

# MOVING FORWARD



*“He who does not look ahead, remains behind.” (Spanish Proverb)*

Ohio Department of Transportation, Office of Research and Development

2007 Volume 1

## FY 2008 Request for Proposals

ODOT's Office of Research and Development is now accepting proposals for the following projects:

- PS-08-01 Benefit Cost Models to Support PMS Decisions
- PS-08-02 Sensitivity of Four-Step Versus Activity Based Models to Transportation System Changes
- PS-08-03 Identification and Evaluation of Pavement-Bridge Interface Ride Quality Improvement and Corrective Strategies
- PS-08-04 Development of a TL-3 Deep Beam Tubular Backup Bridge Rail
- PS-08-05 Review of Traffic Monitoring Factor Groupings and Determination of Seasonal Adjustment Factors for Cars and Trucks
- PS-08-06 Access Database for SPR Part II Research Program Management
- PS-08-07 Evaluation of Cone Penetrometer Testing (CPT) for Use with Transportation Projects
- PS-08-08 Effectiveness of Noise Barriers Installed Adjacent to Transverse Grooved Concrete Pavement
- PS-08-09 Crack Sealing: Database Analysis and Effects on Pavement Serviceability and Life

The above projects are expected to begin during fiscal year 2008 (July 1, 2007 - June 30, 2008). Proposals on research studies not listed above are currently being accepted through OPREP. For more information on OPREP, refer to page 2.

Detailed RFPs can be obtained from our website at <http://www.dot.state.oh.us/divplan/research/announcements/announcements.htm>. Formatting and submission guidelines are also available on-line at <http://www.dot.state.oh.us/divplan/research/Forms/forms.htm>. Be sure to review the guidelines carefully as they have been updated since the last RFP. The deadline for submitting proposals is **4:30 PM on March 9, 2007**. All submissions must be **received** by this time. **Absolutely no late proposals will be accepted. No extensions or exceptions will be made to this deadline.** Non-compliance with the formatting and submission guidelines is cause for the rejection of a proposal.

All questions concerning RFPs, including technical clarifications of the projects and formatting and submission of proposals should be directed to the Office of Research and Development at [research@dot.state.oh.us](mailto:research@dot.state.oh.us) or 614-644-8135. Clarifications will be posted to our website as they become available. Announcement of selected researchers for fiscal year 2008 will be posted on the R&D web site by June 30, 2007.

# OPREP 2008 - Request for Proposals

The Ohio Department of Transportation's Office of Research and Development is now accepting proposals for the ODOT Partnered Research Exploration Program (OPREP). The OPREP Program was created to:

- ◆ Consider relevant transportation research needs that may not have been identified by ODOT and included in our Strategic Research Plan.
- ◆ Encourage genuine partnerships within the research community.
- ◆ Recognize that while ODOT research needs are primarily of an applied nature, support of some basic research is critical to the long-term success of transportation research.
- ◆ Provide an opportunity to demonstrate the viability of innovative concepts and their potential to address long-range transportation needs.
- ◆ Leverage research funds and resources.

One hundred fifty thousand dollars (\$150,000) is available for fiscal year 2008 (July 1, 2007 - June 30, 2008) for OPREP projects. Depending on the estimated budgets of the OPREP proposals, funds may be awarded to one or more projects. OPREP projects awarded for fiscal year 2008 will not begin until **after** July 1, 2007.

To qualify as an OPREP project, the following criteria must be met:

Project Duration: 16 months (maximum) - This includes 4 months for review and approval of a draft final report and executive summary prior to submitting the final copies. Shorter durations will be considered; however, the 4-month review/submission period for required reports must be included.

Limitation on Request for Funds: No more than 50% of the total project cost can be requested from ODOT for an OPREP project. Smaller percentages of the total project cost can be requested from ODOT.



Partnership Requirement: At least one other partner unaffiliated with the proposing agency must agree to support the project. There is no limitation on the total number of partners. All partnership agreements must be established before a proposal is submitted. Signed documents that clearly define the roles of the partner(s) must be supplied with the proposal. Failure to provide these documents will invalidate the partnership(s).

Matching Funds Requirement: A minimum of 50% of the **total project costs** must be provided by the proposing agency and/or its partner(s). A larger percentage of funds may be provided if desired. Matching funds must be clearly detailed in the budget.

Matching Funds Requirement for Partnering Agencies: A minimum of 10% of the **total project cost** must be provided by the partner(s). A larger percentage of funds may be provided if desired. The partner's matching funds must be clearly defined in the partnership agreement that accompanies the proposal. Funding from other agencies (e.g.: NSF, NCHRP, a UTC, TRB, etc.) can count as matching funds if the funding has been awarded prior to the OPREP submission and if the work has not begun. Pending applications to these types of agencies will not count towards the matching funds requirement. This match counts towards the minimum 50% match previously noted.

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## OPREP 2008 - Continued from page 2

Matching funds can be provided in a variety of ways, including:

- √ Any monetary transfer from a partner to the proposing agency or vice versa (**Documentation of the amount and the intended use of the funds must be provided in the budget.**)
- √ Salary and wages (stipends) and fringe benefits for graduate and undergraduate students at colleges and universities and for interns at commercial organizations
- √ Tuition and fees for students (**Not to exceed a period of 12 months and 20% of total project costs. If students will spend less than 12 months on the study, tuition and fees should be prorated accordingly.**)
- √ Salary and wages and fringe benefits of principal investigators, co-principal investigators, technicians, project managers, analysts, administrative staff, and applicable research personnel
- √ Overhead/Indirect costs (**In accordance with Section 4.3.4 of the RD&T<sup>2</sup> Manual of Procedures. Appropriate supporting documentation must be provided.**)
- √ Fees for commercial organizations (**In accordance with Section 4.3.4 of the RD&T<sup>2</sup> Manual of Procedures. Appropriate supporting documentation must be provided.**)
- √ Testing documented in the proposal that will be conducted by the research team, but will not be billed to ODOT (**An estimated value of this work must be provided for review. ODOT will determine the reasonableness of the amount and attribute the value accordingly. NOTE: The work must be adequately described so the value can be reviewed. Insufficient description of the work will result in no value being assessed.**)
- √ Purchase of supplies and equipment
- √ Discounts on supplies and equipment (**Documentation from the vendor noting the amount of the discount must be provided.**)
- √ Expenses paid for project related travel based on State of Ohio travel guidelines
- √ Expenses paid for printing required reports (**Required reports include quarterly reports, five copies of a draft final report, five copies of a draft executive summary, 120 copies of an approved executive summary, 60 copies of an approved final report, and two electronic versions - one in "PDF" format and one in "DOC" format.**)

Expenses incurred prior to the start date of the contract and depreciation on equipment are ineligible for consideration as matching funds.

Time extensions may be granted for an OPREP project; however, requests for additional funds from ODOT will not be considered. Requests for time extensions must be submitted in accordance with Section 4.2.2 in the RD&T<sup>2</sup> Manual of Procedures.

Proposals must be formatted in accordance with the ODOT Research Proposal Formatting and Submission Requirements which is available on the ODOT R&D website (<http://www.dot.state.oh.us/divplan/research/Forms/forms.htm>). Noncompliance with these guidelines will disqualify the submission from consideration. The Department reserves the right to reject any or all submittals.

The deadline for OPREP consideration for fiscal year 2008 is **receipt by 4:30PM on March 9, 2007. Absolutely no extensions will be granted to this deadline.** All items received after 4:30 PM on March 9, 2007 will not be considered for fiscal year 2008, but may be resubmitted for consideration for fiscal year 2009. Submissions should be made as instructed in the ODOT Research Proposal Formatting and Submission Requirements.

The Office of R&D will send a confirmation, via email, that submissions have been received. Announcement of OPREP awards for fiscal year 2008 will be posted on the R&D web site by June 30, 2007.

If you have any questions about the OPREP program or the proposal requirements, please feel free to contact the Office of R&D at 614-644-8135 or via email at [research@dot.state.oh.us](mailto:research@dot.state.oh.us). The OPREP program is available to anyone who is interested in performing transportation related research, so please feel free to share this information with fellow researchers.

# A Streamflow Statistics (StreamStats) Web Application for Ohio

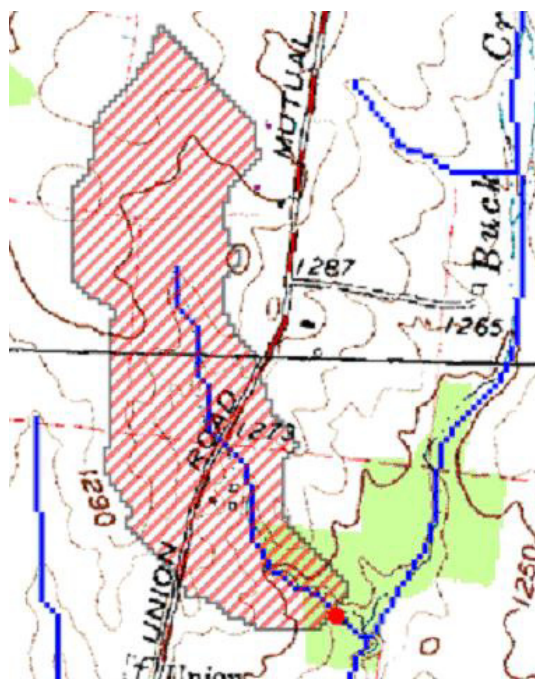
**Contributions By: Greg Koltun, USGS**

In recent years, a variety of stream-flow statistics have been determined for Ohio stream-flow-gaging stations and subsequently published in U. S. Geological Survey reports. Many of those statistics are used by governmental agencies, engineers, scientists, and watershed groups for purposes of water management, permitting, and design. Because stream-flow statistics are commonly needed at locations where there are no stream gages, several studies have been performed to develop equations for estimating stream-flow statistics at ungaged locations in Ohio.

Historically, obtaining or estimating a specific streamflow statistic (for example the 100-year peak streamflow or harmonic mean streamflow) for a particular streamflow-gaging station or ungaged stream location has depended on having access to the applicable USGS report. Even when the report is readily accessible, it can be difficult and time consuming to manually determine basin characteristics required using the equations when estimating streamflow statistics at ungaged locations. To help improve access to published streamflow information—and to make the process of computing streamflow statistics for ungaged sites faster, more accurate, and more consistent than the previously used manual methods—the USGS, in cooperation with Environmental Systems Research Institute, Inc. (ESRI), developed a Web application called StreamStats.

The StreamStats application consists of five major components: (1) a user interface that displays maps and allows users to select stream locations where they want streamflow statistics information, (2) a database containing previously published streamflow statistics and descriptive information for USGS gaging stations, (3) an automated GIS process that determines drainage boundaries for user-selected ungaged sites and measures the basin characteristics for those sites, (4) a GIS database that stores base-map data needed for users to locate sites of interest as well as other geospatial data needed to compute basin characteristics, and (5) an automated process that takes the basin characteristics computed for ungaged sites as input, solves regression equations to estimate various streamflow statistics, and outputs the estimates for display to the user in a Web browser window.

In addition to serving previously published streamflow statistics, the Ohio implementation of StreamStats will compute a variety of streamflow statistic estimates for ungaged locations on unregulated streams that are free of significant urban influence. These statistics include the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year peak streamflows, mean annual streamflow, mean monthly streamflows, harmonic mean streamflow, and 25th-, 50th-, and 75th-percentile streamflows. StreamStats will also determine topographic drainage boundaries and compute and report selected basin characteristics (such as drainage area) used in the streamflow statistic estimation equations. Drainage boundaries determined by StreamStats can be downloaded from the StreamStats Web page in a geospatial vector data format called a 'shapefile', which can be imported into a variety of GIS and mapping software packages.



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# Calendar of Events

## February - 2007

**February 9** - NCHRP problem statement ratings due to R&D

**February 19** - President's Day - ODOT Closed

**February 20** - OTEC 2007 Call for Abstracts - For more information contact Terri Barnhart @ [terri.barnhart@dot.state.oh.us](mailto:terri.barnhart@dot.state.oh.us)

## March - 2007

**March 9** - 4:30 PM Deadline for proposals for FY2008 RFP and OPREP 2008

**March 20-22** - AASHTO SCOR Meeting, Washington, DC

**March 31** - Deadline for abstract submissions for Ohio Transportation Engineering Conference (OTEC) 2007 - For more information contact Terri Barnhart @ [terri.barnhart@dot.state.oh.us](mailto:terri.barnhart@dot.state.oh.us)

## April - 2007

**April** - Quarterly progress reports due for all active research projects

**April 16** - Reviews of FY2008 and OPREP 2008 proposals due to R&D

**April 16-27** - Research Project Review Sessions - For more information contact Omar Abu-Hajar @ [research@dot.state.oh.us](mailto:research@dot.state.oh.us)

**April 30** - Revised RD&T<sup>2</sup> Manual of Procedures submitted to FHWA for review/approval

## May - 2007

**May** - Research Selection Committee meets to select researchers for FY2008 program and OPREP

**May 28** - Memorial Day - ODOT Closed

**For information on TRB Sponsored Conferences and Workshops go to <http://trb.org/calendar>**



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## Revising the Research Manual

The RD&T<sup>2</sup> Manual of Procedures is being updated. Significant revisions to the research process are being made. If you have a recommendation or feel a particular item in the manual needs more clarification, please email your suggestion(s) to [research@dot.state.oh.us](mailto:research@dot.state.oh.us) or contact Vicky at 614-644-8135. The revised manual will be forwarded to FHWA for review/approval in April 2007. In the meantime, please continue to follow the process described in the current manual, which is available on our website at <http://www.dot.state.oh.us/divplan/research/manual/rd%20manual.htm>.

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## StreamStats - Continued from Page 4

The USGS is implementing StreamStats for Ohio in cooperation with the Ohio Department of Transportation; U.S. Department of Transportation, Federal Highway Administration; Federal Emergency Management Agency; Ohio Environmental Protection Agency; and Ohio Department of Natural Resources. The StreamStats Web application is publicly accessible at <http://water.usgs.gov/osw/streamstats/ssonline.html>. The Ohio implementation of StreamStats is scheduled to be online beginning January 2007.

## Final Reports Available on the WWW

Final reports for research projects completed since 2000 are available on our website. Visit <http://www.dot.state.oh.us/research/default.asp> to get a copy of the following reports received since the last newsletter and many others:

### Maintenance

- Topic 2: *Evaluation of ODOT Roadway/Weather Sensor Systems for Snow & Ice Removal Operations - Part IV: Optimization of Pretreatment or Anti-Icing Protocol*, Ohio University (November 2006)
- Topic 2: *Evaluation of ODOT Roadway/Weather Sensor Systems for Snow & Ice Removal Operations - Part V: Vehicular Speed Associate with Winter Pavement Conditions*, Ohio University (October 2006)

### Materials

- Topic 11: *Larger Sized Coarse Aggregate in Portland Cement Concrete Pavement and Structures*, University of Cincinnati (June 2006)
- Topic 12: *Fineness of Densified Micro Silica and Dispersion in Concrete Mixes*, University of Cincinnati (June 2006)
- Topic 13: *Phase 1: Proof of Concept Validation of Methodology to Examine the Responsible Use of Recycle in Corrugated Polyethylene (PE) Drainage Pipe*, Jana Laboratories, Inc. (October 2006)
- Topic 14: *Comparison of Optical Gradation Analysis Devices to Current Test Methods - Phase I*, Infrastructure Management and Engineering, Inc. (October 2006)

### Pavements

- Topic 42: *Developing Pavement Performance Predicting Models and Decision Trees for the City of Cincinnati*, University of Cincinnati (June 2006)

### Planning

- Topic 11: *The Columbus Metropolitan Freeway Management System (CMFMS) Effectiveness Study: Part 2 - The After Study*, The Ohio State University (August 2006)

### Structures

- Topic 49: *Design of Rock-Socketed Drilled Shafts*, E.L. Robinson Engineering (October 2006)

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## CPDs for Technical Project Review Sessions - April 2007

The Office of R&D will be holding technical project review sessions for selected active research projects during April 16-27, 2007. As was the case with the previous review sessions, certificates of attendance will be issued for continuing professional development credits (CPD) for engineers and surveyors. The schedule will be posted on the announcement page of the R&D website as it is developed (<http://www.dot.state.oh.us/divplan/research/announcements/announcements.htm>).

For additional information on the review sessions, please contact Omar Abu-Hajar at [research@dot.state.oh.us](mailto:research@dot.state.oh.us) or 614-752-5274. For additional information on CPD requirements, please visit the State Board of Registration for Professional Engineers and Surveyors at <http://ohiopeps.org/cpd/index.html>.



## Cooperative Research Seminar 2008

Put a note in your calendar to block out two days towards the end of August for a trip to Columbus, Ohio! The Office of R&D is in the process of scheduling the next Cooperative Research Seminar (CRS). The CRS allows us to gain valuable input from the research community to help refine our research efforts. It provides us with the opportunity to show you the general direction the Department is taking its research activities while giving you the chance to comment and supplement with your suggestions.

ODOT's strategic research focus areas will be presented as well as the drafts of the five-year strategic research plans for sponsoring offices and divisions. At the conclusion of the CRS, we hope to have identified any major gaps in our strategic plan as well as examined the relevancy, potential payoff and partnership opportunities for accomplishing our research goals. The CRS is open to anyone interested in transportation research.

The CRS will be held during the last two weeks of August 2008. Additional information will be posted on the announcements page of our web site once it has been confirmed. In conjunction with this one-day seminar, the Office of R&D will present the new and improved Research, Development, and Technology Transfer Manual of Procedures! A special training session will be held the day before the CRS to go over the many significant modifications that are being made to the research process. This training is designed for the researcher's perspective. It will cover everything from proposal development to researcher selection to project management, including everyone's favorite ... invoicing and equipment. Make sure to attend both events!

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## ODOT Hosts a Research Peer Exchange

As a condition for approval of FHWA planning and research funds for research activities, a state is required to conduct peer exchanges on a periodic basis. The objective of the peer exchange program is to give state departments of transportation a means to improve the quality and effectiveness of their research management processes. The Ohio Department of Transportation hosted its third Research Peer Exchange October 3-6, 2006. ODOT's Office of Research & Development identified four critical focus issues for this peer exchange; Research Needs Identification, Proposal Solicitation, Evaluation & Selection of Proposals, and Outreach to ODOT Customers & Stakeholders.

From its review of documentation and discussions with ODOT staff and contract researchers involved in the research process, the Peer Exchange Team made numerous observations related to ODOT's research program and to the four specifically identified focus areas. A few of the team's general observations include:

- ◆ ODOT has a robust research program that is valuable to and well appreciated by ODOT customers in the central and district offices.
- ◆ ODOT's research program is efficient, handling a \$10 million annual program with 5 staff members.
- ◆ Internal research customers and external research contractors agree that the ODOT research program is managed effectively.
- ◆ ODOT and its Office of Research and Development have demonstrated their willingness to improve the research process by conducting this Peer Exchange.
- ◆ The increase in University Transportation Centers in Ohio offers new opportunities for collaboration and leveraging of funding.

Many other specific observations, strengths, and opportunities were identified during the exchange. As a result, one notable revision to the R&D process is the return to an annual instead of a biennial work program. More specific action items are currently being developed. Watch for further details in future editions of this newsletter and on the R&D website.

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**If you have any suggestions, comments, or ideas for articles, please submit them to: [research@dot.state.oh.us](mailto:research@dot.state.oh.us)**

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