

Home of Missouri's LTAP

MLTRC

MISSOURI LOCAL
TRANSPORTATION
RESOURCE CENTER



UMR

moinfo

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SUMMER ♦ 2004

in this issue

**CROSS AT YOUR OWN
RISK—THE PROBLEM
OF INTERSECTION
SAFETY**

**CONSIDERING
VARIOUS WATERBORN
PAINT AND BEAD
COMBINATIONS**

**TAGS PART VI: THE
GEOTECHNICAL TAG**



SEPTEMBER 28-29, 2004

Road System Traffic Safety
Review (RSTSR) Showcase
Ukiah, California
www.pdshowcase.org

OCTOBER 3-6, 2004

ITSC 2004: 7th International
IEEE Conference on Intelligent
Transportation Systems
Washington, D.C.
www.itsc2004.org/registration.html

OCTOBER 26-27, 2004

MINK4: Local Roads
Conference
St. Joseph, MO
campus.umar.edu/mltrc

CROSS AT YOUR OWN RISK

The Problem of Intersection Safety

Excerpted in part from the 2004 Federal Highway Administration publication "Intersection Safety Issue Briefs."

In 2002 approximately 3.2 million intersection-related crashes occurred nationwide, representing 50 percent of all reported crashes. 9,612 fatalities (22 percent of total fatalities) occurred at or within an intersection environment. In Missouri, 17 percent of all fatalities occur at intersections. The cost to society for intersection crashes is approximately \$96 billion a year, and the number of fatal motor vehicle crashes at traffic signals is rising faster than any other type of fatal crash nationwide.

To achieve substantial reductions in annual crashes, injuries and fatalities, agencies should take the following actions:

- (1) Analyze the reasons for traffic conflicts at intersections. Multidisciplinary analysis teams (engineers, enforcement, human factors professionals, etc) are recommended since they can have a broader perspective on crash causes.
- (2) Engage in innovative and strategic thinking. Engineers must delicately balance the requirement for efficient traffic movement and congestion reduction and, at the same time, the need to protect vehicle occupants and pedestrians from the consequences of dangerous vehicle maneuvers and unwise pedestrian behavior.
- (3) Modify the intersection design and operations based on an engineering analysis.
- (4) Identify the safety benefits of reconstruction or construction projects and/or operational changes that are planned at intersections. Select alternatives that have the greatest safety benefit. Integrate safety evaluations of projects into the planning and design processes.
- (5) Provide sustained and consistent law enforcement efforts.
- (6) Make certain all levels of government play a central role in the process by providing improved funding and cooperating with highway and vehicle engineers, health care authorities, law enforcement, national safety organizations, and local citizen safety groups.

In order to aid agencies in tackling the problem of intersection safety, the Federal Highway Administration has assembled a packet of related informational briefs on the following topics: traffic control devices: uses and misuses; stop signs; signals; engineering countermeasures to reduce red light running; red-light cameras; intersection safety countermeasures; pedestrian safety; older drivers; ADA considerations at intersections; human factors; access management; roundabouts; road safety audits; work zones; and intersection safety resources.

To request print copies of the briefs contact Hari Kalla, P.E.:

Email: hari.kalla@fhwa.dot.gov

Phone: 202.366.5915

THE FINE PRINT:

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MLTRC reserves the right to edit content for length and clarity. Please include your name, address, phone number, and email address with all submissions. Digital images submitted to accompany articles must be submitted in JPEG or TIFF format at a resolution of at least 300dpi.

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3

BRIDGES FOR SALE

Bridge No. 34900191

Over Sampson Creek in Davies County, Missouri

is available for reuse at a new location. The 1946 bridge is a steel, ridged, camelback pony truss with concrete deck and steel stringers. Structure length is 129' 11" and width is 14'6". The bridge fabricator is unknown. If transferred to another party, the transfer deed for this



National Register eligible bridge may include preservation covenants.

Cost: no cost

Contact: Craig Sturdevant
Environmental Research Center
1201 Moreau Drive, Jefferson City, MO 65101
Ph. & FAX (573) 635-9569
craigsturdevant@mchsi.com

Bryant Bottom Bridge

Section 18, Township 48N, Range 18W • Cooper County, Missouri

The Bryant Bottom Bridge (Bridge No. 202000.0) over the Lamine River in Cooper County, Missouri one mile South of the Interstate 70 crossing over the Lamine River is available for adaptive reuse at a new location. This National Register-eligible bridge was fabricated by the Missouri Bridge & Iron Company, St. Louis in 1908. The 14' wide by 210' long span is a 12 panel, pin-connected Parker through truss with steel stringers and timber deck. If the bridge is transferred to another party, the transfer deed will include preservation covenants that require the new owner to relocate, re-erect, preserve, and maintain the bridge in accordance with "The Secretary of the Interior's Standards for Rehabilitation of Historic Buildings". The rehabilitation plan and specifications, the proposed maintenance program, and the proposed new location of the bridge will be forwarded to the FHWA for review and approval in consultation with the Missouri State Historic Preservation Officer (SHPO).

Interested parties contact by: November 12, 2004

Price: n.a. Square feet: n.a. Lot size: n.a.

Contact: Katrina Marx, P.E.
Harrington and Cortelyou, Inc.
911 Main Street, Suite 1900, Kansas City, MO 64105
Ph: (816) 421-8386
kmarx@hcbridges.com



Historic Bridge

Over Muddy Creek in Mercer County, Missouri

Historic bridge available for adaptive reuse and removal. This National Register eligible bridge is a steel, four panel, pin-connected 70 foot long Pony truss bridge that currently crosses Muddy Creek. The Dildine Bridge and Construction Company completed construction in 1903. The new owner may be required to preserve and maintain the bridge following established guidelines.

Contact: Steve Dasovich
SCI Engineering, Inc.
130 Point West Blvd., St. Charles, MO 63301
Ph: (636)-949-8200



MLTRC TRAINING SURVEY

We need your help in developing our curriculum to best meet local needs. Please take a few moments to fill out the questionnaire below and send us your input.

Would you/others in your agency be interested in attending training workshops on the following topics? If so, please indicate about how many might attend and what time of year works best for your agency.

Post Incident Bridge Inspection—instruction for general transportation employees, e.g. maintenance and construction personnel, regarding what to look for on and around a bridge following an earthquake or other incident to determine if it can remain open for traffic.

This topic would___/would not___ be useful for my agency.

Indicate the number of individuals who might be interested in attending a workshop on this topic: _____

The best month of the year for such a workshop would be _____.

Shoring for Excavation—two training modules are available. The general excavation module will provide basic life-saving information, specifically regarding the dangers of excavation and how to identify hazards for personal protection. Instruction includes hands-on opportunities to install protective equipment properly. The overseer module will cover identification of hazardous situations and the corresponding proper corrective action; identification of unsafe working conditions; classification of different soil types, for determination of the proper protective system for an excavation; and installation and inspection of protective systems

This topic would___/would not___ be useful for my agency.

My agency would be interested the general module___/the overseer module___. (Check one or both.)

Indicate the number of individuals who might be interested in attending the general module: _____ and the overseer module _____

The best month of the year for such a workshop would be _____.

Motor Grader Operator Instruction—both classroom and in-the-field instruction on the principles and proper techniques involved in grading a road.

This topic would___/would not___ be useful for my agency.

My agency would be interested in classroom___/in-the-field___ instruction. (Check one or both.)

Indicate the number of individuals who might be interested in attending a workshop on this topic: _____

The best month of the year for such a workshop would be _____.

Intersection Safety—workshop covering basic enhancements that can be made to improve intersection safety.

This topic would___/would not___ be useful for my agency.

Indicate the number of individuals who might be interested in attending a workshop on this topic: _____

The best month of the year for such a workshop would be _____.

Basic Low-Cost Safety Improvements—workshop covering identification of high crash locations, roadside hazards, signing and marking, intersections, traffic signals, and railroad grade crossings. Instruction includes case studies and low-cost improvement exercises.

This topic would___/would not___ be useful for my agency.

Indicate the number of individuals who might be interested in attending a workshop on this topic: _____

The best month of the year for such a workshop would be _____.

RETURN ADDRESS



MLTRC – *Home of Missouri's LTAP*
University of Missouri-Rolla
Civil, Architectural & Environmental Engineering
210 Butler-Carlton Hall, 1870 Miner Circle
Rolla, Missouri 65409-0030

- Please fold in half and seal with tape (not staples) before mailing. -

CONTACT INFORMATION

Agency: _____

Contact Person: _____

Street address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email: _____

Transportation in the New Millennium: TRB (Transportation Research)—State of the Art and Future Directions

Transportation Research Record Volumes 1781-1818: TRB (Transportation Research Board)—Includes 1997-2001 Index of Transportation Research Board Publications

LTAP Yearbook: LTAP (Local Technical Assistance Program)—Includes: 2003 LTAP Conference, Safety Workshop, LTAP Journal, LTAP 101, NLTAPA, Print Communications

AASHTO 2002 Roadside Design Guide: FHWA (Federal Highway Administration)—Design guide powerpoint presentation and video supplement to powerpoint presentation.

Safer Journey: Interactive Pedestrian Safety Awareness: FHWA (Federal Highway Administration)—Developed to improve the level of pedestrian knowledge for all road users and safety practitioners.

National Summer Transportation Institute... The Power of Partnership—An informational CD on the summer transportation institute sponsored by UMR. . Produced by the Institute of Transportation Engineers 11:54 minutes.

United States Road Symbol Signs Poster and United States Pavement Markings Poster: FHWA (Federal Highway Administration)—This CD contains QuarkXPress files of the United States Road Symbol Signs Poster and United States Pavement Markings Poster

Long Term Pavement Performance: FHWA (Federal Highway Administration)—Reference Library

Introduction to Mechanistic-Empirical Pavement Design of New and Rehabilitated Pavements Course No. 131064: FHWA (Federal Highway Administration)—Includes instructors guide, participant workbook and problems, preference manual, presentation slides, software and spreadsheets.

Pavement Smoothness: Factors Affecting Inertial Profiler Measurements Used for Construction Control Course No. 131100: FHWA (Federal Highway Administration)—Includes instructor guide, participant workbook, reference manual and visual aids.

Bridge Inspector's Reference Manual, October 2002: FHWA (Federal Highway Administration) Reference for NHI courses: 130054—Engineering Concepts for Bridge Inspectors and 130055- Safety Inspection of In-Service Bridges

Hot Mix Asphalt Construction Course No. 131032: FHWA (Federal Highway Administration)—Includes instructors guide, participant workbook, and powerpoint presentation.

Concrete Pavement Design Details and Construction Practices Course No.131060: FHWA (Federal Highway Administration)—Includes instructors guide, participant workbook, reference manual, and visual aids.

Use of CPM for Estimating, Scheduling and Timely Completion Course No. 134049: FHWA (Federal Highway Administration)—Abstract Includes course materials.

Highway/ Utility Issues Course No. 134006: FHWA (Federal Highway Administration)—Includes instructors guide, participant workbook, and visual aids.

Construction of Portland Cement Concrete Pavements Course No.131033: FHWA (Federal Highway Administration)—Includes instructors guide, participant workbook and visual aids.

Fracture Critical Inspection Techniques for Steel Bridges: FHWA (Federal Highway Administration)—Includes participants workbook.

Hot Mix Asphalt Production Facilities Course No. 131044: FHWA (Federal Highway Administration)—Includes instructors guide, participant workbook, reference manual and powerpoint presentation.



Transportation Research Record, No. 1846: Transportation in Developing Countries: TRB (Transportation Research Board)—A compilation of various studies on transportation in developing countries. LengthUnits page(s)

Transportation Research Record, No. 1847: Operational Effects of Geometric 2003: TRB (Transportation Research Board)—Abstract A compilation of various studies involving highway operations, capacity and traffic control. LengthUnits page(s).

NCHRP Report 518, Safety Evaluation of Permanent Raised Pavement Markers. TRB (Transportation Research Board)—This report presents the findings of a research project to evaluate the safety performance of snowplowable permanent raised pavement markers (PRPMs) on two-lane roadways and four-lane freeways. LengthUnits page(s).

NCHRP Synthesis 326: Strategic Planning and Decision Making in State Departments of Transportation: TRB (Transportation Research Board)—This report of the Transportation Research Board examines state and provincial department of transportations' (DOTs) experience with strategic planning and synthesizes current approaches to linking strategic planning with other decision-making processes, including operational and tactical planning, resource allocation, performance management and performance measurement. LengthUnits page(s).

NCHRP Report 509: Equipment for Collecting Traffic Load Data: TRB (Transportation Research Board)—This report identifies the key issues that must be considered by state and other highway operating agencies in selecting traffic equipment for collecting the truck volumes and load spectra needed for analysis and design of pavement structures.LengthUnits page(s).

Development and Deployment of Standards for Intelligent Transportation Systems: TRB (Transportation Research Board)—Abstract "Intelligent" transportation systems (ITS) apply computers, information management, advanced electronics, and communications technology to reduce traffic congestion, enhance safety, save energy, and in other ways generally improve the performance of the nation's highways and transit.LengthUnits page(s).

Community Impact Assessment: TRB (Transportation Research Board) FHWA (Federal Highway Administration)—Prepared by Projects for Public Spaces

Implementing Local Agency Safety Management USDOT (United States Department of Transportation): FHWA (Federal Highway Administration)—A safety management system gives decision makers and those who manage and maintain local roadways the tools to systematically identify, prioritize, correct and evaluate the performance of their transportation safety investments.

Basic Traffic Control For Utility Operations: Guide to Temporary Traffic Control for Utility Operations: FHWA (Federal Highway Administration)—Guide to Temporary Traffic Control for Utility Operations

Bicycle Safer Journey: Interactive Pedestrian Safety Awareness: FHWA (Federal Highway Administration)—This interactive CD-ROM is a virtual journey designed to increase your awareness of bicycle safety. Its use is intended for the general public, road users, safety advocates and safety professionals.

NCHRP Research Results Digest, No. 285: Laboratory Determination of Resilient Modulus for Flexible Pavement Design: TRB (Transportation Research Board)—This Digest presents the two key products from research conducted under NCHRP Project 1-28A, "Harmonized Test Methods for Laboratory Determination of Resilient Modulus for Flexible Pavement Design." LengthUnits page(s).

NCHRP Research Results Digest, No. 287: Highway Capacity Manual Applications Guidebook: TRB (Transportation Research Board)—Subject Area: IVA Highway Operations, Capacity, and Traffic Control LengthUnits page(s).

NCHRP Research Results Digest, No. 286: Development of a Highway Safety Manual: TRB (Transportation Research Board)—Subject Area: IIA Highway and Facilities Design and IVB Safety and Human Performance LengthUnits minute(s).

Accessible Sidewalks and Street Crossings- an Informational Guide Author Boodlal, Leverson: FHWA (Federal Highway Administration)—In order to meet the needs of all sidewalk users, designers must have a clear understanding of the wide range of abilities that occur within the population LengthUnits page(s).

Modeling of Advanced Technology Vehicles: USDOT (United States Department of Transportation)—Final report of the US Department of Transportation Department in September 2003 LengthUnits page(s).

Full Road Closure for Work Zone Operations: FHWA (Federal Highway Administration)—Reducing congestion and crashes through full road closure for maintenance and construction. LengthUnits page(s).

NCHRP Synthesis 325: Significant Findings from Full-Scale Accelerated Pavement Testing: TRB (Transportation Research Board)—Significant Findings from Full-Scale Accelerated Pavement Testing LengthUnits page(s).

NCHRP Report 515: Portable Scour Monitoring Equipment: TRB (Transportation Research Board)—This report presents the findings of a research project undertaken to develop portable scour monitoring equipment for measuring streambed elevations at bridge foundations during flood conditions. LengthUnits page(s).

NCHRP Report 517: Extending Span Ranges of Precast Prestressed Concrete Girders: TRB (Transportation Research Board)—This report contains the findings of research performed to develop recommended load and resistance factor design procedures for achieving longer spans using precast prestressed concrete bridge girders. LengthUnits page(s).

NCHRP Research Results Digest, No. 289: Measuring Communicating the Effects of Traffic Incident Management Improvements: TRB (Transportation Research Board)—This digest reviewed current practice around the United States and convened a workshop of several progressive state DOT's to determine the best performance measures for traffic incident management. LengthUnits page(s).

Transportation Research Board's Publications Catalog: TRB (Transportation Research Board)—A booklet explaining the different types of publications of the Transportation Research Board and how to use and access them. LengthUnits page(s).

NCHRP Synthesis 329: Integrating Tourism and Recreation Travel with Transportation Planning and Project Delivery: TRB (Transportation Research Board)—This synthesis report with be of interest to local, regional, state, and federal officials, as well as to other transportation professionals that work with them in dealing with tourism and recreation travel. LengthUnits page(s).

Country Roads & City Streets: University: LTAP (Local Technical Assistance Program)—A publication from the West Virginia Transportation Technology Transfer Center containing subjects such as chain saw safety, chain saw maintenance, new

additions to the WV T2 Library and various free items offered by the center. LengthUnits page(s).

ITS/ Operations Resource Guide- 2004: USDOT (United States Department of Transportation)—Contains a comprehensive listing of over 400 documents, videos, websites, training courses, software tools, and points of contact related to innovative transportation operations strategies, such as intelligent transportation systems(ITS). LengthUnits page(s).

CCC: Making the Effort Works: Reducing utility Delays During Construction: FHWA (Federal Highway Administration)—A video on reducing utility delays during construction
LengthUnits minute(s)

NACE News: Planning/Transportation Systems Miscellaneous—A monthly publication of the National of County Engineers
LengthUnits page(s)

TCRP Synthesis 52: Transit Operator Health and Wellness Programs: TRB (Transportation Research Board)—Transit administrators, engineers, and researchers often face problems for which information already exists, either in documented experience and practice. This synthesis will be of interest to staff concerned with reactively addressing operator health and wellness issues at their agencies.

NCHRP Report 479: Short- Term Monitoring for Compliance with Air Quality Standards: TRB (Transportation Research Board)—This report contains the results of research into predicting ambient air quality

exceedances at transportation project locations.

TCRP Report 95, Chapter 9: Transit Scheduling and Frequency: TRB (Transportation Research Board)—Information on traveler response and related impacts is presented in the chapter for scheduling changes made to conventional bus and rail transit, including changes in the frequency of service, hours of service, structuring of schedules and schedule reliability. LengthUnits page(s).

TR News: TRB (Transportation Research Board)—A publication of the transportation research board containing articles such as “Moving Today’s Military”, “Remodeling the Panama Canal” and “Coordinating Airport Research”.

University of Minnesota: Center for Transportation Studies Annual Report: University—This publication is a report of transportation research, education, and outreach activities for the period July 2002 through June 2003. It covers the Center for Transportation Studies and the special programs housed within it: ITS, LTAP, and Transportation and Regional Growth Study. LengthUnits page(s).

The Nature of Roadsides and the Tools to Work With It: FHWA (Federal Highway Administration)—A publication in which explains the transformation of today’s roadside to more eye appealing with flowers, trees and other plants.

Transportation in an Aging Society: TRB (Transportation Research Board)—The TRB conference on transportation in an aging society.
LengthUnits page(s)

Bituminous Operations Level 2 Technician Training:

MoDOT/RDT (Missouri Department of Transportation/Research, Development and Technology)—A course on level 2 bituminous surfaces from the Missouri Department of Transportation.

To check out items in the MLTRC library, please call toll free 1 (866) MO-ROADS or email mltrc@umr.edu.
For a complete library listing visit campus.umar.edu/mltrc/library/

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- 3) If the submission is successful, you will receive a reply email asking you to confirm your e-mail address. Once you write back to confirm, you are enrolled.



MINNK4
the local roads conference

WHEN:
October 26-27, 2004

WHERE:
Ramada Inn, St. Joseph, MO

REGISTRATION FEE:
\$45

ROOM COST:
\$55 + tax

REGISTER ONLINE:
campus.umar.edu/mltrc

TECH BRIEF

Considering Various Waterborn Paint and Bead Combinations



Since 1994, MoDOT has used a second-generation waterborne paint resin with AASHTO Type 1 (small) standard bead for its roadway striping program. In the summer of 2003, the MoDOT District 7-Joplin district unit, Maintenance, and Research, Development and Technology (RDT) functional units decided to study various waterborne paint resins and bead types in an effort to find the best combination for paint durability and bead retroreflectivity while still maintaining a reasonable cost for the Missouri taxpayers. District 7 placed different second- and fourth-generation paint resins and type 1 (small) and type L (large) bead combinations on test sections around the Joplin area. According to industry, second-generation resin should provide one to two years of life and fourth-generation resin should provide two to three years of life on average, depending on vehicle ADT and snowplowing. In addition to the test sections, RDT will review different roadway, and paint and bead combinations within Districts 7-Joplin and 8-Springfield. District 7 has placed test sections of fourth-generation paint resin with type L beads; District 8 has placed test



TAGs PART VI:

The Geotechnical TAG

Providing support for Missouri's roads and bridges are the underlying soils and rock formations. Studying those materials for improvements to standard procedures, repair options or more cost effectiveness is the responsibility of the Geotechnical TAG. The Geotechnical TAG initiates and reviews research studies in this area. The practical application of geotechnical-related research includes structure foundation design issues, seismic ground motions, various applications of ground penetrating radar, soil stabilization and strength improvement and drilling or testing techniques.

The following are examples of projects currently under the direction of the Geotechnical TAG:

Development of a Highway Rock Cut Rating System for Missouri Highways

The purpose of this study was to develop a rating system, designed specifically for Missouri, which will identify criteria that are important, yet quick and easy to measure

to assess the stability of rock cuts along Missouri's highways. Rock cuts were analyzed through imaging software. The criteria were sorted by risk, consequence and repair costs, so that a priority for maintenance or remediation could be determined. A system that allows quick assessment and prioritization of potential rock cut failures will help provide safe transportation for all who use the highways.

The system will allow engineers to identify areas that need attention to prevent failures. Preventing failures will reduce traffic delays, property damage and even possible fatalities.

The University of Missouri-Rolla developed the system. The various criteria have been established and the individual factor values were refined to be used in the rating system. As the system becomes finalized, MoDOT engineers will be able to review the system and make comments for improvements. When the system meets MoDOT's approval, training will be held to educate district personnel on its use.



GEOTECHNICAL TAG MEMBERS

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FHWA – Missouri Division
(573)636-7104

MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT **RESEARCH IDEA STATEMENT**

Check the appropriate area(s): Geotechnical Operations Pavements Traffic/Safety
 Social/Environmental/Economic Project Development/Bridge

IDEA TITLE: _____

IDEA STATEMENT: _____

OBJECTIVE: _____

APPLICATION(S)/BENEFIT(S): _____

KEY WORD *(Keywords are needed to assist in literature search for research idea subject):*

DATE: _____

NAME: _____ TITLE: _____

ORGANIZATION: _____ DIV/DIST: _____

ADDRESS: _____ CITY/ZIP: _____

PHONE: _____



Complete and return to
Missouri Department of Transportation
Attn: Research, Development & Technology
PO Box 270
Jefferson City, MO 65102
FAX: (573) 222-8416

MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT

PRODUCT LISTING/NEW PRODUCT EVALUATION REQUEST FORM

When request is submitted, enclose a completed copy of this form and the required information as indicated below.

Manufacturer Fabricator Distributor Other _____

Business Name _____ Contact Name _____

Address _____ City _____ State _____ Zip _____

Telephone Number _____ Fax _____

Email _____ Website _____

Manufacturer _____

Name of Product _____ Model No. _____

Description and intended application of product _____

Key Words (requested for literature search): _____

List other states using the product: _____

What is the approximate unit cost of the product? _____

Is material available at no cost for lab and field installation evaluation? _____

Does the product comply with MoDOT specifications? Yes No
If yes, provide specifications name/number.

If no, attach separate explanation as to why not and why MoDOT should consider the product.

Does product comply with other specifications (such as ASTM, ITE, AASHTO, NBMA, NTPEP, etc.)? Yes No

In addition to this form, please submit the following:

- 1) Product data (mixing info, installation requirements, product brochures, specification sheets, etc.)
- 2) Documentation required by the MoDOT specification (if applicable)
- 3) Applicable test data
- 4) Unit cost data and whether the unit cost includes installation
- 5) Material Safety Data Sheet

SUBMITTED BY:

Signature _____ Print Name _____ Date _____

Please send the new product evaluation request form and all other required information to the appropriate address below. Submittals related to the Traffic Signal and Highway Lighting Approved Products List should be submitted to Traffic Operations. Submittals that meet a current MoDOT specification and have a Qualified or Pre-Acceptance List should be submitted to Project Operations. All other submittals should be submitted to Research, Development and Technology. If a sample is required by the specification, submit the sample with a copy of the required documentation to the Central Laboratory. If the specification does not specify a sample or there is no specification, sample submittals will be required upon request.



Traffic Operations
 PO Box 270
 2211 St. Mary's Blvd.
 Jefferson City, MO 65102

Project Operations
 PO Box 270
 2211 St. Mary's Blvd.
 Jefferson City, MO 65102

Central Laboratory
 PO Box 270
 1817 Missouri Blvd.
 Jefferson City, MO 65102

*Research, Development
& Technology*
 1817 Missouri Blvd.
 Jefferson City, MO 65102

FOR OFFICE USE ONLY:

Initial date received _____

All required documentation submitted? Yes No

Date of additional documentation receipt _____

Product Development / NP number assigned _____

CONTACT INFO

PRODUCT INFO

SPECS

REQUIRED INFO

SIGNATURE

MAIL TO

OFFICE USE

Evaluation of Bridge Approach Slabs, Performance and Design

Current construction practices often result in settlement of approach slabs near bridges. As a consequence there is often times a bump at the ends of the bridge. In some cases the settlement leads to cracking in the approach slab. Slight settlement in the approach slab is responsible reduced ride quality of the facility and severe settlement may create an unsafe condition. MoDOT districts have spent considerable time and money in an effort to repair these settled



slabs, with varying degrees of success. A MoDOT task force recommended the problem be researched. The purpose of this project is to identify and quantify the failure mechanisms observed at the approach slabs and to make recommendations to avoid this type of failure in the future.

An improved design will result in pavements that will last longer will not require the types of repair that some current approach slabs need. The ride of the

facility, and possibly the safety, will be improved. The reduced incidence of settlement repairs will save time and money.

The University of Missouri-Rolla is conducting this project. Recommendations from the research study have been shared with the MoDOT task force to determine how best to implement changes.

Slope Stabilization Using Recycled Plastic Pins

This multi-phased project evaluated the feasibility of permanently repairing roadway slope failures by driving long, slender members, referred to as pins, into the re-graded slope. The pins are made from recycled plastics and are such a desirable material to use for various ecological reasons. The first phase of the project studied the feasibility of the repair technique at one site. The second phase of the project expanded the variety of soils to be stabilized with this treatment, continue to monitor the existing field installations and to advance the economic evaluation of the recycled plastic pin technology. The third and last phase of the project was to evaluate different recycled pins and develop specifications for the material and installation.

Many small slides occur around the state that require repeated attention from MoDOT maintenance forces. A permanent solution would save time and money and, in some cases, provide support to the embankment to prevent eventual pavement distress related to slope failure.

The University of Missouri-Columbia is conducting this project. The technique is performing well and future implementation may include installations by MoDOT maintenance forces.

MoDOT wants to hear from you!

If you have a research idea that could benefit the state transportation system or a new product to be reviewed, please fill out the corresponding RIS or New Product Evaluation form included in this issue.

TECH BRIEF

continued...



sections of second-generation paint resin with type 1 beads. This study should provide MoDOT with the best combination of paint and bead for the state of Missouri. A final recommendation will be made to senior management in October of 2004 or 2005.

If you have any questions, please contact Dan Smith, Research and Development Engineer, MoDOT, (573) 526-4329.

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Home of Missouri's LTAP

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