List of Indiana Department of Transportation (INDOT)
FY 2026 Research Needs (as of February 4, 2026)

Instructions: This listing is for use by Faculty from accredited Indiana Universities. For additional information or to express an interest in a Research Need listed, please contact the JTRP Program Director at snoureldin@indot.in.gov. If expressing an interest in a Research need, attach your CV/resume to your email response.

#	Status	SPR	Focus Group	Title
1	Awarded	4251	Traffic Engineering, Safety, Management & Operations, TESMO	Expansion of SPR-4251 - Probe Data to Support Research and Implementation
2	Awarded	4252	Pavements, Materials, Geotechnical and Construction, PMGC	Expansion/Extension SPR-4252: Forensic Investigations
3	Awarded	4350	Planning, Multimodal, Finance, Asset Management and Economic Impact, PMFAME	Expansion for SPR 4350 - Transportation Research Board Annual Meeting Activities
4	Awarded	4732	Structural, Hydraulics and Environmental, SHE	Expansion of SPR 4732 - Development of Guidelines for Use and Design of Deep Foundations for Three-Sided Structures
5	Awarded	4734		Expansion & Extension of SPR-4734 - Expediting and Enhancing the Hydraulic Site Data Collection Process
6	Awarded	4838	District Deputy Commissioners and Workforce, DDC & WF	SPR 4838 Expansion - Automated Personalized Ergonomic Risk Report Generation System
7	Awarded	4851	TESMO	Expansion of SPR 4851 Development of Incident Management Performance Measure Database and IN Time Training Material ($125K STIC)
8	Awarded	4857		Expansion: Statewide Screening of Signalized Intersections for Capacity Improvements

9	Awarded	4915	PMGC	Expansion for SPR 4915 3D GPR Applications for Network Level Testing
10	Awarded	4951		Expansion of SPR-4951 - Development of a Ground Penetrating Radar Based Testing Program for Mechanically Stabilized Earth Walls
11	Awarded	5000	DDC	Retention of the Early-Career Highway Technician Workforce: Exploring and Addressing Their Career Trajectories and Challenges
12	Awarded	5005	PMFAME	Evaluation of Asset Identification Technology
13	Awarded	5006		Stakeholder Engagement in Indiana's Electrification Ecosystem and Infrastructure Readiness Assessment
14	Approval Pending	5007	PMGC	Performance Evaluation and Development of Cost-Effective DWPT Roadways
15	Awarded	5008	Statewide Safety, S	Strategic Expansion of Driving Simulators in INDOT Driver Training Programs
16	Awarded	5009		Phase II of SPR-4628: Validation of Innovative Work Zone Countermeasures by Field Tests
17	Awarded	5010		Feasibility Study of Deploying Movable Barriers as Permanent Barriers and Temporary Traffic Barriers for Future Roadway Design, Construction, and Maintenance
18	Awarded	5011	SHE	Harnessing Real-Time Weather Data for Improved Bridge Inspection after Flood Events
19	Approval Pending	5012	SHE	Investigating FAST Act Legislation Requirements for Bridge Load Rating Considering Emergency Vehicles
20	Awarded	5013	SHE	AI-Driven Vision Inspection Analytics to Assist with Quality Control of Bridge Inspection Documentation
21	Awarded	5014		Polymeric Overlays Performance Assessment
22	Awarded	5015		Augmenting INDOT's Remotely Controlled Vehicle with a LiDAR Unit for Culvert Monitoring

23	Approval Pending	5016	TESMO	Expansion - Integration of SCRIM and Emerging Data Sources into Network Friction Testing Program for Immediate and Long-Term Needs
24	Awarded	5016	TESMO	Integration of SCRIM and Emerging Data Sources into Network Friction Testing Program for Immediate and Long-Term Needs
25	Awarded	5017		Safety Performance of Setting Speed Limits Based on Roadway Alignment
26	Awarded	5018		Connected Freeway and Signalized Corridor Pilot: C-V2X Technologies Deployment for Enhanced Safety and Efficiency in Indiana
27	Awarded	5019		Vehicle Moving Pattern Analysis of Road Merge and Split Weaving Areas Involving Highway and Local Streets
28	Awarded	5020		Identifying Locations with Abnormally High Wrong Way Driving or Interstate U-Turns
29	Awarded	5021		Traffic Signal Freight Prioritization via Vehicle to Infrastructure (V2I) Communications
30	Awarded	5022		Development of Diagnostic Analytics Tool for Causal Effect Analysis from 511 Database
31	Awarded	5023		Understanding and Shaping Driver Behavior and Public Perception at Reduced Conflict Intersections (RCIs)
32	Awarded	5024	PMGC	Evaluation and Optimization of Portland Limestone Cement Concretes: Materials, Mixtures, and Performance
33	Awarded	5026		Evaluating the Effectiveness of Geosynthetics in Controlling the Detrimental Effects of Slow-Moving and Turning Traffic
34	Approval Pending	5027	PMGC	Evaluation of Recycled Concrete Pavement (RCP) for Base and Subbase Layers
35	Approval Pending	5031	PMGC	Developing INDOT Road Crack Image Datasets for AI-Integrated Research
36	Awarded	5032		Moisture Damage Control and Mitigation in Pavement Foundations Using Innovative Geosynthetics
37	Awarded	5033		Optimizing field compaction of granular materials: Research and guideline development
38	Awarded	5035		Evaluation and classification of temporary traffic paints and adhesives based on their ease-of-removal characteristics, and development of new temporary traffic paint formulations to meet INDOT needs
39	Awarded	5036	SHE	Development of Direct CPT-Based Pile Design Method
40	Awarded	5038	PMGC	Pavement Evaluation Employing 3D Laser (Waylink Maintenance Contract)
41	Awarded	5039		Employing Three Dimensions Ground Penetrating Radar (3D GPR) in Roadways and Bridges Evaluation - Software License

41	Not approved for funding	Tier 3		Recruiting and Retaining Individuals with Limited Mobility in the Transportation Workforce
42	Not approved for funding	Tier 3		Improving Civil Engineering Student Readiness: A Focus on Industry-Relevant Software
43	Not approved for funding	Tier 3	DDC& WF	SPR 4806 Expansion: Workforce Development for INDOT Construction Workers and Highway Engineers
45	Not approved for funding	Tier 3		Retention and Advancement of Women with Different Job Classifications in the Engineering and Transportation Workforce
46	Not approved for funding	Tier 3		Impact of New Technologies on Workforce
47	Not approved for funding	Tier 3		Remote/Hybrid Work Impact Assessment for Technical Roles in INDOT
48	Not approved for funding	Tier 3		Expansion of SPR 4808 (Development of Indiana's First De-Icing Operations Manual and Decision-Support Monograms)
49	Not approved for funding	Tier 3		AI-Driven Video Analysis Framework for Dynamic Resource Optimization, Adaptive Planning, and Enhanced Operational Efficiency in INDOT's In-House Chip Seal Operations.
50	Not approved for funding	Tier 3		Predictive Maintenance and Warranty Management for Fleet Vehicles Using Digital Twins and IoT Sensor
51	Not approved for funding	Tier 3		Optimizing Vehicle Parts Inventory Management (my apologies. please use this updated version)
52	Not approved for funding	Tier 3		Enhancing INDOT Operations Through Lean Six Sigma Implementation
53	Not approved for funding	Tier 3	MOP	Optimizing Vegetation Management: Enhancing Precision and Efficiency in Herbicide Application for Indiana's Roadways was 4902 ($168921)
54	Not approved for funding	Tier 3		Synthesis Study on Best Practices for INDOT Maintenance Worker Training
55	Not approved for funding	Tier 3		Environment-Aware Smart Infrastructure and Asset Management via a State-Scale Digital Twin
56	Not approved for funding	Tier 3		Autonomous Robotic Assisted System for Pavement Crack Detection using Deep Learning
57	Not approved for funding	Tier 3		Vision AI Model-guided Autonomous Pavement Crack Repairing System
58	Not approved for funding	Tier 3		Smart Automated Roadway Defect Detection Using AI and Community Imaging Networks
59	Not approved for funding	Tier 3		Smart Automated Roadway Defect Detection Using AI and Community Imaging Networks
60	Not approved for funding	Tier 3		Best Practices of Using Renewable Energy for Highway Lighting Systems and Beyond
61	Not approved for funding	Tier 3		Improving Roadway Safety: Innovative Strategies for Road Debris Real-time Detection, Prevention, and Response

62	Not approved for funding	Tier 3		Multimodal Hazardous Materials Transportation Safety and Emergency Plan
63	Not approved for funding	Tier 3		Evaluation Tools of Selecting Highway-Railroad Grade Crossing for Grade Separation in Indiana
64	Not approved for funding	Tier 3		Road Infrastructure Analysis Using Advanced Scanning Technologies
65	Not approved for funding	Tier 3		Developing a Methodology to Quantify User Costs of Pavement Maintenance Types
66	Not approved for funding	Tier 3		Usage of Automotive-grade Accelerometer Readings for Evaluating Road Surface Conditions
67	Not approved for funding	Tier 3		DWPT Electric Road Inspection and Maintenance Using Drone Thermal Imagery
68	Not approved for funding	Tier 3		Economic Impacts of Electric Vehicle Charging Stations on Local Businesses
69	Not approved for funding	Tier 3		Fleet Operator's Charging Preferences and Business Models for Electric Truck Charging Technologies
70	Not approved for funding	Tier 3		Identifying the Factors Affecting Utilization of Indiana Public EV Charging Stations
71	Not approved for funding	Tier 3	PMFAME	Workforce Development for Electric Vehicle Charging Infrastructure: Preparing INDOT for Sustainable Transportation
72	Not approved for funding	Tier 3		Estimating Emissions Reduction from Electric Vehicles Using Simulation Models
73	Not approved for funding	Tier 3		Towards a Comprehensive Regional Screening Tool for Transportation Investment Planning
74	Not approved for funding	Tier 3		Freight Mobility Trends using Connected Vehicle Data
75	Not approved for funding	Tier 3		Synthesis of Transportation Cybersecurity Threats, Vulnerabilities, and Mitigation Strategies
76	Not approved for funding	Tier 3		Evaluating the feasibility of using generative AI to support opinion data collection
77	Not approved for funding	Tier 3		Assessing the potential travel demand and road usage change due to freight truck electrification
78	Not approved for funding	Tier 3		Impact Assessment of Electric and Automated Delivery Vehicles (ADV) in Rural Areas for Identifying Road Infrastructure Needs
79	Not approved for funding	Tier 3		Advancing Electric Vehicle Charging Infrastructure: A Comprehensive Review of Charging Provision Technologies and Strategies
80	Not approved for funding	Tier 3	S	Validation of Innovative Work Zone Countermeasures based on Human Information Processing
81	Not approved for funding	Tier 3		Work Boot Study to Reduce the Injuries for INDOT Field Employees
82	Not approved for funding	Tier 3		Machine Learning and Augmented Reality to Improve Mental Health for Construction Workers

83	Not approved for funding	Tier 3		Speed Bridge: Feasibility of Innovations in Accelerated Bridge Construction
84	Not approved for funding	Tier 3		Steel-Concrete Composite Piles: Feasibility of Implementing Latest in R&D in Indiana
85	Not approved for funding	Tier 3		Predicting Camber of Prestressed Concrete Girder Bridges
86	Not approved for funding	Tier 3		Real-time Evaluation of Rebar Cover Thickness during the Pour of a Concrete Bridge Deck
87	Not approved for funding	Tier 3		Waterway opening lost after channel clearing
88	Not approved for funding	Tier 3		Flexural, Bond and Shear Strength of reinforced concrete members with corrosion related damage.
89	Not approved for funding	Tier 3		Automated UAV-UGV Hybrid System for Challenging Highway Culvert Inspection
90	Not approved for funding	Tier 3		Non-Destructive Testing of Unknown Foundations using AI-Driven Electrical Resistivity Imaging
91	Not approved for funding	Tier 3		Enhancing HY-8 Culvert Analysis Software Functionality
92	Not approved for funding	Tier 3		Immersive Virtual Reality Modules for Enhanced Bridge Inspection Training
93	Not approved for funding	Tier 3		Integrating smart sensors with non-destructive testing (NDT) methods
94	Not approved for funding	Tier 3		Assessing Hurricane Remnant Risk for Resilient Transportation Infrastructure in Indiana
95	Not approved for funding	Tier 3	SHE	Development of Design Methods for Piles in Gravelly Soils
96	Not approved for funding	Tier 3		Development of Pile Driving Analysis and Static Design Method for Open-Ended Pipe Piles
97	Not approved for funding	Tier 3		Direct CPT Interpretation Method for Pile Design using Artificial Intelligence Engine
98	Not approved for funding	Tier 3		Non-destructive Methods to Determine the Geometry of Unknown Foundations
99	Not approved for funding	Tier 3		Leveraging Qualitative Inspection Data for Performance Assessment
100	Not approved for funding	Tier 3		Predicting the Impact of New Technologies on Bridge Lifecycle Performance and Costs
101	Not approved for funding	Tier 3		Ordinary reinforced concrete Vs UHP concrete in bridges with focus on cost and time-performance
102	Not approved for funding	Tier 3		Monitoring of Concrete Bridge Extensions: Piezoelectric Sensor Arrays and AI-guided EMI Techniques for Interface Durability Assessment
103	Not approved for funding	Tier 3		Advanced Monitoring of Concrete Bridge Extensions: Piezoelectric Sensor Arrays and AI-guided EMI Techniques for Interface Durability Assessment
104	Not approved for funding	Tier 3		Vibration-based Bridge Condition Assessment

105	Not approved for funding	Tier 3		Leveraging 3D Technology and Artificial Intelligence for Phantom Braking Risk Assessment in Autonomous Driving in Indiana
106	Not approved for funding	Tier 3		Interstate View Screens
107	Not approved for funding	Tier 3		Real-Time Anomaly Detection of Equipment Operators with Privacy-Enhanced Intelligent Monitoring
108	Not approved for funding	Tier 3		Reducing MOT Investment
109	Not approved for funding	Tier 3		Evaluation and classification of temporary traffic paints and adhesives based on their ease-of-removal characteristics, and development of new temporary traffic paint formulations to meet INDOT needs
110	Not approved for funding	Tier 3		Automated Characterization of Lane Markings and Road Surface Condition using Mobile LiDAR Data
111	Not approved for funding	Tier 3		Investigation into the Potential Usage of Automotive-grade LiDAR for Lane Marking Evaluation
112	Not approved for funding	Tier 3		Leveraging CAVs crowdsourcing data in evaluating highway marking retro reflectivity
113	Not approved for funding	Tier 3		Change Detection of Highway Signs, Pavement Marking, and related Traffic Control Devices
114	Not approved for funding	Tier 3	TESMO	Systematic Identification and Documentation of Secondary Crash Incident Impacts on Indiana Interstates
115	Not approved for funding	Tier 3		Leveraging CV Data to Develop Truck Parking Metrics to Assess Impact of New Facilities and Prioritize Future Investments
116	Not approved for funding	Tier 3		Porting Heatmaps to INDOT Cloud and Integration of New OEM Data sources
117	Not approved for funding	Tier 3		Using Artificial Intelligence (AI) for Quality Control Screening of Crash Reports
118	Not approved for funding	Tier 3		Two potential topics dealing with 1) separate official construction detours for heavy vehicles and passenger cars and 2) work zone crash analysis.
119	Not approved for funding	Tier 3		Pilot Program for Low-Cost, Fully Automated, Zero-Distraction In-Vehicle Driver Check-In Systems
120	Not approved for funding	Tier 3		Enhancing User Safety at Roundabout Interchanges (RBIs): A Study on Merging Dynamics and Design Improvements
121	Not approved for funding	Tier 3		It is a traffic counter box hanger (counter hanger stand). This stand allows you to hang a box regardless of whether there is a sign or pole located in the area. I've been using them now for almost four years and they work very well in any situation as long as you have dirt available to stick in. The one you'll see in the picture I made myself. The stand allows you to set, hang the box, secure it to the stand and hang your excess hose all on the stand.

122	Not approved for funding	Tier 3		Sealing vs. Non-Sealing of JPCP Joints: A Comparative Study
123	Not approved for funding	Tier 3		LiDAR for near real-time measurement of construction quality and accurate 3D as-builts
124	Not approved for funding	Tier 3		ChatGPT-like AI-Bot for vision-based quality assessment
125	Not approved for funding	Tier 3		Surface Image Analysis for Quality Control of Unbound Bases
126	Not approved for funding	Tier 3		Investigation of Low-temperature Cracking on Asphalt Pavements
127	Not approved for funding	Tier 3		Development of a Digital Twin (DT) Model for Simulating APT
128	Not approved for funding	Tier 3		Benefits of subgrade soil treatment with calcium oxide vs Lime Kiln Dust
129	Not approved for funding	Tier 3		Detection of harmful clays in limestone
130	Not approved for funding	Tier 3		Improved Subgrade Resilient Modulus from FWD on PCCP pavements
131	Not approved for funding	Tier 3		Re-use and re-treatment of subgrades with sulfates in rehabilitation projects
132	Not approved for funding	Tier 3		Coupling LiDAR construction quality features and performance for lifelong monitoring and risk prediction
133	Not approved for funding	Tier 3	PMGC	AI Chatbot for Digital Inspection and Documents Integrity Using Large-Language Models and Retrieval-Augmented Generation
134	Not approved for funding	Tier 3		AI-Driven Chatbot for Construction Integrity and Quality Assurance of the Road Infrastructure
135	Not approved for funding	Tier 3		Development of Concrete Slab Technology for Use with Dynamic Wireless Power Transfer Systems
136	Not approved for funding	Tier 3		Highly modified asphalt (HiMA) for Indiana
137	Not approved for funding	Tier 3		Verification of TSR Values on DMF and Modification of TSR Test Method Appropriate for Superpave 5 Mix Design
138	Not approved for funding	Tier 3		Tack Coat Application Uniformity
139	Not approved for funding	Tier 3		Feasibility Study of AI-Driven Ground Penetrating Radar (GPR) Integration for Real-Time Asphalt Compaction Quality Assessment and Optimization
140	Not approved for funding	Tier 3		AI-Driven Evaluation and Feasibility Assessment of Automating INDOT's Materials and Testing Lab Activities for Enhanced Efficiency, Accuracy, and Modernization
141	Not approved for funding	Tier 3		Integrating flooding impacts for INDOT pavement preservation
142	Not approved for funding	Tier 3		Deep learning informed GPR method for pavement condition assessment in Indiana

143	Not approved for funding	Tier 3			Machine Learning-Driven Optimization of Materials and Mixtures for Enhancing Portland Limestone Cement (PLC) Concrete Quality
144	Not approved for funding	Tier 3			Developing In-situ Sensing Methods for Understanding Concrete Fresh Properties
145	Not approved for funding	Tier 3			Dielectric Constant of Concrete as a Reliable Durability Indicator for Field Applications
146	Not approved for funding	Tier 3			Application of Self-Developed Piezoelectric Sensor for Concrete Sustainability by Conducting Life Cycle Assessment
147	Not approved for funding	Tier 3			Reduction in Carbon Footprint of Portland Limestone Cement (PLC) Concrete Construction by Using Piezoelectric Sensor and Life Cycle Assessment (LCA)
148	Not approved for funding	Tier 3			Using In-situ Piezoelectric Sensing Technology for Rapid and Reliable Freeze-Thaw Durability Assessment in Aggregates
149	Not approved for funding	Tier 3			Assess Measurement While Drilling (MWD) Techniques for Geotechnical Investigations
150	Not approved for funding	Tier 3			Computerized Particle Size Analysis of Soils and Aggregates
151	Not approved for funding	Tier 3	**PMGC**		Current state of manufactured sand DOT use in concrete, analysis of availability in the Indiana area, and experimental study on its effect on INDOT-compliant concrete mixtures.
152	Not approved for funding	Tier 3			Techno-Economic and Environmental Life Cycle Assessment of Pavement Materials in Indiana: Quantifying the Impact of Current and Future Strategies
153	Not approved for funding	Tier 3			Developing Guidelines for Adopting INDOT-Approved, Safe, and Trustworthy AI Tools
154	Not approved for funding	Tier 3			AI-Enabled Chatbot for Automating Compliance Detection in Construction Projects
155	Not approved for funding	Tier 3			Assessment of Subgrade Properties using Machine Learning.
156	Not approved for funding	Tier 3			Develop Guidelines for Improving the Engineering Properties of Problematic Soils
157	Not approved for funding	Tier 3			MSE Wall Pullout Resistance Factors for Reinforced Backfill Comprising Coarse Aggregates
158	Not approved for funding	Tier 3			Determination of Coarse Aggregate Properties for Use in MSE Wall Design
159	Not approved for funding	Tier 3			Development of Field-Representative Testing Protocols for Evaluating the Durability of Chemically Treated Subgrades under Freeze-Thaw
160	Not approved for funding	Tier 3			Biopolymer-Based Stabilization as a Sustainable Alternative to Lime for Subgrades
161	Not approved for funding	Tier 3			Real-time compaction monitoring equipment for use in confined areas

162	Not approved for funding	Tier 3		Study of plate load testing to assess foundation capacity and subgrade stiffness
163	Not approved for funding	Tier 3		Innovative Framework for Predicting Freeze-Thaw Durability in Aggregates: Leveraging Triaxial and Hydraulic Testing with Machine Learning
164	Not approved for funding	Tier 3		Optimizing Compaction Parameters for INDOT No. 53 Aggregates to Achieve Maximum Stiffness
165	Not approved for funding	Tier 3		Implementation Phase: Resilient Modulus ML Model Implementation - Streamlining Use and Deployment of Prediction Tools for Maximum Impact
166	Not approved for funding	Tier 3		Implementation Phase: Enhancing Usability and Deployment of Resilient Modulus ML Models: Simplifying Access and Maximizing Impact
167	Not approved for funding	Tier 3		AI Model for Evaluating Tack Coat Coverage in Road Construction
168	Not approved for funding	Tier 3	PMGC	Innovative Framework for Predicting Freeze-Thaw Durability in Aggregates: Leveraging Triaxial and Hydraulic Testing with Machine Learning
169	Not approved for funding	Tier 3		Automating Pavement Maintenance through Integrated Data and Machine Learning
170	Not approved for funding	Tier 3		Mechanistic Asphalt Overlay Design Framework to Enhance Indiana's Pavement Structural Performance
171	Not approved for funding	Tier 3		Estimating Overweight Vehicles-Induced Pavement Damage with Integrated Machine Learning and M-E Analysis Framework
172	Not approved for funding	Tier 3		Innovative Solutions for Mitigating Asphalt Cracking
173	Not approved for funding	Tier 3		Revolutionizing Ground Penetrating Radar for Accurate Layer Detection Through Autonomous Systems and Strategic Material Integration
174	Not approved for funding	Tier 3		Development of a Data-Driven Framework for Optimizing Crack Sealing Preparation and Operations to Improve Resource Efficiency and Pavement Performance for INDOT