcome to UGM 2012
Announcements & Introductions

Steve Perone  President, PTV America
Steve Perone joined PTV America in 2006 and has over 20 years’ experience in transportation planning and transportation software development. Prior to joining PTV, he was Project Manager and the Northwest Region GIS Practice Leader for CH2M HILL. Previously, Steve spent a decade at Metro in Portland, Oregon where he established himself as an expert in the travel demand forecasting field.

New Developments in PTV Visum
A review of new features in PTV Visum 12.5 and perspectives for future development.

Road Safety in the Vision Traffic Suite
With current policy aimed at optimization rather than expansion of the road infrastructure, improved road safety is an equally important objective as increasing capacity or reducing the environmental impact. Road Safety work starts with the analysis of historic accident data and the identification of black spots. At the operational level, this already suggests local improvements at individual intersections (layout, phasing, roundabouts). Putting accident data in a network perspective the planner can weigh different mitigation strategies against each other, e.g. eliminating black spots along a high-volume corridor vs. shifting traffic to alternative routes. Finally, accident prediction models can forecast future accident rates after investments into the infrastructure, similar to a capacity analysis of a remodeled intersection according to HCM. The presentation outlines PTV GROUP’s roadmap for supporting all three levels of road safety work inside the Vision Traffic Suite.

Dr. Klaus Nökel  Vice President Traffic Software Product Management, PTV AG
Dr. Klaus Nökel earned a Master in Computer Science at Technical University of Aachen in 1986 and a Ph.D. in Computer Science at University of Kaiserslautern in 1991. From 1991-1997, Klaus worked at SIEMENS AG in Corporate Research & Development and since 1997 has been with PTV AG in Karlsruhe, Germany as Vice President of PTV Vision Software.
Speakers

New Developments in PTV Vissim & PTV Viswalk
A preview of PTV Vissim and PTV Viswalk 6.0. The completely new GUI has many new features for improved usability. The new data model provides generic access to all attributes of all network objects. Aggregated evaluation data can be collected for multiple simulation runs and handled inside PTV Vissim.

Lukas Kautzsch  Vissim Product Manager, PTV AG
Since his graduation in Computer Science (with Minor Subject Traffic Engineering) from the University of Karlsruhe in 1992, Lukas Kautzsch has been working on PTV Vissim at the PTV headquarters in Germany, first as the only programmer, then as head of the continually increasing development team. Currently Lukas is concentrating on technical product management as Product Manager Simulation Software.

The Future of Traffic Software has Arrived: PTV Vistro
Imagine a single software solution that optimizes signal timing, evaluates development impacts, seamlessly manages multiple scenarios and produces report-ready figures and tables at the push of a button. Today we are excited to share with you the latest addition to the PTV Vision Software Suite.

Karen Giese, P.E.  Vice President Product Management, PTV America
Karen Giese joined PTV America in 2006 and has 12+ years of multi-modal traffic engineering and transportation planning experience. As Vice President Product Management, she oversees delivery of the PTV Vision Suite products to North American customers, development strategies with the software development team, support to customers, the Canadian PTV Vision customer base, business and marketing, and PTV Vision software support and training. Karen has a M.S. in Civil Engineering from Iowa State University.
Managing a Multi-Level Modeling Program: Using Models to Forecast Facility Capacity and Operations

For many years Bellevue, Washington along with partner cities Kirkland and Redmond has done travel demand forecasting using the BKR macro–level model. Staff more recently built a meso-scale DTA model that covers all three cities and a VISSIM micro-level model for downtown Bellevue. As a local agency practitioner, the initial application of multiple levels prompted a quandary resulting from these new choices. With a choice of models it is important to decide when to use which and how to distinguish the results from the types of models. How do we convey the information produced from one type or another? Resources are scarce so choices must be made to do the right set of analyses and do just what is needed to get supportive information. The new guidance from FHWA on Consistent Application of Traffic Analysis Tools and Methods is helpful information to support these tradeoffs. The prevalent issue is when to use each appropriately and how to interleave messages from multiple levels of analysis that are consistent.

Judy Clark  
Modeling and Forecasting Manager, City of Bellevue, Washington

Judy Clark works for the City of Bellevue Transportation Department. At the University of Washington Judy obtained her BA in Urban Planning and took graduate coursework in Civil Engineering. Previously she worked at CH2M Hill as a Project Planner doing travel demand forecasting and at King County Metro as a Transit Planner. Earlier in her career, Judy worked at the Puget Sound Regional Council as a Growth Management Planner.

Adapting a Four-Step MPO Travel Model for Wildfire Evacuation Planning: A Practical Application from Colorado Springs

In the wake of a number of planned and unplanned evacuations that have taken place throughout the U.S. in recent years, the need for applied transportation planning and modeling in the area of emergency evacuation strategy has never been stronger. In this presentation, the authors explain how an MPO traffic model was adapted for use as a wildfire evacuation planning tool. Addressed are model inputs and assumptions, emergency scenarios, traffic control strategies, shelters or destinations of evacuees, and evacuation time frames. On the model side the authors address networks, household auto ownership assumptions, evacuee shelter locations, group quarters, road capacity, transit use, contra-flow assumptions, background traffic, and the next step of moving the evacuation model results to a actionable tool for use by emergency responders. The authors also show they utilized a year-long collaboration with the heads of the fire and police emergency response in Colorado Springs and how feedback from these groups improved evacuation response planning. While the emergency evacuation model was developed and refined for western mountainous cities like Colorado Springs that have residential areas in very dry foothill-type terrain, the approach has value for other areas of the west as well as flat areas where planned evacuation may take place.

Maureen Paz de Araujo, AICP  
Professional Associate/Senior Transportation Planner, HDR Engineering, Inc.

Maureen Paz de Araujo is a graduate engineer and architect with 30 years’ experience in transportation planning, travel demand modeling, and traffic engineering. As Transportation Program Director for the Pikes Peak Area Council of Governments, she oversaw transfer of travel forecasting from CDOT to PPACG and development of in-house interactive land use/demographic forecasting. Since leaving the PPACG, Maureen has provided consulting services for local, national and international clients for transportation planning, traffic operations analysis, and travel demand modeling. Work related to this presentation includes development of the current PPACG travel model and wildfire evacuation planning support for the City of Colorado Springs.
Modeling Double-Crossover Diamond Interchanges in VISSIM – Calibration, Challenges, and Lessons Learned

This presentation describes the VISSIM modeling efforts performed in an ongoing FHWA research project on Field-Evaluation of Double-Crossover Diamond interchanges. This talk presents the VISSIM modeling, calibration, and validation results of four DCD interchanges in the US. The presentation will give an overview of challenges and lessons learned when adapting VISSIM to the modeling of DCD interchanges, including discussion of replicating DCD signal control strategies, and comparison of model output to field-observed travel times.

Dr. Bastian J. Schroeder  
Assistant Director, Highway Systems Group, ITRE

Dr. Bastian Schroeder has been with the Institute for Transportation Research and Education (ITRE) at North Carolina State University since 2004. Dr. Schroeder’s area of expertise is in traffic operations on surface streets and freeways, work zone capacity analysis and modeling, simulation analysis, pedestrian accessibility issues, pedestrian-bicycle operations, and specialized field data collection. His research sponsors include NCHRP, FHWA, NCDOT, ITE, and NIH, and he has authored or co-authored over 30 peer-reviewed papers. Dr. Schroeder is a certified instructor for PTV America and teaches courses in VISSIM microsimulation, as well as various professional development courses at ITRE.

Using VISSIM to Model Substandard Freeway Geometry on I-95/64

The segment of freeway through central Richmond, VA is a combined alignment of I-95 and I-64, locally known as the “overlap”, with connections to I-195 and the Downtown Expressway toll road. This freeway section was originally built as a turnpike prior to the construction of the interstate freeway network and has not been reconstructed since. As a result, several of the ramp connections along the corridor have unusual geometry that was designed to accommodate toll booths. These substandard ramps generate unnecessary congestion during peak hours. The freeway to freeway connections within the system interchanges on either end of the I-95/64 overlap also cannot accommodate the current level of traffic and are bottlenecks for future growth in the corridor. Finally, several of the entrance and exit ramps throughout the corridor have little to no acceleration/deceleration lane, which frequently contribute to the congestion and friction on the mainline. This modeling effort faced several challenges starting with creating a balanced volume data set, to calibrating to the extreme lane change and merging behavior that exists in the network, to generating future year volumes in a constrained capacity corridor.

Michael Wobken, P.E., PTOE  
Senior Project Manager, Kimley-Horn and Associates

Michael Wobken has 15 years of experience in traffic operations and simulation and works for Kimley-Horn and Associates in their Washington, D.C. area office. He has been a VISSIM user since 1999 and has modeled projects across the country ranging from transit signal priority, roundabouts, and freeway operations and is currently modeling US Highway 1 improvements near Marine Corps Base Quantico in Virginia. He has a BS in Civil Engineering from the University of Nebraska-Lincoln.
Innovative Intersection Analysis Using VISSIM – A Comparative Benefit/Cost Study

The City of Frisco in Texas was named the fastest growing city in the United States in 2000-2010. With explosive growth, traffic demand is on a steady increase. The existing diamond intersection at Legacy Drive and Main Street is one of the City’s major intersections that is currently over-capacity. We used VISSIM to model existing conditions and analyzed three innovative intersection types - Single Point Urban Interchange (SPUI), Michigan left-turns, and traditional intersection widening. We selected VISSIM for its ability to simulate complex geometries, signal phasing, conflict areas, driver behavior, and pedestrian considerations. Our VISSIM analysis showed improved operational efficiency with the SPUI because of less lost time, higher discharge rate, and fewer signal phases. The Michigan lefts alternative offered more green time and capacity for through traffic. However, it added more travel time for the left-turning vehicles. The VISSIM models proved to be effective tools in developing schematic designs and construction cost estimates and in comparing benefit/cost ratios. The benefit of an alternative was based on VISSIM delay reductions when compared to existing conditions. It was then compared to the cost of constructing that alternative. Additionally, we used VISSIM animations to communicate effectively with the stakeholders.

Evaluation of TSP Benefits Using VISSIM Modeling

This study used VISSIM modeling to evaluate the benefits for the Transit Priority Signal system. The evaluation methodology includes identification of measures of effectiveness (MOE’s), field data collection, VISSIM modeling, and comparative analysis methods. In the evaluation process, VISSIM modeling played a critical role that provides evidence for TSP benefits. The challenge for the VISSIM modeling was to implement the TSP algorithm into VISSIM modeling to model how the TSP system operates by integrating with the classic interval-based LMD 40 traffic controllers. Calibration was conducted at both link and node levels to ensure modeling accuracy. Aggregated MOEs were selected and processed from the VISSIM modeling to facilitate the comparisons between before and after TSP deployment conditions. A total of 10 intersections were selected out of 43 intersections along the Western Avenue as part of the TSP deployment for the demonstration purpose.

Dhruva Lahon, P.E., PTOE  Associate Engineer, Kimley-Horn and Associates  
Dhruva Lahon’s expertise encompasses analyzing traffic signal systems, transit signal priority and preemption, arterial and freeway operations, and modeling corridors with conventional and unconventional intersections. Dhruva received her Master of Science degree in Civil Engineering in 2005 and is an active member of the Institute of Transportation Engineers. She was awarded the 2011 ITE Past Presidents’ Award for Merit in Transportation Engineering as well as the 2011 TexITE Technical Paper Award.

Ben Hao, P.E., PTOE  Senior Engineer, ITS and Traffic Engineering, URS Corporation  
Ben Hao has over 14 years of experience in ITS, traffic modeling, signal design, and traffic operational analysis. Ben received a bachelor’s degree from the Illinois Institute of Technology and a master’s degree from the University of Texas at Austin. He is currently serving as the Chair for the Minnesota NCITE/ITS Joint Technical Committee.
Retaining Vehicle Type Distributions at Destination Ends in VISSIM Static Routings

The standard VISSIM Dynamic to Static Routing conversion function has a limitation on preserving vehicle type information at the trip destination ends. The relative flow of each route to a destination parking lot is based on the total path volume saved in path files. Thus, all vehicle classes using one routing decision will have a similar share of the overall volume on different routes. Usually vehicle composition information is only available at origins, e.g., a generic heavy vehicle percentage. However, sometimes finer grained traffic count data are available at the destination ends, too. The missing of destination end vehicle type specific distribution information becomes a fundamental problem for models which require the retention of destination vehicle type distributions. There are several approaches to solving this problem including model revision, WEG file manipulation, FMA loading scheme, COM and DriverModel API. The DriverModel API approach is found to be the most efficient and error proofing method to convert dynamic routings into static routings for VISSIM. This presentation will discuss the approaches that the Arup team undertook, lessons learnt and the final results.

I-39/STH 29/Business 51 DTA Analysis Using VISSIM

Separate traffic studies were conducted for the I-39/STH 29/Business 51 triangle area of Rothschild, Wisconsin to identify roadway improvements needed to improve the safety and operations of the area; however, each study was confined to their specific study area. The objective of this study was to understand how the travel patterns/traffic projections would change within the study area following the completion of the various projects, and ultimately assess whether or not the prior roadway improvement recommendations remain valid. The VISSIM Dynamic Assignment module was used because route choice is based on choosing the “best path” for vehicles while taking into consideration the impacts of localized congestion. Study results indicated as traffic volumes increase in the area and congestion and delays worsen, trips are expected to change their travel patterns to utilize the roadway network improvements. As a result, the analysis confirmed the roadway improvements previously recommended under the prior studies were still valid.

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I-39/STH 29/Business 51 DTA Analysis Using VISSIM

Separate traffic studies were conducted for the I-39/STH 29/Business 51 triangle area of Rothschild, Wisconsin to identify roadway improvements needed to improve the safety and operations of the area; however, each study was confined to their specific study area. The objective of this study was to understand how the travel patterns/traffic projections would change within the study area following the completion of the various projects, and ultimately assess whether or not the prior roadway improvement recommendations remain valid. The VISSIM Dynamic Assignment module was used because route choice is based on choosing the “best path” for vehicles while taking into consideration the impacts of localized congestion. Study results indicated as traffic volumes increase in the area and congestion and delays worsen, trips are expected to change their travel patterns to utilize the roadway network improvements. As a result, the analysis confirmed the roadway improvements previously recommended under the prior studies were still valid.
Applying VISSIM to the Portland-Milwaukie Light Rail Transit Project

The Portland-Milwaukie Light Rail Transit Project creates a light rail alignment that travels 7.3 miles, connecting downtown Portland, Oregon to Milwaukie, Oregon. This extension has spurred the construction of Portland’s first new bridge across the Willamette River in nearly 40 years. In uniquely Portland fashion this new bridge will exclusively serve Light Rail, Streetcar, Buses, Pedestrians and Bicycles only. On each side of the new bridge an at-grade transit portal will be created which will serve to deliver these various modes on to the bridge while also supporting non-bridge auto traffic. On the west side of the river this portal will be the SW Moody Avenue/SW Porter Street intersection. This presentation provides a brief overview of the project, including the critical importance of the SW Moody Avenue/SW Porter Street intersection to overall design, operation and success of the Portland-Milwaukie Light Rail Project. The focus of this presentation is on the innovative use of VISSIM during the operational analysis, which led to a successful preliminary design that combines traffic signal and rail signal systems, with the safe and efficient movement of six modes through a single intersection.

Urban High Capacity Transit, Using VISSIM to Evaluate Mobility Costs

As the Portland Metro area continues to expand the HCT system, recent planning has been faced with the challenge of bringing HCT transit into new urban business districts to provide a catalyst for economic growth and development, while maintaining access and mobility on the existing roadway system. This presentation illustrates some of the transit operation options that have been evaluated using VISSIM on two recent transit planning projects: Portland Streetcar Loop Project and Columbia River Crossing EIS.

Alex Kiheri  Transportation Analyst, Kittelson and Associates, Inc.
Alex Kiheri has worked with Kittelson and Associates, Inc. since 2008 and provides national support for microsimulation, signal system and ITS projects throughout North America. Alex has successfully implemented VISSIM projects in 15 states and provinces during his time with Kittelson. These projects have ranged from freeway operations to transit signal priority implantation studies. He is a graduate of Michigan Technological University and in a native Minnesotan.

Scott Harmon, P.E., PTOE  Project Manager/Senior Transportation Engineer, David Evans and Associates, Inc.
Scott Harmon is a senior transportation planner/engineer in DEA’s Portland, Oregon, office. He has worked on transportation system plans, corridor studies, environmental impact statements, municipal and private development projects, and roadside safety evaluations. Mr. Harmon is skilled in the design, validation, calibration, application and presentation of transportation simulation models. Mr. Harmon has developed complex multimodal simulation models to evaluate transit operations in shared travel lanes as well as exclusive lanes for light rail, streetcar and bus rapid transit systems.
Pedestrian Modeling in a University Campus

Crawford Bunte Brammeier has recently completed development of the University of Missouri Campus-wide Integrated Transportation Model; a tool to evaluate multi-modal traffic operations. The integrated model includes PTV Vissim Pedestrian Social Force Model to evaluate pedestrian flow and interaction with vehicular movements. The Social Force Model enables microsimulation of pedestrians taking into account interactions among pedestrians themselves as well as pedestrian interactions with vehicular paths and conflicts. Analysis completed utilized multi-modal microsimulation of private transportation, public transportation, and pedestrians. Pedestrian modeling was utilized to evaluate improvement alternatives focused at improving pedestrian flow and minimizing pedestrian-vehicular conflicts. This presentation includes demonstration of the model and two case studies completed – student center pedestrian model to test pedestrian flow improvement alternatives and intersection improvement scenarios aimed at improving pedestrian flow.

Srinivas Yanamanamanda, P.E., PTOE, PTP  Transportation Engineer, Crawford Bunte Brammeier

Srinivas Yanamanamanda works in the St. Louis, Missouri office CBB. He has over 10 years’ experience in transportation engineering and planning and leads CBB’s freeway operations, microsimulation and travel demand modeling technical disciplines. Srinivas has a master’s degree in Civil Engineering from the University of Missouri Columbia and a bachelor’s degree in Civil Engineering from the Indian Institute of Technology Madras. He is a registered Professional Engineer in Missouri and Illinois.

Using VISSIM to Analyze Other Geometric Features That Affect Roundabout Capacity

VISSIM was used to test and quantify the effects on capacity of 3 areas of roundabout geometry. These 3 items are not fully considered in empirical roundabout analysis procedures such as RODEL. These features include: (1) The geometry of the conflict areas of roundabouts. Capacity is increased and delay reduced with wider splitter islands for a given inscribed diameter roundabout. (2) The number of entering legs that produce a given circulating traffic flow and the different gapping characteristics of that circulating flow. (3) The variation of the passenger car equivalence of large trucks related to the inscribed roundabout diameter, circulating lane widths and the entrance and exit geometry of multi-lane roundabouts.

Dennis R. Eyler, P.E., PTOE  Principal, SRF Consulting Group, Inc.

Dennis Eyler’s professional career includes 14 years with the Minnesota DOT and 28 years with SRF Consulting Group. During his career, Denny has designed over 500 traffic signal as well as been involved with the design of over 25 interchanges and the design of more than 10 roundabouts.
Statewide Modeling for Local and Regional Planning Organizations

New Mexico DOT developed the New Mexico Statewide Travel Demand Model (NMSTDM) in VISUM to assist with planning for seven (7) Rural Planning Organizations (RPO) and six (6) New Mexico DOT Districts to forecast external and through traffic for five (5) Metropolitan Planning Organizations (MPO) and nine (9) other city models within and adjacent to the state. Freight is included using a combination of FAF3 using the national network and local trip generation. The NMSTDM is the top level in a set of multi-level models that incorporates the MPO and city models and its new and comprehensive uses to readily update the statewide model with new local data. NMSTDM evaluation and functionality includes trip generation, desire lines, screen lines, incorporation of all input variables and procedures for transparency and efficient Measures of Effectiveness and extraction of subareas and summaries using Sub-Network Generator. Testing of projects is facilitated by the ability to select projects to be included for each model run. Twenty-four hour dynamic assignment with DUE is used with hourly variations for each directional trip purpose for analysis. The forecast process was streamlined including use of Lohse equilibrium for use of multi-threaded processors allowing run times of less than 30 minutes on a laptop.

Delaware’s 3-D Micro Model Process

The purpose of this presentation is to describe the background and benefits of the Delaware’s “3-D Micro Model Process”. This process has been developed by the Delaware Department of Transportation and the State Smart Transportation Initiative (SSTI) located at the University of Wisconsin to establish an innovative, quantitative, transferable modeling process facilitating completion of detailed Smart Transportation/Smart Growth analyses. The goal of the process was to facilitate the integration and dataflow interactions between GIS, travel demand, and 3-D micro simulation models using readily available industry standard software, such as VISSIM and VISUM. The process greatly reduces the amount of time needed to develop a transportation and land use scenario in GIS, process it through a regional travel demand model, and simulate the scenario using VISSIM.
Utilizing a Multi-Tiered Modeling Approach to Conduct a Consolidated Traffic Impact Analysis in Fairfax County, VA

This paper will demonstrate how a regional model that used a different platform than VISUM and VISSIM was seamlessly integrated to form a multi-tiered sub-regional model that was used to develop innovative modeling solutions to help solve complex traffic engineering challenges. Parsons Brinckerhoff (PB) is assisting the Fairfax County (Virginia) Department of Transportation (FCDOT) with performing multiple Consolidated Traffic Impact Analyses (CTIA) and Grid of Streets Analyses for the Tysons Corner area, a community that lies just west of the District of Columbia. The Tysons area has been identified as a center of growth for the region. A mix of residential, commercial, and professional developments is expected in the near future. There are numerous developers with large scale developments currently under review which are anticipated to generate thousands of trips each day into and out of Tysons. Each developer has submitted individual traffic impact studies and analyses. However, none tried to evaluate the cumulative impact of each development.

David Kline  Senior Transportation Planner, Fairfax County DOT
David Kline is a Senior Transportation Planner with the Fairfax County DOT, in Virginia, and manages the transportation modeling group. He earned a B.S. in Civil Engineering from the University of Minnesota and has over 25 years’ experience working on subarea studies and comprehensive plan updates.

Matthew Sucher  Senior Traffic Planner, Parsons Brinckerhoff
Matt Sucher has an MBA and over eleven years’ experience as a transportation/traffic planner. He has been responsible for developing traffic studies that included intersection and mainline capacity analyses, traffic forecasting and analyses of traffic volumes for EIS projects, traffic impact analyses for site development and large scale projects, including traffic simulation modeling using VISSIM and VISUM.

Luc Senh  Lead Traffic Engineer, Parsons Brinckerhoff
Luc Senh has over 20 years of experience in transportation engineering, travel demand modeling and traffic simulation modeling with extensive experience in design and planning projects. He specializes in analysis of traffic operations, safety, pedestrian flow, and applying and developing transportation software for complex transportation and major investment studies.
Development and Evaluation of a Cooperative Vehicle Intersection Control Algorithm under the Connected Vehicles Environment

Under the connected vehicles (CV) environment, it is possible to create a Cooperative Vehicle Intersection Control (CVIC) system that enables cooperation between vehicles and infrastructure for effective intersection operations and management when all vehicles are fully automated. Assuming such a CV environment, this paper proposed a CVIC algorithm that does not require a traffic signal. The CVIC algorithm was designed to manipulate individual vehicles’ maneuvers so that vehicles can safely cross the intersection without colliding with other vehicles. A simulation-based case study utilizing VISSIM COM interface was performed on a hypothetical single-lane arterial consisting of four intersections with 8 traffic congestion cases covering low to high volume conditions. When compared to the coordinated actuated control, the CVIC system dramatically reduced the total delay times for the volume cases considered (i.e., from 82% to 100% delay time savings observed). The CVIC system also reduced the number of rear-end crash events by 30% to 87% for the volume cases considered, indicating that safer driving conditions would be achieved with the CVIC system. Finally, the CVIC system contributed to improving the air quality (i.e., 12% to 36% CO2 emission reduction) and saving fuel consumptions (11% to 37% of gas saving).

Joyoung Lee, Ph.D.  Research Scientist, Center for Transportation Studies, University of Virginia
Joyoung Lee received his M.S. (2007) and Ph.D. (2010) degrees in Civil and Environmental Engineering from the University of Virginia (UVA), Charlottesville, Virginia. He is a research scientist of the Center for Transportation Studies at UVA. Currently he works as a laboratory manager of the Saxton Transportation Operations Laboratory at the Turner-Fairbank Highway Research Center, FHWA. His research interests include traffic operations, traffic signal optimizations, simulations, and Connected Vehicles.
The table below lists the professional development hours (PDH) that can be earned for the continuing education activities included in the annual PTV Vision Users Group Meeting held in Minneapolis, MN on July 17-19, 2012.

Kiel R. Ova, P.E., PTOE  
Vice President Business Development

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Total Hours

Name_________________________________________  Date ___________________

Presenters should multiply hours by two.  
Credit is valid for presenting for the first time only and does not apply to full-time faculty.
Thank you to all participants who make a commitment to advancing the PTV Vision User community.