

Course Outline
Basics of Floodplain Modeling and FEMA/NFIP

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| A | Floodplains and FEMA/NFIP - Background <ol style="list-style-type: none"> 1. Flood Insurance Basics 2. Basic NFIP Regulations 3. Recent Changes | 8:00 AM – 8:30 AM |
| B | Letters of Map Change (LOMC) <ol style="list-style-type: none"> 1. LOMCs to Remove Flood Insurance Requirement (LOMR-F, LOMA) 2. LOMCs to Reflect Changes to BFEs/Floodways (LOMR) <ol style="list-style-type: none"> i. Requiring Floodplain Modeling ii. No-rise Studies | 8:30 AM – 9:00 AM |
| C. | Basics of Hydrology and Hydraulics <ol style="list-style-type: none"> 1. Hydrology <ol style="list-style-type: none"> i. Determining stream discharge ii. Runoff models and data requirements 2. Hydraulics <ol style="list-style-type: none"> i. Determining extent and depth of floodwater ii. Steady Flow vs Unsteady flow 3. Floodplain Mapping <ol style="list-style-type: none"> i. Overview of mapping process ii. Floodplain delineation | 9:00 AM – 10:00 AM |
| Break | | 10:00 AM – 10:15 AM |
| D. | Hydrologic Analysis using Automated GIS Tools <ol style="list-style-type: none"> 1. Drainage Area delineation <ol style="list-style-type: none"> i. GIS Data ii. Processing using ArcHydro iii. USGS StreamStats 2. Discharge calculations <ol style="list-style-type: none"> i. USGS Regression Equations ii. Interpolation | 10:15 AM – 11:15 AM |
| E. | Hydraulic Analysis using Automated GIS Tools <ol style="list-style-type: none"> 1. Model creation using HEC GeoRAS 2. HEC-RAS model parameters <ol style="list-style-type: none"> i. Boundary Conditions ii. Manning's n values 3. Steady flow analysis 4. Floodway Delineation 5. Output from HEC-RAS model | 11:15 AM – 12:15 PM |
| Lunch (Provided) | | 12:15 PM – 1:00 PM |

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| F. | Floodplain Mapping using GIS tools 1. Topographic data 2. Water surface elevations 3. Floodplain smoothing Floodways 4. Floodways | 1:00 PM - 2:00 PM |
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| G. | <u>Model Review Basics for Local Floodplain Managers</u> 1. HEC-RAS model i. Boundary conditions ii. Manning's n iii. Blocked obstructions 2. Comparing output i. Pre-project vs Post-project conditions ii. Viewing geometries 3. CHECK-RAS overview | 2:00 PM - 3:00 PM |
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| | Break | 3:00 PM - 3:15 PM |
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| H. | Floodplain Maps and Studies 1. How Maps are Developed 2. Understanding Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS) Reports 3. FEMA and State Internet Resources | 3:15 PM-4:00 PM |
| I. | FEMA Elevation Certificate 1. Uses and Purpose 2. Surveyor/Local Official Responsibilities 3. Completing the Certificate 4. Recent Revisions | 4:00 PM - 4:30 PM |
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| J. | Summary, Discussion, Q & A | 4:30 PM -5:00 PM |