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Northwestern Engineering

Northwestern University Transportation Center

Our Transportation Center: Building a Foundation for Collaboration

Hani S. Mahmassani

Presentation to the BAC October 5, 2010

Strategic Vision: A Refresher

- Pre-eminent think-tank and laboratory in the world for *cutting-edge research that matters* on a global scale.
- Provide the *premier educational program* in transportation systems.
- Essential academic partner for *novel, high-impact collaborative* research.
- Advance state of practice industry applications through a mix of engaged *application-driven research* and *fundamental advances*.

Progress Highlights: 2009-2010 (I)

BAC Membership

- 2 new companies, 6 new members

Sponsored Research Activity

- Active: \$4 M (22 research projects) in FY 2010
- Submitted: 22 proposals, \$10.2 M, 16 faculty

International Technical Assistance

- Strategic Priorities Workshop, Umm-Al-Qura Univ, Saudi Arabia
- New National Transportation Center for Ministry of Transport, KSA
- Expanded advisory and exchange activities around the world

Outreach, Events, Public Policy

- Beyond Transportation: The Economic Impact of Rail in Illinois
- Symposium on Pedestrian Safety at Rail Crossings
- Symposium on Transportation Network Design and Economics

Students

- Continuing improvement in quality and diversity, back in the top 3

Progress Highlights: 2009-2010 (II)

- Building and strengthening the organization's ability to deliver-- recruited 3 new staff members:

- Associate Director *for Strategic Relations*

Bret Johnson



- Marketing Communications Specialist

Rachel Miller



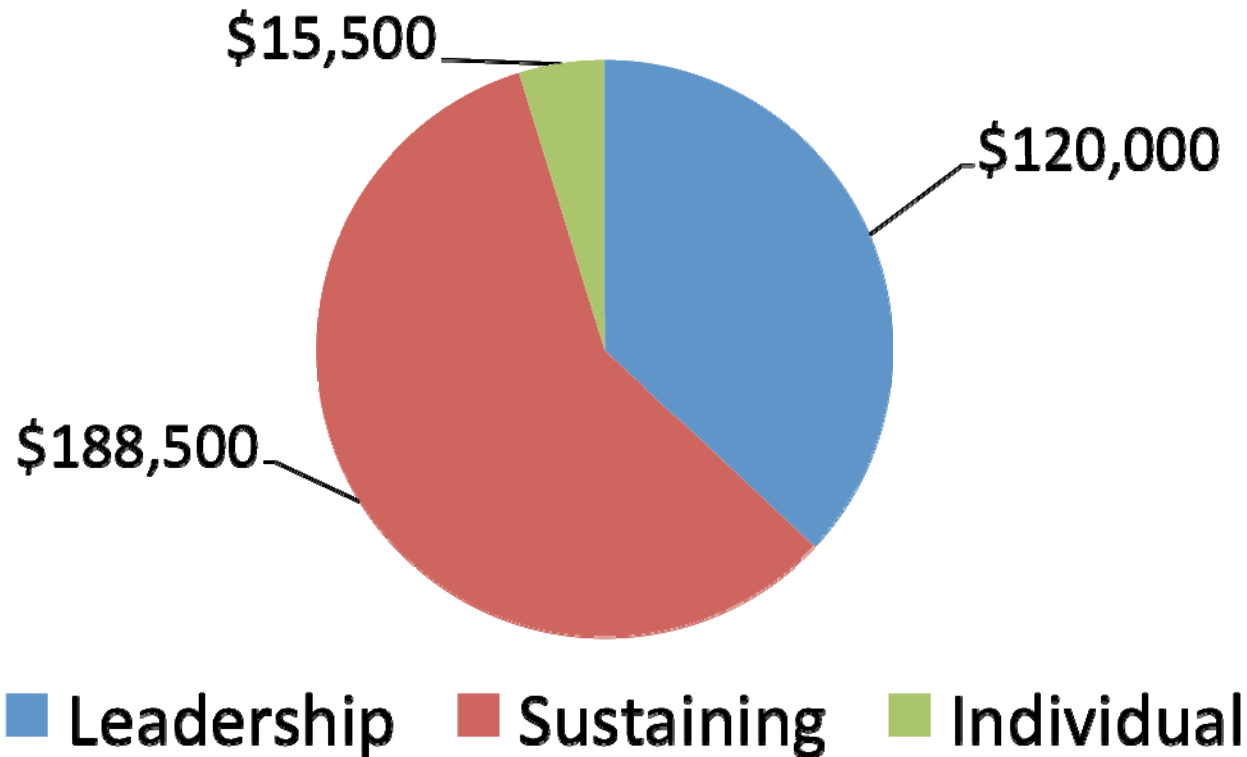
- Financial Administrator/Business Manager

Hillary Bean





Progress Highlights: 2009-2010 (III)



Goal: \$300,000 Raised: \$324,000

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New BAC Member Companies



Business
Advisory
Committee
Directory

2010

 **Transportation Center at
Northwestern University**

Boyle Transportation



Norbridge



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BAC: New Members (I)



Andrew Boyle

Vice President & CFO



Lee Clair

Partner



Brian Clancy

Managing Director





BAC: New Members (II)



Howard Hayes

Vice President, Traffic



Mike Malik

Chief Commercial Officer



Gene Seroka

President, Americas



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BAC: New Members (III)

Additional Leadership Members



Edward Jenkins

Assistant Vice President



Paul Nowicki

Assistant Vice President



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54 NUTC Faculty Affiliates– Highly Interdisciplinary New Faculty Affiliates 2009-2010 (I)



Dirk Brockmann

Associate Professor, Engineering Sciences and Applied Mathematics
Human mobility networks, complex systems



Irina Dolinskaya

Assistant Professor, IEMS
Optimal path finding, dynamic programming, marine applications



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54 NUTC Faculty Affiliates– Highly Interdisciplinary New Faculty Affiliates 2009-2010 (II)



Steve Franconeri

Assistant Professor, Cognitive Psychology
visual processing, memory, attention
(navigation, safety)



Maciek Nowak

Assistant Professor, Loyola Graduate School of Business
Vehicle routing & tracking, supply chain management, operations management, logistics, data analysis



Executive Program Classes

Progressively and selectively building new executive program offerings—

- Targeting timely, business-relevant and high-specialization topics where NUTC faculty has unique expertise to offer.
- Successful introduction of Pricing Transportation Infrastructure in 2009.
- Consideration of both visibility/reputation/positioning impact as well as revenue generation potential.



**Coping With Carbon:
Sustainable Strategies for
the Transportation and
Logistics Enterprise**
September 14 – 16



**Freight Transportation:
Strategies for a Changing
Landscape**
October 12 - 14



**Pricing Transportation
Infrastructure**
October 18 - 20

Research Connections in Our Region

- Argonne Transportation Analysis group
 - Workshop under new ISEN initiative
 - Researcher seminars and visits
- Illinois Center for Transportation (UIUC)
 - Partnering in projects with IDOT
 - Closer strategic coordination
- Local and State Government
 - Governor of Illinois' Office
 - CREATE/IDOT
 - CMAP, RTA, CTA
 - **Tollway Authority**



Increasing Research Engagement with BAC

- Knowledge exchange (“Technology Days”)



- Research engagements via TC



- Leveraging opportunities for seed and matching funds through CCITT



Research Core Areas

- Logistics and Supply Chain Management and Modeling
- Transportation Network Modeling, Systems Planning and Design
- Transportation Demand, Economics and Forecasting
- Transportation Asset Management
- Transportation Policy
- Human Performance in Transportation Safety



Research: Emerging Areas

- Re-inventing the user experience in transportation
- Transportation energy and sustainability: technology, economics, markets, and behavior
- Humanitarian logistics
- System intelligence in transportation
- Designing interventions in transportation: behavior change
- Coping with disruptions and extreme events
- Freight mobility and intermodalism for global competitiveness
- Telecommunications and mobility: the evolving connection
- Urban and inter-regional mobility



Research: Strategic Focus Areas

- **Re-inventing the User Experience in Transportation**
 - Freight and passenger
 - Business intelligence in support of marketing, operational efficiency
 - New focus on Design
- **Transportation Energy and Sustainability**
- **Humanitarian Logistics and Disaster Relief**

Students: Our Core Mission

- 10 *new graduate students* in Fall 2010; top schools, excellent diversity, highly recruited
- Dissertation Year Fellowships (FIVE for 2010-11)
- TC adds value to student experience through industry exposure, seminars by authorities in the field, travel funds for conferences, fellowship stipends— essential differentiator for recruiting top talent
- Many opportunities for *undergraduates* interested in transportation; increasing engagement in research, *internship* placement with *BAC companies*
- *Industry support is critical* to our mission and to making a Northwestern Education in Transportation the unique experience it is.

Closing Thoughts

- Growing recognition at major universities of Transport as critical field of interdisciplinary research and education
 - **TRANSPORTATION @ MIT**
 - “A 2008 survey of 1,300 MIT faculty and senior researchers revealed that 338, or 26% of those surveyed, are doing work related to or applicable to transportation.”
 - **TRANSPORT PLATFORM**
 - A cross-disciplinary, cross-university initiative at the Swedish Royal Institute of Technology: rethinking how to organize programs
- **AT NORTHWESTERN**
 - Transportation Center founded in 1954– recognizing Transportation as cross-disciplinary scholarly domain with considerable importance to society
 - We need to keep up the momentum, and refocus institutional attention to leverage strong tradition and dynamism of our transportation programs