

# METRANS NEWS



USC University of  
Southern California

CALIFORNIA STATE UNIVERSITY  
LONG BEACH

Dedicated to solving metropolitan transportation problems through  
**research, education, and outreach.**

Spring 2017 Volume 16 Issue 1

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*METRANS, a partnership of the University of Southern California and California State University, Long Beach, is a US Department of Transportation designated University Transportation Center. Its mission is to solve transportation problems of large metropolitan areas through research, education, and outreach.*

## Introducing the Pacific Southwest Region UTC Partners

*The METRANS Transportation Center has grown substantially over the past 19 years, beginning in 1998 as one federally funded University Transportation Center (UTC) at the University of Southern California (USC) and California State University, Long Beach (CSULB). It currently houses five research centers receiving funding from both public- and private-sector donors.*



University Transportation Center

The most recent addition is the Pacific Southwest Region University Transportation Center, a U.S. Department of Transportation-funded regional UTC headquartered at USC. There are 10 regional UTCs in the U.S., one for each of the U.S. Census regions. The purpose of regional UTCs is to address the transportation problems of the region and to lead the coordination and dissemination of research throughout the region.

The PSR UTC covers Region 9, which includes California, Arizona, Nevada, Hawaii, and the Pacific Island Territories. In addition to the long-standing USC-CSULB partnership, six other academic institutions will participate in the PSR UTC: Northern Arizona University (NAU); Pima Community College (PCC); University of California, Davis (UC Davis); University of California, Irvine (UC Irvine); University of California, Los Angeles (UCLA); and University of Hawaii (UH).

Within each of these institutions are interdisciplinary research and training centers renowned for their contributions to the transportation community, covering topics as varied as disaster preparedness, automated vehicles, alternative fuel vehicles, and sustainable planning. All PSR research efforts are guided by four themes:

- 1. Technology to address transportation problems and improve mobility;**
- 2. Improving mobility for vulnerable populations;**
- 3. Improving resilience and protecting the environment; and**
- 4. Managing mobility in high-growth areas.**

Each research center participating in the PSR UTC brings unique research and educational expertise focused on solving pressing issues in transportation, and exploring the promise and potential of emerging technologies for transportation applications. Detailed profiles of METRANS' six partners are included below.

### Northern Arizona University

AZTrans, the Arizona Laboratory for Applied Transportation Research, is housed within the Civil Engineering, Construction Management, and Environmental Engineering Department at Northern Arizona University (NAU) and is known for conducting shovel-ready applied transportation research. AZTrans maintains a state-of-the-art teaching and research transportation laboratory, fully equipped for traffic simulation, detailed safety analyses, pavement and structural health monitoring, and modeling the impact of extreme weather events and climate change on transportation facilities. AZTrans hosts five faculty researchers with a range of expertise: transportation operations and safety, using sensing networks to address pavement health and durability, modeling the design and performance of structural concrete in large-scale infrastructure, and adapting road

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# Introducing the Pacific Southwest Region UTC Partners *continued from page 1*

## **Northern Arizona University, cont.**

infrastructure (such as culverts and fish passages) to climate change impacts. In addition, a curriculum coordinator from NAU's Institute of Tribal Environmental Professionals will collaborate with the PSR and assist in outreach and training programs for Native American tribes.

## **Pima Community College**

This most recent round of UTC grant awards was particularly noteworthy in being the first to encourage the participation of community colleges. Pima Community College (PCC) is a two-year college serving the greater Tucson metropolitan area at six locations throughout Pima County, Arizona. PCC will be implementing workforce development and career training initiatives targeting underserved populations. For example, METTRANS and PCC are partnering with two local tribes, Tohono O' Odham and Pascua Yaqui, to provide GIS workforce training and soft skills development. Those trainings will not only instill skills and enthusiasm in youth preparing to enter the workforce but will also empower tribes with the tools to document local infrastructure data and cultural heritage sites to aid in community decision-making.

systems, involving over 20 faculty and 100 graduate students. ITS-Irvine is home to the interdisciplinary graduate degree program in Transportation Science, the California Energy Commission Natural Gas Vehicle Incentive Project, the 24/7 California Statewide Truck Activity Monitoring System (TAMS) for Caltrans and the Air Resources Board, and a new Transformational Mobility Science initiative.

Research efforts at ITS-Irvine cover a broad range of fundamental issues: supply modeling and policy analysis; demand modeling, complex travel behavior analysis and policy analysis for people and freight; land use interactions; environmental impact modeling and public health; and transportation economics, finance and pricing.

## **University of California, Los Angeles**

The Institute of Transportation Studies at UCLA (ITS-UCLA) boasts 30 affiliated faculty and research staff who produce a wide body of research on transportation finance, public transit, and innovative mobility, among other topics. ITS-UCLA collaborates with numerous public- and private-sector partners on research, technology transfer, and workforce development. ITS research projects, events, and programs support more



In addition, PCC is expanding its efforts to lower barriers and increase access to career and technical education for underserved communities. It will continue to expand its current distance learning offerings for individuals who live in rural or remote areas, as well as exploring the potential to integrate new technologies, such as virtual reality, that can enrich the virtual classroom experience.

## **University of California, Davis**

The Institute of Transportation Studies at UC Davis (ITS-Davis) is a leading university center on sustainable transportation and home to more than 60 affiliated faculty and researchers and over 120 graduate students. It also hosts the Transportation Technology and Policy graduate program, whose unique interdisciplinary research and educational curriculum draws from 34 academic disciplines.

ITS-Davis' research efforts are focused on three primary topics: travel behavior and transport systems modeling; environmental vehicle technologies and fuels; and climate change, air quality, and other environmental impacts. The institute leads the National Center for Sustainable Transportation (NCST), a national UTC that is helping government agencies reduce greenhouse-gas emissions from passenger and freight travel. USC and CSULB also partner with ITS-Davis as part of NCST.

than 70 students in three graduate transportation degree programs. Current projects include a partnership with Caltrans to develop the 2017 Statewide Transit Strategic Plan, which will lay out strategies for public transit to build upon recent and anticipated developments in legislative requirements, technological advances, and other changing trends. The institute also supports the UCLA Complete Streets Initiative, a research program that focuses on the need for safe and accessible streets for all individuals and all modes of transportation.

## **University of Hawaii**

The University of Hawaii (UH) is home to the National Disaster Preparedness Training Center (NDPTC), one of the leading training providers certified by the Federal Emergency Management Agency (FEMA) with a focus on natural hazards, coastal communities, and other issues central to disaster response and recovery. NDPTC's training efforts are guided by FEMA's five mission areas: prevention, protection, mitigation, response, and recovery. The NDPTC has trained more than 30,000 first responders and emergency managers across the country. It is also a member of the National Domestic Preparedness Consortium.

As part of the PSR, the NDPTC will incorporate the PSR UTC's transportation resilience research into its training courses for transportation professionals, which take place across the United States and its outlying territories. Current offerings include "Social Media for Natural Disaster Response and Recovery," "Unmanned Aircraft Systems in Disaster Management," and "Winter Weather Hazards: Science and Preparedness."

## **University of California, Irvine**

The Institute of Transportation Studies at UC Irvine (ITS-Irvine) is one of the nation's leading centers on intelligent and sustainable transportation

## METRANS RESEARCH

# METRANS Names Axel Hellman 2016 Student of the Year



**Axel Hellman**

The U.S. Department of Transportation (USDOT) and the Council of University Transportation Centers (CUTC) recognized USC Master of Planning student Axel Hellman as the 2016 METRANS Student of the Year. Hellman was presented the award during the annual CUTC awards banquet held on January 7, 2017 at the annual meeting of the Transportation Research Board (TRB) in Washington, D.C.

"With his strong academic record, engagement in METRANS projects, and entrepreneurial focus on transit, Axel was our clear choice for METRANS Student of the Year," said METRANS Director Genevieve Giuliano.

Every year, the USDOT sponsors the award and fully funds the cost for students to attend the banquet and the TRB conference. The award honors outstanding students from University Transportation Centers around the country who have gone above and beyond expectations at work and in the classroom while also demonstrating a thorough comprehension of the transportation industry. The distinction is granted to an exemplary student in each of the University Transportation Centers

in the nation and allows recipients to attend presentations, panels, and other events at the week-long annual meeting.

Hellman appreciated the opportunity to attend TRB, learn about new developments in the field, and connect with other transportation professionals. "It was a great experience," he said, "and I hope to be back soon."

Hellman worked as a METRANS student assistant during the Spring and Fall 2016 semesters, where he was an editor of research reports and center news. His research interests focus on the intersection of private-sector innovation and public policy in passenger transportation. He is currently employed as a transportation planner at Ourbus, a startup company that crowdsources mass transit routes.

"We have recently entered an era of innovation in private-sector ride-sharing, transit, and intercity transportation services," Hellman wrote in a statement he submitted for his award application. "The potential benefits of these new services are significant, but public policy needs to be updated in order to better regulate these services and to allow innovation to flourish. This is a crucial sub-area of transportation planning that I hope I can make a difference in over the course of my career."

## METRANS RESEARCH

# Strong METRANS Presence at TRB 2017

METRANS researchers presented a wide range of research at the 96th Transportation Research Board (TRB) Annual Meeting last January in Washington, D.C. The spotlight theme for the 2017 meeting was "Transportation Innovation: Leading the Way in an Era of Rapid Change."

TRB 2017 attracted approximately 13,000 transportation professionals from around the world and featured more than 5,000 presentations in over 800 sessions and workshops, addressing topics of interest to policymakers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions. METRANS presentation topics included spatial analysis of warehousing

activities, multimodal freight transportation routing, and a range of panels focused on transformational technology and transportation workforce development.

METRANS Director Genevieve Giuliano and Sanggyun Kang, PhD candidate, of the University of Southern California presented "Spatial Dynamics of the Logistics Industry: Evidence from California" as part of the Current Research in Freight Planning and Logistics session.

Follow the rest of the story online at: <http://bit.ly/METRANSTRB17>

## METROFREIGHT UPDATE

# MetroFreight Presentations at TRB

MetroFreight researchers presented their research at the 2017 Transportation Research Board meeting in Washington, D.C. Alison Conway and Quanquan Chen, from the City College of New York, presented "Traffic Impacts of Residential Delivery" as part of the Urban Freight Innovations session, which was sponsored by the Standing Committee on Urban Freight Transportation.

Pierre Camillieri and Laetitia Dablanç, from the French Institute of Science and Technology for Transport, Development and Networks - University Paris-Est, discussed a recent case study that implemented the use of electric commercial vehicles in their presentation, "Methodology for Assessing the Potential of Electric Vehicles with French Commercial Vans as a Case Study." The project presentation was also featured in the Urban Freight Innovations session.

## METRANS EDUCATION

# METRANS Completes Pilot Program for Transportation Planners

METRANS researchers convened Southern California-based regional city planners for the Metropolitan Transportation Management Certificate pilot course, which addressed multi-modal transportation conflicts in urban areas. Participants of this course represented Los Angeles County Metropolitan Transportation Authority (LA Metro) and Caltrans employees, as well as representatives from Los Angeles City Councilman Joe Buscaino's office.

"The goal of this course was to increase the understanding of the vital role that freight movement plays in sustainable metropolitan communities by approaching this issue with multi-modal transportation planning fundamentals from a freight perspective," said METRANS Associate Director Tom O'Brien. "This pilot course represents an innovative new frontier in transportation workforce development," he added.

In addition to presentations by industry experts and professionals, participants analyzed the potential conflicts between freight and passenger movement planning using a hypothetical west Los Angeles case-study. Participants took part in an extensive bus tour of west Los Angeles prior to the case-study area walk-audit. This tour was led by former Century City Chamber of Commerce Executive Director and CITT Project Manager, Steve Lantz. His insight gave the group an insider's perspective on the development of Century City's cityscape that effectively incorporates freight transportation. Following the bus tour, the METRANS team organized a walk-audit around the case-study area that incorporated the use of Geospatial Information Systems (GIS) technology to analyze and record data.

Guest speakers included Robert Gomez, Transportation Manager at Port Logistics, and Alan Clelland, Senior Vice President at Iteris, Inc.

## METRANS EDUCATION

# The NNTW Launches the National Transportation Center Pathways Initiative



The National Network for the Transportation Workforce (NNTW) hosted a webinar on March 28, 2017 to launch the National Transportation Career Pathways Initiative (NTCPI). Southwest Transportation Workforce Center Director Dr. Thomas O'Brien welcomed webinar participants with opening remarks and a brief introduction of the five regional transportation workforce centers and their unique roles, which make up the NNTW.

O'Brien's opening was followed by the introduction of the vision of the NTCPI and its unique approach to serve the transportation industry at the national level. The vision of this initiative hopes to connect industry employers, public agency, and academic leaders to help identify skills and competencies to create transportation career pathways. Virginia Tsu, Director of the Office of Innovative Program Delivery at the Federal Highway Administration, was invited to give her perspective on this new initiative:

"To date, transportation efforts to establish career pathways have been fragmented and sporadic, but the National Transportation Career Pathways Initiative can change that. This initiative is the first effort that I am aware of that will address transportation career pathways development in a substantial manner. It is the opportunity for transportation to talk more intelligently to the education and training community about the skill sets and competencies, education and training that we need in a thoughtful, logical, and comprehensive approach by developing transportation career pathways."

Scott Jakovich, NTCPI Project Coordinator, gave a general project overview of the initiative and the responsibilities of each center that will help the group achieve the goal of creating career pathways. The webinar also explored the five centers' disciplines, and each center director had the opportunity to share their focus and contributions to the initiative. A question-and-answer segment concluded the webinar, which gave center directors an opportunity to answer questions about this new initiative.

**To watch the webinar and learn more about the NTCPI click here: <http://bit.ly/NTCPIWebinar>**  
**To learn more about the NNTW, go to [www.nntw.org](http://www.nntw.org).**



Jose Jimenez

## METRANS EDUCATION

# CSULB Student Named 2016-17 TRB Minority Student Fellow

The Transportation Research Board (TRB) named CSULB student Jose Jimenez as one of its 2016-17 TRB Minority Student Fellows at its 96th Annual Meeting in Washington D.C. this January. Jimenez is a M.S. student under the mentorship of Assistant Professor Shailesh Chandra of the Department of Civil Engineering and Construction Engineering Management.

Follow the rest of the story online at: <http://bit.ly/TRBMinorityFellow>

## METRANS OUTREACH

# METRANS Spring Research Seminar Series

Wednesday, January 18, 2017 • 12:00 PM

### **Quantifying the Impact of Next-Generation Modes of Delivery**

USC University Park Campus - Hughes Aircraft Electrical Engineering Building (EEB), Room 248

**Speaker: John Carlsson**, Assistant Professor of Industrial and Systems Engineering, USC Viterbi School of Engineering

Wednesday, February 1, 2017 • 12:00 PM

### **The Decline in Inter- and Intra-Urban Mobility and Its Impact on Passenger Travel**

USC - Ralph and Goldy Lewis Hall (RGL), Room 100

**Speaker: Gary Painter**, Professor of Public Policy, USC Price School of Public Policy; Director of Social Policy, USC Price Center for Social Innovation

Friday, February 10, 2017 • 12:00 PM

### **Dense Enough To Be Brilliant: Patents, Urbanization, and Transportation in Nineteenth-Century America**

USC - Ralph and Goldy Lewis Hall (RGL), Room 308

**Speaker: Elisabeth Perlman**, Center for Economic Studies, U.S. Census Bureau; Ph.D. Candidate, Boston University, Department of Economics

Wednesday, March 29, 2017 • 12:00 PM

### **Different Ways to Get to the Same Workplace: How Does Workplace Location Relate to Commuting by Different Income Groups?**

USC - Ralph and Goldy Lewis Hall (RGL), Room 100

**Speaker: Lingqian Hu**, Associate Professor of Architecture and Urban Planning, University of Wisconsin-Milwaukee

Wednesday, April 12, 2017 • 12:00 PM

### **Doctoral Student Transportation Research Showcase**

USC - Ralph and Goldy Lewis Hall (RGL), Room 100

**Speakers: Sanggyun Kang**, USC Price School, Urban Planning and Development presenting "Warehouse Location Choice: A Case Study in Los Angeles, CA"

**Eun Shin Jin**, USC Price School, Urban Planning and Development presenting "Investigating the Link between Public Transit and Health"

Wednesday, April 19, 2017 • 12:00 PM

### **Doctoral Student Transportation Research Showcase**

USC - Ralph and Goldy Lewis Hall (RGL), Room 100

**Speakers: Nathan Hutson**, USC Price School, Urban Planning and Development presenting "The Emerging Global Geography of Service Exports"

**Xize Wang**, USC Price School, Urban Planning and Development presenting "A National Inquiry on Lane Use Impacts on Driving Among Generations"

Podcasts can be accessed online at: [www.metrotrans.org/seminars](http://www.metrotrans.org/seminars)

## METRANS OUTREACH

# METRANS Matches Twelve Transportation Students with Mentors

METRANS continued the fifth year of its mentor program by matching twelve transportation students with professional mentors. The METRANS Mentor Program is designed to meet the needs of transportation students seeking a professional career in the public or private sector. METRANS launched a small pilot program in 2012 with students who actively participated in METRANS seminars and activities. Those students were matched with METRANS Advisory Board professionals whose field of expertise best met the students' career goals.

The program accepts applications from all students at USC and CSULB interested in a career in transportation. The purpose of the

mentor-mentee relationship is to guide students who plan to pursue a professional, non-academic career. Mentors provide a unique opportunity to broaden the students' educational experience through one-to-one interactions with industry professionals, an opportunity often missing in the students' formal education. Mentors provide valuable advice and counsel to students as well as experienced perspectives on the transportation profession.

The mentor-mentee relationship is intended to last through the academic year or until the student graduates, although many students and mentors remain in contact past graduation.

### **METRANS would like to formally recognize and thank this year's mentors:**

**Kate Amisshah**  
Transportation Planner, LA Metro

**Meredith Canterbury**  
GIS Specialist, LSA

**Dan Beal**  
Principal, Transportation Policy Consulting

**Monica Born**  
Vice President and Professional Engineer, WSP Parsons Brinckerhoff

**Susan De Santis**  
Senior Project Manager, Arellano Associates

**Lynn Feng**  
Transportation Planner, AECOM

**Mengzhao Hu**  
Senior Transportation Planner, KOA

**Steven Mateer**  
Manager, Transportation Planning, LA Metro

**Veronica Siranosian**  
Land Use Planning Manager, AECOM

**Alexandra Spencer**  
Infrastructure Sector Publicist, Alexandra Spencer Public Relations

**Juliet Su**  
Corridor Manager – Design, Transportation Corridor Agencies (TCA)

**Allison Yoh**  
Director of Transportation Planning, Port of Long Beach

## MetroFreight Partners Discuss Transportation Policy in New York City

How does an older city work through its complex transportation problems and provide better mobility and livability for its residents? That was the central question addressed by MetroFreight partners during a March 13 panel discussion hosted by the USC Price School in New York City. Polly Trottenberg, Commissioner of Transportation for New York City, MetroFreight Advisor Elliott Sclar, and MetroFreight Researcher Alison Conway were the featured speakers who examined how a city with one third of the nation's transit passengers keeps up with demand. Genevieve Giuliano, METRANS and MetroFreight Director, moderated the panel.

During the panel, "Delivering the Goods. Moving the People. Creating a More Livable City through Transportation," Giuliano, Trottenberg, Sclar, and Conway discussed New York Mayor Bill de Blasio's new programs to

rapidly redesign New York City's urban streets in an effort to make the city more pedestrian and bike friendly. The panelists also discussed best practices for delivering and distributing goods within New York City.

On an annual basis, the Sol Price School of Public Policy at the University of Southern California hosts an annual series of conversations in New York about hot-button policy issues facing the nation. New York USC alumni participate in thought-provoking discussions with government experts, educators, and policy analysts.

"The event was extremely well attended," Giuliano said. "Price School alumni, USC alumni, university friends, and newly admitted students and their parents were all in attendance."



USC featured MetroFreight partners during a March 13 event in New York City.

### METRANS RESEARCH

## METRANS Researchers Dessouky and Ioannou Develop Methods to Improve Freight Efficiency

Two METRANS researchers recently released reports detailing methods to improve freight efficiency. Dr. Maged Dessouky, METRANS Associate Director of Special Programs and Professor at the USC Viterbi School of Engineering, released a report demonstrating a method for increasing efficiency and reducing rail congestion by improving scheduling coordination between freight and passenger rail systems. The findings in this research report, 15-04: Integration of Passenger and Freight Rail Scheduling, are significant because passenger and freight trains share the same rail lines in metropolitan areas across the U.S. Inefficiencies are caused by the different operating characteristics and demand patterns. Dr. Dessouky developed an algorithm for a constrained optimization problem and performed real-world testing. His approach, called the 'Complete-Control' method, significantly reduced delays for both passenger and freight trains when compared to other methods.

Dr. Petros Ioannou, METRANS Associate Director of Research and Professor at the USC Viterbi School of Engineering, also recently released a research report. Titled 15-12: Optimum Routing of Freight in Urban Environments under Normal Operations and Disruptions using a Co-Simulation Optimization Control Approach, the report provides a framework for more efficient freight routing to reduce costs, congestion and pollution. In the report, Dr. Ioannou uses a method called COSMO (Co-Simulation Optimization) to estimate marginal costs of routes, and then uses an optimization algorithm to calculate the route with the lowest cost. The model also updates continuously in order to account for congestion effects. It automatically determines if a route is no longer the minimum cost route and uses a feedback loop to repeat the optimization.

Both reports can be found at <https://www.metrans.org/research-projects/metrans-utc>.

## METRANS OUTREACH

# METRANS Associates Program Partner Spotlight: Yusen and Ceres Terminals

Yusen and Ceres Terminals recently joined the METRANS Associates Program. They are part of NYK Ports. Ceres Terminals Inc., founded in 1958, was purchased by NYK Ports in 2002. It provides a variety of premier stevedoring and terminal operating services on the East and West Coasts of the United States and Canada, and the Gulf coast of the U.S. Yusen Terminals LLC, founded in 1991, leases and manages one of the busiest marine cargo terminals in the Port of Los Angeles. NYK Ports has approximately 300 full-time permanent employees while also employing several hundred hourly workers in its daily operations.



Yusen and Ceres Terminals define their relationship with METRANS as an important link between their business and academic sides. Also, it provides an opportunity to better inform students about the industry. "We operate out of the largest port complex in the U.S. and universities such as California State University, Long Beach and the University of Southern California are located here. It is important to have a link with students for information sharing, job opportunities and collaboration.

Apart from operations, we feel the responsibility to reach out and support the community," said Alan McCorkle, Vice President of West Coast Operations at Ceres.

Ceres' annual container throughput exceeds three million units, and its container operations continue to grow in major North American port locations. Yusen, the sister company of Ceres, handles more than one million containers annually. It also operates 23 acres of on-dock rail at the Port of Los Angeles, which allows the port to efficiently transfer cargo both to and from the U.S. heartland.

"Yusen and Ceres Terminals have epitomized the industry and university partnership with support for METRANS programs on both campuses, including making high level speakers available to us for those programs" said Thomas O'Brien, METRANS Associate Director, CSULB Programs.



## 7th METRANS

# International Urban Freight Conference

October 17-20, 2017 | Hyatt Regency, Long Beach, CA

## METRANS OUTREACH

# 2017 METRANS I-NUF Conference Call for Submissions Now Open

METRANS invites abstract submissions for the 2017 International Urban Freight (I-NUF) conference for both presentations and papers on the following topics:

1. Local/last mile pickup and delivery
2. Trade nodes and hubs – ports, airports, distribution centers
3. Freight modes – trucking, rail, water
4. Urban modeling and planning
5. New technology
6. Changing consumption, production and spatial organization
7. Best practices

Sustainability is a cross-cutting theme throughout the conference proceedings. Papers on environmental impacts or mitigation strategies in all thematic areas as well as proposals for special sessions are encouraged.

Abstracts must be submitted by May 15, 2017. The abstract is limited to 500 words and must include 1) a statement of the research, methodology, and data and 2) a brief summary of results and conclusions. Submit as a Microsoft Word file. The format for abstracts is as follows:

- Title
- Topic area (from above list)
- Authors with full contact information
- Indicate whether you plan to send in a final paper or final presentation
- Abstract text

If a sufficient number of complementary papers are submitted, METRANS will invite authors to submit to a special journal issue. Submit abstracts to [alix.traver@csulb.edu](mailto:alix.traver@csulb.edu).

I-NUF 2017 takes place October 17-20, 2017 at the Hyatt Regency in Long Beach, California. For further information, go to <https://www.metrans.org/2017-i-nuf-overview>.

## METRANS Transportation Center

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### METRANS Associates Program

The METRANS Associates Program (MAP) provides the core support for the METRANS Transportation Center. METRANS appreciates and thanks our current partners:

To learn more about MAP and its benefits, see [www.metrotrans.org/metrans-associates-program](http://www.metrotrans.org/metrans-associates-program)

#### Gold Partners



#### Silver Partners



#### Bronze Partners



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