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Institute of Transportation Engineers

A Community of Transportation Professionals



Summer E-Newsletter

**Transportation Planning Council
Summer 2011**

In This Issue

ITE 2011 Annual Meeting in St. Louis

Volunteers Needed for ITE Journal

Long Range Planning

Complete Communities

Why Sustainability Concepts Need to be at the Heart of Infrastructure Rebuilding

Integration of Transportation and Land Use Policies, Regulations, and Incentives in Bellingham, WA

An Application of Land Use and Transportation Integration Method in China

Chairman's Message

Brad Strader, AICP
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Meet me in St. Louis!

This is an exciting time for the transportation planning profession. These articles highlight some of the innovative approaches transportation professionals are applying to a wide range of projects internationally, namely linking land use with transportation as part of long-range planning; new metrics for measuring sustainability and the "completeness" of our transportation systems; and reducing the number and length of vehicle trips. Incidentally, this issue highlights the importance of volunteers to the work of the Transportation Planning Council. TPC member Patricia Tice served as the volunteer editor of this newsletter in addition to writing an article herself. We would like to thank the volunteers who contributed articles to this newsletter and encourage all TPC members to contact us

**Operating Systems
Approach to Transportation
Planning**

**The Sonoma County,
California Safety Plan**

**FHWA to Publish Desk
Reference on TDM and
Transportation Planning**

Welcome New Members

**TPC Discussions on ITE
Community**

**Transportation Planning
Council 2011 Executive
Committee**

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with ideas for future articles or other volunteer opportunities.

Would you like to learn more about the innovative approaches highlighted in this issue? Have any ideas of your own to share? Come join us at the ITE Transportation Planning Council conversation circle in St. Louis! St. Louis is a wonderful venue (OK, a bit hot in August) to discuss innovations. The East-West Gateway Council of Governments (the MPO for the St. Louis area) has led the "Great Streets" program. For those of us that are baseball lovers, there is arguably not a better baseball town than St. Louis. And the Cardinals will be at home, so be sure to bring some red to wear! A few of us may catch a ball game Saturday night after what is sure to be a rousing TPC meeting or at least catch the game at a local watering hole for some fun networking. Check in with me or we'll improvise after Saturday's meeting.

The idea is to combine learning, networking, and fun. I just returned from the North Carolina ITE mid-year meeting in beautiful (and also hot) Asheville, full of unique sessions. North Carolina's Section leadership has worked to make "ITE Funner." Would you believe a session on dealing with rockslides kept us spellbound? A session on using social media kept us in stitches! And I was on the winning team on a scavenger hunt through the city (thanks in no small part to the presence on our team of a NC State intern that grew up in Asheville). Let's bring some of that enthusiasm with us to St. Louis.

ITE 2011 Annual Meeting in St. Louis

**Recent Planning Advances: "What Have We Learned?" Conversation Circle
Saturday, August 13, 2:30 p.m.**

This Conversation Circle will serve as the kickoff for the Transportation Planning Council's activities at the 2011 ITE Annual Meeting, replacing the traditional TPC

Executive Committee meeting. The "conversation circle" will focus on cutting edge innovations in the transportation planning field.

Discussion will be stimulated through a combination of brief presentations by Executive Committee members and other subject matter experts both in the Annual Meeting program and the surrounding St. Louis area. A conversation will then be facilitated among all present for the exchange of personal perspectives on lessons learned and the identification of the latest research and findings affecting the field of sustainable transportation planning and multimodal performance measures. All Section and District participants will be encouraged to discuss their specific experiences. This will also serve as a forum for networking, exchange of knowledge and gaining insights about recent advances in smart growth, multimodal planning, complete streets and other related "hot topics" before the conference officially begins on Sunday.

Also, please plan to join us afterward for an informal social networking time at a nearby establishment.

Please visit the link below to see the ITE 2011 Annual Meeting and Exhibit schedule of events and Council meetings: www.ite.org/annualmeeting/meetings.asp.

See you in St. Louis!

Volunteers Needed for ITE Journal

The January 2012 issue of the ITE Journal will be dedicated to the topic of Transportation Planning, and articles are being sought on this topic. Transportation Planning Council members are therefore encouraged to submit an abstract! In addition, if you have a colleague that may have an interest in submitting an abstract on any planning-related topic but who is not a TPC member, please share this abstract solicitation with them.

Please submit all abstracts to Daniel Kueper at dkueper@mbakercorp.com by July 11, 2011.

Each abstract should be a self-contained statement of the primary objectives and scope of the study or the reasons the manuscript will be written. Maximum length is 100 words.

Long Range Planning

The topic of this newsletter is long range planning, but we are highlighting a different part of this process than normally showcased. Many communities have had genuine problems with auto-centric community designs of the 20th century and have embarked on visioning initiatives to help assure their mobility resources will not become a limiting factor on their future prosperity. Other communities have just begun to hear complaints about their traffic and are facing budget constraints that preclude them from building their way out of congestion like they always have. Still others have yet to face the discomfort of congestion, but welcome the chance to grow without fully understanding the consequences. This newsletter will focus on the strategies communities need to implement today to get to the future they want,

or avoid a future they may not yet fully understand. It presents articles on envisioning "complete communities," and the importance of sustainability in our infrastructure. Innovative approaches to land use and transportation modeling developed for Bellingham, Washington, and Luohe, China, may prove useful for other communities. Finally, articles discuss a transportation operating system for Los Angeles, and a safety plan for Sonoma County, California.

Although the strategies vary in approach, they are all based on the same principle: if mobility and accessibility to economic and social opportunities are to expand, transportation professionals will need to think beyond the pavement and focus more on people. We hope this newsletter will give you food for thought and strategies you can implement now to achieve your community's long range vision.

Complete Communities

Patricia Tice, PE, A.I.C.P.

President, Creative Resources Enhancing Workable Sustainability (CREWS), LLC

A complete street attempts to provide an adequate transportation facility to serve all available modes that may use that street. Similarly, a complete community attempts to provide an adequate land use mix and connectivity for its residents so that day-to-day needs of their residents can be met within as short a travel distance as possible. The goal of a complete community is to make different mode choices viable options to their residents both from a physical standpoint and a utility standpoint. This strategy can optimize mode split, reduce trip lengths, reduce congestion and set the stage for a successful transit system. However, a complete community also moves beyond just providing adequate facilities to fostering cultural changes that encourage alternate modes or new accessibility options.

A crucial component of a complete community is that connectivity is provided at a resolution that is appropriate to the mode-pedestrian connections located at a pedestrian scale (800 feet/about 244 meters or less), bicycle connections at a bicycle scale (.5 mile/.8 kilometers or less) and so on. Neighborhood shopping and support services are common and clustered at approximately one mile (1.6 kilometers) intervals. Even major retailers like WalMart and Target are beginning to recognize that there is a limit to the economies of scale they have used as a business model and are beginning to build smaller stores with (Web-)Site to Store capabilities. Any trip within the community is likely to be shorter than a trip outside of that community, which reduces VMT and congestion. On the surface, the "Buy Local" initiatives gaining in popularity may look parochial, but they can become a real asset to any mobility strategy. When services can be matched to residential uses within two miles, then bicycling becomes a truly viable option over time.

One of the most critical impediments to alternative modes is cultural. A Complete Community strategy should be structured as incremental changes over several years. Vehicular orientation has been the pattern throughout most of America for many decades and will not change overnight. To begin, communities should work toward improving pedestrian and bicycle connections, especially around schools. Parents and students should be encouraged to use these modes through school education, PTA's and through community events. Parents who can trust their children to bike to school can trust them to go to the corner store for an immediate shopping need, and will eventually go themselves. Furthermore, as children grow up accustomed to the freedom that a bicycle can bring them, they will continue to

enjoy that freedom and exercise as they grow. Communities that have few pedestrian and bicycle connections due to subdivision walls will begin to consider and ultimately request additional pedestrian connections. Communities can respond wholeheartedly with incentives like property tax waivers for the dedication of pedestrian easements in appropriate places along with the construction of bicycle paths.

As communities encourage walking and biking, they should also review their Euclidian zoning ordinances to find new ways to encourage mixed land uses. One strategy is to create an "orphan parcel" ordinance. These parcels are usually 1 to 5 acre (.004 to .02 km²) parcels within residential zones that are too small for a residential use. They often occur at transportation nodes like intersections, which makes them better suited to mixed land uses. Giving land owners protection from NIMBY neighbors so they can provide complementary uses converts "throw-away" land into a highly valuable commodity. These parcels are ideal for neighborhood scale goods and services, possibly with first floor commercial/services and second floor residences as was common early in the last century.

Accessibility is beginning to take on new meaning in the digital age. Telecommuting now shows a higher mode split than transit and at a much lower cost. It is also ideally suited to the low density suburban environments that are so difficult for transit to serve. Communities should explore the potential of neighborhood telecommuting or coworking centers as an economic development initiative.

Coworking sites sponsored by a local government can become a significant incubator for small, creative-class businesses by providing meeting space and market rate self-service printing capabilities. This could also reduce government costs for printing as the increased volume decreases the jurisdiction's cost per page.

Ultimately, as residents become more comfortable walking and biking, they will want to extend those trips through local transit services. Transit service is a logical next step in areas where bicycling and walking have firmly taken hold.

ITE has had extensive discussions regarding community capture, but the concept of a complete community goes beyond merely tailoring land uses to match trip ends. Matching trip ends helps, but it is the physical details of the connections and the social details of the culture that truly make community capture viable. The communities with the highest internal capture in the ITE Trip Generation Handbook are the communities for which there was no significant need to travel outside that community and internal amenities that supported alternative travel types.

This article has only scratched the surface of the policies that could be implemented to create a Complete Community. Our dependence on vehicular travel has been supported by the transportation community for many decades and the car will continue to be a strong component of our overall mobility. However, we have the opportunity to encourage a more robust system. This strategy begins with our children because they will be the ones that will ultimately implement this approach going forward. For their sake, we must make a choice to move differently.

Bio: Patricia Tice is an engineer and planner with 15 years experience who frequently contributes on sustainability and mobility issues. She is the President of Creative Resources Enhancing Workable Sustainability (CREWS), LLC which is working toward DBE status throughout Florida. For more information, contact PatriciaTice@CREWSLLC.com.

Why Sustainability Concepts Need to be at the Heart of Infrastructure Rebuilding

*Arnold Bloch, Ph.D.
Principal, Howard/Stein-Hudson Associates, Inc.*

In Felix Rohatyn's wonderful book from 2009, *Bold Endeavors: How Our Government Built America, and Why it Must Rebuild Now*, he makes four important points:

- "The nation is falling apart - literally. ...the country's entire infrastructure...is rapidly and dangerously deteriorating."
- "...the federal government has traditionally been the indispensable investor in our nation." (His book traces federal investments from the Louisiana Purchase through the Interstate Highway System.)
- While the nation has gained untold benefits from these federal investments, at the time they were made they were all typically "attacked as costly, unmanageable, and unnecessary."
- Despite significant federal investment presently on infrastructure projects, "...there is no system guiding these funds toward their most important uses." 1

It should come as no surprise, therefore, that a major poll administered in February 2011 found the following:

"Upkeep of roads, bridges and transit systems is a high priority to an overwhelming margin of Americans, *but by an even greater margin they don't want to pay more for it.*" 2 [Emphasis added].

Why doesn't the American public want to pay for it sees as an important need? Here are three likely reasons for this seeming paradox:

- **The cost is truly significant.** Just two years ago, the National Surface Transportation Infrastructure Financing Commission estimated it would take \$200 billion annually through 2035 to maintain and improve the nation's highway and transit systems—a number which is nearly three times what all levels of government are paying today for this purpose.³
- **Americans have become short-sighted and highly political.** Or as *The Economist* called it, "...modern America is stingier..." than it has been in nearly 200 years when it comes to infrastructure. 4 Congressional earmarks in ISTEA, TEA-21, and SAFETEA-LU did little to spur major new nationwide investment in infrastructure repair; instead, they have helped to fuel a more recent backlash against federal spending in general, with little or no replacement by state or local government.
- **There is no real, comprehensive plan for infrastructure renewal.** For something that will cost so much money and in an atmosphere of growing mistrust of the efficiency or effectiveness government spending, the lack of an apparent infrastructure maintenance and improvement plan is devastating.

The absence of an infrastructure rebuilding plan is something that nearly all transportation planners, policy makers, and voters can agree upon. But the basic objectives of that plan are open to debate. At an AASHTO conference in 2010, the debate is laid out succinctly.⁵ On the one hand, the concept of a National

Infrastructure Bank to select, finance, and better manage national infrastructure investments should not be subject to "vague 'livability' and 'sustainability' requirements." On the other hand, infrastructure improvements should be incentivized to support sustainable development patterns and invest in linkages that better interconnect streets, transit, housing, and jobs, and mixed-use neighborhoods in both urban and suburban locations.

In this author's opinion, it is not primarily a question of what goals and objectives should be accommodated by a nationwide infrastructure rebuilding plan, but *rather what goals and objectives are likely to be successful in getting such a plan established*. Flaws in previous funding programs are not merely those of perceived mismanagement, unfair distribution of funds, or even (as one source calls it) a "perverse incentive system," i.e., a system that rewards inefficient use of infrastructure by separating users from an understanding of the costs they are imposing.⁶ *A more thorough view of flaws would include the unintended consequences of past investments, those which are recognized by an increasing number of citizens: the gutting of urban vitality, the over-reliance on the automobile for nearly all forms of productive travel, and a deterioration of quality of life as perceived by both urban and suburban residents and travelers - both for themselves and their children.*

Transportation infrastructure and services are and always will be a means to an end. The end should not be seen as a rebuilt infrastructure, but as a tool for a rebuilt economy and an improved quality of life for Americans which can be sustained for years to come. Sustaining such a future means using the infrastructure tool in sustainable ways. Being able to secure the funding for such a necessary and bold endeavor (to borrow from Mr. Rohatyn's premise) relies upon convincing Americans and their elected representatives that the goals are consistent with their basic desires. This is best accomplished by showing how "sustainability" is a real concept - and not a vague requirement - which can help guide investments to achieve real economic/quality of life goals, objectives, and performance measures.

Endnotes:

1. Rohatyn, Felix, *Bold Endeavors*, Simon & Schuster, New York, 2009.
2. Halsey, Ashley, "Rockefeller Foundation survey: Americans rank transportation needs high but don't want to pay the costs," *The Washington Post*, February 13, 2011.
3. National Surface Transportation Infrastructure Financing Commission, *Paying Our Way: A New Framework for Transportation Finance*, Washington, D.C., February 2009.
4. "Life in the Slow Lane," *The Economist*, April 28, 2011.
5. AASHTO Center for Excellence in Project Finance, *Proceedings of the Forum on Funding and Financing Solutions for Surface Transportation in Coming Decades*, September 2010.
6. Energy Security Leadership Council, *Transportation Policies for America's Future*, February 2011.

Integration of Transportation and Land Use Policies, Regulations, and Incentives in Bellingham, WA

Chris Comeau, AICP

[Bellingham, Washington](#) is a progressive small city (population 81,000) located along the far northwestern inland coast of Washington State, 85 miles north of Seattle and 45 miles south of Vancouver, British Columbia, Canada. As the primary center for employment, shopping, entertainment, education, and medical services, Bellingham plays an important role in the development of the entire Whatcom County region.

Planning under Washington's Growth Management Act, Bellingham has adopted an internally consistent Comprehensive Plan with a transportation element ([link to www.cob.org/services/neighborhoods/community-planning/transportation/long-range-planning.aspx](http://www.cob.org/services/neighborhoods/community-planning/transportation/long-range-planning.aspx)) containing multimodal transportation goals and policies designed to support alternative forms of transportation and compact mixed use urban infill development prescribed by the land use element. Multimodal goals and policies in the transportation element also support public transit, which is not a city service. City transportation planners work hand-in-hand with the regional transit agency, Whatcom Transportation Authority (WTA), to incorporate high-frequency (15-minute headway) transit service routes into citywide planning efforts for mixed-use urban villages and transit-oriented development. Long-term mode shift goals adopted in the transportation element serve as targets to reduce the percentage of total trips made by single-occupant vehicles.

Bellingham has also developed regulatory programs to implement these strategies. In 2008, Bellingham transportation planners and transportation consulting firm [TranspoGroup, Inc.](#) developed and adopted a new [Multimodal Transportation Concurrency Program](#) that includes level of service (LOS) measurements for pedestrian, bicycle, multi-use trails, and public transit in addition to the traditional auto-centric volume to capacity (v/c) ratio LOS standards used by most jurisdictions. The program integrates transportation with land use by dividing the City into sixteen mobility sheds (See Figure 1) called Concurrency Service Areas (CSA) and classifying each according to land use typology and availability of multimodal transportation facilities and transit service. Each CSA is classified as Type 1, 1A, 2, or 3, as listed below and weighted with policy dials (See Table 1.) to reflect the relative importance of different transportation modes in the three different CSA Types.

- **Type 1 CSA** are Urban Villages with adopted Master Plans. They are characterized by a high percentage of pedestrian and bicycle facilities, high frequency transit service, and higher density land uses with a good mix of services. Western Washington University is classified as Type 1A CSA #5 due to the extremely high transit service and ridership, campus parking limitations, and the adopted WWU Institutional Master Plan.
- **Type 2 CSA** are transition areas between Urban Villages and outlying areas. Type 2 CSAs are characterized by a moderate percentage of pedestrian and bicycle facilities, high frequency transit service, and moderate density land uses that are primarily residential with a small degree of mixed uses.
- **Type 3 CSAs** are primarily east of Interstate 5 and at the edges of the City. Type 3 CSA are characterized by a low percentage of pedestrian and bicycle facilities, moderate to low transit service availability, moderate to low density land use with a small degree of mixed uses, and a high degree of automobile dependency.

[Figure 1.](#)

Table 1.

The existing pedestrian and bicycle measurements are facility-based and measure the relative completion of the planned system. Person trip credits are calculated for both the pedestrian and bicycle modes based on the percent complete of the planned system in each CSA. The multi-use trail component includes bicycle-friendly trails and adds person trip credits to each CSA based on the relative completeness of the planned bicycle system. The pedestrian, bicycle, and multi-use trail person trip credits are combined for a total non-motorized person trips available for each CSA.

Bellingham transportation planners consider this [award-winning](#) program a work in progress, however, and are now attempting to enhance the Multimodal Transportation Concurrency Program by developing and incorporating connectivity metrics and analysis capability into it. Connectivity is an often used, but also often undefined term and concept in transportation planning with no real value associated with what is being measured. A [ViaCity](#) software application created by [TranspoGroup, Inc.](#) uses Route Directness Index (RDI) methodology to calculate the straight line (crow's flight) distance between two points or destinations and the actual route distance for a traveler. A higher RDI value indicates a more direct route with better connectivity to the traveler's destination while a lower RDI value indicates a less direct route that requires a traveler to go out of their way. ViaCity applies RDI to GIS maps and can be as accurate as the precision of the GIS data. Bellingham is in the process of developing connectivity analysis at the parcel level to further integrate and prioritize transportation improvements with land use plans and intends to develop a connectivity metric to the Multimodal Transportation Concurrency Program.

In 2010, Bellingham developed and adopted economic incentives called [Urban Village Vehicle Trip/Transportation Impact Fee \(TIF\) Reductions](#) to lower the cost of development in areas promoted as the most appropriate for growth based on the availability of multimodal transportation facilities. The vehicle trip reductions are based on a blend of methodology from the ITE Trip Generation Manual and accepted trip generation research and are only available for use in select Urban Village mixed use areas that are well-served with pedestrian, bicycle, and transit service. Automatic vehicle trip reductions include:

- 15% for mixed use Urban Village locations;
- between 2% and 10% for proximity to transit service; and,
- 10% for large employers that are required to comply with Washington State law for Commute Trip Reduction.

Further vehicle trip reduction is possible for voluntary performance measures, such as 1% for each WTA transit pass purchased and/or 2% for each purchase of membership to a Car Share organization. Bellingham transportation planners consider these vehicle trip reductions to be a work in progress and would like to include other performance measures, such as on-site bicycle parking, employee van-pool participation, etc., if they can be proven to correlate with on-site vehicle trip reduction.

For more information about Bellingham, WA's integrated multimodal transportation-land use planning programs, please contact Chris Comeau, AICP, Transportation Planner, ccomeau@cob.org or (360) 778-7946.

An Application of Land Use and Transportation Integration

Method in China

Jia Hao Wu, Ph.D.
Bing Song, P.E.
W&S Solutions

Both the US and China have faced the environmental and social consequences of transportation systems dominated by a single mode. One crucial difference is that while planning in the US is performed in the context of personal property rights, planning in China happens in the context of only one landowner-the State. While community planning in the US is often a chaotic confrontation of diverse stakeholders and owners, in China land development has been centrally controlled with master plans implemented in a top-down manner with skill and efficiency. Although this seems like a planner's dream, the American development model that was emulated within a rapidly growing China captured many of our failings and brought them to their logical conclusions. The good news is that this ability to respond in a coordinated manner also works in their favor as they can also improve their planning decisions comparatively quickly.

Over the last 30 years, increasing freedoms within China have led to more individual control of property for a specific period of time. Although the centralized plans are still considered State development policy and have some of the force of law, local leaders have increasing influence and accountability for the infrastructure decisions made in their area and are therefore adapting to address the limitations of their previous planning schemes.

The US ISTEA legislation in 1991 provided fundamental changes in the way that funds for transportation were allocated, with emphasis on using travel demand models and real world data to project outcomes due to the choices made by local jurisdictions. Similarly, the Chinese Central Government's new "12thFive-Year Plan(2011-2015)" has called for energy saving and environmental friendly societies. Land use allocations have had direct impacts on the urban spatial pattern, future urban development, and the transportation system in general. Since urban transportation accounts for 30% of China's total energy consumption, the transportation system is a major emission generator in China as it is here in America. For instance, the San Francisco area transportation sector generates 40% of all emissions. In light of China's current Five Year plan, in February, 2010, the China Ministry of Housing and Urban-Rural Development issued a legal document called "Urban Comprehensive Transportation System Planning Procedure," which requires that both transportation system planning and urban general planning be done in a coordinated way.

Land use and transportation models have been a crucial component of US planning for several decades and are becoming a crucial component of Chinese planning as well. A proper land use model with transportation options (such as the development of transit strategies) helps identify which strategies reduce vehicle distance traveled.

Thus a project research team was established in 2009, which includes Research Center for Urban Planning and Development of Fudan University in Shanghai and Wu & Song Associates (Shanghai) in China and W & S Solutions in Pleasanton, CA in the US. The team was supported by the University of California, Davis UPlan team for the UPlan operations and INRO team for the Emme integration with UPlan. This study yielded a research document and a paper, including the literature review, a modeling approach and results.

W&S solutions was responsible for a new land use allocation methodology called the Three Stage-Two-Feedback Method (Integration Method) which integrated land use allocation and transportation policy options in an iterative approach with practical feedbacks. To the best of the authors' knowledge, the method presented for the City of Luohe general plan was developed for the first time in China. [A more detailed summary of the analysis procedure may be found here.](#)

Using this method, urban land use alternatives are evaluated using rule based modeling within UPlan. Once a land use alternative was selected, transportation policy options were evaluated within Emme and the selected land use alternative was refined again. The resulting final land use alternative accompanies the selected transportation option and will be used to guide development plans within the city. A congestion measure at TAZ (Traffic Analysis Zone) level was defined and used to prevent over-development in any one area. Other criteria used to determine land use allocation included: TAZ Based Accessibility, VMT (Vehicle Miles Traveled), Average Distance, Average Travel Time, Percent of Population Covered by Bus Stops and Percent of Employment Covered by Bus Stops. The integration between UPlan and Emme was designed to make sure that the iterative process was convergent.

Several scenarios were generated with varying levels of transit, auto and non-motorized transportation policies. Table 1 summarizes the integrated land use/travel demand model results from the first and second applications of the process for the three transportation strategies.

Transportation Policies	Time (min.)			Distance (km)		
	Transit	Auto	Non-Motorized	Transit	Auto	Non-Motorized
Application One	13.39	13.30	15.91	9.79	10.08	8.97
Application Two	13.36	13.08	15.74	9.76	9.93	8.93
Difference (Two-One)	0.03	0.22	0.17	0.03	0.15	0.04

The second application of the land use allocation model shows improvements in the travel time and distance in each of the three scenarios, although because the community, Luohe, is a relatively small community, the differences are also small. The non-motorized scenario was chosen and would be further refined for final government approval. In addition, a by-product of this project was the development of an urban information system and model inventory for the City of Luohe, where the general plan, land use allocations, the transportation network and future traffic volumes are stored as data layers.

The results obtained are encouraging, and demonstrate that a proper allocation of land use in China can result in important impacts to the transportation system, including VMT reduction and better transit system coverage. Because of the centralized nature of their government and development structure, this final adopted plan is not just an estimate of the future development patterns, but will determine those patterns with far more control than possible here in the US where shifting land use patterns often play havoc with transportation infrastructure plans.

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Operating Systems Approach to Transportation Planning

David Grannis, Point C

Brian Welch, Fehr & Peers

Michael Kennedy, Fehr & Peers

Since the advent of travel demand forecasting, transportation planners have based transportation facility location and sizing decisions primarily on narrowly defined supply and demand relationships. These restrictions preclude most models from including sophisticated representations of alternative modes, land use/transportation feedback loops, policy-based trip reduction strategies, and fine-grained nuances of transit-oriented, mixed-use development.

This narrow approach to planning is typically applied one individual mode at a time, such that the needs for roadway capacity or transit capacity are planned separately. Operational analyses are conducted to evaluate the performance of existing facilities and services, such as a line-by-line analysis for a transit system, but less often do operational analyses play a major factor in planning new infrastructure. While land use underpins the demand for transportation facilities, rarely is there a robust accounting of how land use decisions affect the need for transportation facilities.

Because infrastructure systems within a neighborhood or city are inter-related, we have applied a holistic approach to address the limitations articulated above: the **operating system** approach to transportation planning.

Transportation Operating System

A transportation operating system is modeled after the concept of a computer operating system. The operating system manages the computer hardware and software, and is the basis for all computer operations. A transportation operating system combines plans to improve our infrastructure (access hardware) with assessments about the performance of our existing systems, integrating new facilities in ways that complement the existing system. Planning, land development and economic incentives (access software) are also integrated to optimize the social and economic forces that affect mobility.

The operating system approach focuses on deploying integrated systems that enhance performance and increase access choices for people. Developing an operating system for a community can provide individuals with viable, real-time access alternatives, to better allow them to make the economic, environmental, and personal value choices about where and how they access the events of their lives. *At its core, this approach acknowledges what we have learned over decades, that no single "fix" or initiative, implemented in isolation, will yield sustainable success for our transportation system.* Thus, the dynamic synergy of an operating system serves to integrate multimodal transportation network hardware, with land use software interacting in tandem with the transportation system to enhance access. This integration is achieved based upon the unique identity of a community, city or region, because a "cookie cutter" or "model" set of strategies will never be entirely applicable to every metropolitan region. Thus, an operating system must be tailored to the unique history, practices, circumstances-the specific identity-of a region.

Vision Los Angeles-A Case Study

Vision Los Angeles (www.visionlosangeles.org) is an initiative to advance economic and environmental success for Los Angeles County through improved transportation mobility. It is led by a partnership between the Environmental Defense Fund (EDF) and the Los Angeles County Economic Development Corporation (LAEDC), and is guided by an advisory group of leaders from the non-profit, business, and government sectors. Its focus is ideas and strategies to address the combined high cost of housing and transportation, improve transportation access and mobility, and improve air quality and reduce greenhouse gas emissions. The operating systems approach provides a unifying vehicle to implement all of the strategies proposed in Vision Los Angeles. Specific strategies include:

- Access Operating System
 - Create an integrated and widely accessible transportation database that provides the public real-time information on system performance and cost across all modes. Provide access choices based on a variety of variables and values (time, money, pollution, etc.)
 - Establish coordinated transportation management associations (TMA's) within economic clusters and activity centers region-wide to focus private resources to address specific transportation needs. Provide access choices as an economic perk of employment.
 - Implement peak congestion and parking pricing and integrate peak highway and arterial speed controls into a networked system to balance demand throughout the day and maximize mobility. Manage and integrate the overall transportation access system into the accessible database to provide information, choice and reliability.
- Access Hardware
 - Coordinate and deploy public and/or private transit within and to/from employment, educational, and activity centers region-wide to facilitate "first-mile/last-mile" connections and as an alternative choice to driving and parking.
- Access Software
 - Develop and deploy Access Efficient Mortgage (AEM) and Networked Work Center programs to minimize the "drive until you qualify" problem of affordable housing far from employment centers, as well as bringing jobs closer to existing housing stock in the suburbs and exurbs. A targeted focus on employment location subsidies and facilities can have a greater transportation system benefit in specific instances than a larger transportation investment.
 - Accommodate forecast population and employment growth at locations accessible to fixed-guideway transit via municipal general plan updates. Focused density in transit corridors protects and enhances existing neighborhoods and communities, while enabling financial resources to be generated to support construction and operation of the transit facilities.

These as well as other strategies were combined into the "system diagnostics" tools - the packages to test effectiveness - using state-of-the-practice transportation modeling methodologies. While no individual strategy was found to make a significant difference on its own, packages of strategies that included operating system enhancements coupled with synergistic improvements to access hardware and accessible land use, showed significant potential for reductions in vehicle trips and vehicle miles traveled (VMT), greenhouse gas emissions, and pollutant emissions per capita. Significant increases in accessibility to job and activity centers, and regionwide congestion reduction and its resulting economic benefits were also evident.

The Vision Los Angeles study concluded that large-scale investments in transportation infrastructure, while critical, would need to be paired with a distinct operating system strategy in order to meet people's needs, increase economic productivity and enhance quality of life.

Conclusion

Based on our work in Vision Los Angeles, we believe that the operating systems approach to transportation planning holds great promise, taking advantage of technology to enhance efficiency, provide more information and more choice to people in their access needs, and better integrate new transportation infrastructure into a system that operates in a fashion that is far more efficient and far better tailored to the needs of its users.

For more information, contact:

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The Sonoma County, California Safety Plan

*Steve Colman,
PTP Dowling Associates, Inc.*

A Safety Plan was prepared as part of the Sonoma County, California, Comprehensive Transportation Plan (CTP) Update in 2007. A Safety Element had never been included in this plan. The plan covers a county that is a mixed urban and rural environment, with a population of some 480,000 people. The plan was intended to fit within the context and strategies of a long-range transportation plan. The Safety Plan can be accessed at the link below:

http://www.sctainfo.org/reports/Comprehensive_Transportation_Plan/ctp_2009/apdx_c_iv_safety.pdf

FHWA to Publish Desk Reference on TDM and Transportation Planning

The Federal Highway Administration's Office of Planning, in conjunction with the Office of Operations, is finalizing a new desk reference entitled: "Integrating Demand Management into the Transportation Planning Process." The purpose of the resource document is to assist planners in determining when, where and how to integrate TDM into various plans and the planning processes used to develop them. The desk reference is organized into four major sections:

- A new, broader definition of demand management is preferred which focuses on traveler choices and sets TDM into a broader conceptual framework, which includes its relationship to highway operations.
- Seven key policy objectives are enumerated, including: mobility, congestion, environment, land use, economic development, goods movement, and livability.
- Four planning levels are discussed, each focusing on how TDM can be

integrated in key planning efforts, including, state, regional, corridor and local planning levels.

- Finally, the desk reference discusses how to evaluate the effectiveness of TDM in meeting policy objectives and provides information on the known effectiveness of many of the TDM strategies included in the document. The desk reference is being reviewed and vetted through a series of workshops and seminars. One opportunity for ITE TPC members to learn about and comment on the draft desk reference will be a webinar, hosted by ITE, to be offered in the fall of 2011 or early 2012 (details to follow in the next newsletter). Finally, the desk reference is being converted to a decisionsupport system and accompanying software.

The desk reference was written by the Battelle Institute, with assistance from Eric Schreffler, Transportation Consultant; the Texas Transportation Institute; and Wilbur Smith & Associates. The authors and sponsors of the document hope that the desk reference will be a valuable addition to the transportation planning toolkit of planners and system managers.

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Welcome New Members

We would like to welcome the newest members of the ITE Transportation Planning Council:

- Dale Bracewell, Vancouver, BC, Canada
- Tracy Huffman, Hernando, MS
- Kim Kyeil, Atlanta, GA
- Jeffrey LaMondia, Auburn, AL
- ZibbyPetch, Newmarket, ON, Canada
- SirishaPillalamarri, Wichita, KS
- Prem Sharma, Rajasthan Ajmer, India
- William Wuensch, Charlottesville, VA
- Richard Curry, San Diego, CA
- Garrett Donaher, Waterloo
- Kai-Ling Kuo, Los Angeles, CA
- Miguel Lugo, Gainesville, FL
- Gabriel Philips, Mount Vernon, WA
- Jeffrey Purdy, Cheyenne, WY
- ArunRamlakhan, Miami, FL
- Michael Regan, Watertown, MA
- Elvis Riou, Camrose, AB, Canada
- TaskoStanoev, Sofia 1111, Bulgaria
- Trevor Steinbrock, Manhattan, KS
- Victor Teglassi, Bronx, NY
- AbdirahmanAbdi, Columbus, OH
- Mehemed Delibasic, Whitby ON
- David Patman, Winnipeg, MB
- Bonita Player, Pensacola, FL

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