



Bi-Annual Performance Progress Report

University of California Center on Economic Competitiveness in
Transportation- Region 9 University Transportation Center

Submitted to:

U.S. Department of Transportation Research and Innovative Technology Administration

Federal Grant Number:

DTRT13-G-UTC39

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Submission Date:

May 16, 2016

DUNS Number:

124726725

EIN Number:

94-6002123

Grant Period:

September 30, 2013 - September 30, 2018

Reporting Period:

October 1, 2015 - March 31, 2016

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Accomplishments:

Major Goals of the Program

The activities carried out by the University of California Center on Economic Competitiveness in Transportation, referred to as UCCONNECT, are primarily directed at advancing the USDOT strategic goal of improving economic competitiveness in transportation. Namely, the center seeks to pursue research, education, and workforce development activities to improve transportation operations and enhance freight productivity in Region 9.

Accomplishments Under these Goals

In Regard to Research

We describe in this section the research activities conducted through our Center during the reporting period October 1, 2015- March 31, 2016. We focused on projects aimed at enhancing our region’s economic competitiveness by advancing the state of knowledge and the state of professional practice in transportation. The specific activities completed in this regard include: (1) finalizing our 3rd faculty research Request For Proposals (RFP); (2) advancing other Caltrans priority research projects; and (3) monitoring ongoing research projects from our previous two faculty research RFP rounds.

1. Request for Proposals

In November 2015, the center closed its third RFP. The UCCONNECT Faculty Research Grants for FY 2016-17 were awarded following an external peer-review selection process with the participation of more than eighty world-leading faculty, researchers, and practitioners in transportation. Caltrans Division of Research, Innovation and System Information set aside approximately \$1.5 million to fund one-year research projects. UCCONNECT awarded funds for 13 projects with objectives and performance measures emphasizing the following goals:

1. Safety and Health
2. Stewardship and Efficiency
3. Sustainability, Livability and Economy
4. System Performance
5. Organizational Excellence

Table 1: Awarded Proposals for FY 2016-17

NEWLY SELECTED PROJECTS (third RFP)	STATUS
Experimental Studies of Traffic Incident Management with Pricing, Private Information, and Diverse Subjects (Co-PI: David Brownstone, UC Irvine; Co-PI: Michael McBride, UC Irvine)	To begin in the next reporting period
Transit Oriented Development and Commercial Gentrification: Exploring the Linkages (Co-PI: Karen Chapple, UC Berkeley; Co-PI: Anastasia Loukaitou-Sideris, UCLA)	To begin in the next reporting period
Shifting from LOS to VMT as the Measure of Transportation Impacts: Evaluating Prospects for Implementing Senate Bill 743 (PI: Daniel Chatman, UC Berkeley)	To begin in the next reporting period

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Traffic Predictive Control (PI: Samuel Coogan, UCLA)	To begin in the next reporting period
Managing Pedestrian and Car Interactions (PI: Carlos F. Daganzo, UC Berkeley)	To begin in the next reporting period
A Cooperative V2V Alert System to Mitigate Vehicular Traffic Shock Waves (PI: Mario Gerla, UCLA)	To begin in the next reporting period
Long Distance Travel in the California Household Travel Survey (CHTS) and Social Media Augmentation (Co-PI: Kostas Goulias, UC Santa Barbara; Co-PI: Krzysztof Janowicz, UC Santa Barbara)	To begin in the next reporting period
Designing a Transit- Feeder System Using Bike Sharing and Peer-to-Peer Ridesharing (PI: Jay Jayakrishnan, UC Irvine)	To begin in the next reporting period
Enabling Demand Modelling from Privately Held Mobility Data (PI: Alexey Pozdnukhov, UC Berkeley)	To begin in the next reporting period
Measuring Transportation Accessibility: Review of the State-of-the-Practice and State-of-the-Art within California and Beyond (PI: Susan Shaheen, UC Berkeley)	To begin in the next reporting period
Mapping and Improving the Delivery Process of Highway Pavement Rehabilitation Projects (PI: Iris Tommelein, UC Berkeley)	To begin in the next reporting period
Sustainable Operation of Arterial Networks (PI: Pravin Varaiya, UC Berkeley)	To begin in the next reporting period
The Equity Impacts of California's County Transportation Sales Tax (Co-PI: Martin Wachs, UCLA; Co-PI: Brian D. Taylor, UCLA)	To begin in the next reporting period

2. Caltrans Priority Research

UCCONNECT continued to monitor the progress of awarded projects specially selected to fulfill Caltrans' research needs.

Table 2: Caltrans Priority Research

CALTRANS PRIORITY RESEARCH	STATUS
California Integrated Border Approach Strategy, Phase 2 (PIs: Karen T. Frick, UC Berkeley; Martin Wachs, UCLA)	To be completed in the next reporting period
Richmond-San Rafael Bridge Access Improvements Project Before/Mid-Term Study Evaluation and Report (PI: Trevor Darrell, UC Berkeley)	In progress
Rail and the California Economy (PIs: Mark Hansen, UC Berkeley; David Brownstone, UC Irvine)	To be completed in the next reporting period

3. Ongoing Research Sponsored by the Center

The following tables list the UCCONNECT Faculty Research Grants for FY 2014-15 and FY 2015-16 and their status during the reporting period.

Table 3: Faculty Research Grants for FY 2014-15

ONGOING PROJECTS (First RFP)	STATUS
PART I: Open to Faculty within the Consortium	
OCICATS (Online Community Input Classification to Advance Transportation Services)—a GIS Based Decision-Support Tool (PI: L. Abellera, Cal Poly Pomona)	To be completed in the next reporting period
Heightening Walking Above its Pedestrian Status: Walking and Travel Behavior in California (PI: E. Blumenberg, UCLA)	Completed
Experimental Studies for Traffic Incident Management (PI: D. Brownstone, UC Irvine)	Completed
Smartphone Information and Transportation Demand Modeling: An Analysis of Transportation Network Companies (PI: R. Church, UC Santa Barbara)	To be completed in the next reporting period
Pricing Urban Transportation Networks: Multi-modal Strategies Leveraging Big Data (PI: C. Daganzo, UC Berkeley)	Completed
Automated Assessment of Safety-Critical Dynamics in Multi-modal Transportation Systems (PI: O. Grembek, UC Berkeley)	Completed
Modeling and Control of HOT Lanes (PI: R. Horowitz, UC Berkeley)	Completed
Promoting Peer-to-Peer Ridesharing Services as Transit System Feeders (PI: R. Jayakrishnan, UC Irvine)	To be completed in the next reporting period
Performance Analysis and Control Design for On-ramp Metering of Active Merging Bottlenecks (PI: W. Jin, UC Irvine)	Completed
Bicycle Crash Risk: How Does it Vary and Why? (PI: R. Liggett, UCLA)	Completed
Demand Forecasting and Activity-Based Mobility Modeling from Cellphone Data (PI: A. Pozdnukhov, UC Berkeley)	Completed
Crowd-source Data to Activity Models: Humans Mobility Prediction for Real-time Ride-sharing (PI: R. Sengupta, UC Berkeley)	To be completed in the next reporting period
Strategic Charging Infrastructure Deployment for Electric Vehicles (PI: M. Shen, UC Berkeley)	Completed

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Control Strategies for Corridor Management (PI: A. Skabardonis, UC Berkeley)	Completed
Accessibility and Economic Development: How the Transportation Network Affects the Economic Performance of Regions (PI: B. Taylor, UCLA)	Completed
Impacts and Future of the California Fuel Tax Swap of 2010 (PI: M. Wachs, UCLA)	Completed
From Trend Spotting to Trend Setting: Model the Impact of Major Technological and Infrastructural Changes in Travel Demand (PI: J. Walker, UC Berkeley)	To be completed in the next reporting period
Developing an Agent-Based Online Adaptive Signal Control (ASC) Framework Using Connected Vehicle (CV) Technology (PI: G. Wu, UC Riverside)	To be completed in the next reporting period
PART II: Open to Faculty within Region 9	STATUS
Exploring the use of spatial data as input to traffic control and traffic safety analysis (PI: Wei Hua Lin, University of Arizona)	In progress
Multimodal arterial performance measurement using multi-source ITS data (PI: Yao-Jan Wu, University of Arizona)	To be completed in the next reporting period

Table 4: Awarded Proposals for FY 2015-16

ONGOING PROJECTS (Second RFP)	STATUS
Analyzing Spread of Influence in Social Networks for Transportation Applications (PI: L. Abellera, Cal Poly, Pomona)	To be completed in the next reporting period
From LOS to VMT, VNT and Beyond through Data Fusion: Application to Integrated Corridor Management (PI: A. Bayen, UC Berkeley)	To be completed in the next reporting period
Public Transportation and Industrial Location Patterns in California (PI: D. Chatman, UC Berkeley)	To be completed in the next reporting period
Bringing a Community Health Lens to Highway-to Main Street Conversion through the Integration of Top-Down Expert Guidance and Bottom-up Community Engagement (PI: B. Cole, UCLA)	To be completed in the next reporting period
Coordinating Transit Transfers in Real time (PI: C. Daganzo, UC Berkeley)	Completed
Combing California Household Travel Survey Data with Harvested Social Media Information to form Self-Validating Statewide Origin-Destination Travel Predication Method (PI: K. Goulias, UC Santa Barbara)	Completed

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Potential Greenhouse Gas Emissions Reductions from Optimizing Urban Transit Networks (PI: S. Madanat, UCLA)	To be completed in the next reporting period
Toward Accurate and Valid Estimates of Greenhouse Gas Reductions from Bikeway Projects (PI: J. Matute, UCLA)	Completed
The Effectiveness of State and Local Incentives on Household Ownership of Alternative Fuel Vehicles—a SEM Analysis (PI: J. Saphores, UC Irvine)	Completed
Mobile Apps and Transportation: Exploring Data Metric Potential and User Response to Multimodal Traveler Information (PI: S. Shaheen, UC Berkeley)	To be completed in the next reporting period
What Can a Bike Lane Do? Performance Metrics for Proposed Bicycle Infrastructure (PI: Joan Walker, UC Berkeley; Co-PI: Offer Grembek, UC Berkeley)	To be completed in the next reporting period

In Regard to Education

Our consortium collectively features university degree programs at the bachelor's, master's and doctoral levels. Our goal is to ensure that the next generation of professionals are prepared to tackle the complex challenges confronting our region's and our country's transportation systems. To achieve this goal, the center grants dissertation awards, student of the year awards, and fellowships. In addition, the center supports exceptional students within the consortium to attend transportation related conferences, short courses, symposiums and other outreach activities.

1. Dissertation Awards

Through an extensive review process by transportation faculty worldwide, UCCONNECT awarded the following 22 dissertation research grants for the years of 2015 and 2016.

Table 5: Dissertation Research Grants Awarded

Dissertation Research Grants Awarded in 2015 (N=12)	STATUS
Barriers to Travel and Opportunity: Low-Income Latino Immigrants in the San Francisco Bay Area (Jesus Barajas, UC Berkeley)	Ongoing
Longer-term Impacts of the London Congestion Charge (Andrea Broaddus, UC Berkeley)	Ongoing
Traveler Satisfaction Surveys meet Mobile Phone and Vehicle Tracking: Linking Individual Experiences to Travel Habit Changes with Panel Data (Andre Carrel, UC Berkeley)	Finished
On the Use of Network-wide Relations in Urban Networks (Jean Doig, UC Berkeley)	Ongoing
Modeling Second-by-Second Traffic Emissions in a Mega-Region to Optimally Site Satellite Bus Terminals (Nathaniel A. Isbell, UC Santa	Ongoing

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Barbara)	
Distance-dependent Congestion Pricing for Downtowns (Lewis Lehe, UC Berkeley)	Ongoing
Peer-to-peer and Group collaborative Supply and Consumption in Transportation Systems (Roger Lloret-Batlle, UCI)	Ongoing
Stalled on the Road to Adulthood? Assessing the nature of recent travel changes for young adults in America, 1995-2009 (Kelcie Ralph, UCLA)	Finished
Proactive Vehicle Routing to Solve the Dynamic Bike sharing Rebalancing Problem with Potential Extension to Shared Station Vehicle Systems (Robert Regue, UCI)	Finished
The Effect of the Urban Environment on Concentrations of Vehicle Emitted Pollutants (Nico Schulte, UCR)	Finished
A Framework for Analyzing Public-Private Partnerships for Road Transportation under Demand Uncertainty (Ke Wang, UCI)	Finished
Choice Set Aggregation and Consistent Standard Errors in BLP Models for Micro and Macro-level Data (Tim Wong, UCI)	Finished
Dissertation Research Grants Awarded in 2016 (N=10)	STATUS
Making Bicycle Demand Models Policy Relevant and Accurate (Tim Brathwaite, UC Berkeley)	To begin in next reporting period
The Influence of Environmental Policy on Regionalism in Transportation Planning (Jaimee Lederman, UCLA)	To begin in next reporting period
Travel Behavior Dynamics in Space and Time (Jae Lee, UC Santa Barbara)	To begin in next reporting period
Optimal cracking threshold resurfacing policies in asphalt pavement management to minimize costs and emissions (Allan Ogowang, UC Berkeley)	To begin in next reporting period
Using heterogeneous demand data sources as exposure in a bicycle risk model (Frank Proulx, UC Berkeley)	To begin in next reporting period
Integrated Smart Eco-driving Assist System for Plug-in Electric Vehicles In Connected Vehicle Environment (Xuewei Qi, UCR)	To begin in next reporting period
Effects of Segregating Buses and Cars in a Congested, Non-Steady State Network (Nathalie Saade, UC Berkeley)	To begin in next reporting period
Crystal Balls and Black Boxes: Policy effects on Optimism in Ridership and Cost Forecasts for New Starts Projects (Carole Voulgaris, UCLA)	To begin in next reporting period
Bunching in curbside parking and heavy tails in search time (Parker	To begin in next

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Williams, UCR)	reporting period
Modeling Uncertainty and Information in Transportation Systems (Jiangbo Yu, UCI)	To begin in next reporting period

2. Student of the Year Award

On an annual basis, the region 9 UTC designates an “Outstanding Graduate Student of the Year” through a program jointly sponsored by the U.S. Department of Transportation and the Council of University Transportation Centers (CUTC). Due to the exceptional quality of this year’s candidates, both UCTC and UCCONNECT made a separate award. UCCONNECT selected Dr. Kelcie Ralph, from UCLA, as its 2015/16 Outstanding Student of the Year.

2015-16 UCCONNECT Outstanding Student of The Year: Kelcie Ralph



Kelcie Ralph is an Assistant Professor at the Alan M. Voorhees Transportation Center at Rutgers University. Dr. Ralph earned her PhD. at the University of California, Los Angeles. For her thesis, Dr. Ralph examined the causes and the consequences of the decline in driving among young people in the United States, which was selected for the Barclay Gibbs Jones Award for best dissertation in Planning in 2015. Kelcie earned a Bachelor’s degree in economics from the University of Alaska, Anchorage and was selected as a Marshall Scholar in 2009. As a Marshall Scholar, Kelcie earned a Master’s degree at Cambridge University in Environmental Policy and a Master’s of City Design and Social Science from the London School of Economics. Dr. Ralph’s current research employs experimental and quasi-experimental research designs to explore the efficacy of travel behavioral change programs.

3. Educational Development Metrics

The table below displays all educational development figures for institutions within our consortium. The table illustrates the center’s performance, during this reporting period, using three metrics. These were: (1) the number of sponsored graduate degrees and fellowships; (2) the number of sponsored registrants/presenters at TRB and UCCONNECT-supported conferences, short courses, outreach activities, and similar events; and (3) the number of graduate students supported by research awarded in response to RFPs.

Table 6: Research, Fellowship, and Event Attendance Metrics

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School	# of Students Supported through RFPs	# of Sponsored Fellowships	2016 TRB Attendance	2016 Student Conference Attendance
UCB	35	17	35	29
CPP	2	2	15	2
UCI	11	16	22	17
UCR	2	1	1	5
UCLA	27	51	26	33
UCSB	4	5	0	2

In Regard to Workforce Development

UCCONNECT continues to support conferences, workshops, and seminars with the purpose of bringing together practitioners, researchers, and students around topics that are selected in partnership with Caltrans, to advance the region's top priorities. This section highlights (1) the annual student conference; (2) the UCCONNECT transportation planning workshops; (3) the Cal Poly Pomona summer program; and (4) additional workforce development activities pursued throughout the consortium.

1. The 2016 UCCONNECT Student Conference

The second annual Student Conference sponsored by UCCONNECT was held during the weekend of February 11-12, 2015 on the University of California, Riverside campus. The event featured an interactive program that facilitated lively discussion between students, faculty, practitioners, and state and federal government transportation officials.

Activities included the topics of: advanced biofuels; vehicle emissions metrics; intelligent transportation systems; and the economics of downtown parking. The event also included more than 100 poster and podium presentations by consortium students. Also featured was a student-moderated faculty panel focused on how connected and automated vehicles may transform the future of transportation.

UCCONNECT also held its annual Executive and Advisory Committee meetings during the conference. The Advisory Committee meeting focused on the new FAST Act legislation and featured committee member Debra Elston, from the USDOT, who gave a detailed presentation on the impact of this legislation on transportation research and implementation in the private sector.

At the close of the conference, Dr. Umit Ozguner of Ohio State University delivered the Mel Webber Memorial Lecture on "Crash Imminent Safety: How Intelligent Vehicles Will Deal With All Those Human Drivers" which was followed by an awards ceremony for the best research presentations given by students.

Table 7: Student Presentation Awards

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Presentation	Award
Equity in Motion: Capital Bikeshare in Low-Income Communities (Aysha Cohen, UC Los Angeles)	1st place poster
A Lane Changing Cell Transmissions Model for Modeling Capacity Drop at Lane Drop Bottlenecks (Anupam Srivastava, UC Irvine)	2nd place poster
Measuring the Influences of Traffic Control Devices and Transit Stops on Pedestrian-Automobile Collisions (Jasmin Kim, UC Los Angeles)	3rd place poster
Impacts of Transmetro BRT in Barranquilla, Colombia: A Qualitative Perspective (Abigail Cochran, UC Berkeley)	1st place podium
Envy-free Intersection Control with Value of Time Heterogeneity (Roger Lloret-Battle, UC Irvine)	2nd place podium
Autonomous or Driver-less Vehicles: Implementation Strategies and Operational Concerns (Neda Masoud, UC Irvine)	3rd place podium

2. UCCONNECT Transportation Planning Workshops

During this reporting period, UCCONNECT continued its **Planning for the 21st Century - Emerging Trends** seminar series that was started in the previous reporting period. In collaboration with Caltrans' Department of Transportation Planning (DOTP), the goal of these events was to connect UCCONNECT affiliated faculty and their research with transportation professionals working for our state DOT and other stakeholders in the transportation sector. These workshops took place at Caltrans headquarters in Sacramento and were also webcast to facilitate participation of both industry stakeholders and educators across the state of California and throughout region 9.

Table 8: Workshops Completed During Reporting Period

WORKSHOP	IMPACT (Attendance)
Title: The Challenge of Suburban Office Landscape: Understanding the Past to Re-Envision the Future (Speaker: Louise Mozingo, UC Berkeley) Date: October 19, 2015	Caltrans: 30 Other Agencies: 3 UCCONNECT: 3 Online Connections: 121
Title: The Role of Big Data in Transportation Planning (Speaker: Alexey Pozdnukhov, UC Berkeley; Krzysztof Janowicz, UC Santa Barbara; and Scott Perley, Iteris) Date: October 30, 2015	Caltrans: 40 Other Agencies: 0 UCCONNECT: 2 Online Connections: 157

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Title: Congested Development? Rethinking the Causes and Consequences of Metropolitan Traffic Delays (Speaker: Brian D. Taylor, UCLA) Date: March 16, 2016	Caltrans: 37 Other Agencies: 0 UCCONNECT: 3 Online Connections: 350
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3. Cal Poly Pomona Summer Program 2016

Planning and preparation activities for the Cal Poly Pomona Summer Program 2016 were pursued during this reporting period. Detailed information about the program and the application process can be found on the center's website (enumerated in Table 10).

4. Additional Professional Development Opportunities

In addition to our center's transportation planning workshops, UCCONNECT also sponsored various professional development and educational events. These events were held by university partners throughout the consortium, as listed in the table below.

Table 9: Conferences, Workshops, and Seminars

Date	Topic	Speaker(s)	Location	Impact
10/03/15	Transportation Camp Los Angeles 2015 for Transportation Professionals	Ad-hoc speakers	UCLA	127 participants
10/06/15	Science Technology Education Partnership (STEP) Conference	Various research staff from different labs at UC Riverside	UC Riverside	289 participants
10/18/15	Planning for Change (hosted by UCLA)	Joshua Schank, Hasan Ikhata, Steve Heminger, Jean Armbruster, and Pam O'Connor	Lake Arrowhead	86 participants
10/21/15	Tactical Urbanism	David Kemp, Mike Lydon, and Carrie Nielson	UCLA	8 participants
10/27/15	Traffic Congestion in Smart Cities with Big Data	Nikolas Geroliminis	UC Irvine	25 participants
12/2/15	Sustainable Transportation (hosted by UCLA)	Bill Fulton, Eric Shen, Seleta Reynolds, Rick Cole	Millennium Biltmore Hotel	No data available
12/3/15	Alternative Energy Vehicles and the Supporting	Dr. Mircea Gradu	UC Irvine	55 Participants

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	Infrastructure			
01/20/16	The Rise and Fall of Urban Economies	Michael Storper	UCLA	165 participants
02/03/16	Air Pollution at the Port, Mitigation (hosted by UCLA)	Andrea Hricko, David Pettit Sr., Renee Moilanen, and Ying-Ying Meng	Downtown Los Angeles Labor Center	55 participants
02/17/16	Economic Development and the Environment: Communities, Jobs, Revenues, Cap and Trade Funds (hosted by UCLA)	Tamanna Rahman and Christine Houston	Downtown Los Angeles Labor Center	74 participants
02/19/16	MIDAS-CPS - The Possible Future of Proactive Traffic	Pitu Mirchandani	UC Irvine	25 participants
02/23/16	Distributed Coordinated in-Vehicle Online Routing Using a Mixed-Strategy Congestion Game	Lili Du	UC Irvine	25 participants
02/25/16	Solar Conference	Various Speakers	UC Riverside	150 participants
03/03/16	Big Data Analytics for Vehicle Quality Improvement	Dr. Mircea Gradu, Dr. Zekai Akbay, Mr. Tri Nguyen, and Mr. Alex Huang	UC Irvine	50 participants
03/10/16	Women in Transportation Industry	Tamika Butler, Lisa Schweitzer, and Chandini Singh	UCLA	100 participants
03/15/16	New Horizon for Signal Processing - Beyond the Shannon Paradigm	Yutaka Yamamoto	UC Berkeley	50 participants
03/16/16	Power System Simulation for Policymakers	Michael Cohen	UC Berkeley	30 participants
03/17/16	DCRP Lecture Series: 9th Annual Martin Wachs Lecture	Catherine Ross	UC Berkeley	200 participants
03/17-03/18/16	2016 PEMS Conference	Edward Nam, Matthew Thornton, and	UC Riverside	250 participants

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		Daniel Carder,		
3/18/16	Land Use Patterns, Logistics, and Emissions	Anne Goodchild	UC Berkeley	40 participants

Dissemination of results

ACCESS Magazine reports on UCCONNECT's research findings in order to better translate those findings for policy makers and practitioners. Articles in *ACCESS* make compelling arguments and points regarding the public policy and government decisions behind the implementation of innovative transportation developments proposed by the Center's researchers.

ACCESS has increased its social media presence dramatically with regular postings on Twitter, Facebook, and LinkedIn. During the reporting period, tweet impressions (the total number of people who saw tweets) increased by 18,622. Also, by the end of March 2016, ACCESS had gained 101 more followers on Twitter. The activity on the social media sites has helped increase the number of pageviews on the magazine's website. From October 2015 - March 2016, there were 61,216 total pageviews in comparison to 41,039 pageviews from the previous reporting period.

In order to reach a wider audience, ACCESS has developed policy briefs that condense academic research into easily digestible reading. This allows for a quick way for anyone to get an overview of a project, its policy implications, and its main takeaways. The policy briefs are made available at events and often handed out to journalists and reporters to give them a sense of what our research entails. Relatedly, ACCESS also produces a biannual ITS newsletter which highlights the main points of recent research.

In addition to ACCESS Magazine, UCCONNECT also relied heavily on the center's website and Youtube channel (as well as websites of other consortium members) to disseminate results, facilitate recruitment, and advertise events.

Goals for Next Reporting Period

For our next reporting period, we plan to execute newly awarded projects (enumerated in table 1) and close all research projects awarded in 2014 and 2015 (enumerated in tables 3 and 4). In addition, we plan on finalizing (e.g. conducting and producing a written summary of) the Achieving Zero-Emission Mobility: The Role of Innovative Electric Vehicle Companies symposium, an event with the potential for national impact on the zero-emissions mobility sector. Finally, we plan on: (i) announcing a new RFP for the FY 2017-18; (ii) continuing our collaboration with Caltrans to synthesize a new series of workshops on transportation planning; and (iii) organizing our center's future events, such as the annual student conference and the UCCONNECT Summer Program at Cal Poly Pomona.

Products:

Conference Papers, Presentations, and Journal Publications

Conference Papers

Amini, Z., Pedarsani, R., Skabardonis, A., Varaiya, P. (2016) Queue-Length Estimation Using Real-Time Traffic Data. Submitted to the 19th International IEEE Conference on Intelligent Transportation Systems (ITSC).

Davis, AW., Lee, JH., and Goulias KG. (2016) Taking Place Attitudes into Travel Behavior Research, In Proceedings of 95th TRB Annual Meeting, Washington, D.C.

El Zarwi, F., Vij, A. and Walker, J.L. (2016) Integrated Discrete Choice and Technology Adoption Models: Developing a Forecasting Framework for New Transportation Services, In Proceedings of 95th Annual Meeting of the Transportation Research Board, Washington, D.C.

Lee, JH., Davis, AW., and Goulias, KG. (2016). Activity Space Estimation with Longitudinal Observations of Social Media Data, in Proceedings of 95th TRB Annual Meeting, Washington, D.C.

McBride, E., Lee, JH., Lundberg, A., Davis, AW., and Goulias, KG. (2016). Behavioral Microdynamics of Car Ownership and Travel in the Seattle Metropolitan region from 1989 to 2002, In Proceedings of 95th TRB Annual Meeting, Washington, D.C.

Ravulaparthi, S. and Goulias, KG. (2016) Exploring the Role of Location in Dynamics of Birth and Death of Business Establishments: Case Study Analysis of Santa Barbara County, California, In Proceedings of 95th TRB Annual Meeting, Washington, D.C.

Ravulaparthi, S. and Goulias KG. (2016). Fundamental Linkages Between Activity Time-Use and Subjective Well-Being for Elderly Population: A Joint Exploratory Analysis Framework for In-Home and Out-Of-Home Activities, In Proceedings of 95th TRB Annual Meeting, Washington, D.C.

Thomas, T., Mondschein, A., Osman, T., and Taylor, BD (2016). Nowhere to Run: Speed, Proximity, and Their Relative Contributions to Accessibility, In Proceedings of 95th TRB Annual Meeting, Washington, D.C.

Wu, X., Chia, I., Thai, J., Xudong, J., and Zhang, Y. (2016) Evaluation of Actuated, Coordinated, and Adaptive Signal Control Systems: A Case Study, In Proceedings of 95th TRB Annual Meeting, Washington, D.C.

Wu, X., Valera, P., and Morton, J. (2016) An Aggregate Energy Consumption Model for Electrical Vehicles at Signalized Intersections, In Proceedings of 95th Annual Meeting of the Transportation Research Board, Washington D.C.

Presentations

Abdulghani, K. and Cheng, W. (2016). Analysis of Motorist Behavior on Highway-Railroad at-grade Crossing Intersection

Chu, M. and Cheng, W. (2016). Impact of Real-Time Traffic Characteristics on Federal Crash Severity

Elhocheimi, M. and Cheng, W. (2016). Crash Prediction Based on Traffic Analysis Zone-Based Information

Griswold, J.B., Cheng, H., Madanat, S., and Horvath, A. (2016). Unintended Greenhouse Gas Consequences of Lowering Level of Service in Urban Transit Systems

Morton, J. and Wu, X. (2016). Pedestrian Traffic Flow and Store Location

Taylor, BD. (2016). Congested Development? Rethinking the Causes and Consequences of Metropolitan Traffic Delays.

Sanz, N. (2016). Bicycle Suitability in the California State Highway System

Vij, A., El Zarwi, F., and Walker, J. (2015) Endogenous Preferences

Walker, J. (2015). From Trend Setting: Behavioral Analysis to Guide Transformative Mobility

Yu, E. and Vasconez, R. (2016). Analysis of NBI Data for California Bridges

Yu, M. (2016). Automated Assessment of Drivers Yielding to Pedestrians at Signalized Intersections

Journal Publications

Cassidy, M.J., Kim, K.H., Ni, W. and Gu, W. (2015) A problem of limited-access special lanes; Part I: Spatiotemporal studies of real freeway traffic; Part II: Exploring remedies via simulation. *Transportation Research Part A*, 80, 307-329.

Carlos F. Daganzo, Victor L. Knoop (2016). Traffic flow on pedestrianized streets, *Transportation Research Part B: Methodological*, Volume 86, Pages 211-222.

Carlos F. Daganzo, Lewis J. Lehe (2015). Distance-dependent congestion pricing for downtown zones, *Transportation Research Part B: Methodological*, Volume 75, Pages 89-99.

Chen, H., Gu W., Cassidy, M.J. and Daganzo, C.F. (2015) Optimal transit service atop ring-radial and grid street networks: a continuum approximation design method and comparisons. *Transportation Research Part B*, 81, 755-774. Also presented at the 21st ISTTT.

Dillon, H.S., Saphores, J.D., and Boarnet, M.G. "The impact of urban form and gasoline prices on vehicle usage: Evidence from the 2009 National Household Travel Survey" *Research in Transportation Economics*, Oct 2015. DOI: 10.1016/j.retrec.2015.10.006

Gonzalez, O.I., Novaco, R.W., Reger, M.A., and Gahm, G.A. "Anger intensification with combat-related PTSD and Depression Comorbidity" *Psychological Trauma- Research Practice and Policy*, Vol 8, Iss 1, Pgs 9-16, Jan 2016. DOI: 10.1037/tra0000042

Hu, M.G., Li, W., Li, L.F., Houston, D., and Wu, J. "Refining time-activity classification of human subjects using the global positioning system" *PLOS ONE* Vol 11, Iss 2, Feb 26, 2016. DOI: 10.1371/journal.pone.0148875

Jin, W.L., Gan, Q., and Lebacque, J.P. "A kinematic wave theory of capacity drop" *Transportation Research Part B* 81(1), 316-329, Nov 2015.

Li, L.F., Laurent, O. and Wu, J. "Spatial variability of the effect of air pollution on term birth weight: evaluating influential factors using Bayesian hierarchical models," *Environmental Health*, Vol 15, Article 14, Feb 5, 2016. DOI: 10.1186/s12940-016-0112-5

Srivastava, A., Jin, W.L., and Lebacque, J.P. "A modified cell transmission model with realistic queue discharge features at signalized intersections" *Transportation Research Part B* 81(1), 302-315, Nov 2015.

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Taylor, J.L., Novaco, R.W., and Brown, T. "Reductions in aggression and violence following cognitive behavioural anger treatment for detained patients with intellectual disabilities" *Journal of Intellectual Disability Research*, Vol 60, Iss 2, Pgs 126-133, Special Issue, Feb 2016. WOS:000368804300003

Tomlinson, B., Nardi, B., Patterson, D.J., Raturi, A., Richardson, D., Stokols, D., and Saphores, J.D. "Toward Alternative Decentralized Infrastructures" *ACM DEV 2015*, Dec 1-2, 2015. DOI: 10.1145/2830629.2830648

Yang, I. and Jayakrishnan, R. "Real-time network-wide traffic signal optimization considering long-term green ratios based on expected route flows" *Transportation Research Part C: Emerging Technologies* Vol 60, Nov 2015, 241-257. DOI: 10.1016/j.trc.2015.09.003

Wu, C., Thai, J., Yadlowsky, S., Pozdnukhov, A., and Bayen, A. (2015) Cellpath: Fusion of Cellular and Traffic Sensor Data for Route Flow Estimation via Convex Optimization, *Transportation Research Part C: Emerging Technologies*, Volume 59, Pages 111-128.

Websites and other Internet Sources

The following websites are currently accessible and provide additional detail about the events, papers, and presentations enumerated in this report:

Table 10: Website URLs

Internet Site	URL
UCCONNECT Center Website	http://uconnect.berkeley.edu
ACCESS Magazine Website	http://www.accessmagazine.org
UCCONNECT Youtube Channel	https://www.youtube.com/channel/UC00Ka_GR-9In3KiwsTYchsg
UC Berkeley Institute of Transportation Studies	http://its.berkeley.edu/
UC Berkeley CEE	http://www.ce.berkeley.edu/
UC Berkeley DCRP	http://ced.berkeley.edu/academics/city-regional-planning/
UCI Interdisciplinary Graduate Program in Transportation Science	http://www.transci.uci.edu/
UC Irvine Graduate Seminar Series in Transportation	http://sites.uci.edu/itsgsa
Institute of Transportation Engineers Chapter at Cal Poly Pomona	http://itecpp.weebly.com
Center for Environmental Research and Technology at UC Riverside	http://www.cert.ucr.edu
Bourns College of Engineering at UC Riverside	http://www.engr.ucr.edu
2016 UCCONNECT Student Conference	http://www.uconnect2016.com/
UCSB Geotrans	https://www.youtube.com/channel/UC2PmwnbLpE1ebhi-aLjsgbA/feed

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UCLA Institute of Transportation Studies	http://www.its.ucla.edu/
UCLA Arrowhead Symposium	http://uclaarrowheadsymposium.org

Technologies, Techniques, Inventions, Patent Applications, and Licenses Applications

Ridesharing APP created by Dr. Jayakrishnan for his LA Metro red line project that functions as a decision support tool that suggests routes that combine ridesharing and transit.

Inventions

New algorithms developed by Dr. Jayakrishnan for his LA Metro red line project that facilitate the utility of his ridesharing APP.

Technology

Nothing to report during this reporting period.

Participants and Collaborating Organizations

Individuals Involved

The following table lists the leadership faculty within our consortium.

Table 11: Leadership Roles

Executive Committee	
Michael Cassidy	Director of UCCONNECT, Robert Horonjeff Professor of Engineering at UC Berkeley
Juan Argote-Cabanero	UCCONNECT Assistant Director, Chief Executive Officer of VIA Analytics
Karen T. Frick	UCCONNECT Assistant Director, Assistant Adjunct Professor of City and Regional Planning at UC Berkeley
Matthew J. Barth	Yeager Families Professor of Engineering at UC Riverside
Daniel Chatman	Associate Professor of City and Regional Planning at UC Berkeley
Kostas Goulias	Professor of Geography at UC Santa Barbara
Stephen Ritchie	Professor of Civil and Environmental Engineering at UC Irvine

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Brian Taylor	Professor of Urban Planning and Director of ITS at UC Los Angeles
Advisory Committee	
A. Ricardo Archilla	Associate Professor of Civil and Environmental Engineering, University of Hawaii
Katie Benouar	Chief of Division of Transportation Planning, California Department of Transportation
Coco Briseno	Chief of Division of Research, Innovation, and System Information, California Department of Transportation
Tilly Chang	Executive Director, San Francisco County Transportation Authority
Lawrence Dahms	Metropolitan Transportation Commission (Emeritus)
Debra S. Elston	Director of the Office of Corporate Research, Technology and Innovation Management, Federal Highway Administration
Gail Goldberg	Executive Director, Urban Land Institute Los Angeles
Xudong Jia	Professor, Department of Civil Engineering, Cal Poly Pomona
Wei Hua Lin	Associate Professor of Systems and Industrial Engineering Management, University of Arizona
Eric Shen	Director of Transportation Planning, Port of Long Beach

Partners

To facilitate the success of the numerous activities throughout the year, UCCONNECT relies on partnerships and collaborations with local transportation stakeholders, state agencies, regional metropolitan transit authorities and unaffiliated faculty. The following organizations are providing key funding for select projects and activities:

- United States Department of Transportation
- California Department of Transportation (Caltrans)
- Institute of Transportation Studies at the University of California, Berkeley

Table 12: Consortium Partnering Organizations, Agencies, and Programs

Partner	Research Collaboration	Financial Support	Event Sponsor
Tech Transfer at Berkeley	X	X	
AT&T	X		
City of Anaheim	X		
Center for Sustainable Suburban Development at UC Riverside	X		
Los Angeles Metro, the Red Line (LA County Metropolitan Transportation Authority)	X		
Los Angeles County Bicycle Coalition	X		X
California Air Resources Board			X
University of Virginia School of Architecture	X		

Impact

Program Development Impact

Faculty across the consortium have collaborated with a total of 81 students to pursue state-of-the-art research. UCCONNECT also granted a total of 92 fellowships in engineering, urban planning, and other transportation-related fields. In addition, 99 students were given the opportunity to participate in the world’s largest transportation research conference (TRB). Through the aforementioned activities, UCCONNECT creates a great platform for students, faculty, and practitioners to work together and revolutionize the transportation sector.

Physical, Institutional, Information Resources Impact

Through the endeavors of our research projects and transportation education outreach efforts, UCCONNECT has contributed to the creation and dissemination of new information in the form of databases, conferences, webinars and journal papers, as reported in previous sections.

UCCONNECT has also funded ACCESS magazine as a resource to present the latest transportation news and research findings in efforts to impact government policy and make these research results accessible to broad spectrum of readers.

Technology Transfer Impact

UCCONNECT serves as a resource to teach, guide, and create the transportation professionals of the future, who will carry the responsibility of improving transportation efficiency for the entire nation through technological and intellectual innovation. Through direct UCCONNECT financial sponsorship and management of 25 workshops and conferences, approximately 1,000 practitioners and students from across Region 9 received transportation training during the reporting period. As evidenced by the figures noted in Tables 6-9, UCCONNECT continues to be at the pinnacle of advancing research topics that lend themselves to easy adaptation by the private sector (as evidenced in our recently started seminar series with Caltrans Division of Transportation Planning) while at the same time reaching and motivating students who are underrepresented in the transportation sector, with continued efforts like the Cal Poly Summer Program.

Science and Technology in Society Impact

UCCONNECT's impact on the betterment of transportation science and technology in society is a long-term goal. The first steps in the desired direction are determined by successful research and the implementation of the findings. The 16 faculty research projects and 6 dissertation grants finished during this reporting period have sought to advance this goal, see Research and Education sections above. In addition, the sheer number of students participating in research projects and transportation conferences, such as TRB and reported in Table 6, are good indicators of the impacts that UCCONNECT's activities will generate.

Changes/Problems

Nothing to report for this reporting period.