

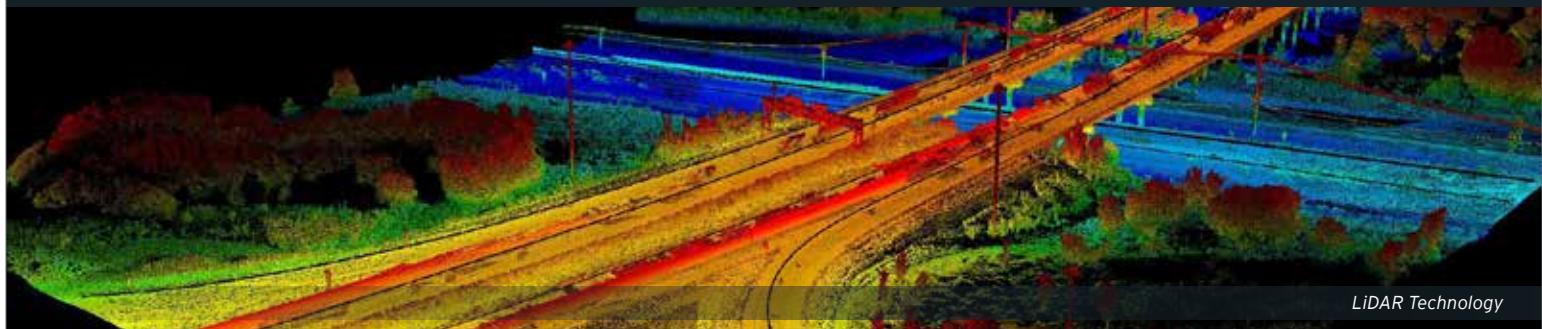
# 28TH ANNUAL TRANSPORT CHICAGO

FRIDAY, JUNE 7, 2013

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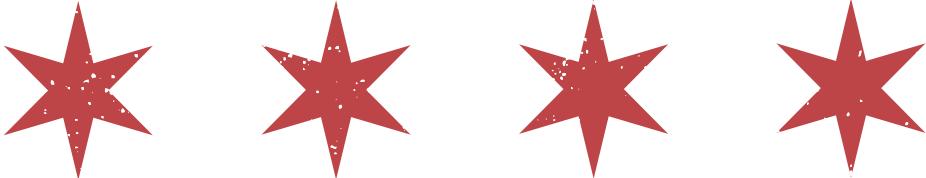
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# WELCOME TO TRANSPORT CHICAGO

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# THE COMMITTEE

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- ▶ Bus Rapid Transit Planning & Design
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Dear Conference Attendees,

Thank you for joining us for the 28th Annual Transport Chicago Conference. Our all-volunteer steering committee has worked diligently to bring you a relevant and timely program of trends and ideas in the transportation field, both locally and nationally.

We've seen a few big changes since we met last year, including the long-awaited passage of a new federal transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21), and the departure of Ray LaHood as U.S. Secretary of Transportation. How the nation's limited transportation dollars will be spent under the guidance of MAP-21 and new DOT leadership is on the minds of transportation professionals everywhere.

This year marks the beginning of several major projects in Chicagoland, and includes projects ranging from the reconstruction of the Jane Addams Tollway as a modern highway with consideration for transit, to the temporary closure and complete reconstruction of the south branch of the CTA Red Line. Chicago continues to rapidly expand its biking infrastructure and starting this summer, will launch its first large-scale bike sharing program. Studies are underway to tackle the region's Circle Interchange — infrastructure critical to both freight movement and commuter traffic. These and other projects continue to place a spotlight on the importance of transportation infrastructure to our region and the work you all do as transportation professionals and researchers.

We hope you also take this time to make new connections with other colleagues in the field as well as reconnect with familiar faces. We hope you will come away from the conference with some new perspectives, knowledge, and professional relationships. On behalf of myself and the Transport Chicago steering committee, thank you for being a part of the conference and welcome to Transport Chicago!

Sincerely,



David VanderZee  
President  
Transport Chicago 2013

# CONFERENCE SCHEDULE



08:00 – 08:45

Morning Reception and Breakfast

08:45 – 09:45

Morning Keynote Speaker – Robert Puentes\* **CM | 1**

10:00 – 11:00

Session A / Main Ballroom A  
MAP 20-Fun! ●

Session B / Room B-C  
Look, Listen, Live ●

Session C / Room D-E  
Make Me A Super Model ●

Session 1

11:15 – 12:15

Session A / Main Ballroom A  
Assess Yourself ●

Session B / Room B-C  
Footloose ●

Session C / Room D-E  
Move It! ●

Session 2

12:30 – 01:00

Lunch and Sponsor Acknowledgements

01:00 – 02:00

Afternoon Lunch Panel – Matthew Click, Jim Ely, and Andrew Smith\* **CM | 1**

02:00 – 02:30

Networking and Sponsor Exhibits

02:45 – 03:45

Session A / Main Ballroom A  
Get With The Program ●

Session B / Room B-C  
Connecting The Dots ●

Session C / Room D-E  
Chicago, My Kind Of Town ●

Session 3

04:00 – 06:00

Cocktail Reception at Mity Nice Bar & Grill – Water Tower Place, 835 N. Michigan Avenue

See map and directions on page 31

\*Professional Development certificates are available at Registration

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A graphic design for the Transit Cooperative Research Program (TCRP). It features a yellow background with several blue circular elements. One large central circle contains the text "Have TRANSIT Questions?". Another circle below it contains "Get FREE Research Reports" and an email icon (@). There are also three smaller circles with question marks around the main text. At the bottom right, there is a small circular image of people on a subway platform and the website address "tcrponline.org".

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# ROBERT PUENTES



## MORNING SPEAKER

Robert Puentes is a senior fellow with the Brookings Institution's Metropolitan Policy Program where he also directs the Program's Metropolitan Infrastructure Initiative. The Initiative was established to address the pressing infrastructure challenges facing cities and suburbs in the U.S. and abroad. Puentes' work focuses on the broad array of policies and issues related to metropolitan growth and development including transportation and infrastructure, urban planning, growth management, suburban issues, and smart cities.

Prior to joining Brookings, Puentes was the director of infrastructure programs at the Intelligent Transportation Society of America. He holds a master's degree from the University of Virginia where he served on the Alumni Advisory Board, and is an affiliated professor with Georgetown University's Public Policy Institute. Puentes serves on a variety of boards and committees including, most recently, New York State's 2100 Infrastructure Commission, the District of Columbia's Streetcar Financing and Governance Task Force, the Northern Virginia Transportation Authority's Technical Advisory Committee, the Tysons Corner Tomorrow Advisory Task Force, and the Planning Commission in Falls Church, Virginia, where he lives with his wife and three sons.

# MATTHEW CLICK



## AFTERNOON SPEAKER

With more than 16 years of extensive experience in tolling, all-electronic tolling, transportation finance, congestion pricing and priced managed lanes, Matthew Click is one of the industry's most recognized specialists in priced managed lanes, corridors and networks. He travels across the nation advising state DOTs and other transportation agencies about planning, financing and implementing priced managed programs in congested urban areas.

He has worked on priced managed lanes projects in Florida, Texas, Georgia, Minnesota, Washington and across the country. Click has experience working with both the public- and private-sectors, including public tolling authorities, private concessionaires, state departments of transportation, metropolitan planning organizations, regional transportation authorities and the federal government.

# JIM ELY



## AFTERNOON SPEAKER

As vice chair of HNTB's toll practice, Jim Ely is responsible for developing and implementing innovative programs with transportation leaders at the federal, state and local levels.

Ely served as the former executive director of Florida's Turnpike Enterprise, where he oversaw the nation's third-largest turnpike system in revenue and fourth-largest in size with 460 centerline miles. Under his leadership, 143 miles of new turnpike segments were built or acquired while traffic increased fivefold to more than two million people per day.

Ely is a past president of the International Bridge, Tunnel and Turnpike Association. He also served on the board of the Transportation and Expressway Authority Members of Florida and the executive board of the Florida Department of Transportation.

# ANDREW SMITH



## AFTERNOON SPEAKER

As Vice President and Director of Planning and Policy Services for HNTB's Atlanta office, Andrew Smith is responsible for managing the transportation planning and environmental service lines, and participates in technical advisory or project management roles on key planning projects throughout the United States.

Smith's 18 years of experience includes transportation policy analysis, long range transportation plans; priced managed lanes; transportation demand management; financial feasibility studies; travel demand modeling; transit planning, traffic engineering, corridor studies, congestion management planning, and traffic and toll revenue feasibility.

# MAP 20-FUN!

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10AM SESSION A / Main Ballroom A / Moderator: Jordan Snow – UIC Urban Transportation Center

Performance management, project development, and communication with project stakeholder groups are major themes in MAP-21, continued from SAFETEA-LU. This session will focus on these topics and their implementation at the state, regional and local levels.

## Reaching Your Audience with Transportation Performance Reports (Sam Van Hecke, Deb Miller – Cambridge Systematics)

The public, legislators, and transportation professionals are all seeking greater accountability and transparency in the processes which determine how we spend our transportation dollars. Transportation performance measurement has become a necessity to transportation agencies, guiding them to get

the most out of scarce dollars and providing much-needed transparency in the decision-making process. The Federal Highway Administration (FHWA) plays an important role in shaping and tracking the performance of our transportation system with many state, regional, and local partners. FHWA initiated the Performance Reports project to learn more about the best ways to engage audiences of transportation professionals and non-transportation professionals and provide them with the information they want and need about the performance of our system.

Cambridge Systematics tackled this project with a series of audience outreach meetings, research into the best examples of successful communication, and the development of mock performance reports that reach the key audience groups. The findings include keys to reaching difficult audiences, mechanisms for attracting broad interest, and ways to communicate technical content without losing audience interest. The findings are tailored to help FHWA and other transportation agencies build a strong foundation for a transportation performance reporting system but they can also support agencies looking to reach audiences for a wide variety of reasons.

## Performance Management: Preparing for MAP-21 (Erik Cempel, Jocelyn Hoffman – Cambridge Systematics)

The Moving Ahead for Progress in the 21st Century Act (MAP-21) creates a performance-based Federal program with the intent of increasing accountability and transparency and improving transportation investment decision-making. Performance management revolves around a data-driven framework consisting of goals and objectives; performance measures; targets; allocation of resources; and monitoring and reporting. MAP-21 designates a core set of national goals, with associated performance measures to be determined by USDOT, along with a variety of planning and programming requirements.

While instituting a performance-based Federal program has implications at the state, regional, and even local levels, this research focuses on implications for metropolitan planning organizations (MPOs) and transit agencies. Key elements include regional plans that use a performance-based approach to decision-making in support of national goals; MPO-established targets for national measures; performance reports comparing actual performance to target values; consideration of measures and targets when developing policies, programs and investment priorities, which link to Transportation Improvement Program (TIP) projects; and coordination with the DOT and transit operators

on measures and targets. Some MPOs are moving forward with developing a performance-based approach to planning that aligns with MAP-21, with the understanding that updates may be necessary. Information is drawn from work completed for the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA); examples of how MPOs can approach these requirements are drawn from best practices around the country.

# LOOK, LISTEN, LIVE

10AM SESSION B / Room B-C / Moderator: Rebecca Geissler – Chicago Transit Authority

Traffic safety is a continuing concern in the Chicago region as roadway usage changes and more data becomes available. This session examines trends in crashes throughout the day and region as well as safety implications for street entrance design.

Hour-of-the-Week Crash Trends between the Years 2005–2010 for the Chicago, Illinois Region (Parry Frank – Chicago Metropolitan Agency for Planning)

Serious and fatal crash rates per VMT, from 2005 to 2010, varied by the hour of the week for the Chicago, Illinois region. A review of the trends in this variation over six years reveals the effects of the safety programs and can inform

the deployment of safety enhancement resources. Over this period, the fatal and serious traffic crashes declined between 31% and 46% on the freeways and other roads while the regional VMT only fell by 3.1%. The largest proportional decrease in VMT occurred in the late night/early morning hours (up to 18%) which have the highest fatal crash rate per VMT.

The hourly serious and fatal crash rates per VMT have fallen for most times of the day, but on freeways, the late-night, weekend hours did not change much and have a similar

fatality rate per VMT for both periods in the study. Serious crashes on the non-freeway roads are more likely to occur during the morning and evening peak periods, but the highest serious crash rate per VMT occurs in the post-midnight hours of the weekend. The highest number of hourly fatalities, as well as the highest rate per VMT, takes place during the post-midnight hours of the weekend. For 2009/2010, at the extremes, the highest late-night hourly fatality rate per VMT on the non-freeways is 68 times greater than the lowest hourly fatality rate. The ratio of late-night fatal crashes to serious crashes is more than twice the daytime ratio.

## A Study of Safety Impacts of Different Types of Driveways and Their Density (Michael Williamson, Huaguo Zhou, Ph.D. – Southern Illinois University, Edwardsville)

The newly published Highway Safety Manual (HSM) has defined six different driveway types based on land use and parking lot size, including major commercial, minor commercial, major industrial/institutional, minor industrial/institutional, major residential, and minor residential. Major driveways are defined as having more than 50 parking spaces, while minor driveways are defined as those having less than 50 parking spaces. The HSM crash prediction models require the inputs of driveway type and density. However, the actual impacts of different types of driveways on the number of crashes are not clear. The crash modification factors were provided based on few past studies, with high standards of error.

The purpose of this research is to develop a method to quantify the impact of driveway types and density on traffic crash frequencies, types, and severities. The different driveway types were collected in the State of Illinois and crashes occurring in the function area of each driveway were identified from the IDOT crash database (from 2005 to 2009). A cross section comparison was conducted to compare the mean crash frequency among different driveways. A further statistical analysis was used to develop a relationship between the density of each driveway type and crash frequency and rates.

# MAKE ME A SUPER MODEL

10AM SESSION C / Room D-E / Moderator: Josh Sikich – TranSystems

This session examines transportation modeling as a way to understand the world around us and make informed planning decisions. Transit productivity, walkable urban design, electric vehicle infrastructure, and traveler route choice are among the topics discussed.

Riding More Frequently: Disaggregate Ridership Elasticity Estimation for Chicago's Bus Network (Charlotte Frei, Hani S. Mahmassani – Northwestern University Transportation Center)

In this presentation, stop level transit elasticities with respect to service frequency are estimated and discussed. Public transportation ridership is typically studied at an aggregate level, where variables influencing ridership are averaged over

time and space for a metropolitan area. Understanding transit ridership at a finer temporal and spatial level is generally limited to mode choice models. Most aggregate analyses are unable to capture important effects at the parcel or block level. Such analyses also cannot account for variation in demand over time of day, an issue which has been addressed to some extent via time series modeling. Using data for the Chicago transit system, the results suggest that aggregate analyses overestimate the effect of service frequency on demand. In the context of other disaggregate analyses, these results suggest that walking quality results in distinct increases in ridership, even after accounting for land use,

population and other demographics. A headway elasticity of ridership is estimated to be  $-0.263$  to  $-0.277$ , very similar to recent disaggregate analysis of New York City transit data. The case is made for a better spatio-temporal understanding of transit ridership in order to allocate resources effectively.

## An Agent-Based Information System for Electric Vehicle Charging Infrastructure Deployment (Timothy Sweda, Diego Klabjan – Northwestern University)

The current scarcity of public charging infrastructure is one of the major barriers to mass household adoption of plug-in electric vehicles (PEVs). Although most PEV drivers can recharge their vehicles at home, the limited driving range of the vehicles restricts their usefulness for long-distance travel. In this work, an agent-based information system is presented for identifying patterns in residential PEV ownership and driving activities to enable strategic deployment of new charging infrastructure. Driver agents consider their own driving activities within the simulated environment, in addition to the presence of charging stations and the vehicle ownership of others in their social network, when purchasing a new vehicle. Aside from conventional vehicles, drivers may select among multiple electric alternatives, including two PEV options. The Chicagoland area is used as a case study to demonstrate the model, and several different deployment scenarios are analyzed.

## Exploring Route Choice Determinants Using Driving Simulator Data (Anam Ardestiri, Mansoureh Jeihani – Morgan State University)

Route choice is a crucial part of transportation planning. The lack of appropriate data is one of the reasons that fully calibrated route choice models have yet to be developed. Travelers' attitudes have been collected mostly through stated preference (SP) surveys, which do not necessarily coincide with actual decisions. Field experiments are not feasible to test various traffic information scenarios and environmental

conditions. There are a few route choice studies based on driving simulator data; however, they failed to replicate a network inclusive of all viable alternatives and real traffic information.

Both types of SP and driving simulator data are collected and analyzed in this study. Driving experiments were performed in the Baltimore area network with all spatial features and alternative roads. Drivers' route choices were observed under various traffic regimes and travel time information through a dynamic message sign (DMS). SP data was utilized to better understand drivers' perceptions of efficiency-related attributes. It was also used for validation. Socio-economic characteristics, driving experiences, route familiarity, usage of navigation, and attitudes toward travel information were collected in SP.

The study concluded that travel time is not the only factor affecting route choice. Personal perceptions and experiences which are often different from the reality, traffic information, and its accuracy are significant determinants in route decisions. Discrete choice analysis tools under various logit formulations were conducted to unveil travelers' perception and cognition of route attributes. The effectiveness of major factors in route choice behavior was identified, and it was demonstrated that the combination of past experiences and information provided for drivers determine their route choices.

# ASSESS YOURSELF

11:15AM SESSION A / Main Ballroom A / Moderator: Ryan Richter – Metra

Metrics enable agencies to properly assess and measure themselves in a variety of areas. This session demonstrates how agencies can measure their performance, the efficiency of their studies, and demand for service.

## Developing the Transit Demand Index (TDI) (Gregory Newmark – Regional Transportation Authority)

A challenge for public transportation planners is estimating the potential demand for transit in a given area. An inexpensive tool that can provide detailed information on demand throughout a region is desired. This paper presents such a tool, the Transit Demand Index (TDI).

The TDI uses multiple regression analysis to estimate the contribution of various demographic, land use, and car ownership factors to transit demand. In order to gauge potential demand, these relationships are estimated in the

portion of the community with the most transit provision and connectivity. These relations are then applied to the rest of the region to identify an upper bound of “potential” demand. In this case, the TDI formula is estimated in the City of Chicago and then applied to the suburban region.

The TDI effectively consolidates the many independent variables that contribute to transit into a single, easily mapped statistic. This statistic can be used to identify current demand patterns and to also assess the impact on demand of proposed policy interventions. The TDI is designed for ease of use. It relies on readily available data and measures transit demand in the density terms relevant to urban planning.

## Community-Specific Environmental Impact Assessment of Rail Infrastructure in Chicago (Ning Ai, Marcella Bondie, Anthony Grande – University of Illinois at Chicago)

Under the National Environmental Policy Act (NEPA), proposed rail projects are subject to a lengthy and expensive environmental evaluation process. Sponsored by the USDOT-National University Rail (NURail) Center Consortium, this study aims to increase the effectiveness and efficiency of environmental impact assessment of rail infrastructure by providing a system view of sustainability and a one-stop rail planning database. Specifically, this study has developed an integrated tool that incorporates key metrics to assess the environmental, ecological, economic and social impacts of rail transportation in a Geographic Information System (GIS) framework.

Compared to existing studies and databases with similar objectives, this study is particularly informative and timely for two principal reasons. First, it has incorporated state-of-the-art academic research findings as well as legislation and government guidelines in a comprehensive “Sustainable Rail Scorecard” that covers the efficiency, safety, public health, ecological stress, emissions, and socioeconomic impacts. The Scorecard evaluation can be conducted using a tiered approach that specifies meeting minimum regulatory requirements or a “best practice” sustainable alternative. Second, this study simulates and visualizes the potential environmental impacts of proposed rail infrastructure at a refined geographical scale (e.g., the vicinity of grade crossings), based on the speed, traffic volume, and occupancy of the rail transport system. Connecting environmental impacts with neighborhood background information, such as land uses, demographic characteristics, and environmental quality, this study identifies high priority and sensitive areas for sustainable rail planning and management in the Chicago metropolitan region.

## Peer Performance Comparison in the Public Transit Sector (Karin Allen, Donna Anderson – Regional Transportation Authority)

The Regional Transportation Authority (RTA), with cooperation from each of its Service Boards, implemented a Performance Measurement program in 2008. The RTA uses National Transit Database data to develop a performance measurement “report card” which covers various service measures over a five-year time period; performance measures are reported in an aggregated regional perspective as well as for each Service Board and mode. Additionally, performance is reported in relation to comparable peers, again on a regional and sub-regional (modal) basis, each year. This presentation will focus on the peer comparisons, for which there are three consecutive years of reports available.

The purpose of the report series is that, in the absence of industry standards, performance measures can be used to assess the operations of each agency. The RTA has found that the use of peer analysis significantly enhanced the performance measurement reporting program by establishing benchmarks for performance and identifying areas of relative strength and weakness for each mode. Additionally the peer reports demonstrate unique characteristics or circumstances that may constrain performance or point to potential areas of improvement. For example, CTA rail performance is significantly constrained by the tight curves of the Loop tracks that necessitate the use of smaller cars, impacting many performance measures with no feasible prospect of a rank change, although CTA has the third-highest annual ridership.

Performance measurement as a process needs to include a careful review of each agency’s operating environment so that results can be not only reported, but understood.

# FOOTLOOSE

11:15AM SESSION B / Room B-C / Moderator: Randy Simes – Parsons Brinckerhoff

The number of trips being made by people choosing to walk or bike continue to grow, and this growth presents safety and capacity challenges that are new to the transportation industry. This session will explore a variety of ways to better collect information and design our pedestrian and bicycle facilities.

Walkable Urban Thoroughfares in Illinois:  
Steps for Understanding and Overcoming  
Barriers (Chris McCahill, Heather Smith –  
Congress for the New Urbanism)

Increasingly, communities want major roadways to be designed to support a variety of social and economic functions for all types of road users—including non-motorized users. To help meet these needs, the Congress for the New Urbanism (CNU) and the Institute of Transportation Engineers

(ITE) partnered to produce the ITE recommended practice, “Designing Walkable Urban Thoroughfares: A Context Sensitive Approach,” published in 2010.

In February 2013, CNU partnered with the Chicago Metropolitan Agency for Planning (CMAP) to host a series of workshops introducing the manual to transportation designers from the greater Chicago area. More than 80 people participated, including members of Illinois Department of Transportation (DOT), county DOTs, municipal agencies and private firms. The workshop offered a unique opportunity

for all of its participants to share ideas, identify obstacles to implementation of the manual and offer solutions to overcoming those obstacles.

This presentation provides an overview of the workshop, the events leading up to it and the initial outcomes. Key obstacles identified at the workshop include existing design guidelines, funding priorities and performance measures. This presentation also highlights opportunities for implementing the CNU/ITE recommended practice based on lessons from successful examples around the country.

## Trail Traffic (Marissa Dolin – Active Transportation Alliance, Tim Jeffries – Friends of the Parks)

Chicago's Lakefront Trail is one of the country's busiest non-motorized transportation thoroughfares, with at least 60,000 people per day using the trail in the peak season. As one of the few exclusively car-free routes in Chicago, it stretches 18 miles along Lake Michigan from Ardmore Avenue on the north to 71st Street on the south. The trail serves as both a destination for recreational users, a training facility for athletes, and a transportation route for commuters. It also must safely accommodate all users, from slow moving pedestrians to speedy skaters and cyclists.

With such a high volume of traffic, the Lakefront Trail experiences many of the same types of issues motorized roadways experience: traffic congestion, issues with merging, speeding and obstructions on the travelway. Yet, unlike a roadway, data such as traffic counts, crashes and congestion reports are unavailable.

To better understand the issues facing trail users and opportunities for improvement, Friends of the Lakefront Trail, a partnership between Active Transportation Alliance, Friends of the Parks and Chicago Area Runner's Association (CARA), reached out to the public and surveyed regular users of the Lakefront Trail. The more than 1,500 respondents included people from throughout the Chicago region and trail users of

all modes. Survey results were used to identify perceptions of trail design and areas in highest need of improvement. The survey results identified locations along the trail and access points with the highest and lowest instances of crashes, congestion and conflicts.

## 2013 Chicagoland Bike Map (Paul Lippens, Marissa Dolin, Paul Halupka, Brandon Whyte – Active Transportation Alliance)

Bicycle travel is a significant and fast growing component of today's complete travel network. Understanding how to create a functional bicycle map that provides quantitative wayfinding but also qualitative route analysis is an important tool to produce more useful bicycling plans and facilities. It was Active Transportation Alliance's goal to provide this missing qualitative analysis for the greater Chicagoland area.

Using the insights of experienced volunteers, primary data was gathered across the ten counties in the greater metro area. Eight structured training sessions were conducted instructing volunteers how to classify roadways for bicycle travel. Classifications were established reflecting the level of comfort a cyclist would experience traversing the roadway. Volunteers considered roads from the point of view of three types of rider: novice, intermediate, and experienced. Roads were marked for quality spanning the gamut of ability, from where less experienced cyclists would feel comfortable to where only very experienced cyclists would be comfortable. Volunteers were trained to understand the needs of all types of cyclists and how to apply them to given roadways.

Gathering these qualitative judgments added unique value not found in conventional bicycle maps. Indicating higher quality cycling routes has improved the safety while increasing the enjoyment of bicycle travel in the Chicagoland area. Beyond these benefits, this process of evaluation gathers important data regarding preferred routes within a city and what about these routes make them more valuable to cyclists. This qualitative information improves the value and applicability of bicycle plans and facilities to actual users.

# MOVE IT!

11:15AM SESSION C / Room D-E / Moderator: Elaine McKenzie - Cambridge Systematics

Each year, millions of tons of freight move on Illinois' roads. This session will present a trio of approaches to facilitate freight movement in and through the state.

Illinois Freight Mobility Plan (Joseph Bryan, Ronald Shimizu, Keith Sherman - Parsons Brinckerhoff, Susan Stitt - Illinois Department of Transportation)

An Illinois Freight Mobility Plan was prepared as part of the Illinois Department of Transportation 2012 Long Range State Transportation Plan, and in response to State legislation requiring the development of a comprehensive freight plan. The purpose of the plan was to:

- Analyze existing and forecast Illinois freight traffic by mode, commodity, and geography
- Identify potential market trends affecting this traffic
- Summarize findings from prior freight related studies and the recurring issues and trends present at the statewide level

- Identify freight related safety, reliability, and air quality issues, and strategies to mitigate these issues and enhance the State's freight transportation system

A variety of data sources were used to identify Illinois freight traffic, including the federal Freight Analysis Framework (FAF) for trucking and air freight, the Surface Transportation Board (STB) Carload Waybill Sample for rail, and the Transearch database for waterborne traffic. These datasets were processed to obtain Illinois freight traffic movements by mode, commodity type, and county. For example, the FAF data was used to develop a national truck model, which was then used to develop a statewide truck model for Illinois.

Research was conducted to identify key Illinois freight market trends, including bulk commodities; the Panama Canal expansion; near-shoring, on-shoring and supply chain risk; distribution and retail; and freight carriage.

Existing and future truck traffic with respect to safety, system reliability, and air quality were examined. Strategies were then identified to mitigate the identified issues, as well as strategies for improving freight network performance.

## Construction and Use of a Hybrid National/Local Truck Model for the Illiana Corridor (Mary Lupa, Rolf Moeckel, Rick Donnelly, Ron Shimizu, Mariya Maslova – Parsons Brinckerhoff)

In the current USDOT MAP-21 environment there are significant provisions for addressing freight concerns at both local and national levels. The ultimate goal of these new provisions is to improve the condition and performance of the national freight network and support investment in freight-related surface transportation projects.

Into this environment, the Illiana Corridor Tier One study was launched to analyze traffic flows on a new highway corridor south of Chicago. It was immediately noted that truck freight movements are a major component of existing south suburban traffic, due in part to the presence of several major intermodal centers, the importance of I-80 (the Borman/Kingery Expressway) to national truck throughput and growing manufacturing, distribution and warehousing functions in Will County. A national/local hybrid truck model was designed specifically to respond to the existing conditions in the Illiana Corridor. The key components of the model include maximum use of available CMAP freight data, a two-layer design distinguishing long-distance (or national) and short-distance (or urban) freight flows, disaggregation of FAF3 data using make/use coefficients and employment by industry, an empty-truck model, and explicit representation of intermodal facilities and distribution centers.

The authors addressed model design alternatives and calibration issues, prepared solutions and ultimately validated to 2010 observed trucks by size. The model has been applied to a series of scenarios. The authors will present the

challenging aspects of designing, calibrating and validating truck traffic on Chicago area interstates, in service of accurate forecasts for trucks on the Illiana Expressway.

## Designating Chicago's Truck Route Network (Erika Witzke – Cambridge Systematics, Joe Alonzo – City of Chicago)

The Chicago Truck Route Planning Study employs a performance-based approach for updating the city's designated truck route network. This approach supports a transparent and repeatable process that clearly links truck route network designation to long-term goals, including ensuring the network: is eligible for Federal funding; allows truckers to find the most effective routing from origin to destination; enables truckers to comply with the law; enables the city to enforce size, weight and route laws; is consistent with routes designated by neighboring jurisdictions; and encourages economic development.

Based on these goals, data were reviewed to establish criteria to address gaps and deficiencies in the current network designation. Data review included features such as Truck AADT; vertical clearance restrictions; bridge weight limits; adjacent land use; location of intermodal connectors; existing and proposed intermodal facilities; and cross jurisdictional connectivity. Additionally, the presence of truck-prohibited routes was assessed to determine whether they should remain in place and if new truck-prohibited routes should be designated (e.g. those routes adjacent to schools, parks, or other neighborhood features).

For each criteria, thresholds were defined by which roadway segments could be screened "in/out" of the designated truck route network. For example, a quarter-mile threshold could be set to designate a route proximate to an intermodal facility. A single, robust GIS repository was relied upon to conduct spatial analysis and designate the network. The final study product will be an easily accessible and understandable truck route designation map for use by both the public and private sectors.

# GET WITH THE PROGRAM

2:45PM SESSION A / Main Ballroom A / Moderator: Will Gillespie – Chicago Transit Authority

Planned programs utilizing new technologies and regional coordination in the Chicago area are explored alongside how environmental justice principles apply to such investments.

Regional Transit Signal Priority Implementation Program (Mark E. Pitstick, Gerry Tumbali – Regional Transportation Authority, Daryl Taavola – URS Corporation)

On behalf of regional transportation stakeholders, the Regional Transportation Authority (RTA) is leading a comprehensive effort to implement a regionally coordinated and interoperable Transit Signal Priority (TSP) system. TSP systems use technology to identify transit vehicles and adjust traffic signals to allow the transit vehicles to progress through signalized intersections by advancing or extending the green phase. This can help reduce transit travel times, improve bus schedule adherence and reduce vehicle-operating costs.

The regional program is being developed and will be implemented in coordination with regional stakeholders

including the Chicago Transit Authority (CTA), Pace Suburban Bus (Pace), the Chicago Department of Transportation (CDOT), and the Illinois Department of Transportation (IDOT). Program objectives include the establishment of regional standards and guidelines for the design, implementation, operation and maintenance of a multi-jurisdictional TSP system. An interoperable system will allow for Pace and CTA buses with different types of on-board equipment to successfully make TSP requests at traffic signals that are operated by CDOT, IDOT or other local DOTs.

The TSP system proposed for this program will address four key technological objectives:

1. Maximize the use of existing on-board equipment to generate TSP requests
2. Establish standards-based communication protocols between buses and intersections
3. Utilize readily available off-the-shelf communication technology for vehicle to intersection communications

#### 4. Leverage TSP communications infrastructure for other transit ITS applications

The presentation will focus on the systems engineering process that is being followed in order to achieve these objectives.

### An Interagency Fare Choice Model for the Chicago Region (Monique Stinson Urban, Kimon Proussaloglou – Cambridge Systematics, Joseph Moriarty – Regional Transportation Authority)

The State of Illinois recently mandated the Regional Transportation Authority (RTA) and its Service Boards to develop and implement new fare payment products. The objective of this effort is provide more integrated fare options for interagency trips, or trips that involve transferring between transit vehicles that are operated by different agencies.

To help evaluate new interagency fare payment options, the RTA adopted a multifaceted approach that included a quantitative evaluation. This paper focuses on a key element of the quantitative analysis: an econometric interagency fare choice model that evaluates rider propensity to use proposed new fare products. The parameters for this discrete choice model were estimated using stated preference (SP) data from a survey that was conducted for this study.

Key findings from this effort include the following. First, riders whose trips show greater regularity, such as riders that only use one agency, are likely to continue using their current payment methods. Second, riders who ride only CTA and/or Pace (but not Metra) were somewhat interested in the proposed new options. Third, individuals that currently make trips that involve Metra as well as CTA or Pace (or both) were most interested in the new payment options.

In summary, this paper describes a discrete choice model

that is used to assess fare product decisions. The findings are intuitive and are being used to help the RTA develop recommendations on new fare products for transit riders in the Chicago region.

### Transportation and Housing Affordability: An Environmental Justice Perspective (Jason Duba, P.S. Sriraj, Ph.D. – University of Illinois at Chicago Urban Transportation Center)

The literature regarding transportation agencies' compliance with environmental justice standards has dealt little with a significant factor that influences the effectiveness of the transportation network: housing affordability. The guide "Effective Methods for Environmental Justice Assessment" (Forkenbrock & Sheeley, 2004) devotes a chapter to "Land Prices and Property Values." However, this text and other literature do not address the particular challenges that low-income and minority populations have regarding housing affordability within the context of transportation connectivity. While research regarding spatial mismatch exists, its reference to environmental justice principles is lacking.

In 2012, the U.S. Department of Transportation issued Order 5610.2(a). It seeks "to achieve environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, of its programs, policies, and activities on minority populations and low-income populations in the United States."

These interrelated social and economic effects have not received sufficient attention in transportation-related environmental justice efforts. This research explores the nexus between environmental justice, transportation, and housing through a literature review and analysis of data from the Chicago metropolitan area. The hypothesis is that housing affordability needs to be included explicitly in environmental justice analyses of transportation investments.

# CONNECTING THE DOTS

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2:45PM SESSION B / Room B-C / Moderator: Charlotte O'Donnell – Pace Suburban Bus

This session explores land use decisions in relation to access to transportation lines and how past decision making processes affect the desirability of today's real estate.

Transportation Accessibility and Industrial Land Use in Metropolitan Areas: Implications for Economic Development (Christopher Lindsey, Hani S. Mahmassani – Northwestern University Transportation Center, Matt Mullarkey, Terry Nash – CenterPoint Properties)

We examine the relationship between occupancy rates of industrial land and transportation accessibility, and its implications for economic development in a metropolitan area. In pursuing this goal, we estimate a spatial econometric model that formulates an area's level of industrial land use occupancy as a function of transportation accessibility. The

geographic area considered is the four-county region of Los Angeles, Orange, Riverside, and San Bernardino counties in the state of California, a large and economically significant region considered central to goods movement in the United States. A statistically significant association between transportation supply and industrial land use in the study area is established. Results suggest that transportation accessibility does indeed affect the occupancy of industrial space; more accessible areas exhibit higher than average levels of occupancy. In turn, increased consumption translates to economic development for metropolitan areas. As businesses consume additional industrial space they correspondingly consume additional utilities and services, as well as pay more property taxes. The economic contribution of additional industrial space consumption to local tax bases is discussed.

## COD: Capturing Value from Place-based Freight Assets (Kyle Smith – Center for Neighborhood Technology)

Prior to the rise of the automobile, many American homes and businesses located in walkable, transit-served communities, and manufacturers in particular reaped the benefits of easy access to freight rail. Those railroads shaped livable, diverse communities as factories located nearby and compact, affordable, working-class neighborhoods sprung up around them. But during the last two generations, industrial jobs were exported to developing countries, and highway development opened up cheap land in sprawling new exurbs, draining many communities of businesses, residents and tax revenues.

As energy prices rise and the globalization accelerates, communities have again begun to capitalize on rail and water assets to anchor jobs and revitalize compact neighborhoods. Such projects have become known as Cargo-Oriented Development (COD), a transportation and land use framework concept that integrates existing freight, economic development, workforce development, and environmental resources around key freight hubs. COD brings manufacturing and logistics firms close to the railroad access, intermodal terminals, and large pools of workers that keep them competitive – curbing suburban sprawl, streamlining freight movements, and reducing greenhouse gases in the process.

This presentation will discuss how regions have marshaled these resources towards COD as part of a broader livability strategy. In Cook County, Illinois, 42 municipalities convened around a regional redevelopment strategy centered on a Canadian National (CN) rail yard that connects them to markets all across the Pacific Rim. The Kansas City region branded its mix of rail, water, truck, and air gateways as “KC Smartport” to attract new industrial and logistics companies. And in Baltimore, energy efficient crane technology made it possible for CSX to relocate rail-to-truck intermodal operations to an infill parcel that will handle East Asian cargo moving to Baltimore through the widened Panama Canal.

## Urban Automobile Use and Local Transportation Impacts (Chris McCahill – University of Connecticut)

Given concerns about the negative impacts and growing costs of automobile use, there has been greater interest in dense urban areas that can support a variety of transportation options. However, automobiles are now the primary mode of transportation in many urban places in the U.S.—even those once served largely by walking, bicycling and transit. This research reveals key factors that explain the changes in automobile use in these places and important aspects to focus on for reversing this trend.

For this study, the researchers analyzed changes in six small cities between 1960 and 2000. Changes in parking provision were estimated from aerial photographs and changes in travel behavior were estimated from census data regarding commute trips. Particular attention was paid to changes in local trips, which are the most likely trips to be made by non-automobile modes and are easily influenced by changes to infrastructure and the built environment.

Case studies for these six cities reveal marked differences among them. Cities with high rates of automobile use experienced moderate increases in the quantity of commuters traveling by automobile, but substantial increases in parking provision and automobile use for short, local trips. In cities with low rates of automobile use, the growth of parking supplies slowed after 1980 and automobile use decreased for local trips. This work suggests that automobile-oriented design has contributed to a fundamental shift in local travel behavior and that there is potential to reduce automobile use for local trips.

# CHICAGO, MY KIND OF TOWN

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2:45PM SESSION C / Room D-E / Moderator: Christina Arthur - Chicago Transit Authority

This session focuses on transportation studies, survey findings, and best practices within the Chicago area.

How Does the Rubber Meet the Road?  
Evaluating the Investment Outcomes of  
Transportation Studies in the Chicago Region  
(Laurence Audenaerd – DePaul University)

Studies are constantly being funded on a variety of transportation-related topics intent on improving the conditions of the Chicago area transportation system. This research typically requires sizable investments to develop complex models, acquire sufficient data and inculcate expertise. Besides driving follow-on studies or academic/industrial literature, there is often limited follow-through of the policy or decision impacts of these studies, even by the direct authors. This work presents some observations about

what sorts of studies have greater impact than others and what specific elements impact policy directly.

Through a series of case study reviews of several recent transportation studies in the Chicago area, this research relates the effectiveness of the research methods to the policy changes and decision-making highlighting efficiencies and good practices. Examples include a study on the impact of flooding on regional traffic delay and a study on the impact of transit maintenance on service level and the regional economy. In today's current economic environment of "do more with less," the findings suggest that detailed research strategies are not always aligned with policy-maker needs and that an efficient comprehensive understanding of the salient issues can often times be highly valuable.

## Visitor Travel Surveys: Issues, Solutions, and Findings (Gregory Newmark – Regional Transportation Authority)

Metropolitan travel surveys traditionally focus on the household as the unit of analysis. While this approach has been relatively successful for a half century of travel demand modeling, it excludes important users of the transportation network, such as commercial vehicles and out-of-town visitors. Although much recent effort has focused on incorporating freight movements, relatively little work has examined the movements of visitors to a metropolitan area.

There is reason to believe that the travel behaviors of visitors are distinct from those of residents. The exclusion of information on this travel market is particularly problematic in places where the visitor volumes are substantial, such as Chicago, which drew 43.6 million visitors in 2011 (Bergen, 2012). The lack of knowledge of visitor movements necessarily hampers effective transportation planning and leads to missed opportunities to tailor the system to potential users.

This research seeks to begin to fill this gap. It explores the issues involved in conducting visitor travel surveys, considers solutions that have been implemented, and presents general findings about how visitors travel. Special attention is given to illuminating the relationships between visitors and transit systems.

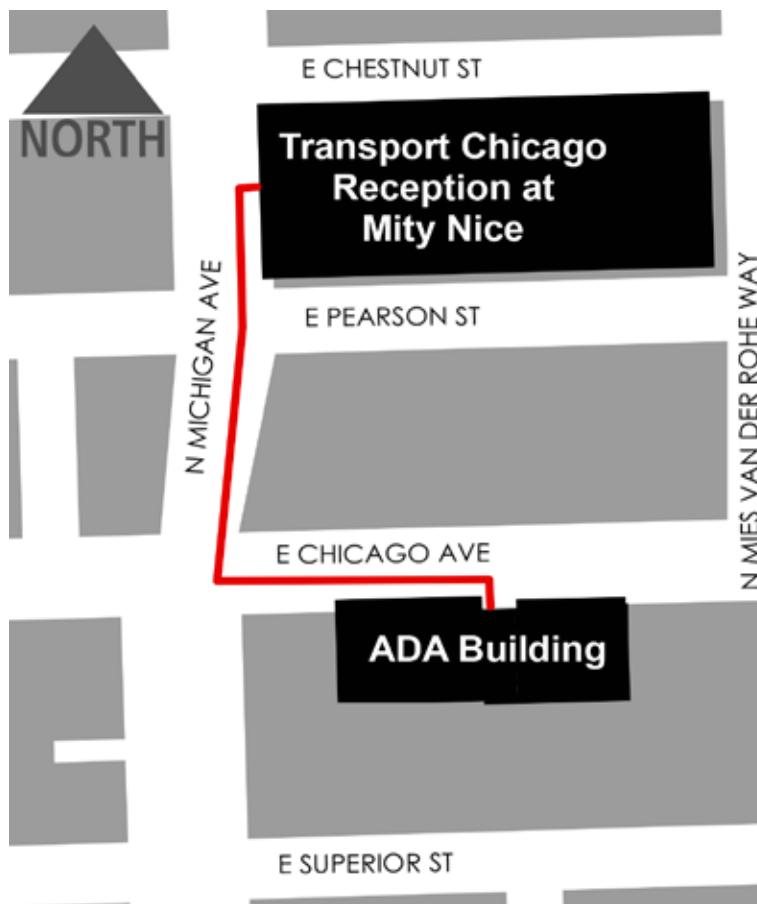
# NOTES

# COCKTAIL RECEPTION

## Directions to the reception at Mity Nice

From the American Dental Association Building, walk west one block on Chicago Avenue to Michigan Avenue. Head north one block on Michigan and enter Water Tower Place through the main entrance.

Upon entering Water Tower Place from Michigan Avenue, take the set of escalators up to the second level. Walk across the second level towards the left side, just past Henri Bendel, and take the down escalator to the mezzanine level. There you will find the host stand at the entrance to Mity Nice.



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