

**State of Wisconsin/Department of Transportation
RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: June 30, 2006**

Program: SPR-0010(36) FFY99	Part: II Research and Development
Project Title: An Asset Management Approach for Drainage Infrastructures & Culverts	Project ID: 06-08
Administrative Contact: Jason Bittner	Sponsor: MRUTC
WisDOT Technical Contact: James McDonnell	Approved Starting Date: 1/1/06
Approved by COR/Steering Committee:	Approved Ending Date: 12/31/06
Project Investigator (agency & contact): Michigan State University – Center for Underground Infrastructure Research and Education, Mohammad Najafi, Najafi@msu.edu	

Description:

Total study budget	Current FFY budget	Expenditures for current quarter	Total Expenditures to date	Percent Complete
\$145,257	133,923	4333	11,333	55%

Progress This Quarter:

(Includes project committee mtgs, work plan status, contract status, significant progress, etc.)

- Completed review of various hydraulic, land-use changes and mechanical factors affecting the deterioration of drainage structures.
- Completed review of existing inspection, data analysis and reporting methods for drainage structures and culverts and study of the modifications to be brought to buried pipes technologies to be implemented on drainage structures and culverts.
- Conducted a national survey of best practices on drainage structures and culvert asset management efforts among the 50 state (specially the Midwestern states) DOT's and 10 Canadian provinces – (Sent the web-format of the survey to all the respondents – got 11 responses – waiting for others)
- Established culvert inventory and inspection protocols with manual (draft copy)
- Conducted a pilot study in Lansing – inspected 3 culverts and 5 drainage infrastructure
- Started writing a technical paper titled “An Asset Management Model for Culvert Inventory and Inspection”

- Started synthesizing the research finding into a platform for DSS for culvert inspection, rehabilitation, maintenance and asset management

Work Next Quarter:

- Analyze the survey results and document the findings
- Meeting with Michigan DOT officials and discuss about the proposed inventory and inspection protocols continue
- Synthesize the research findings into a platform for a DSS for culvert inspection, rehabilitation, maintenance and asset management
- Conduct pilot study to validate the established business rules and protocols
- Complete the technical paper
- Start writing the report – final inventory and inspection protocols and manual
- Get prepared to conduct workshops to train the inspectors and maintenance people on culvert asset management

Circumstances affecting progress/budget:

Due to late signing of contract and availability of funds, the project start date has been pushed back to January 1, 2006.

Gantt Chart:

Task/Month	1	2	3	4	5	6	7	8	9	10	11	12
1	X											
2		X										
3			X									
4			X	X								
5			X	X	X							
6			X	X	X	X						
7				X	X	X	X					
8							X	X				
9, 10 and 11								X	X	X	X	X

- 1-Review of existing literature and conduct a national survey of best practices on drainage structures and culvert asset management efforts among the 50 state (specially the Midwestern states) DOTs and 10 Canadian provinces.
- 2-Review of various hydraulic, land-use changes and mechanical factors affecting the deterioration of drainage structures. Collected information will be checked against MDOT and ODOT documented history of failed, repaired, as-built and replaced drainage structures and culverts.
- 3-Review of existing inspection, data analysis and reporting methods for drainage structures and culverts and study of the modifications to be brought to buried pipes technologies to be implemented on drainage structures and culverts.
- 4-Develop an inventory and inspection protocols and business rules for MDOT and ODOT engineers and field operators.
- 5-Synthesize the research findings into a platform for a decision support system for culvert inspection, rehabilitation, maintenance, and asset management.
- 6-Project review
- 7-Perform pilot studies in Michigan and Ohio to validate the protocol and decision support platform
- 8-Collaborate with MDOT and ODOT engineers to write a section on inventory and inspection to be added to current best practices and business rules manuals.
- 9-Write a final report documenting all research findings.
- 10-Write several papers and articles to disseminate research results specifically for use of other Midwest states.
- 11-Offer educational workshops for MDOT and ODOT personnel to present results of this important research. Submit final report.