Research Roundup: Central Area Circulator Report

The Chicago Central Area Circulator, a planned light rail network serving downtown Chicago and surrounding areas, may have been built if the expansive new project had been initiated with service along one specific corridor, rather than four separate lines as planned. That was a key conclusion made in “The History of the City of Chicago Central Area Transit Circulation Efforts,” a report that details plans that originated in the late-1980s to build a new surface rail system.

As noted in the paper, “The main lesson learned from the Circulator Project was that trying to serve all the primary corridors of travel in the Central Area was more than the project could successfully achieve. The alignment decision process and the community involvement strategy, though necessary, was overly time consuming and delayed the resolution of the Final Environmental Impact statement by one year...” By then political change in the federal and Illinois State capitals doomed the project’s funding mechanism.

The goals of the Circulator project — formally closed in 1995 — were to bolster transportation links to neighborhoods and commuter transit lines, enhance the Central Area’s social and economic environments, and serve as a catalyst for growth. The report details the significant research undertaken to identify specific corridors that could benefit from the new rail service, which would incorporate on-street light rail technology (LRT), a user-friendly, electrified system with track embedded in existing street lanes.

The report, published in March 2018, was written by former UTC Executive Director Stephen E. Schlickman, JD, and Laura Klabunde, MUPP. Note: Mr. Schlickman was Executive Director of the Chicago Central Area Circulator Project from 1992 to 1995. The study was funded through the National University Rail Center (NURail) and the Illinois Department of Transportation’s Metropolitan Transportation Support Initiative (METSI) program.

Spring 2018 Diversity Lunch Profiles East and West Transit

Transportation and cultural insight from recent trips to two very different global cities were presented at a Diversity Lunch presentation hosted April 26 by the UTC during the Spring 2018 semester. Around 20 faculty, staff, students and guests participated.

Leading off, graduate research assistant Lucy Chen shared thoughts and images from Hangzhou, China, a provincial capital city known for being the southern terminus of the Grand Canal, its famous Silk Market and the West Lake district, a vibrant urban area that’s been designated a UNESCO World Heritage Site. Lucy spoke on the ease of using the city’s extensive public transit network and the comfort of a train trip on the modern Nanjing South Railway System.

The second segment focused on Lisbon, the capital of Portugal. Public Information Coordinator Edward Bury recounted use of conventional public transportation – like the metro, commuter rail, bus network and ferry service – with more unique modes, including the city’s funicular and tram network. A highlight of his visit: Admiring the colorful azulejo (decorative tile work) that adorn many metro stations within the five lines serving greater Lisbon.
The process behind transportation project funding, an analysis of the impact of transit segregation on metropolitan Chicago, and strategies to evaluate major projects for Northeastern Illinois were the subjects of the three Spring 2018 Seminar Series events hosted by the Urban Transportation Center. Presentations were made by representatives from: The local body charged with financial oversight, funding, and regional transit planning; a non-profit planning organization with an 80-year history of promoting sound regional growth; and, the state agency responsible for guiding regional development. Below are short recaps; all presentations were held in the Great Cities Institute Conference Room at CUPPA Hall. Get access to the presentations by visiting the Seminar Series web page.

The Life of a Capital Public Transit Project from the RTA’s Perspective. Insight on the capital assistance and project management oversight programs administered by the Regional Transportation Authority (RTA) were the focus of the February 15 presentation. To kick off the discussion, David Spacek and Tara O’Malley shared statistics on the RTA’s five-year capital funding allocation plans from requests submitted by the three service boards (CTA, Pace and Metra). Once the revenue sources are identified and approved, the service boards are required to develop their list of capital projects to be funded. Currently, there is insufficient funding to meet the capital needs; the service boards therefore must prioritize their projects by asset category and funding source. The RTA is responsible for grant application and execution, compliance oversight, financial oversight and managing requisitions. The reconstruction of the Wilson station on the CTA Red Line was offered as a case study; this three-year project was completed in 2018 and cost more than $200 million. Key work included track relocation, reconstruction of the historic Gerber Building station and rebuilding station platforms.

The MPC’s Cost of Segregation Study: Transportation Equity Strategies Under Development. Three factors can help metropolitan Chicago achieve racial equity: Increasing mobility and opportunity, reducing racial wealth gaps, and dismantling individual and structural racism. Those were the key recommendations made in “The Cost of Segregation,” a 2017 report produced by the Metropolitan Planning Council (MPC). During the March 1 presentation, Audrey Wennink noted that the MPC study was driven by two questions: What is the overall impact on the Chicago region when many citizens live separately based on race and income; and, what can be done to change patterns of racial and economic segregation. The segregation report revealed some startling and significant findings, including an estimated $4.4 billion in lost annual income, a 30 percent increase in homicides, and 83,000 residents who are unable to earn a bachelor’s degree. Wennink said demand-response options, more public-private partnerships and expanding bikeshare services are among the transportation-centered solutions that may help alleviate segregation across the region.

The Screening and Selection of Regionally Significant Projects. Every four years, the Chicago Metropolitan Agency for Planning (CMAP) must prepare a land use and transportation plan designed to guide planning for the seven-county Chicago region. In the past, CMAP only evaluated major capital projects designed to add capacity on interstates and rail; but that policy has changed as the planning agency moves ahead with unveiling the initial draft of the ON TO 2050 comprehensive regional plan in June. Claire Bozic and Martin Menninger offered further thoughts on how CMAP analyzes transportation projects for recommendation during the presentation held March 15. CMAP planners have a major challenge ahead, with 65 transit, 23 expressway and 19 arterial projects under consideration for inclusion in the ON TO 2050 report, which will be finalized in October. To provide project recommendations, CMAP addresses factors like serving economically disconnected areas, the economic and environmental impact of a new transportation project, and serving infill areas. A “highway project scorecard” was presented as an example of the process involved in selecting projects for inclusion.
Affiliated Faculty Profile: Professor Jie (Jane) Lin, College of Engineering

Dr. Jie (Jane) Lin is an Associate Professor in the Department of Civil and Materials Engineering and holds an appointment with the Institute for Environmental Science and Policy (IESP) at UIC. Her research is focused on modeling of transportation environmental impacts, freight transportation and logistics, and intelligent transportation systems (ITS).

Much of your research centers on transportation and the environment. Could you please share insight on any current or recent environmentally-focused research?

One of my research areas has been in the cross-road of transportation and air quality, in particular in integrating transportation planning with mobile source emissions and air quality modeling. For example, my recent research in this thrust focuses on developing a holistic and integrated modeling approach to understanding the underlying relationship between travel demand, vehicular emissions, air pollution, and population exposure (Lin et al., 2011, Proc. IEEE; Vallamsundar et al., 2015, IJSTL; Vallamsundar et al., 2016, TR-D). The modeling tool involves agent-based modeling of finely resolved individuals’ daily activity patterns (location and duration), which are then used to estimate transportation network congestion levels, vehicle emissions, pollution, and finally the population exposure to the vehicular pollutants. Such a tool allows evaluation of the potential health impact and environmental justice of transportation policies and investments at fine spatial and temporal scales.

Another application area is in the first/last mile of urban delivery. My research in this area focuses on minimizing operating cost, energy consumption, carbon footprint, and local pollution in the first/last mile of urban logistics problems. More specifically, my research investigates green urban delivery strategies in the context of new mobility forms, such as real-time.

You currently hold a joint appointment at UIC with the Department of Civil and Materials Engineering and the Institute for Environmental Science and Policy. What are the challenges of balancing faculty responsibilities and research-focused work?

The nature of the joint appointment allows me to devote more time to research-focused work, including proposal writing, which is an advantage that I’m fortunate to have. On the other hand, it does not prevent me from fulfilling regular faculty responsibilities in the CME Department. I experience the same challenges other colleagues with regular appointments have. I do not feel any different on a daily basis.

You are very active with the Transportation Research Board (TRB) and serve on the editorial boards of leading scholarly journals. How important is this work to your career?

I am currently Vice Chair of the Section on Energy and Environment of TRB (overseeing eight committees from 2017-2020). Prior to that, I have been Chair of the TRB Committee on Transportation and Air Quality (ADC20) for six years (2011-2017). I am an editor of Transport Policy, associate editor of Transportation Research Part D – Transportation and Environment, and an editorial board member of the International Journal of Sustainable Transportation Systems, and Transportation Research Part A: Policy and Practice. I have also recently completed two special issues as a guest editor, one on "Emerging Urban Mobility Services," with Transportation Research Part C: Emerging Technology (2016-2017), and the other on "Urbanization, Transportation and Air Quality in Developing Countries" with Transportation Research Part D: Transportation and the Environment.

I view these appointments as an important recognition of my research contributions to relevant areas of transportation. I take my responsibilities seriously. On the other hand, they have also broadened my professional network and further increased my visibility in the academic community.

Since you arrived in the U.S. to complete advanced studies, you’ve lived in Northern California and in the metro Boston area. How does metropolitan Chicago compare?

I was lucky to have landed in Northern California when I arrived in the U.S. for the first time. The Californian’s warmth, open mind, and easy-going style really helped me settle in quickly and explore the culture, the society, the people, and the nature. Even though I have left Northern California for more than 16 years, I think a good part of me is still Californian today. Boston is one of my favorite cities in the U.S. for its vibrant, international, and intellectually stimulating feel. In particular, Harvard Square is my favorite spot where one can feel the free spirit filled in the air. I must admit that I didn’t like Chicago when I first came here. But over the years it has grown on me, and has become the longest lived place in my life. It’s one of the few U.S. cities that is truly a city rather than merely a place to work.
UTC Research Assistants Recount Busy Spring 2018 Semester

Research projects that focus on improving mobility and accessibility, address safety at freight rail grade crossings, find ways to measure transit resiliency, and provide the Illinois Department of Transportation with a long-range plan and identify economic development opportunities are among studies currently underway at the Urban Transportation Center.

A team of PhD and Master’s candidates play a vital role in assisting faculty and staff researchers in conducting this important research. We asked research assistants to share thoughts on the work they’re conducting during the Spring 2018 semester. Here are capsule summaries.

**Shazal Afraaz.** The research I’m working on involves an in-depth study of the delay, based on various times of day and lengths of closures, caused by at-grade railroad intersections in the village of Dolton. This involves the use of INTEGRATION 2.40 Dynamic Traffic Assignment software to code the study area and run the simulation. The output files generated can then be studied to find out the mitigating strategies and its effects.

**Liz DeChant and Eric Boria.** We’re working on the FTA-sponsored research project measuring the resiliency of Chicago transportation agencies. This summer, the UTC will interview and engage stakeholders from Chicago area transit agencies to interact with real-time transportation software designed by Argonne National Laboratory to determine the resiliency of transportation in response to local and area-wide disturbances. UTC is partnering with Argonne, the University of Chicago, the Illinois Institute of Technology, Michigan Technological University and the National Opinion Research Center.

**Lucy Chen and Sarah Geionsky.** This semester, we have been working on an IDOT study to explore the organizational structures of planning departments in different state Departments of Transportation. The scope of the project is to learn the effectiveness of organizational restructuring efforts in planning departments to support multi-modal and performance-based planning. We have designed a survey discussing organization, staffing, and performance data that will be distributed to the 50 State DOTs. The survey will be sent out this summer.

**Krupa Gajjar.** My work this semester centers on freight planning research for the South Suburban Mayor’s and Managers Association. Because of the large stress placed on freight rail activities in southern Cook County, this project aims to analyze the issues that are affecting mobility and economic development in the villages of Riverdale and Dolton. Currently, the study is assessing the at-grade roadway conflicts for improving mobility and public safety while reducing travel delays in both communities.

**Jessica Jones.** This semester I have been working (along with Michael McCarthy and Anton Rozhkov) to help IDOT refine the scope of its Economic Development Program. This program provides state assistance for roadway projects that improve access to industrial, manufacturing or major tourism developments, thereby supporting the creation and retention of jobs and generating local economic growth.

**Peter Kersten.** I’m working on assessing first and last mile accessibility in south and southwest Cook County. The project is lead by Dr. Nebiyou Tilahun. My role is to conduct a literature review and map Metra station service areas, combining network factors and socio-demographic data to create typologies.

**Michael McCarthy.** Lise Dirks, Em Hall and I are surveying mobility managers and transportation officials in almost every state to build profiles of professional networks that coordinate and integrate transportation services, especially in the context of human service transportation. These will be used by the National Center for Mobility Management to further promote the practice of mobility management.

**Anton Rozhkov.** I participated in two projects: 1) “Health and transportation,” looking at the accessibility to the Chicago hospitals from different points of the city. The project includes the GIS data analysis and a current literature review. 2) “IDOT EDP Project,” with Jessica Jones and Michael McCarthy. There I also worked with the GIS maps, analyzed similar programs in different states and conducted a literature review of the theory and methodology of the process of transportation economic development programs.
Director’s Message: A Robust Spring 2018 Forecast

By Dr. P.S. Sriraj, Director

With summer in full swing, the Urban Transportation Center can reflect on a very robust and noteworthy spring, the weeks highlighted by continued progress made to ongoing transportation research, a very successful Seminar Series and visits from two highly distinguished transportation academic scholars.

As we move into July, faculty and staff researchers are working closely with PhD and Master’s candidate student research assistants on studies that will provide valuable research into: Mitigating freight train delays at grade crossings; improving transit resiliency during extreme weather events; providing the Illinois Department of Transportation with long-range planning and economic development opportunity data; enhancing mobility as part of human-services transportation; and expanding transportation options to hospitals within metropolitan Chicago.

The Seminar Series, our lively noontime forum on modern transportation topics, featured three outstanding presentations led by leaders from the Regional Transportation Authority, the Metropolitan Planning Council and the Chicago Metropolitan Agency for Planning. Sincere thanks to our presenters for sharing their time and knowledge.

The UTC and the entire University were graced by visits from Dr. Sue McNeil, UTC Director from 2000 to 2005 and now Professor and Chair of the Department of Civil and Environmental Engineering at the University of Delaware, and, Dr. Geetam Tiwari, MoUD Chair Professor for Transport Planning at the Transportation Research and Injury Programme and Department of Civil Engineering, IIT Delhi. On April 27, Dr. McNeil delivered a presentation, “Infrastructure Resilience: From Concept to Performance to Decisions” hosted by the UIC Department of Civil and Materials Engineering. Before the lecture, she joined UTC faculty and staff for lunch in Greektown. Dr. Tiwari, who earned her doctorate from UIC, spoke June 1 on “Traffic Safety Priorities in Indian Cities: Current Challenges” during a morning session held at the Great Cities Institute.

We look forward to the Fall semester with excitement and anticipate commissioning new research and continuing ongoing studies, while adding new student researchers to the UTC.

UTC Faculty & Staff

P.S. SIRRAJ, Ph.D.
UTC Director
Director, Metropolitan Transportation Support Initiative (METSI)
Research Associate Professor

EDWARD M. BURY
Public Information Coordinator

PAOLA CAICEDO
Manager Research Operations/CUPPA

LISE DIRKS
Senior Associate

PAUL METAXATOS, Ph.D.
Associate Director for Research Programs
Research Associate Professor

SIIM SÖÖT, PhD
Associate Professor Emeritus

GEORGE YANOS
Principal Research Programmer

UTC Affiliated Faculty

SYBIL DERRIBLE, Ph.D.

KAZUYA KAWAMURA, Ph.D.

JIE (JANE) LIN, Ph.D.

KATE LOWE, Ph.D.

ABOLFAZL (KOYROS) MOHAMMADIAN, Ph.D.

ANTHONY PAGANO, Ph.D.

NEBIYOU TILAHUN, Ph.D.

BO ZOU, Ph.D.

UTC Affiliated Faculty

SYBIL DERRIBLE, Ph.D.

KAZUYA KAWAMURA, Ph.D.

JIE (JANE) LIN, Ph.D.

KATE LOWE, Ph.D.

Abolfazl (Kouros) Mohammadian, Ph.D.

Anthony Pagano, Ph.D.

Nebiyou Tilahun, Ph.D.

Bo Zou, Ph.D.