



# Research & Development

ALABAMA DEPARTMENT OF TRANSPORTATION



## Completed Projects

Project	Research Project Title
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| 931-029 | Task 1. Evaluating Detours for Major Construction Projects in the Era of Real-Time Route Guidance (cost: \$55,000) & Task 2  |
| 931-011 | I-10 Mobile River Bridge a Macroscopic Study of No-Build Implications  |
| 930-998 | University Transportation Centers (UTC's) Task A: Comparing and Combining Existing and Emerging Data Collection and Modeling Strategies in Support of Signal Control Optimization and Management |
| 930-997 | Alabama Connected Vehicle Application  |
| 930-990 | Strength Assessment of Soil Cement Base: Plastic-Mold Compaction Device and Dynamic Cone Penetrometer Testing  |
| 930-988 | Characterizing Strength Loss in Prairie Clays Along Alabama Highways   |
| 930-987 | Load Rating for Corrugated Metal Culverts  |
| 930-982 | GeoGIS 2018 Transition and Support   |
| 930-980 | Flashing Yellow Arrow Left Turn Phasing by Time-of-Day Development of Design and Operational Guideline   |
| 930-978 | Serviceability of Piles Under Compression and Down-drag Forces   |
| 930-973 | Transportation Research, Workforce Development, and Technology Transfer Initiatives for Reducing Congestion in Alabama   |
| 930-967 | Using ALGO Traffic Data to Improve Traffic Incident Management   |
| 930-965 | Field Implementation and Evaluation of Low-Cost Countermeasures for Wrong-Way Driving Crashes in Alabama   |
| 930-964 | Development of Guidance for Unsignalized Intersection Type Configuration on Rural Divided Highways   |
| 930-963 | In-Service Performance Evaluation (ISPE) of Guardrails and Cable Barriers in Alabama   |
| 930-962 | Evaluation of ALDOT Erosion Control Practices Using Rainfall Simulation  |
| 930-959 | Pavement Condition Data Quality Assurance  |
| 930-956 | Evaluation of Non-Destructive Test Methods to Assess the In-Place Condition of Concrete Structures   |
| 930-950 | Alabama Department of Transportation GIS-Based Plume Data Web Portal   |
| 930-948 | A Review of Acceptance Schedule of Payment for Asphalt Pavement for Asphalt Pavement in Alabama  |
| 930-947 | Application for WIM and Permit Data  |

- 930-945** Use of Geophysical Methods for Sinkhole Exploration
- 930-944** GRS-IBS Monitoring and Implementation
- 930-937R** Dilemma Zone Protection (DZP) Systems: Characterizing Driver Behavior and Optimizing DZP Boundaries
- 930-936** Comprehensive Investigation of Bike Crash Causes, Patterns and Countermeasures in Alabama
- 930-933** Local Technical Assistance Program (LTAP) Center, Alabama Technology Transfer Program FY 2016
- 930-932** Development of a Means to Calculate Project-Specific Liquidated Damages
- 930-931** Evaluation of Landslides Along Alabama Highways
- 930-929** Driven Precast Prestressed Concrete (PPC) Pile Design and Construction Optimization
- 930-928** Experimental Determination of Braking Force Distribution in Steel Pile Bent Bridges
- 930-925** Analysis and potential solutions to sediment
- 930-923** Application of the Naturalistic Driving Study (NDS) Dataset to Improve Design and Associated Practices
- 930-920** Friction and Texture Retention
- 930-919** GeoGIS Development and Support
- 930-917R** Verification of WBUZFILE Design Methodology and the Development of LRFD Driven Pile Resistance Factor Calibration for Alabama Soils
- 930-916** "Simplified and Standardized Seismic Designed and Detailing for Alabama Bridges"
- 930-915** Active Work Zone Safety Using Emerging Technologies
- 930-914** Distracted Driving Translational Research for Injury Prevention (TRIP) Laboratory
- 930-900** Measurement of Bridge Deck Layout Prior to Concrete Placement
- 930-896** Maintenance Activity Data Analysis for Performance Based Budgeting
- 930-895** Strength Assessment of Soil-Cement Base Phase 1
- 930-893** Alabama Statewide Mobility Report 2014
- 930-891** Plastic Pipe for Highway Construction - Phase 2
- 930-889** Permit Load Model of a Flat Slab Bridge
- 930-887** Local Technical Assistance Program (LTAP) Center, Alabama Technology Transfer Program FY2014
- 930-879** End Zone Design for Alabama Deep Pre-Stressed Girders
- 930-870** WIM-Based Live Load For Alabama Bridges
- 930-869** Evaluation of Sediment Barriers Using Large-Scale Testing Techniques & Small-Scale Performance Evaluations of Geotextiles Used in Silt Fence
- 930-865R** Self-Centering Connections for Traffic Sign Structures
- 930-863** Evaluation of High-Rate Settling Technology
- 930-862** Culvert Wing Tab Design Loads
- 930-861** Comparative Evaluation of Concrete Bridge Deck Sealers
- 930-860R** Temperature Control Requirements for the Mass Concrete

- 930-859** Experimental Validation of Analysis Methods
- 930-858** Load Rating of Bibb Graves Concrete Arch Bridge
- 930-856R** Reducing Crashes Caused by Drowsy Driving Focusing on Drowsy Driving Warning Signs & Roadside Rest Area Signs
- 930-853R** Evaluation of Inlet Protection Practices Using Large Scale Testing Techniques
- 930-845** Alabama Department of Transportation Economic Sustainability
- 930-839R** Investigation of Pile Setup (Freeze) in Alabama, Implementation into LRFD Driven Pile Design-Addendum: Pile Driving Vibration Monitoring of the Future Mobile River Bridge Project
- 930-837R** Monitoring the Effects of Birmingham Northern Beltline etc.
- 930-836** Natural Gas Encasement for Highway Crossings
- 930-833** Evaluation of Origin-Destination Matrix Estimation Techniques to Support Aspects of Traffic Modeling
- 930-832** Improving Camber Predictions for Pre-stressed Concrete Girders
- 930-828** Evaluation of In-Place Concrete Strength by Core Testing
- 930-827** A Study of the Effects of Pavement Widening and Rumble Strips on Two-Lane Rural Highways in Alabama
- 930-826R** Evaluation of ALDOT Ditch Check Practices Using Large-Scale Testing Techniques
- 930-819** Revenue Enhancement Alternatives for the ALDOT
- 930-808** Alabama Department of Transportation: Research and Development 2011 Peer Exchange
- 930-803** Update of Bridge Design Standards in Alabama for AASHTO LRFD Seismic Design Requirements
- 930-802** Effectiveness of Silane in Mitigating Alkali-Silica Reaction in the Bibb Graves Bridge
- 930-799** Implementation of Self-Consolidation Concrete for Pre-Stressed Applications-Phase II: Bridge Construction and In-Place Performance
- 930-798** GeoGIS Phase III
- 930-793** Development of Alabama Traffic Factors for Use in Mechanistic-Empirical Pavement Design
- 930-792** Introduction to Mechanistic-Empirical (M-E) Design Short Course
- 930-791** Assessing Performance Characteristics of Sediment Control Basins Constructed in Franklin County
- 930-789** Evaluation of Scour Potential of Cohesive Soils-Phase 2
- 930-776** Stability of Highway Bridges Subject to Scour Phase IV
- 930-769** Upgrade of Axially Loaded Pile-Soil Modeling with the Implementation of LRFD Design Procedure
- 930-768** Methods for Forecasting Freight in Uncertainty
- 930-766** Development of an Integrated Economic, Land Use and Transportation Forecasting Model for the State of Alabama
- 930-764R** Field Control and Performance of Asphalt Mixtures Containing Greater than 25 Percent Reclaimed Asphalt Pavement
- 930-762** Laboratory Testing of Transverse Joints for Precast-Panel Bridge Deck Replacement Systems
- 930-758** Pavement Condition Model Based on Automated Pavement Distress Surveys
- 930-749** Analysis of Traffic Impacts for Rapid Bridge Deck Replacement Projects

- 930-745S** FRP Strengthening of Continuous RC Bridge-Letohatchee, Alabama
- 930-742** Bridge Deficiency Metric Refinement: Longer Term Planning for State-and-Locally-Owned Bridges
- 930-741** Evaluation of Public Private Partnership Proposals
- 930-738** Implementation of Self-Consolidating Concrete for Prestressed Applications-Phase I: Girder Fabrication and Pre-Erection Performance
- 930-734** Bridge Monitoring – Applications for Alabama
- 930-725** Rapid Bridge Deck Replacement - Phase 3
- 930-722R** Feasibility Study Guideline for Public Private Partnership Projects: Volumes I and II
- 930-721** Work Zone Lane Closure Analysis Model
- 930-718** Plastic Pipe for Highway Construction
- 930-717** Alabama Warm Mix Asphalt Field Study
- 930-703** Development of Multi-media Resource & Short Courses for LRFD Design
- 930-698** Establishing Performance Measures for Alabama’s Transportation System
- 930-697** Development of a Method to Forecast Freight Demand Arising from the Final Demand Sector and Examination of Federal Data to Analyze Transportation Demand for Local Area Through Trips
- 930-687** Determination of Hurricane Surge Wave Forces on Bridge Superstructures and Design/Retrofit Options to Mitigate or Sustain These Forces
- 930-685** Guidance For M-E Pavement Design Implementation
- 930-683** Vegetation Management for Alabama’s Highway Rights of Way
- 930-682** FAF2 Pilot Project - Utilization of FAF2 Data by State and Local Governmental Agencies
- 930-674** Stability of Highway Bridges Subject to Scour, Phase III, Part II- Screening Tool Automation
- 930-674** Stability of Highway Bridges Subject to Scour - Phase III, Part I – “ST” Expansions, Refinements & Tier 2 Screening
- 930-671A** Phase 2: Location Tracking of Test Vehicles for Bridge Load Rating
- 930-670** Development of a Dynamic Traffic Assignment Model to Evaluate Lane-Reversals Plans for I-65
- 930-669** Feasibility of Developing a Pilot Car Training and Certification Program in the State of Alabama
- 930-661** Bridge Health Monitoring Metrics: Updating the Bridge Deficiency Algorithm
- 930-657** PVA Fiber Reinforced Shotcrete for Rehabilitation and Preventative Maintenance of Aging Culverts
- 930-656** Development of a Procedure for Updating Liquidated Damage Rates Used in
- 930-655** Development of a Test Facility to Evaluate the Optimal Design of BMPs for Managing Environmental Problems at Construction Sites
- 930-653** Evaluation of Double Drop Beads Pavement Edge Lines
- 930-649** Updating the School Bus Standard Vehicle for Load Rating Alabama Bridges
- 930-648** Internet Based Travel Surveys
- 930-647** GeoGIS, Phase II
- 930-645** Evaluation of Cracking on the U.S. 331 Bridge Deck

- 930-644** Evaluation of Scour Potential of Cohesive Soils
- 930-637P** 2006 NCAT Pavement Test Track
- 930-635** An Evaluation of the Benefits of the Alabama Service and Assistance Pool
- 930-634R** Enhancement of the Training Program of the Alabama Department of Transportation
- 930-631** Stone Skeleton Asphalt: (Phases II and III) Field Trial, U.S. 331, Leverage, AL
- 930-622** Development and Presentation of a Roadway and Roadside Design Course
- 930-615P** Laboratory Refinement and Field Validation of 4.75mm Superpave Designed Asphalt Mixtures
- 930-610** Monitoring of Bridge Stability due to Scour using Remote and Low-Cost Optical Sensors
- 930-607B** Development of Cost-Effective VARTM Technology
- 930-607A** Development of Cost-Effective VARTM Technology for Repair and Strengthening - Phase 2
- 930-602** Performance of Self-Consolidating Concrete in Prestressed Girders
- 930-601** Repaired Pre-stressed Concrete Bridge Girders Reports (2 Reports total)
- 930-599** Utilization of Automation and Real-Time Testing to Improve QC/QA Procedures for Hot Mix Asphalt
- 930-598** Pavement Management System Review
- 930-596** Transportation Network Planning: Data Gathering, Analysis Methodology Development and Visualization
- 930-595P** National Center for Asphalt Technology Pavement Test Track Study
- 930-582** Modeling Support for Alabama MPOs
- 930-563** Research on Curved Composite Box Girder Bridges
- 930-554** Analysis of the 2002 Design Guide for Rigid Pavement Structures
- 930-547** Evaluation of Bond Strength Between Pavement Layers
- 930-545** 511 Traveler Information: Potential Applications in Alabama
- 930-537** Development of a Non-Solvent Based Test Method for Evaluating Reclaimed Asphalt Pavement Mixtures
- 930-466** Repair of the Uphapee Creek Bridge with FRP Laminates
- 930-436** Rapid Rehabilitation / Replacement of Bridge Decks - Phase II
- 930-431** Retrofit of Sign Structures with Variable Message Sign (VMS) Panels
- 930-425** Design of Drilled Shafts in Rock for Lateral Loading
- 930-424** Drilled Shaft Foundation Research Lateral Load Tests
- 930-419** Evaluation of Flexible Pavement Using LTPP Data
- 930-373** High Performance Concrete Bridge Showcase
- 930-370P** Southeast Superpave Center
- 930-341** Rehabilitation of a Reinforced Concrete Bridge Using Fiber Reinforced Plastic (FRP) Laminates