LINKING DATA TO TRANSPORTATION RESEARCH

PURDUE ROAD SCHOOL 2014

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#roadschool

Wednesday, March 12, 2014
PUBLICATIONS AND DATA
PAST PRACTICES
AASHTO Research Committee Awards 2013
Sweet Sixteen High Value Research Projects

The Research Advisory Committee (RAC) to the American Association of State Highway and Transportation Officials’ Standing Committee on Research (SCOR) awarded its 2013 Sweet Sixteen High Value Research Projects at the AASHTO Annual Meeting, held in last month in Denver.

Each year, RAC collects High Value Research highlights from state transportation departments across the nation to showcase projects that are providing transportation excellence through research. This year’s “Research Sweet 16” winners are:

Region 1
- Connecticut Department of Transportation: Use of Streaming Media and Digital Media Technologies at CTDOT
- District Department of Transportation: Innovative Bicycle Facility Research and Analysis
- Maine Department of Transportation: Use of Moisture Induced Stress Testing to Evaluate Stripping Potential of Hot Mix Asphalt (HMA)
- New Jersey Department of Transportation: Elimination of Weight Restriction on Amtrak, NJ Transit, and Conrail Line

Region 2
- Arkansas State Highway and Transportation Department: Design, Construction and Monitoring of Roller Compacted Concrete Pavement in the Fayetteville Shale Play
- Florida Department of Transportation: Aging Driver and Pedestrian Safety: Human Factors Studies
- Georgia Department of Transportation: Recommended Guide for Next Generation of Transportation Design-Build Procurement and Contracting in the State of Georgia
- Louisiana Department of Transportation and Development: Louisiana Legislature Acts on Research to Add Additional Aids to Overloaded Sugar Cane Trucks

Region 3
- Indiana Department of Transportation: Analysis and Methods of Improvements of Safety at High-Speed Rural Intersections
- Iowa Department of Transportation: Evaluation of the RapidAir 457 Air Void Analyzer
- Michigan Department of Transportation: Impact of Non-Freeway Rumble Strips – Phase 1

Region 4
- California Department of Transportation: Accident Risk Analysis Tool
- South Dakota Department of Transportation: Energy Management Program for SDDOT
- Utah Department of Transportation: Identifying Characteristics of High-Risk Intersections for Pedestrians and Cyclists
- Wyoming Department of Transportation: Variable Speed Limit System for I-80 Elk Mountain, Wyoming, Corridor
CASE STUDY
PURDUE LIBRARIES &
THE JOINT TRANSPORTATION
RESEARCH PROGRAM
Meetings (March-June 2013):
• Purdue University Libraries (PUL)
• JTRP-PUL Meeting

Shared goals:
• Compliance with funder requirements
• Expose data
• Create an integrated publishing workflow linking tech reports and data

Actions:
• Identify use case
• Stage datasets in PURR
• Format and stage tech report
• Linking the data
A SERVICE MODEL OF COLLABORATION

Purdue e-Pubs and the Purdue University Research Repository (PURR)

Purdue e-Pubs is a service of the Purdue University Libraries, providing online publishing support for original publications as well as hosting for Purdue-affiliated articles, reports, conference proceedings, student scholarship, and more. Contact the Libraries to discuss opportunities to bring additional Purdue-affiliated scholarship online.

What is PURR?

The Purdue University Research Repository (PURR) provides an online, collaborative working space and data-sharing platform to support the data management needs of Purdue researchers and their collaborators.

Start Your Research Project

Create a Data Management Plan
Learn about the detailed requirements for your data management plan (DMP). Funding agency requirements are very specific and our DMP resources can help you to deal with any confusion. [Get Started]

Upload Research Data to Your Project
Create a project to upload and store your data with collaborators using our easy-to-use form to guide you through the process. Invite collaborators from other institutions to join your project. [Create a Project]

Publish your Dataset
Package, describe, and publish your dataset with a Dataspace DOI. Publishing will ensure your dataset is citable, reusable, and archived for the long-term. [See Published Datasets]
EVOLVING WORKFLOWS
PURDUE UNIVERSITY PRESS/PURDUE E-PUBS/JTRP

From...

To...

e-Pubs

JTRP TECHNICAL REPORTS

This Web page portal lists over 1,300 technical reports published as part of the JHRP, and subsequently JTRP, collaborative venture between Purdue University and the Indiana Department of Transportation. Additional details regarding the history of JHRP, as well as current activities of the JTRP program, can be found by clicking on the respective hyperlinks.

Technical Reports from 2012

FHWA/IN/JTRP-2012/01, Analysis and Methods of Improvement of Safety at High-Speed Rural Intersections, Andrew P. Tarko, Samuel Lachow, and Paramjiroo Sakeagelod, SPR-3316


FHWA/IN/JTRP-2012/03, Evaluation of Reclaimed Asphalt Pavement for Surface Mixtures, Rebecca S. McDaniel, Karol J. Kowalski, and Ayesha Shah, SPR-3018

FHWA/IN/JTRP-2012/04, Evaluation of Pavement Surface Friction Treatments, Shuo Li, Samy Noureddin, Yi Jiang, and Yannan Sun, SPR-3088

FHWA/IN/JTRP-2012/06, Application of Travel Time Information for Traffic Management, Christopher M.
EVOLVING WORKFLOWS
PURDUE LIBRARIES/PURR/JTRP

From...

To...

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You may not be able to visit this page because of:
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Purdue University Research Repository

5.1 Span Damage - Supplementary Materials for the Report: Effects of Realistic Heat Strengthening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

By Arid H. Vanna, Youngsoo Sohn
Purdue University

Abstract
Guidelines for conducting heat strengthening repair have been developed by FHWA and many DOTs. The guidelines establish limits for: (a) the maximum damage that can be repaired, (b) the maximum reheating time, and (c) the maximum reheating temperature to prevent the side effects of heat strengthening repair process.

However, the heat strengthening guidelines are related to this field due to time and economic issues. These limitations include, but are not limited to: (a) optimal heating below 125°F, (b) over-heating above 125°F, (c) over-strengthening above restraining forces (10,500 psi) and (d) multiple heat strengthening of the beam more than two times.

Currently, there is a lack of knowledge of the effects of these imperfections in the heat strengthening repair process on the condition and serviceability of the damaged- repaired beams. This knowledge is needed to develop more realistic guidelines for evaluating and replacing bridge members subjected to damage followed by imperfect heat strengthening repair.

The overall goal of this research is to develop recommendations and guidelines for evaluating steel beam bridges in Indiana subjected to damage followed by heat strengthening repair with imperfections (overheating, overstrengthening, or repetitive heating).

Cite this work:
Researchers should cite this work as follows:


Tags
- Damaged Steel Beam Bridge
- Heat strengthening repair
- FHWA Transportation Research Program
- JTRP
LINKING TECHNICAL REPORTS AND DATA
COHESIVE PUBLICATION WORKFLOW

1. DMP
2. DOI
3. Metadata

PI = principal investigator
SAC = study advisory committee
PA = project administrator
PURR = Purdue University Research Repository
SSS = Subject Specialist Liaison

PI drafts proposal
b) Data Management Plan Created
c) PI submits proposal to funding agency
d) Proposal accepted by funding agency
e) PI submits draft report
f) SAC reviews draft report
g) PI revises draft report
h) PA/PI & SAC confer

i) Final report production process

j) PI creates project in PURR
k) Project group collaborates in PURR
l) PI submits data set
m) SSL verifies data set
n) Data set published / archived with DOI
o) Data DOI submitted to publishing

p) PURR and e-Pubs links established (metadata)

q) Post Production:
   - Data/Tech Report Link
   - Tech Summary
   - DOIs
   - Persistent URL
   - Indexing
   - Archiving
   - Print on Demand

r) Measurements of impact:
   - Altmetrics
   - Citations
   - Downloads
   - Access
DATA


S-1 Span Damage - Supplementary Materials for the Report: Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

By Amit H. Varma, Youngmo Sohn
Purdue University

Supplementary Materials for the Report: Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

Recommended Citation

DOI
10.5703/1288284315184

Comments
Supplementary videos for SPR-3105:
Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

Amit H. Varma
Youngmoo Sohn
MEASURING IMPACT
Download Summary for JTRP Materials in the e-Pubs Repository

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JTRP TECHNICAL REPORTS

Evaluation of Reclaimed Asphalt Pavement for Surface Mixtures

Rebecca S. McDaniel, Purdue University
Karol J. Kowalski, Warsaw University of Technology
Ayesha Shah, Purdue University

Recommended Citation

DOI
10.5703/1288284314665

Report Number
FHWA/IN/JTRP-2012/03

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MEASURING DATASET IMPACT

ADJUSTING FORCE - Supplementary Materials for the Report: Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

By Amit H. Varma, Youngman Sah
Purdue University

Supplementary Materials for the Report: Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

Abstract
Guidelines for conducting heat straightening repair have been developed by FHWA and many DOTs. The guidelines establish limits for: (a) the maximum damage that can be repaired, (b) the maximum restraining force, and (c) the maximum heating temperature to prevent the side effects of heat straightening repair.

However, the heat straightening guidelines are isolated in the field due to time and economic issues. These regulations include, but are not limited to: (a) heating below 1200°F, (b) over heating above 200°F, (c) over straining above restraining force limit (0.5-3%) and (d) multiple heat straightening of the same beam more than two times.

Currently, there is a lack of knowledge of the effects of these imperfections in the heat straightening repair process on the condition and serviceability of the damaged-repaired beams. This knowledge is needed to develop more realistic guidelines for evaluating and replacing bridge members subjected to damage followed by imperfect heat straightening repair.

The overall goal of this research is to develop recommendations and guidelines for evaluating steel beam bridges in Indiana subjected to damage followed by heat straightening repair with imperfections (overstaining, overheating, or multiple heat straightening).

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RESEARCHERS PERSPECTIVE

• Metadata
  • Enriching research reports and technical dissemination
  • Recordings of experimental behavior, failure
  • Data streams
  • Analytical models and predictions

• Dissemination with knowledge transfer

• DOI: Digital Object Identifier
  • Most important aspect… permanent address on the web
  • Reference, one click away
The most important development in research dissemination

Don’t stop here… Consider adding
- Presentations by the researchers
- Elsevier
- Videos of final SAC closeout meeting
- Interactive Forum (moderated) for discussion of research – Discussion and Closure
- Smart phone version
- Apps that make it easier to navigate
MOVING FORWARD
BEST PRACTICES
BEST PRACTICES

• Linked work flows
  • Coordinate resources
  • Anticipate needs

• Early interaction with the data repository
  • Employ good data management principles and practices
  • Ease citation management
  • Increase impact

• Traditional publication attributes
  • Increase visibility and discoverability
  • Meet funder requirements
  • Measure and assess impact

• Usage and access metrics
  • Monitor and evaluate through quantitative and qualitative measurements
  • Communicate impact
Publications:
- Submit final manuscripts to the National Transportation Library (NTL)
- NTL will be the central repository for U.S. DOT research and technical reports and a clearinghouse for transportation data.

Data:
- Intramural researchers will follow U.S. DOT’s existing Data Release Policy
- Extramural researchers will have to submit a data management plan for approval.

Projects:
- Link individual research projects to resulting publications and data sets
- Required submission of Project Records to TRB’s RiP database and DOT’s Research Hub.
Thank You

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RESOURCES


• Joint Transportation Research Program. https://engineering.purdue.edu/JTRP


• Purdue e-Pubs. http://docs.lib.purdue.edu/

• Purdue University Research Repository (PURR). https://purr.purdue.edu/