

2019 UTRAC Workshop: Selected Research Projects Pending FHWA Approval

New FY20 Research Projects funded or managed by the UDOT Research & Innovation Division

Posted April 26, 2019

Link to all submitted problem statements:

<https://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:3305>

Group 1 - Materials and Pavements

Number	Title	Written By	Organization	UDOT Champion	Research PM	Research Div. Cost	Total Cost	Notes
19.01.03	Measurement of Air Voids in Utah Pumped Concretes	Marc Maguire	USU	Bryan Lee	Shana Lindsey	\$30,000	\$30,000	
19.01.04	Maturity Measurements in Rapid Setting Concretes	Marc Maguire	USU	Bryan Lee	Shana Lindsey	\$50,000	\$50,000	
19.01.05	Thresholds for Intermediate Temperature Cracking Using Flexibility Index	Pedro Romero	UU	Howard Anderson	David Stevens	\$40,000	\$60,000	Potential \$20K UTC funding
Subtotal Funded:						\$120,000	\$140,000	

Group 2 - Maintenance

Number	Title	Written By	Organization	UDOT Champion	Research PM	Research Div. Cost	Total Cost	Notes
19.02.01	ESRI Insights Phase II: The War Room	Ryan Ferrin	UDOT	Ryan Ferrin	Ryan Ferrin	\$100,000	\$100,000	
19.02.02	Brine Pond Filtration	Tim Ularich	UDOT	CJ Connor	Tim Ularich	\$0	\$65,000	\$65K Maintenance funding
19.02.03	Analytical Framework for Life Cycle and Performance Assessment of the Equipment Programs	Cathy Liu	UU	Tim Ularich	Tim Ularich	\$40,000	\$80,000	Potential \$40K UTC funding
Subtotal Funded:						\$140,000	\$245,000	

Group 3 - Traffic Management & Safety

Number	Title	Written By	Organization	UDOT Champion	Research PM	Research Div. Cost	Total Cost	Notes
19.03.01	Utilizing Machine Learning to Cross-check Traffic Data and Understand Urban Mobility	Xianfeng Terry Yang	UU	Kelly Burns	Travis Jensen	\$50,000	\$90,000	Potential \$40K UTC funding
19.03.02	Evaluating Ramp Meter Delay in Utah	Grant Schultz	BYU	Jamie Mackey	Robert Chamberlin	\$0	\$65,000	\$65K T&S or TMD funding
19.03.06	Evaluating the Safety Impacts of Access Connections on State Highways	Grant Schultz	BYU	Jeff Lewis	Robert Chamberlin	\$0	\$70,000	\$70K T&S or TMD funding
19.03.08	Analysis of the Effectiveness of DSRC on Snow Plow Operations in Utah	Grant Schultz	BYU	Peter Jager	Ryan Ferrin	\$0	\$70,000	Waiting for confirmation of \$70K T&S or TMD funding
19.03.14	Gauging the Effectiveness of Safe Routes to School Projects	Shaunna Burbidge	Active Planning	Travis Evans	Vincent Liu	\$0	\$33,500	\$33.5K T&S or TMD funding
19.03.16	Safety in numbers? Developing improved safety predictive methods for pedestrian crashes at signalized intersections in Utah using push button-based measures of exposure	Patrick Singleton	USU	Travis Evans	Robert Chamberlin	\$0	\$50,000	\$50K T&S or TMD funding
19.03.18	Systemic analysis of bicycle and pedestrian safety in Utah	Patrick Singleton	USU	Travis Evans	Robert Chamberlin	\$60,000	\$60,000	
19.03.22	Methodology for evaluating intersection safety and operational performance with left-turn phasing	Xianfeng Terry Yang	UU	Glenn Blackwelder	Travis Jensen	\$50,000	\$50,000	
19.03.23	Non-destructive Evaluation and Numerical Modelling of Unrated Installed Crash Barriers	Andrew Sorensen	USU	Robert Miles	Travis Jensen	\$0	\$60,000	\$60K T&S or TMD funding
19.03.24	National Practices for Setting Speed Limits - A Synthesis of Current Practice	Grant Schultz	BYU	Robert Miles	Vincent Liu	\$40,000	\$40,000	
Subtotal Funded:						\$200,000	\$588,500	

Group 4 - Structures & Geotechnical

Number	Title	Written By	Organization	UDOT Champion	Research PM	Research Div. Cost	Total Cost	Notes
19.04.04	Nephi Bridge Deck Treatment Comparison	Matt Mikulich	UU	Becky Nix	David Stevens	\$0	\$0	Graduate student project using existing UDOT data
19.04.06	Loading and Wetting-Induced Settlement of Bridge Approach Embankments	Evert Lawton	UU	Grant Gummow	David Stevens	\$50,000	\$90,000	Potential \$40K UTC funding
19.04.08	Influence of Cracking on Chloride Ion Ingress in Concrete Bridge Decks and Parapets	Spencer Guthrie	BYU	James Corney	Vincent Liu	\$40,000	\$40,000	
19.04.09	Multi-State Transportation Pooled Fund Study: A New Universal Consequences-Based Liquefaction Hazard Analysis Framework for All CPT-Compatible Soils	Kevin Franke	BYU	Grant Gummow	David Stevens	\$126,000	\$1,250,000	Proposed pooled fund study led by UDOT: \$21,000 per year for 6 years, times 10 states including Utah

Subtotal Funded: \$216,000 \$1,380,000

Group 5 - Planning

Number	Title	Written By	Organization	UDOT Champion	Research PM	Research Div. Cost	Total Cost	Notes
19.05.01	Street Network Connectivity, Traffic Congestion, and Traffic Safety	Reid Ewing	UU	Jordan Backman	Robert Chamberlin	\$30,000	\$40,000	Potential \$10K UTC funding; Also coordinate with T&S and TMD
19.05.02	The Impact of the Mobility as a Service Mode on Transit Access	R. Chamberlin	RSG	Richard Brockmyer	Shana Lindsey	\$50,000	\$100,000	Potential \$50K UTC funding
19.05.04	Utilizing archived traffic signal performance measures for pedestrian planning & analysis – Phase II: Extending pedestrian volume estimation capabilities to unsignalized intersections	Patrick Singleton	USU	Heidi Goedhart	Kevin Nichol	\$50,000	\$50,000	Also coordinate with T&S and TMD
19.05.06	Transportation—health impact modeling and scenario planning for Utah	Patrick Singleton	USU	Angelo Papastamos	Kevin Nichol	\$50,000	\$57,500	\$7.5K Utah Dept. of Health in-kind match

Subtotal Funded: \$180,000 \$247,500

Group 6 - Performance Management/Data Analytics

Number	Title	Written By	Organization	UDOT Champion	Research PM	Research Div. Cost	Total Cost	Notes
19.06.01	Assessing Close-Range Photogrammetry as an Alternative for LiDAR Technology at different UDOT Divisions	Abbas Rashidi	UU	Abdul Wakil	Vincent Liu	\$30,000	\$40,000	Potential \$10K UTC funding
19.06.02	A synthesis of passive third-party datasets used for transportation planning	Gregory Macfarlane	BYU	Adam Radel	Robert Chamberlin	\$25,000	\$25,000	

Subtotal Funded: \$55,000 \$65,000

Group 7 - Public Transportation

Number	Title	Written By	Organization	UTA Champion	Research PM	Research Div. Cost	Total Cost	Notes
19.07.01	Modeling the demand and operating characteristics for wheelchair-accessible, on-demand mobility services	Gregory Macfarlane	BYU	Kerry Doane	Vincent Liu	\$0	\$40,000	UDOT Public Transit funds and possible Univ. match
19.07.02	Effect of Light-Rail Transit on Traffic in a Travel Corridor: An update	Torrey Lyons	UU	Hal Johnson	UTA	\$0	\$30,000	UTA funds
19.07.03	Quantifying potential impacts of free UTA fares on regional air quality	Martin Buchert	UU	Matt Sibul	Kevin Nichol	\$30,000	\$30,000	ON HOLD; Will coordinate on relevant efforts with UDOT Planning, UTA, and UDOT Public Transit

Subtotal Funded: \$30,000 \$70,000

Total Funding by UDOT Research & Innovation = \$941,000 \$2,736,000 = Total funding incl. other divisions, UTCs