**TRANSPORTATION POOLED FUND PROGRAM**

**QUARTERLY PROGRESS REPORT**

Date: \_\_\_10/31/2011\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lead Agency (FHWA or State DOT): \_\_\_FHWA HIBT-20\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**INSTRUCTIONS:**

*Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.*

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| **Transportation Pooled Fund Program Project #***(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX)*TPF-5(202) | **Transportation Pooled Fund Program - Report Period:**□Quarter 1 (January 1 – March 31)□Quarter 2 (April 1 – June 30) **X** Quarter 3 (July 1 – September 30)□Quarter 4 (October 1 – December 31) |
| **Project Title:**HY-8 Culvert Analysis Program – Phase Three of Development Efforts |
| **Name of Project Manager(s):**Brian Beucler | **Phone Number:**202-366-4598 | **E-Mail:**brian.beucler@dot.gov |
| **Lead Agency Project ID:**TASK T10-B03 | **Other Project ID (i.e., contract #):**DTFH61-06-D-00017 | **Project Start Date:**September 21, 2010 |
| **Original Project End Date:**December 31, 2012 | **Current Project End Date:**December 31, 2012 | **Number of Extensions:**0 |

Project schedule status:

**X** On schedule □ On revised schedule □ Ahead of schedule □ Behind schedule

Overall Project Statistics:

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|  **Total Project Budget** |  **Total Cost to Date for Project** |  **Percentage of Work**  **Completed to Date** |
| $138,134 Planned, $105,130 Funded | $37,718.00 | About 56% (includes partially completed tasks not yet invoiced)  |

***Quarterly*** Project Statistics:

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|  **Total Project Expenses**  **and Percentage This Quarter** |  **Total Amount of Funds**  **Expended This Quarter** |  **Total Percentage of**  **Time Used to Date** |
| $0 invoiced | $0 invoiced | 45% |

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| **Project Description:**The objective of this research effort is to continue the phased development of HY-8. The effort would be funded byFHWA and other State DOT contributors (PFP members).  The anticipated scope of work consists of continued development efforts on the HY-8 software (beginning with phasethree of the on-going development effort).  The project will consist of the tasks described below. Where possible, the tasks may be developed concurrently. Sometasks will require technical review and approval by PFP members before any programming efforts.  Task 1 - Project Meetings (IN PROGRESS, ONE MEETING LEFT)Task 2 - Enhance Source Code Efficiencies (COMPLETED)Task 3 - Hydrograph Routing (NOT STARTED)Task 4 - Hydraulic Jump Code Implementation (IN PROGRESS)Task 5 - Broken Back Culvert Code Implementation (IN PROGRESS)Task 6 - Allow Modification of the Individual Analysis Discharge Values (NOT STARTED)Task 7 - Horizontal Culvert Barrels (IN PROGRESS)Task 8 - Adversely Sloped Barrels (NOT STARTED)Task 9 - Flared End Sections (NOT STARTED)Task 10 - Concrete Open-bottom Arches (COMPLETED…TO BE POSTED SOON)Task 11 - South Dakota's Prefabricated Reinforced Concrete Box Culverts (IN PROGRESS)Task 12 - Generic Culvert Type/Material to add an aquatic organism passage module with up to 4 possible shapes (NOT STARTED)Task 13 - General Maintenance and Bug Fixes (ON GOING) |

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| **Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**• Work completed on the following efforts:o Task 10 – Concrete Open Bottom Arches:New version of software to be posted on FHWA website soon.• Work continuing on the following efforts:o Task 4 – Implement Hydraulic JumpWritten methodology has been submitted and approved. Software encoded and testing underway.o Task 7 – Horizontal Culvert Barrels:Written methodology has been submitted and approved. Software coding in progress.o Task 11 – Implement South Dakota's Prefabricated Reinforced Concrete Box Culvert research into HY-8.Written methodology has been submitted and approved. Software encoded and testing underway.o Task 13 – Maintenance Activities continued:Work continuing on various bug fixes.o HY-8 Help Files – Added notes and documentation about hydraulic jump calculations and broken back culverts to the Wiki help sites:[http://www.xmswiki.com/xms/WMS:HY-8\_Hydraulic\_Jump\_Calculations](http://www.xmswiki.com/xms/WMS%3AHY-8_Hydraulic_Jump_Calculations)[http://www.xmswiki.com/xms/WMS:HY-8\_Broken\_Back\_Culverts](http://www.xmswiki.com/xms/WMS%3AHY-8_Broken_Back_Culverts) |
| **Anticipated work next quarter**:Continued work on Tasks 4, 7, 11 and 13. Possibly starting on Task 12.Anticipate future release of HY-8 version 7.3 including tasks 4,7,10 and 11. |

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| **Significant Results:**Task 10 essentially completed and awaiting posting. Other uncompleted tasks (4,7, and 11) are significantly completed. |

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| **Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that** **might affect the completion of the project within the time, scope and fiscal constraints set forth in the** **agreement, along with recommended solutions to those problems).**Acquisition process took much longer than expected. Contractor is now making faster progress as quite a few majortasks have been fully funded.No invoices submitted for this quarter. Anticipate invoices for Tasks 4, 7, 10 and 11 to be submitted next quarter. |

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| **Potential Implementation:**  Progressively improved/enhanced versions of HY-8 will be incorporated into revised NHI Course 135056 on culvertdesign. The revised course should be completed in Spring of 2012. |