

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): FHWA

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.

Transportation Pooled Fund Program Project # TPF-5(256)	Transportation Pooled Fund Program - Report Period: <input checked="" type="checkbox"/> Quarter 1 (January 1 – March 31) 2015 <input type="checkbox"/> Quarter 2 (April 1 – June 30) 2015 <input type="checkbox"/> Quarter 3 (July 1 – September 30) 2015 <input type="checkbox"/> Quarter 4 (October 1 – December 31) 2015	
Project Title: HY-12 Storm Drain Hydraulic Analysis Program - Phase Two of Development Efforts		
Name of Project Manager(s): Kornel Kerenyi	Phone Number: (202) 493-3142	E-Mail kornel.kerenyi@fhwa.dot.gov
Lead Agency Project ID:	Other Project ID (i.e., contract #):	Project Start Date:
Original Project End Date:	Current Project End Date:	Number of Extensions:

Project schedule status:

On schedule
 On revised schedule
 Ahead of schedule
 Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Percentage of Work Completed to Date

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date

Project Description:**Background:**

HY-12 is a computerized implementation of FHWA pavement drainage and storm drain hydraulic design approaches and methodologies. The primary technical references for this software are the FHWA publications "Hydraulic Engineering Circular 22: Urban Drainage Design Manual, Third Edition"; [Publication FHWA-NHI-10-009]"; "Hydraulic Design Series 2, Highway Hydrology, Second Edition"; [Publication FHWA-NHI-02-001], "Hydraulic Design Series 4, Introduction to Highway Hydraulics"; [Publication FHWA-NHI-08-090, 2008 Revision], and "Hydraulic Engineering Circular 24, Highway Storm Water Pump Station Design"; [Publication FHWA-NHI-01-007, 2001 Edition].

In 2009 FHWA contracted with AQUAVEO to develop a 32-bit non-proprietary software product, designated as HY-12, for the analysis and design of storm drains associated with transportation systems. This HY-12 software will replace a 16 bit FHWA program called PFP-HYDRA. The contract with AQUAVEO did not require development of a graphical user interface, GUI, as part of software development.

A stand-alone BETA version of HY-12 has been completed and successfully tested using the required input format of a text document using Notepad. The myriad of situational applications and user controlled options available through HY-12 provides a difficult and lengthy learning curve for efficient implementation with the current text document input format. Numerous State DOT Hydraulic Engineers have voiced their needs for a stand-alone HY-12 product with a graphical user interface to ensure an effective and efficient implementation.

FHWA anticipated the HY-12 software would be implemented with only one phase to the development process; however, State DOT's have requested initiation of a second phase to develop a GUI for a more efficient and successful implementation.

Objectives:

The objective of this research effort is to develop a graphical user interface, GUI, for the HY-12 storm drain software. The effort would be funded by FHWA and other State DOT contributors (PFP members).

Scope of Work:

The anticipated scope of work consists of continued development efforts on the HY-12 software and an accompanying GUI.

The project will consist of the tasks described below. Where possible the tasks may be developed concurrently. Some tasks may require technical review and approval by PFP members before any programming efforts.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**GUI**

We are focusing our efforts on testing the work done on Tasks 3 and 4 and addressing any shortcomings that we detect. I still anticipate that we will have a reviewable product in the next couple of months. We are still implementing tests and tutorials as we go.

Task 1 – Kick-off meeting and progress meetings

No additional meetings have been held since the kick-off meeting. We will coordinate with Jerry to schedule a meeting towards the end of January.

Task 2 – Project work plan

No additional work has associated with this task. This we be revised as needed during implementation.

Task 3 – Existing issue resolution (85% complete)

- a. Remove extra lines from properties dialog. (Done)
- b. Resolve problem with rational method runoff coefficient. (Done)
- c. Compute rational method Tc values to floating point precision (60%)
- d. Improve filename management (30%)
- e. Remove Storm Drain-FHWA (HYDRAIN) coverage from WMS. (60%)
- f. Convert the results plot to a modeless dialog. (Done)
- g. Change "River Module" name to "Hydraulic Modeling Module". (Done)

Task 4 – Interface enhancements – No report update on this task this month.

- a. Simplified Project Parameters dialog simple and advanced user interface option. (Done)
- b. Simplified Link Properties dialog to edit several pipes in a single dialog spreadsheet. (Done)
- c. Simplified Node Properties dialog to edit several access holes/inlets and other node attributes in a single spreadsheet. (Done)
- d. Multiple Storm Drain Networks. (10%)
- e. Link/Node Elevation Profile View Editor. (60%)
- f. Rewrite the copy protection in WMS to handle the "Free" version. (75%)

Task 5 – Tutorials - No report update on this task this month

- a. Illustrate how to model a storm drain network with a background map. (35%)
- b. Illustrate how to model a storm drain network with a DGN or DWG file. (Not Yet Started)
- c. Illustrate how to model a storm drain network without a background map. (Not Yet Started)

Task 6 – GUI tests and sample cases - No report update on this task this month

Create GUI tests for various design scenarios. (35%)

Task 7 – Finalize GUI/Respond to comments - No report update on this task this month

- a. Deliver product and respond to feedback. (Not Yet Started)
- b. Documentation updates. (30%)

GUI Enhancement and Pump Station

Summary: Development of both the model modifications and the GUI enhancements are now well underway. Eric Jones interacted extensively in late January and early February on the approach for modeling the pump stations and we believe a satisfactory solution was obtained. We anticipate that we will have a version of the model with a sample problem illustrating pump stations functioning in the next couple of months in time for the mid-term meeting. Our goal is to have a design of the interface to display at that same meeting.

Task 1 – Add pump station module.

Initial design and discussions with the FHWA technical contacts complete. Implementation underway(25% complete).

Task 2 – File I/O and report generation.

Just started (10% complete).

Task 3 – Add GUI for pump station module”

Waiting for model completion (15% complete)

Task 4 – Unit tests and UI tests

Waiting for model completion (0% complete)

Task 5 – Data transfer methods

Waiting for model completion (10% complete)

Task 6 – Documentation

Waiting for model completion (5% complete)

Task 7 – Webinar

(0% complete)

Task 8 – Meetings, review and response

(50% complete)

Anticipated work next quarter:

- Continue working on tasks shown above

Significant Results:

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).

None to report.

Potential Implementation: