

Michigan STIC Local Roads Research Board Peer Exchange

Final Report

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EXECUTIVE SUMMARY

Minnesota, Ohio, Iowa, and Indiana have longstanding research programs focused on local roads topics. These programs are very productive and have become a source of pride and innovation in their respective states. These programs operate both in parallel and in coordination with state and national level research programs.

The model of local roads research programs in these four states was the focus of a peer exchange held in Michigan. The peer exchange effort was supported by a grant from the Michigan State Transportation Innovation Council (STIC) and in-kind work and financial support from the County Roads Association of Michigan. The peer exchange investigated the perceived and measurable benefits of local roads research programs while identifying the size, scope, history, and funding levels of existing programs. The peer exchange also intended to develop ideas for the potential Michigan local roads research program and to generate domestic champions interested in pursuing a local roads research program should it prove beneficial.

The Michigan Local Roads Research Peer Exchange was held on October 13 and 14, 2021, at the Amway Grand Plaza Hotel in Grand Rapids, Michigan. The peer exchange was formatted as both an in-person and a virtual event. Twenty-two people attended the event on site and 36 people registered to attend virtually.

The peer exchange was divided into three parts: Background Presentations, Panel Discussion, and Michigan Program Brainstorming. The four out-of-state delegations representing Indiana, Iowa, Minnesota, and Ohio, delivered three hours of presentations that covered:

- history,
- vision, mission, and goals,
- organization/governance,
- administration,
- project types and examples,
- research process,
- distribution of results,
- funding
- collaboration,
- successes/challenges, and
- future plans for their program.

A panel discussion followed the presentations and lasted approximately three hours. Discussion topics included:

- identifying the size, scope and structure of known local roads research programs,
- identifying the type of research projects and other tasks completed by the programs,

- documenting research findings,
- measuring the value of research and the associated programs,
- administrative processes,
- determining how and how much programs are funded,
- identifying program successes and weaknesses or failures.

The final portion of the peer exchange was a Michigan program brainstorming session. This session identified the potential value of a Michigan local roads research program.

Following the peer exchange event, a follow-up survey was sent to participants. Questioning gathered additional information about the demographic of participants, their reactions to how the event was structured, and their feedback on the value and potential structure of a Michigan local roads research program.

Conclusions that can be drawn from the peer exchange event include:

- Iowa, Indiana, Minnesota and Ohio are the only known states with local roads research programs and they desire increased collaboration with their peer state programs. Programs within these states have been extremely successful,
- Existing and new local roads research programs should collaborate and directly share with each other,
- There is strong support from attendees at the peer exchange to start a Michigan local roads research program,
- Local research programs should coordinate with its state research group and use its administrative processes, while leaving governance to the decision of the local program leadership,
- Project types go beyond pure research, and should include applied research; developing specifications; creating broadly-needed tools or documents; and testing new materials or methods. Products should be researched as a group of products rather than a specific brand,
- Projects infrequently include a construction component that is funded by the research program due to the large volume of dollars necessary for construction and the relatively small size of the research programs. Occasionally research programs will cover the change in cost for trying an innovation. More frequently these programs cover the cost for a researcher to document, test, and monitor innovative construction practices,
- Local roads research programs typically interface with, or are run by technology transfer programs like LTAP,
- Successful research programs keep value and efficiency in mind, produce tangible results, and seek partnerships,

- Results are disseminated via newsletter articles, tech briefs, web sites and webpages, research presentations, state department of transportation (DOT) library, and/or Transportation Research Board's Transportation Research database,
- Local roads research projects have effected the creation of new specifications for federal-aid projects that are relevant on local scale,
- Local roads research programs should be driven by and have the participation of the local road-owning agencies themselves,
- Programs are typically funded between \$500,000 and \$4,000,000 per year,
- Existing programs recommend an initial funding level of \$1,000,000 to \$2,000,000 per year for new local roads research programs,
- Existing programs' perceived strengths are focusing on local road research, leveraging state DOT administrative resources, funding implementation as well as research, and ideas solicitation at already-established meetings,
- Areas for improvement generally relate to turnaround time for responding to ideas and moving ideas forward into research projects.

INTRODUCTION

Minnesota, Ohio, Iowa, and Indiana have had research programs targeted at local roads for a long time. Some of these programs date back to 1949. These programs, which operate both in parallel and in coordination with state and national level research programs, appear to be very productive. In fact, these states point to their local roads research program as a source of pride and innovation. However, the model has not spread beyond the four previously mentioned states.

The model of local roads research programs in these four states was the focus of a peer exchange held in Michigan. The peer exchange effort was supported by a grant from the Michigan State Transportation Innovation Council (STIC) and funding provided by the Michigan County Roads Association (CRA). This report documents the results of the peer exchange.

Peer exchanges are a technique used for rapid knowledge transfer through a collaborative exchange of information between stakeholders seeking knowledge from more advanced peers. Peer exchanges benefit knowledge seekers by giving them immediate access to information on the state of practice while the advanced peer participants benefit from being able to measure their program against others and by acquiring different insights and new ideas. Not only do peer exchanges focus on the topic at hand, but they can also provide information on ancillary topics. The conversational nature of peer exchanges can also encourage follow-up lines of discovery.

OBJECTIVES

The main goal of this peer exchange was to investigate the perceived and measurable benefits of local roads research programs while identifying the size, scope, history, and funding levels of existing programs. Secondary goals for the peer exchange were to develop ideas about a future path for Michigan's potential local roads research program and to generate domestic champions interested in pursuing a local roads research program should it prove beneficial.

EVENT FORMAT AND ATTENDANCE

The Michigan Local Roads Research Peer Exchange was held on October 13 and 14, 2021, at the Amway Grand Plaza Hotel in Grand Rapids, Michigan. The event was formatted to be an in-

person event with a virtual attendance option. The venue was set up with a telecommunications system complete with microphones for each table, two video cameras in the room, and a speaker system. Presentations were displayed on site using a projector and screen and broadcast to virtual participants via a Zoom meeting. The event setup allowed virtual participants to speak to, see, and hear people in the room with almost no delay. Figure 1 and Figure 2 illustrate the virtual participant experience. The event setup also allowed two of the out-of-state delegates to present their material remotely.



Figure 1: Virtual participant view of the peer exchange room

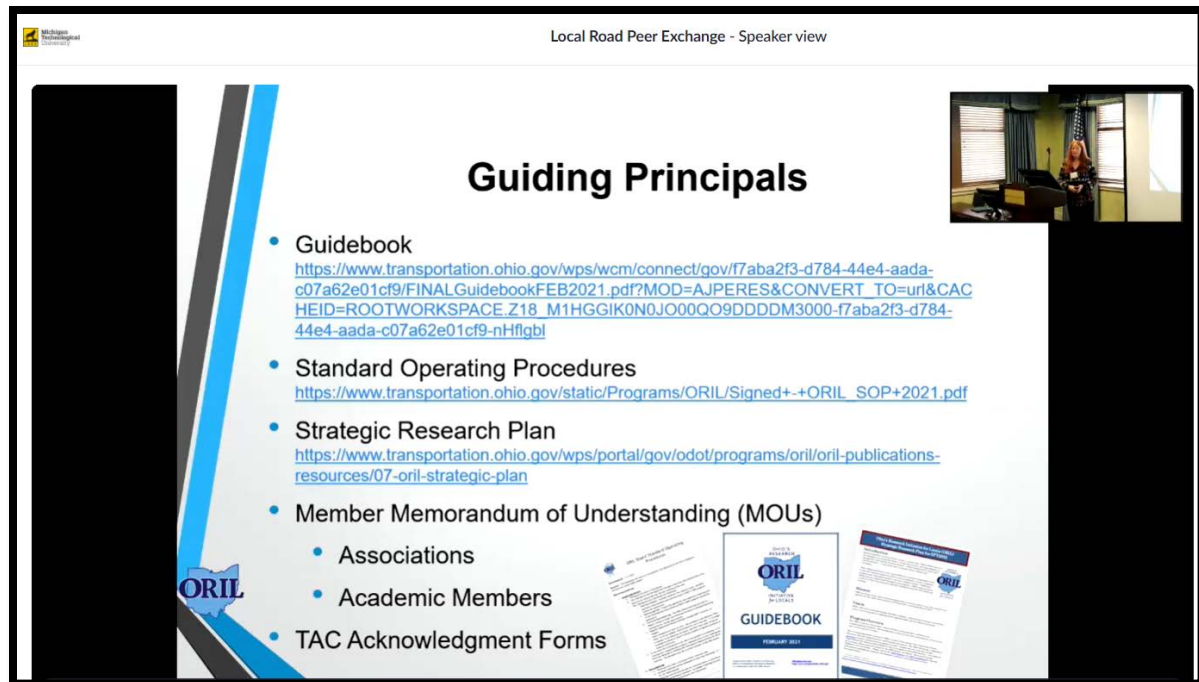


Figure 2: Virtual participant view of the presentation

Twenty-two people attended the event on site and 36 people registered to attend virtually. Since virtual participants were allowed to view as a group (i.e., no individual log-in credentials were required), it is not possible to determine exact numbers of virtual participants. On-site attendees and virtual registrants are shown in Table 1, Table 2, and Table 3 below.

While including a virtual format may have decreased onsite attendance to some degree, it may have also boosted total attendance beyond what was anticipated for the event. Therefore, remote delivery of the peer exchange in a virtual format can be considered a valuable addition to the event.

Table 1: Out-of-State Delegates (by State)

First Name	Last Name	Title	Agency	Attendance
Jennifer	Sharkey	Lead Research Engineer	Indiana	On Site
Vanessa	Goetz	Iowa Research Program Manager	Iowa	Virtual
Andrew	McGuire	Keokuk County Engineer	Iowa	Virtual
Brian	Moore	Iowa Secondary Roads Res. Engineer	Iowa	On Site
Wade	Weiss	Engineer Greene County Iowa	Iowa	Virtual
Kristine	Elwood	MnDOT State Aid Division	Minnesota	Virtual
Jim	Foldesi	St. Louis County - Public Works	Minnesota	On Site
Stephanie	Malinoff	LTAP Director	Minnesota	Virtual
Brent	Rusco	Local Road Research Board	Minnesota	Virtual
Greg	Butcher	Manager/Engineer	Ohio	Virtual
Vicky	Fout	Research Program Manager	Ohio	On Site
Warren	Schlatter	Defiance County Engineer	Ohio	On Site

Table 2: Michigan State and Federal Delegates (by Agency)

First Name	Last Name	Title	Agency	Attendance
Scott	Bershing	Technical Specialist	Michigan LTAP	On Site
Tim	Colling	Director	Michigan LTAP	On Site
Pete	Torola	Research Engineer	Michigan LTAP	Virtual
Larry	Doyle	Manager	MDOT - Bureau of Development	On Site
Bruce	Kadzban	Rural/Enhance. Unit Sup.	MDOT - Bureau of Development	On Site
Tracie	Leix	Manager, LAP	MDOT - Bureau of Development	On Site
Carol	Aldrich	Engineer of Research	MDOT - Construction Field Services	Virtual
Andy	Pickard	Senior Transportation Planner	FHWA - Michigan Division	Virtual
Kurt	Zachary	Local Program Engineer	FHWA - Michigan Division	Virtual

Table 3 Michigan Local Agency Delegates (by Agency)

First Name	Last Name	Title	Agency	Attendance
Bob	Lindbeck	County Highway Engineer	Alger County Road Commission	On Site
Craig	Atwood	Managing Director	Allegan County Road Commission	On Site
James	Lillo	Engineer-Manager	Bay County Road Commission	Virtual
Cory	Wale	Assistant Engineer	Bay County Road Commission	On Site
Skylar	Cudney	Civil Engineer	Calhoun County Road Department	Virtual
Brian	Kernstock	Senior Civil Engineer	Calhoun County Road Department	Virtual
John	Midgley	Managing Director	Calhoun County Road Department	Virtual
Kristine	Parsons	Director of Engineering	Calhoun County Road Department	On Site
Robert	Thompson	Manager	Cass County Road Commission	Virtual
Robert	Laitinen	Manager	Chippewa County Road Commission	Virtual
Dewayne	Rogers	Managing Director	Clare County Road Commission	On Site
Marc	Trotter	Director of Engineering	Clinton County Road Commission	Virtual
Lance	Malburg	Engineer	Dickinson County Road Commission	On Site
David	Pettersch	Managing Director	Gladwin County Road Commission	Virtual
Phil	Strong	Engineer	Gogebic County Road Commission	Virtual
James	Cole	Project Manager	Jackson Co. Dept. of Transportation	On Site
Angela	Kline	Managing Director	Jackson Co. Dept. of Transportation	On Site
Bret	Taylor	Senior Civil Engineer	Jackson Co. Dept. of Transportation	On Site
Bret	Taylor	Senior Civil Engineer	Jackson Co. Dept. of Transportation	Virtual
Thomas	Byle	Assistant Director of Engineering	Kent County Road Commission	Virtual
Wayne	Harrall	Deputy MD-Engineering	Kent County Road Commission	On Site
Darren	Vink	Engineer for Plats & Public Streets	Kent County Road Commission	Virtual
John	Crumm	Director of Planning	Macomb County Department of Roads	Virtual
Scott	Wanagat	County Highway Engineer	Macomb County Department of Roads	Virtual
Alex	Elsenheimer	County Highway Engineer	Marquette County Road Commission	Virtual
Jeff	Loeser	Superintendent	Mason County Road Commission	Virtual
Eric	Nelson	Highway Engineer	Mason County Road Commission	Virtual
Mary	Samuels	Manager/Director	Mason County Road Commission	Virtual
Darrell	Cass	Engineer-Manager	Menominee County Road Commission	Virtual
Jon	Myers	Managing Director	Midland County Road Commission	Virtual
Brad	Siddall	Manager	Missaukee County Road Commission	Virtual
Michael	Smith	Project Engineer	Monroe County Road Commission	Virtual
Samuel	Fitzer	Director of Engineering	Road Commission for Oakland County	Virtual
Joanna	Johnson	Managing Director	Road Comm. of Kalamazoo County	Virtual
Daniel	Armentrout	Director of Engineering	Saginaw County Road Commission	Virtual
Brent	Schlack	Assistant Director of Engineering	Washtenaw County Road Commission	Virtual
Shelby	Eva	Event and Development Manager	County Road Association of Michigan	On Site
Denise	Donohue	Director	County Road Association of Michigan	On Site
Steve	Puuri	Engineer Specialist	County Road Association of Michigan	On Site

AGENDA

The agenda for the peer exchange was divided into three parts: Background Presentations, Panel Discussion, and Michigan Program Brainstorming. The agenda can be found in Appendix A.

Presentations

Approximately three hours of the peer exchange was dedicated to presentations by the four out-of-state delegates in order to provide all participants with background information about their local roads research program. Each delegation was asked to address the following information:

- History of the program
- Funding level and source(s)
- Governance
- Administration
- Charge, goals, or guiding principles as they define the program
- Types of research and projects undertaken
- Representative examples of projects that have been successful
- Size of projects (number of years, funding dollars per project, number of projects)
- Process for developing and selecting project ideas
- Process for soliciting and administering projects
- How the results of studies are distributed.

The background presentations were designed to give the Michigan delegation with insight into the standardized information that can be drawn from each state's program. Background presentation slides are included in Appendix B for Indiana, Iowa, Minnesota, and Ohio.

Key takeaways from this portion of the program include:

	Indiana	Iowa	Minnesota	Ohio
Presented By	Jennifer L. Sharkey, PE	Vanessa Goetz, PE, State Research Program Manager - Research and Analytics	Kristine Elwood, MnDOT-State Aid Director Jim Foldesi, LRRB Chair and St. Louis County Engineer	Warren Schlatter, Defiance County Engineer Vicky Fout, ODOT Office of Statewide Planning & Research
Program Name	Indiana Local Technical Assistance Program (LTAP) Innovation and Research Program	Iowa Highway Research Board (IHRB)	Minnesota Local Roads Research Board	Ohio's Research Initiative for Locals (ORIL)
History	<p>1959 - Highway Extension Research Project for Indiana Counties organized at Purdue University under Indiana legislation</p> <p>1982 - HERPIC is one of first three states to launch RTAP as part of a 10-center pilot program</p> <p>1991 - Rural Transportation Assistance Program became LTAP</p> <p>2021 - Indiana launched new Innovation and Research Program</p> <p>2023 - Innovation and Research Grant Program</p>	<p>1949 - Iowa Legislature set aside funding (state and county funding) for IHRB</p> <p>1950 - First IHRB meeting</p> <p>1989 - City funding added</p> <ul style="list-style-type: none"> • Iowa Code allocates county and city funding • Commission allocates state department of transportation (DOT) funding 	<p>1959 –Minnesota Legislature authorized funding and membership for Minnesota Local Roads Research Board (LRRB); funding must support:</p> <ul style="list-style-type: none"> ○ Research that improves the design, construction, maintenance, and environmental compatibility of state-aid highways, streets, and appurtenances ○ Construction and reconstruction/ replacement of research elements that fail ○ Programs for implementing and monitoring research results 	<p>2011 - Ohio Department of Transportation (ODOT) Research Program conceptualizes ORIL; conducted peer exchange; drafted model</p> <p>2012 - ODOT Assistant Director approved ORIL; established board members and memoranda of understanding (MOUs) with partnering agencies</p> <p>2013 - Inaugural ORIL board meeting; board developed policies and procedures; first call for ideas</p> <p>2014 - First request for proposals (RFP) issued; first project started</p>

Vision, Mission, and Goals	<p>Goals:</p> <ol style="list-style-type: none"> 1. Driven by local agency needs 2. Timely delivery of content 3. Benefits entire local transportation industry 4. Implemented by local agencies 5. Provides content for training and technical resources 	<ul style="list-style-type: none"> • Vision: To improve lives through innovative transportation research • Mission: To lead the identification of needed research and engineering development activity; to encourage collaborative involvement; and to support research implementation • Goals: To improve the efficiency and effectiveness of highway transportation and engineering in Iowa; to encourage innovation and longer-range technological advances in the field of transportation 	<ul style="list-style-type: none"> • Vision: To develop and implement solutions for the local transportation system; to strengthen stakeholder relationships and streamline operations; and to provide leadership for and a positive impact on Minnesota's local transportation system • Mission: To serve local road practitioners through the development of new initiatives, acquisition and application of new knowledge, and exploration and implementation of new technologies • Goal 1: To prioritize and fund research that focuses on the local transportation system • Goal 2: To emphasize research implementation and track progress to evaluate the impact of research on practice • Goal 3: To maintain a feedback loop with researchers and local practitioners • Goal 4: To streamline project and program management • Goal 5: Evaluate program comprehensively over time 	<ul style="list-style-type: none"> • Mission: To develop, fund, and oversee transportation research projects that meet the needs of local agencies for the safety and economic well-being of the traveling public and Ohio; to providing real solutions to real transportation problems
Organization/ Governance	<ul style="list-style-type: none"> • Operational: Local Public Agencies (LPA) and LTAP Staff • Executive: Technical Advisory Committee (TAC) and Advisory Board • Fiscal: Indiana Department of Transportation and Purdue University Sponsored Programs/Purdue University Business Office 	<ul style="list-style-type: none"> • 15 members/alternates serving three-year terms <ul style="list-style-type: none"> ○ 7 county engineers (six districts + Transportation Research Board [TRB] representative) ○ 2 city engineers ○ 2 university civil engineering department chairs (University of Iowa, Iowa State University) ○ 4 Iowa DOT engineers 	<ul style="list-style-type: none"> • 10-member board (one county/city engineer serves a chairperson and one county/city engineer serves as LRRB-Research Implementation Committee liaison) <ul style="list-style-type: none"> ○ 4 county engineers (4-year term [max of two]) ○ 2 city engineers (4-year term [max of two]) ○ 1 Minnesota Department of Transportation (MnDOT) Expert Office representative ○ 1 MnDOT State Aid Engineer (permanent member; selects new members through consultation with the board) ○ 1 MnDOT Research and Innovation Office Director (permanent, ex-officio member) ○ 1 University of Minnesota (UMN) Center for Transportation Studies (CTS) representative (CTS Director) • Network of partners: <ul style="list-style-type: none"> ○ MnDOT Office of Research & Innovation 	<ul style="list-style-type: none"> • board <ul style="list-style-type: none"> ○ County Engineers Association of Ohio (CEAO) representatives (appointed by CEOA; 4-year term, staggered rotation) ○ Ohio Municipal League (OML) representatives (appointed by OML; 4-year term, staggered rotation) ○ Ohio Township Association (OTA) representatives (appointed by OTA; 4-year term, staggered rotation) ○ Academia representatives from Ohio university (apply through ODOT Research and board; 2-year term, no staggering; cannot bid or conduct ORIL research projects while on board) ○ ODOT representatives ○ Non-voting (support) members <ul style="list-style-type: none"> ▪ ODOT Research ▪ Ohio Local Technical Assistance Program (LTAP)

			<ul style="list-style-type: none"> ○ UMN CTS ○ Local practitioners (target audience, act as LRRB and standing committee members) • Committees and panels <ul style="list-style-type: none"> ○ Research Implementation Committee (RIC; 10-member committee with one county/city engineer serving as chairperson and one county/city engineer serving as LRRB-RIC liaison) <ul style="list-style-type: none"> ▪ 4 county engineers (4-year term [max of two]) ▪ 2 city engineers (4-year term [max of two]) ▪ 1 MnDOT Specialty Office representative ▪ 1 MnDOT Deputy State Aid Engineer (permanent member; selects new members through consultation with the board) ▪ 1 MnDOT Research and Innovation Research Management engineer ▪ 1 UMN CTS representative (CTS staff, not director), Local Technical Assistance Program (LTAP) Director ○ Outreach Committee (subcommittee of the LRRB) <ul style="list-style-type: none"> ▪ LRRB members ▪ RIC members ▪ MnDOT staff ▪ Minnesota LTAP staff ○ Technical Advisory Panels (TAPs) <ul style="list-style-type: none"> ▪ principal investigator and investigative team ▪ technical liaison (champions research) ▪ subject matter experts (cover technical aspects of projects; primarily county/city engineer staff, some MnDOT) ▪ project coordinator (monitors research contract) 	<ul style="list-style-type: none"> ▪ Federal Highway Administration • All board positions are volunteer • No payment for time or travel
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Administration		<ul style="list-style-type: none"> • Executive secretary (0.8 full-time equivalents, FTE) <ul style="list-style-type: none"> ○ Manages board activities, contracts, project development, and budget; arranges meetings • Financial PP (0.15 FTE) <ul style="list-style-type: none"> ○ Manages project finances, obligations, expenditures • Administrative assistant (0.5 FTE) <ul style="list-style-type: none"> ○ Keeps minutes, distributes agenda, pays invoices, manages project database • Secondary road research engineer (0.9 FTE) <ul style="list-style-type: none"> ○ Provides county research support • Responsibilities of the board <ul style="list-style-type: none"> ○ 9 meetings per year ○ Advisory board ○ Research identification, prioritization, and selection ○ Approve final results ○ Project ranking <ul style="list-style-type: none"> ▪ New projects voting – 3 times per year ▪ Next phase project ranking - twice per year ▪ Innovative project ideas – every other year ▪ Matching fund proposals given priority 	<ul style="list-style-type: none"> • UMN CTS provides administrative support for LRRB <ul style="list-style-type: none"> ○ Coordinates the UMN’s annual research request for proposals (RFPs) ○ Leads development of knowledge building priorities ○ Communicates information about UMN research ○ Connects LRRB members with UMN researchers (serve as expert advisors and conduct LRRB research) • MnDOT Research & Innovation Office <ul style="list-style-type: none"> ○ Administers LRRB budget and research program including: <ul style="list-style-type: none"> ▪ Contract administration ▪ Financial management at both program and project levels ▪ Communications and logistics management, reporting, and technology transfer ▪ Program management ▪ LRRB’s annual report “At-A-Glance” of approved and ongoing research projects and LRRB initiatives ▪ Library services including literature reviews ○ Approximately 4 full-time equivalents (FTEs) staff support LRRB (\$400,000 annual budget) • Outreach Committee (OC) <ul style="list-style-type: none"> ○ Increases awareness of LRRB and technology-transfer products ○ Receives administrative support from MnDOT Research and Innovation and consultant outreach contract support ○ Implements strategic plan and marketing and communications ○ Provides consultant support for ideas generation, needs statements, and practitioner engagement • Technical Advisory Panels (TAPs) <ul style="list-style-type: none"> ○ Guide individual projects, including review and approval of deliverables 	<ul style="list-style-type: none"> • Board responsibilities include: <ul style="list-style-type: none"> ○ Develop, maintain, and market the program ○ Establish strategic research focus areas ○ Conduct outreach for research ideas ○ Select and recommend projects for funding ○ Establish technical advisory committees for projects ○ Select researchers ○ Review project progress ○ Review and approve/deny contract modifications ○ Assess research results and implementation potential • Technical Advisory Committee (TAC) responsibilities include: <ul style="list-style-type: none"> ○ Develop idea into a request for proposal (RFP) ○ Review proposals and recommend researchers ○ Monitor project progress ○ Provide technical assistance to researchers ○ Assist in project-related activities ○ Participate in project meetings ○ Review and comment on project reports ○ Review and make recommendations on contract modifications ○ Assess findings and recommendations ○ Market practice-ready research findings • ODOT Research responsibilities include: <ul style="list-style-type: none"> ○ Organize/facilitate board meetings ○ Coordinate board and TAC membership and maintain all MOUs ○ Maintain program policies, procedures, forms, and website ○ Manage/assist in idea solicitation and RFP process ○ Develop, execute, and manage all contracts ○ Oversee funds and perform financial functions ○ Serve as project managers ○ Market the program and research findings ○ Assist in ROI analysis and implementation tracking ○ Ensure compliance with federal and state regulations
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Project Types/ Topics/Data		<ul style="list-style-type: none"> • Types include basic and applied research: <ul style="list-style-type: none"> ○ Pilot ○ Synthesis ○ Feasibility studies ○ Engineering studies ○ Implementation ○ Technology deployment ○ Technology transfer (workshops, publications, guides, peer exchanges, conferences) ○ STIC, AID, and Every Day Counts Innovation Deployment • Topics in all areas of highway transportation • Project data <ul style="list-style-type: none"> ○ 70 to 150 ideas considered a year through the research cycle (approximate) ○ 9 to 15 new projects funded annually ○ 55 IHRB projects currently active 	<ul style="list-style-type: none"> • Project types (determined by knowledge building priorities) <ul style="list-style-type: none"> ○ Environment ○ Planning ○ Traffic and safety ○ Connected and automated vehicles ○ Materials ○ Design and construction ○ Financial and asset management • Project topics <ul style="list-style-type: none"> ○ Bridges/structures ○ Environmental ○ Maintenance ○ Policy ○ Safety/traffic ○ Pavement ○ Erosion/drainage ○ Asset management ○ Construction/materials ○ Multimodal transportation • Project data <ul style="list-style-type: none"> ○ 261 research ideas (2020 data) <ul style="list-style-type: none"> ▪ 136 county ▪ 122 city ▪ 3 other ○ Typical project <ul style="list-style-type: none"> ▪ Lasts 18 to 36 months ▪ Costs \$33,000 to \$467,000 <ul style="list-style-type: none"> → Average: \$160,000 → Implementation project costs less than \$100,000 ▪ 25 new projects funded each year (approximate) ▪ Total cost of new research projects: \$2.2 million (2020 data) ▪ Total cost of new implementation projects: \$620,000 (2020 data) 	<ul style="list-style-type: none"> • Project types/topics: <ul style="list-style-type: none"> ○ Administration – 2 ○ Hydraulics – 2 ○ Maintenance – 6 ○ Materials – 9 ○ Planning/Policy – 4 ○ Pooled Funds – 3 ○ Safety – 1 ○ Structures – 5 • 32 projects to date • 2015-2022 average project data: <ul style="list-style-type: none"> ○ Lasts 22.6 months ○ Costs \$137,303.87
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Research Process	<ol style="list-style-type: none"> 1. Researchers submit research proposals to LTAP 2. LTAP research engineer reviews proposals 3. LTAP provides research proposals to the LTAP TAC for review and recommendation 4. Recommended proposals forwarded to LTAP Advisory Board for approval and funding appropriation 5. LTAP manages research projects and provides deliverables to LPAs 	<ul style="list-style-type: none"> • Identification and selection of projects aligned with DOT Research idea cycle calendar <ol style="list-style-type: none"> 1. Submission – anyone can submit ideas year round 2. Discussion and evaluation – ideas evaluated 3 times per year; open feedback, bureau priority and program identification 3. Project development –, RFPs, funding approval, contract 4. Active 	<ul style="list-style-type: none"> • Ideas solicitation from county/city engineers via: <ul style="list-style-type: none"> ○ Eight (8) annual MnDOT District meetings ○ Ideascale web-based tool • Prioritization <ul style="list-style-type: none"> ○ County/city engineers vote by ballot on research ideas ○ Prioritized list of ideas developed from votes ○ Update of knowledge building priorities (every four years) as longer-range research priorities <ul style="list-style-type: none"> ▪ Identifies long-term challenges that can benefit from research ▪ Lead by CTS in partnership with LRRB and MnDOT • Need statement development or alternative response • Approval for research RFP and implementation need statements <ul style="list-style-type: none"> ○ UMN researchers work with local agencies to incorporate knowledge building priorities • Evaluation of research and implementation proposals • Select research proposals for presentation and implementation projects for contract development • Select research proposals for funding • Workplan development or contract development/notice to proceed 	<ul style="list-style-type: none"> • Idea solicitation <ul style="list-style-type: none"> ○ Anyone can submit an idea through online form ○ Notifications through ORIL, ODOT Research, and ODOT LTAP ○ Board and associations encourage submissions <ol style="list-style-type: none"> 1. Research ideas submitted (August-September) 2. Board reviews/prioritizes ideas and establishes TACs (October) 3. TACs develop RFPs (November-December) <ol style="list-style-type: none"> a. TACs and ODOT Research develop RFPs b. Board approves RFPs 4. RFP posted by ODOT Research (January) and researchers develop proposals (January-March) 5. ODOT Research receives proposals (March) and TACs review proposals and make recommendations to Board (April) <ol style="list-style-type: none"> a. Accepts proposals from academia and consultants both in and out of state b. No prequalification but must follow guidelines 6. Board selects proposals (May) and ORIL projects are included in ODOT Statewide Planning & Research-B Work Program (May) <ol style="list-style-type: none"> a. ODOT Governance Board confirms board selections 7. ODOT Research negotiations contracts with selected researchers (June) and projects begin after July 1
Research Results Documentation/ Dissemination	<ul style="list-style-type: none"> • Research spotlights: <ul style="list-style-type: none"> ○ What, Why, When, Where, Results, Benefit 	<ul style="list-style-type: none"> • Final report and technology brief (2-4 pages) • RIP repository, final reports uploaded to Transportation Review Board (TRB) Transportation Research International Documentation (TRID) database • Presentations at local, regional, and national conferences 	<ul style="list-style-type: none"> • Technology-transfer products: <ul style="list-style-type: none"> ○ Reports/technical summaries ○ Guidebooks/manuals/fact sheets ○ Software tools ○ Training classes (often through LTAP) ○ Videos and webinars ○ Operational Research Assistance Program (OPERA) demonstration grants • Dissemination 	<ul style="list-style-type: none"> • Final reports posted on ORIL, ODOT, State Library, TRID database • Results presentation webinars • Presentations and exhibits at conference • State level meetings, TRB • Articles in newsletters (ODOT Research, LTAP)

		<ul style="list-style-type: none"> • News articles and research briefs for recent projects • Webinars program (future plan) 	<ul style="list-style-type: none"> ○ Newsletter – sent to all county/city engineers plus 1,300 subscribers ○ Project alerts (new) – practitioners can subscribe ○ Social media (LinkedIn) (new) ○ Website ○ Presentations at conferences and state aid meetings ○ Project communication plans (new) 	
Funding	<ul style="list-style-type: none"> • Seven-year agreement with INDOT • Has separate agreement, individual per-project purchase orders, and annual cap on funding for projects for Local Roads Innovation and Research Program 	<ul style="list-style-type: none"> • Iowa DOT \$1,000,000 • County \$1,700,000 • City \$200,000 • STIC \$100,000 • Sources: state road use tax revenue • STIC sources: federal funds 	<ul style="list-style-type: none"> • Level of Funding • ½ of 1% of the counties and cities statutorily dedicated distribution of transportation funding • \$4 million annually • \$2 million annually for ongoing program support • \$2 million discretionary (e.g., research, implementation, outreach, strategic planning) • Sources of Funding • Highway User Tax Distribution Fund (HUTDF) – constitutionally dedicated to MnDOT, counties, and state-aid cities • LRRB Support for Ongoing Programs and Subcommittees • Outreach \$100,000 • LTAP-U MN/CTAP trainer \$469,000 • Research & Innovation staff support \$400,000 • MnROAD \$500,000 • MnROAD tech. transfer and support \$70,000 • Library services \$70,000 • Tech.I transfer materials deve. \$130,000 • LRRB website \$10,000 • Research needs statement dev. \$40,000 • OPERA Program \$90,000 • Project administration (e.g., meetings, travel, conferences, publishing) \$125,000 <ul style="list-style-type: none"> ○ Total ongoing program commitments \$2,004,000 • Over half of LRRB funding focused on getting research into the hands of practitioners for practical use 	<ul style="list-style-type: none"> • For the program <ul style="list-style-type: none"> ○ \$500,000 per year ○ Statewide Planning & Research-B Funds ○ 80% federal/20% state (match provided by ODOT) • Funds can be used for: <ul style="list-style-type: none"> ○ Research expenses only ○ Contracted research projects ○ Funds and contracts managed by ODOT Research • Funds cannot be used for: <ul style="list-style-type: none"> ○ Capital improvements ○ Standard maintenance activities ○ Grant project work ○ Program administration

Collaboration			<ul style="list-style-type: none"> • LRRB and MnDOT <ul style="list-style-type: none"> ○ Both evaluate proposals ○ Joint funding considered for proposals addressing local agency and MnDOT needs ○ Typical proposal funding (2020 data) <ul style="list-style-type: none"> ▪ LRRB: 6 research projects ▪ Joint: 10 research projects ▪ MnDOT: 10 research projects • Minnesota Transportation Libraries • Minnesota's Cold Weather Pavement Testing Facility – MnROAD <ul style="list-style-type: none"> ○ National Road Research Alliance • LTAP <ul style="list-style-type: none"> ○ Circuit Training and Assistance Program (CTAP) • OPERA Program • State DOT Library – services include: <ul style="list-style-type: none"> ○ Literature searches ○ Current awareness alerts ○ Reference questions ○ TRB's Research in Progress database ○ Cataloged reports and other deliverables ○ Books, reports, and articles ○ E-books (non-engineering) for professional development ○ Study and exam resources for professional engineer exam 	
Challenges	<ul style="list-style-type: none"> • Committing to partially-funded projects • Projects that span workplan years • When during the year that research is needed and whether capacity is available • Deliverables dictated by workplan cycle • Delays between inception and start date • Shifting priorities change or diminish research capacity 			

<p>Future Plans for the Program</p>	<ul style="list-style-type: none"> • Proposal for research program: <ul style="list-style-type: none"> ○ Independent program <ul style="list-style-type: none"> ▪ Separate research program from annual LTAP workplan ▪ Provide program budget cap ▪ Respond to LPA needs ○ Individual purchase orders (POs) <ul style="list-style-type: none"> ▪ Use PO start/end dates corresponding to project schedule ▪ Approve each PO project budget ○ Program management <ul style="list-style-type: none"> ▪ Have LTAP Advisory Board approve changes to project schedule and modify PO ▪ Provide quality assurance ○ Project management <ul style="list-style-type: none"> ▪ Provide quarterly progress reports to LTAP Advisory Board and TAC ▪ Evaluate projects with earned value management techniques • Future developments: <ul style="list-style-type: none"> ○ Dedicated research program landing page and individual project web pages ○ Repository for research deliverables (e.g., Purdue e-Pubs, searchable database) ○ Local Grant Program for Innovation and Research 		<ul style="list-style-type: none"> • Marketing plan goals <ul style="list-style-type: none"> ○ Increase TAP participation ○ Reach more lower-level staff ○ Improve website experience ○ Identify optimal communications budget/manpower ○ Produce more content 	
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Panel Discussion

The second part of the agenda was dedicated to a panel discussion that lasted approximately three hours. The panel discussion allowed members of the delegations to collect focused follow-up information from the presenting delegations as well as to discover information that may be specific to one state. The panel discussion was a moderated but free-form discussion. While most of the questions during this portion of the peer exchange originated from the on-site Michigan delegation, the format allowed out-of-state and virtual participants to direct questions or provide responses.

The panel discussion questions and responses are included both in key points and in summary form below.

States with known local roads research programs

KEY POINTS

- Indiana
 - Iowa
 - Minnesota
 - Ohio
-

DISCUSSION SUMMARY: ***How many states have local roads research programs? - General question to all delegates***

Indiana, Iowa, Minnesota, and Ohio are the only known local roads research programs.

Projects requested by vendors to demonstrate a product or process

KEY POINTS

Research projects...

- Evaluate or demonstrate a class of—not individual—products or technologies (Minnesota)
- Must be initiated by a local road-owning agency if conducted on an individual product but should be conducted in a way that evaluates the general state of the product from multiple manufacturers (Ohio)
 - Vendors can work toward being added to a list of qualified suppliers (Ohio)
- Must be driven by local road-owning agencies already planning to buy and use the product; if possible, multiple types of similar products should be included and only the product specifications—not its name—should be revealed (Iowa)
 - Funding can be applied toward a researcher to monitor, test, and collect data on the product but not toward the actual project work (Iowa)

DISCUSSION SUMMARY: ***How do you deal with suppliers coming to the program asking for demonstration projects? - General question to all delegates***

Minnesota does evaluation or demonstration projects on a class of technologies or products, not on an individual product. For example, asphalts rejuvenators were of interest, so they solicited many suppliers to provide products for consideration; but, the study was not focused on any one product.

Ohio does not evaluate individual products in its research program. They have a qualified product list; suppliers can work toward being added to that list. Ohio will not take up research on products initiated by vendors. If a local agency wants to try an innovative product, they can evaluate the general state of the product from multiple manufacturers. The initiative has to start at a local road-owning agency.

Iowa has done individual product evaluations, but these evaluations are all driven by a local road-owning agency already planning to buy and use the product. The research program will fund a researcher to monitor, test, and collect data on the product, but not to do the actual work in these cases. They try to include multiple types of similar products rather than individual product evaluations and many times do not reveal the product names but only its specifications.

Projects with a construction component

KEY POINTS

Local roads research programs...

- Cover research-related "delta" construction costs, which are increased costs related to using a new construction technique or research-specific construction, on a case-by-case basis if the bid cost is higher than traditional construction (Iowa)
 - Local roads research program reimburses "delta" costs
 - Iowa DOT will, in some cases, develop special provisions for research projects so they can be used as part of a federal-aid project
 - Do not provide funds for research-related construction costs (Ohio)
 - Local road-owning agency must complete project under normal letting procedures
 - Do not provide funds for research-related construction costs except for rare occasions on small-scale implementation projects (Minnesota)
 - Do not provide funds for research-related construction costs (Indiana)
-

DISCUSSION SUMMARY: ***How do you deal with research that has a construction component? What parts do you participate in? - General question to all delegates***

Iowa's local roads research program covers research-related "delta" construction costs, which are the increased cost related to using a new construction technique or research-specific construction, on a case-by-case basis if the bid cost is higher than traditional construction. The local roads research program reimburses a local road-owning agency for the expended construction cost. The Iowa Department of Transportation (DOT) will in some cases develop special provisions for research projects so they can be used as part of a federal-aid project.

Ohio does not provide funds for research-related construction costs. The responsibility falls on the local road-owning agency to complete the project under normal letting procedures.

Minnesota does not provide funds for research-related construction costs except for rare occasions when there are small-scale implementations, such as the contractor installation of a specialty material.

Indiana does not provide funds for research-related construction costs.

Researchers (i.e., to design test methods and document the study) on local-road-owning-agency projects

KEY POINTS

- Funding for researcher (not construction projects) to document an in-process project (Iowa)
 - Grant of up to \$20,000 per agency to measure operational-type studies (Minnesota)
 - Funding for "delta" costs (i.e., additional project expenses incurred by using innovation over and above the standard methods) to mitigate risk of innovation; case-by-case basis (Iowa)
-

DISCUSSION SUMMARY: ***Do any states provide research support to get a researcher to document findings and help design test methods to study a problem, material or construction technique that a local road-owning agency is already committed to try? - General question to all delegates***

Minnesota has an Operational Research Assistance (OPERA) Program grant program that provides up to \$20,000 per agency to measure operational-type studies.

Iowa does not fund construction projects from research dollars; however, they will cover the cost of a researcher to investigate and document an in-process project that a local agency is doing. On a case-by-case basis, they can cover "delta" costs of innovative projects. Delta costs are additional expenses to build a project with an innovation that cost above and beyond the standard method. This helps mitigate the risk of trying new materials or methods.

Documentation of research findings

KEY POINTS

- TRB's TRID (Minnesota, Ohio)
 - State DOT library (Minnesota)
 - Has dedicated staff to assist with literature reviews
 - Newsletter articles and tech briefs
 - Dedicated research newsletter (Minnesota)
 - LTAP newsletter articles (Minnesota)
 - Tech briefs (All delegates)
 - Web sites and webpages
 - Dedicated local roads research web site that has all reports, products, and tools developed through the program (Minnesota, Iowa)
 - Web sites (All delegates)
 - Presentations, summits, and peer exchanges
 - Research presentations at local road/bridge conferences (Minnesota, all delegates)
 - Research summits (All delegates)
 - Peer exchanges (Minnesota)
 - Dedicated staff
 - Secondary road research engineer to work with local road-owning agencies to find research and apply it (Iowa)
 - Library staff to assist with literature reviews (Minnesota)
-

DISCUSSION SUMMARY: ***How do you document your findings? - General question to all delegates***

Ohio uses the Transportation Review Board's (TRB) Transportation Research International Documentation (TRID) database as a final repository for all their transportation research.

Minnesota also shares its research to TRID and has a state DOT library with staff that assist in literature reviews.

Minnesota also distributes their research findings with a research newsletter and through Local Technical Assistance Program (LTAP) newsletter articles.

Minnesota and Iowa both have local roads research web page repositories where all products, tools, and reports are stored. These locations are popular because of the mass of materials that are located there and the understanding that the projects are focused on local roads.

Iowa has dedicated staff (i.e., a secondary road research engineer) to work with local agencies in finding research and applying it.

Minnesota sets up research presentations at local roads conferences. They also supported the idea of peer-to-peer exchange of ideas.

All delegates indicated they were putting their research on their website, creating research presentations, writing tech briefs and newsletter articles, and conducting research summits to deliver project findings.

Projects/deliverables that include development of specifications (standard practices)

KEY POINTS

- Developing specifications is end result of many projects (specifications is a primary goal of materials research projects) (Minnesota)
 - Generating information for the DOT to change specifications was a desired project outcome for two projects (Ohio)
 - One project created specifications for low-cost bridge rail that could be used on local-agency federal-aid-eligible bridges
 - Process change related to specifications was end result of one project (Indiana)
 - One project created an allowance for LPA-certified local agencies to use their own specification on federal-aid projects
 - Changing local-agency bridge standards is managed by the local roads research program (Iowa)
-

DISCUSSION SUMMARY: ***Is it standard practice for your programs to develop specifications for projects and deliverables? - General question to all delegates***

Ohio had two projects where the desired outcome was to provide enough information for the DOT to be comfortable with changing specifications for constructions projects. One very successful project created a specification for low-cost bridge rail that could be used on local-agency federal-aid-eligible bridges.

Minnesota had “many” projects that have developed specifications. One of the primary goals of their materials research projects is the generation of new specifications.

Indiana had a research project that resulted in a process change that allows local public agencies (LPA)-certified local agencies to use their own specifications on federal-aid projects.

Iowa manages all of its changes to local-agency bridge standards through the local roads research program.

Other types of work done as a part of these programs

KEY POINTS

- Research projects for innovations relevant to maintenance workers (through the OPERA Program) (Minnesota)
 - Update impactful project reports to keep them relevant and current (Minnesota)
 - Development of bridge and culvert standards for local agencies (Iowa)
-

DISCUSSION SUMMARY: ***What type of other types of work have you done with these programs other and standard research? - General question to all delegates***

Minnesota has the OPERA Program that funds innovation for projects relevant for maintenance workers. Occasionally, they will update impactful project reports to keep them relevant and current.

Iowa has convened studies to develop bridge and culvert standards for local agencies. These engineering studies serve the greater good for local road-owning agencies.

Measuring value of research

KEY POINTS

- Measure only on projects where value is easily quantified projects only in order to show net gain in value for the program (Minnesota)
 - Note: Minnesota found up to 20% of project costs went to quantifying value when they were evaluating all projects
 - Measure engagement (e.g., when interest is high for county engineers to serve on review boards for research projects) (Iowa)
 - Measure in terms of dollars saved by agencies that make use of the research project results (Ohio)
 - The few projects that are easily measured generate a value that greatly exceeds the total research dollars put into the program (all states)
-

DISCUSSION SUMMARY: ***How do you measure success in research? - General question to all delegates:***

Minnesota has had quantification of research value as part of their local roads research program; however, not every research project lends itself to be easily measured. Minnesota found that they were spending up to 20% of the project on attempting to quantify the value of research a project, so they ceased value quantification activity. They are quantifying value on projects where value can easily be measured in order to show quantified value in excess of the total research program value and, thus, show a net gain in the program.

Iowa had a similar experience to Minnesota regarding the drain on research dollars to try to quantify a research project's value. Iowa now uses engagement as a metric by evaluating the number of county engineers that are involved in the research process. Engineers are regularly asked to serve on review boards for projects and for the program overall; so, when interest in serving on one of these research related activities is high, it indicates a good value in the research program.

Ohio concurred with the difficulty of quantifying the value of a local roads research project. Ohio measures value in terms of dollars saved from a project using the research result. They

provided an example of a \$190,000 research project that saved \$1.3 million for one agency that used it.

The states had a consensus that the few projects that are easily measured generated a value that greatly exceeded the total research dollars put in to the program; therefore, it does not appear necessary to quantify every project.

Assessing dead ends and failures of research

KEY POINTS

Dead ends

- Defined as a project where materials or methods are found to be unattractive or unusable (Ohio)
- Research projects that result in dead ends do have value or even positive results (e.g., they can define a potential material or method as a "dead end" and help other agencies to avoid it) (Minnesota, Ohio)
- Quantify the value of the "dead end" by assessing potential outcomes if agencies tried the materials/methods and had to redo their projects (Ohio)

Failures

- Defined as a project where a principal investigator moves out of state and does not complete the study or the research halts (Minnesota)
 - Failures can become a public relations problem if in-service test sections do not perform (Iowa)
 - Avoid failures by having frequent touch points with researchers (Indiana, Iowa)
 - Use frequent touch points to help researchers pivot and avoid roadblocks in the research process (Iowa)
-

DISCUSSION SUMMARY: ***What are your experiences with projects that failed (dead ends)? - General question to all delegates:***

Ohio had a project that looked at the technical challenge of using reclaimed asphalt pavement (RAP) as an aggregate for chip seals and microsurfacing. The project ultimately did not go as planned because the majority of RAP piles are owned by construction contractors who did not want to collaborate with preventive maintenance contractors. Also, the project determined that economics would dictate that a RAP pile is used for both chip seals and microsurfacing or there is a leftover fraction that has little value. Both complications caused feasibility problems with the use of RAP for these treatments. While the project did not result in new technology or new treatments, it did define market problems that made this application unattractive. The "failure" of the project produced a positive result by realizing this treatment was a dead end.

Minnesota indicated that reaching a dead end is not a failure and does have value. A project is considered “failed” when a principal investigator moves out of the state and does not complete the study or the research halts.

Ohio looks at dead ends in research as a quantifiable benefit by assessing what would have happened if people tried the “dead-end” innovation or method and the agency then had to do the project over again.

Indiana indicated that they have many frequent touch points with researchers to make sure they are headed down the correct path toward a final delivery. They indicated this was a key step in keeping projects from failing.

Iowa supported the idea that frequent touch points are important to stop failures. Frequent touch points allow the project team to pivot and avoid roadblocks in the research process.

Iowa indicated that research failures can have a large impact on the research program if they turn into public relations problems, specifically where there are in-service test sections that do not perform.

Participation of local road-owning agencies in research board panels

KEY POINTS

- Good participation in statewide board; difficulties with participation on specific research technical advisory committees (Ohio)
 - TACs require a year-and-a-half minimum participation
 - Good participation in both state boards or committees and on individual research committees (about 95%) (Minnesota)
 - Good participation in research board
 - Research board requires a six-year commitment
 - Difficulties with participation (Indiana)
 - Program is in a rebuilding phase so they are competing with other responsibilities
-

DISCUSSION SUMMARY: ***Do you have trouble getting participation in research board panels? - General question to all delegates***

Indiana has trouble getting volunteers. They are in a rebuilding phase, so they are competing with other responsibilities.

Ohio has good participation at the statewide board, but has challenges getting participation on specific research technical advisory committees (TACs) since they require a year-and-a-half minimum participation.

Minnesota has good participation on the state boards or committees. They also have good participation on individual research committees for about 95% of the projects.

Iowa has good participation for their research board, which requires a six-year commitment.

Funding for programs

KEY POINTS

- County and city engineers decide how much money is used toward research and can change the amount at any time (Minnesota)
 - Forces the program to produce a good return on investment
- DOT determines funding and uses monies from the Department of Statewide Planning and Research (Ohio)
- Legislated as a fixed amount, i.e., the percentage of total tax dollars (Iowa)
- Legislated but funding amount is voted upon by local road-owning agencies as part of the annual LTAP work plan (Indiana)

All programs administered through DOT, either its research office or office handling local agency projects

DISCUSSION SUMMARY: ***How do the programs get their budgets? - General question to all delegates***

Minnesota county and city engineers decide how much money gets used toward local roads research, and they can change that at any time. This is viewed as a good thing because it forces the program to produce a good return on investment.

Ohio funds their local roads research program from the Department of Statewide Planning & Research (SP&R) monies. It is the discretion of the DOT to determine how much funding goes to the program.

Iowa local roads research funding is legislated at a fixed amount (percentage of the total tax dollars).

Indiana's local roads research program is legislated but the funding amount is voted upon by local road-owning agencies each year as part of the LTAP work plan.

All programs were administered through the DOT office processes, either through the research office or office that handles local agency projects.

Level of funding and recommendations for Michigan's level of funding

KEY POINTS

- \$4 million/year, split evenly between research and implementation (Minnesota)
- \$500,000/year (Ohio)

Recommended initial program funding between \$1million to \$2 million per year (All delegates)

DISCUSSION SUMMARY: ***What level are the research programs funded and where do you think Michigan should be funded? - General question to all delegates***

Minnesota funds local roads research program at \$4 million per year, which is split roughly in half between research and implementation.

Ohio's local roads research program is funded at \$500,000 per year.

The consensus from the delegate states was that a good start for a local roads research program would be in the range of \$1 million to \$2 million per year.

Using 80% federal research funds versus using state money

KEY POINTS

- DOT handles all paperwork associated with use of federal research funds (Ohio)
 - The local roads research program is handled by the same people that handle the state research program so there is no apparent difference for the DOT since they use the same regulations and limitations
 - Offers less flexibility in use of federal funds for research compared to using state or local monies
 - DOT directs ideas between the state and local program based on best fit (Iowa)
 - DOT staff complete the contracting and funding portions of both programs
 - Does not go through DOT (Indiana)
 - Offers more flexibility in how they can use funds
-

DISCUSSION SUMMARY: ***How does using 80% federal research funds impact Ohio's program versus using state money?***

Ohio DOT handles all of the paperwork associated with the use of the federal research funds. The local roads research program is handled by the same people that handle the state research program so there is no apparent difference for the DOT since they use the same regulations and limitation. There is less flexibility in the use of federal funds for research as opposed to using state or local monies.

Iowa directs research ideas between the state and local program based on which program provides the best fit. The DOT staff complete the contracting and funding portions of both programs.

Indiana's program does not go through the DOT, so they are more flexible with how they can use funds.

Collaboration with other programs

KEY POINTS

- TRB: Use the TRID database to prepare literature reviews and to document research findings (Ohio)
 - Literature search is critical to determine whether the idea has been investigated and, if it has, how to move the research on the idea forward (Minnesota)
 - EPA state division: State-division EPA staff invited to be on technical advisory panel of projects that span interest areas (Ohio)
 - Working with other agencies can get buy-in for specific materials or methods
 - NEED: Collaboration between states that have local roads research programs (All delegates)
 - Annual meeting of those states to collaborate on and disseminate findings of projects (All delegates)
 - Joint funding (All delegates)
 - LTAPs can provide infrastructure for meetings and exchange (Indiana)
-

DISCUSSION SUMMARY: ***How do you collaborate with others on your research program? - General question to all delegates***

Ohio uses the TRB's TRID database to document research findings and allow others to search on the topic as part of a literature review at the beginning of a research project.

Ohio will invite staff from Ohio Environmental Protection Agency (EPA) to be part of their technical advisory panel when they need buy-in for a specific material or method that may span interest areas (e.g., the reuse of recycled rubber or glass in paving).

Ohio delegates indicated that it would be beneficial for states that have a local roads research program to share with each other and coordinate on projects. Indiana indicated that LTAPs could provide the infrastructure for this type of a meeting and exchange.

Delegates mentioned that the missing piece of the collaboration puzzle is collaboration between states that have local roads research boards. An annual meeting of the states with local roads research programs was mentioned as a solution to both collaboration and dissemination of projects. This discussion was inclusive of joint funding and further

collaboration between the four states that have local road research programs. This is an item to work on going forward.

Michigan DOT Research Group

KEY POINTS

- Carole Aldrich, MDOT engineer of research, manages the MDOT state roads research group
 - Funding of \$4 to \$6 million from Department of SPR for state-roads-related topics
-

DISCUSSION SUMMARY: ***Does Michigan DOT have a research group? – Question for MDOT attendees***

Yes, Carole Aldrich is the engineer of research and manages the group that handles DOT state roads research. MDOT typically receives \$4 to \$6 million a year from the Department of State Planning and Research (SPR) fund for research on DOT topics.

Role of the Federal Highway Administration (FHWA) in Iowa's State Transportation and Innovation Council (STIC)

KEY POINTS

- Local roads research program is responsible (in existence for 72 years) for Iowa's STIC (Iowa)
 - FHWA division office has a liaison involved in anything related to Every Day Counts or innovation (Iowa)
-

DISCUSSION SUMMARY: ***Does the FHWA have a role in your State Transportation and Innovation Council (STIC)? -Question for Iowa delegates***

Iowa has had a state and local roads research program for over 72 years. When the FHWA asked states to form STICs, Iowa put that responsibility under the existing local roads research program. The FHWA division office has a liaison that is involved in anything related to Every Day Counts or innovation.

Program successes and desired changes

KEY POINTS

Successes

- Run administratively through the DOT (takes advantage of DOT's contracting capacity and research administration program staff); LTAPs are resources for organizational and administrative function (All delegates)
- Maintaining the local focus of the program (Indiana)

- Incorporate idea solicitation program into already-established meetings as an agenda item (Minnesota)
- Increase funding for implementation (i.e., making a more even split of 50% for research and 50% for implementation) (Minnesota)
- "Researcher on call" program: Program contracts researchers for two years to be on call to do a quick-turnaround project in six months for less than \$60,000. Once a project is activated, the researcher has three weeks to provide an actionable proposal. If the proposal is approved, the project commences. (Ohio)

Desired changes

- Increase local road-owning agency involvement and have them be more autonomous in driving the program (as opposed to being managed by the DOT, where the program is housed (Ohio))
- Increase collaboration with state DOT/federal research (Indiana)
- Shorten time in responding to research needs and time between idea solicitation and final implementable project
- Keeping momentum on ideas not initially selected for funding (i.e., "aging" ideas) (Minnesota)
- Revise name to reflect more closely what the program does (Ohio)

DISCUSSION SUMMARY: ***What are a few things you are doing well and a few things that you would like to change in your program? - General question to all delegates***

Indiana believed they do well maintaining the local focus for research in their program. They would like to boost collaboration with the state department of transportation (DOT)/federal side of research in the state because these are currently separated.

Minnesota recently changed their idea solicitation program to incorporate it into already-established meetings as an agenda item rather than conducting separate dedicated meetings. This increased ideas solicitation and participation significantly. Minnesota recently allocated more funding toward implementation: they started out with an 80%-research-and-20%-implementation split but revised it to an even 50%-research-and-50%-implementation split. They wish they could respond more quickly to research needs and shorten the time between idea solicitation and the final implementable project, which may take 18 months; they do not know how to speed up delivery but have this as a "wish list" item. Minnesota's program generates a large volume of ideas in excess of what can be funded each year, leaving them with "aging" ideas. They are concerned that these "aging" ideas may become overlooked and are not sure how to keep momentum on these older ideas that are not initially selected.

Ohio's local roads research program was started by the DOT as a champion and funding agency for the program. They would like local agencies to be more involved and autonomous in driving the program. Having the program driven by local agencies would help expand interest in the program as opposed to having a program managed by the DOT. They would have liked to name the program something different because it is not readily apparent what the program does.

Ohio has a program called “researcher on call”. This program contracts with researchers for two years to be on call to do a quick turnaround project in six months for less than \$60,000. Once they activate a project, the contracted researcher has three weeks to provide an actionable proposal. If the proposal is approved, the project commences.

All participants indicated that the programs should be run administratively through the DOT and take advantage of the DOT’s contracting capacity as well as their research administration program staff. LTAPs were also mentioned as resources for organizational and administrative function for a program.

Program weaknesses/failures (perceived)

KEY POINTS

- Takes one to three years to complete project (Iowa)
 - Funding takes away from pool for local road-owning agencies' projects (Indiana)
 - Value and efficiency of research projects must be kept in mind (Indiana)
 - Must produce results (Minnesota)
 - Central question is what is the right level of funding, not whether to do the research (Minnesota)
 - "Us versus them" projects
 - Projects that investigate DOT practices at local program offices or funding splits between DOTs and local agencies can be contentious (Ohio)
 - Create project to be a partnership (Iowa)
 - State and local road-owning agencies should work toward same goals (Minnesota)
 - Hesitant to do small projects that only relate to a few agencies because of the limited application (Ohio)
-

DISCUSSION SUMMARY: ***What would detractors say is a weakness or failure in your program? - General question to all delegates***

Iowa indicated that projects can take between one and three years to complete, but end users typically want an answer now.

Indiana said that project funding used in research takes away from the pool for local road-owning agencies to use to do their projects, so they constantly keep value and efficiency in mind.

Minnesota echoed Indiana’s concerns about the need to produce results for the money given to research. They said the central question is what is the right level of funding for research rather than whether to do the research at all.

Ohio said that there are several small projects that may only relate to a few agencies and, even though these projects will have a significant payoff for the few agencies that use it, they are hesitant to do these projects because of their limited application.

Ohio has had ideas forwarded by local agencies for project to investigate DOT practices at their local program office and projects to investigate funding splits between the DOT and local agencies. These types of projects have the possibility of being contentious and divisive if not treated as a partnership between local road-owning agencies. Iowa had a similar project to look at funding, but it was dealt with as a partnership rather than an “us versus them”. Minnesota stressed the importance of both state and local road-owning agencies working toward the same goals in research, not working against each other.

Michigan Program Brainstorming

The final half day of the peer exchange was dedicated to brainstorming ideas for a potential Michigan local roads research program; however, the first hour of this portion of the program was taken up with further questions from the Michigan delegation.

Value of a Michigan local roads research program

KEY POINTS

- Documents, formalizes, and archives innovations being used by local road-owning agencies and encourages use of innovations
- Facilitates sharing/communication of findings and successes related to innovations
- Provides a structured process to test innovative materials or methods and, if applicable, to gain FHWA approval
- Provides research and testing assistance for innovative materials or methods for the duration of the project, thereby facilitating the generation of definitive results
- Can enable broader participation by identifying projects that can be delivered on the federal-aid system
- Provides protection for local road-owning agencies in trying innovations
- Can lead to the development of state and local specifications for innovative materials or methods which, in turn, can make federal funding possible for using those innovative materials or methods
- Identifies the risk/reward balance of trying innovations and mitigates failure through the peer review process
- Can enable coverage of “delta” costs related to use of innovations
- Can provide funding for innovative projects on local roads where innovations may pose a high risk of failure on state routes (Iowa)

- FIRST STEPS: Provide research support for local road-owning agencies using innovative materials or methods, provide researcher to consult with local road-owning agencies in setting up projects and in testing and monitoring the materials or methods
-

DISCUSSION SUMMARY: ***What would be the value of having a local roads research program in Michigan?***

A research process could be used to formalize and archive the innovative things that local road-owning agencies are doing now. It would aid in collecting data for others to use and consider.

A formal research process would assist in communicating successes and innovations to other local road-owning agencies and give formal rigor to the analysis of the benefit of innovations or new processes.

Many local road-owning agencies are trying innovative projects or materials/methods, but they do not have the equipment to collect data on innovative projects or materials/methods to know results of implementing the innovation definitively. Having research and testing assistance over the life of the usage/installation would provide this needed resource.

A local roads research program would provide a process to test new ideas, thus fostering innovation. This process would potentially include a way to gain FHWA approval to try an innovation on a federal aid road.

The research process would provide some level of political cover for local road-owning agencies trying innovations. The process would mitigate failures though the peer review of projects and would make apparent the risk/reward balance of a project.

State and local road-owning agencies have been publicly criticized for not being innovative. A local roads research program would demonstrate, document and encourage innovation.

Developing local or state specifications for innovative or new projects through a research process is a value to local agencies because having specifications in place can potentially give access to federal-funding sources that can be used at on the local road network.

The “delta” cost of trying innovative materials or methods would be important to cover as part of the research project. It would also expand the participation in research if projects can be delivered on the federal-aid system rather than just the local roads system.

Iowa’s state research program will fund a county-level research program or demonstration project that may be too large of a risk of failure on a state DOT route.

An easy first step would be to provide research support for local road-owning agencies that are doing an innovative project or using a new product. Providing a researcher to consult with the local road-owning agency before a project and to set up testing or monitoring with data collection are easy, low-cost ways to encourage local roads research.

General Comments

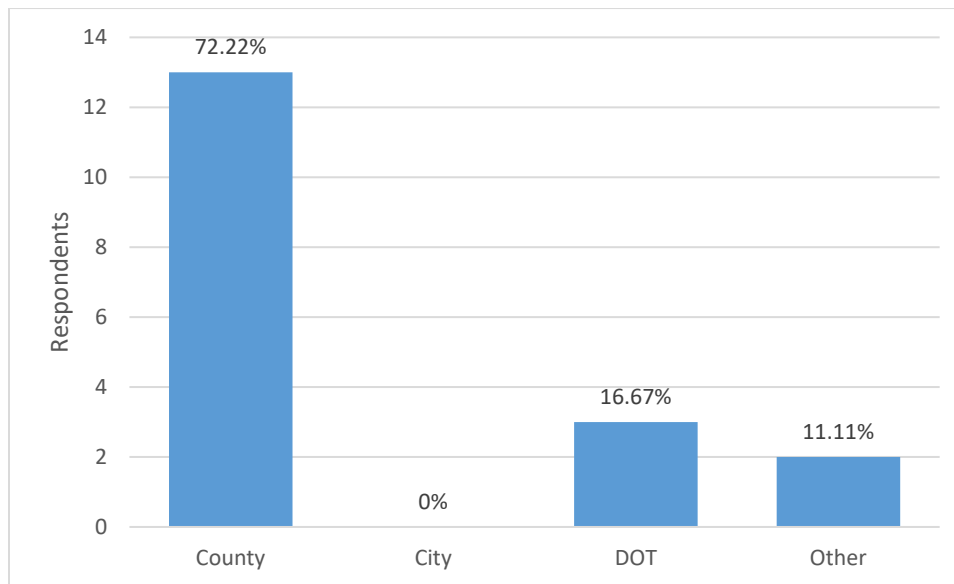
Local roads research programs need to have a common goal and partnership between the state-level and local-level DOT research.

A “coalition of the willing” seems attractive to fund a local roads research board, but it has many moving parts and many opportunities for the funding to be cut or hampered delaying delivery and the start of new research projects.

FOLLOW-UP SURVEYS

One week after the completion of the peer exchange, all participants were sent an electronic follow-up survey that was designed to collect general information about the participant's experience at the peer exchange and to collect information regarding the participant's opinion about the value of a local roads research program in Michigan. Survey results are included below:

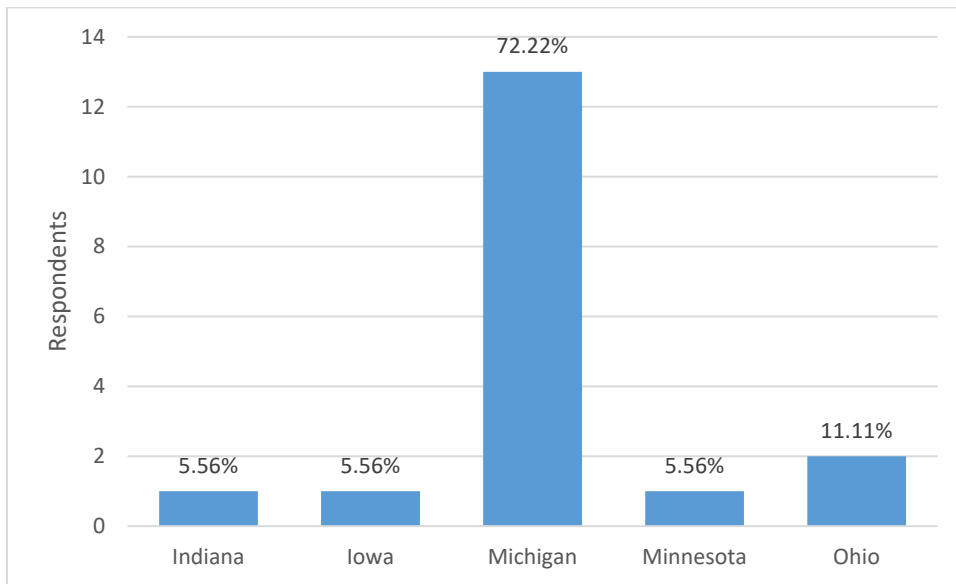
Q1 What type of agency do you represent?



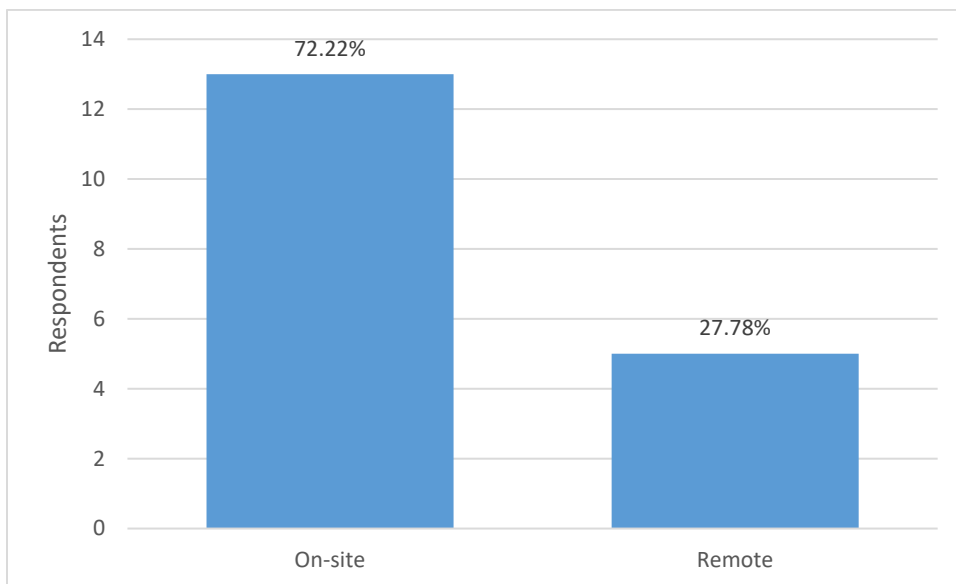
Other

- *Road commission*
- *Indiana LTAP*

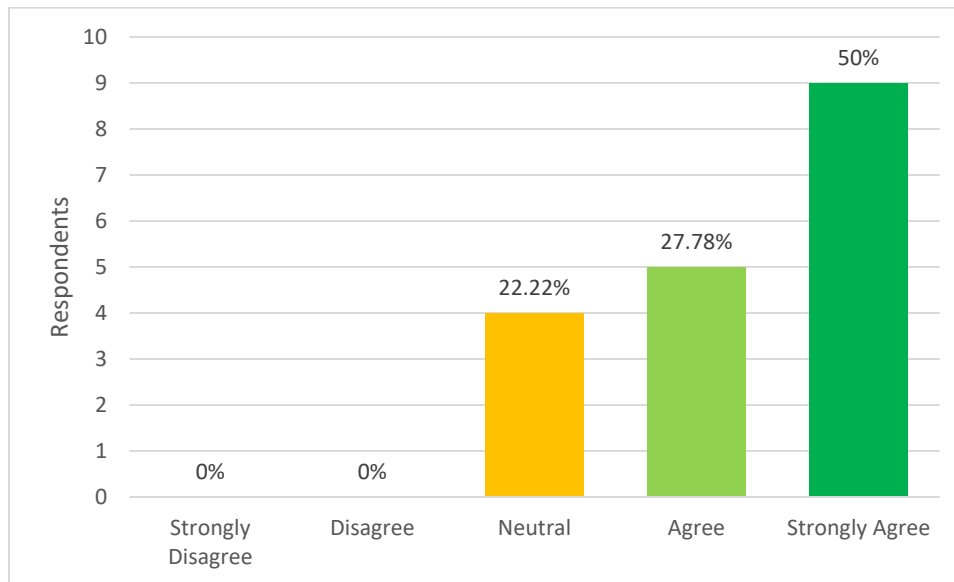
Q2 What state do you represent?



Q3 How did you attend?



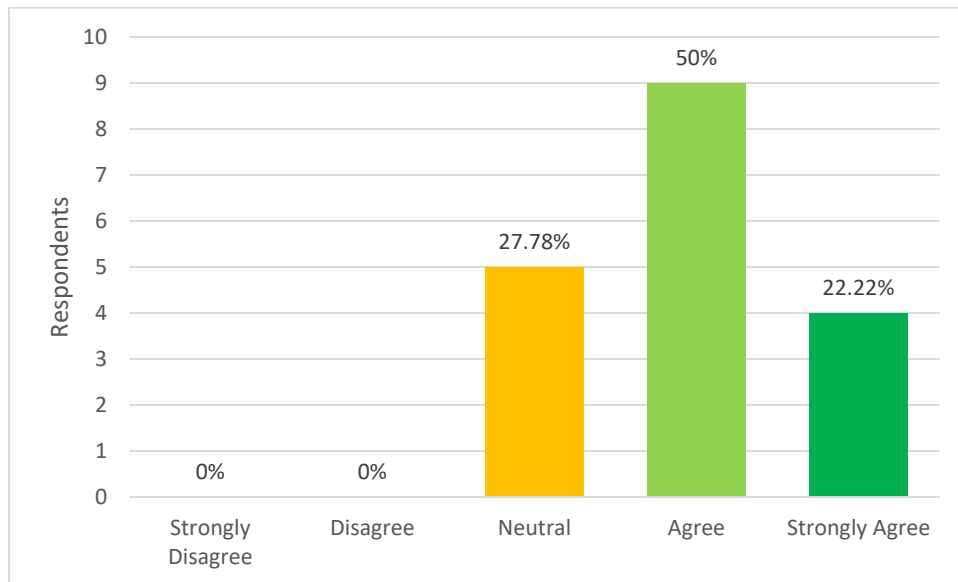
Q4 The technology used in the hybrid meeting allowed meaningful and effective communication for [sic] between remote and on-site attendees?



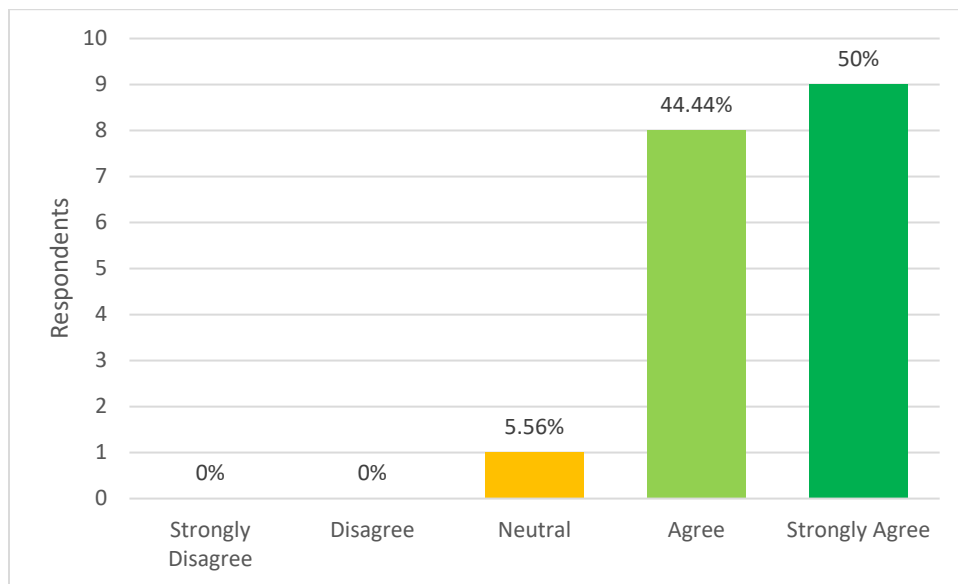
Q5 What could we have done better to bring remote and on-site attendees together?

- *Possibly video of the speaker as well*
- *I thought it worked really well*
- *Did a nice job in this area as I was able to participate both in-person and virtual. Nice to have the option.*
- *I don't believe that it could have been directed better. The connectivity of on-site and off-site attendees was great!*
- *This probably was the best hybrid meeting I've been on.*
- *If there is a way to visually see the remote attendees on a screen, that would be wonderful.*
- *Maybe figure out a way to have monitor(s) showing the off-site attendees, sort of like a TEAM or ZOOM call.*
- *I am sure that you have already thought of this, but a large TV or project screen with off-site folks shown to the ones present in the room would have been extremely helpful.*
- *Worked great, thanks!*
- *The remote option I feel allows for a less attentive audience. Some hybrid for agencies across states, it worked fine. But to achieve a truly interactive audience I think the Hybrid model will always struggle.*
- *The Minnesota? presentation was hard to follow, 2 slides here, 4 away, changing speakers every minute. In future make all here or all away for a presentation, or bigger parts here and away. This was just plain painful.*
- *Nothing to do better*

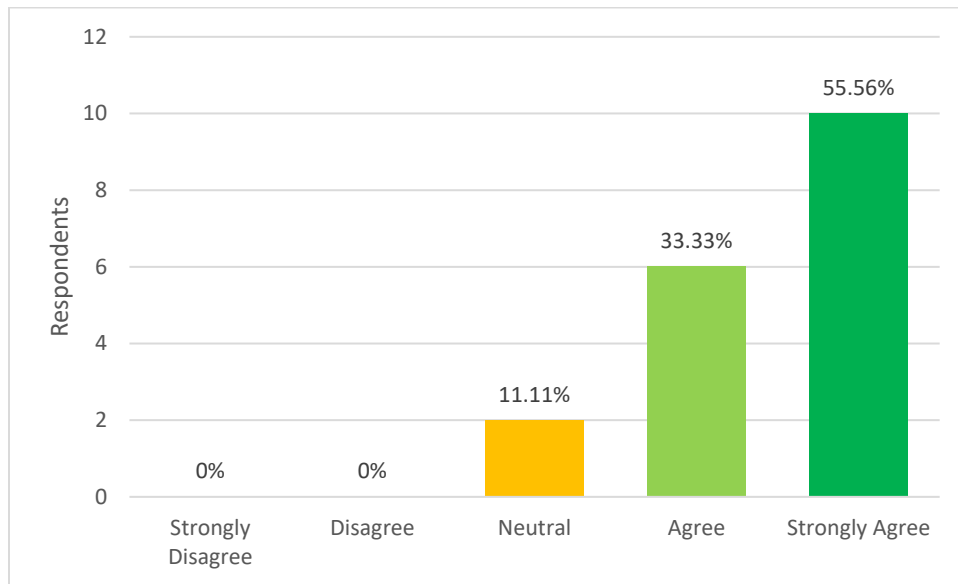
Q6 The Michigan Local Roads Research Board should coordinate projects with MDOT's research program office?



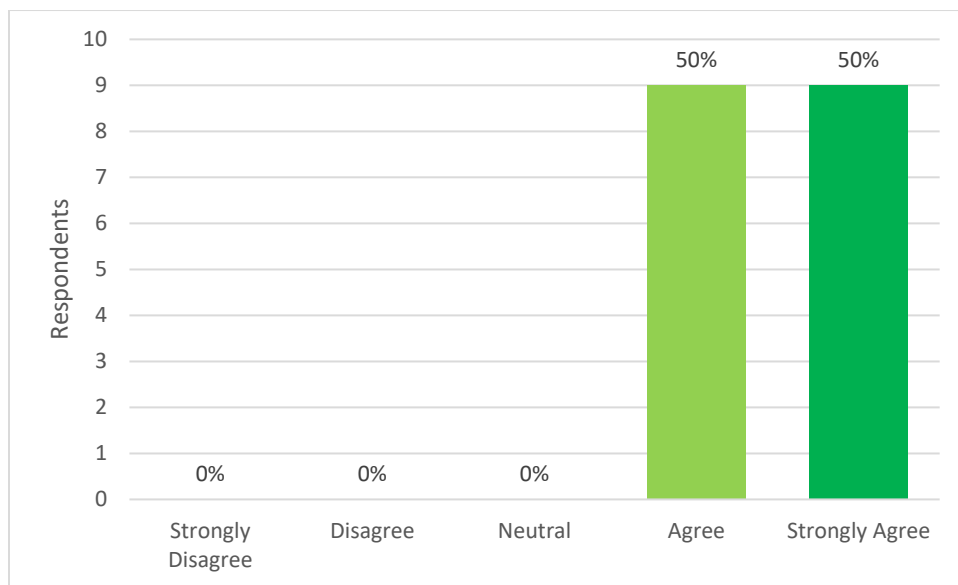
Q7 I feel my agency will benefit from my attendance at the Michigan Local Roads Research Board peer exchange?



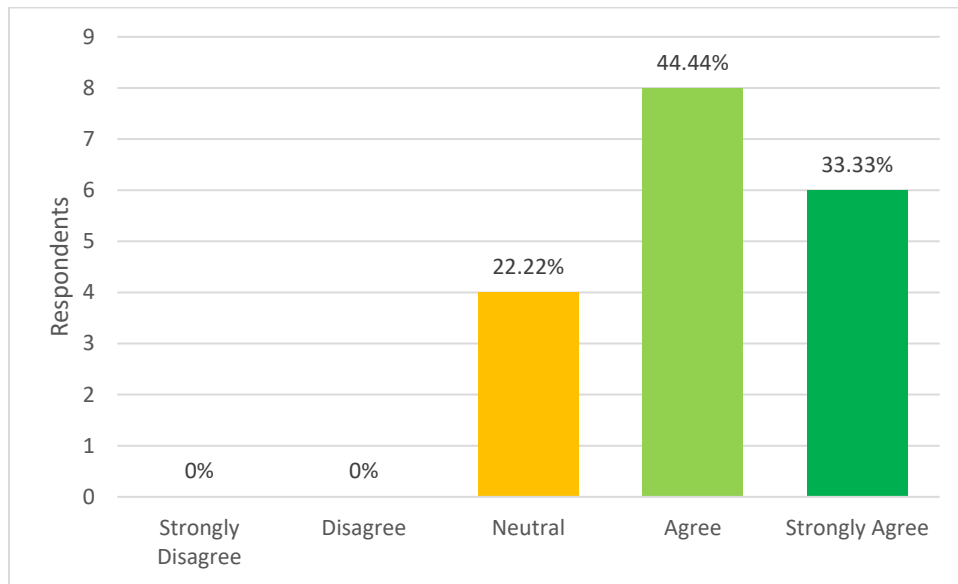
Q8 It was worth my time to attend the Michigan Local Roads Research Board peer exchange?



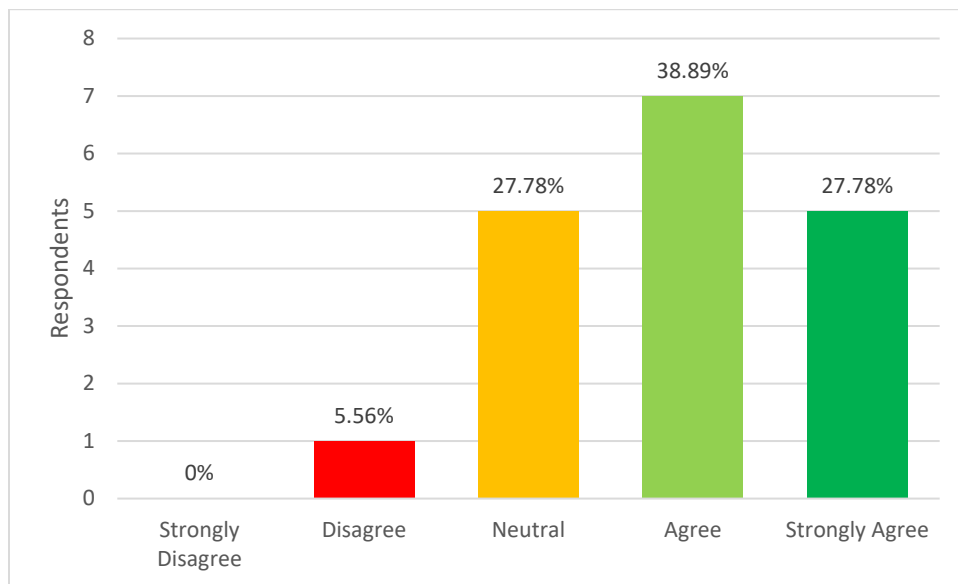
Q9 A funded Michigan Local Roads Research Board (MLLRB) would have benefits to Michigan local transportation agencies?



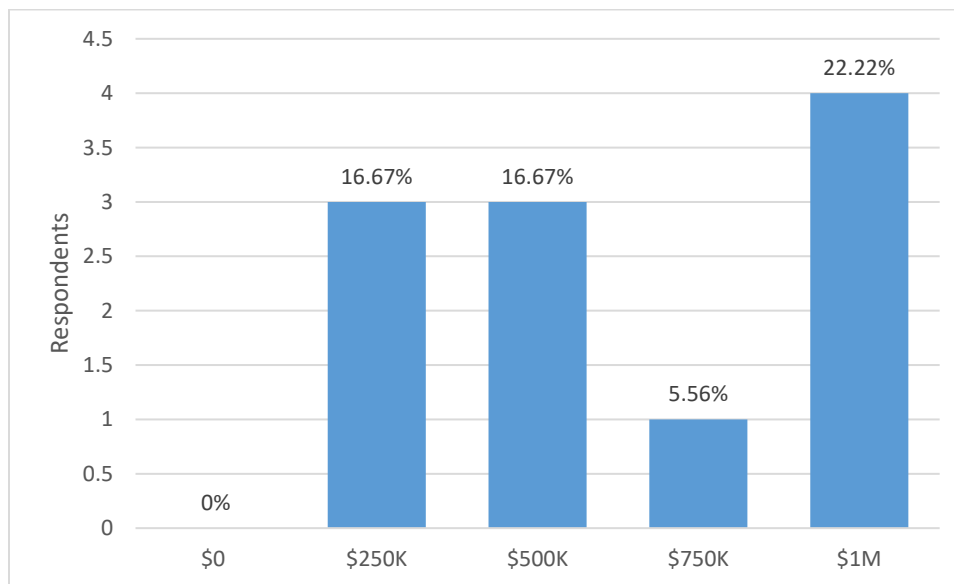
Q10 A funded Michigan Local Roads Research Board (MLRRB) would have benefits to MDOT?



Q11 The benefits generated by funding a Michigan Local Roads Research Board (MLRRB) would make up for the loss of revenue felt at my agency assuming the distribution is equitable relative to size?



Q12 What level do you think the MLRRB should be initially funded at?

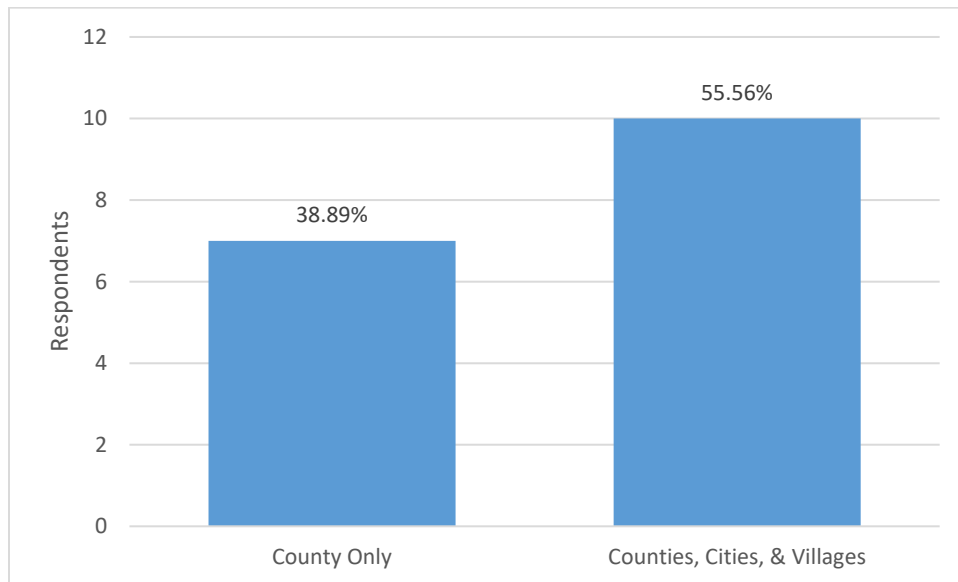


Q13 What value/benefit do you see in having a Michigan LRRB?

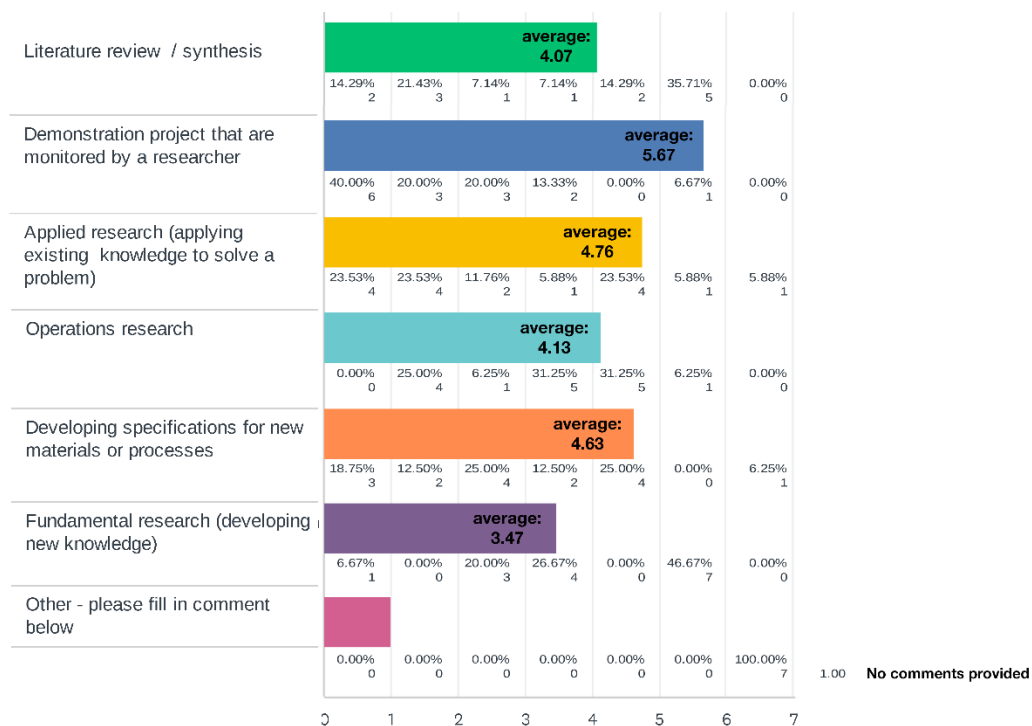
- *Provides an opportunity for us to try new things and helps offset the financial risk to the agency*
- *It appears that counties—including my own—do a lot of trials with different construction methods and materials. I believe that it would be very important for these to be studied accurately and the information disseminated to other agencies so that the best methods and materials could be used.*
- *Share the “research and testing” currently being done at the local level. I did anti-icing testing as well as gravel road stabilization testing 25 years ago. Today I see counties trying the same products like it’s something brand new. My results are in a file drawer. There’s no place to share the info unless it’s published in “The Bridge”. That’s not the best good resource.*
- *Documenting and logging actual data to show benefit to innovative methods being used by county road agencies. Continue to develop new ways of doing things that lead to efficiencies and savings to the taxpayers.*
- *My responses really need greater understanding of the scope of the work, relation to MDOT and the funding model. It should not be a duplicate of efforts and require a large cost of administration. Fundamentally I like the idea, the issue is the details. I would strongly consider it be housed in an existing area through LTAP.*
- *I believe that the LRRB would promote innovation in maintenance and construction. I think that if the cost difference between traditional methods and innovative, new solutions should be eligible for reimbursement in order to encourage road agencies to risk employing new methods. I hope that well documented research could lead to standardizing innovated methods and materials, which may result in a long-term cost savings for all participants. I am concerned that MDOT should be involved, if the outcome of the LRRB projects is to become eligible for Federal or State funded projects.*

- *Finding solutions to common problems that can be implemented by all counties. Each county contributes a little money but all get big returns.*
- *Provides a centralized home for local road research across the state so local agencies can learn from each other and collaborate on ideas to advance the local road network. Provides an opportunity to leverage synergies across the local network and keeps the focus on local roads.*
- *Local agencies can “experiment” on their own, and maybe even (finally) take advantage of FHWA’s experimental process.*
- *I believe that agencies across the state would benefit from the flexibility to use new products, construction methods, and specifications on Federal Aid projects. I would like to see MDOT be responsive to backing the research from trial products and methods when they request these for use on Fed Aid projects. I see acceptance of these new methods and products being expedited since it would be backed by successful trials. I also see a value in finding out what doesn’t work before agencies spend money or continue to spend money on things that don’t work—this doesn’t by any means need to be only focused on Fed Aid acceptance. Maintenance products and methods could also be trialed and researched through this program.*
- *All transportation research on the DOT side bring benefits to the state of Michigan, even if the research results in not doing somethings. I would like to see this occur at the local level. The formal research process documents the decisions, creating a public record for the why behind the decisions. I am sure there is informal research completed at the local level now but without a formal process. Knowledge gained is soon lost without the documentation and dissemination of this information. The creation of a board will allow a team to vet and focus on statewide benefits.*
- *Get things approved that local agencies want, or work better on the local system, not so much waiting for MDOT to do it on the trunkline.*
- *The burden of doing research on my own. There could be research done by others that could benefit me.*
- *LPAs will have independent, unbiased experts evaluating their issues and identifying solutions that could be implemented across the state.*
- *We utilize a lot of different types of preventive maintenance treatments at the Monroe County Road Commission, and our management has been supportive of trying new treatments or utilizing new materials. We have a somewhat limited staff at our agency, and it would be helpful to us if we would be able to collaborate with the Michigan LTAP to monitor and measure the effectiveness of any new treatments.*

Q14 Should Michigan start out with only counties involved in the LRRB or should it include cities?



Q15 What type of projects would be of most value to you and your agency from an LRRB? (please rank)



CONCLUSIONS

The Michigan STIC Local Roads Research Program Peer Exchange employed a panel discussion and a post-event survey to determine project types included in local roads research, the results of the research projects and how those results are disseminated, how existing local roads research programs are excelling, where they may need improvement, involvement of local road-owning agencies in these programs, appropriate funding levels for a local roads research program, and collaboration with state department of transportation (DOT) research groups. From this event, it is possible to draw the following conclusions on local roads research programs and their projects:

Conclusions that can be drawn from the peer exchange event include:

- Iowa, Indiana, Minnesota and Ohio are the only known states with local roads research programs and they desire increased collaboration with their peer state programs. Programs within these states have been extremely successful,
- Existing and new local roads research programs should collaborate and directly share with each other,
- There is strong support from attendees at the peer exchange to start a Michigan local roads research program,
- Local research programs should coordinate with its state research group and use its administrative processes, while leaving governance to the decision of the local program leadership,
- Project types go beyond pure research, and should include applied research; developing specifications; creating broadly-needed tools or documents; and testing new materials or methods. Products should be researched as a group of products rather than a specific brand,
- Projects infrequently include a construction component that is funded by the research program due to the large volume of dollars necessary for construction and the relatively small size of the research programs. Occasionally research programs will cover the change in cost for trying an innovation. More frequently these programs cover the cost for a researcher to document, test, and monitor innovative construction practices,
- Local roads research programs typically interface with, or are run by technology transfer programs like LTAP,
- Successful research programs keep value and efficiency in mind, produce tangible results, and seek partnerships,
- Results are disseminated via newsletter articles, tech briefs, web sites and webpages, research presentations, state department of transportation (DOT) library, and/or Transportation Research Board's Transportation Research database,
- Local roads research projects have effected the creation of new specifications for federal-aid projects that are relevant on local scale,

- Local roads research programs should be driven by and have the participation of the local road-owning agencies themselves,
- Programs are typically funded between \$500,000 and \$4,000,000 per year,
- Existing programs recommend an initial funding level of \$1,000,000 to \$2,000,000 per year for new local roads research programs,
- Existing programs' perceived strengths are focusing on local road research, leveraging state DOT administrative resources, funding implementation as well as research, and ideas solicitation at already-established meetings,
- Areas for improvement generally relate to turnaround time for responding to ideas and moving ideas forward into research projects.

APPENDIX A PEER EXCHANGE AGENDA

MICHIGAN LOCAL ROADS RESEARCH PEER EXCHANGE

Final Agenda

On site event location:

Grandview Rooms A, B and C
Amway Grand Plaza Hotel (Hilton)
187 Monroe Avenue NW
Grand Rapids, MI

Remote event link:

The event will be live streamed via Zoom for remote participation (same link each day):

<https://michigantech.zoom.us/j/89804291452>

Passcode 011584

All times are Eastern Timezone

October 12th, 2021

Delegates arrive

Day 1 October 13th, 2021

7:00 AM Hot breakfast (provided)

8:00AM Welcome and introductions

Denise Donohue and Steve Puuri – County Road Association of Michigan

8:30AM Meeting format and goals. Why are we here?

Tim Colling – Michigan Tech University

8:40AM State overview presentations - 40 Minutes each, question if time permitting

Overview presentations will address:

- History of the group (How did it start, what are its goal, how was it authorized)
- Funding level and source(s)
- Governance (board size and selection)
- Administration, (who does it, how is it funded, what is the FTE level)
- Charge, goals, or guiding principles as they define the group.
- Types of research and projects undertaken (generalize and give 2 or 3 representative examples of projects that have been successful in changing practice)
- Size of projects (number of years, funding dollars per project, number of projects)
- What is your process for developing and selecting project ideas?
- What is your process for soliciting and administering projects?
- How do you distribute the results of studies?

8:40AM Ohio

9:20AM Minnesota

10:00AM Break - 20 minutes

10:20AM Iowa

11:00AM Indiana

11:45AM - Lunch (provided)

1:00PM - Panel session – Open forum with questions for state groups

3:00PM Break (20 minutes)

3:20PM Forum continued

5:00PM Adjourn

6:00PM County Road Association hosted dinner (TBD)

Day 2 October 14th, 2021

7:00AM Hot breakfast (provided)

8:00AM Michigan Delegation working session on a Michigan Program with participation from other state delegations. This session will discuss how best to structure and administer Michigan's program and the key steps necessary to move forward.

11:30AM Wrap up and thank you

11:45AM Adjourn - Delegates return home

APPENDIX B DELEGATE PRESENTATIONS

INDIANA LTAP RESEARCH PROGRAM

Jennifer L. Sharkey, PE
Lead Research Engineer




Local Technical Assistance Program

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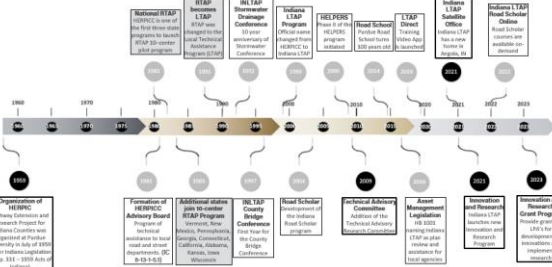
Indiana LTAP Research Program

Outline



2

History



1980 Organization of NERHO Highway Division and Research Center for Indiana Counties was organized at Purdue University in July of 1980 under Indiana legislation (Thop. 111 - 1980 Act of Indiana)

1985 Formation of NERHO Advisory Board Region of technical assistance for local road and transit departments (IC 9-13-1-5.5)

1986 National LTAP (ERFNC) is one of the first three state programs to launch LTAP to assist local programs

1987 LTAP becomes LTAP and is added to the Local Technical Assistance Program (LTAP)

1988 Additional states join to create LTAP Program Region of Middle, Pennsylvania, Georgia, Connecticut, California, Illinois, Kansas, New Mexico, Wisconsin

1989 INLTAP Interstate Conference 31st year anniversary of the Indiana LTAP Conference

1990 Road Scholar program of the Indiana Road School program

1991 Indiana LTAP Conference Program changed from Indiana LTAP

1992 RELSERP Phase 2 of the Indiana LTAP program initiated

1993 Road School Project Road School forms 100 year old

1994 LTAP Direct LTAP Direct (100 year old)

1995 Indiana LTAP Satellite Office Indiana LTAP Satellite Office has a look home in Indiana, IN

1996 Indiana LTAP Road School Online Road School online and available on demand

2000 Technical Advisory Committee Address of the Technical Advisory Committee

2001 Asset Management Legislation Act 2001 naming Indiana LTAP as the main and assistance for local agencies

2002 Formation and Research Indiana LTAP Research and Innovation and Research Program

2003 Innovation and Research Grant Program Phased grants for development of innovations and research projects

3

Funding

Indiana LTAP Funding

INDOT-LTAP Agreement

- Indiana LTAP has a seven-year agreement in place with INDOT
- Indiana LTAP prepares a State Fiscal year workplan and budget that includes operational, training, and special projects expenses.
- Indiana LTAP Advisory Board approves workplan, budget and annual funding.
- Indiana LTAP Advisory Board provides oversight and approval authority for the Indiana LTAP Program

Hazard Elimination Program for Existing Roads and Streets (HELPERS)

- Indiana LTAP has a four-year agreement in place with INDOT
- Separate P.O. with INDOT that utilizes HSIP funds

Local Roads Asset Management Program

- Indiana LTAP receives annual funding to manage the asset management data and training
- Separate annual P.O. with INDOT
- Additional Funding provided in LTAP annual work plan and budget

Local Roads Innovation and Research Program

- Indiana LTAP proposed a separate agreement and individual purchase orders per project
- Annual cap on funding for projects



Local Technical Assistance Program

4

Governance & Administration

OPERATIONAL

Local Public Agencies

- Communicate needs to LTAP
- Partner with researchers (input, data, participation, etc.)
- Provide feedback during project development
- Implement project deliverables

LTAP Staff

- Provide project management of research to ensure projects are delivered on-time and within budget that accomplish the project scope
- Work with LPAs and researchers to identify projects that aim to fulfill the mission of LTAP and its research program
- Work with Purdue University to provide administrative duties for the research program (i.e. Enter into contracts with researchers for approved research projects)
- Work with INDOT to ensure funds are available at the time needed

EXECUTIVE

LTAP Technical Advisory Committee (LTAC)

- Review project proposals and provide recommendation for approval to LTAP Advisory Board
- Act as a technical resource and sounding board for research projects
- Identify research needs as current in the LPA community
- Provide guidance to the LTAP staff on research-related activities

LTAP Advisory Board

- Approve research project proposals
- Authorize funding for project proposals
- Establish cap for research program funds at a given point in time
- Review progress reports and provide feedback
- Act as the checks & balances unit for the LTAP research program and staff

FISCAL

Indiana Department of Transportation (INDOT)

- Create Purchase Orders for each research project as approved by the LTAP Advisory Board

Purdue University Sponsored Programs / Purdue University Business Office

- Provide financial services for project management activities of research projects
- Work with LTAP staff, INDOT, and contracted researchers to facilitate payment of work



Local Technical Assistance Program

5

Research Program Goals

- 1 Driven by local agency needs
- 2 Timely delivery of content
- 3 Benefits entire local transportation industry
- 4 Implemented by local agencies
- 5 Provides content for training and technical resources



Local Technical Assistance Program

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6

Research Development – Current Process



“Current” Linear Process

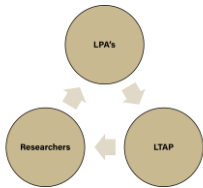
- 1. Proposals provided by researchers to LTAP
- 2. LTAP provided research proposals to LTAP Technical Advisory Committee (TAC) for review and recommendation
- 3. Recommended proposals submitted to LTAP Advisory Board for approval and funding appropriation
- 4. LTAP managed research projects and provided project deliverables to LPA's

7

Research Development – Proposed Process

“Proposed” Collaborative Process

- 1. Ideas generated by LPA's
Focus group sessions, brainstorming mtgs, site visits, roundtable at Road School
- 2. LTAP identifies researchers and develops project proposals based on LPA needs
- 3. Formal recommendation & approval process (LTAP TAC & Advisory Board)
- 4. Researchers partner with LPA's during project development and implementation stages with LTAP serving as project manager



8

Research Project Examples

- I. **Development of an Indiana Model Ordinance for Stormwater Management and Technical Standards**
 - a. To comply with IDEM updates to the Stormwater Construction General Permit
- II. **A Guide to Street and Highway Operations during Contagious Illness Outbreaks**
 - a. To capture and utilize lessons learned during COVID-19 and apply to flu season
- III. **MS4 Pollution Prevention & Good Housekeeping Training Modules**
 - a. To comply with IDEM updates to the MS4 General Permit
- IV. **Winter Operations Best Practices and Training for Local Agencies**
 - a. To develop procedures for salt spreader calibration and spreader hydraulic systems for better winter operation management
- V. **Development of Guidelines for Use of Cold Mix Asphalt**
 - a. To provide engineering resources and design standards for CMA to local agencies

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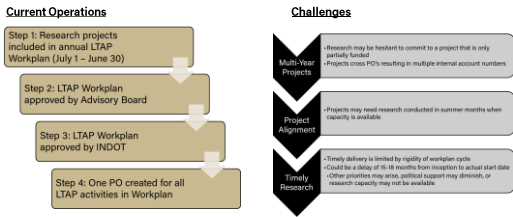
Research Project Spotlight

Documenting the Construction of a Plain Concrete Bridge Deck and an Internally Cured Bridge Deck

- ❑ **What:** Project designed to help transfer technology to the field and provide a side-by-side comparison of the behavior of a conventional (plain) and internally cured concrete in field applications
- ❑ **Why:** Introduction of internal curing has been delayed due to unfamiliarity with production, design of mixtures, specification of mixtures, and how to quantify real benefits and costs of using the mixtures in terms of service life and life-cycle costs
- ❑ **When:** September 2010
- ❑ **Where:** Two identical bridges owned and maintained by Monroe County with same locality and environmental and traffic conditions
- ❑ **Results:** One year after casting, visual inspection showed two cracks (one transverse and one longitudinal) in the plain bridge deck and ZERO visual cracks in the internally cured deck.
- ❑ **Benefit:** Local agencies have proven results that the internal curing process results in a concrete with less initial cracking, less shrinkage, lower thermal stress, lower strain, and greater resistance to chloride ion penetrations, with similar or slightly higher strength, relative to plain concrete.

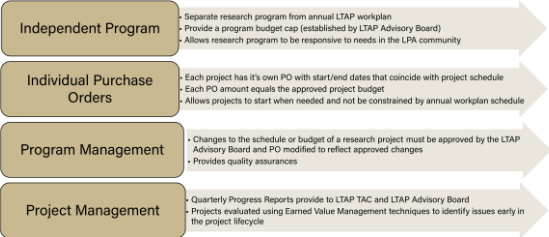
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Research Program Logistics



11

Research Program Proposal



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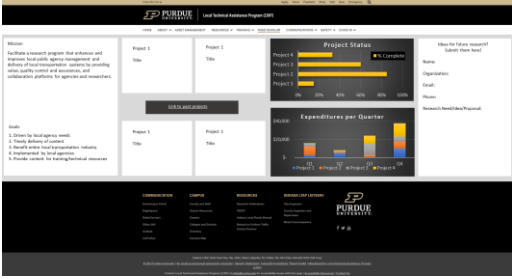
Future Development

- I. Dedicated Research Program Landing Page & Individual Project Webpages
 - I. Snapshot of research program
 - a. Projects in portfolio, project status, funds expended, submittal form for research project ideas
 - II. Live updates on current research projects
- II. Repository for Research Deliverables
 - I. Currently utilize Purdue e-Pubs
 - a. Exploring other options or revising links in Purdue e-Pubs
 - II. Desire a searchable database by topic rather than by project completion year
 - III. Desire to house ALL research project deliverables (i.e. videos, publications, fact sheets, etc.)
- III. Local Grant Program for Innovation and Research
 - I. Provide grant opportunities for local agencies to develop innovations and/or implement research deliverables



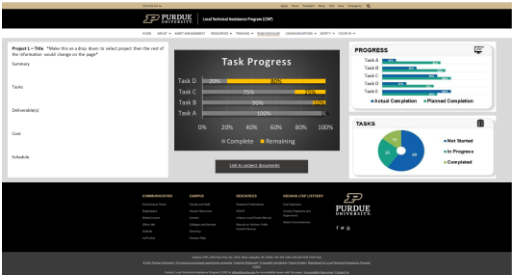
13

Research Program Landing Page - Mockup



14

Individual Research Project Webpage - Mockup



15



Michigan Local Roads Peer Exchange

1

IHRB History

- Iowa Legislature set aside funding in 1949
- First meeting - May 18, 1950
- Initially county and state funding
 - City funding added in 1989
- City street funds and county funds allocated by Iowa Code
- DOT funds allocated by commission

2

IHRB Funding per Year

Iowa DOT Funding -	\$1,000,000
City Funding -	\$200,000
County Funding ~	\$1,700,000
STIC	\$100,000

3 main sources of funding are from state road use tax revenues. STIC funds are federal funds.

3

Vision:

- Improve lives through innovative transportation research

Mission:

- Lead the identification of needed research and engineering development activity; encourage collaborative involvement; and support research implementation

Goals:

- Improve the efficiency and effectiveness of highway transportation and engineering in Iowa
- Encourage innovation and longer-range technological advances in the field of transportation

STIC:

- Since 2015 – serve as Iowa State Transportation Innovation Council

4

IHRB Organization

- 15 Members / Alternates
 - 7 County Engineers (Six Districts + TRB Rep.)
 - 2 City Engineers:
 - 2 University Civil Engineering Department Chairs (U of I, ISU)
 - 4 Iowa DOT Engineers
- 3 year terms

5

Administration

- Managed by
 - Executive Secretary - .8 FTE
 - Manage board activities, arrange meetings, manage contracts and project development, budget
 - Financial PP - .15 FTE
 - Project finances, obligations, expenditures
 - Admin Assistant - .5 FTE
 - Keep minutes, distribute agenda, pay invoices, project database
 - Secondary Road Research Eng. – dedicated to county research support. - .9 FTE

6

IHRB Business

- 9 Meetings Per Year
- Advisory Board
- Research Identification, Prioritization, and Selection
- Approve final results
- Project Ranking
 - New Projects Voting - 3 times per year
 - Next Phase Project Ranking - twice per year
 - Innovative Project Ideas – every other year
 - Matching Fund Proposals given priority

7

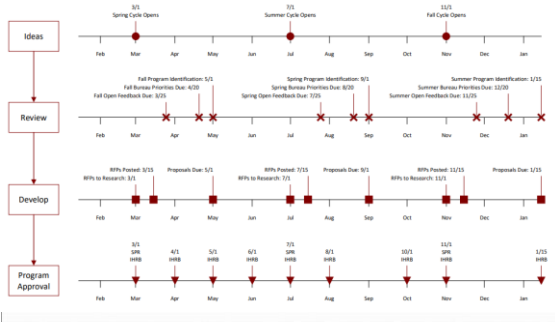
Project Identification & Selection

- Aligned with DOT Research Idea cycle calendar
 - Anyone can submit ideas year round
 - Ideas evaluated 3 times per year
- Ideas move through 4 Stages:
 - Submission
 - Discussion & Evaluation – *Open Feedback, Bureau Priority & Program Identification*
 - Project Development – *PDG, RFP, Funding Approval, Contract*
 - Active

<https://iowadot.gov/research/Process/Development-Process>

8

Research Cycle & Annual Calendar



9

Recent New Projects

HR 140P	USGS - Collection and Analysis of Streamflow Data (Since 1968)	Yearly	\$261,525.00
HR 296LTAP21	LTAP - (Since 1983)	Yearly	\$190,000.00
TR-726	Modernization of Iowa Transportation Program Management System	2 years	\$445,519
TR780	Advanced Testing and Characterization of Iowa Soils and Geomaterials	3 years	\$314,000
TR-789	Self-Heating Concrete City of Iowa City	3 years	\$347,051.00
TR790	Alternative Funding Approaches for Iowa roads	1 year	\$174,872.00
TR791	Bridges Designed for Minimum Maintenance	3 years	\$350,000.00
TR792	Assessing the Flood Reduction Benefits of On-Road Structures	3 years	\$449,363.00
TR793	Superabsorbent Polymers In Concrete to Improve Durability	2 years	\$49,915.50
TR794	Iowa Public Works Service Bureau	2 years	\$480,000.00
TR795	Next Generation Life-Cycle Cost Analysis Tool for Bridges in Iowa - Phase II	1 year	\$150,000.00
TR796	Iowa Granular Road Structural Design Tool	3 year	\$349,885.00
TR797	Feasibility of Granular Road and Shoulder Recycling Phase II: Gradation Optimization for Improved Performance	3 year	\$214,844.00

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FY2021 STIC Projects

e-Ticketing and Digital As-Built: implementation in rural areas (#3428) - \$40,000

Guidebook for Application of Polymer-modified Asphalt Overlays: from Decision-Making to Implementation (#3424) - \$40,000

UHPC Preservation and Repair: Peer Exchange (#3415) - \$25,000

Development of Digital As-Built for Use in Future Asset Management Applications (#3410) - \$50,000

<https://ideas.iowadot.gov/subdomain/stic-incentive-funds/end/ideas?qmzn=iKFrYf#>

14

2021 AID Grant Projects

- Unpaved Road Modulus using Validated Intelligent Compaction (#3481) - \$1.25 M
- Digital Delivery and Digital As-Built - \$1.25M

<https://ideas.iowadot.gov/subdomain/applications-for-aid/end/ideas?qmzn=iKFrYf#>

15

Research Results

- All IHRB Projects must have a final report and technology brief (2-4 pages)
- All projects are in RIP, final reports uploaded to TRID
- IHRB encourages presentations at local, regional and national conferences
- News articles and research briefs for recent projects
 - https://ideas.iowadot.gov/all_news?qmzn=iKFrYf
 - Next step is webinars program

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Key to Success is Partnership!

- Between Highway Agencies
- Within Industry
- Between Universities!
- All Disciplines

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Resources

- IHRB Information Page:
<https://iowadot.gov/research/Programs-and-Partnerships/Iowa-Highway-Research-Board>
- IHRB Business Plan:
https://iowadot.gov/research/pdf/business_plan.pdf
- IHRB Agenda/Minutes:
<https://iowadot.gov/research/IOWA-HIGHWAY-RESEARCH-BOARD/Meeting-agenda-and-minutes>
- Research Idea Management Platform:
<https://ideas.iowadot.gov/>

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THANK YOU!

Vanessa Goetz, P.E.
State Research Program Manager
Research and Analytics
Voice 515-239-1382
vanessa.goetz@iowadot.us
<http://www.iowadot.gov/research>

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Minnesota Local Road Research Board (LRRB) Overview Presentation

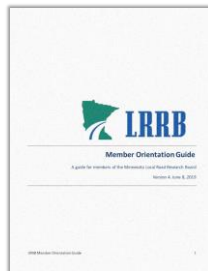
Kristine Elwood, MnDOT-State Aid Director
Jim Foldesi, LRRB Chair and St. Louis County Engineer
Michigan Local Roads Research Peer Exchange/October 13, 2021



0



Recommended Resources (In Packet)



1



Presentation Overview

1. History of the Local Road Research Board (LRRB)
2. Funding level and sources
3. Organization of research activities including governance, administration, sponsorships and collaborative partnerships
4. Mission, vision, goals, and strategies
5. Representative project examples
6. Research Program attributes (including lifecycle, research categories, ideas solicitation, and project selection processes)
7. Communications and Engagement Strategies

2



1. History of the Local Road Research Board

3



History: What is the Local Road Research Board (LRRB)?

The LRRB is a practitioner-run organization that sponsors research and educational initiatives to address local agency transportation needs in Minnesota.



4



History of the Local Road Research Board (LRRB)

Funding and membership authorization is set in State of Minnesota legislation (1959).

According to Minnesota statutes, LRRB funding must support the following:

- Research that improves the design, construction, maintenance and environmental compatibility of state-aid highways, streets and appurtenances
- Construction of research elements and reconstruction or replacement of research elements that fail
- Programs for implementing and monitoring research results

5



History of the Local Road Research Board (LRRB)

- While the organization has evolved over time, LRRB's fundamental mission to serve local road practitioner transportation needs remains evergreen.
- Strong relationship with the University of Minnesota Center for Transportation Studies from the beginning as a collaborative knowledge partner.
- Early emphasis on demonstrating the value of research (\$13 return for every \$1 invested).
- Fostering two-way learning, stronger student recruits and agency employees exposed to research.

6



2. Funding level and sources

7



Funding Level and Sources

- ½ of 1% of the Counties and Cities statutorily dedicated distribution of transportation funding
- \$4M annually
 - \$2M annually for ongoing program support
 - \$2M discretionary (research, implementation, outreach, strategic planning, etc.)

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Highway User Tax Distribution Fund (HUTDF)

Constitutionally dedicated to MnDOT, Counties and State Aid Cities



Fuel Tax



License Tabs

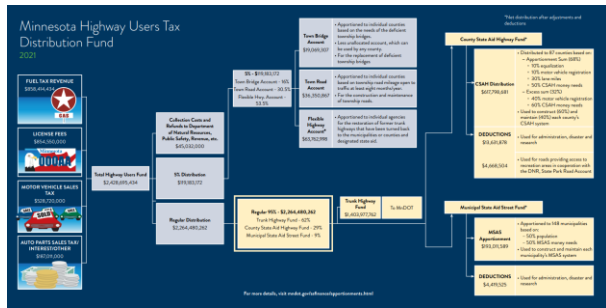


Motor Vehicle Sales Tax

mndot.gov

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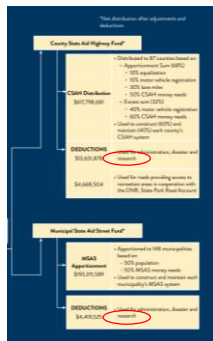
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mndot.gov

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3. Organization of research activities including governance, administration, sponsorships and collaborative partnerships

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Organization of Research Activities



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Local Road Research Board (LRRB) Governance

- Governed by local agency engineers as the majority on a 10-member board:
 - >4 county engineers*
 - >2 city engineers*
 - 1 MnDOT Expert Office representative
 - 1 MnDOT State Aid Engineer - permanent member
 - 1 MnDOT Research and Innovation Office Director as a permanent; ex-officio member
 - 1 University of Minnesota Center for Transportation Studies (CTS) representative
- The State Aid Engineer selects new members through consultation with the Board.
- A city or county engineer serves as chairperson.
- MnDOT Research and Innovation Office administrative support.

* local agency engineers may serve up to two 4-year terms. One local agency engineer serves as liaison between LRRB and RIC.

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Who is the Local Road Research Board?

- Kristine Elwood, MnDOT State Aid
- Jim Foldesi, St. Louis County (Chair)
- Kaye Bieniek, Olmsted County
- Lon Aune, Marshall County
- Wayne Sandberg, Washington County
- Kent Exner, City of Hutchinson
- Paul Oehme, City of Chanhassen
- Duane Hill, MnDOT District 1
- Kyle Shelton, U of M CTS
- Katie Walker, MnDOT Research

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Research Implementation Committee (RIC)

- Led by local agency engineers as the majority on a 10-member committee:
 - 4 county engineers*
 - 2 city engineers*
 - 1 MnDOT Specialty Office representative
 - 1 MnDOT Deputy State Aid Engineer - permanent member
 - 1 MnDOT Research and Innovation Research Management engineer
 - 1 University of Minnesota Center for Transportation Studies (CTS) representative, Local Technical Assistance Program (LTAP) Director
- Selection and appointment of new RIC members is the responsibility of the State Aid Engineer in consultation with the Local Road Research Board (LRRB).
- A city or county engineer serves as chairperson.
- MnDOT Research and Innovation Office administrative support. Consultant technical support in conducting implementation studies.

* local agency engineers may serve up to two 4-year terms. One local agency engineer serves as liaison between LRRB and RIC.

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Who is the Research Implementation Committee?

- Mike Flaagan (Chair), Pennington Co
- Guy Kohlinhofer, Dodge County
- John Brunkhorst, McLeod County
- Kaye Bieniek, Olmsted County
- Steve Bot, City of St. Michael
- Will Manchester, City of Minnetonka
- Chris Kufner, MnDOT State Aid
- Ben Worel, MnDOT Road Research
- Hafiz Munir, MnDOT R&I
- Kelvin Howieson, MnDOT District 3
- Stephanie Malinoff, U of M CTS

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U of MN Center for Transportation Studies (CTS)

- CTS was established in 1987 to promote greater connections between the state's transportation agencies and University researchers.
- CTS staff serve the LRRB in the role of research administration support including;
 - Coordinate the University of Minnesota's annual research RFP
 - Lead the development of Knowledge Building Priorities to ensure generation of research that addresses emerging, complex issues to advance the state of knowledge on critical transportation topics.
 - Communicate information about University of Minnesota research and connect LRRB members with researchers who serve as expert advisors and conduct research for the LRRB.
- The Director of CTS represents the organization on the Board, and other staff participate in LRRB subcommittees and partner programs such as the Local Technical Assistance Program (LTAP).

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MnDOT Research & Innovation Office

- MnDOT's Office of Research & Innovation administers the budget and research program for the LRRB. This includes the following:
 - Contract administration
 - Financial management (at both the program level and of individual projects),
 - Communications and logistics management (arranging meetings, record keeping, purchase orders), reporting and technology transfer.
 - Supporting a full research program management methodology through each program cycle and through each research and implementation project lifecycle.
 - Assembles and submits the LRRB's annual report "At-A-Glance" of approved and ongoing research projects and LRRB initiatives and activities to the Commissioner of Transportation
 - Library services including literature reviews for the development of ideas.
- The MnDOT Office of Research & Innovation role allows LRRB to leverage efficient service based on relationships and similarities between the two research programs.
- Approximately 4 Full time equivalents (FTEs) staff support LRRB, \$400,000 annual budget.

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Outreach Committee (OC)

- The Outreach Committee (OC) is a subcommittee of the LRRB board.
- Purpose of the OC is to increase the awareness of LRRB functions and products within the transportation community.
- The OC includes LRRB members, RIC members and staff from MnDOT and the Minnesota Local Technical Assistance Program (LTAP).
- The OC is administratively supported by the MnDOT Research and Innovation and consultant outreach contract support.
- Majority of current activities focused on Strategic Plan Implementation, Marketing and Communications Plan initiative.
- Outreach consultant support focuses on idea generation, need statement development and practitioner engagement.

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Technical Advisory Panels (TAPs)

- Technical advisory panels (TAPs) guide each individual project including review and approval of deliverables.
- TAP members include;
 - the principal investigator and investigative team members,
 - a technical liaison who champions the research,
 - subject matter experts to cover all technical aspect of the project, and
 - a project coordinator who monitors the research contract.
- Subject matter experts are primarily city and county engineer staff along with some MnDOT involvement.
- MnDOT Research & Innovation Office staff handle administrative responsibilities for each project including contract compliance.

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LRRB Sponsorships/Collaborative Partnerships

- Minnesota Transportation Libraries
- Minnesota's Cold Weather Pavement Testing Facility – MnROAD
 - National Road Research Alliance (NRRA)
- Local Technical Assistance Program (LTAP)
 - Circuit Training and Assistance Program (CTAP)
- Operational Research Assistance (OPERA) Program

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Library Services to MN City and County Practitioners


- Preliminary and in-depth literature searches
- Current awareness alerts
- Research/answer reference questions
- Update projects in TRB's Research in Progress (RIP) database
- Catalog reports and other deliverables and make them available worldwide
- Supply requested books, reports and articles
- E-books (non-engineering) for professional development
- Study and exam resources for PE Exam

MINNESOTA

TRANSPORTATION


LIBRARIES

23




Support for On-going Programs and Subcommittees	LRRB Funding
Outreach	\$100,000
LTAP-U of MN /CTAP Trainer	\$469,000
Research & Innovation Staff Support	\$400,000
MnROAD	\$500,000
MnROAD Technology Transfer and Support	\$70,000
Library Services	\$70,000
Technical Transfer Materials Development	\$130,000
LRRB Website	\$10,000
Research Needs Statement Development	\$40,000
Operational Research Program (OPERA)	\$90,000
Project Administration(Meeting, travel, conference expenses, publishing, etc.)	\$125,000
Total On-going Program Commitments	\$2,004,000

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4. Mission, vision, goals, and strategies

25



LRRB Strategic Plan (2019 – 2024) Mission and Vision

Mission: The mission of LRRB is to serve local road practitioners through the development of new initiatives, the acquisition, and application of new knowledge, and the exploration and implementation of new technologies.

Vision: LRRB is the nationally recognized model for a practitioner-driven research organization focused on developing and implementing solutions for the local transportation system.

LRRB's vision is the long-term 'state of being' to which it aspires. The vision that emerged from stakeholder engagement in the Strategic Plan update process is one of strengthened stakeholder relationships and streamlined operations, translating to leadership for and positive impact on Minnesota's local transportation system.

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LRRB Strategic Plan Goals and Strategies

Goal 1: Prioritize and fund research that focuses on the local transportation system

- Implement consistent and transparent processes for prioritizing and selecting projects.
- Prioritize topics and stakeholder needs that have high potential for impact.
- Address the research needs of both cities and counties.

Goal 2: Emphasize research implementation and track progress to evaluate the impact of research on practice

- Allocate and periodically refine a budget for implementation and technology transfer.
- Adopt a long-term perspective, and track implementation outcomes and impacts over time.

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LRRB Strategic Plan Goals and Strategies

Goal 3: Maintain a feedback loop with researchers and local practitioners

- Communicate the outcomes to local practitioners to translate research into practice, and inform future research ideas.
- Inform the stakeholders about how to obtain data on research impacts, knowledge products, and tools to deliver tangible benefits.
- Understand how implemented research, tools and knowledge products are making a difference for practitioners.

Goal 4: Streamline project and program management

- Enhance the methodologies in tracking and evaluating time and resources spent in managing the research and implementation program.
- Refine the approach to meetings and administrative activities.

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LRRB Strategic Plan Goals and Strategies

Goal 5: Evaluate program comprehensively over time

- Assess the program in terms of inputs and resource requirements, and also in terms of outputs and outcomes over time.
- Develop a performance assessment approach, measures, and guidance for evaluating both research and implementation outcomes.
- Craft a narrative that communicates the depth, breadth, value, and impact of the LRRB program.

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5. Representative project examples

30



Project Impacts

Pavement Condition Forecasting Tool: An upgrade of the Geographic Roadway Inventory Tool (GRIT) allows users to enter construction planning data and generate predictions, maps, graphs and reports on how roadways will look in the future. (Report 2020-04)



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Project Impacts

Wet Retroreflective Pavement Markings: A June 2020 article in *Roads & Bridges* described LRRB-funded research to prevent crashes through pavement markings that are more visible during wet nighttime conditions. The article included a reference to a **webinar** on the practice. (Report 2020-09).



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Project Impacts

Putting Research into Practice: Addressing Citizen Requests for Traffic Safety Concerns

To install a sign or not install a sign, that is the question. The LRRB assembled resources to help city and county engineers respond to traffic safety-related citizen requests.



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Project Impacts

Fleet Management Tools for Local Agencies: This new guide describes software that Minnesota local agencies use for managing roadwork fleets and offers best approaches for managing, purchasing and maintaining an equipment fleet. (Report 2017RIC01)



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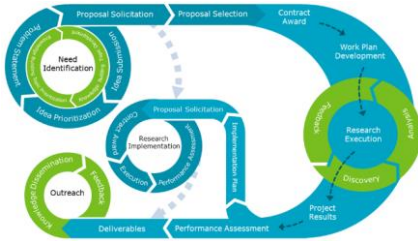


6. Research Program attributes including;
 - lifecycle
 - research categories
 - ideas solicitation
 - project selection processes

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Research Program Lifecycle



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Evolving Research and Implementation Ideas Solicitation Process

- Focus groups alternating geographically between metro area and non-metro area every other year prior to 2017.
- Shift to eight (8) annual MnDOT District meetings in the fall of 2017.
- Option to submit ideas via *Ideascale* web-based tool.
- Ongoing relationships/networking/outreach to encourage the generation of research ideas.
- City and county engineers vote on research ideas. Compiled voting informs a prioritized list of local agency research and implementation ideas for consideration.
- Evolution of Knowledge Building Priorities as longer-range research priorities.

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Overview of Knowledge Building Priorities

- Knowledge Building Priorities engage LRRB in identifying long-term challenges that can benefit from research.
- The Center for Transportation Studies (CTS) leads the Knowledge Building Priorities effort, in partnership with LRRB and MnDOT.
- Knowledge Building Priorities are updated every 4 years.
- University of Minnesota researchers work directly with local agency champions on the development of Knowledge Building proposals for submittal in response to annual RFP solicitation.
- Summary of current Knowledge Building Priorities:
 - Environment
 - Planning
 - Traffic and Safety
 - Connected and Automated Vehicles
 - Materials
 - Design and Construction
 - Financial and Asset Management

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- Bridges/Structures
- Environmental
- Maintenance
- Policy
- Safety/Traffic
- Pavement
- Erosion/Drainage
- Asset Management
- Construction/Materials
- Multimodal Transportation

39



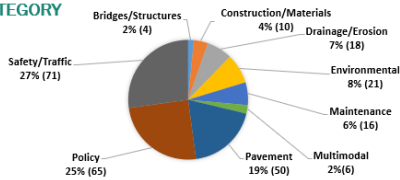
2020 Research Idea Solicitation

County- 136
City- 122
Other - 3



261 Ideas

IDEAS BY CATEGORY



40




Research Program Collaboration

Proposals are evaluated by both MnDOT and LRRB Research programs.
Proposals that address both local agency and MnDOT needs are considered for joint funding by the two research programs.
The number of joint funded proposals vary year to year, 2020 is representative of proposals funded in a typical year:




41




Research and Implementation Projects By The Numbers


- Typical Project Length: 18-36 months
- Cost Range: \$33,000 to \$467,000.
 - Current trends for research projects averaging \$160,000.
 - Most implementation projects cost less than \$100,000.
- Approximately 25 new projects funded each year
- Year 2020 total cost of newly selected research projects, \$2.2M.
- Year 2020 total cost of newly selected implementation projects, \$620,000.



+ TAP CITY/
TY MEMBERS




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Annual LRRB-RIC Meetings overview

	Spring March Meetings	Summer June Meetings	Fall October Meetings	Winter December Meetings
LRRB	Review Ideas, set budgets, establish priorities, identify ideas for need statement development	Needs prioritization, Knowledge Building Priorities/Researcher Insights, Annual Strategic Plan Initiatives	Program refinement, proposal prioritization	Final evaluation and selection of funded projects
RIC	Review implementation project ideas	Consult with LRRB on needs prioritization and assignments	Program refinement	Optional meeting based on LRRB/RIC assessment of need

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Annual Idea Solicitation Process

Major Step	Activity	Timeframe
Solicit Ideas	- Ideas submitted through "IdeaScale" website - Ideas solicited from city and county engineers at MnDOT District meetings.	October
Prioritization	Submitted ideas compiled into ballot and voted on by city and county engineers . Votes tallied into prioritized list of ideas	December
Need Statement Development or alternative response	Prioritized ideas advance for need statement development or alternative responses by LRRB	January - May
Approval for Research RFP	Need statements approved by LRRB for annual research Request for Proposals. Knowledge Building proposals submitted in response to RFP.	June
Approval of implementation need statements	Pre-qualified consultants invited to respond with proposals for implementation projects by RIC	June

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Research Proposal review and funding process

Major Step	Activity	Timeframe
Evaluation of research and implementation proposals	Project champions, subject matter experts, and LRRB board members evaluate proposals, supported by MnDOT Research and Innovation Office (RIO). RIC selects implementation projects	September-October
Select research proposals for presentation and implementation projects for contract development	<ul style="list-style-type: none">LRRB selects top research proposals for presentationRIC implementation project contract development.	October-November
Select research proposals for funding	LRRB makes funding decisions based on proposal evaluations and presentations.	December
Work plan development Contract development/ notice to proceed	Funded proposers develop work plans for contract development supported by project champions and RIO. Goal to have all project begin on or near July 1 st (beginning of fiscal year)	January- June

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Technology Transfer Products



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Getting the Word Out



48



Investment in Marketing and Communications

Over half of LRRB funding focused on getting research into the hands of practitioners for practical use.

Current example: The LRRB Marketing and Communications Plan is a high priority Strategic Plan implementation initiative is being led by the Outreach Committee.

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2022-2023 Marketing Plan Goals

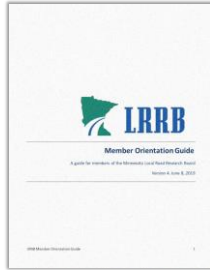
- Increase TAP participation
- Reach more lower-level staff
- Improve website experience
- Identify optimal communications budget/manpower
- Produce more content



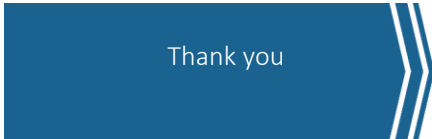
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Recommended Resources Reminder (In Packet)



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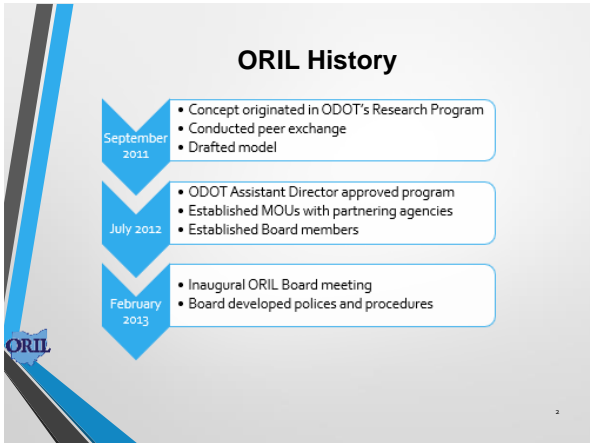


Visit lrrb.org for more information

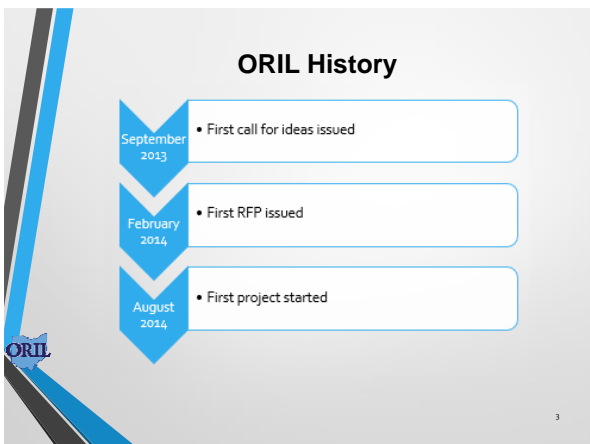
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3

ORIL Mission

- ORIL develops, funds and oversees transportation research projects to meet the needs of local agencies for the safety and economic well-being of the traveling public and Ohio.
- Providing *real* solutions to *real* transportation problems.



4

ORIL Funding

- \$500,000 per year
- SP&R-B Funds
- 80% Federal / 20% State (match provided by ODOT)



5

ORIL Funding

- How does the money work?



- Used for research expenses only
- Contracted research projects
- Funds & contracts managed by ODOT Research



- Not for capital improvements
- Not for standard maintenance activities
- Not a grant program
- Not used for program administration

6

ORIL Board

Organization	Voting Members	
County Engineers Association of Ohio (CEAO)	Mark Eicher (Muskingum) Steve Luebke (Fayette)	Warren Schlatter (Defiance) Jeremiah Upp (Fairfield)
Ohio Municipal League (OML)	Megan O'Callaghan (Dublin) Brian Thomas (Findlay)	Steven Bergstresser (Springfield) Greg Butcher (Pickerington) [Board Chair]
Ohio Township Association (OTA)	Dan Corey (Deerfield Township)	
Academia	Jonathan Witter (The Ohio State University)	Benjamin Sperry (Ohio University)
ODOT	Jennifer Elston (District 8) Keith Smith (District 8)	Brian Davidson (District 6) Perry Ricciardi (District 3)

Non-Voting (Support) Members		
ODOT Research	Ohio LTAP Center	FHWA
Vicky Fout Michelle Lucas	Mike Fitch	Frank Burkett



7

ORIL Board - Selection

- Associations (CEAO, OML, OTA) & ODOT
 - Appoint their own representatives through their own process
 - 4-year terms – staggered rotation
- Academia
 - ODOT Research solicits applications
 - Must be at an Ohio-based university
 - Board selects representatives
 - 2-year terms – no staggering
 - Cannot bid/conduct ORIL research projects while on Board
- All Board positions are volunteer
 - No payment for time or travel

8

Administration: Board Responsibilities

- Develop and maintain the program
- Market the program
- Establish strategic research focus areas
- Conduct outreach for research ideas
- Select and recommend projects for funding
- Establish Technical Advisory Committees (TAC) to oversee individual projects
- Select researchers to conduct projects
- Review progress of projects
- Review and approve/deny all contract modification requests
- Assess research results and implementation potential



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Administration: TAC Responsibilities

- Develop idea into a Request for Proposal (RFP)
 - Review proposals and recommend researchers
 - Monitor project progress
 - Provide technical advice and guidance to researchers
 - Assist in project-related activities such as coordinating field sites, providing data and coordinating training with local agency staff
 - Participate in project meetings
 - Review and comment on project reports
 - Review and make recommendations on requests to modify contracts
 - Assess researcher's findings and recommendations
- Market practice-ready research findings to their colleagues



ORIL

10

10

Administration: ODOT Research

- Assist with organization and facilitation of Board meetings
- Coordinate Board and TAC membership and maintain all MOUs
- Maintain all program policies, procedures, forms and website
- Coordinate and manage idea solicitation and RFP process
- Assist in RFP development/writing
- Develop, execute and manage all contracts
- Oversee all funds and perform all financial functions
- Serve as project managers on all projects
- Assist in marketing the program and research findings
- Assist in ROI analysis and implementation tracking
- Ensure compliance with federal and state regulations



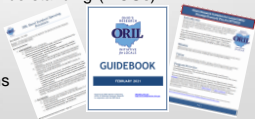
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Guiding Principals

- Guidebook
https://www.transportation.ohio.gov/wps/wcm/connect/gov/7aba2f3-d784-44e4-aada-c07a62e01cf9/FINALGuidebookFEB2021.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGKIK0N0J0000Q09DDDDM3000-77aba2f3-d784-44e4-aada-c07a62e01cf9-nHlfigt
- Standard Operating Procedures
https://www.transportation.ohio.gov/static/Programs/ORIL/Signed+-+ORIL_SOP+2021.pdf
- Strategic Research Plan
<https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/oril/oril-publications-resources/07-oril-strategic-plan>
- Member Memorandum of Understanding (MOUs)
 - Associations
 - Academic Members
- TAC Acknowledgment Forms



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Types of Projects

- 32 Projects to date
 - Administration – 2
 - Hydraulics – 2
 - Maintenance – 6
 - Materials – 9
 - Planning/Policy – 4
 - Pooled Funds – 3
 - Safety – 1
 - Structures - 5



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Sample Project

Investigation of In-Situ Strength of Various Construction/Widening Methods Utilized on Local Roads

- Establish range of structural coefficients for 19 most commonly used widening treatments
- Defiance County experienced cost savings \$1.3M +



Project Completed: February 2016
Agreement Amount: \$121,752.19

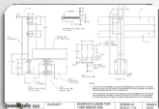
Final Report:
<https://cdm16007.contentdm.oclc.org/digital/collection/p267401ccp2/id/13560>

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Sample Project

Evaluation and Design of a TL-3 Bridge Guardrail System Mounted to Steel Fascia Beams

- TL3 rated post-mount design with transition system to guardrail
- Eligible for federal-aid reimbursement



Project Completed: April 2017
Agreement Amount: \$162,494.29
Drawings & Transition Details:
<http://www.dot.state.oh.us/groups/oril/projects/Documents/Reports/134997StandardDrawings.pdf>

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Sample Project

Storm Water Best Management Practices for Local Roadways / Storm Water BMP Tool Implementation Testing

- Screening tool for post-construction storm water BMPs for linear roadway projects



Project Completed: September 2015 / December 2017
Agreement Amount: \$187,018.46

Final Report and Tool:

<https://www.dot.state.oh.us/groups/oril/projects/Pages/BMP-Tool.aspx>

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Project Data (average)

Fiscal Year	Funding Amount	Project Length
2015	\$121,913.21	27 months
2016	\$91,744.44	17 months
2017	\$107,010.15	22 months
2018	\$139,310.97	21 months
2019	\$147,921.49	26 months
2020	\$112,942.24	18 months
2021	\$222,917.52	23 months
2022	\$154,670.97	27 months

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Overview – From Idea to Project



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Idea Development & Solicitation



- Anyone can submit an idea
- Complete a simple online form
- Notifications through ORIL, ODOT Research and Ohio LTAP Center
- Rely on Board and Associations to encourage submissions
- *Sample Idea Form:*
<https://www.transportation.ohio.gov/static/Programs/Research/Forms/Research+Idea+Form.pdf>

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Idea Development & Solicitation



- Idea Scoring Criteria
 - Preliminary Individual Scoring – Top 10
 - Final scoring through consensus
- ODOT Governance Board confirms

Category:	Weight (multiply)	Points (Value = 0-5)
Alignment / Relevance to ORIL	20	
Potential Benefit of Research	30	
Potential Application / Implementation of Research Results	25	
Champion for Project / TAC Development	15	
General Consideration Items	10	
TOTAL	100	

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RFP Development & Solicitation



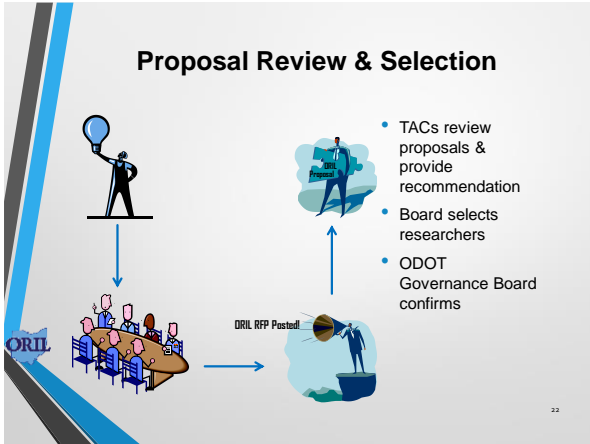
- RFPs developed by TACs & ODOT Research – Board approves
- Open & competitive RFP posting with ODOT Research
- Accept from academia & consultants both in-state & out-of-state
- No prequalification but must follow guidelines

ORIL RFP Postcard



Sample RFP Form:
<https://transportation.ohio.gov/static/Programs/ORIL/guidebook/ORIL+RFPForm.docx>

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Proposal Review & Selection

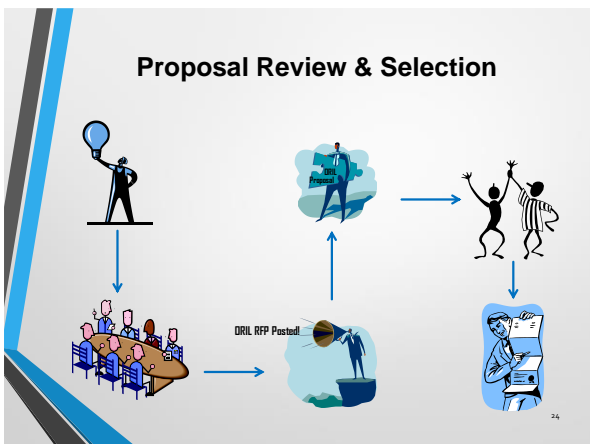
PROPOSAL SCORING SUMMARY
Reviewers complete this table to select a proposal. Then complete all yellow boxes from columns 6-10 for each review.

0 = not covered; 1 = very poor; 2 = poor; 3 = average; 4 = good; 5 = excellent

	Weight	Concept/Indication of a good understanding of the problem, goals and objectives	Work Plan/Work plan progress and objectives of the study and anticipated results	Background & Significance of Work/Current research in the field to which this study is related	Potential Application/Relevance of the proposed research to the needs of the state and the nation	Qualifications & Experience of the Researcher/Researcher's qualifications and experience in the subject area, and the research team	Feasibility & Budget/Researcher's budget and the estimated cost of the research	Budget Total/Estimated cost of the research	Total Weighted Score	Rank
ORIL Reviewer 1 Please provide comments to the right. These will be communicated to the reviewers.	20%									
ORIL Reviewer 2 Please provide comments to the right. These will be communicated to the reviewers.	20%									
ORIL Reviewer 3 Please provide comments to the right. These will be communicated to the reviewers.	20%									
ORIL Reviewer 4 Please provide comments to the right. These will be communicated to the reviewers.	20%									
ORIL Reviewer 5 Please provide comments to the right. These will be communicated to the reviewers.	20%									
Weighted total score										

Proposal Scoring Form:
<https://transportation.ohio.gov/static/Programs/ORIL/guidebook/ORIL%20Proposal%20Scoring%20Form.xlsx>

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Results Distribution

- Final Reports available through ORIL, ODOT, State Library, TRID
- Results Presentation Webinars
- Presentations and exhibits at conference
 - OTEC, CEAO, OTA, TRB
- Articles in newsletters (ODOT Research, LTAP)



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ORIL Program

- Visit the Website
 - <http://oril.transportation.ohio.gov>
- Email Us:
 - ORIL@dot.ohio.gov

Call Us:

- 614-644-8135 (Michelle Lucas, ODOT Research)
- 614-466-3029 (Vicky Fout, ODOT Research)
- 614-387-7358 (Mike Fitch, Ohio LTAP Center)
- 419-782-4751 (Warren Schlatter, Defiance County Engineer)



Questions? Thank You!

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