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UPCOMING EVENTS

LTAP - Roads Scholar #6: Heavy Equipment Operator Safety and Maintenance

December 3
TTEC - 175

2020 Louisiana Transportation Conference

March 1-4
Raising Cane's River Center

*To view more events, please visit
<http://www.ltrc.lsu.edu>.*

RESEARCH

Local Pedestrian and Bicyclist Count Program Paves Way for Safer, Smarter Infrastructure

Increasingly, cities, towns, and parishes around the state are investing in improved infrastructure for people walking and bicycling, such as sidewalks, bike lanes, and trails. However, understanding how many people are traveling on foot or by bicycle on Louisiana's roadways is critical to recognizing transportation patterns, identifying appropriate interventions, and evaluating safety outcomes. By partnering with LTRC, UNO Transportation Institute researcher Tara Tolford, AICP, spearheaded the safety study "Pedestrians and Bicyclists Count: Developing a Statewide Multimodal Count Program" that has now positioned Louisiana as one of the few states implementing a systematic count program for bicyclists and pedestrians.

Tolford explained, "The goal of this study was to set up a scalable, replicable framework for both state and local agencies to begin collecting needed information about walking and bicycling on public rights-of-way, so that we can plan for new infrastructure investments that meet the needs of all road users and effectively measure whether those investments improve safety."

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As a result of two years' worth of research and data, Tolford has developed preliminary guidelines for a specialized count program for Louisiana, and it is now available for any state and local agency to put into action. "While motor vehicle counts are conducted regularly throughout the state, most communities have little or no data available about how, when, and where people are walking or bicycling on their roadways," explained Tolford. "This project created a sort of roadmap for how to approach the challenge of integrating pedestrian and bicycle data into existing count programs based on national best practice and local experience. It was designed to lay out a method for data collection that everyone from DOTD to a small rural town can adopt so that data can be coordinated and shared seamlessly to maximize its usefulness for research and planning."

A full review of the various kinds of software, vendors, and equipment currently in use for pedestrian and bicycle data collection was completed. "We ended up using sensor equipment from EcoCounter, a Montreal-based company focused solely on active transportation count data with a great track record for data quality, for our pilot

count locations," said Tolford. "This included infrared sensors, which can be installed on shared-use paths or sidewalks to count the total number of users in either direction. It also includes pneumatic tube counters for use on bike lanes and shared roadways, which are able to detect bicyclists based on the weight and axle distance of the vehicle as it passes over the tubes. In addition, the team that worked on video-based counts used portable video cameras and sought to develop algorithms to extract the necessary data."



Pedestrians at Site 5 LSU Student Union



In-house Support Study

(Final Report 598/17-2SA: *ITS Support for Pedestrians and Bicyclists Count: Developing a Statewide Multi-modal Count Program*)

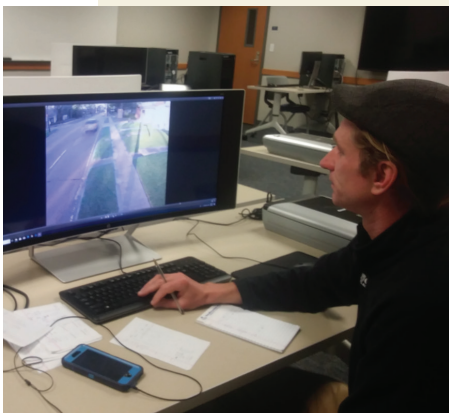
In conjunction with this project, an LTRC in-house supplementary research project was conducted that examined how to collect bicycle and pedestrian counts using automated video image processing technology, which is emerging as a huge potential opportunity in understanding active transportation patterns at a much broader range of locations.

Complete Streets

Tolford's research also directly supports the Complete Streets efforts currently underway by DOTD, as well as numerous local governments across the country. The current policy (The Complete Streets Act) was signed into law during the 2014 Louisiana State Legislative Session (R.S. 48:22.1) and aims to develop streets that are safe and functional for people of all ages and abilities, regardless of how they choose to travel. The Complete Streets approach represents a substantive shift in how infrastructure is planned, constructed, and evaluated to accommodate multiple modes of transportation. To date, over 1,325 agencies at the local, regional, and state levels have implemented Complete Streets policies, totaling more than 1,400 policies nationwide.

"Local data suggests that in many communities, walking and bicycling are on the rise, as are crashes involving vulnerable road users. This study supports better understanding both of those issues so that we can more effectively implement our statewide Complete Streets policy," said Tolford.

Tolford went on to explain, "It addresses a unique niche that has long been mostly ignored by highway and



University of New Orleans Student manually reviews pedestrians and bicycle count video footage

traffic engineers. It's also a really collaborative effort – at the same time we are doing this research, we are already applying it with a variety of partners who are using it in real time to plan bike networks, advocate for facility upgrades, and leverage external funding sources to support robust project evaluation and community-wide benchmarking.”

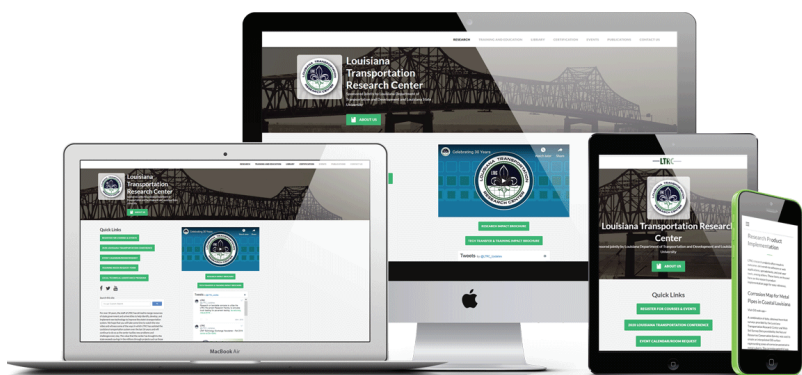
Phase II Underway

Tolford has recently begun her second phase of research, which begins to implement the framework from her first study by providing foundational, long-term count data in three pilot communities. “Long term, we hope that this study will make it possible for communities throughout the state to begin collecting and using data that will help them to understand multimodal demand in their communities, calculate more accurate community-wide and facility-specific crash rates, and ultimately, support the development of complete streets that help people of all ages and abilities get around their communities safely,” she explained. The second phase of the project lays a foundation in which researchers hope DOTD will be able to adopt and build upon both for internal use and to provide guidance to local communities interested in collecting respective data.

“We are currently a few months into the Phase II extension of this project, which will continue over the next 18 months with the collection of long-term continuous count data at a variety of locations and development of more detailed guidance for how to collect, understand, and apply pedestrian and bicycle count data at a variety of scales specific to our Louisiana context,” explained Tolford. “We look forward to sharing the results of this new research with planners, engineers, and the public soon!”

Learn More

For more information on this project, please visit Final Report 599 available online at http://www.ltrc.lsu.edu/pubs_final_reports.html or contact Tara Tolford at 504-280-6516 or tmtolfor@uno.edu.



An example of views with each device

TRAINING

LTRC Launches Web Design Update

LTRC is pleased to announce a refreshed website design that debuted earlier this year. Thanks to Multi-Media Specialist Emily Wolfe, website visitors can still find all the familiar content but in a more streamlined design that is also responsive to mobile viewing, whether on a tablet or smart phone.

“When rolling the mouse over the navigation options at the top of the page, visitors will see dropdown menus for content areas. These same menu options are available in the tablet and mobile device views as a flyout menu in the upper left corner (icon with three bars),” explained Wolfe.

The home page also now features quick links to the most commonly used parts of the website: LTRC’s registration/event management system, the 2020 Louisiana Transportation Conference, the TTEC event calendar/book a room system, the training needs request form, and the Louisiana Local Technical Assistance Program (LTAP). The LTAP website will be updated as well later this fall.

Prominent links to all of LTRC’s social media channels—Facebook, Twitter, and YouTube—are also included on every page in the site.



RESEARCH

Louisiana Researchers Win Best Paper Award for Sustainability Work

A group of Louisiana researchers was recently honored at the 2019 meeting of Association of Asphalt Paving Technologists (AAPT). Authors Sreelatha Balamurugan, Ph.D.; Louay Mohammad, Ph.D., P.E. (WY), F. ASCE; William Daly, Ph.D.; Ioan Negulescu, Ph.D.; Samuel Cooper, III, Ph.D., P.E.; Samuel Cooper, Jr., Ph.D., P.E.; and Gaylon Baumgardner were awarded the Walter J. Emmons Award for best paper.

Their study entitled “Impact of Various Crumb Rubber Modifications on Asphalt Binder and Mixture Properties” explored the performance benefits of using sustainable materials in flexible pavement construction, specifically the use of waste tires (also known as crumb rubber) as an asphalt binder modifier used in asphalt mixtures.

“The project was in response to DOTD’s search for sustainable options to reduce the rising costs

of asphalt pavement materials without compromising performance—one such alternative is the use of crumb rubber (or waste tires) in asphalt binders of asphalt mixtures,” EMCRF Manager and Civil Engineering Professor Dr. Louay Mohammad explained.

Funded by LTRC, this project combined the unique capabilities and collaboration among LSU chemistry and civil engineering as well as LTRC researchers. “Utilizing each department’s specialties and technology, researchers studied the impact of various crumb rubber modifications on rutting and cracking of asphalt mixtures, as compared to control mixtures. The most common crumb rubber modifier packages were evaluated because those are what local contractors are using in this state,” said Dr. Mohammad.

“The unique approach for this study was to explain the interaction of crumb rubber modifiers on asphalt mixtures by characterizing the chemical

relationship between rubber modifiers and asphalt binder,” LTRC Materials Research Administrator Dr.

Did you know? This honor marks the first time LSU or LTRC has received the Emmons Award. The AAPT Best Paper Walter J. Emmons Award has been in effect since 1950, following the AAPT resolution that “There shall be established the Association of Asphalt Paving Technologists Award for the best paper presented at each Annual Meeting.” The award is named for Walter J. Emmons, the AAPT president in 1932, and conferred by the Emmons Award Committee yearly.

SPECIAL EVENTS

Director of the Louisiana Local Technical Assistance Program Marie Walsh Retires

With 16 years of service, Marie Walsh, Ph.D., has retired as the director of LTRC's Local Technical Assistance Program. A ceremony was held in her honor in the TTEC auditorium with many friends and colleagues, past and present, in attendance. Through her leadership in training, technical assistance, and outreach for local agencies, Dr. Walsh raised Louisiana LTAP to new heights of staff capability and public agency visibility.

Among many accomplishments and contributions to the Department and state, Dr. Walsh has continually listened and responded to the needs of local road owners—her revamp of LTAP's Roads Scholar training programs being one example. Admitting little knowledge of transportation when she first began with LTRC, Dr. Walsh began attending technical meetings of the APWA, ITE, and Louisiana Parish Engineers and Supervisors Association; learning from sources such as TRB and AASHTO; and volunteering and speaking on local road issues to a number of audiences while, as she says, "shamelessly promoting local road safety."

Ever promoting the spirit of collaboration, Dr. Walsh coordinated activities with the FHWA Division Office, Governor's Highway Safety Office, Highway Safety Research Group, and participants in research efforts at LTRC to promote local road safety and safety data accessibility. She initiated the Local Road Safety Program and has worked on the implementation team of the Louisiana Strategic Highway Safety Program (SHSP) since its inception, promoting local agency representation to the consciousness of all participants. Dr. Walsh also initiated efforts to get quality local road crash data into the hands of public works and other safety practitioners in the local agencies, encouraging the development of simple crash analysis tools. She delivered presentations to numerous safety interest groups across the state who later became the nuclei of LTAP's nine SHSP Regional Safety Coalitions. Addressing a need for locals to learn more about the federally funded project development process, Dr. Walsh worked with DOTD and FHWA to develop and implement the Local Public Agency Qualification Program, and she has worked tirelessly on behalf of the local agencies to coordinate activities of the DOTD Bridge Design and Maintenance Sections in communicating information and training to local road bridge owners regarding compliance with federal inspection and maintenance standards.

Dr. Walsh certainly made a mark on the Department and her local agency partners during her tenure as LTAP director. LTRC is thankful to the many contributions Dr. Walsh made throughout her 16 years, and we wish her the very best in her many travel plans and culinary adventures!



RESEARCH

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Samuel B. Cooper, III, explained. “The research found that compatibility between crumb rubber modifiers and asphalt binder is a major factor when evaluating the effectiveness of crumb rubber modification.”

“Combining tools such as advanced chemical characterization with asphalt mixture performance (rutting and cracking) is a concept we have used multiple times to evaluate performances of asphalt mixtures containing reclaimed asphalt pavement and recycled asphalt shingles, but not with crumb rubber modifiers,” said Dr. Cooper.

The findings of this research have resulted in updates to the Department’s 2016 specifications. The new rubber specification for DOTD places a limit on the maximum allowable rubber modification rate at 10%. The new specification also allows the use of cryogenically ground crumb rubber, which the previous specification did not allow.

With advanced evaluation techniques that DOTD has in-place, the Department is now able to screen out potentially poor performing asphalt binder/crumb rubber blends and ensure that they are utilized with a compatible base asphalt binder.

“Through incorporating crumb rubber from waste tires into Louisiana asphalt mixtures, researchers are not only improving the durability and sustainability of local infrastructure, but are also furthering sustainability efforts that have been in motion for years across the nation,” Dr. Mohammad explained.

Learn More

For more information on this project, please contact Dr. Louay Mohammad at Louaym@lsu.edu or Dr. Samuel Cooper, III, at Samuel.CooperIII@la.gov.

STAFF NEWS

Staff Updates and Accomplishments

Vijaya (VJ) Gopu, Ph.D., P.E., Associate Director of External Programs, was selected as chair of the Industrial Advisory Board for the NSF Center for Integration of Composites in Infrastructure at the bi-annual meeting held in Washington, D.C.

LTARC would like to welcome **Olivia Phelps** to the LTAP team as the latest Training Program Coordinator.

LTAP Innovation and Technology Transfer Manager **Rudynah E. Capone** earned a Master of Public Administration degree with 4.0 GPA and perfect attendance. Capone was one of the 29 LSU employees who were recognized at the university’s 298th commencement exercises.

Civil Engineering Professor and EMCRF Manager **Louay N. Mohammad**, Ph.D., P.E. (WY), F. ASCE, was recently recognized by LSU’s Office of Innovation and Technology Commercialization for his publication of Advancement in the Design and Performance of Sustainable Asphalt Pavements.



Special Studies Research Administrator **Kirk Zeringue**, P.E., was appointed for a three-year term to the National Academies of Science, Engineering, and Medicine Transportation Research Board (TRB) ADA50 Standing Committee on Transportation Programming and Investment Decision-Making. Zeringue was also selected by TRB to serve on the project panel for NCHRP Project 23-07: “Guidebook for Identifying and Implementing Forecasting Techniques for Effective Target Setting.”

LTRC welcomes **Raju Thapa**, Ph.D., as a Research Associate V to ITS and Traffic Research, under Special Studies. Dr. Thapa returns to Louisiana after completing his masters at LSU and then studying at Iowa State University to obtain his doctorate degree.



[VIEW ONLINE](#)

To download a complete list of LTRC publications, visit www.ltrc.lsu.edu.

PUBLICATIONS

Recently Published

Project Capsule 19-2PF

Synthesis on the Contributing Factors and Effective Countermeasures for Low Volume Roadway Fatality Rates in the Southeast

Nikiforos Stamatiadis, Ph.D., P.E.

Final Report and Technical Summary 598 (17-2SA)

ITS Support for Pedestrians and Bicyclists Count: Developing a Statewide Multimodal Count Program

Julius Codjoe, Ph.D., P.E.; Yoshita Holamoge; Rui Tian, Ph.D.; Colin Ash; and William Saunders, E.I.

Final Report and Technical Summary 607 (13 -1ITTS)

Institute for Trade and Transportation Studies PHASE II Project Review

Bruce Lambert

Final Report and Technical Summary 594 (12-1B)

Sustainable Materials for Pavement

Infrastructure: Design and Performance of Asphalt Mixtures

Containing Recycled Asphalt Shingles
Louay Mohamad, Ph.D., P.E. (WY); Sam Cooper, Jr., Ph.D., P.E.; Minkyum Kim, Ph.D.

Final Report and Technical Summary 612 (14-2P)

A Mechanistic Approach to Utilize Traffic Speed Deflectometer (TSD) Measurements into Backcalculation Analysis

Mostafa A. Elseifi, Ph.D., P.E. (VA); Zia Uddin Ahmed Zihan, M.S.; and Patrick Icenogle

Final Report and Technical Summary 608 (12-1P)

Impact of Inundation on Roadway Pavements: Case Study - LA 493

Kevin Gaspard, P.E.; Zhongjie Zhang, Ph.D., P.E.; Gavin Gautreau, P.E.; Murad Abufarsakh, Ph.D., PE.; and Mark Martinez, P.E.

Final Report and Technical Summary 604 (14-1B)

Effects of Temperature Segregation on the Volumetric and Mechanistic Properties of Asphalt Mixtures

Louay Mohammad, Ph.D., P.E. (WY), Minkyum Kim, Ph.D.; and Pranjali Phaltane

Technical Assistance Report 18-01 TA-SA

SHSP-HSP Crosswalk: A Tabular Comparative Presentation of Louisiana's Strategic Highway Safety Plan (SHSP) and Highway Safety Plan (HSP)

Rudynah Capone, MPA

Technical Assistance Report 18-04TA-P

Submerged Road Characteristics and Distresses on LA 493, Natchitoches Parish, State Project Number H.011071

Kevin Gaspard, P.E., and Zhongjie Zhang, Ph.D., P.E.



In Memoriam

Binod Nepal passed away on Friday, September 27, 2019, at age 26. He was an LSU civil engineering graduate student with LTRC. Nepal was quickly an important part of LSU's Nepali community, serving as Public Relations Chair of Nepalese Student Association at LSU. After this tragic loss, his fellow companions of Nepalese Student Association at LSU launched a GoFundMe campaign on behalf of his family to support them. Please visit www.gofundme.com, and search for Binod Nepal to contribute.



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