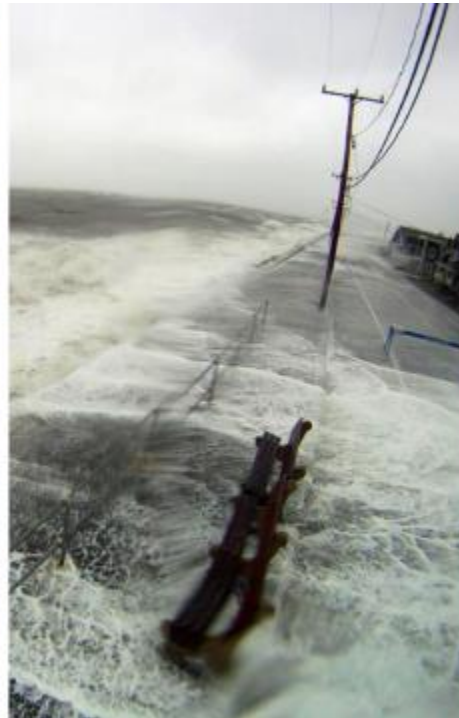




# FEMA

## FY 2017 – Mitigation Grant Application Cycle – Lessons Learned and Best Practices for Application Development




# Agenda

- Background
- General Tips
- Project Type–Specific Tips

**Encourage** audience participation – questions, lessons learned, recommendations, etc.


**Disclaimer** – non-disclosure requirement with respect to specific information in the grant applications, so keep descriptions general or provide hypothetical examples.



**Hazard Mitigation Assistance Guidance**

Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program

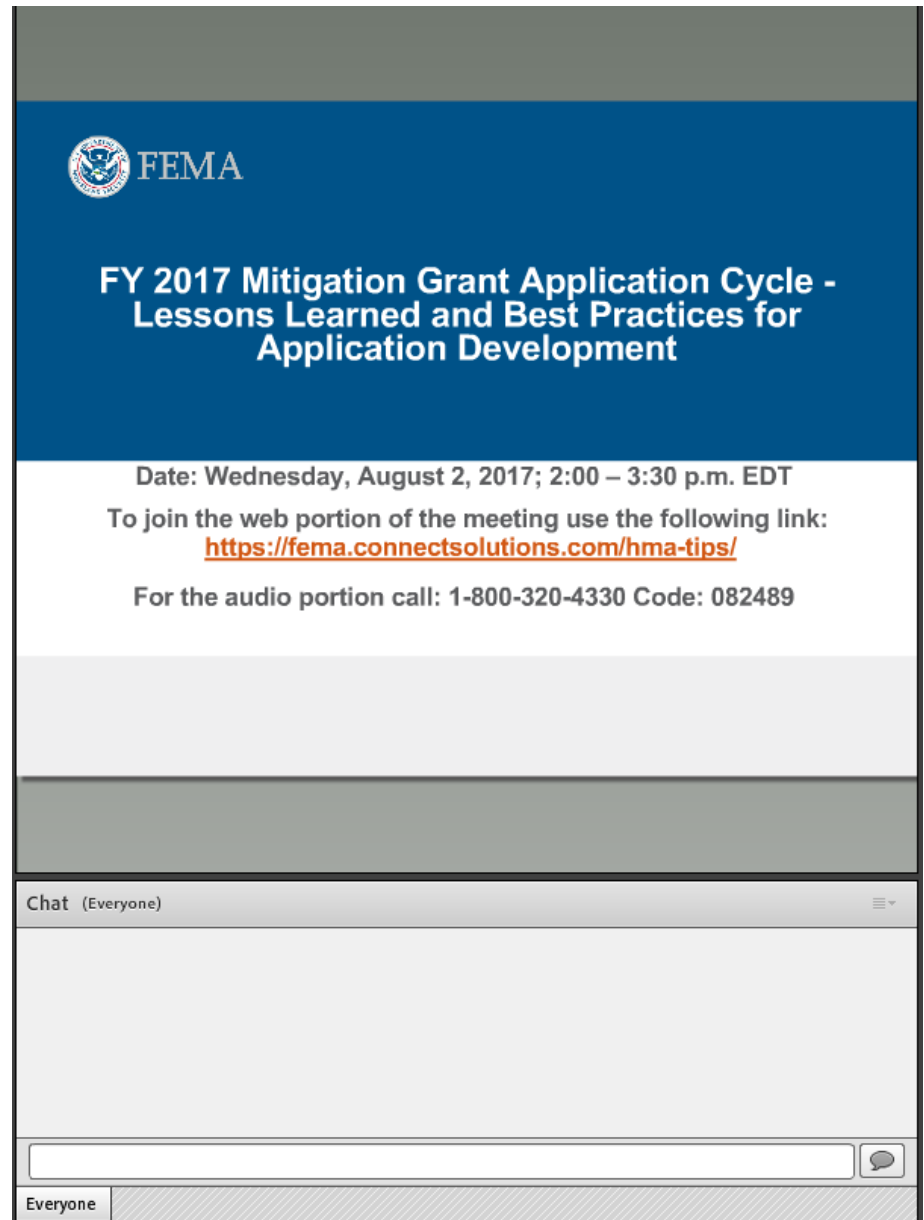
*February 27, 2015*




Federal Emergency Management Agency  
Department of Homeland Security  
500 C Street, S.W.  
Washington, DC 20471

# Logistics

- Call Number – 1-800-320-4330
  - Conference Code – 082489
- Questions – Through Chat Window to “1 FEMA Questions”
- Slides will be distributed via E-Brief



The image shows a presentation slide for a FEMA meeting. The slide has a blue header with the FEMA logo and the text "FY 2017 Mitigation Grant Application Cycle - Lessons Learned and Best Practices for Application Development". Below the header, the date and time are listed: "Date: Wednesday, August 2, 2017; 2:00 – 3:30 p.m. EDT". A link to join the web portion of the meeting is provided: "https://fema.connectsolutions.com/hma-tips/". The audio portion call number and code are also listed: "For the audio portion call: 1-800-320-4330 Code: 082489". Below the slide, a chat window is visible with the title "Chat (Everyone)" and a text input field.

 **FEMA**

**FY 2017 Mitigation Grant Application Cycle -  
Lessons Learned and Best Practices for  
Application Development**

Date: Wednesday, August 2, 2017; 2:00 – 3:30 p.m. EDT

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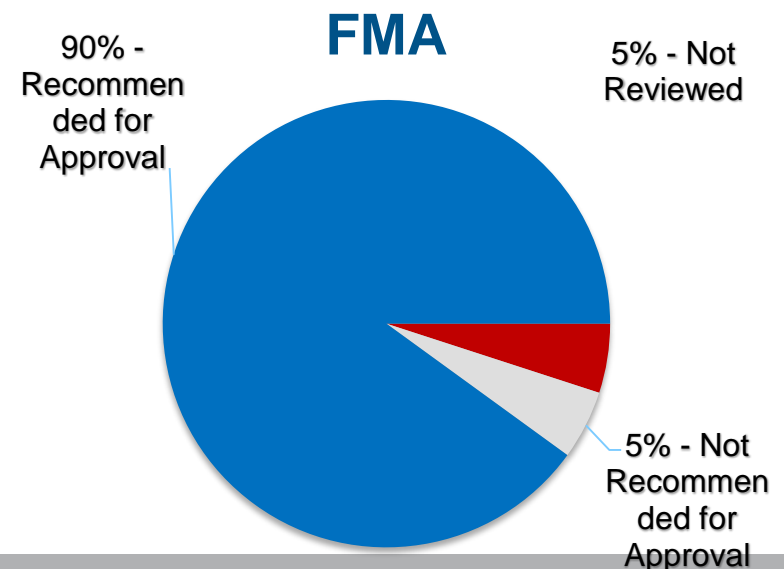
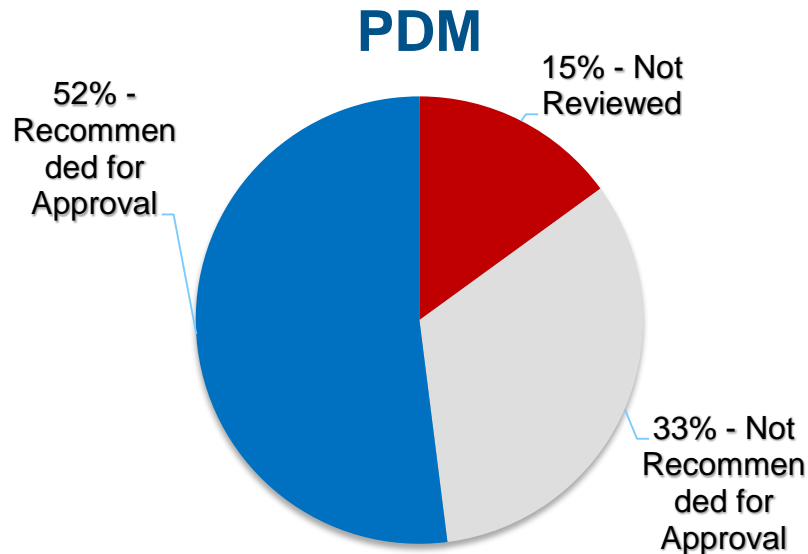
Chat (Everyone)

Everyone

# Background

## Statistics

- Flood Mitigation Assistance (FMA) and Pre-Disaster Mitigation (PDM) total applications:
  - 2014 – 257, 2015 – 284, 2016 – 367
  - Localized Flood Risk Reduction: 2014 and 2015 – 20 to 25, 2016 – 80
- 99% of projects with predetermined benefits (acquisition and elevation) were recommended for further consideration



# General Tips

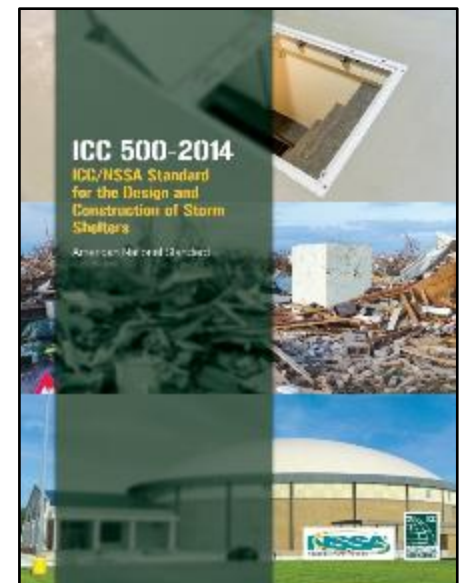
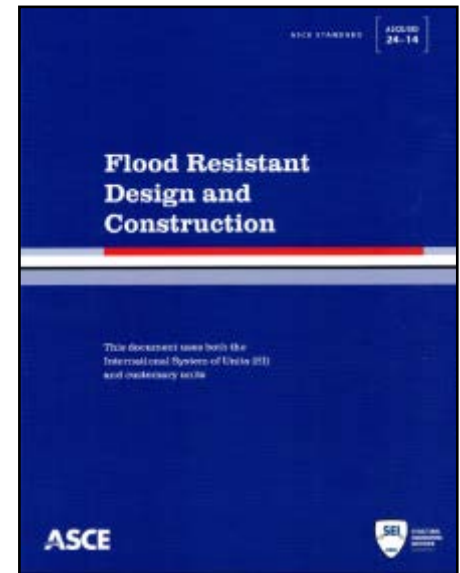
## Lessons Learned

- ✓ Ensure state “priority” applications are complete, technically feasible, and cost effective
- ✓ Reference minimum design criteria (ASCE 24, FEMA P-361/ICC 500) and ensure scope of work is consistent with the criteria
- ✓ Clearly establish the desired level of protection/risk reduction and ensure the application is consistent throughout
- ✓ Traditional Benefit Cost Analysis (BCA) versus predetermined benefits (use where appropriate)
  - ✓ Submit the BCA .zip file
  - ✓ If one or two properties are carrying the BCA, triple check inputs, assumptions, etc.
- ✓ Identify multiple Hazard Mitigation Assistance (HMA) program applications (submitted under both PDM & FMA)



# General Tips

- Most likely to succeed
  - ✓ Complete and consistent application
    - NO conflicting information within application and/or attachments
  - ✓ FEMA Programmatic Priority
  - ✓ Clear conformance with HMA requirements:
    - ASCE 24, FEMA 361/ICC-500
  - ✓ Risk Assessment Included
    - Structural evaluation
    - Hydrologic and Hydraulic (H&H) study
  - ✓ Shovel-ready infrastructure
  - ✓ Thorough and reasonable cost estimate



# Project Type–Specific Tips – Acquisition

- Most common project type
- Common areas of emphasis
  - ✓ Application states that the property will be deed-restricted in perpetuity to open space uses to restore and/or conserve the natural floodplain functions
  - ✓ Cost estimate and schedule include appraisal, transfer/closing fees, acquisition, demolition, and site restoration
  - ✓ Documentation included for the market value of each property
  - ✓ Voluntary participation documentation
- BCA
  - Pre-determined benefits – building footprint in Special Flood Hazard Area (SFHA)
  - BCA performed – basis for estimating First Floor Elevation (FFE) and/or expected damages and analysis duration.

# Project Type–Specific Tips – Elevation

- Areas of emphasis
  - ✓ Compliance with ASCE 24
  - ✓ Buildings proposed for elevation must be structurally sound and capable of being elevated safely
  - ✓ An elevation certificate documenting the existing conditions and the Base Flood Elevation (BFE)
  - ✓ Cost estimate and schedule (survey, engineering, permitting, construction, and site restoration)
  - ✓ A map showing that the structure is located in the SFHA
- Predetermined benefits versus BCA (including location adjustment factors)





# Project Type–Specific Tips – Flood Risk Reduction (Drainage)

- Insufficient technical data and/or preliminary engineering design
  - Without an H&H study, evaluating technical feasibility is challenging
    - Analysis – peak flow estimating procedures, before and after inundation modeling, up and down stream modeling
    - Stand alone
- Unique Circumstances
  - Watershed management plan
  - Ongoing/completed project with similar conditions/scope/objectives



# Project Type–Specific Tips – Generator

- Protect a Critical Facility
  - Eligible critical facilities are generally meant to include, but not be limited to, facilities such as hospitals, fire stations, police stations, and water and waste water treatment plants
- ✓ Basis for generator/load capacity
- ✓ Exterior enclosures
- Replacing an existing outdated generator
- Wide spectrum of BCA methodologies and costs



# Project Type–Specific Tips – Safe Room

- ✓ Verification that the project will be constructed to the appropriate codes and standards, including ICC-500 and FEMA P-361
- Proposed conceptual designs, project plans, and specifications
  - Describe other alternatives to safe room construction that were considered and why they were dismissed from further consideration
- ✓ Detailed description of the purpose of the safe room:
  - total area,
  - useable area,
  - expected number of occupants, and
  - design wind speed;
  - if standalone safe room, identify whether it will be pre-fabricated or constructed on site





# Project Type–Specific Tips – Safe Room

- ✓ Operations & Maintenance plan identifying how the safe room will be operated and maintained to ensure that the life-safety function of the safe room is not compromised
- ✓ Demonstration of cost-effectiveness through FEMA-approved methodology, including pre-calculated benefits or fully documented BCA
  - If BCA performed, provide information on the occupancy, indicating in percentages the amount of the protected population that may be present at any given point of the day, along with a .pdf, and export the BCA to a .zip file
- ✓ Clearly defined criteria for rebate program





# Project Type–Specific Tips – Structural Retrofit

- Structural evaluation
  - ASCE 41 – Seismic Evaluation and Retrofit Rehabilitation of Existing Buildings
- ✓ Engineering schematics, detailed engineering drawings, or engineering designs
- ✓ Estimated level of protection
- ✓ Residential Wind Retrofit per P-804
- ✓ Photographs of existing building
- BCA
  - Seismic
  - Wind Retrofit



# Project Type–Specific Tips – Wildfire

- ✓ Establish Building Replacement Value and basis for the value
- ✓ Establish wildfire recurrence interval and basis for the value
- ✓ Show Project area AND protected area



# Innovative Drought & Flood Mitigation

- Aquifer Storage and Recovery
- Flood Diversion and Storage
- Floodplain & Stream Restoration





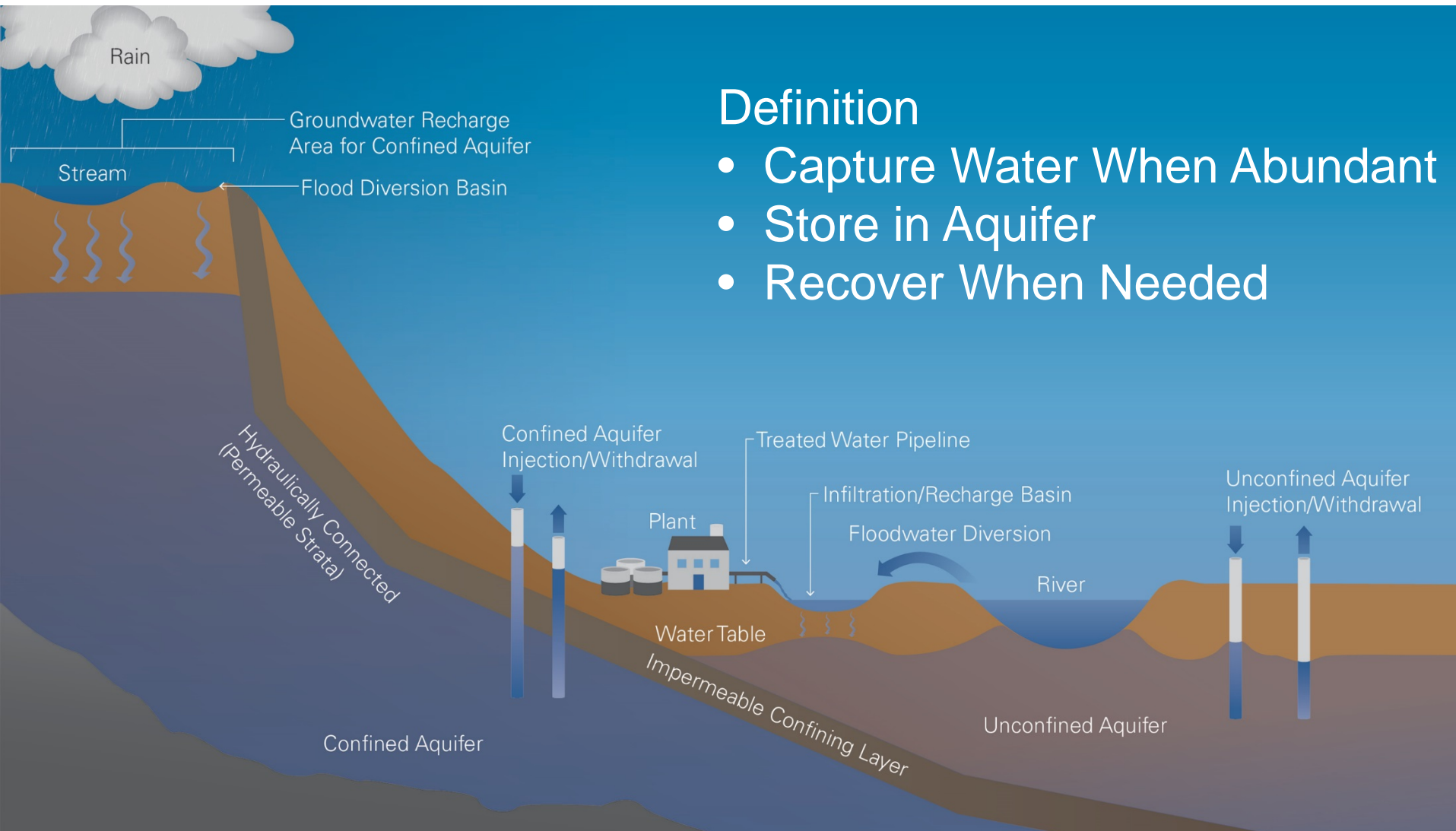
# Green Infrastructure in HMA: The Framework for Innovative Drought & Flood Mitigation

**Green infrastructure provides a framework and methodology for designing and implementing Innovative Drought & Flood Mitigation projects**

- Green infrastructure definition:
  - HMA projects that use an integrated, natural systems-based sustainable design approach to effective water management (storm and flood), resulting in measureable flood and drought risk reduction
- Focus is on re-establishing a site's pre-development natural hydrology and reducing damage to life and property



# What Is Aquifer Storage & Recovery?



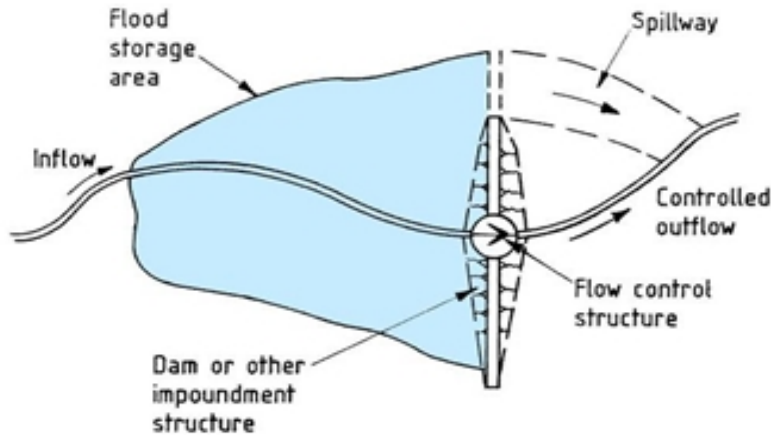
## Definition

- Capture Water When Abundant
- Store in Aquifer
- Recover When Needed

Source: Dewberry (2016).

# What Is Flood Diversion & Storage?

## Online Storage

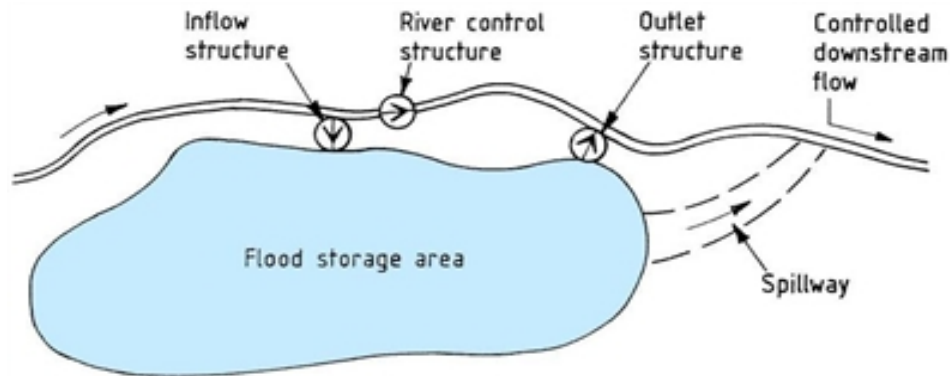


## Definition:

Divert Floodwaters Into:

- Natural Surface Storage (Lake, Floodplain, Wetland)
- Green Infrastructure (Bio-Swales, Bio-Retention, Bio-Detention Basins)

## Offline Storage



Source: UK Environment Agency (2010).

# What Is Floodplain & Stream Restoration?

- Definition: Restoration of the original function of floodplains and associated wetlands of flood-prone river and stream systems to pre-development conditions

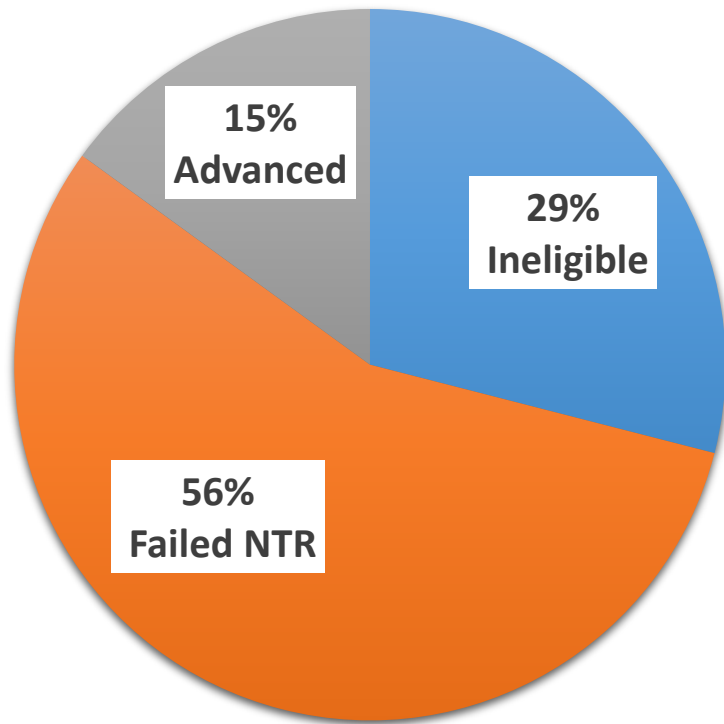
Ecology Park, Valley Creek – East Whiteland Township, Chester County



Source: Dewberry (2016).

# Statistics for Innovative Drought & Flood Mitigation

## 34 Innovative Drought & Flood Mitigation Projects were submitted for PDM FY16



- 10 Projects (29%) were determined ineligible/incomplete and were not evaluated in the National Technical Review (NTR)
- 19 Projects (56%) failed to pass the NTR
- 5 Projects (15%) were identified for further review



# Scope of Work (ASR)

- Aquifer Storage and Recovery



- Current water source



- Details on recharge water



- Change in water supply

# Scope of Work (FDS)

- Flood Diversion & Storage



- Current flood hazards
- Future flood risks and damages



- Diversion method
- Storage method



- Impact to built and natural environment
- Drought mitigation impacts
- Consider upstream and downstream impacts

# Scope of Work (FSR)

- Floodplain & Stream Restoration



- Current flood hazards
- Future flood risks and damages



- Current and proposed characteristics of the stream
- Impacts on surrounding area



- Consider upstream and downstream impacts

# BCA Modules for FDS & FSR

- Flood Module
  - Must have FIS or H&H
  - Need Building Information
  - Uses Depth Damage Functions (DDF)s
  - Can include:
    - Ecosystem Service Benefits
    - Loss of Service
- Damage Frequency Assessment (DFA) Module
  - Analysis may be based on historic events
  - May need to determine Recurrence intervals (RI)s
  - Engineering analysis to estimate damages after-mitigation
  - Can include Ecosystem Service Benefits or other additional benefits



# DFA Module (FDS & FSR)

- Historic or Expected Damages?

- Historic Damages

- The user will need at least one historic damage event with known recurrence interval, or
    - At least three historic damage events with unknown recurrence intervals.

- Expected Damages

- User must determine the recurrence intervals for all events.
    - The unknown frequency calculator cannot be used to estimate the RIs of expected damages.

- Determining Recurrence Intervals

- FIS or H&H Study
    - Rain gauge data
    - Published data by agencies
      - (NOAA, USGS, etc.)

What is the basis for the damages? \*

Historical Damages

Expected Damages

---

How many damage events do you have?

For how many of these events do you know the recurrence intervals?

**Note: You must know the damage year for all damage events.**

# Damages Before Mitigation (FDS & FSR)


- The heart of the DFA Module
- Damage amounts are tied to:
  - Previous damage events (years for historic damages), or
  - Future events (recurrence interval for expected damages).
- Analysis Year and Year Built
  - These two dates establish the “time window” through which the damage events are seen by the Tool  
 $\{[Analysis\ Year] - [Year\ Built] + 1\} = \text{Analysis Duration}$ .
  - A minimum of 10 years is required for the analysis duration.

Historic Damages Before Mitigation

Analysis year \*  Analysis Duration  Utilities (\$/day)   
Year Built \*  User Input Analysis Duration  Buildings (\$/day)   
Roads/Bridges (\$/day)

Historic Damages Before Mitigation \*

To add columns, click the column icon at the upper left corner of the table. All damages are in dollars.

 Damage Year	Recurrence Interval (RI)	Buildings (days)	Utilities (days)	Volunteer Costs	Are damages in current dollars?	Total	Total Inflated
					No	\$0	\$0
					No	\$0	\$0
					No	\$0	\$0
*					No		

Add Column

# Damages After Mitigation (FDS & FSR)

- The purpose of this screen is to enter the effectiveness of the mitigation measure once implemented
  - The flood module calculates the project effectiveness
  - However, for DFA, users need to input the effectiveness of the mitigation measure
- Most mitigation projects do not eliminate all risk
  - Except for acquisition and relocation projects
  - Example:
    - Culvert sized to contain a 25-year event
    - Events with larger recurrence intervals (50-year, 100-year, etc.) will cause the same amount of damages before- and after-mitigation.

**Damages After Mitigation**

Analysis year:       Analysis Duration:

Year Built:  user Input Analysis Duration

Utilities (\$/day)

Buildings (\$/day)

Roads/Bridges (\$/day)

---

**Damages After Mitigation**

Recurrence Interval (RI)	Buildings (days)	Utilities (days)	damages (\$)	Roads (days)	Total
▶					\$0
*					\$0

# BCA Module for ASR

- Version 5.3.0 of the BCA Toolkit now provides a specific module for drought mitigation
- Necessary inputs to use the drought mitigation module:
  - Increased water supply capacity in relation to population served

Population Impact and Demand								
Population Served by Project *		<input type="text" value="0"/>						
Average Water Use Rate (gallons per day) *		<input type="text" value="0"/>						
Maximum Volumetric Pumping Rate (million gallons per day)		<input type="text" value="0"/>						
Average Depth to Recoverable Water (feet)		<input type="text" value="0"/>						
ASR Project Drought and Mitigation Information								
		Before Mitigation			After Mitigation			
Recurrence Interval (years)	Potable Water Demand (mgd)	System Supply Yield (mgd)	Duration of Impact (days)	Unmet Demand (%)	System Supply Yield (mgd)	Duration of Impact (days)	Unmet Demand (%)	Average Yield (mgd)
*								



# BCA Module for ASR (cont.)

- Recurrence Interval (RI) for drought
  - A single RI is required
  - Minimum of 3 RIs recommended
  - No one method for assessing RIs
  - Applicants should use best available data
  - Sample list of drought resources:
    - *U.S. Drought Portal* – <http://www.drought.gov>
    - Drought Risk Atlas - <http://droughtatlas.unl.edu/Data.aspx>
    - U.S. Bureau of Reclamation Drought Response Program - <http://www.usbr.gov/drought>

# Ecosystem Service Benefits

Updated Ecosystem Service Matrix (USD 2014 per acre per year)					
Ecosystem Service	Green Open Space	Riparian	Forest	Wetland	Marine & Estuary
Aesthetic Value	\$1,707	\$612		<b>\$3,640</b>	
Air Quality	\$215	\$226			
Biological Control		\$173			
Climate Regulation	\$61	\$81	<b>\$153</b>	<b>\$136</b>	<b>\$63</b>
Erosion Control	\$68	\$12,042			
Flood Hazard Reduction		\$4,215	<b>\$321</b>		
Food Provisioning		\$641			
Habitat		\$878			<b>\$1,214</b>
Nutrient Cycling				<b>\$536</b>	<b>\$522</b>
Pollination	\$305				
Recreation/Tourism	\$5,644	\$15,967			
Stormwater Retention	\$308				
Water Filtration		\$4,473		<b>\$1,406</b>	
Water Supply		<b>\$237</b>	<b>\$80</b>	<b>\$292</b>	
<b>Total Annual Value</b>	<b><u>\$8,308</u></b>	<b><u>\$39,535</u></b>	<b><u>\$554</u></b>	<b><u>\$6,010</u></b>	<b><u>\$1,799</u></b>

# Innovative Drought & Flood Mitigation Projects Dos and Don'ts

- When preparing Innovative Drought & Flood Mitigation Projects, DO:
  - Consult with a professional engineer or architect to analyze the technical feasibility and effectiveness of the project
  - Provide a complete scope of work and cost estimate that **focuses on flood mitigation**
  - Perform analysis to conform with Environmental Planning and Historic Preservation (EHP) review and compliance requirements
  - **Utilize Innovative Drought & Flood Mitigation Fact Sheets, Job Aids and Data Supplements**
- When preparing Innovative Drought & Flood Mitigation Projects, DON'T:
  - Rely on ecosystem service and social benefits alone to support the project BCAs of FDS and FSR projects (Base BCR  $\geq$  0.75)
  - Assume the reviewer can access documentation online
  - Use unreliable or non-credible documentation sources
  - Include ecosystem service benefits for ASR projects

# SUMMARY and RESOURCES



# Common Problems with Potential Fixes

- Unclear conformance with HMA requirements
  - ✓ Ensure compliance with the FEMA HMA Guidance Project-Specific Addendums
  - ✓ Utilize resources (ASCE 24 guidance and highlights, ICC-500 highlights, etc.) to ensure the scope conforms with HMA requirements
- Insufficient technical data and/or preliminary engineering design
  - ✓ Provide H&H study, building risk assessment, etc. or thorough report on engineering approach and anticipated level of protection
  - ✓ Reference industry standards (ASCE 24, ICC-500, ASCE 41)
- BCR in subapplication does not match attachments OR the BCA cannot be recreated
  - ✓ Submit the BCA .zip file
  - ✓ Provide justification and/or documentation

# Summary

- Items to Consider
  - Programmatic priorities and availability of funding
  - Monitor changes in policy
  - HMA Job Aids and Tools
  - Manage expectations
    - Likelihood of funding/approval – HMA programs are constantly over subscribed
  - “Pre-award” items and tasks versus eligibility



## FEMA POLICY: Hazard Mitigation Assistance Acquisition Projects: Hydraulic Fracturing and Horizontal Directional Drilling FEMA Policy #302-094-03

### BACKGROUND

This policy applies to all Hazard Mitigation Assistance (HMA) programs. HMA is comprised of the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, and the Flood Mitigation Assistance (FMA) program. This policy is intended for federal, state, local, tribe, and territory officials involved in the administration of HMA programs.

This policy supersedes FEMA Policy *Limits on Subsurface Uses of Hazard Mitigation Assistance Acquired Lands* (FP 302-405-146-1). FP 302-405-146-1 was incorporated into the HMA Guidance dated February 27, 2015 and then sunset. Thus, this policy also supersedes the associated sections of the HMA Guidance that incorporated FP 302-405-146-1.

### PURPOSE

The purpose of this policy is to provide HMA program guidance on the compatibility of subsurface hydraulic fracturing and horizontal directional drilling (hydraulic fracturing/HDD) uses occurring on or under properties acquired for open space with HMA funds.

FEMA property acquisitions under the HMA programs permanently remove structures from risk of damage and seek to conserve natural floodplain functions. Properties eligible for acquisition must be able to demonstrate clear title, or that any easements or other encumbrances to the property are compatible with open space that conserves the natural and beneficial floodplain functions. Post-acquisition land uses and structures must be approved by FEMA.

### PRINCIPLES

- Hydraulic fracturing/HDD activities occurring in subsurface layers to extract natural gas or oil are uses that are generally compatible with open space.
- Surface activities and related appurtenances, equipment, and/or wastewater disposal associated with hydraulic fracturing/HDD are not uses compatible with open space and are not allowed on the acquired parcel.

### REQUIREMENTS

Every three years, the HMA funding recipient and subrecipient must submit a report to the FEMA Regional Administrator. The report must certify that the acquired property was inspected within the preceding month and that the property continues to be maintained consistent with the provisions of open space requirements, the deed restrictions, and the grant award. (44 C.F.R. § 80.19(d) Land use and oversight, Monitoring and reporting).

# Summary

- College application – one shot analogy
  - Follow application directions
    - Priorities released with Notice of Funds Opportunity
    - Make sure every piece of the application is turned in and on time
    - Submit all information regardless of resubmittal, multiple program, etc.
  - Organized and accurate
    - Consistency across application and attachments
- Capture lessons learned from awards as well as denials
- Every year is a “new” application

# FEMA Hazard Mitigation Assistance Resources

- **Notice of Funding Opportunity and Fiscal Year Fact Sheet**
  - FMA - <https://www.fema.gov/flood-mitigation-assistance-grant-program>
  - PDM - <https://www.fema.gov/pre-disaster-mitigation-grant-program>
- **FEMA HMA Guidance and Addendum - <https://www.fema.gov/hazard-mitigation-assistance-program-guidance>**
- **Cost Estimating Principals for Hazard Mitigation Assistance Applications - <https://www.fema.gov/media-library/assets/documents/110217>**
- **Innovative Drought & Flood Mitigation - <https://www.fema.gov/Mitigating-Flood-and-Drought-Conditions-Under-Hazard-Mitigation-Assistance>**
- **Innovative Drought & Flood Mitigation Fact Sheets - <http://www.fema.gov/media-library/assets/documents/110202>**



# Additional Technical Resources

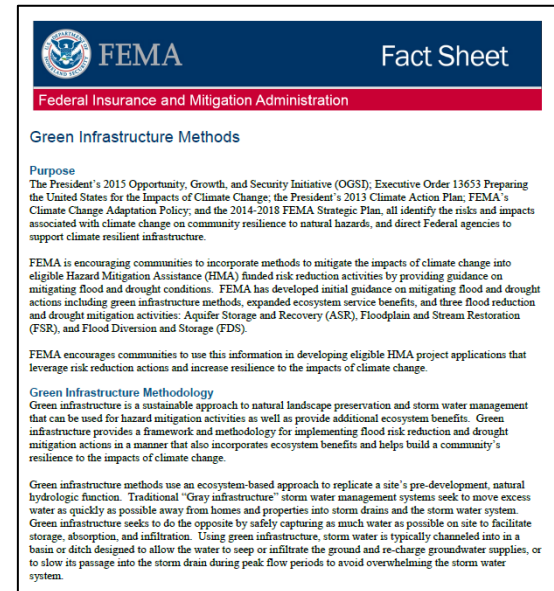
- **FEMA Map Service Center** - <https://msc.fema.gov/portal>
- **FEMA ASCE 24 Highlights** - <https://www.fema.gov/media-library/assets/documents/14983>
- **FEMA ICC-500 Highlights** - <https://www.fema.gov/media-library/assets/documents/110209>
- **FEMA Loss Avoidance Studies** - <https://www.fema.gov/hmgp-loss-avoidance-studies>
- **FEMA BCA Toolkit** - <https://www.fema.gov/benefit-cost-analysis>
- **ATC Windspeed** - <http://windspeed.atcouncil.org/>
- **USGS Seismic** - <https://earthquake.usgs.gov/hazards/designmaps/>

# FEMA Contact Resources

- Contact HMA
  - [FEMA-HMA-Grants-Policy@fema.dhs.gov](mailto:FEMA-HMA-Grants-Policy@fema.dhs.gov)
- Contact BC Helpline
  - [BCHelpline@fema.dhs.gov](mailto:BCHelpline@fema.dhs.gov)
- Reach out to your FEMA Regional Office
  - <https://www.fema.gov/about-agency>



The screenshot shows the FEMA website interface. At the top left is the FEMA logo. Below it is a navigation menu with icons for Navigation, Search, and Languages. To the right of the navigation menu is the page title "Mitigating Flood and Drought Conditions Under Hazard Mitigation Assistance" and a brief description: "This page provides information on mitigating flood and drought conditions under Hazard Mitigation Assistance." Below the description is a link to "Expand All Sections". The main content area is a list of links: "Hazard Mitigation Assistance", "Hazard Mitigation Grant Program", "Flood Mitigation Assistance", "Pre-Disaster Mitigation Grants", and "eGrants External system for Subgrant Applicant Users". To the right of this list is a vertical list of links: "Mitigating Flood And Drought Conditions", "Fact Sheets", "Job Aids And Data Supplements", and "Benefit Cost Analysis Tools". At the bottom left of the page is a "Latest News" section.

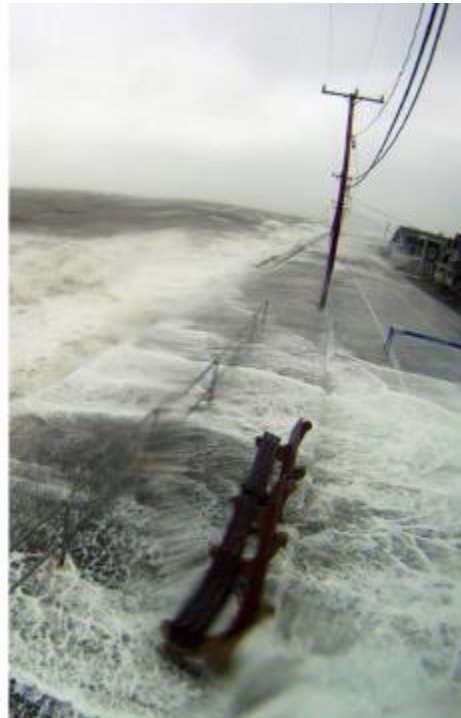


The screenshot shows a FEMA Fact Sheet titled "Green Infrastructure Methods". The header includes the FEMA logo and the text "Federal Insurance and Mitigation Administration". The main content is organized into sections: "Purpose", "Green Infrastructure Methodology", and "Green Infrastructure Methods". The "Purpose" section states that the President's 2015 Opportunity, Growth, and Security Initiative (OGSI), Executive Order 13653 Preparing the United States for the Impacts of Climate Change, the President's 2013 Climate Action Plan, FEMA's Climate Change Adaptation Policy, and the 2014-2018 FEMA Strategic Plan, all identify the risks and impacts associated with climate change on community resilience to natural hazards, and direct Federal agencies to support climate resilient infrastructure. The "Green Infrastructure Methodology" section states that FEMA is encouraging communities to incorporate methods to mitigate the impacts of climate change into eligible Hazard Mitigation Assistance (HMA) funded risk reduction activities by providing guidance on mitigating flood and drought conditions. FEMA has developed initial guidance on mitigating flood and drought actions including green infrastructure methods, expanded ecosystem service benefits, and three flood reduction and drought mitigation activities: Aquifer Storage and Recovery (ASR), Floodplain and Stream Restoration (FSR), and Flood Diversion and Storage (FDS). The "Green Infrastructure Methods" section states that FEMA encourages communities to use this information in developing eligible HMA project applications that leverage risk reduction actions and increase resilience to the impacts of climate change. The "Green Infrastructure Methods" section also states that Green infrastructure is a sustainable approach to natural landscape preservation and storm water management that can be used for hazard mitigation activities as well as provide additional ecosystem benefits. Green infrastructure provides a framework and methodology for implementing flood risk reduction and drought mitigation actions in a manner that also incorporates ecosystem benefits and helps build a community's resilience to the impacts of climate change. The "Green Infrastructure Methods" section also states that Green infrastructure methods use an ecosystem-based approach to replicate a site's pre-development, natural hydrologic function. Traditional "Gray infrastructure" storm water management systems seek to move excess water as quickly as possible away from homes and properties into storm drains and the storm water system. Green infrastructure seeks to do the opposite by safely capturing as much water as possible on site to facilitate storage, absorption, and infiltration. Using green infrastructure, storm water is typically channeled into in a basin or ditch designed to allow the water to seep or infiltrate the ground and re-charge groundwater supplies, or to slow its passage into the storm drain during peak flow periods to avoid overwhelming the storm water system.



FEMA

# Questions?

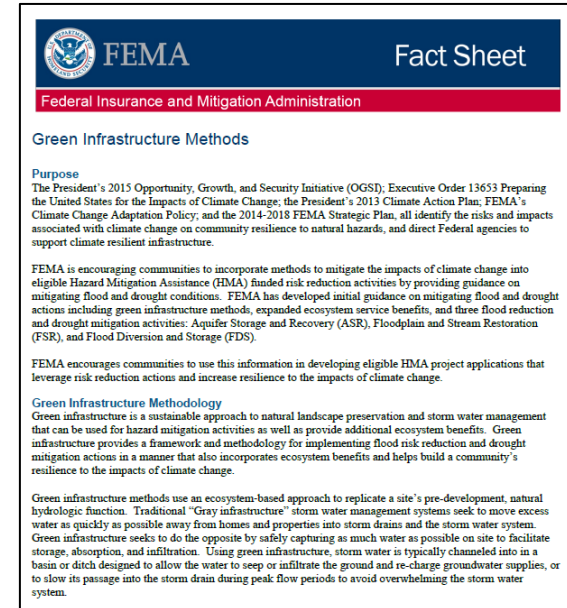


# Resources

- **Contact HMA**
  - [FEMA-HMA-Grants-Policy@fema.dhs.gov](mailto:FEMA-HMA-Grants-Policy@fema.dhs.gov)
- **Contact BCHelpline**
  - [BCHelpline@fema.dhs.gov](mailto:BCHelpline@fema.dhs.gov)
- **Reach out to your FEMA Regional Office**
  - <https://www.fema.gov/about-agency>
- **Download the FEMA BCA Toolkit**
  - <https://www.fema.gov/benefit-cost-analysis>
- **View and Download Job Aids**
  - <https://www.fema.gov/media-library/assets/documents/110202>



The screenshot shows the FEMA Hazard Mitigation Assistance website navigation menu. At the top left is the FEMA logo. Below it are navigation options: 'Navigation', 'Search', and 'Languages'. A main menu titled 'Hazard Mitigation Assistance' lists several categories: 'Hazard Mitigation Grant Program', 'Flood Mitigation Assistance', 'Pre-Disaster Mitigation Grants', and 'eGrants External system for Subgrant Applicant Users'. A 'Latest News' section is also visible. On the right side of the page, there is a heading 'Mitigating Flood and Drought Conditions Under Hazard Mitigation Assistance' followed by a paragraph of text. Below this is a list of expandable sections: 'Expand All Sections', 'Mitigating Flood And Drought Conditions', 'Fact Sheets', 'Job Aids And Data Supplements', and 'Benefit Cost Analysis Tools'.



The screenshot shows a FEMA Fact Sheet titled 'Green Infrastructure Methods'. The header includes the FEMA logo and the text 'Federal Insurance and Mitigation Administration'. The main heading is 'Green Infrastructure Methods'. Below this is a 'Purpose' section that references the President's 2015 Opportunity, Growth, and Security Initiative (OGSI), Executive Order 13653, FEMA's Climate Change Adaptation Policy, and the 2014-2018 FEMA Strategic Plan. The text explains that FEMA is encouraging communities to incorporate methods to mitigate climate change impacts. A 'Green Infrastructure Methodology' section describes a sustainable approach to natural landscape preservation and storm water management. A final section explains that green infrastructure methods use an ecosystem-based approach to replicate a site's pre-development, natural hydrologic function.