



**December President's Message**

The RTID vote has failed. Since the election, there has been considerable press and discussion about what went wrong. Sifting through it all, I'm left with the impressions that it was too big of a bite and had a structure that divided the transit and roadway proponents. One recent poll says that a transit package alone would have passed with 52%. But many votes were cast against the package specifically because they would not personally benefit from the rail system and were unwilling to help pay for it. It is impossible to decipher, but instead of having funding for roads and transit, we have neither.



David Alm  
WA Section President

Compounding the initiative's structural handicap were other factors: there was a lower than expected voter turn out, there were vagaries on environmental impacts, and the fact that several high profile pro-

*(Continued on page 2)*

**Inside This Issue:**

Letter from the President	1
Macros versus Micro Simulation Modeling Tools	4
Scribe Report	7
The Campus Corner	8

**ITE Washington Section presents:**

**Road Dieting**

Come experience and enjoy this month's program at The Heathman Hotel in Downtown Kirkland!!!

**SPEAKER**     **Jennifer Rosales**, District 6 President, Senior Professional Associate with Parsons Brinckerhoff, Portland, Oregon.

**LOCATION**     The Heathman Hotel in Downtown Kirkland  
220 Kirkland Avenue  
Kirkland, WA 98033  
(425) 284-5800

**DATE**            Tuesday, December 11<sup>th</sup>, 2007

**COST**             Payable by cash or check to "ITE Washington Section"  
ITE members: \$35  
Students: \$5

**TIME**             Social: 11:30 AM  
Lunch and Presentation: 12:00 PM

**MENU**            Soup of the Day  
Organic Green Salad with Balsamic Vinaigrette  
Vegetable Panini: Grilled Red Onion, Zucchini, Eggplant, Oven Roasted Tomatoes, and Spinach, Bail Aioli, Country Como Bread  
Grilled Three Cheese Sandwich: Dill Havarti, Classic Cheddar and Swiss on Rustic Como Bread  
Rustic Bread & Assorted Butters  
Coffee & Tea

**RSVP**             By Friday, December 7th to Iris Cabrera at

[ITERegistration@ci.kirkland.wa.us](mailto:ITERegistration@ci.kirkland.wa.us)

Phone: (425) 587-3866

Fax: (425) 586-3807

(Continued from [page 1](#))

jects would not be completed. It was confusing and illogical in too many aspects. Yet to me the most telling factor was a familiar theme, trust. There were too many people who voted against the Roads and Transit Initiative simply because they did not trust that the projects they were being asked to fund would be delivered. Ouch.

What really hurts is that we, the professional transportation community, have earned this distrust. At a considerable cost, monorails and viaducts are studied and debated, but nothing is resolved. We have argued amongst ourselves for decades on bus vs. rail transit. We debate the shape of the arbitration table while the Evergreen Point Bridge is sinking. Expensive roadway improvement projects spend millions to improve the natural environment but fail to add capacity. The public has been watching. They see a lot of empty busses, they see a lot of congestion, and they hear their leaders arguing with each other and tearing each other's proposals apart in the press. They have seen how we've spent their money, and they apparently don't want to entrust us with more. Not yet.

It is just a matter of time before our travel conditions are compromised so severely that the public's tolerance of delay impact will carry some kind of new regional transportation funding. Perhaps the regional economy will suffer from transportation costs sufficiently to finally fund the proposed SR 509 port access project. The problem has not gone away, and we will get another chance. To succeed the next time around we must in the mean time earn back the public's trust by doing a better job at a lot of things. Perception is very important. The WSDOT has already recognized this and has been working hard to deliver what they promise. They must continue and the other agencies must follow their example. The consulting community and the professional organizations must help.

And above all else, we must start pulling together. End divisive parochial thinking. A few years ago, the Blue Ribbon Commission saw that interagency bickering and power struggles stood in the way of efficient decision-making on transportation project development. They recommended that a benevolent transportation dictator be anointed to break through the malaise. Unfortunately, it seems that the key agencies have so far resisted any such loss of local authority. Regional transportation decisions are still crippled with ego-driven turf wars. Where is the regional leadership we so desperately need?

While we wait for such a miracle, we must all keep trying to do whatever we can. The Seattle DOT is looking for more funding to try and deliver their most critical projects that were hurt by the vote such as Spokane St., Mercer, and Lander Street, while still striving for a breakthrough in regional discussions. Snohomish County, unable to yet move forward as part of the region, is moving forward as a County to address their critical transportation issues. They are pumping additional local funds into their CIP and trying to address saturated corridors with a greater leverage of concurrency authority. King County is also trying to fund some critical projects, principally bridges, through other means.

To a great degree, the Counties and smaller cities did not lose potential projects. Sound Transit and the WSDOT did. They are huddling around what will soon emerge as the next voter initiative. I am impressed with the resiliency of those involved with these new efforts. Soon the debates begin anew. To succeed with the next opportunity, we will need all of our strength and professional dedication.

We can all help to bring the necessary multimodal transportation system to reality sooner with a greater level of participation from the professional transportation community, with inspired leadership that can look to the greater good of the region, and by earning the trust and respect of our community and its leadership through continued delivery of successful projects.

Sincerely,

David Alm,  
President, ITE Washington Section



[www.incainc.com](http://www.incainc.com)



David Alm

Phone: (425) 635-1000  
Fax: (425) 635-1150

Structural Engineering  
•  
Transportation Engineering  
•  
Survey & Mapping

400 112th Ave. NE Ste. 400 Bellevue WA 98004




Transportation Planning & Engineering

**Mirai Associates, Inc.**  
11410 NE 122nd Way  
Suite 320  
Kirkland, WA 98034-6927

425.820.0100 - t  
425.821.1750 - f

[www.miraiassociates.com](http://www.miraiassociates.com)

Transportation Planning  
Traffic Engineering  
Travel Demand Forecasting  
Growth Management



Mark Skaggs

Phone: 206.251.0300  
markskaggs@alltrafficdata.net

Seattle, Washington

# Trafficcount, Inc.

**JOHN LINDSAY**  
President

4820 Yelm Hwy S.E. Ste B PMB195  
Lacey, WA 98503  
Tel: (360) 491-8116  
Fax: (360) 491-1079  
Cell: (360) 239-6005  
E-mail [trafficcount@msn.com](mailto:trafficcount@msn.com)

Traffic Counts for  
Government, Industry,  
Business and  
Professional Engineers



**Debbie Wick, P.E., PTOE**  
President

6830 NE Bothell Way, Ste C411  
Kenmore, WA 98028

(w) 206-440-0755  
(f) 206-440-0757  
(m) 602-540-0341  
[debbie@wickeng.com](mailto:debbie@wickeng.com)

DBE Certified  
[www.wickeng.com](http://www.wickeng.com)



## TRAFFIC DATA GATHERING

**Certified Woman Business Enterprise**

For all your Traffic Data needs Contact:

**Carla Nasr**  
President

11410 13th Street SE  
Lake Stevens, WA 98258  
Tel: (425) 334-3348 Fax: (425) 335-5979



**Traffic Count Consultants, Inc.**  
INNOVATIVE APPLICATION OF ENGINEERING EXCELLENCE

Woodinville  
Oak Harbor  
Peninsulas:  
Olympic  
Kitsap  
Tacoma  
Port Ludlow

**LYNNE PIHL, Data Collection Consultant**

Phone: 425 861-8866  
FAX: 425 861-8877  
E-Mail: [TC2inc@aol.com](mailto:TC2inc@aol.com)  
Web Site: [TC2inc.com](http://TC2inc.com)


Michael Stringam, PEng  
[MichaelS@perteet.com](mailto:MichaelS@perteet.com)



- Travel Demand Forecasting Models
- Traffic Operations / Simulation Models
- Transit / TOD Planning
- CTR / TDM Plans
- Traffic Engineering

Perteet Inc.  
2707 Colby Avenue  
Suite 900  
Everett WA 98201  
425-252-7700

Engineers | Planners | Surveyors



**SnoCo Traffic Studies**

806 33<sup>rd</sup> ST  
Everett, WA 98201

(206) 782-1020 Telephone  
[snocotraffic@yahoo.com](mailto:snocotraffic@yahoo.com) Email  
<http://www.snocotraffic.com> Web

**Todd Pollack, PE**  
Traffic Engineer

Competitive prices and quick turnaround!

To submit your business card, please send a jpg or tif file of the desired ad to James Bloodgood at  
[jim.bloodgood@co.snohomish.wa.us](mailto:jim.bloodgood@co.snohomish.wa.us)

Also send a check for \$100 (covers through December 2008) to James Bloodgood  
Snohomish County  
3000 Rockefeller Avenue  
M/S 607  
Everett, WA 98201  
425.388.6419

# Macro versus Micro Simulation Modeling Tools

By Mark Yand, Principal, DKS Associates

Simulation modeling tools are used by traffic engineers and planning professionals to examine traffic flow and congestion and to understand the interaction of vehicles on the roadway. Macro simulation models evaluate traffic flow as a whole without consideration of the characteristics and features of individual vehicles in the traffic stream. Micro simulation tools model the individual vehicles in the traffic stream and consider the features and characteristics of the individual vehicles and use car following logic and algorithms to predict and model the movement of each vehicle in the traffic stream. The advancement of micro simulation modeling tools and techniques has greatly enlarged the understanding of traffic flow and provided detailed data that was previously unavailable. With the increased demand for micro simulation modeling it is important to understand the differences, limitations, constraints and tradeoffs when using these advanced tools.

## Objectives and Considerations

The use of advanced micro simulation modeling tools should align with the objectives and needs of the project or study. Some of these considerations include:

- Modal Requirements (Transit v. Auto Modes)
- Budget and Schedule
- Data Collection/Input Requirements
- Model Calibration
- Decision Making and Alternatives Evaluation
- Visual Graphics

## Modal Requirement (Transit v. Auto Modes)

With the increased focus on transit to meet the mobility needs of growing communities and urban centers, there is a greater need to examine the differences between auto and transit travel and congestion within the same roadway environment. Micro simulation models provide a tool that can separate and distinguish auto levels of congestion and performance from transit levels of congestion and performance. Transit can be a fixed guideway system such as light rail operating in the roadway environment or a rubber tire system (bus) operating in a mixed flow environment. When transit measures of effectiveness and performance are needed, micro simulation modeling can provide separate measures for transit and auto modes. Important factors to consider and/or measure when evaluating transit performance include:

1. **Which Lane(s) will be used by Buses?**
2. **Signal Priority.**
3. **Bus Zone Delay and Interaction.**

## Budget and Schedule

Budget and schedule are key considerations when deciding whether to use macro or micro simulation modeling tools. Micro simulation modeling is more costly than macro simulation and requires more time and data to complete the model and conduct the analysis. Depending upon the type of project and project requirements, the differences in cost and time can be substantial.

*(Continued on [page 5](#))*

(Continued from [page 4](#))

## **Data Collection/Input Requirements**

By its very nature, micro simulation modeling is much more detailed than macro modeling and requires more data and attention to detail. Both types of models are sensitive to volume and variations in volume. Micro simulation modeling, however, is also very sensitive to flow configuration and routing of volume through the roadway network. The routing and volume for all modes is typically specified in micro simulation modeling. This requires an understanding or estimation of origin and destination patterns for volumes entering and exiting the roadway network. For transit vehicles this routing is typically readily available from the transit schedule. For auto vehicles, this data may be extracted from origin/destination surveys and or through the use of the travel demand model to estimate trip behavior and patterns.

The accuracy of the data input into the micro simulation model drives the accuracy of the results and can result in a greater understanding of the interaction and variations that occur over the peak hours and over the day. For some projects, understanding the seasonal, monthly, weekly and peak hour volume variations is a critical step in the modeling process. In most cases, the intent of the micro simulation model is not to model extreme conditions or events but to examine normally recurrent congestion that is typical for the roadway.

Other important data collection and input requirements include roadway geometrics, lane restrictions, speed, lane distribution and saturation flow rates. Collecting this data can be tedious and detailed but the accuracy of this data is critical if the true value of the micro simulation tool is to be realized.

## **Model Calibration**

Calibration of the model, whether macro or micro, is a critical step in the development of a reliable and useful simulation model. Calibration of a micro simulation model will require more time and effort because of the wider range of factors and inputs that influence the model results and output. These parameters are different for different modes and therefore bus, auto and truck data for each mode is needed and each mode is calibrated separately and independent of the other modes. This modal separation and calibration is essential when non auto modes such as transit and trucks are examined.

Perhaps the most difficult parameter to calibrate and model is the variations in volume and congestion that can or will occur over the peak periods. Data collected in the field and from agency records can provide an important indication of the type and level of variation that is likely to occur. An understanding of how the modeled results and data align with and compare with these variations is essential when explaining the results to the public and elected officials who may experience some of the extremes and variations when driving the roadway.

## **Decision Making and Alternatives Evaluation**

Decision making and alternatives evaluation is a key consideration in the selection of a macro versus micro simulation tool. A micro simulation tool may not be appropriate where high level decisions are needed across a broad range of alternatives because of the time and expense required to model each alternative. Its use is more appropriate where refinement or better understanding of a selected alternative is needed or where a decision is needed on a final set of two or three alternatives that have survived a higher level screening process. In other cases, micro simulation is used to identify the types of problems along a corridor or roadway so that solutions or alternatives can be developed that address the most immediate and pressing needs.

(Continued on [page 6](#))

## **Newsletter Contact Info**

If you have any changes in your contact information, please let us know so you continue to receive monthly ITE e-mail announcements and newsletters. To update your information, click on the "Membership" link on the Washing-

## Visual Graphics

The visual graphics and realism of micro simulation modeling can be a key consideration when selecting the right analytical tool. Micro simulation models provide far greater realism and a visual image of the results and performance of a proposed improvement or alternative. The ability to talk through the results and provide a visual reenactment of a future or changed condition greatly enhances decision making and public acceptance. In developing the visual quality of the graphics, it is important to eliminate or explain (when elimination is not possible) events in the simulation that may not completely align with reality or expected traffic flow. Some of the common simulation details that typically need attention or “fixing” include:

- One vehicle tracking through or passing through another vehicle.
- Stacking of vehicles through an intersection.
- Restricting vehicle lane changing where it can not occur.
- Gap acceptance when vehicles enter the traffic stream or change lanes.

## Advantages and Disadvantages of Micro Simulation Modeling

Micro simulation modeling is a powerful tool that can greatly enhance decision making and more effectively analyze and evaluate proposed improvements and alternatives. Some of the key **advantages** of micro simulation modeling include:

- Ability to evaluate and isolate differences by mode and by lane.
- Ability of evaluate system impacts and influences.
- Ability to model the benefits of ITS and technology improvements that may target specific classes of vehicles or conditions.
- Ability to model variations in volume and congestion over the peak hour.
- Ability to model geometric influences.
- Ability to isolate choke points and capacity constraints.

Some of the key **disadvantages** of micro simulation modeling include:

- Higher cost.
- Extended time and schedule.
- Difficulty in evaluating and screening a wide range of multiple alternatives and/or refinements.
- Data extraction.

Therefore, some of the **key criteria** to consider when deciding to use a micro simulation model are:

- COST AND AVAILABLE BUDGET
- SCHEDULE CONSTRAINTS
- MODAL REQUIREMENTS
- LEVEL OF SCREENING AND DECISION MAKING
- VISUAL AND PUBLIC OUTREACH REQUIREMENTS

# Scribe Report

*By Paul Cho, City of Redmond*

With the outcome of Proposition 1 behind us, the news on the radio announced Governor Gregoire's declaration to somehow rebuild the SR520 Bridge within five years. A daunting task considering the sensitive real estate the approaching lanes traverse on either side of the bridge. 4+2 has never been a more difficult equation to solve.

Gathered in the Lytle House Room at the City of Bothell, we dove into our lunches as we reacquainted ourselves with other members. The conference room afforded a relaxed atmosphere as we prepared for the presentation on yet another challenging subject. Lindsay Yamane and Michael Horntvedt (Parametrix) have been studying this complex problem on the SR520 corridor and provided a glimpse into the ongoing effort of improving this vital link in the Lake Washington area at this month's section meeting.

Through public forums, the effort attempted to incorporate 3400 comments received. Some of the goals for the west side included:

- Narrowing the footprint near Portage Bay
- Clean up the concrete clutter and consolidate interchanges near the Arboretum
- Preserve cultural resources



re-

The goals for the east side included:

- Fit maintenance facility into the Medina hillside
- Minimal impacts to adjacent properties
- Incorporate Urban Design

Work on the west side started the EIS process in 1999. Eight years later, the project is still in the EIS phase. The environmental process is estimated to be complete in 2011 for both west and eastside. However, not wanting to lose any momentum, work on the east side has progressed. Specific improvements included:

- Two transit stops in each direction
- Three Lids (Evergreen Pt, 84<sup>th</sup>, 92<sup>nd</sup> – non ventilated)
- Smaller footprints for the interchanges
- Add/Connect paths and trails
- Relocate the maintenance facility from mid-span to the east bank

A closer look at the existing and proposed corridor was presented through a VISSIM traffic simulation model. The biggest bottleneck was shown starting at Evergreen Point with the following factors:

- Narrowing of roadway/shoulders
- Transit merge to GP lanes
- HOV merge to GP lanes
- On ramp weave through the HOV lane

The congestion would continue to build, vehicle speeds would drop, throughput would be reduced and the rest is history; or for many commuters, a daily occurrence. Proposed improvements would:

- Manage the demand through tolling
- Relocate the HOV lanes to the inside
- Add 10 foot shoulders
- Add acceleration lanes for transit

(Continued on [page 8](#))

(Continued from [page 7](#))

Other improvements include:

- Neighborhood connections through overpass parks and open areas
- Regional and local paths
- Removing or relocating on ramps to reduce interchange footprint

These improvements attempt to balance the needs of the various users of the corridor.

- It improves reliability for transit service
- Reduces congestion for general purpose lanes
- Reduces congestion on the local streets
- Provides safer access for bridge maintenance staff
- Adds non-motorized connectivity

No longer can large projects just buy up right of way and add more impervious surface to solve the problem. The solution must cater to a large spectrum of stake holders. Without this increased sensitivity, projects will meet a higher and higher wall. Unfortunately, the project will see growth of another obstacle in the form of cost and methods to fund the increased cost. Funds are available to take the design to completion. However, construction funds still need to be identified and committed. With that in mind, the project hopes to begin bridge construction in 2012, open the bridge in 2018 and complete roadway construction in 2020.

## ***“The Campus Corner”***

By Scott Lee and Megan Powers

Congratulations go out to the University of Washington Student Chapter! They submitted a proposal for Coffee Store Trip and Parking Generation for a Data Collection Project for ITE District 6 and were awarded a grant of \$1000 to complete the data collection for the second year in a row. The students will be collecting the data in December and the data they collect will be used in future updates to the ITE Trip Generation manual.

The Student Activities Committee is still looking for a project that could be used for the Student Night this spring. We are looking for a smaller scale project (or portion of a project) where engineering students could tackle the conceptual components. Some types of projects that could lend well to this application include safety projects, traffic calming projects, or bicycle/pedestrian projects. Last year’s traffic calming project that the City of Bothell submitted was a great success. If you know of a project or study that would be a candidate for the Student Night, please contact the Student Activities Committee.

### Student Activities Committee Co-Chairs:

Scott Lee, Transpo Group – (425)821-3665 or [scottl@thetranspogroup.com](mailto:scottl@thetranspogroup.com)

Meagan Powers, DKS Associates – (206)382-9800 or [mcp@dksassociates.com](mailto:mcp@dksassociates.com)

# WA Section ITE Board

## President

David R. Alm  
INCA Engineers  
400 112th Ave NE, Suite 400  
Bellevue, WA 98004  
425.635.1000  
425.635.1150 Fax  
[d.alm@incainc.com](mailto:d.alm@incainc.com)

## Vice President/ Treasurer

Nick W. Ching  
HNTB  
600 - 108th Ave NE, Suite 405  
Bellevue, WA 98004  
425.456.8551  
425.456.8600 Fax  
[nching@hntb.com](mailto:nching@hntb.com)

## Secretary

James Bloodgood  
Snohomish County  
3000 Rockefeller Avenue  
M/S 607  
Everett, WA 98201  
425.388.6419  
[jim.bloodgood@co.snohomish.wa.us](mailto:jim.bloodgood@co.snohomish.wa.us)

## Past President

Kerensa Swanson Fromherz  
The Transpo Group  
11730 118<sup>th</sup> Avenue NE, S 600  
Kirkland, WA 98034  
425.821.3665  
425.825.8434 Fax  
[kerensas@thetranspogroup.com](mailto:kerensas@thetranspogroup.com)



c/o James Bloodgood  
Snohomish County  
3000 Rockefeller Avenue  
M/S 607  
Everett, WA 98201  
425.388.6419  
[jim.bloodgood@co.snohomish.wa.us](mailto:jim.bloodgood@co.snohomish.wa.us)