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 #	Transportation Pooled Fund Program - Report Period:
TPF-5(256)	☐ Quarter 1 (January 1 – March 31) 2015 √ Quarter 2 (April 1 – June 30) 2015 ☐ Quarter 3 (July 1 – September 30) 2015 ☐ 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 presented a working version of the HY-12 GUI to the sponsors in a review meeting. Specially, we presented the tutorials (Task 5) as sample problems. We also delivered an installation of the GUI along with the data and documents for the tutorials for review.

We also resolved several model issues that were discovered in the process of developing the tutorials which were required to get the model to run for the tutorial test cases.

The period of performance for this contract was extended to allow sponsor time to review the product and give feedback. After the feedback is provided, we will respond (task 7), present the changes (finalize task 1), and provide the final deliverable.

Task 1 – Kick-off meeting and progress meetings

We prepared for and participated in a presentation meeting to demonstrate the deliverable. We still have budget for a final review meeting.

Task 2 – Project work plan

We feel the work plan is complete (100% complete)

Task 3 – Existing issue resolution (100% 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 (Done)
d. Improve filename management (Done)
e. Remove Storm Drain-FHWA (HYDRAIN) coverage from WMS. (Done)
f. Convert the results plot to a modeless dialog. (Done)
g. Change "River Module" name to "Hydraulic Modeling Module". (Done)

Task 4 – Interface enhancements – (100% complete)
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. (Done)
e. Link/Node Elevation Profile View Editor. (Done)
f. Rewrite the copy protection in WMS to handle the "Free" version. (Done)

Task 5 – Tutorials – Tutorials have been delivered for review with the GUI.
a. Illustrate how to model a storm drain network with a background map. (Done)
b. Illustrate how to model a storm drain network with a DGN or DWG file. (Done)
c. Illustrate how to model a storm drain network without a background map. (Done)

Task 6 – GUI tests and sample cases – These tests are completed.
Create GUI tests for various design scenarios. (Done)

Task 7 – Finalize GUI/Respond to comments – This task is waiting for discussion and review by sponsors.
a. Deliver product and respond to feedback. (Not Yet Started)
b. Documentation updates. (70%)

GUI Enhancement and Pump Station
This period was spent finishing up the computations and basic GUI. Largely, all that remains to be completed are the data transfer methodology in the interface (task 5) and the webinar (task 7). Budget remains in each task to respond to comments from the sponsors.
We are requesting a review meeting with the sponsor team at your convenience.
Task 1 – Add pump station module.
   Implementation complete. Will be demonstrated in meeting. (90% complete).

Task 2 – File I/O and report generation.
   Implementation complete. Will be demonstrated in meeting. (90% complete).

Task 3 – Add GUI for pump station module"
   Implementation complete. Will be demonstrated in meeting. (90% complete).

Task 4 – Unit tests and UI tests
   Implementation complete. (90% complete).

Task 5 – Data transfer methods
   Still being implemented. (50% complete)

Task 6 – Documentation
    Being implemented. (75% complete)

Task 7 – Webinar
   (0% complete)

Task 8 – Meetings, review and response
   New meeting requested (50% complete)

Anticipated work next quarter:

TPF Program Standard Quarterly Reporting Format – 9/2011 (revised)

- 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: