USWG CLIMATE RESILIENCY STRATEGY

MODELING WG QUARTERLY MEETING – OCTOBER 9, 2019

BACKGROUND – PSC DIRECTIVE

- Update SWM Design to account for updated rainfall volume and intensity
- Determine how updated designs would impact nutrient and sediment removal
- Examine which BMPs are most vulnerable to changing climate
- Describe the co-benefits of designing stormwater BMPs to mitigate future climate risk

Management Objective	Design Storm	Purpose(s)	Engineering Models
Recharge	Annual rainfall depth for site HSG	Promote infiltration & groundwater recharge	Equation = runoff coefficients
Water Quality (WQv)	90% frequency hourly rainfall event [2]	BMP sizing to remove pollutants in urban runoff	Simple Method, runoff capture equation or SWMM
Channel Protection	One-year storm event	Prevent downstream bank erosion	NRCS TR-55 and TR-20
Channel Conveyance	2 and/or 10-year storm event	Sizing of swales, channels, storm drain pipes, and detention ponds	NRCS models or SWMM
Road Drainage & Culvert Design	10 and/or 25-year storm event	Protect road infrastructure from erosion	Rational method
Dam & Bridge Safety	100-year storm event or greater [3]	Design of embankments, risers and emergency spillways	
Floodplain Delineation		Lateral and vertical boundaries of existing and ultimate 100-yr floodplain	
Stream and Floodplain Hydraulics		Protect roads, sewer and other public infrastructure. Maintain stability of stream/floodplain restoration projects	TR-20, HEC-2, HEC-RAS 2D and 3D models, and others

NEW USWG CLIMATE RESILIENCY STRATEGY

- 1-year workplan
- 4 key "Tasks"
- Lay the Foundation for Multi-Year CBPO effort

Long-Term Goal: Deliver engineering tools and management solutions to communities so they can protect their current and future watershed restoration investments from climate change risk.

TASK 1: PARTNER AND STAKEHOLDER ENGAGEMENT

- Interview and survey key stakeholders from the following groups:
  - CBP Managers (USWG, CRWG, WQGIT, etc.)
  - Federal Agencies: (NOAA, EPA, FEMA, NRCS, COE)
  - Bay State Stormwater and Flood Control Agencies
  - Municipal Agencies
  - Researchers

TASK 2: RESEARCH AND MANAGEMENT SYNTHESIS

Summarize forecasted changes in rainfall intensity and volume

Identify existing or ongoing efforts to produce new IDF curves

Assess current stormwater engineering standards and criteria

Analyze the vulnerability of urban stormwater BMPs to reduced pollutant removal performance

TASK 3. DEVELOP LONG-TERM WORK PLAN

- Coordinate with key stakeholders (including other sector WGs)
- Identify priority initiatives for local stormwater BMP management
- Decide how local, regional or bay-wide modeling tools should be updated
- Discuss funding and inter-agency collaboration needs to address priority initiatives

TASK 4. OUTREACH

- Webcasts
- CSN webpage
- WG Presentations
- “Road Show”

WORK TO DATE

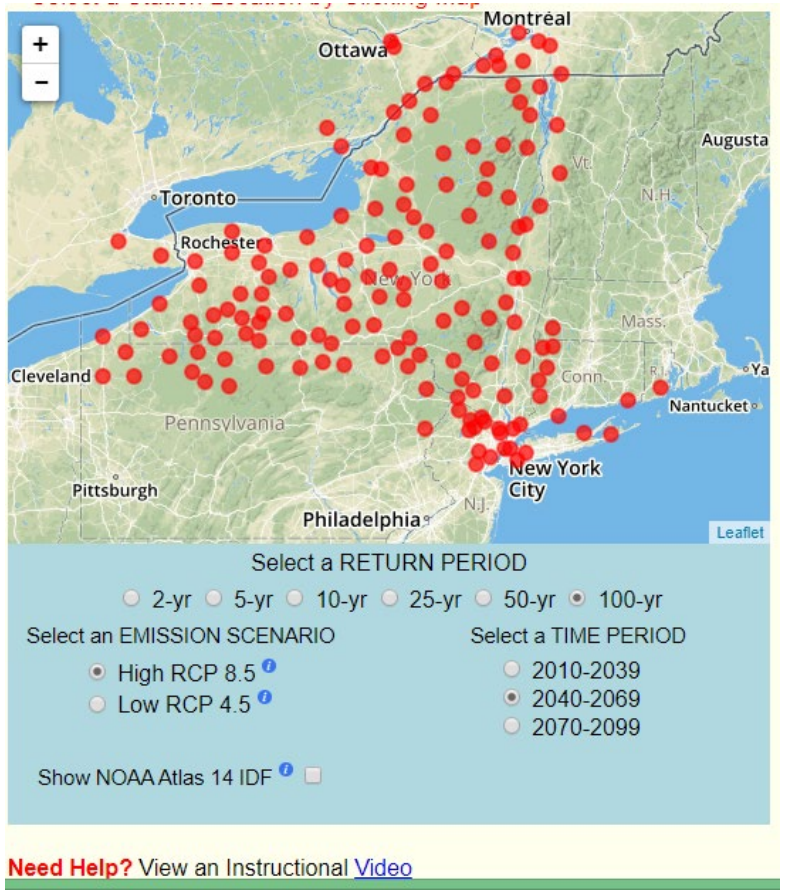
- Early Conversations
  - Baywide Stormwater Retreat Session
  - Meetings with Cornell, ODU, ESLC, and NYC and NYSDOT

GIT-FUNDING PROJECT

- Developing Probabilistic IDF curves for D.C. and Virginia
- 150k through CBT

Objectives:

1. Evaluate downscaling method – climate model combinations
2. Downscale precipitation for future time scales and develop IDF curves
3. Quantify methodological and model uncertainty
4. Develop web-tool to make results accessible



TASK 1 APPROACH

- Develop two short survey instruments: "Practitioners" and "Regulators"
  - Confirm current design standards, engineering models
  - Understand current approaches to climate resilience
  - Identify initial preferences and needs

- Subset of survey respondents will be contacted for follow-up discussion

UPCOMING TIMELINE

- Mid October: Surveys Released
- November-December: Follow-up discussions and summary of findings
- December – Early Fall 2020: Research/Management Synthesis
- Fall 2020: Long-Term Workplan Development

QUESTIONS?

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