

Research Opportunities with the Wisconsin DOT

Fall 2013

WisDOT Research Program



Outline

1. Introduction to the WisDOT Research Program
2. Conducting effective research with WisDOT
3. Upcoming research ideas and topics
4. Questions / discussion



WisDOT Research opportunities

- ▶ Wisconsin Highway Research Program
 - Applied research for pavements, materials & structures
 - Four committees – rigid, flex, structures, geotechnical
 - Annual RFP cycle for \$850,000 annual research budget

- ▶ Policy Research Program
 - Applied research for planning, traffic, safety, etc.
 - Managed by internal WisDOT committee
 - Variable RFP cycle depending on funding availability



1. Introduction to WisDOT Research Program

WisDOT Research opportunities

- ▶ Lead-state pooled funds
 - WisDOT leads effort to partner with other states
 - Usually contracted directly with appropriate in-state researcher
 - May involve RFP research

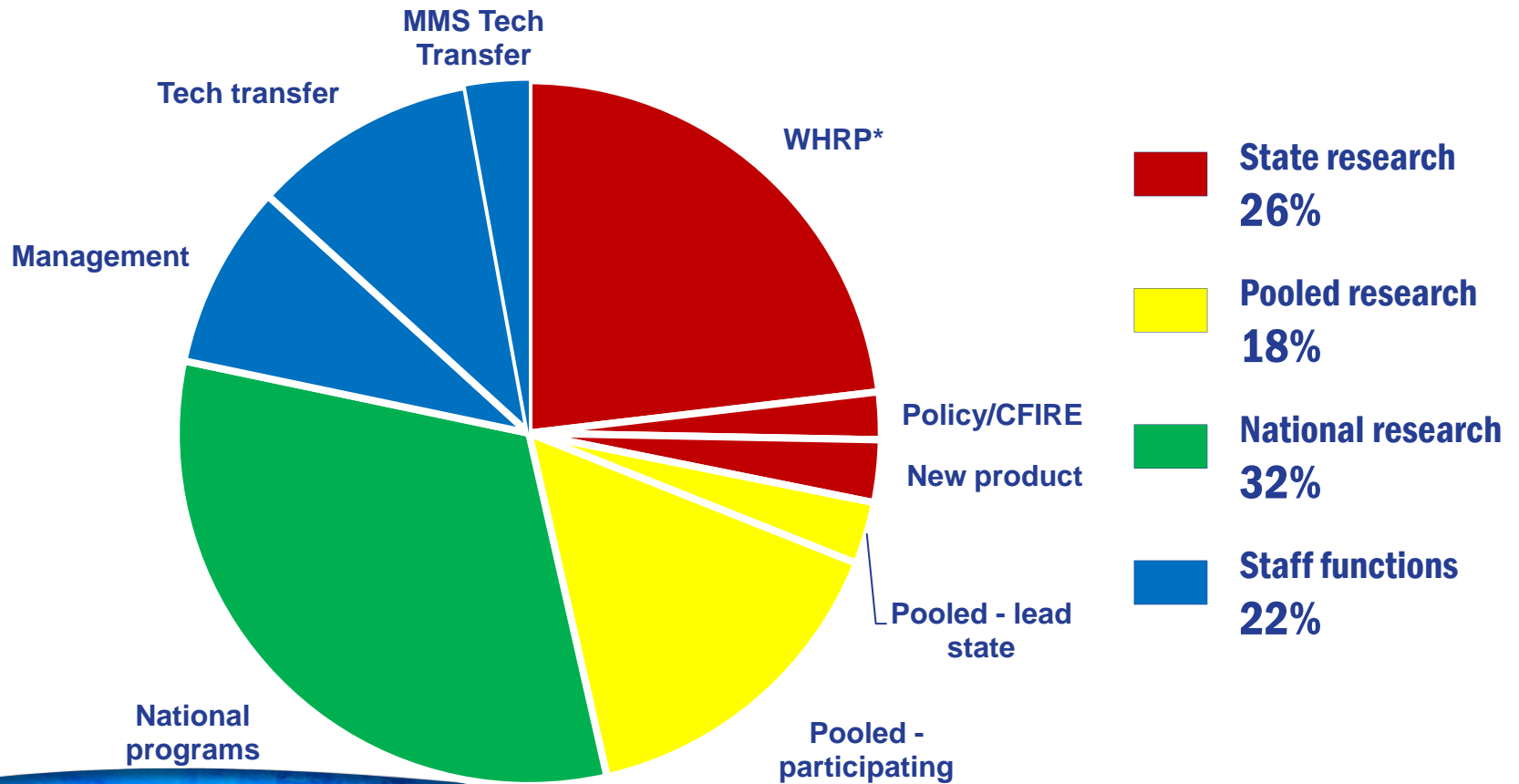
- ▶ Participating pooled funds
 - Managed by other states or federal agencies

- ▶ National research – Cooperative Research Programs
 - Opportunities for research idea submission



1. Introduction to WisDOT Research Program

\$3.7 million research program



1. Introduction to WisDOT Research Program

Who's who in WisDOT Research

- ▶ WisDOT Research Program staff
 - Daniel Yeh – research manager
 - Kimberley Dinkins – contracts specialist
 - Diane Gurtner – technology transfer coordinator
 - Jacqueline Kamin – national programs coordinator
 - Peg Lafky – finance manager / policy research

- ▶ WisDOT Library
 - John Cherney – head librarian
 - Wendy Brand – catalog librarian
 - JonAnne Walters – operations & reference



1. Introduction to WisDOT Research Program

Who's who in WisDOT Research

- ▶ WHRP / UW-Madison
 - Dr. Tuncer Edil, Director
 - Angela Pakes Ahlman, Technical Director
 - Dr. Ali Soleimanbeigi, Administrative Specialist

- ▶ WisDOT project / technical managers
 - Approximately 50-60 staff serving as “volunteers” on projects
 - These staff are ESSENTIAL to ensure high-quality research that can be applied to WisDOT needs

- ▶ FHWA oversight



2. Conducting effective research with WisDOT

WHRP research cycle

Timeframe	Activity
May – Sept	Generate research ideas
Oct – Nov	Develop request for proposal (RFP)
Nov – Jan	RFP solicitation
Feb – Mar	Proposal review / researcher selection
April	Work plan development
May – Aug	Contract / agreement negotiation
August	Anticipated project start dates



2. Conducting effective research with WisDOT

Specific RFP elements

- ▶ Background and objectives
- ▶ Scope of work
- ▶ Requirements for final reports
- ▶ Budget template
- ▶ Length limit
- ▶ Deadlines
- ▶ Who to contact with questions
- ▶ Schedule for clarifying questions



2. *Conducting effective research with WisDOT*

Proposal evaluation / scoring

Criteria	Points
Background / awareness of recent work	15
Work plan – understanding of the problem	15
Work plan – activities & techniques	30
Deliverables & implementation plan	15
Qualifications, experience & certifications	25
TOTAL	100



2. Conducting effective research with WisDOT

Project personnel

- ▶ Project manager
 - Key point of contact
 - Liaison with test sites, data sources, committee

- ▶ Project committee
 - Reviews findings
 - Gives approval for interim steps

- ▶ WHRP staff
 - Receives and processes administrative materials
 - Helps resolve issues



2. Conducting effective research with WisDOT

Project documents

- ▶ Invoices
 - Typically submitted by university research program

- ▶ Quarterly Progress Report (Form DT1241)
 - **Absolutely essential to support payment of the invoice**

- ▶ No-Cost Time Extension (Form DT1243)
 - Request and Submit IN ADVANCE of need for extension



2. Conducting effective research with WisDOT

When research is completed

- ▶ Presentation of findings
 - Draft final report will be presented to committee

- ▶ Final report
 - Will be reviewed by the committee
 - Includes standard cover, disclaimer and documentation page

- ▶ Project brief
 - WHRP / WisDOT staff prepare two-page brief to summarize report with researcher input



3. *Upcoming research ideas and topics*

Flexible pavements



- ▶ Critical Factors Affecting Asphalt Concrete Durability
- ▶ Application of New Technologies to Improve Mixture Performance
- ▶ Identification of pavement preservation strategies for improvement of pavement service life
- ▶ Forensic Evaluation System of Pavement Performance



3. *Upcoming research ideas and topics*

Rigid pavements

- ▶ Better Concrete Mixes for Rapid Repair
- ▶ Compressive Strength versus Flexural Strength Data Analysis
- ▶ Improving specifications to Resist Frost Damage in Modern Concrete Mixtures



3. *Upcoming research ideas and topics*

Geotechnical research



- ▶ Defining resistance factor for base grouting to increase the tip capacity
- ▶ Subgrade Modulus: Lab testing versus Field Testing
- ▶ Chloride Impacts on MSE Structures
- ▶ Recycled Materials as MSE Wall Backfill



3. Upcoming research ideas and topics

Structures

- ▶ Short Term and Long Term Monitoring of Multi-level Interchange Bridges
- ▶ Evaluation of performance of GRS bridge abutments
- ▶ Design and construction of all precast bridges
- ▶ Analysis of Deep Wide-Flanged Pre-stressed Girders Phase II
- ▶ Concrete deck and overlay pours adjacent to traffic
- ▶ Concrete Mixture with Low Shrinkage to Reduce Bridge Deck Cracking



3. Upcoming research ideas and topics

WHRP outreach



Date	Activity
Apr 2013	Research ideas workshop
Fall 2013	Researcher outreach meetings
Dec 2013	Wisconsin Asphalt Pavers Association
Jan 2014	TRB Annual Meeting
Jan 2014	WTBA Contractor Engineer conference
Feb 2014	Wisconsin Concrete Pavement Association
Mar 2014	ACEC Wisconsin
Jul 2014	AASHTO Research Advisory Committee
Aug 2014	Mid-Continent Research Symposium



3. *Upcoming research ideas and topics*

Non-WHRP opportunities



- ▶ WisDOT Policy Research
- ▶ National Cooperative Highway Research Program
- ▶ Other Cooperative Research Programs
- ▶ Research in other states
- ▶ Research as a university or public/private consortium



4. Questions / discussion

Your turn





<http://wisdotresearch.wi.gov>

