Wisconsin Department of Transportation

Wisconsin Highway Research Program (WHRP) Update

WAPA Annual Meeting

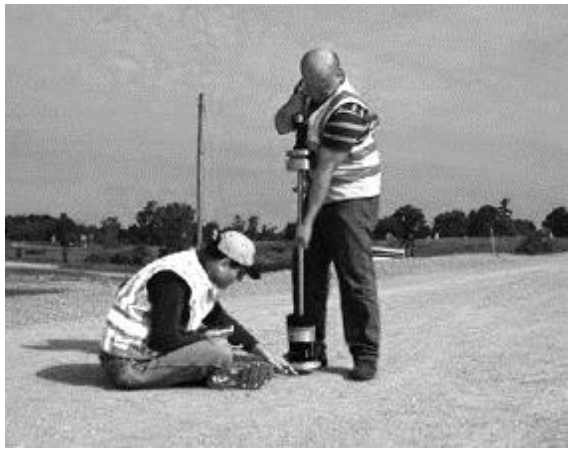
December 2, 2015

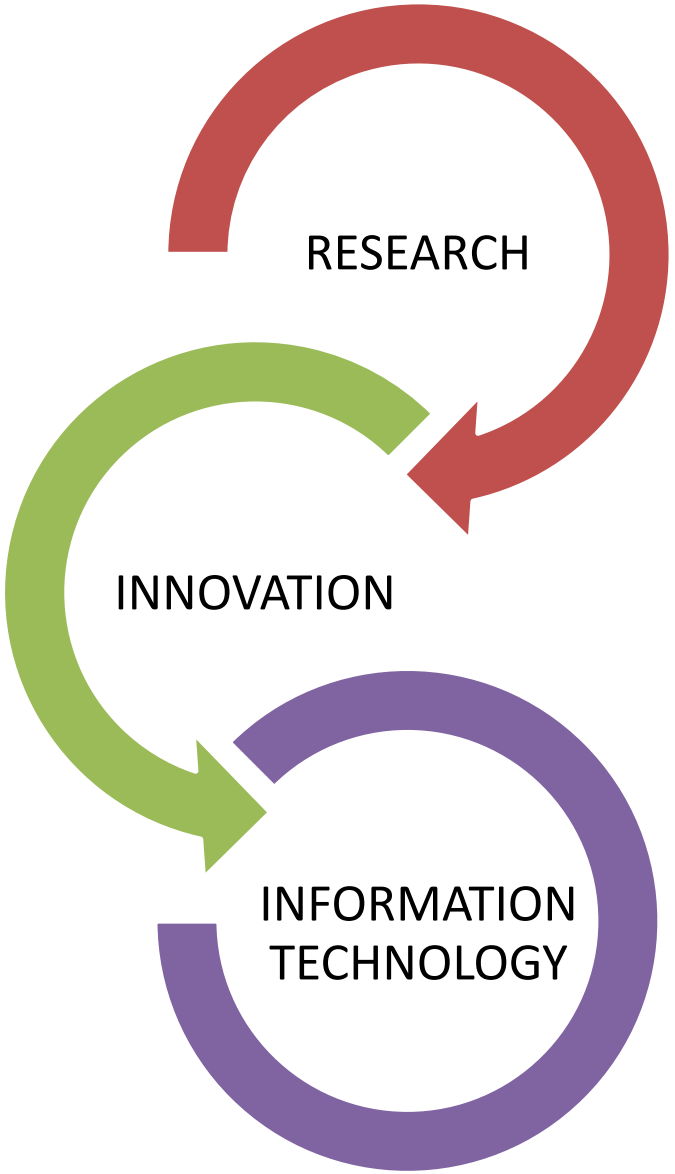
Lori Richter, Chief, Performance, Policy and Research

David Esse, Innovation Officer

Agenda

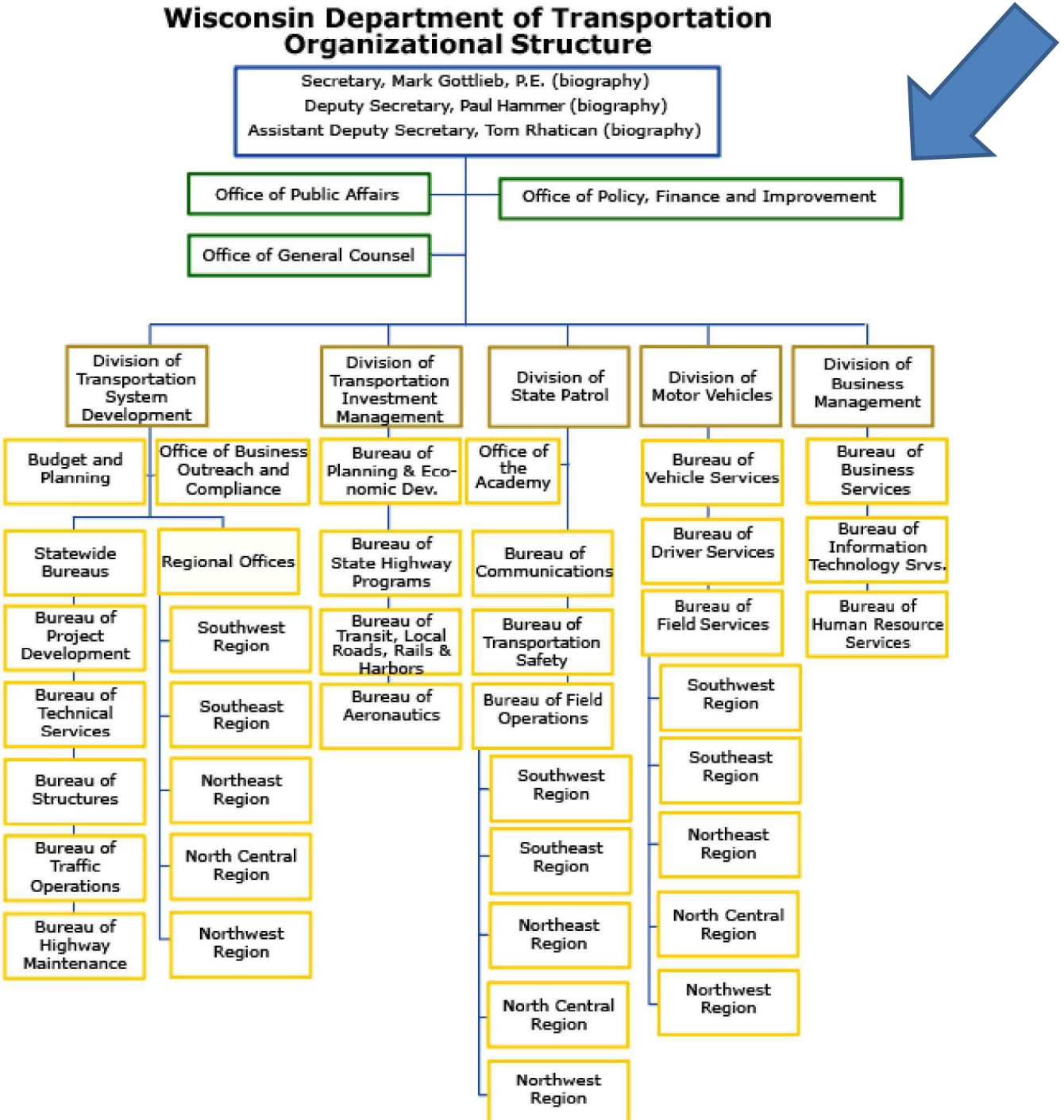
- WisDOT Research Program
- Innovation & Technology within WisDOT





WISDOT RESEARCH PROGRAM BACKGROUND

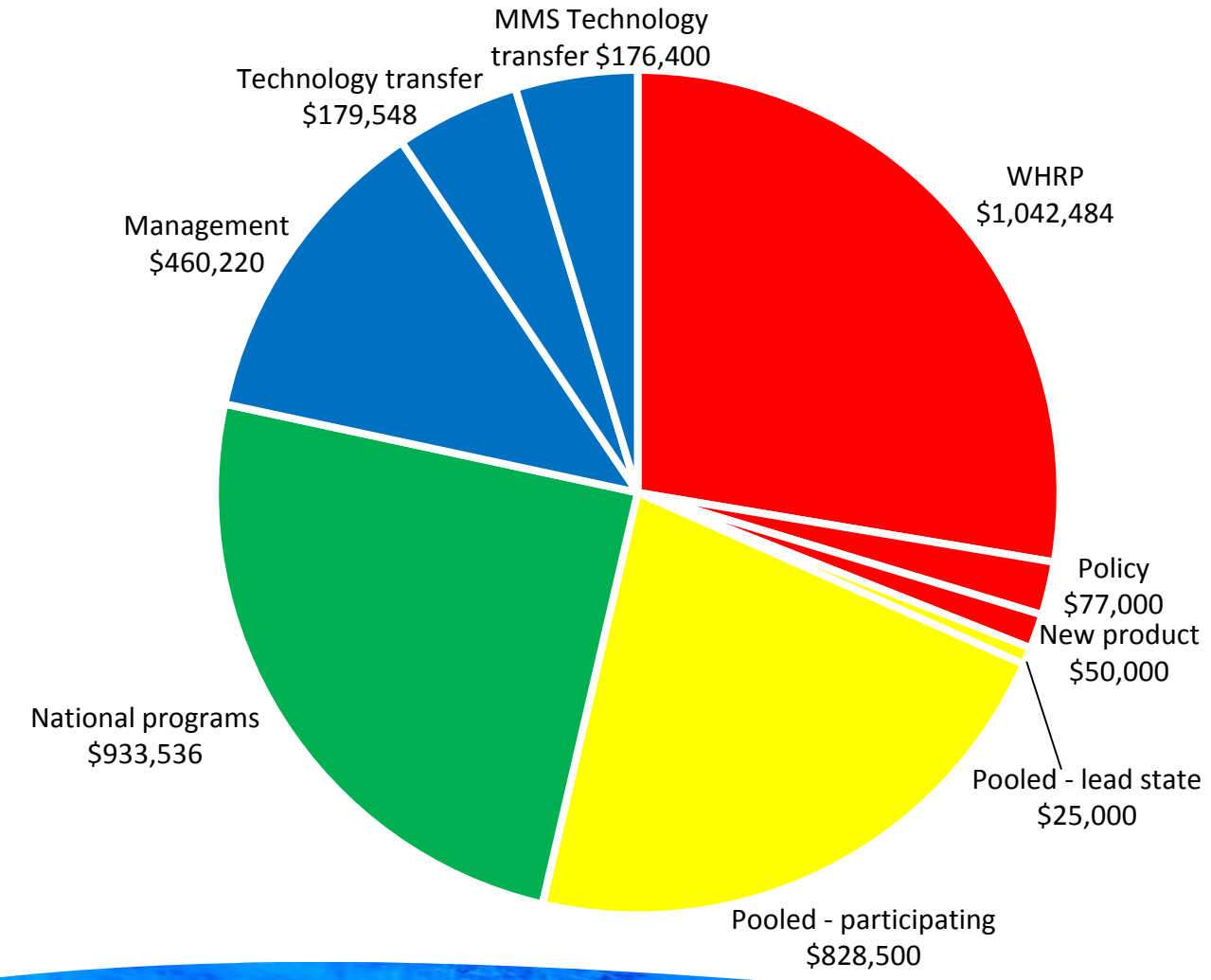
Wisconsin Department of Transportation Organizational Structure



Program overview

- State-based research projects
  - Wisconsin Highway Research Program – focus on improving the state's highways
  - Policy research – non-engineering issues (planning, operations and safety)
- Pooled Fund Projects
- National Research
  - NCHRP
  - SHRP2
- Technology Transfer, library services and program management

Total research funding – $3.8 million



State research 31%

National research 25%

Pooled research 23%

Staff functions 22%

FFY 2015 data

2016-2020 WISCONSIN HIGHWAY RESEARCH PROGRAM (WHRP) STRATEGIC PLAN

Background research

- SWOT analysis – 12 questions, 21 responses
  - Strengths: internal factors that give us an advantage.
  - Weaknesses: internal factors that put us in a disadvantage.
  - Opportunities: factors we can leverage to our advantage.
  - Threats: factors in the internal or external environment that are risks to us achieving our mission.
- Focus groups – TOC chairs, research staff, UW Madison contractors
- Metrics on current state

Observations

- Research cycle takes too long.
- Administrative duties are excessive and unclear.
- Implementation efforts are weak.
- Importance of partnerships – internal and external.
- Lack of understanding of value of WHRP and research in general within WisDOT.

WHRP Strategic Plan work group members

- Joe Balice, FHWA
- Scot Becker, WisDOT
- Matt Bronson, WisDOT
- David Esse, WisDOT
- Matt Grove, WTBA
- Diane Gurtner, WisDOT
- Kevin McMullen, WCPA
- Mark Meyers, UW Platteville
- Michael Oliva, UW Madison
- Barry Paye, WisDOT
- Judie Ryan, WisDOT
- Jennifer Walejko, WisDOT

WHRP customers

Internal

- WisDOT Managers
- WisDOT Bureau and Regional Staff
  - Design community

External

- Citizens/Public/Tax Payers
- Highway Users
- FHWA
- Other states
- Construction Industry
  - Design community

WHRP mission, vision, values

- Mission: Facilitate the identification, execution and implementation of applied research to address the current and future needs of Wisconsin's transportation system.
- Vision: WHRP-sponsored research that provides transportation professionals with innovative solutions to deliver a safer, more durable, efficient and affordable Wisconsin transportation system.
- Values: accountability, collaboration, excellence, integrity

Goal 1: Streamline the research cycle

- Strategy – Improve project scoping
- Strategy – Improve project management
- Strategy – Shorten existing research cycle

Goal 2: Ensure timely implementation of valid research findings

- Strategy – Define implementation process
- Strategy – Evaluate roadblocks
- Strategy – Engage internal and external partners in implementation

Goal 3: Develop and strengthen partnerships

- Strategy – Enhance existing partnerships and identify gaps
- Strategy – Communicate the value of WHRP

Goal 4: Leverage funding resources

- Strategy – Explore matching funds
- Strategy – Improve management of current funds

Current status

- Roles and responsibilities clarified for each part of the program lifecycle
  - Program management
  - Project management
  - Project closeout and implementation
  - Steering committee
  - Technology transfer and outreach
- “Just do it” items identified and implemented

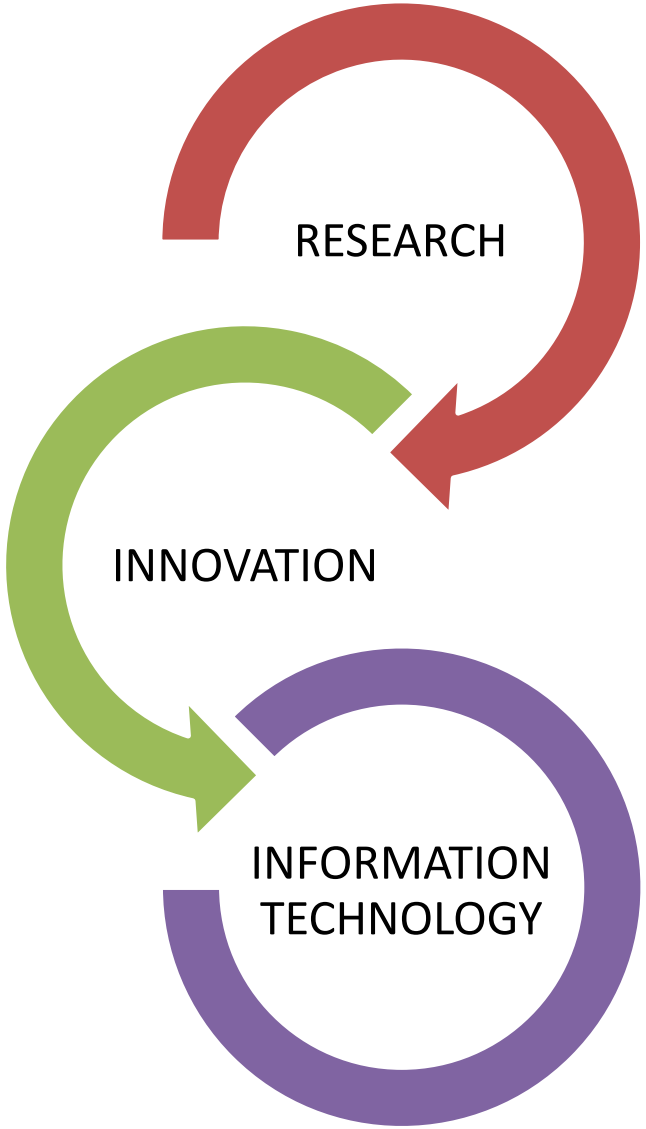
Current status (cont.)

- Implementation lead established
- Implementation underway
  - Implementation priorities
  - Action plans with timelines and responsibilities identified
  - Communication plans
  - Training and outreach

Current status (cont.)

- Program documentation underway by staff
- Metrics under development
- Lean project charter drafted
- Staffing resources secured for implementation

Although each area has distinct cycles and processes, the interactions between research, innovation and IT are vital to the process of evaluating and implementing ideas, products, materials and technology.



DTSD innovation

WAPA Innovation Update

David Esse
DTSD Innovation Officer
Wisconsin Department of Transportation

December 2nd, 2015

Today's Topics

- DTSD Innovation Initiative
- Current Innovation Efforts
- Getting **<u>YOU</u>** involved!

Innovation happens

when we look at things...

from another point of view

DTSD Innovation Initiative

- Focused on identifying opportunities
  - Accelerated evaluation of promising procedures, materials & technologies
  - Innovative approaches to complex issues

- Combination of <u>innovation</u> & <u>research</u>
  - Every Day Counts, SHRP2, **WHRP**, NCHRP, TERRA, Pooled Fund Studies and expanded division-wide efforts to innovate

SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

IMAGINATION Every Day Counts INVENTION

DTSD Innovation Initiative

- DTSD Innovation Review Committee
  - *Internal stakeholders*
  - *Ideas that focus on* internal *improvement*
- State Transportation Innovation Council
  - *ACEC, APWA, DNR, FHWA, LTAP, NACE, Tribal Affairs, WCHA, WTA, WTBA*
  - *Ideas that will affect our* external *partners*

The DTSD innovation Review Committee

wisconsin STIC State Transportation Innovation Council

Innovation Submissions

In 2009, VW launched an innovation campaign called "the fun theory" as a way to encourage members of the creative community to invent practical, enjoyable and easy ways for people to change themselves for the better.

Innovation Submissions

- Deployment of Mobile IT
  - Bridge Inspection Staff, Project Delivery Staff
- DTSD Fleet Carpool Program
- Funding Awards
  - AID: $676,000 awarded for GRS-IBS construction in Dodge County
  - STIC: $100,000 for Local program manual development
- Work Zone Incident Notification System
- DocuSign eSignatures Pilot

Innovation Submissions

- Trimble GPS units for validating field data
- Work Zone Safety
- UAS/UAV
  - Survey, bridge inspection, traffic monitoring, wetland monitoring
- Quiet(er?) Rumble Strips

Leveraging Technology

- eProject Delivery Initiative
  - Business-driven effort supported by technology
    - Scope: Project Concept Definition through Project Closeout
  - Moving from paper to digital
    - Beyond eConstruction or eDesign
  - Identifying foundational items
    - Document management
    - Mobile devices/Virtual Offices
    - eSignatures

Civil
Integrated
Management

Developing a Culture of Innovation

- Who is responsible for innovation?
  - Innovation is not the responsibility of one person or organization
- We need to work together as <u>transportation professionals</u> to make things happen
- Bring ideas forward for discussion!

Thank you!

David Esse

DTSD Innovation Officer

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Questions?