GEORGIA DOT RESEARCH IN PROGRESS
Office of Performance-based Management and Research

5/2/2025

	Research Project Number	Project Title	Principal Investigator	University / Consultant	GDOT Research Manager	GDOT Technical / Implementation (T/I) Manager	Research Technical Advisory Group (RTAG)	Starting Date	Completion Date	Objective
1	**RP 24-15**	Feasibility Assessment of Alternative Power Options for Roundabout Lighting in Georgia	Jidong Yang	UGARF	Kamari Jordan	Robert Graham	Safety	08/01/24	08/01/25	This project is to conduct a feasibility assessment of sustainable power options for roundabout lighting, such as solar and wind energy.
2	**RP 24-14**	Tailoring Alternative Project Delivery Methods to Deploy an Effective Hydrogen Fueling Infrastructure for Commercial Vehicles in Georgia	Baabak Ashuri	GIT	Sabbir Ahmed	Darryl Vanmeter	Policy/Workforce	01/08/25	04/02/27	The major objective of this research is to assist GDOT in understanding the market characteristics and laying the foundation for developing delivery approaches for the rapid integration of hydrogen fueling stations for commercial vehicles throughout GDOT's transportation network.
3	**RP 24-13**	Cradle to Cradle Approach to Shoreline Stabilization and Erosion Control combining Native Dredge Materials with Advanced Manufacturing	Kimberly Kurtis	GIT	Brennan Roney	Clement Solomon	Mobility	01/10/25	01/02/28	The objectives of this research effort include: (1) review of the literature surrounding the production of mortar and concrete elements for shoreline stabilization and erosion control, as well as use of local materials (2) development of mortar and/or concrete mixes and element shapes which rely on beneficial use of dredged material and other locally available materials, (3) review of manufacturing processes appropriate for the limited space available at DMCA 12A, (4) refinement of design based upon materials circularity principles, and (5) making recommendations for cost-effective strategies.
4	**RP 24-12**	Economic Analysis of RCUT Access Impacts in Georgia	James Tsai	GIT	Sabbir Ahmed	Colin Abbey	Asset Management	01/08/25	10/02/26	The objective of this research is to identify changes to patterns in access after installation of an RCUT intersection and any associated changes to economic performance of the impacted businesses nearby.
5	**RP 24-11**	Enhancing the Safety of Georgia's Senior Drivers and Pedestrians by Analyzing Crash Characteristics and Behavior	James Tsai	GIT	Brennan Roney	Conner D. Booth	Safety	01/22/25	07/02/26	The objectives of this research are to enhance senior driving and pedestrian safety by identifying the types of collisions and contributing factors involving senior drivers and pedestrians. The research will lead to recommendations for the most effective countermeasures for improving senior driver performance and assisting senior pedestrians.
6	**RP 24-10**	Guidance for Identifying Nonredundant Steel Tension Members (NSTMs)	Sherman Ryan	GIT	Sabbir Ahmed	Eric M. Huibregtse	Policy/Workforce	01/02/25	07/02/27	This research directly addresses the challenges GDOT has faced regarding design engineers inaccurately over-specifying NSTMs on new steel bridge designs. The subsequent additional inspection requirements have resulted in increased costs, fabrication disputes, and project delays. As such, guidance is critical for practicing engineers to identify such members accurately. Further, the proposed analysis of an IRM or SRM offers GDOT significant financial, resource, and safety benefits.
7	**RP 24-09**	Decision Tools for Relating Cover Deficiencies to Service Life	Lauren Stewart	GIT	Brennan Roney	Randy E Rhodes	Mobility	01/18/25	04/02/28	The objectives of this research are to use the non-collinear wave mixing technique to relate existing deck cover deficiencies to current levels of damage, use physics-based machine learning techniques to combine the findings from the field research in the non-collinear wave mixing technique with the database of historical data and service life to relate cover deficiency to service life reduction, and develop a decision matrix.
8	**RP 24-08**	Lifecycle Economic and Energy Efficiency Benefits of Managed Lane Corridors in Metro Atlanta	Guensler Randall	GIT	Sabbir Ahmed	Darryl Vanmeter	Policy/Workforce	01/02/25	04/02/26	This project will compare the lifecycle economic cost and energy use of the Northwest Corridor Express Lane facility to the alternative of expanding general-purpose lane capacity along the I-75/I-575 corridors. Lifecycle energy will include energy embedded in materials, construction, on-road vehicle operations, and ongoing maintenance.
9	**RP 24-07**	A Comprehensive Guideline for GDOT Bridges Fire Hazard Assessment	Mohammad Jonaldi	KSURSF	Kamari Jordan	Brandon Clayton	Asset Management	12/10/24	02/10/26	The primary goal of this research is to develop a comprehensive guideline for the Georgia Department of Transportation (GDOT) to assess fire hazards in bridge structures.

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10	**RP 24-06**	Transition to Cellular V2X for Georgia's Connected Vehicles	Seungmo Kim	GA Southern	Sabbir Ahmed	Justin Hatch	Safety	02/13/25	02/13/27	This research aims to provide technical guidance for the Georgia DOT (GDOT) on DSRC-C-V2X transition, ensuring the seamless operation of Georgia's connected vehicles and ITS infrastructure. By addressing this interference issue, the aim is to pave the way for broader acceptance and implementation of intelligent transportation systems.
11	**RP 24-05**	Evaluating Portland Limestone Cement Alternative for Type III Cement to Better Prepare GDOT for Production Changes in the U.S. Cement Mills	Mi Geum Chorzepa	UGARF	Brennan Roney	Jason Waters	Mobility	09/05/24	03/05/27	The primary objective of the proposed project is to initiate, develop, and provide GDOT with recommendations to address potential changes in material specifications, performance standards, mixture design, and quality, in anticipation of shifts in cement production.
12	**RP 24-04**	Developing Guidelines for Daytime Lighting in Short Tunnels	Jidong Yang	UGARF	Kamari Jordan	Dan Pass	Safety	10/31/24	10/31/26	This project is to formulate pragmatic directives for daytime lighting implementation within short tunnels.
13	**RP 24-02**	Data-Supported Quantification of Bridge Deck Degradation Using GDOT's Road Maintenance Data and Other Data Available	Bjorn Birgisson	UGARF	Sabbir Ahmed	Rabindra Koirala/Donn Digamon	Asset Management	08/05/24	11/05/26	The primary aim of this project is to leverage GDOT's extensive data resources to accurately quantify damage or degradation in bridge deck slabs, with the overarching goal of improving safety and mobility. This objective encompasses three main goals: (1) Implementing a geospatial data visualization approach to monitor road surface maintenance activities specifically on bridge decks, (2) Developing methods to quantify bridge deck degradation effectively, and (3) Investigating the impact of changes in traffic patterns on bridge maintenance and condition data.
14	**RP 23-24**	Digital Delivery: Roadmap for Implementing Building Information Model (BIM) for Infrastructure at GDOT	Baabak Ashuri	GA Tech	Brennan Roney	Sam Woods	Policy/Workforce	01/22/24	10/22/25	The primary objective of this research is a "roadmap" to help strategically guide GDOT to "BIM maturity" (agency-wide digital delivery implementation). This roadmap would address the technology, process, and people to implement such a change including ultimate goals, intermediate objectives, and corresponding timelines. The benefit of this research is to formalize GDOT's support of this initiative and provide a vision to guide the supporting, ongoing efforts.
15	**RP 23-22**	Safety Effectiveness of Inside Shoulder Widths on Freeways in Georgia	Jidong Yang	UGARF	Sabbir Ahmed	Hoke Ward	Safety	10/12/23	10/12/25	This proposed project's primary goal is to comprehensively evaluate the relationship between inside shoulder widths and safety performance on Georgia freeways.
16	**RP 23-21**	Measurement of cement content and layer thickness variation of cement stabilized base and subgrade using ground penetrating radar	Sonny Kim	UGARF	Sabbir Ahmed	Ian Rish	Mobility	10/12/23	02/12/26	This proposed project's primary goal is to comprehensively evaluate the relationship between inside shoulder widths and safety performance on Georgia freeways.
17	**RP 23-20**	Develop an Off-System Bridge Managers Training Program to Increase Collaboration and Access to GDOT's Resources Including LIBP and Promote Best Practices	Sonny Kim	UGARF	Brennan Roney	Kevin Schwartz	Asset Management	09/30/23	09/30/26	The primary objective of Part A of this project is to investigate the impact of heavy vehicle traffic on pavement and bridge structures in Georgia. The main objective of Part B of this project is to evaluate pavement and bridge structures using WIM data, conduct field investigations, and evaluate the reliability of existing pavement and bridge structures.
18	**RP 23-19**	Develop an Off-System Bridge Managers Training Program to Increase Collaboration and Access to GDOT's Resources Including LIBP and Promote Best Practices	Stephan Durham	UGARF	Brennan Roney	Neoma Walker	Policy/Workforce	10/12/23	10/12/26	The main objective of the proposed project is to initiate, develop, and deliver a local-system's training program by bringing together 159 counties' bridge managers and other local government personnel, GDOT district offices, and GDOT's Office of Bridge Design and Maintenance (OBDM) .
19	**RP 23-17**	Sustainable Application of Mineral Filler Sized Stone Products in Georgia	Maziar Moaveni	SSU	Brennan Roney	Peter Wu	Mobility	05/15/24	11/15/26	This project is to provide pavement professionals with increased knowledge of the use of mineral filler sized stone products in bituminous paving mixtures, soil stabilization/amendment, and heavy-civil fill applications.
20	**RP 23-15**	Effectiveness of Automated Speed Enforcement in School Zones and Guidance for Continuous Usage in Georgia	Sunanda Dissanayake	KSURSF	Sabbir Ahmed	Ron Knezevich	Safety	01/17/24	01/17/26	The main objective of this study is to evaluate the effectiveness of using automated speed enforcement practices in school zones of GA in improving safety and reducing the speeds of cross traffic through school zones. Additionally, the study will explore the public opinions of the practice via a survey.

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21	**RP 23-14**	Fast and Efficient Welding Inspection of Structural Steel Using Adaptive Phased Array Ultrasonic NDT	Hossein Taheri	GA Southern	Sabbir Ahmed	Peter Wu	Mobility	02/12/24	02/12/27	The purpose of this study is to conduct a comprehensive assessment towards a technical guideline and recommendations for fast and efficient ultrasonic NDT methodology and procedure for full inspection of welding and weldment in steel structures based on PAUT technique.
22	**RP 23-13**	Develop Localized LRFD Procedure for Driven Piles with Dynamic Analysis for Georgia Bridge Foundations	Xiaoming Yang	GA Southern	Kamari Jordan	Ryo Farrow	Mobility	02/07/24	07/07/27	The objective of the project is to develop a local Load and Resistance Factor Design (LRFD) procedure, including a table of locally calibrated resistance factors, for the driven piles designed and verified with dynamic analysis methods.
23	**RP 23-12**	Evaluation and Monitoring of an Appropriate and Context-Sensitive Warning System for Bridge Overhead Clearance Detection	Marcel Maghiar	GA Southern	Kamari Jordan	Rabindra Koirala	Asset Management	03/24/25	03/24/28	The goal and the objectives of this study will focus on existing and already recommended off- the-shelf systems serving as early warning and detection systems of vehicle heights in selected, low-clearance bridges or structures in the state of Georgia.
24	**RP 23-11**	Roadway Runoff Impacts to Trout Streams Studies for MS4 Permit	George Fu	GA Southern	Sabbir Ahmed	Drew Martin	Mobility	02/09/24	02/09/26	The objectives are to prepare and implement a study plan that evaluates the impacts of roadway runoff through GDOT outfalls to trout streams with the focus on impacts to temperature and DO levels, and to determine if GDOT roadway runoff discharges are impacting trout streams and if so, to determine BMPs that can be used to mitigate these impacts.
25	**RP 23-10**	Repair Guidelines for Impact-damaged Bridges	Lauren Stewart	GA Tech	Brennan Roney	Donn Digamon	Asset Management	02/13/24	05/13/27	This project is to address a critical issue for GDOT by providing repair guidance for impact-damaged bridges and will establish repair requirements /guidelines that will maximize the service-life of infrastructure and reduce the personnel time involved in reviews and approvals.
26	**RP 23-09**	Updating the GDOT's Risk-based Programmed Contingencies Through Development of a Data-Driven Decision Tree Model	Baabak Ashuri	GA Tech	Brennan Roney	Brain Stanfield	Mobility	01/31/24	05/01/26	This project is to develop and deliver the decision tree model and contingency tool to GDOT for updating the GDOT's programmed contingency table.
27	**RP 23-08**	Geotechnical asset management program in the State of Georgia – Phase I	Jorge Macedo	GA Tech	Sabbir Ahmed	Eugene Utsalo	Asset Management	01/22/24	04/22/27	The work performed in the proposed project will implement phase I of a GAM program for the state of Georgia, building up on the previously discussed framework proposed by Georgia Tech with inputs from the GDOT-OMAT office.
28	**RP 23-07**	Investigate the impact of rumble strips on motorcyclists	James (Yichang) Tsai	GA Tech	Brennan Roney	Sam Harris	Safety	01/12/24	01/12/26	The goals of this research project are to investigate the effects of rumble strips on motorcycle crashes and to engage with motorcycle communities to promote communication about rumble strips and their impact on safety.
29	**RP 23-06**	A Decision-Making Guide to Consider the Implementation of Progressive Public-Private Partnership (Progressive P3) for Delivering GDOT's Major Projects	Baabak Ashuri	GA Tech	Kamari Jordan	Darryl Van Meter	Policy/Workforce	01/22/24	04/22/26	The primary objective of this research is to develop a decision-making guide to assist GDOT in considering, evaluating, and implementing progressive P3 as an alternative delivery tool for its major projects.
30	**RP 23-05**	A Decision-Making Guide to Explore the Benefits of Design-Build-Maintain (DBM) and Design-Build-Operate-Maintain (DBOM) Alternative Delivery Systems to Assist GDOT in Anticipation of Emerging Technologies Deployed in GDOT's Network	Gordon Kingsley	GA Tech	Kamari Jordan	Darryl Van Meter	Policy/Workforce	01/19/24	04/19/26	The objective of this research is to create a guidebook for evaluating when to use DBM and DBOM project delivery approaches and to develop evaluation strategies and performance metrics for observing the value-added contributions of new and emerging technology to project delivery.
31	**RP 23-04**	Development of an ML-based Georgia Pavement Structural Condition Evaluation System	James (Yichang) Tsai	GA Tech	Kamari Jordan	Binh Bui , Ian Rish	Asset Management	01/22/24	01/22/26	The objective of this research is to develop a machine learning-based Georgia Pavement Structural Condition Evaluation System (ML-GPSCES) that reliably and accurately evaluates and categorizes pavement structural health conditions by processing and analyzing data collected by GDOT using advanced sensing technologies, including TSD, GPR, and 3D laser technology.
32	**RP 23-03**	Developing sight distance guidelines for U-turn maneuvers	James (Yichang) Tsai	GA Tech	Sabbir Ahmed	Sam Harris	Safety	01/22/24	01/22/26	The goals of this research project are to develop a structured set of guidelines and specifications for appropriate sight distances for U-turn maneuvers, tailored for Georgia roadways that can be included in the GDOT policy for traffic operations, design, and safety.

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33	**RP 22-25**	A Playbook for CM at Risk Adoption in Transportation Projects	Pardis Pishdad-Bozorgi	GA Tech	Kamari Jordan	Darryl VanMeter	Policy / Workforce	10/17/22	05/17/25	"This research aims to identify the procurement, contracting, and execution best practices for CM/GC implementation for DOT projects, and develop a set of educational resources for training the team on the nuances of CM/GC relative to cultural, organizational, communicational, and contractual aspects."
34	**RP 22-22**	A Scheduling Assistant Toolkit for GDOT's Effective Planning of Transportation Projects.	Pardis Pishdad-Bozorgi	GA Tech	Kamari Jordan	John Hancock; Beau Quarles	Mobility	10/17/22	05/17/25	"This research aims to capture true productivity rates for certain project activities (e.g., asphalt, GAB, grading/earthwork) through benchmarking selected GDOT projects, and to identify a set of best practices for GDOT to continuously collect and capture true productivity rates in future projects, and to develop a scheduling assistant toolkit for determining a recommended degree of overlapping among project activities."
35	**RP 22-21**	Phase III: Investigation and Guidelines for Best Practices of Thermal Control for Mass Concrete Construction Projects	Yong Cho	GA Tech	Kamari Jordan	Beau Quarles, Steve Gaston, Michael Garner	Mobility	09/16/22	09/16/25	The proposed research will expand the applicability of decision-making tools to various concrete mixes, including accommodating temperature differential and cost implications.
36	**RP 22-20**	Quality Manual for Steel Bridge Fabrication	Ryan J Sherman	GA Tech	Kamari Jordan	Peter Wu	Mobility	11/02/22	03/02/26	The objective of this project is to develop a detailed GDOT Quality Manual for Steel Bridge Fabrication.
37	**RP 22-19**	Remote Bridge Health Monitoring for Scouring Using Cost-Efficient Sensing Technology	Tien Yee	KSURSF	Kamari Jordan	Rabindra Koirala, Toan Nguyen	Asset Management	11/28/22	11/28/25	The primary objective is to develop a system that links field sensors to form a sensing network for bridge health monitoring, particularly for scour monitoring.
38	**RP 22-18**	Structural Monitoring of Steel-Member Bridges with Fatigue Life Prognosis due to Dynamic Vehicular Loads	Yang Wang	GA Tech	Kamari Jordan	Rabindra Koirala, Kevin Schwartz	Asset Management	11/02/22	11/02/25	This project will develop an integrated hardware and analytical framework that enables real time bridge structural monitoring and fatigue life prognosis.
39	**RP 22-17**	Nondestructive/Noncontact Inspection Protocols and Technologies for Aging Mechanically Stabilized Earth and Modular Block Retaining Walls	Marcel Maghiar	GA Southern	Brennan Roney	Doug Franks,	Asset Management	04/14/23	10/14/25	The objectives of this proposed research are to investigate the currently available inspection procedures and technologies for MSEWs and MBWs; and select and verify nondestructive / noncontact inspection techniques for the evaluation of MSEWs and MBWs
40	**RP 21-04**	Pragmatic Precast/Prestressed Girder Acceptance Criteria	Lauren Stewart	GA Tech	Brennan Roney	Jason Waters/Peter Wu	Mobility	03/30/22	07/30/25	The objectives are to collect and quantify the types and occurrences of girder nonconformance in GDOT; To thoroughly review and synthesize quality requirements; To utilize computational models to determine tiered acceptance thresholds.; To assess which nonconformance issues are associated with service life reduction, making contracting recommendations for appropriate contracting structures.