August 13-15, 2012

ICEM 2012

2nd International Conference on
Evacuation Modeling and Management



Northwestern University
Transportation Center

CCITT Center for the Commercialization of Innovative Transportation Technology

Northwestern University
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Credits

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To the ICEM 2012 Participants:



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SIncerely,

Hani S. Mahmassani
ICEM 2012 Conference Chair



Schedule Overview

TIMES	ACTIVITIES	*LOCATIONS*
Sunday, 12 August 2012		
6:00–9:00 PM	Welcome Reception BBQ Dinner	*Norris University Center (East Lawn)*
Monday, 13 August		*Norris University Center*
8:30–9:15 AM	Registration	*Louis Room North*
9:15–9:50 AM	Welcome	*Louis Room South*
10:00–10:30 AM	Coffee Break	*Louis Room North*
10:30–11:30 AM	Keynote Presentation: Prof. Serge Hoogendoorn, Technical University of Delft	*Louis Room South*
11:30–1:00 PM	Lunch	*Louis Room North*
1:00–2:30 PM	Measuring and Modeling Evacuation Behavior	*Louis Room South*
2:30–3:00 PM	Coffee Break	*Louis Room North*
3:00–4:30 PM	Evacuation Planning 1	*Louis Room South*
3:00–4:30 PM	Pedestrian and Crowd Evacuation Models 1	*Northwestern Room*
4:30–5:45 PM	Evacuation Management Systems	*Louis Room South*
4:30–5:45 PM	Building Evacuation	*Northwestern Room*
5:45 PM	Adjourn	*(return to hotel)*
6:15–7:15 PM	Reception at Orrington Hotel	
7:15 PM	Dinner (free time – make your own arrangements)	
Tuesday, 14 August		
8:30–9:00 AM	Registration	*Louis Room North*
9:00–10:30 AM	Weather-related Evacuation Planning	*Louis Room South*
9:00–10:30 AM	Pedestrian and Crowd Evacuation Models 2	*Northwestern Room*
10:30–11:00 AM	Coffee Break	*Louis Room North*
11:00–12:30 PM	Evacuation Planning 2	*Louis Room South*
11:00–12:30 PM	Traffic Operational Interventions	*Northwestern Room*
12:30–1:30 PM	Boxed Lunch	*Louis Room North*
1:30–3:00 PM	Evacuation Management Strategies 1	*Louis Room South*
3:00 PM	Adjourn	
4:00 PM	*Bus Pickup at Orrington Hotel*	
6:00 PM	Boarding: Blues Cruise (Odyssey cruise ship)	*Navy Pier*
7:00–10:00 PM	Blues Cruise and Banquet	*Offshore*
10:15 PM	Boarding: Buses Returning to the Orrington Hotel	*Navy Pier*
Wednesday, 15 August		
8:30–9:00 AM	Registration	*Louis Room North*
9:00–10:00 AM	Keynote: Prof. Karen Smilowitz, Northwestern University	*Louis Room South*
10:00–10:30 AM	Coffee Break	*Louis Room North*
10:30–12:00 PM	Evacuation Management Strategies 2	*Louis Room South*
10:30–12:00 PM	Pedestrian and Crowd Evacuation Models 3	*Northwestern Room*
12:00–12:30 PM	Closing Session	

Keynote Presentations and Plenary Sessions

Monday, 13 August

10:30–11:30 AM — **Keynote Presentation** — *Louis Room South*

Professor Serge Hoogendoorn, Technical University of Delft
Innovations in Data Collection for Traffic and Travel Behavior in Emergency Conditions

11:30–1:00 PM — **Lunch** — *Louis Room North*

1:00–2:30 PM — **Plenary Session** — *Louis Room South*

Measuring and Modeling Evacuation Behavior
Session Chair: Samer Hamdar

Modeling the Evacuation Decision
Brachman, M., Bassett, D., Petrovic, N. (Santa Barbara, CA,USA)

A Panel Regression Model to Understand the Changes in Evacuate-Stay Decision between Hurricanes Ivan and Katrina
Yin, W., Murray-Tuite, P. (Blacksburg, VA, USA*),*
Ukkusuri, S. (West Lafayette, IN, USA*)*

Estimation of Dynamic Hurricane Evacuation Demand Using a Time-dependent, Audio-Visual, Stated Choice Method of Data Collection
Gudishala, R., Wilmot, C. (Baton Rouge, Louisiana, USA)

Bayesian Network Modeling of Adaptation Effects in Driving Behavior under Emergency Situations
Hoogendoorn, R., Hoogendoorn, S., Brookhuis, K., Daamen, W. (Delft, The Netherlands)

3:00–4:30 PM — **Plenary Session** — *Louis Room South*

Evacuation Planning 1
Session Chair: Chester Wilmot

The DYNEV II System for Evacuation Planning
Weinisch, K., Lieberman, E., Wuping, X. (Hauppauge, NY, USA)

Spatial Distribution and Visualization of Daily Population within an Acitivity-based Modeling Framework For Emergency Evacuation Plans
Sun, W., Chung, G., Janowicz, E. (San Diego, CA, USA)

Forecasting Shelter Accessibility and Vehicle Availability for Hurricane Evacuation in Northern New Jersey: A Step-by-Step Methodology Using Sample Enumeration
Deka, D., Carnegie, J. (New Brunswick, NJ, USA)

An Earthquake Evacuation Simulation Model for Santa Clara County
Brown, C. (Hartford, CT, USA), Wallace, M. (Walnut Creek, CA, USA), and Bradley, M. (Santa Barbara, CA, USA)

Plenary Session — *Northwestern Room*

Pedestrian and Crowd Evacuation Models 1
Session Chair: Breton Johnson

Slower Is Faster: The Influence of Departure Time Distribution on the Overall Evacuation Performance
Lämmel, G. (Berlin, Germany), Klüpfel, H. (Cologne, Germany)

Modeling Decision and Game Theory-based Pedestrian Velocity Vector Decisions in Emergency Evacuations
Mesmer, B., Bloebaum, C. (Buffalo, NY, USA)

Role of Panic on Initiating a Potential Crowd Disaster
Ma, T., Wang, Q., Larrañaga, M.D. (Oklahoma City, OK, USA)

Keynote Presentations and Plenary Sessions

Monday, 13 August (continued)

4:30–5:45 PM **Plenary Session** *Louis Room South*

Evacuation Management Systems

Session Chair: Ta-Yin Hu

An Integrated Inventory Management Framework for Emergency Operations
Ozguven, E., Ozbay, K. (Piscataway, NJ, USA)

Downtown Vancouver Transportation and Emergency Management System
Joshi, C., Giese, K., Yuan, F. (Portland, OR, USA)

A Coordinated Control System for Emergency Evacuation
Hamdar, S., Zhang, K.

Plenary Session *Northwestern Room*

Building Evacuation

Session Chair: Kuilin Zhang

Vacate-GT: An Emergency Evacuation Simulator Incorporating a Decision and Game Theory Based Exit Decision Model
Mesmer, B., Bloebaum, C. (Buffalo, NY, USA)

Toward a Generic Data Model for Multi-agent Evacuation Simulation in Disaster Management Context
Bakillah, M. (Heidelberg, Germany), Klüpfel, H. (Cologne, Germany), Lämmel, G. (Berlin, Germany), Zipf, A. (Heidelberg, Germany)

Seismic Evacuation Model Accounting for Human-structure Interaction
Liu, Z., Jacques, C., Jalalpour, M., Szyniszewski, S., Adelburg, J., Guest, J.K., Igusa, T., Schafer, B.W., Mitrani-Reiser, J. (Baltimore, MD, USA

Tuesday, 14 August

9:00–10:30 AM **Plenary Session** *Louis Room South*

Weather-Related Evacuation Planning

Session Chair: Pamela Murray-Tuite

A Dynamic Evacuation Trip Distribution Model for Emergency Planning under Typhoons
Hu, T.Y., Ho, W. M. (Tainan City, Taiwan)

Rain-Flood Emergency Planning
Santos, B. F., Leandro, J. (Coimbra, Portugal), Melo, N. (Guarda, Portugal), Antunes, A.P. (Coimbra, Portugal)

Estimating Preparation Time and Risk Attitude of Hurricane Evacuees
Dixit, V., Wilmot, C., Wolshon, B. (Baton Rouge, LA, USA)

Fuzzy Logic-Based Decision Support for Mass Evacuation of Coastal Cities Prone to Submersion in the Context of Climate Change
Jia, X., Morel, G., Hissel, F. (Compiègne, France)

Tuesday, 14 August (continued)

9:00–10:30 AM **Plenary Session** *Northwestern Room*

Pedestrian and Crowd Evacuation Models 2

Session Chair: Hubert Ley

Simulation of Evacuation Planning Regarding the Influence of Noxious Substances
Mayer, H., Hartmann, D. (Munich, Germany), Zechlin, O. (Zug, Switzerland)

A Mixed-flow Optimization Model for Emergency Evacuation in Urban Networks
Zhang, X. (College Park, MD, USA)

Quantitative Verification of Crowd Models
Deka, D., Carnegie, J. (New Jersey, United States)

11:00–12:30 PM **Plenary Session** *Louis Room South*

Evacuation Planning 2

Session Chair: Yu (Marco) Nie

A Framework for Large-scale Multi-modal Microscopic Evacuation Simulations
Dobler, C. (Zürich, Switzerland), Lämmel, G. (Berlin, Germany)

The MACsim Macroscopic Traffic Simulation Model for Evacuation Planning
Lieberman, E., Xin, W. (Hauppauge, NY, USA)

A Two-level Transit-based Evacuation Model for Planning of Emergency in Highly Populated Urban Zones
Liu, Y., Heydar, M., Petering, M. (Milwaukee, WI, USA)

Plenary Session *Northwestern Room*

Traffic Operational Interventions to Improve Evacuation Flow

Session Chair: Kaan Ozbay

Modeling Ramp Closure as a Strategy to Reduce Evacuee Travel Time
Machiani, S. G., Murray-Tuite, P., Jahangiri, A., Yin, W., Liu, S. (Falls Church, VA, USA), Park, B. (Charlottesville, VA, USA), Chiu, Y.C. (Tuscon, AZ, USA)

Optimal Decision-making between Signalized and Uninterrupted Flow Strategies during Emergency Evacuation
Luo, Z., Liu, Y. (Milwaukee, WI, USA)

Assessment of Roundabouts during Evacuation–An Experimental Study
Eshragh, S. (Newark, DE, USA), Mensah, S. (Baton Rouge, LA, USA), Faghri, A. (Newark, DE, USA)

12:00–1:30 PM **Lunch** *Louis Room North*

Keynote Presentations and Plenary Sessions

Tuesday, 14 August (continued)

1:30–3:00 PM **Plenary Session** *Louis Room South*

Evacuation Management Strategies 1

Session Chair: Srinivas Peeta

Service Level-oriented Route Guidance During Evacuations
Landman, R., Hegyi, A., Hoogendoorn, S. (Delft, The Netherlands)

Pseudo-dynamic Assignment for Evacuation Modeling Procedure
Ozbay, K., Li, J. (Piscataway, NJ, USA), Yazici, A. (New York, NY, USA), Shrisan, I., Ozguven, E. (Piscataway, NJ, USA), Carnegie, J.A. (New Brunswick, NJ, USA), Bartin, B. (Piscataway, NJ, USA)

Risk-Based Spatial Zoning Problem for Evacuation Operations
Hsu, Y.T., Peeta, S. (West Lafayette, IN, USA)

Designing Optimal Network Evacuation Strategies: Robust Algorithms Using Perturbation Analysis
Babai, H., Mahmassani, H. (Evanston, IL, USA)

Wednesday, 15 August

9:00–10:00 AM **Keynote Presentation** *Louis Room South*

Professor Karen Smilowitz, Northwestern University

Humanitarian Logistics: Optimization for Disaster Relief Operations

10:30–12:00 PM **Plenary Session** *Louis Room South*

Evacuation Management Strategies 2

Session Chair: Irina Dolinskaya

Demand-oriented Traffic Management for Disasters and Incidents
Flötteröd, Y.P., Bieker, L. (Cologne, Germany)

Evacuation of a 22-Story Building in Simulation and Reality
Groß, M., Kappmeier, J-P. W. (Berlin, Germany)

Possible insertion of last-minute paper: ARGONNE / Auld

Optimal Safe Routing of Traffic in Evacuation of a Network with Multiple Threat Zones and Various Threat Levels
Nassir, N., Zheng, H., Hickman, M. (Tuscon, AZ, USA)

Plenary Session *Northwestern Room*

Pedestrian and Crowd Evacuation Models 3

Session Chair: Serge Hoogendoorn

Evacuation Strategies for Large Crowds: Modeling and Application
Abdelghany, A. (Daytona Beach, FL, USA), Al-Halabi, W. (Makkah, Saudi Arabia), Abdelghany, K. (Dallas, TX, USA), Mahmassani, H. (Evanston, IL, USA)

Analysis of Spatial Factors that Influence Evacuation Efficiency under Normal Situations
Liu, Y., Liu, D., (Harbin, China), Malkawi, A., Badler, N. (Philadelphia, PA, USA)

A Comparison of Discrete and Continuous Evacuation Simulation Models for Rail Tunnel Evacuation Cases
Liu, S.B., Lo, S.M. (Hong Kong, China)

Keynote Speakers



Serge Hoogendoorn is Chair of the Traffic Management, Transport & Planning of the Delft University of Technology and professor of Traffic Flow Theory and Simulation, staff member of the TRAIL Research School on Transport and Logistics, freelance consultant for different Dutch firms and agencies, chair of the Network Management foundation and staff member of the Expert Centre for Traffic Management, author of over 100 journal publications, 50 book chapters and 150 conference papers. Professor Hoogendoorn is setting the pace for young, talented, successful researchers.

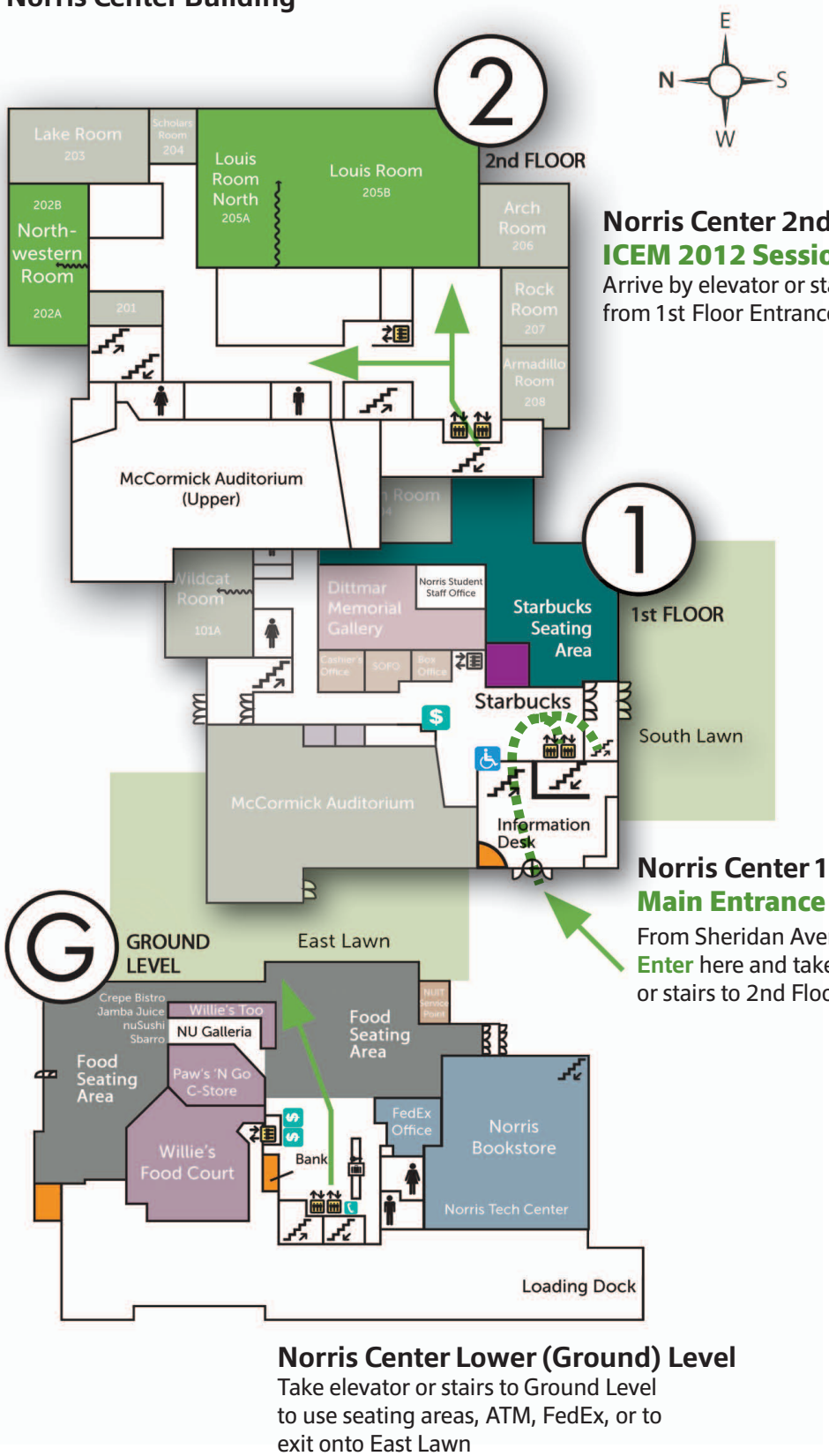
His research involves theory, modelling, and simulation of traffic and transportation networks, focusing on innovative approaches to collect detailed, microscopic traffic data and the use of these data to underpin the models and theories. This is achieved through an outstanding list of research grants, developed software and Ph.D. researches, e.g. the NWO-VIDI project ´Tracing Congestion Dynamics – With Innovative Traffic Data to a Better Theory´, microscopic traffic data using advanced video techniques for a new generic theory of driving behavior; the Full Traffic project, where twenty instrumented vehicles were used to investigate driving behavior with advanced driver support systems, the NOMAD pedestrian simulation model applied in several projects to solve design problems. The NWO-AMICI ´Advanced Multi-agent Information and Control of multi class Integrated traffic networks´ aimed at developing new models and control strategies for regional traffic networks, the Travel Simulator Laboratory (TSL), an interactive laboratory to study travel behavior dynamics, etc. He recently acquired an NWO-VICI grant for a large research program (budget 1,4 million Euro) focussing on transport and traffic management in case of exceptional events.



Karen Smilowitz Associate Professor in the Department of Industrial Engineering and Management Sciences at Northwestern University and holds a joint appointment with the Northwestern Transportation Center. Dr. Smilowitz holds the Junior William A. Patterson Chair in Transportation.

She received her Ph.D. in Civil and Environmental Engineering from the University of California, Berkeley and her BSE in Civil Engineering and Operations Research from Princeton University. Dr. Smilowitz received a CAREER award from the National Science Foundation and a Sloan Industry Studies Fellowship. Her work has also been recognized by the National Academy of Engineering: in 2004, she was an invited participant in their Frontiers of Engineering Workshop and in 2008, she participated in NAE's Engineering, Social Justice, and Sustainable Community Development Conference. Dr. Smilowitz studies modeling and solution approaches for logistics and transportation systems. She has developed innovative modeling and solution techniques for these complex transportation systems in both commercial and non-profit applications, working with transportation providers, logistics specialists and a range of non-profit organizations. She is currently leading the Northwestern Initiative on Humanitarian Logistics with fellow IEMS faculty member Irina Dolinskaya.

Norris Center Building

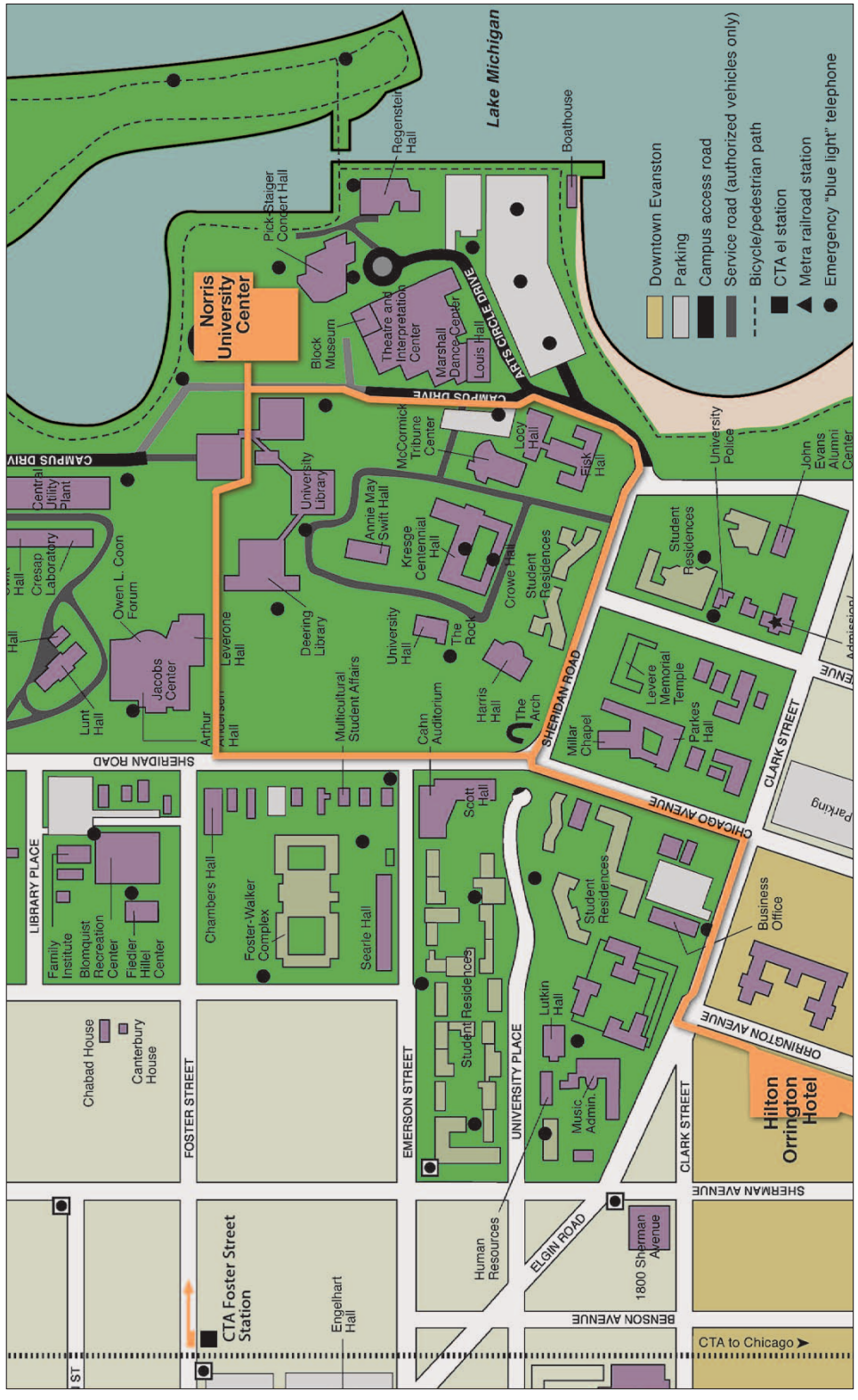


Norris Center 2nd Floor
ICEM 2012 Sessions Here
Arrive by elevator or stairs
from 1st Floor Entrance

Norris Center 1st Floor
Main Entrance
From Sheridan Avenue
Enter here and take elevator
or stairs to 2nd Floor

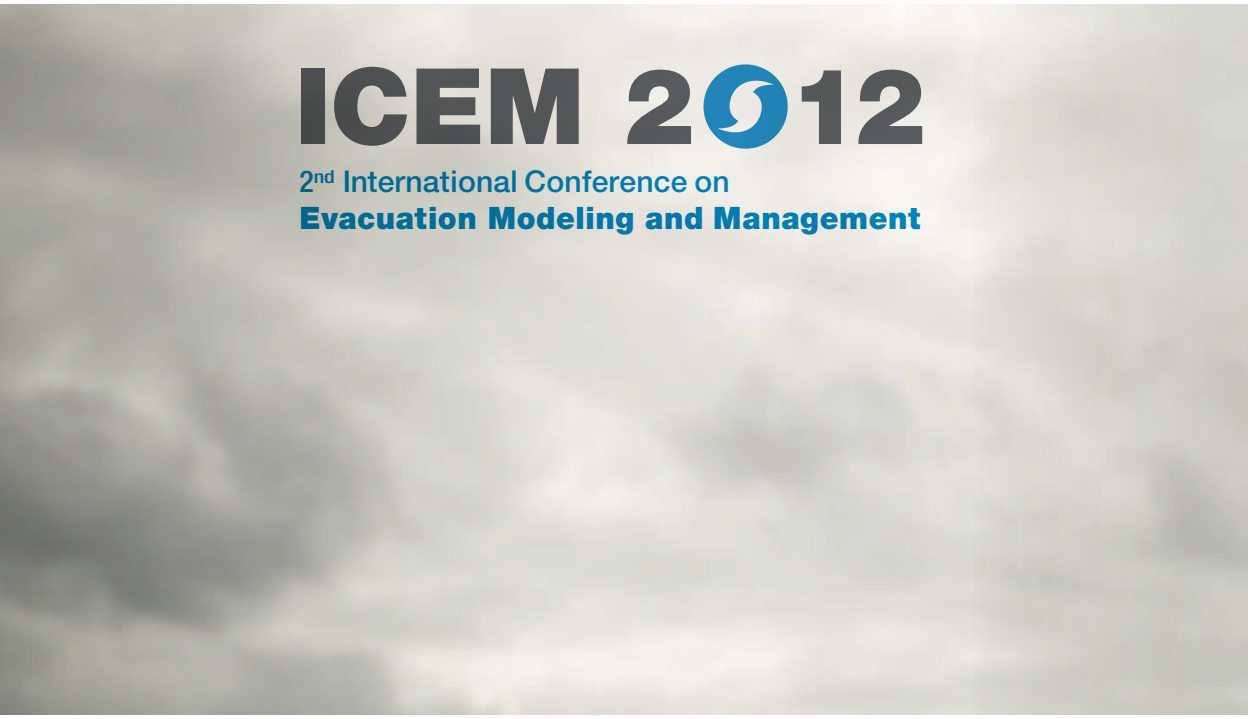
Norris Center Lower (Ground) Level
Take elevator or stairs to Ground Level
to use seating areas, ATM, FedEx, or to
exit onto East Lawn

Northwestern University Orrington Hotel to/from Norris Center



Walking routes to/from Hotel and Norris Center

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