

Most Promising Research
Research Peer Exchange
August 13-14, 2013



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Linda Narigon: IA DOT	Cameron Kergaye: UT DOT
Mark Nelson: MN DOT	Georgene Geary: GA DOT
Lori Pflughaupt: IA DOT	Mark Dunn: IA DOT
Peggi Knight: IA DOT	Vanessa Goetz: IA DOT
Megan Swanson: IL DOT	Diane Gurtner: WI DOT
Kim Dinkins: WI DOT	Max Grogg: FHWA
Leighton Christiansen: IA DOT	Shauna Hallmark: ISU/InTrans
Tom Palmerlee: TRB	Matt Haubrich: IA DOT

The Requirements for a Peer Exchange

Under 23 United States Code of Federal Regulations 420.209 (a)(7), as a condition for approval of Federal Highway Administration (FHWA) planning and research funds for research activities, each state’s Department of Transportation (DOT) is required to periodically conduct a peer exchange. FHWA defines “periodic” as once every three to five years. The use of peer exchanges was established to provide state DOT research, development, and technology programs with an opportunity to examine and evaluate their known programs with a collaborative team of peers, experts, and colleagues. The process encourages the exchange of visions, ideas, and best practices that could be fostered for the benefit of the host agency and peer team participants.

The basic approach is to invite an outside panel of managers from state DOT research divisions, FHWA, other public agencies, and the private sector to meet with the host agency to discuss and review a specific focus area. During the peer exchange, the group analyzes the agency’s policies and practices, shares case studies and experiences, and develops recommendations for improvements. The information gathered from the exchange is presented to agency and FHWA management, and is documented in a written report.

PRESENTATION SUMMARIES

Linda Narigon – Iowa DOT

Mobile Mapping Research Implementation

- Mobile Mapping can consist of many technologies. In general we will be discussing projects using combinations of:
 - Light Detection and Ranging (LiDAR)
 - Global Positioning Systems (GPS)
 - Inertia Measurement Units (IMU)
 - Distance Measurement Indicators (DMI)
 - Cameras
- More information collected in a short time frame
- Improved Safety for survey crew members
- Mobile Mapping can meet Iowa DOT survey accuracy requirements
- Cooperative Effort Between Iowa DNR, Iowa DOT & Iowa Dept. of Agriculture
- USGS contract for statewide acquisition
 - Sanborn Map Company
 - LiDAR Accuracy
 - +/- 8” vertical
 - Cost = 8.5 Cents per Acre or \$3.1 Million
 - Total Cost = \$5.8 Million (inc. high resolution, photography, processing, web access, etc.)

Georgene Geary– Georgia DOT

“TAMPering” with Research; How Research was used in developing GDOTs Transportation Asset Management Plan (TAMP)

- *Asset Management Resources*
- *NHI Classes*
- *TAM Workshop*
- *Developing a TAM Plan*
- *Intro to TAMP (web-based)*
- *AASHTO Documents*
- *TAM Guide*
- *TAM Implementation Guide*
- *Websites*
- *FHWA A.M. ETG*
- *AASHTO S.A.M.*

GDOT Research Technical Advisory Groups



VISION
Enhancing Georgia's Competitiveness Through Leadership in Transportation

MISSION
Georgia DOT provides a safe, connected, and environmentally sensitive transportation system that enhances Georgia's economic competitiveness by working efficiently and communicating effectively to create strong partnerships.

CORE VALUES
Flexible
Open
Committed
Unified
Successful



Content of GDOT's TAMP

- I. EXECUTIVE SUMMARY
- II. INTRODUCTION
- III. LEVELS OF SERVICE
- IV. LIFE CYCLE MANAGEMENT
 - a. PAVEMENTS
 - b. BRIDGES
 - c. HIGHWAY SIGNS
- V. GROWTH AND DEMAND
- VI. FINANCIAL SUMMARY
- VII. TAM PRACTICES
- VIII. PERFORMANCE MANAGEMENT
- IX. IMPROVEMENT PLAN

- APPENDIX**
- ASSET MANAGEMENT IMPLEMENTATION PLAN
- PERFORMANCE MANAGEMENT IMPLEMENTATION PLAN

Performance Management

- *Performance management evaluates data against targets and goals set in the TAMP*
- *Performance Measurement - Dashboard*
 - *High level way of sharing information*
 - *Informs Public/Staff of Department Priorities*
 - *Sets Public Expectations*
 - *Celebrates our successes and identifies our challenges*

Highlights of TAMP Involvement at GDOT

- *Evolved simultaneously with initial TAM efforts*
- *Collaborative effort of different GDOT units/offices*
- *Plan focuses on pavements, bridges and signs*
- *It is a living document; it has already changed twice*
- *A separate unit established to focus on TAM and develop the plan*

What's next?

- *Named a Risk Manager in 2013*
 - *Pilot for SHRP2 R09- Risk Management in Complex projects*
- *Current IT project to develop data warehouse*
- *Looking at how to incorporate risk further into TAM, and, how to measure and manage data better ...future research projects?*

Peggi Knight (Iowa DOT) & Shauna Hallmark (ISU/InTrans)

Collaboration between the Iowa DOT and the Institute of Transportation at Iowa State University

Iowa DOT has Basic Agreements established:

- ISU, UNI and U of Iowa
- ✓ LTAP housed at ISU
- ✓ Mid-Continent Symposium
 - Mid-western research conference/peer exchange
- ✓ Facilitates collaboration with all 3 universities
- ✓ ISU conference facilities available to DOT
- ✓ Leverage training between LTAP and DOT

Basic Agreement with ISU

- ✓ Reduced overhead
 - 26% for research
 - 8% for core functions
- ✓ Work order contracts via addendum
- ✓ Common language
- ✓ No overhead on subcontracts with University of Iowa
- ✓ ISU has increased collaboration
- ✓ Strong partnerships

Benefits of a Basic Agreement

- ✓ Benefits of BA
 - Streamlined contract process
 - facilitates project development
 - reduces paperwork
 - increases accountability
 - Provides technical support services

InTrans at ISU/Iowa DOT Research Program ~ \$1.4M

- ✓ Administrative and Management Support
- ✓ Shared Faculty Positions
 - HMA, PCC, Structures
- ✓ Library
- ✓ Geotech Center (CEER)
- ✓ Statewide Urban Design and Specifications (SUDAS)
- ✓ National Concrete Pavement Technology Center



Value to InTrans

- ✓ DOT funds applied research
- ✓ Supportive of academic “value added”
 - Research papers
 - Student theses/dissertation
- ✓ Faculty/staff gain expertise – nationally competitive
- ✓ Jointly funding research
 - National demonstration of dynamic speed feedback signs on curves
 - Rural traffic calming

More Info:

- ✓ Intrans Website
- ✓ Location of basic agreement
- ✓ <http://www.intrans.iastate.edu/about/iowadot-intrans-agreements/>

FHWA Asset Management Plan Pilot Project

- Support three state DOTs developing their first TAMP
 - Develop TAMP Work Plan
- Working with FHWA & MnDOT consultants



TAMP Desired Outcomes

- Bridge gap between capital investment decisions and operations/maintenance.
- Expand the use of asset management beyond pavements and bridges.
- Consider risk and performance criteria in investment decisions.
- Improve the transparency of investment decisions.
- Satisfy the requirements outlined in MAP-21.

Key MAP-21 Components of TAMP

- Asset Inventory/Conditions
- Objectives/Measures
- Performance Gap Assessment
- Lifecycle Cost
- Risk Analysis
- Financial Plan
- Investment Strategies

Asset Management Plan Scope

Highway Assets

- Pavement
- Bridge
- Drainage Structures
- Guardrails
- Traffic Signals
- Signs
- Overhead Sign Structures
- Pavement Markings
- ITS
- Pedestrian Ramps
- Lighting
- Tower Lighting
- Land
- Rest Areas
- Sidewalks
- Retaining Walls
- Tunnels
- Noise Barrier
- Fencing
- Weigh Stations
- ADA Infrastructure
- Modal Infrastructure
- Transit Vehicles

MNDOT Asset Management Progress

- **Pavement/Bridge**
 - Complete for all but one of key components – Lifecycle Costs (partially complete)
- **Drainage/Hydraulics, Overhead Sign Structures & Tower Lighting**
 - Information needed for all/most key components

Cooperative Effort

- Steering Committee
 - Staff from 12 Keys Areas
- Project Management Team
 - Sub-set of Steering Committee
- Working Groups
 - Groups for Each Asset

For Each Asset, MNDOT will:

- Steering Committee
 - Staff from 12 Keys Areas
- Project Management Team
 - Sub-set of Steering Committee
- Working Groups
 - Groups for Each Asset
- Steering Committee
 - Staff from 12 Keys Areas
- Project Management Team
 - Sub-set of Steering Committee
- Working Groups
 - Groups for Each Asset

Megan Swanson—Illinois DOT

Performance Measures: Roadmap to a Successful Research Program

Research Coordination

Oversight of Contract Research

- \$30 M/ 5 year agreement with the Illinois Center for Transportation (ICT)
- 53 active projects
- Eight focus areas
 - Construction
 - Environment
 - Pavement Design, Management & Materials
 - Planning
 - Public & Intermodal Transportation
 - Safety
 - Structures, Hydraulic & Geotechnical
 - Traffic Operations and Roadside Maintenance

Other Research

- Participation in FHWA Transportation Pooled Fund Program (~30 studies underway)
- Participation in Transportation Research Board (TRB)
- Participation in National Cooperative Highway Research Program (NCHRP)
- Moving toward participation in SHRP 2 Implementation
- Friends of AASHTO - RAC/SCOR Value of Research and Program Management and Quality Task Forces



Pooled Funds:

- To enroll in a TPF, the interested party must complete a form describing the benefits and committing to participation. This form is also completed by the appropriate Bureau Chief and by the Deputy Director of Highways
- TPFs are evaluated annually, underperforming studies are identified and discussed
- At the end of the study, a close-out evaluation is completed, and RC discusses lessons learned internally and with the TPF representative

ICT Tracking & Evaluation

- TRP & PI Semi-annual Evaluations
- Implementation Planning Worksheet
- TRP Close-out Evaluation

You can't improve what you don't manage, and you can't manage what you don't measure!

We can measure:

- ⊙ Time & Budget Information
- ⊙ Concentration Area/Topic
- ⊙ TRP Membership Information
- ⊙ Meeting Date and Minute Information
- ⊙ TRP Evaluations
- ⊙ PI Evaluations
- ⊙ Implementation Data (Planning Worksheets, etc.)
- ⊙ Quarterly Progress Reports

Performance Measures & Management

How Do We Track This?

IDOT Research Database

- Created in Access in 2008-09
- Updated 2013
- Tracking, Queries & Forms!



Queries

Query by: The Question from Which the Query Originates

Status:

Active and Late: This query shows all projects active and late.

Technical Advisory Group:

Principal Investigator Last Name:

TRP Chair Last Name:

Panel Membership:

Most Current End Date: Between: and

Actual Start Date: Between: and

TRP Meeting: Between: and

Exec Committee Approval Date: Between: and

Project Overview

Project ID: 627-008

Project Title: Best Practices for Implementation of "Fast-Track" TRP Recommendations

Technical Advisory Group: Research Design, Management and Materials

Project Location: Chicago

Actual Start Date:	9/29/2010	Est. Budget Amount:	200,000.00
Original Start Date:	9/29/2010	TRP Original Budget Amount:	200,000.00
Current End Date:	9/29/2010	TRP Budget:	200,000.00
Project Date:	11/2/2012	Budget Percent Increase:	0.0%

TRP Chair	Panel	Current Panel Membership	Date
Chairman	Chairman		
Member	Member		

TRP Meeting	Date	Project Manager	Date
Meeting	10/14/2010	Project Manager	10/14/2010
Meeting	11/11/2010	Project Manager	11/11/2010
Meeting	12/9/2010	Project Manager	12/9/2010

Inputs:

- ⊙ Number of projects selected and completed for each focus area*

Processes:

- ⊙ Percent projects overdue (report not posted by project end date)
- ⊙ Number and percent of budget extensions
- ⊙ TRP Chair evaluations (PI satisfaction with IDOT responsiveness)*
- ⊙ PI Evaluations (TRP satisfaction with PI and research project) within 5 weeks
- ⊙ Accurate, approved Quarterly Progress Reports submitted to IDOT 21 days after end of Quarter
- ⊙ Quarterly Progress Reports compiled and shared with FHWA Division office within 30 days after end of Quarter
- ⊙ Number of projects active at ICT between 50 – 60
- ⊙ Lag time between project approval and start date

Outputs:

- ⊙ Implementation of results*
- ⊙ Number of Research Works technology transfer articles completed
- ⊙ Number of products (specifications, policies, training, etc.) produced and shared*

Outcomes:

- ⊙ Percentage of Research Needs met*
- ⊙ Benefit of project(s) to IDOT – IDOT*
- ⊙ Number of projects contributing to our IDOT mission*

Cameron Kergaye—Utah DOT

Transportation Asset Management and Business Integration

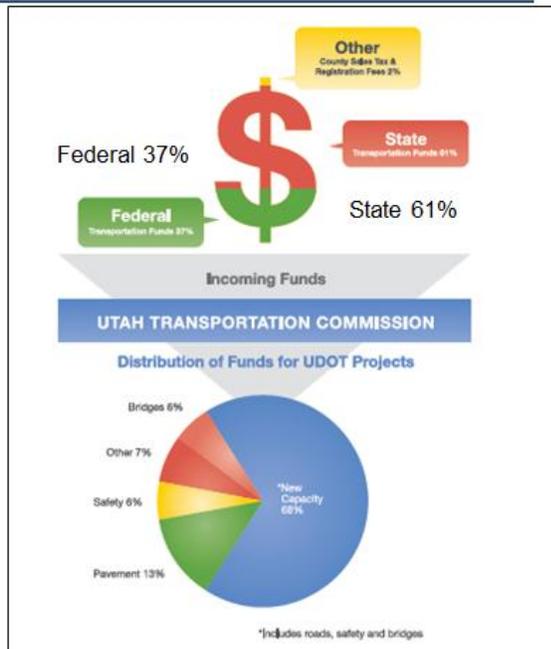
Strategic Goals:

1. Preserve the Infrastructure
2. Increase Mobility
3. Zero Fatalities
4. Strengthen the Economy

Asset Management:

- Focuses on *long-term sustainability*
- Demonstrates *competence and helps gain credibility*
- Demonstrates *accountability*
- Creates *transparency*
- *Preserves* core assets

TRANSPORTATION PROGRAM 2013 FUNDING



\$31B in Assets:

\$25B Pavement
\$5B Bridge
\$1B Other

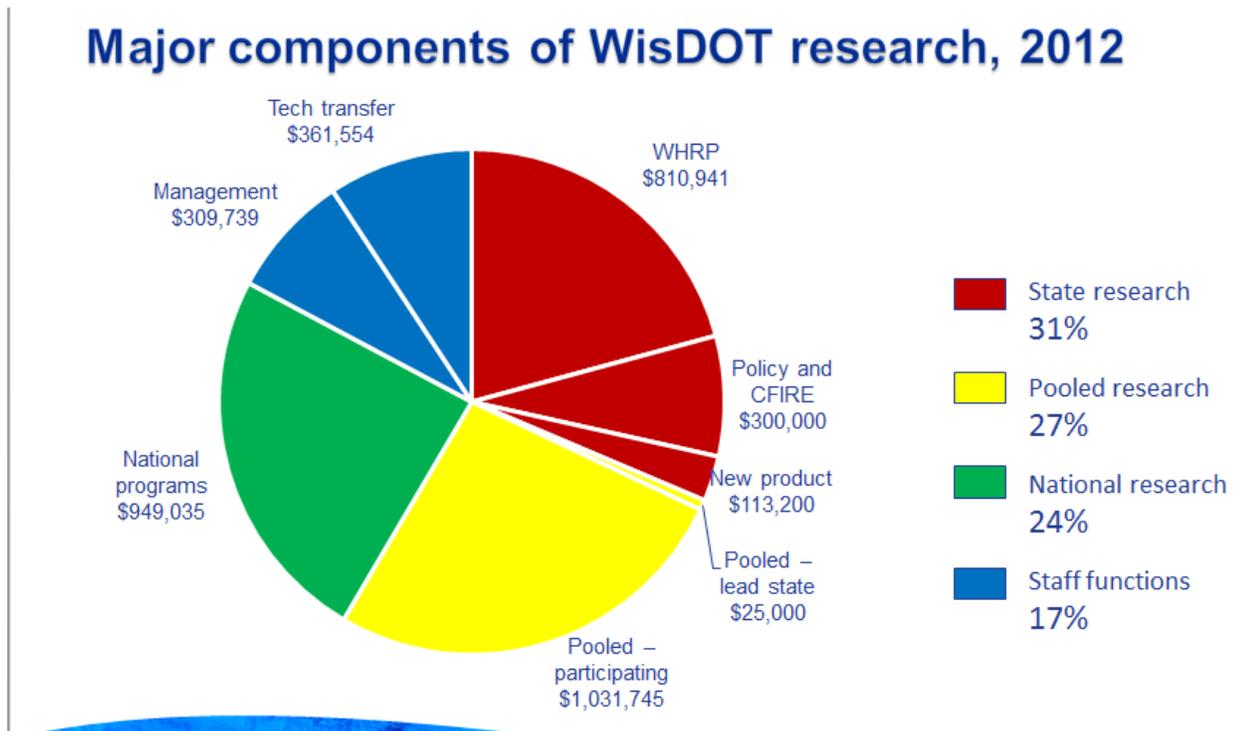
2013-Performance Goals

- Pavement
 - Roadway ride quality in “Good” or “Fair” condition
 - Interstate – 96%
 - Level 1 -90%
 - Level 2 – 85%
- Structures
 - No more than 10% of Bridges in “Poor” Condition
- Collection of all Assets
 - Fencepost to Fencepost
- Culverts/Signs
 - Strategically manage w/ STIP

Diane Gurtner—Wisconsin DOT

Wisconsin DOT Statewide Customer Satisfaction Survey

Major components of WisDOT research, 2012

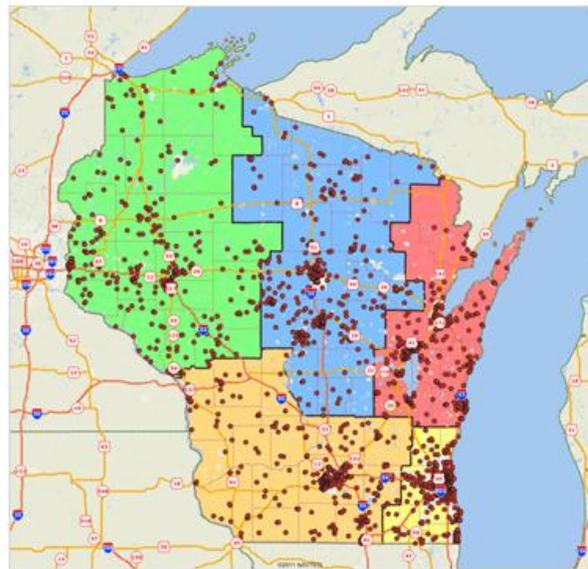


WisDOT Customer Service Survey Oversight

- ▶ Project led by Office of Public Affairs
- ▶ Multi-division involvement on oversight committee
 - Traffic Operations
 - Performance Measure manager
 - DMV Driver Services
 - State Patrol / Safety
 - Planning
 - Business services
- ▶ Survey description
 - 6-page survey
 - Approximately 15-20 minutes to complete
- ▶ Sample size: 1,830
 - overall results have a precision of at least +/- 2.3% at the 95% level of confidence
- ▶ Method of Administration
 - combination of mail, phone and online
 - 350 in each region
 - stratified to obtain statistically valid results from each of five geographic areas in the county

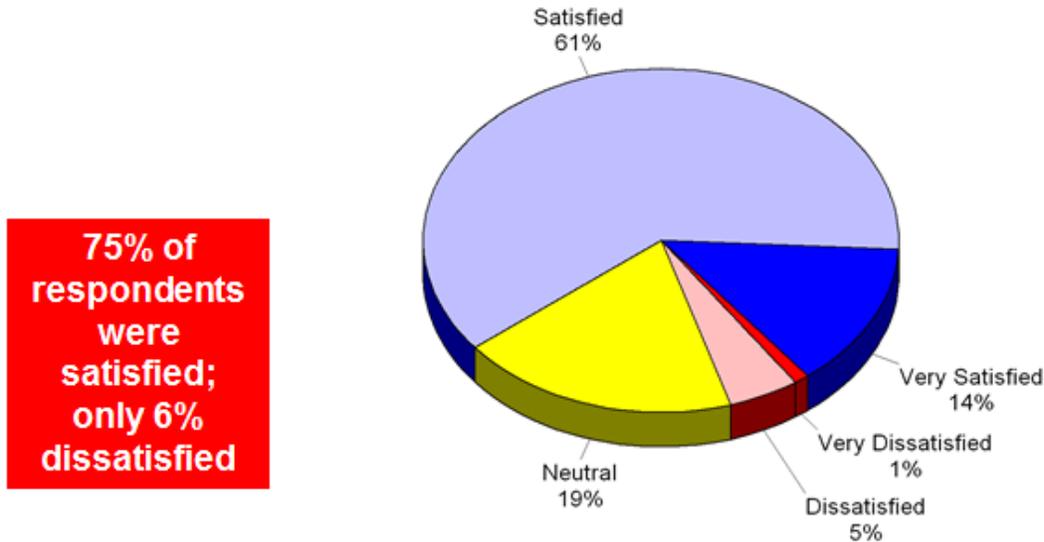
Location of Respondents (by geographic area)

- Northcentral: 384 completed surveys
- Northeast: 356 completed surveys
- Northwest: 376 completed surveys
- Southeast: 362 completed surveys
- Southwest: 382 completed surveys



Overall Satisfaction with the Maintenance and Operation of Highways in Wisconsin

by percentage of respondents who rated the department on a 5-point scale (excluding "don't know")



Summary of Research Findings:

- ▶ Overall satisfaction with WISDOT is high
- ▶ WisDOT is outperforming most other DOTs
- ▶ The most important transportation issue to residents was to repair and maintain existing highways
- ▶ Many residents think the level of funding for transportation in the state should be increased
- ▶ The results of this survey will provide a benchmark for assessing future performance

Implementation Plans:

- ▶ Review the results by division and functional area to see how the level of funding for programs compares to the ratings received.
- ▶ Educate members of the legislature and other elected officials, along with employees and the general public, about the results of the survey.
- ▶ WisDOT should build on its brand and integrate the survey results with other initiatives, such as the [MAPSS](#) Performance Improvement program.
- ▶ Initially focus on doing things of high importance and low cost, such as improving the quality of striping.
- ▶ Find ways to increase usage of mobile, web, the 511 travel information service and other electronic media.

WisDOT Research Program

<http://wisdotresearch.wi.gov>

research@dot.wi.gov

EVALUATION OF PEER EXCHANGE:

What opportunities for improvement have you heard?

What will you take back to your own agency?

Max Grogg:

- Interesting that the administration with each state is a little different.

Mark Nelson:

- Enjoyed Utah's presentation regarding prioritizing the data collection process.
- Interested in TAMP and pooled fund projects.

Kim Dinkins:

- Interested in GIS mapping for tracking research project site locations.
- Plans on contacting Illinois on their MS access database for tracking implementation.
- Enjoyed Utah's solicitation for ideas process.
- Interested in developing a basic agreement with Wisconsin universities.

Diane Gurtner:

- Found it interesting how different states operate their research programs and learning more about the roles of engineers on research department staff
- Liked the concept of including research implementation plans at the beginning of research projects and planned to follow-up with Illinois.

Vanessa Goetz:

- Wisconsin's ability to track the research locations.
- Illinois quarterly progress report system. Plans to visit with IL about their QR system.

Megan Swanson:

- Learned about the TRB research needs database.
- Likes how Iowa and Wisconsin have a tech transfer piece due along with final report—both due at the end of the contract.
- Smart tagging signs.
- Knowing about requirements of TAMP.

Lori Pflughaupt:

- Interested in a stand-alone implementation report.
- Start research newsletter again.
- Improving quarterly reports and tracking the completion/submission of the quarterly reports.

Georgene Geary:

- Hopes to encourage more attendance on the NCHRP Panels, similar to Iowa.
- May consider doing a once a year outside solicitation process if the intellectual property sole source can be used.
- Take back: Iowa's research lunch and learn sessions.
- Will look into having a non-technical person review future Tech summaries.
- Enterprise risk management is an area GDOT is looking at.
- 100 year presentation as GA is coming up on their centennial anniversary – took pictures of Iowa's posters to share with their 100th Anniversary planning committee.
- Pooled fund tracking forms. Found IL tracking forms interesting and useful.

Cameron Kergaye:

- The contracting process in IL is supported by very useful forms.
- MN research briefs (format) will provide a concise summary or research.
- Tracking research implementation, that several states perform, will help with implementation and measuring performance/benefits.
- IA uses a time-flow format (in their 100 year presentation) that combines events and chronology.

Linda Narigon:

- Plans to look into updating the Iowa DOT SPR Procedures Manual.
- Take back: Illinois forms for implementation.

Peggi Knight:

- Will be looking for a consultant to set up Research database.

2013 Iowa DOT Peer Exchange

Iowa Department of Transportation

Ames, IA

Tuesday, August 13 – Institute for Transportation Iowa State University		
12:00-1:15 pm	Welcome/Introductions **lunch provided**	Presentation by Peggi Knight (Iowa DOT) and Shauna Hallmark (InTrans)
1:15-3:30 pm	Presentations/Discussions on the most promising transportation research in your agency	What are your most promising research projects? How did you develop the project? How will you evaluate its effectiveness? What are your implementation and tech transfer plans? How do you track implementation?
1:15-1:45 pm	Linda Narigon	Mobile Mapping Research Implementation
1:45-2:15 pm	Georgene Geary	(GA) “TAMPering” with Research
2:15-2:45 pm	Diane Gurtner	(WI) Wisconsin DOT Statewide Customer Satisfaction Survey
2:45-3:00 pm	Break	
3:00-3:30 pm	Matt Haubrich	(IA) Asset Management
3:30-4:00 pm	Tom Palmerlee	(TRB) Asset Management
5:00 pm	Dinner and tasting tour at Olde Main Brewing Co.	Meet in hotel lobby at 5 pm for transportation to restaurant. Dinner following tour at 6:15 pm.
Wednesday, August 14 – Institute for Transportation Iowa State University		
8:15 am	Transportation to InTrans	Meet in hotel lobby at 8:15 am
8:30-10:30 am	Your Research Program Roundtable discussion	<u>Discuss your state’s research program:</u> How do you manage your research program? How do you market your research program? What are your implementation strategies?
10:30-10:45 am	Break	
10:45 am-2:15 pm	Presentations/Discussions on the most promising research in your agency	What are your most promising research projects? How did you develop the project? How will you evaluate its effectiveness? What are your implementation and tech transfer plans? How do you track implementation?

10:45-11:15 am	Cameron Kergaye	(UT) Traffic Management Center and Incident Management Systems
11:15-11:45 am	Mark Nelson	(MN) Minnesota's approach to developing a statewide Transportation Asset Management Plan
11:45 am-12:45 pm	Lunch & Learn Presentation by Leighton Christiansen Iowa DOT Librarian	Celebrating 100 years of transportation at the Iowa DOT
12:45-1:15 pm	Ahmad Abu-Hawash Office of Bridges & Structures Iowa DOT	Research Overview: 2013 Bridges & Structures
1:15-1:45 pm	Megan Swanson	(IL) Performance Measures: Roadmap to a Successful Research Program
1:45-2:00 pm	Break	
2:00-4:00 pm	Wrap up	What opportunities for improvement have you heard? What will you take back to your own agency?
6:00 pm	Dinner on your own	We recommend dinner at the Gateway Hotel restaurant, "The Iowa Stater" or you are welcome to form your own small group and go to the Iowa State Fair (in Des Moines). <i>We will reimburse your dinner expense.</i>

