PUMA Workshop
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Urban Drainage and Climate Modeling

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Outline

- Overview of urban drainage issues
- Background and Context
- Progress to date

NYC Environmental Protection

SFPUC
WATER
WASTEWATER
POWER

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Common Issues

- Systems driven by precip
- Highly urbanized and complex
- Extreme events lead to flooding
- Significant regulatory requirements
  - Clean Water Act
  - Combined Sewer Overflows (CSOs)

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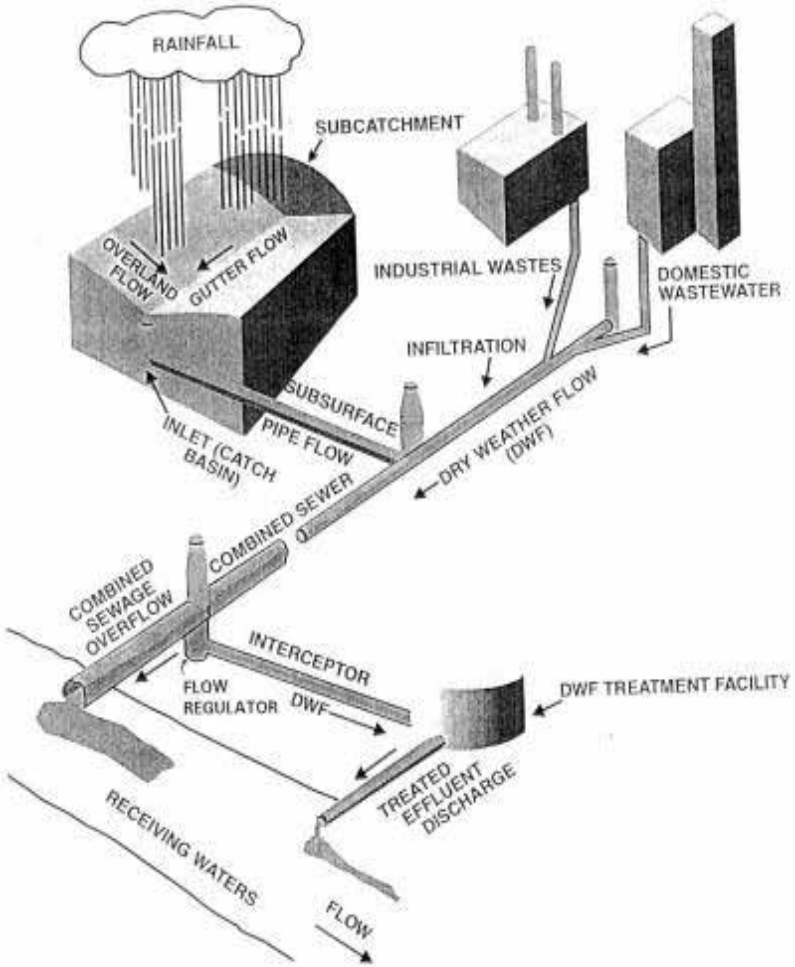
Common Issues - CSOs

- Runoff and sewage directed into common pipe
- Typically capacity is sufficient during dry weather
- Capacity exceeded during some wet weather events
- Untreated flow discharged directly to receiving water bodies and streets



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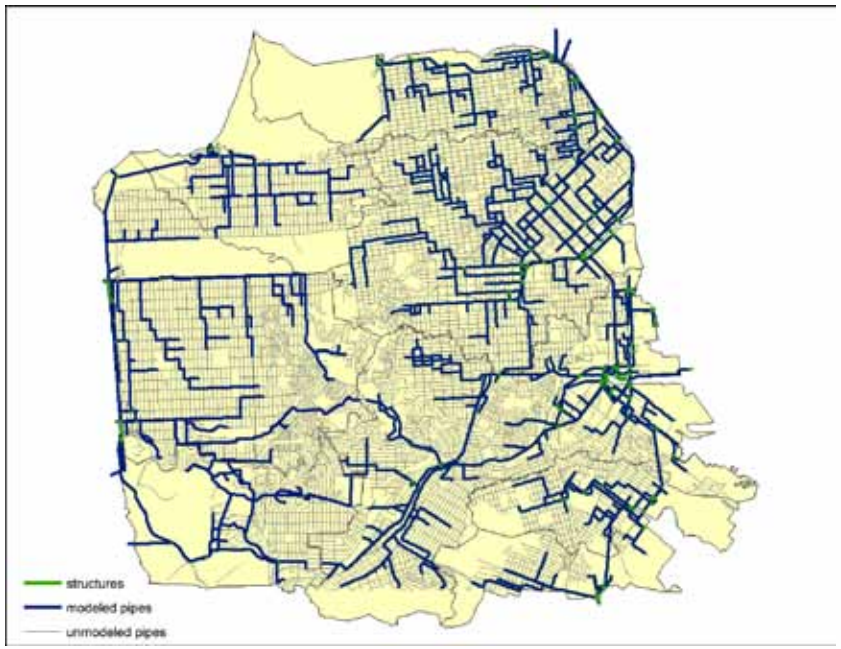
Common Issues - continued

- Extensively or intensively modeled
- Highly resolved spatial and temporal scales
  - 5 minute timesteps
  - 1 km^2 / 2-5 square miles
- Varying degrees of reliance on in-city rain gages
- Pursuing green infrastructure
- Major capital investments



Common Questions

- Will rain events become more intense?
- How will IDF – intensity, duration, frequency – curves change?
- Are downscaled GCMs/RCMs useful tools for urban drainage purposes?
- If not, are there tools that are?
- How do we reflect the climate signal in system planning and capital improvement programs?
- Can we embed flexibility into project and program design in order to incorporate new information as it becomes available?

PUMA's Urban Drainage Climate Modeling Webinar

- Are there viable methods to generate credible and useful climate projections for urban drainage?
- Make a Go/No Go decision
- Held Urban Drainage and Climate Modeling Webinar early Nov.
- Three utilities described their modeling environment, data needs, issues of concern
- Attendees discussed approaches for using GCMs/RCMs to address these needs
- Evaluating the potential to include urban drainage in PUMA

PUMA's Urban Drainage Climate Modeling Webinar

Paul Fleming, Seattle Public Utilities	Gary Schimek, Seattle Public Utilities	Andrew Lee, Seattle Public Utilities
David Hartley, Northwest Hydraulic Consultants	Alan Cohn, NYC Dept of Environmental Protection	Julie Stein, NYC Dept of Environmental Protection
Tim Groninger, Hazen and Sawyer	Don Pierson, NYC Dept of Env Protection	David Behar, SFPUC
Jon Loiacono, San Francisco Public Utilities Commission	Sarah Deslauriers, Carollo	Phil Duffy, Climate Central
Kathie Dello, CDSC	John Abatzoglou, University of Idaho	Radley Horton, Goddard Institute for Space Studies
Mike Dettinger, USGS/Scripps	Ken Kunkel, NCSU/ National Climate Data Center	Harold Brooks, National Severe Storms Laboratory

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Thank You

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