

26th ANNUAL

TRANSPORT

CHICAGO

2011



Friday, June 3, 2011

8:00 am-5:00 pm

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# TRANSPORT CHICAGO

## Transport Chicago

First held in 1986, Transport Chicago is an annual conference that fosters relationships between the academic community and practitioners in the public and private sectors, helps establish academic and non-academic research agendas, encourages members of the transportation community to present papers on current topics in transportation research, and fosters the dissemination of information on local transportation planning, policies and programs. The conference is organized by a group of volunteers who come from corporate, governmental and academic institutions around the region. This year's steering committee comprises the following individuals:

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**Emily Tapia-Lopez** - Resolute Consulting

*Vice-President*

**Dave VanderZee** - Pace

*Treasurer*

**Jack Chalabian** - Chicago Transit Authority

*Secretary*

**Charlotte O'Donnell** - Pace

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**Jennifer Henry** - Natural Resources Defense Council

**Mark Minor** - Regional Transportation Authority

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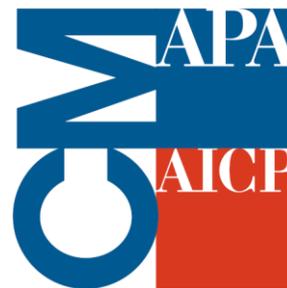
**Jason Saavedra** - University of Illinois at Chicago

**Sarah Sherburn** - University of Illinois at Chicago

**Paris Tyler** - Chicago Transit Authority

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## TRANSPORT CHICAGO

Dear Transportation Enthusiast,

Thank you for joining us today for Transport Chicago's 26<sup>th</sup> Annual Conference. Our steering committee has been working very hard to prepare a high-quality program that addresses the real needs facing our transportation infrastructure. We're delighted you've joined us in these important conversations and look forward to today's discussions.

Since our last conference, it has been an interesting year. The recession continues to impact our daily lives with the cost of everything - including gas - getting more and more expensive. More than 9 percent of Illinois' population remains unemployed at a time when the State continues to face significant financial challenges. February's election cycle shook up the transportation committee at the federal level with little progress on a new surface transportation bill. And yet while our transportation infrastructure claims a slightly better-than-failing grade from the American Society of Civil Engineers, we still need to provide the integrated transportation network that gets people and goods where they need to go.

Our transportation needs are great and revenues are bleak. Our agencies battle between state of good repair and new infrastructure with limited options on how to fund capital, maintenance, or operating costs.

However, the story isn't all grim. Work is steadily underway on the Eisenhower Expressway reconstruction project, a new Apple rapid transit station showed us innovation with private investments in a public good, and track work has begun on the Amtrak corridor between Chicago and St. Louis. There are numerous examples of these types of initiatives happening throughout the state but there's much work to still do.

We hope you enjoy today's conference, make plenty of connections and continue to work together to strengthen our transportation infrastructure now and into the future. On behalf of myself and the steering committee, thank you for your support and welcome!

Sincerely,



Emily Tapia-Lopez  
President  
Transport Chicago 2011

## Conference Agenda

Time	Event and Location		
8:00-8:45 am	<b>Registration and Continental Breakfast</b> Main Ballroom A		
8:45-9:45 am	<b>Keynote Address*:</b> <b>Robert Prince</b> , former General Manager of the Massachusetts Bay Transportation Authority (MBTA) Main Ballroom A <span style="float: right;"><b>CM   1</b></span>		
10:00-11:00 am	<b>Planning for the Future</b> Main Ballroom A	<b>Regionally Speaking</b> Room B-C	<b>Ped(al) Power</b> Room D-E
11:15 am-12:15 pm	<b>Other People's Money</b> Main Ballroom A	<b>Logical Logistics</b> Room B-C	<b>Taking it to the Streets</b> Room D-E
12:30-1:00 pm	<b>Lunch</b> <ul style="list-style-type: none"> <li>• Lunch Buffet</li> <li>• Student Paper Award Presentation</li> <li>• Sponsorship Acknowledgments</li> </ul> Main Ballroom A		
1:00-2:00 pm	<b>Lunch Plenary Address*:</b> <b>Cal Marsella</b> , former General Manager and Chief Executive Officer, Denver Regional Transportation District (RTD) Main Ballroom A <span style="float: right;"><b>CM   1</b></span>		
2:00-2:30 pm	<ul style="list-style-type: none"> <li>• Poster Session</li> <li>• Exhibitor &amp; Networking Session</li> </ul> Main Hallway		
2:45-3:45 pm	<b>We the People</b> Main Ballroom A	<b>Wheels on the Bus</b> Room B-C	<b>Innovative Perspectives</b> Room D-E
3:45-4:00 pm	<b>Closing Remarks</b> <ul style="list-style-type: none"> <li>• Raffle</li> </ul> Main Hallway		
4:00-5:00 pm	<b>Wine &amp; Cheese Reception</b> Main Hallway		

\*AICP CM credits are available for these events.

## Keynote Address

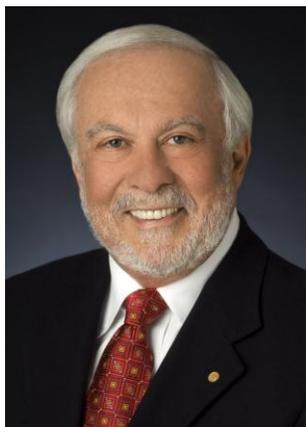


**Robert Prince**, *former General Manager of the Massachusetts Bay Transportation Authority (MBTA)*

Robert Prince is involved with national transit issues and focuses on state of good repair/capital needs assessments, security analyses, BRT development, and new-system operations start-up. His excellent communication skills combined with his ability to prioritize the Authority's goals assured the operational reliability of the system and the preservation of the MBTA's revenue stream. Through his achievements, Prince has received many awards among them "The Governor's Pride and Performance Award," "The Greater Boston Black Achievers Award", "The Consumer Affairs Annual Bell Ringer Awards for Excellence for Public Information through the Snow Guide," the "Heroes Among Us" Award presented by the Boston Celtics, and WTS's Rosa Parks award for diversity.

As the former MBTA General Manager, Robert spent more than 25 years holding over 20 jobs culminating as the General Manager. As GM he provided the daily operations and administrative leadership for the MBTA. He was responsible for the establishment of all management policies and practices, and sets standards of excellence to which all operations, compliance and administrative functions perform. He oversaw the management of over 6,500 employees, and transported over a million commuters each day. He is also author of "Everyman: Foot Prince in the Snow."

## Lunch Plenary Address



**Clarence Marsella**, *former General Manager and Chief Executive Officer, Denver Regional Transportation District (RTD)*

Mr. Marsella is an internationally recognized and accomplished transportation manager in both the public and private sectors with a strong track record in managing public transit as a business. From 1995 to 2009 he served as General Manager and Chief Executive Officer of the Denver Regional Transportation District (RTD).

Over fourteen years, he led the Agency to become a high performing, efficient and publicly supported transit agency that was, in 2003 and 2008, named the APTA Outstanding Public Transit Agency in North America.

Mr. Marsella successfully prepared, submitted and received approval of four separate Full Funding Grant Agreements that totaled over one billion in Federal funds. He directly managed four rail projects that were all built on time and within budget. He has supervised numerous projects including serving as co-project manager for the award winning, \$2 billion Highway/Transit multimodal project, TREX, on I-25 in Denver in partnership with the State of Colorado Department of Transportation, as well as managing the closeout of the Downtown Express HOV project on I-25.

Mr. Marsella was named the APTA Outstanding Public Transit Manager in 2006. Presently, Mr. Marsella is practicing as an independent consultant on select projects as an affiliate of Patton Boggs, Inc. and in coordination with specialized partners on a project by project basis.

## Breakout Sessions

Time	Session Presentations		
10:00-11:00 am	<b>Planning for the Future</b>	<b>Regionally Speaking</b>	<b>Ped(al) Power</b>
	<p><i>Transit Oriented Development in Springfield: Locating a Vital Connector for Chicago to St Louis High-Speed Rail</i> (Gloria Simo, Ph.D, University of Illinois at Springfield)</p> <p><i>Implications of Housing Market Segmentation for Sustainable Transportation</i> (Sungsoon Hwang, DePaul University)</p> <p><i>Performance Based Planning in Central Indiana Suburban Land Use</i> (Stephanie Belch, Indianapolis MPO; Joe Guerre, Cambridge Systematics)</p>	<p><i>Quantifying Traveller Diversion and its Impact During a Weekend Full Freeway Closure: Case Study With I-894</i> (Justin Effinger, EIT, Yue (Troy) Liu, Alan Horowitz, University of Wisconsin – Milwaukee)</p> <p><i>Suburban Cook County and Eastern DuPage County Travel Market Analysis using 2007-2008 CMAP Household Travel Tracker Survey Data</i> (Hersh Singh, Janine Farzin, Peter Fahrenwald, Regional Transportation Authority)</p> <p><i>Steps to Implementation for I-55 Bus on Shoulders Demonstration Project</i> (Janine Farzin, William Lenski, Regional Transportation Authority; James Czarnekcy, AECOM)</p>	<p><i>Glenbard Hazardous Walking Conditions Study</i> (Daniel Miodonski, Sam Schwartz Engineering)</p> <p><i>An Analysis of Bicycle Safety in Chicago</i> (Michael Carney, University of Illinois at Chicago)</p> <p><i>Promoting Alternate Transportation, Health, the Environment, and Morale With Bicycle Commuter Tax Benefit</i> (Gregory T. Smith, Klein, Thorpe &amp; Jenkins, Ltd.)</p>
11:15 am-12:15 pm	<b>Other People's Money</b>	<b>Logical Logistics</b>	<b>Taking it to the Streets</b>
	<p><i>Transit Value Capture Analysis for the Chicago Region</i> (Ranadip Bose, AICP, Elizabeth Schuh, AICP LEED Green Associate, SB Friedman; Matthew Maloney, Chicago Metropolitan Agency for Planning)</p> <p><i>Analyzing Private Investment in the Chicago Transit Authority: The Potential for Joint Development</i> (Danielle Yu-Chen Dai, University of Chicago)</p> <p><i>Indy Connect: Visioning and Planning for a Major Expansion of Regional Transit Service in Central Indiana</i> (Philip Roth, AICP, Indianapolis MPO; Chris Kopp, AICP, HNTB; John W. Myers, P.E., AICP, HNTB)</p>	<p><i>Developing Sound Freight Policies to Build the Illinois Economy</i> (Frank Beal, Jim LaBelle, Sheena Frève, Metropolis Strategies; Christopher Lindsey, Northwestern University)</p> <p><i>Evaluating the Economic Impact of Improvements in Freight Infrastructure: An Input-Output Approach</i> (Ethan Halpern-Givens, University of Illinois at Chicago)</p> <p><i>New Growth in Older Communities: Sustainable Development in Chicago's South and West Suburbs</i> (David Chandler, Center for Neighborhood Technology)</p>	<p><i>Transit's Enemy: Cheap Parking</i> (Jason Schrieber, AICP, Nelson\Nygaard Consulting Associates)</p> <p><i>Parking Management Strategies in Suburban Downtowns</i> (Lindsay Banks, Chicago Metropolitan Agency for Planning)</p>

12:30-1:00 pm	Lunch		
1:00-2:00 pm	Lunch Plenary		
2:00-2:30 pm	Poster Session and Networking		
2:45-3:45 pm	<p><b>We the People</b></p> <p><i>Community Engagement - Success at the Interchange</i> (Frederick W. Schwartz, P.E., Kimley-Horn and Associates, Inc.)</p> <p><i>Indy Connect: Best Practices in Central Indiana's Regional Dialogue on Transportation and Development Priorities</i> (Lori Miser, Indianapolis MPO; Sean White, Caldwell VanRiper)</p> <p><i>Will Expanding 10th St. Corridor Further the Division Between the East Side and West Side of Springfield?</i> (Junfeng Wang, Ph.D, University of Illinois at Springfield)</p>	<p><b>Wheels on the Bus</b></p> <p><i>Don't Miss the Bus- The Emerging Concept of Locally Based Transit Options</i> (Patty Mangano, Heather Tabbert, Regional Transportation Authority)</p> <p><i>Integrating Livability Into Transit Planning: An Assessment of BRT Opportunities in Chicago</i> (Josh Ellis, Peter Skosey, Joshua Anderson, Metropolitan Planning Council)</p>	<p><b>Innovative Perspectives</b></p> <p><i>Evaluate the Benefit of Urban Consolidation center</i> (Qin Chen, Jie (Jane) Lin, University of Illinois at Chicago)</p> <p><i>Evacuating Highly Populated Urban Zones During Emergency: A Transit-based Solution and Optimal Operational Strategies</i> (Mojtaba Heydar, Yue Liu, Matthew Petering, University of Wisconsin – Milwaukee)</p> <p><i>How Green is Transit: A Chicago Region Case Study</i> (Mark Minor, Regional Transportation Authority)</p>

## Planning for the Future

Main Ballroom A, 10:00-11:00 am

Moderator: Charlotte O'Donnell, Pace

### **A. *Transit Oriented Development in Springfield: Locating a Vital Connector for Chicago to St Louis High-Speed Rail***

Author: Gloria Simo, Ph.D, University of Illinois at Springfield

When Illinois was selected to receive \$1.2 billion from the American Recovery and Reinvestment Act (ARRA) for high-speed rail (HSR) it generated a great deal of public discussion. Although funding is now in jeopardy the goals of improving passenger rail service and decreasing travel time from Chicago to St. Louis remain. As a result most of the discussion thus far has been about the costs and benefits to those two major cities. But elected and appointed officials in communities that host the nine other Amtrak stations along the route - Summit, Joliet, Dwight, Pontiac, Bloomington-Normal, Lincoln, Springfield, Carlinville and Alton - are also concerned. They have been questioning the costs of infrastructure improvements as well as whether and how they should develop the areas surrounding the stations, even if the trains are not scheduled to stop there. None of these cities is more critical than the state's capitol of Springfield. It is not only a vital connector between Chicago and St. Louis but is an important destination for tourists and state employees who frequently commute between Chicago and Springfield. The issue has been compounded by the question of whether to move the track to a different part of the city and what development should occur once the location is determined. This study examines the decision-making process for track location and the development alternatives preferred by four Springfield advisory groups and outlines the alternatives which have been proposed, as well as which (if any) are more appropriate to TOD principles.

### **B. *Implications of Housing Market Segmentation for Sustainable Transportation***

Author: Sungsoon Hwang, DePaul University

Spatial sorting of housing market in a metropolitan area is well studied, but its impact on travel outcomes is understudied. Does housing market segmentation induce longer vehicle miles of commute? In other words, do residents living in metropolises with high neighborhood disparity commute longer distance by vehicle all else being equal? We conducted regression analysis on 22 largest metropolitan areas to examine whether vehicle miles of commute (VMC) can be attributed to housing market segmentation (HMS). We found that HMS is a statistically significant factor, and HMS improves a predictive power of the model. Possible explanation for the relationship between HMS and VMC is that highly segmented housing market acts as barriers to residential mobility, and ensuing suboptimal residential choice is compensated by a longer commute. Implications of this study are that (a) travel outcomes are rather structural (i.e., realized through spatial process of differentiation) (b) natural market process (such as HMS) can collide with policy goals (such as sustainability). Issues regarding measuring housing market segmentation as well as local regression (geographically weighted regression) as a means to improve global regression will be briefly discussed.

### **C. *Performance Based Planning in Central Indiana Suburban Land Use***

Authors: Stephanie Belch, Indianapolis MPO; Joe Guerre, Cambridge Systematics

Recent economic and political trends have placed greater emphasis on public-sector accountability and cost effectiveness. In response, transportation agencies throughout the U.S. are increasingly focused on performance-based planning. This presentation will describe lessons learned from the recent application of performance-based planning techniques in central Indiana.

The Indianapolis Metropolitan Planning Organization (MPO) recently completed a major

update to its Long Range Transportation Plan (LRTP). As part of this effort, the MPO implemented a new performance-based planning process. The objectives of this process were to 1) build consensus on the region's transportation priorities and help ensure that the projects included in the LRTP support these priorities; 2) provide decision makers with the quantitative information they need to fully understand the implications of their funding decisions; and 3) enable the MPO to develop an LRTP that is realistic in terms of how much it will cost and how much it can achieve. This paper will provide an overview of the MPO's

experience, with particular attention focused on the following three steps in its performance-based process:

- Establish regional goals and objectives.
- Conduct tradeoff analysis to aide in the allocation of available funds to the following programs: pavement preservation, bridge preservation, roadway expansion, transit expansion, bike/pedestrian network expansion, and operations/maintenance.
- Prioritize roadway expansion projects based on their cost effectiveness and expected impact on the regional goals and objectives.

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## **Regionally Speaking**

Room B-C, 10:00-11:00 am

Moderator: Paris Tyler, Chicago Transit Authority

### ***A. Quantifying Traveller Diversion and its Impact During a Weekend Full Freeway Closure: Case Study With I-894***

Authors: Justin Effinger, EIT, Yue (Troy) Liu, Alan Horowitz, University of Wisconsin – Milwaukee

Short-term full freeway closure is a work zone strategy that is attracting more consideration by DOTs in order to allow for accelerated construction time and shorter duration of traveler impacts. Such closures are very often limited to weekends or night times. Because of the potential for large impacts on adjacent arterials, there is a need for a good understanding of traveler's diversion patterns in response to detour guidance. Although studies have shown that many drivers will choose alternate routes when they are aware of work zone delays, quantifying such patterns has not been sufficiently addressed, either in the professional literature or in practice.

This paper presents a case study on quantifying driver diversion and impacts during the I-43/I-894 full freeway closure event in October 2010 in Milwaukee. Analysis of the target study region is based on integrating many data sources, including the Volume, Speed, and Occupancy Application Suite (V-SPOC) loop detectors, I-94 N/S Corridor microwave detectors, Statewide Traffic Operations Center (STOC) video surveillance, the TRAFFIC DABase System (TRADAS), automatic traffic recorder

(ATR) stations, and the Traffic Responsive Signal System (TRSS). This combined dataset offered a good look at the diversion impacts of the full freeway closure along with an assessment of the contributing factors to diversion. From this research, state DOT engineers will have a better understanding on how to create rules, assumptions and guidelines for implementing full freeway closures specifically for their jurisdictions.

### ***B. Suburban Cook County and Eastern DuPage County Travel Market Analysis using 2007-2008 CMAP Household Travel Tracker Survey Data***

Authors: Hersh Singh, Janine Farzin, Peter Fahrenwald, Regional Transportation Authority

The 2010 RTA Market Analysis concluded with a recommendation to increase utilization of the existing transit system for non-traditional markets. In an attempt to better understand regional travel demand and travel markets and determine where in the region to focus market analysis and service planning efforts to meet this recommendation, this study uses the 2007-2008 CMAP Household Travel Tracker Survey to analyze trip patterns and demographics in Cook and Eastern DuPage Counties.

For the analysis, RTA district boundaries were utilized to divide the study region into five sub-regions (with three districts each), including northern, northwest, western and southern suburban Cook County as well as eastern DuPage County. For each sub-region, trips patterns for sub-regions and for each district within a sub-region are investigated with an

emphasis on home-based work and transit mode share. Combined with demographic characteristics of each district, non-traditional trips patterns that have existing transit mode share or potential markets are identified.

In conclusion, regional trip interchanges for each sub-region often showed a directional modal mismatch, specifically where a sub-region exports more trips than it imports for trips by all modes, but where the opposite is true for trips made by transit. These directional modal mismatches provide an opportunity to capture potential transit demand and likely merit further analysis. Additionally, district level analysis identified a limited number of districts with relatively strong transit mode share for internal trips and several district interchanges that support the regional conclusions above at a finer level of detail.

### ***C. Steps to Implementation for I-55 Bus on Shoulders Demonstration Project***

Authors: Janine Farzin, William Lenski, Regional Transportation Authority; James Czarnecky, AECOM)

The I-55 Bus on Shoulders Demonstration Project will enable Pace's commuter express buses to use the I-55 inside (left) shoulder for low speed operations when congested highway conditions exist during peak travel periods. The RTA is proposing a 2-year demonstration period beginning in late 2011. This paper first examines bus-on-shoulder operations in other cities such as Minneapolis-St. Paul and Cincinnati. Next, preparation for implementation is documented, including an assessment of existing conditions, proposed highway improvements (such as signage and pavement markings), legal agreements and legislative updates, coordinated communications and incident management, and public education and outreach. Finally, a review of the Before and After Study design is included, with a discussion of initial travel time data results.

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### **Ped(al) Power**

Room D-E, 10:00-11:00 am  
Moderator: Ylda Capriccioso

#### ***A. Glenbard Hazardous Walking Conditions Study***

Author: Daniel Miodonski, Sam Schwartz Engineering

Section 29-3 of the Illinois School Code allows local school districts to receive reimbursement for the busing of students less than 1.5 miles from the school when the conditions of walking constitute a serious hazard to the safety of students. The Illinois Department of Transportation (IDOT) provides criteria which assigns points to certain variables of the walking route to determine if it is hazardous. If this point total is 12 or higher, then it is determined that a serious safety hazard exists. IDOT allows for two judgment points to be added to the total in order to equal 12, in case the factors that IDOT's guidelines are based upon do not fully capture the hazardous conditions.

Sam Schwartz Engineering created a system for quantifying judgment points in order to aid the Glenbard District 87 board in making fair, consistent, and informed decisions when assessing students' walking conditions and their eligibility for busing. This report discusses that system in detail and its application in evaluating student safety and in making infrastructure improvements.

#### ***B. An Analysis of Bicycle Safety in Chicago***

Author: Michael Carney, University of Illinois at Chicago

For many years, bicycling in the United States has been viewed as a recreational activity or a child's means of transportation. Cycling for many is left to park trails and cul-de-sacs. While commuting by bicycle may be starting to slowly catch on, urban cycling is still perceived by most people as being too dangerous. This study aims to address that perception by analyzing the safety conditions for bicyclists in Chicago. To achieve this, the study uses Geographic Information System (GIS) analysis and mapping technology.

Utilizing bicycle crash data from 2007 through 2009, acquired from the Illinois Department of Transportation (IDOT), the research analyzes and investigates locations with high bicycle accident occurrences and characteristics of crashes—including types of injuries and time of year. It also investigates the levels of ridership compared to where the crashes take place. Finally, the study tests the effectiveness of Chicago’s bikeway network.

The paper concludes that safer bicycle infrastructure is needed to promote cycling as an economically and environmentally beneficial mode of alternative transportation in Chicago. This study aims to help transportation professionals make recommendations for improving bike mobility and safety.

### ***C. Promoting Alternate Transportation, Health, the Environment, and Morale With Bicycle Commuter Tax Benefit***

Author: Gregory T. Smith, Klein, Thorpe & Jenkins, Ltd.

Bicycling is the preferred way to get to work for thousands of employees around the country, both in metropolitan and rural areas. For some, this choice is grounded in exercise and fitness. Others recognize that their choice promotes a healthy lifestyle, has a positive environmental

impact and saves them money. The number of employees biking to work will continue to grow as traditional forms of transportation become more expensive. Employers have many reasons to encourage employees to commute by bike: an active and healthy workforce lessens the strain on group insurance plans and premiums, “green” policies and benefits demonstrate an organization-wide commitment to sustainability, employee morale is improved, and gains in overall work productivity may be achieved with a healthier, more satisfied work force.

Congress is aware of the growing number of Americans commuting to work by bicycle, and enacted a tax benefit encouraging more people to pedal. The Bicycle Commuter Transportation Benefit was enacted in October 2008 as part of the Emergency Economic Stabilization Act, also known as the bailout bill. The new benefit was added to the same Internal Revenue Code section that allows employers to offer employees reimbursement for mass-transit and parking-related commuting expenses. While the new benefit is not widely understood or used, it is a promising way to encouraging employees to bike to work. This article explores the legal requirements for implementing and administering a successful bicycle commuter tax credit plan, and policy recommendations for governments to more effectively promote ridership.

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## **Other People’s Money**

Main Ballroom A, 11:15 am-12:15 pm

Moderator: Jason Saavedra, University of Illinois at Chicago

### ***A. Transit Value Capture Analysis for the Chicago Region***

Authors: Ranadip Bose, AICP, Elizabeth Schuh, AICP LEED Green Associate, SB Friedman; Matthew Maloney, Chicago Metropolitan Agency for Planning

The recent Go To 2040 Plan for the Chicago Region highlights a significant mismatch between transit capital needs and available funding resources. To address this issue, our analysis evaluates the potential for value capture to generate funds for transit capital projects. Value capture refers to the practice

of implementing a tax or fee on private property near a public improvement to “capture” a portion of the monetary benefit that the property owners gain as a result of the public investment.

The analysis reviews common value capture mechanisms used nationally, and focuses on tax increment finance (TIF), special assessment and development impact fees as most appropriate for the Chicago region. These mechanisms are tested on quarter- and half-mile districts around the proposed Oakton Skokie Swift CTA station to quantify their value generation potential and estimate their impact on the real estate economics of an apartment development. Finally, the study provides policy recommendations for establishing an effective value capture mechanism for transportation funding in Illinois.

## ***B. Analyzing Private Investment in the Chicago Transit Authority: The Potential for Joint Development***

Author: Danielle Yu-Chen Dai, University of Chicago

The insufficient capacity of the government to meet the increasing demand for public transportation requires a critical look at alternative and innovative strategies that support public transit. One alternative is joint development through public-private partnerships. I argue that fostering joint development is a worthwhile goal in Chicago, which will support public transportation and provide considerable benefits to the transit agency, the private partner, and the general public. In my research paper, I identified the benefits and challenges to joint development to illustrate the opportunities and obstacles of implementing these types of projects within the CTA. The centerpiece of my research is a case study on a recent joint-development project in Chicago: the CTA and Apple partnership for the refurbishment of the North and Clybourn Red Line station, in which Apple invested \$3.897 million for station improvements.

From my findings, I make five recommendations to make joint development a more attractive and viable option in Chicago: 1) adopt formal, yet flexible, joint development guidelines or policies; 2) support private sector participation through workshops; 3) explore opportunities within the zoning ordinance to encourage more investment; 4) encourage the new transportation authorization bill to incorporate policies for joint development, value capture, public-private partnerships, and transit-oriented development; and 5) open public forums to foster communication about joint development deals. It is my hope that the success of the CTA and Apple public-private partnership will serve as an example and a catalyst for similar projects in Chicago's future.

## ***C. Indy Connect: Visioning and Planning for a Major Expansion of Regional Transit Service in Central Indiana***

Authors: Philip Roth, AICP, Indianapolis MPO; Chris Kopp, AICP, HNTB; John W. Myers, P.E., AICP, HNTB

As the "Crossroads of America," the Central Indiana region has enjoyed the high quality of life provided by one of the most well-developed hub-and-spoke interstate highway systems in North America. During the 20th century, the region transitioned from a strong urban core at the center of America's largest interurban rail network into one of its least dense metropolitan areas. Meanwhile, the transit system became one of the smallest among the nation's top 100 metropolitan areas.

Through Indy Connect, the Indianapolis region has taken an unprecedented step in the development of a transportation and land use strategy that better balances investment across highway, transit, and nonmotorized modes. For its 2035 Long-Range Transportation Plan update, the Indianapolis MPO, in partnership with the Central Indiana Regional Transportation Authority (CIRTA), and the Indianapolis Public Transportation Corporation (IndyGo), developed a detailed plan for a regional transit investment program that triples the level of transit service and improves the region's competitive position.

This paper will describe the philosophy and process by which the Indianapolis MPO and its public and private partners defined the vision and evaluated transit investment program alternatives. The paper will describe how a transit-intensive investment program proposed by an association of business leaders formed to explore an economically optimal mix of transportation strategies was refined through a process of public input, market analysis, financial analysis, and economic cost-benefit analysis to create a plan that has attracted the support of a broad range of stakeholders.

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## Logical Logistics

Room B-C, 11:15 am-12:15 pm

Moderator: Kristen Andersen, Metra

### ***A. Developing Sound Freight Policies to Build the Illinois Economy***

Authors: Frank Beal, Jim LaBelle, Sheena Frève,  
Metropolis Strategies; Christopher Lindsey,  
Northwestern University

Illinois' freight system is a major contributor to employment and production throughout the state and supports industries like agriculture, manufacturing, and construction. Despite the important role freight plays in the Illinois economy, it can have a negative impact in the form of congestion delays for drivers and passenger trains and noise and air pollution. Ownership of and responsibility for the system is fragmented among various public jurisdictions and private companies who often have competing interests. An efficiently operating freight system will benefit the entire state's economy, but there is currently no structure or financing mechanism in place to provide effective guidance and funding.

This paper examines the components of Illinois' freight system, its stakeholders, its impact on the economy, and the adequacy of its funding sources. It describes states and regions that are effectively managing and funding their goods movement network. The paper then argues for new policies, organizations, and funding methods within Illinois to ensure the movement of goods is efficient, coordinated, and aligned with the economy. It concludes that a state Freight Plan could provide guidance for the freight system as a whole and would best be developed by a state Freight Office established within the Department of Transportation. A state Freight Authority could construct and manage individual projects in order to make the freight network function as effectively as possible.

### ***B. Evaluating the Economic Impact of Improvements in Freight Infrastructure: An Input-Output Approach***

Author: Ethan Halpern-Givens, University of Illinois at Chicago

This study attempted to create and demonstrate a new approach for examining the broad economic impacts resulting from transportation infrastructure improvements using existing input-output techniques. The tools used in this study are staples of many analysts; however, some of these techniques are seldom used within the field of transportation. The combination of these tools has helped to address some of the shortcomings of existing tools available to the transportation analyst.

The necessity for this project is documented by the Benefit/Costs estimation tool developed by The Federal Highway Administration. This is a spreadsheet-based tool to capture relationships using cost benefit analysis. However, the tool failed to consider the benefits beyond those realized by the freight industry and their customers. The reorganization of freight logistics could have a profound impact on the structure of the economy, beyond those who participate directly. This shortcoming is acknowledged within the literature published by the Federal Highway Administration, which recognizes that freight benefits typically can be organized into three different categories. Yet, the tool they developed is only able to capture two of the three categories.

Baseline and updated tables are analyzed using two approaches. Approaches that attempt to quantify a given change, namely impact and multiplier analysis were used toward this end. Additionally, two methods from the broad field of input-output linkage analysis were included to evaluate structural change. These two methods are known as field of influence analysis and key sector analysis.

### **C. New Growth in Older Communities: Sustainable Development in Chicago's South and West Suburbs**

Author: David Chandler, Center for Neighborhood Technology

Disinvested industrial towns can regain prosperity by linking transit-oriented development (TOD), which integrates residential and commercial uses around public transit, with cargo-oriented development (COD), wherein clusters of manufacturing and logistics businesses are strategically located near multimodal freight facilities and a ready workforce. GIS was used to identify the highest potential TOD and COD opportunities in Chicago's south suburban commuter rail station areas and industrial districts. A pilot project in Harvey and Blue Island provided a foundation for a 42-city redevelopment strategy known as the Chicago Southland Green Transit,

Intermodal, Manufacturing, and Environment (TIME) Zone.

In late 2010 Green TIME Zone partners were awarded a Sustainable Communities Challenge grant, and millions of dollars in additional private and public funds have been committed to carry out the strategy. Implementation is underway, including the expansion of the Canadian National intermodal terminal; creation of a land acquisition fund; brownfield assessment and remediation of key COD sites; a highest and best use study to ensure necessary infrastructure is in place to attract industrial and logistics firms; and phase 1 engineering of major truck routes. COD and TOD analyses have since been conducted in Chicago's west suburbs, and new opportunities for infill development are being explored to clean up contaminated industrial sites, improve transit access to jobs and amenities, and stabilize at-risk residential properties.

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### **Taking it to the Streets**

Room D-E, 11:15 am-12:15 pm

Moderator: Jack Chalabian, Chicago Transit Authority

#### **A. Transit's Enemy: Cheap Parking**

Author: Jason Schrieber, AICP, Nelson\Nygaard Consulting Associates

In dozens of US cities, billions of dollars of transit investment is underutilized because there is a clear financial disincentive to ride the bus or train: if the parking is free, why would anyone with a car ever board transit? Systems with good ridership mostly benefit from travelers forced to avoid congestion delays or unable to find subsidized parking. This paper explores several basic relationships using national comparative data and research with case studies to demonstrate: there is a direct relationship between parking cost and ridership; the cost of parking is not related to city size and is entirely manipulated by local policies unrelated to market conditions; certain progressive transit agencies have unlocked the power of revealing the true land and market costs of parking to significantly boost ridership; and park and rides should be used sparingly in strategic locations and not wherever space

permits. Case studies include: BART's replacement parking methodology that prioritizes TOD over park and ride; utilization results from the MBTA's commuter rail parking facilities that counters the accepted approach to meeting Big Dig mitigation requirements; the financing of RTD's system expansion in Boulder through parking cash-out; and the creation of new transit service in Ann Arbor through reduced parking requirements. The paper's recommendations may be very instructive for continuing TOD in metropolitan Chicago.

#### **B. Parking Management Strategies in Suburban Downtowns**

Author: Lindsay Banks, Chicago Metropolitan Agency for Planning

This paper analyzes parking management strategies and their potential for, and realized utilization in suburban downtowns, particularly along "main streets." Using a previous paper (by the same author) on supply-side and demand-side strategies, this paper showcases the successes in downtown Oak Park, and looks at the potential for similar implementation in other communities

The first part of the paper will briefly outline three general policy approaches to parking: conventional parking as necessary infrastructure, managed parking to serve as a policy tool, and a market-based approach to parking. It will look at the goals, costs, and responsibilities of each approach.

The second part will focus on parking management as a policy tool, with a focus on suburban downtowns. In Oak Park, parking management has been used with success in the downtown area, and this paper will outline key strategies taken and lessons learned. The final part will outline an approach to overhauling parking policy in suburban downtowns.

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## **We the People**

2:45-3:45 pm, Main Ballroom A

Moderator: Ryan Richter, Metra

### ***A. Community Engagement - Success at the Interchange***

Author: Frederick W. Schwartz, P.E., Kimley-Horn and Associates, Inc.

The Interchange is a location adjacent to the Twins Ballpark in downtown Minneapolis where four light rail transit lines and a commuter train line will converge. Hennepin County (Minneapolis) owns the property where an expanded station is planned to accommodate special events at the ballpark where 30 percent of the fans ride transit and to create a community amenity for the nearby emerging warehouse district where a number of architects and design professionals have opened offices and studios. As part of the environmental review process a two-day design workshop, or charrette, was arranged to gather design concepts from the community in general, and more specifically from the local design community. A team of six design professionals acted as table facilitators during the workshop attended by fifty people from the community who took part in designing the area to meet the community's goals.

The result of the workshop was a series of concept sketches, some with a high level of detail, specificity and creativity. The "big idea" from the workshop process was to slightly realign the track to allow more separation from the adjacent city street thereby providing enough depth for liner development adjacent to the tracks. The concept addressed community interests for aesthetics and improved connectivity. Hennepin County is in the process of redesigning that segment of the

project and is proceeding with the final environmental document.

The paper will explore how successful community engagement at the Interchange workshop can be transferred to other complex projects to achieve community consensus.

### ***B. Indy Connect: Best Practices in Central Indiana's Regional Dialogue on Transportation and Development Priorities***

Authors: Lori Miser, Indianapolis MPO; Sean White, Caldwell VanRiper

As the "Crossroads of America," the Central Indiana region has enjoyed the high quality of life provided by one of the most well-developed hub-and-spoke interstate highway systems in North America. During the 20th century, the region transitioned from a strong urban core at the center of America's largest interurban rail network into one of its least dense metropolitan areas. Meanwhile, the transit system became one of the smallest among the nation's top 100 metropolitan areas.

Through Indy Connect, the Indianapolis region has taken an unprecedented step in the development of a transportation and land use strategy that better balances investment across highway, transit, and nonmotorized modes. For its 2035 Long-Range Transportation Plan update, the Indianapolis MPO, in partnership with the Central Indiana Regional Transportation Authority (CIRTA), and the Indianapolis Public Transportation Corporation (IndyGo), developed a detailed plan for a regional transit investment program that triples the level of transit service and improves the region's competitive position.

This paper will describe the philosophy and process by which the Indianapolis MPO and its public and private partners defined the vision and evaluated transit investment program alternatives. The paper will describe how a transit-intensive investment program proposed by an association of business leaders formed to explore an economically optimal mix of transportation strategies was refined through a process of public input, market analysis, financial analysis, and economic cost-benefit analysis to create a plan that has attracted the support of a broad range of stakeholders.

### ***C. Will Expanding 10th St. Corridor Further the Division Between the East Side and West Side of Springfield?***

Author: Junfeng Wang, Ph.D, University of Illinois at Springfield

During the second open house of the Springfield Railroad Corridor Study, citizens were presented with three alternatives: 1) double track 3rd street; 2) shift 3rd street to 10th

street; and 3) shift 3rd street and 19th street to 10th street. Nearly 90% of the respondents (out of 220) preferred alternatives 2 or 3.

The City of Springfield has seen the division between the west side and the east side. The question becomes, will consolidating 3<sup>rd</sup> street traffic to 10<sup>th</sup> street (either alternative 2 or 3) further separate the city into two parts?

The study will collect data such as demographics, business location choices, and student school performance. Geographic information system techniques will be applied in the study to illustrate whether it is true that new developments continue marching toward the west, while the east side of the city struggles, both socially and economically.

Based on the interviews with neighborhood association representatives and business owners, this study examines the potential opportunities and challenges to the communities, especially to those in the east side of the city.

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## **Wheels on the Bus**

Room B-C, 2:45-3:45 pm

Moderator: David Baumgartner, Cambridge Systematics

### ***A. Don't Miss the Bus- The Emerging Concept of Locally Based Transit Options***

Author: Patty Mangano, Heather Tabbert, Regional Transportation Authority

Locally based transit service is a customized small scale, needs based approach to transit that addresses a community's specific transit needs and goals. This paper examines why this type of innovative service is emerging as a viable option in today's transit climate, discusses the various ways this type of service can be implemented, and presents the City of St. Charles Transit Circulator Plan as a case study.

General public, shared ride services are seen as a way to provide more cost effective service to low density, small scale service areas where demand for traditional high frequency transit

service is low. These services are emerging in the suburbs as an effective way to address the last mile problem while increasing access and mobility to targeted populations, such as the elderly and disabled.

Potential options include the creation of community circulators in the form of fixed route and/ or route deviation service. Services are typically designed to benefit residents, employees, and possibly tourists/shoppers. Smaller scale shuttle busses and vans are utilized creating an aesthetically pleasing experience. Implementation of service can be accomplished through a variety of options. Pace, the Suburban Bus Division of the RTA, offers a variety of local community service options and partners with communities to provide such service. Additionally, Pace currently operates two Call-n-Ride services.

The RTA, through its Community Planning Program, funds planning studies that analyze the market and feasibility for locally based transit services. A total of six studies have been funded by the RTA during the past four

years. The St. Charles Transit Circulator Plan, its planning process and the prospects for implementation is discussed.

### ***B. Integrating Livability Into Transit Planning: An Assessment of BRT Opportunities in Chicago***

Authors: Josh Ellis, Peter Skosey, Joshua Anderson,  
Metropolitan Planning Council

This study assessed Bus Rapid Transit (BRT) opportunities in Chicago and demonstrated that "livability" could be quantitatively integrated into the transportation planning process. The study has the potential to be used for other transportation modes and types of investment by the federal government and other relevant entities. Goals included: 1) quantitatively integrating the Livability Principles of U.S. EPA, HUD, and U.S. DOT into transportation planning; 2) developing a screening method for transit routes to reduce transportation modeling burdens; 3) designing a model that could be replicated with limited resources, but still deliver data-driven and dependable results.

The scope was limited to the 2009 Chicago Transit Authority (CTA) bus network. Routes incompatible with BRT were eliminated, as were streets that did not meet basic constructability and Complete Streets standards. The remaining contiguous sections of streets were scored on the performance of 14 quantitative proxies for the Livability Principles, such as access to existing employment and parks. Top scoring streets were further refined by connectivity considerations to produce 10 routes organized into a basic BRT network that complemented the existing rapid transit system. Travel demand was modeled by the Chicago Metropolitan Agency for Planning. The model projected an increase in transit trips in and beyond the study corridors.

A first step in establishing a BRT system, the study can be further refined and analyzed. The potential benefits of coordinating transit investment with other initiatives to increase population and employment density in these corridors could maximize the impact of the BRT system.

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## **Innovative Perspectives**

Room D-E, 2:45-3:45 pm

Moderator: Jennifer Henry, Natural Resources  
Defense Council

### ***A. Evaluate the Benefit of Urban Consolidation Center***

Author: Qin Chen, Jie (Jane) Lin, University of Illinois  
at Chicago

Many suppliers deliver the goods to the customers located in urban areas directly from their distribution centers. Because these distribution centers are sometimes located far away from the customers, deliveries are performed by large trucks through several hundred miles of peddle runs covering one or more urban area. This type of delivery may be efficient from an individual supplier's perspective, but not from the public perspective since it makes more trucks into the city, contributes to already congest urban roads and more emissions. This problem is

worse with the e-business and home shopping trends, when just-in-time deliveries are required.

Urban consolidation is a strategy to establish corporations among the suppliers, carriers and the customers, by viewing the individuals as components of an integrated system. The suppliers ship their goods from distribution centers to the consolidation center; with proper consolidation of the loads and routing; the goods are then sent to the customers with smaller vehicles with lower emission into the urban area. Though inserting a terminal will increase the operation cost at the facility, it may compensate by reducing the vehicle mile travel (VMT) with economies of scale; and the emissions in urban area will be reduced as well. In this study, we will evaluate the benefit of consolidation center with a comparison of the total cost in the logistics system. Several delivery scenarios will be derived under different public policies and the customer requirements. Continuous approximation (CA)

method will be used to model the problem with non-detailed data.

### ***B. Evacuating Highly Populated Urban Zones During Emergency: A Transit-based Solution and Optimal Operational Strategies***

Authors: Mojtaba Heydar, Yue Liu, Matthew Petering,  
University of Wisconsin – Milwaukee

This paper presents a mathematical model for planning of emergency in a highly populated urban zone where a potentially large number of pedestrians depend on transit for evacuation. The proposed model features a two-level operational framework. The first-level operation guides evacuees through urban streets and crosswalks (referred as “the pedestrian network”) to designated pick-up points (e.g. bus stops, metro stations), and the second-level properly dispatches and routes a fleet of buses at different depots to those pick-up points and transport evacuees to their destinations or safe places. In this level, the buses are routed through the so-called “vehicular network”. An integrated linear model that can effectively take into account the interactions between the aforementioned two networks is formulated to concurrently optimize the operations of pedestrian flows and the public transit system during the evacuation process. Since in each sub-network, different transportation mode is considered, in a broader sense, this problem can be considered as a multi-modal evacuation problem. Numerical examples are provided to illustrate the effectiveness of the proposed model.

### ***C. How Green is Transit: A Chicago Region Case Study***

Author: Mark Minor, Regional Transportation  
Authority

Public transportation is a proven tool for reducing regional greenhouse gas (GHG) emissions as it shifts people out of less-efficient private automobiles, reduces congestion and enables compact land development patterns. Using the American Public Transportation Association’s “Recommended Practice for Quantifying Greenhouse Gas Emissions from Transit” a GHG inventory and displacement analysis was conducted on the Chicago region’s public transportation system. The analysis determined that transit in the Chicago region was responsible for the displacement (or avoidance) of 5.5 million metric tons of GHG emissions; the equivalent of taking one million cars off the road.

The methodology used to conduct the analysis utilizes a credit-debit model and calculates displacement (credits) from mode shift, congestion reduction and land use and offsets them against production (debits). The results of the GHG inventory illustrate that the vast majority of emissions generated by the region’s transit agencies are a result of operating vehicles. The GHG displacement analysis concluded that 75% of emissions displacement is a result of the region’s compact land-use development pattern that the public transit system supports. Additional results of the analysis indicate that the Chicago region’s transit system is making strides in terms of emissions efficiency.

While improving the emissions efficiency of transit operations can have an impact on regional GHG emissions, it is clear that the greatest potential for utilizing transit to reduce regional GHG emissions comes from increasing transit’s mode share and ridership, as well as promoting compact land use development throughout the region.

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## Poster Session

Main Hallway, on display from 10:00 am-3:30 pm

Authors available 2:00-2:30 pm

### ***A. The Taxation of Carsharing: Is Public Policy Consistent with the Public Benefits of Carsharing?***

Author: Alice Bieszczat, DePaul University

As carsharing experiences rapid growth in the United States, it is attracting the attention of researchers interested in its potential public benefits, including its ability to reduce vehicle ownership, vehicle emissions, vehicle miles traveled and transportation costs. Building upon this existing literature, this study reviews evidence in support of these benefits and measures the sales and excise taxes paid by carsharing members in 80 U.S. cities. The data reveal that carsharing reservations are taxed, on average, at 14.70% to 17.07%, or about 1.8 to 2.0 times the general sales tax rate in cities. Vehicle rental sales and excise taxes paid on carsharing reservations account for a significant share of the taxes. The presence of such elevated rates of taxation in light of carsharing's public benefits points to a fundamental contradiction and suggests that state and local governments should better align their carsharing policies with their environmental, economic and social goals.

### ***B. Electric Power Supply for Commuter Rail: How Are Railroads Keeping Up?***

Authors: John G. Allen, Regional Transportation Authority; John P. Aurelius, Transportation Consultant; Joseph Black, Lone Star Rail District

Electrification offers many advantages for commuter railroads. But to derive electrification's full benefits, the traction power supply must meet demand. The effects of age on the generation, transmission and distribution systems, new cars with improved amenities and higher acceleration rates, and the addition of train starts should all cause commuter rail properties to assess their traction power investment needs.

The traction power situation is reviewed on electric commuter railroads in Chicago and elsewhere in North America, and on certain overseas properties where electricity shortfalls have occurred. No North American commuter railroads are immediately at risk of service disruption due to traction power shortfalls, but preventive action may be appropriate on some properties. Strategies for managing power demand are also discussed. Traction power is vitally important for electrified commuter railroads, because any failure to provide all necessary electricity can have serious consequences for speed and reliability.

### ***C. Private Time on Public Transit: Dimensions of Information and Telecommunication Use of Chicago Transit***

Authors: Charlotte Frei, Hani S. Mahmassani, Northwestern University

The variety of activities one can engage in while traveling are thought to give some utility to the trip, and this has implications for mode choice and customer satisfaction if the chosen mode is transit. A simple logit model suggests that activity participation, environmental attitudes, and proximity to destination are all significant predictors of whether an individual would cite a reason for riding transit in Chicago as "a better use of time and/or money than driving". Further models attempt to predict activity engagement in order to characterize transit users. Overall, survey respondents rated their experiences on the CTA very high, making it difficult to determine which ICT characteristics influenced customer satisfaction. We employ two-stage least squares estimation to determine what factors most influence customer satisfaction. The strong preference of individuals under 30 for audio/visual and cell phone use, compared to the preference among older individuals for reading, points to a future trend worthy of further study.

#### ***D. Detour or No Detour? A New Decision Support Tool for Urban Freeway Incident Management***

Authors: Zhenke Luo, Yue Liu, University of Wisconsin – Milwaukee

Traffic delays on freeway corridors due to congestion have significantly undermined the mobility and reliability of the highway systems in the United States. Most of those delays are due to non-recurrent traffic congestion caused by the reduced capacity and overwhelming demand on critical metropolitan corridors coupled with long incident durations. In such conditions, if proper routing and detour strategies could be implemented in time, motorists could circumvent the congested segments by detouring through parallel arterials, which will significantly enhance the reliability of travel in the corridor system. Nevertheless, prior to implementation of any detour strategy, traffic managers need to ensure the resulting benefits, as implementing those advanced control strategies usually demand substantial amount of resources and manpower.

This paper presents a new decision support tool to warrant detour operations during incident management. Such as tool offers the capability for responsible traffic operators to make consistent detour decisions in response to a detected incident from the system benefit perspective and with multiple affecting factors taken into account. The proposed tool is developed based on the dataset obtained from extensive simulation experiments and operational guidelines for highway agencies. The tool also features its computational convenience and operational flexibility, allowing potential users to make necessary revision and extension if more field data are available. Numerical results clearly indicate

that a timely and well-justified detour decision made by the proposed tool can yield substantial benefits to both the driving populations and the entire community.

#### ***E. Evaluating the Value-Chain of Freight Trucking: Industry Cluster Analysis and Field of Influence***

Author: Cara Bader, University of Illinois at Chicago

This paper uses industry cluster analysis and the field of influence technique to evaluate the value-chain of freight trucking. These techniques are employed in order to develop a method for quantifying the third order benefits of truck transportation. Third order benefits are the industry reorganization and new product development benefits associated with a change in freight infrastructure or policy. Quantifying the third order benefits is important for enhancing benefit cost analysis. This paper does not explicitly develop a tool that quantifies third order benefits, but the results are furtherance of ongoing efforts develop a tool. Industry cluster analysis is used to separate the value chain into clusters of industries based on the intensity of transactions with trucking. The field of influence technique is used to examine the propagation of technological change across industries evident in input-output models of Chicago, Detroit and Madison. This study finds that regional variations in economic structure influence the magnitude and distribution of third order benefits across industries and points to a number of directions for future research. The study region is the ten central states of Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. The data used are county level input-output accounts from 2007 across the study region.



Illinois Tollway Program Management



CTA Loop Signal Upgrade



North Avenue Bridge Reconstruction

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