Presenter Training for the Stormwater – Floodplain Model: A Hands-on Workshop for Education and Outreach

OUTREACH PROCESS PARTNERS, LLC

Indiana Association for
Floodplain and Stormwater Management
Promoting sustainable floodplain and stormwater management
INAFSM

Ward's Stormwater - Floodplain Model
Train the Trainer Workshop
INAFSM Workshop, Lafayette, IN
 April 6, 2017

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Natural and Beneficial Floodplain Functions

- *Store floodwaters*

- *Filter stormwater runoff*

- *Recharge groundwater*

- *Provide wildlife habitat*

- *Reduce flood velocities*

- *Reduce flood peaks*

- *Accommodate stream meander*

- *Improve water quality*

- *Process organic & chemical wastes*

- *Stabilize soils & reduce soil erosion*

- *Provide green space & open space*

- *Breeding & feeding grounds for wildlife*

- *Reduces erosional energy in the river*

- *Enrich farm land by sediment deposits*

- *Provide areas for parks, bike paths, golf courses and other forms of recreation*

- *Riparian forests provide important shade to waterways*

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3D Floodplain Model

- *Simple, easy to use*

- *Portable*

- *Hands on*
  - *3 Different "Plug and Play" Headwaters*
  - *Can add a levee to modify floodplain*
  - *Can change the slope*
  - *Can modify rainfall intensity and amount over headwater*
  - *Staff gage used to measure river levels*

- *Comes with setup and curriculum guide with defined activities and procedures*

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Curriculum Includes…

- **Introduction/Case Study of a flood prone community**
- **Fate of Rain**
- **Modeling Flood Risk Factors**
  - **Experiments**
    - **Wetland Headwater**
    - **Parking Lot Headwater**
- **Manmade attempts to minimize flooding**
  - **Experiments**
    - **Parking Lot Headwater**
      - **Floodplain with Levee**
    - **Retention Pond Headwater**
- **Factors affecting flood forecasting**
- **No Adverse Impact**
- **Turn Around Don't Drown**
- **Creating a Flood Safe Community**

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What is a *"runoff footprint"*… and why is it important to understand this key concept for sound floodplain management.

"The runoff footprint is defined as a measure of the impact by human or natural activities on flooding, or the potential for flooding, in terms of the amount of water that is discharged (runs off) from a drainage area over a given time period."

"Floods are "acts of God," but flood losses are largely acts of man."

Gilbert White -

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A New Concept: Runoff Footprint

A "No Adverse Impact®" approach would ensure that any type of development within the watershed would have no increase in the runoff footprint within the watershed. In order to address flooding issues for a community along a particular river, <u>one must address the impact of development on the runoff footprint within the entire watershed.</u>

Ideally, the impact of human activities within the watershed should not result in a higher runoff footprint than the natural environment that existed before development.

If we ever hope to reduce flood losses...understanding the concept of runoff footprint within each and every watershed is key...we have to change the dialogue. The solutions to mitigate flood losses extend beyond the FEMA defined floodplain.

"Making Connections"

- *The 3D Floodplain model will aid floodplain managers in helping constituents make "real world" connections between where they live and floodplains.*

- *The activities that go along with the simulation system help constituents "connect the dots" between the various scientific and social disciplines that impact the hydrologic response of a watershed.*
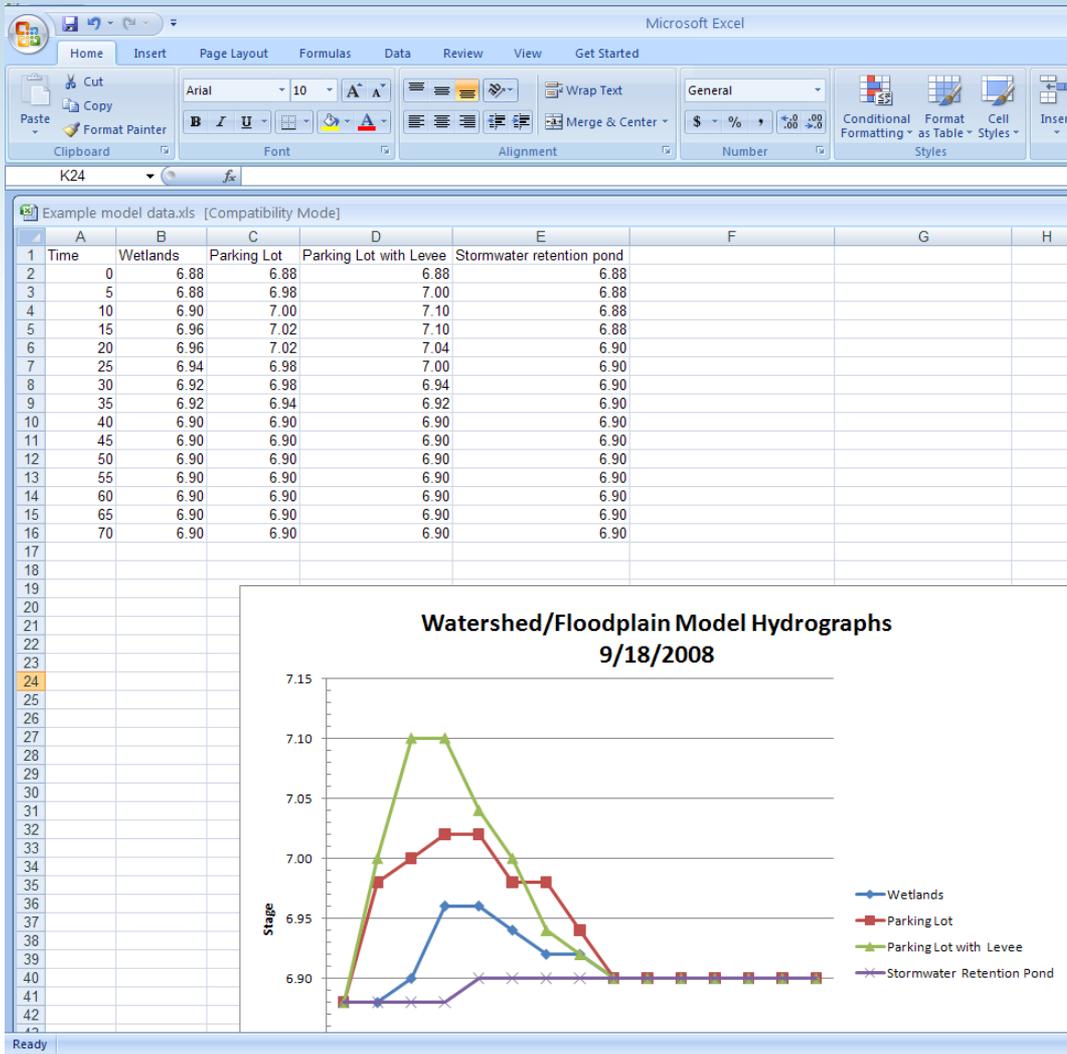
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Indiana Association for Floodplain and Stormwater Management
Lafayette, IN

- *For Each Experiment:*
- *1 adds the rainfall*
- *1 takes readings*
- *1 records the time*
- *1 records the data*
- *1 builds the levee*
- *1 inputs the data into an excel spreadsheet**

*Data is input into excel spreadsheet and plotted.

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Results from Experiments…

There are a variety of ways this floodplain simulation system can be used.

One effective use is to run a series of trials with the same rainfall, but alter the characteristics of the watershed.

Recording the stream stage every 5 seconds and graphing the data clearly demonstrates the impacts on the river system with land use changes within the watershed.

The hydrographs to the left were produced in this way using the model.

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Past Winners of OPP's Flood Risk Education in Schools Campaign!
apply.OutreachProcessPartners.com

2017 - ????
2016 - Indiana Association for Floodplain and Stormwater Management
2015 - Florida Floodplain Managers Association
2014 - North Carolina Association of Floodplain Managers
2013 - New Mexico Floodplain Managers Association
2012 - National Weather Service, Nashville TN
2011 - Maryland Association of Floodplain and Stormwater Managers
2010 - Georgia Association of Floodplain Management
2010 - Oklahoma Floodplain Managers Association

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February 1, 2017

Ms. Karen Avery, Executive Director
Indiana Association for Floodplain and Stormwater Management (INAFSM)
101 West Ohio Street, Suite. 1575
Indianapolis, IN 46204

Dear Ms. Avery:

Outreach Process Partners, LLC (OPP) is pleased to inform you that INAFSM has been selected to receive the Wards Flood Model and custom case for use in outreach and education on floodplain management.

Your application was the strongest in your plan for using the model for training and outreach. We were impressed with your active participation in the Silver Jackets. Additionally, Indiana represented a relatively unrepresented geographical area in our nation in terms of individuals and organizations with a model that are willing to provide demonstrations.

We invite you to post your activities with the model on our Facebook page. In particular, we are interested in innovative uses of the model and new curriculum to share with your model-owning peers. Photos and stories are always welcome.

And, as an additional incentive, the most active group in using the model for floodplain education and outreach will be given $100 to throw a party congratulating themselves. The winner will be announced at the annual ASFPM conference state chapter meeting. The "most active" determination will be judged based on Facebook posts.

Thank you for your efforts to promote smart floodplain management.

Sincerely,

Janice J. Roper-Graham, ABC, PMP, CFM
President

cc: Mark Walton

Congratulations!

Indiana Association for Floodplain and Stormwater Management
Promoting sustainable floodplain and stormwater management

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We hold these workshops throughout the country…for more information please contact:

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Michigan Stormwater Floodplain Association
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Phone: 616-238-9399

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