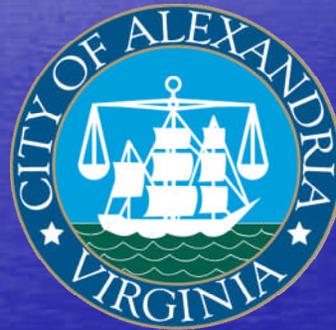
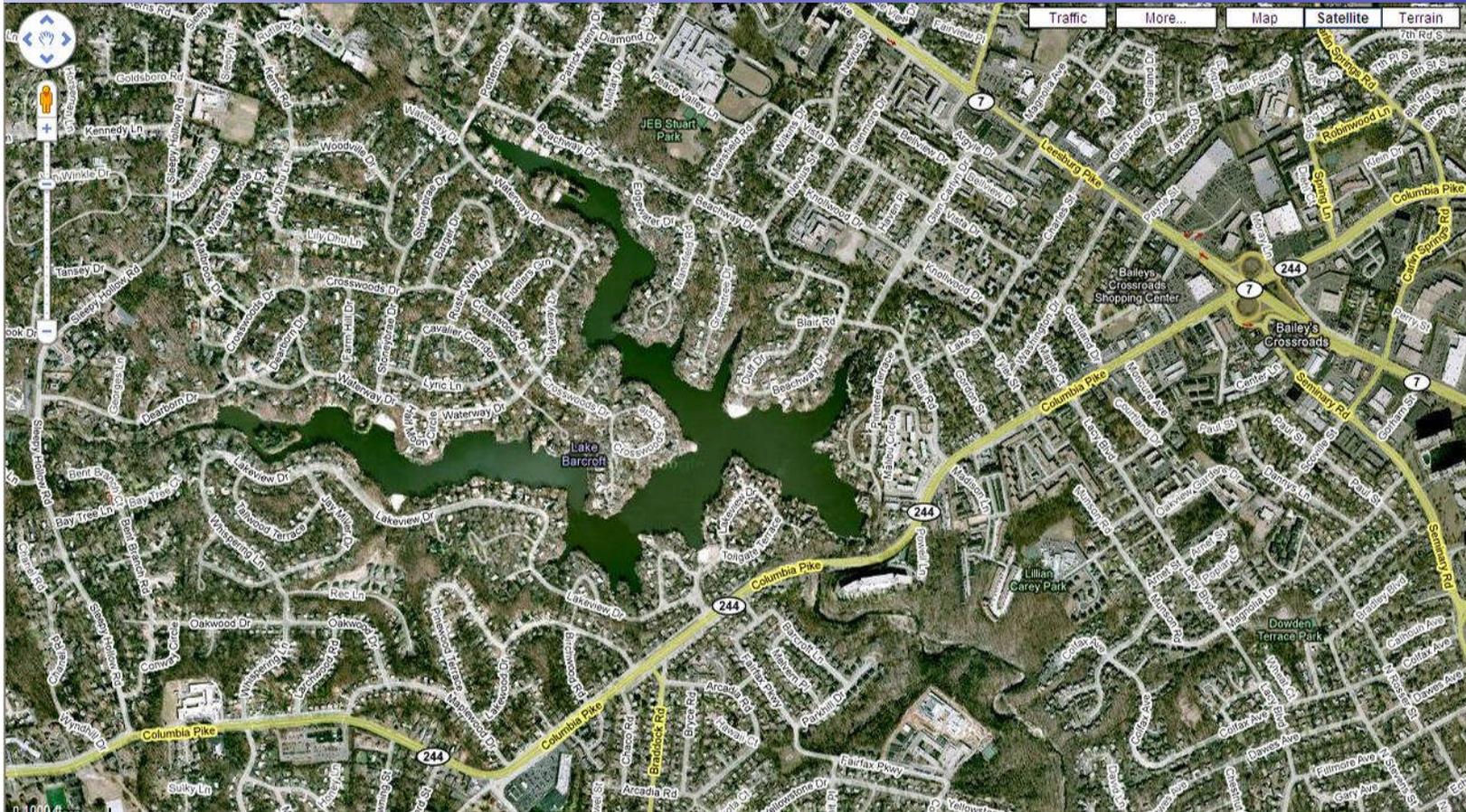


# 2008 Lake Barcroft Inundation Study



June 24, 2009

# Lake Barcroft



June 24, 2009



# Lake Barcroft

- Built as a reservoir, now a recreational lake
- Not built or able to function as a stormwater retention facility
- State license requires flow-through operation
- Dam gate opens only when lake level rises
- Outflow matches inflow



# Lake Barcroft



June 24, 2009



# Flooding

- Extensive flooding in Eisenhower Valley on June 25, 2006
- U.S. Army Corps of Engineers investigated causes of the flooding, releasing a final report in July 2007
- Determined that Lake Barcroft did not contribute to the flooding
- Closer coordination between City and Lake Barcroft



# 2008 Lake Barcroft Inundation Mapping Study

Fairfax County, Virginia

Prepared for:

Lake Barcroft Watershed Improvement District (LBWID)  
3650 Boat Dock Drive  
Falls Church, VA 22041



Prepared by:

GKY & Associates, Inc.  
4992 Lafayette Center Drive  
Suite 1850  
Chantilly, Virginia 20151



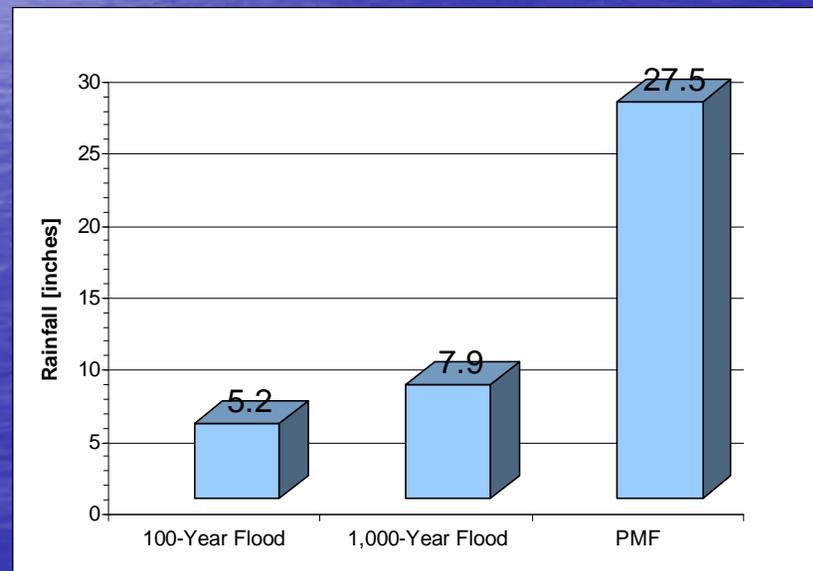
DECEMBER 17, 2008

June 24, 2009



# Probable Maximum Flood (PMF)

- Regulatory definition:  
*The flood that might be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the region.*
- Standard engineering tool used in dam design



6 hour rainfall depths



# Dam Breach during PMF

- Lake Barcroft receives a PMF
- Dam is simultaneously breached by the event
- Not very useful for emergency planning



# Sunny Day Dam Breach

- Lake Barcroft is at its normal level (208.3)
- No rainfall or runoff
- Dam fails
- Useful for emergency planning

June 24, 2009



# City Study

- Inundation depth mapping
- Velocity zone mapping
- Flood wave travel time
- Analysis supporting notification levels

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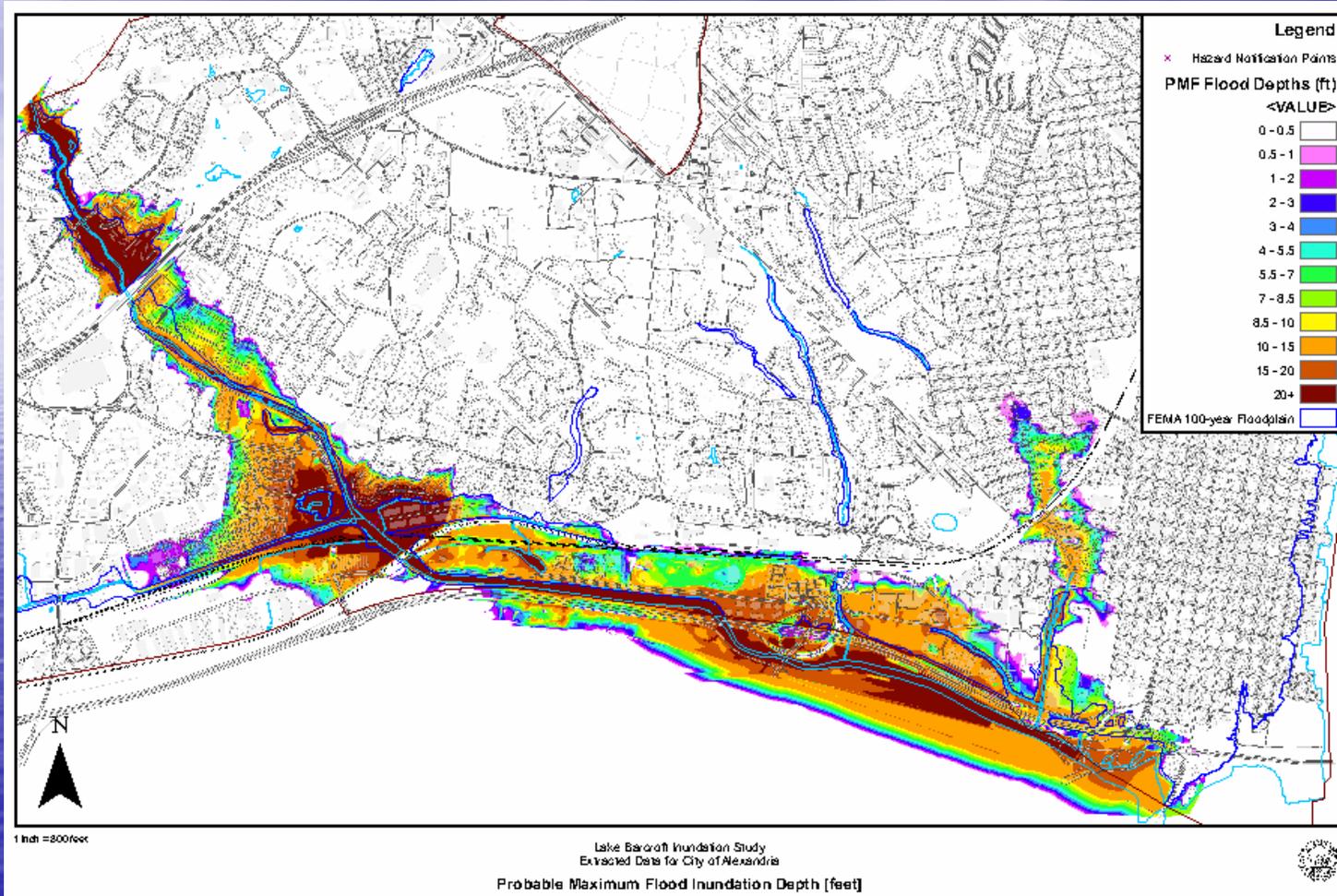


# FEMA Flood Insurance

- Inundation study DOES NOT affect FEMA floodplains or flood insurance
- Flood insurance requirements and rates are based on 100-year flood
- Inundation scenarios are far less probable than the 100-year event

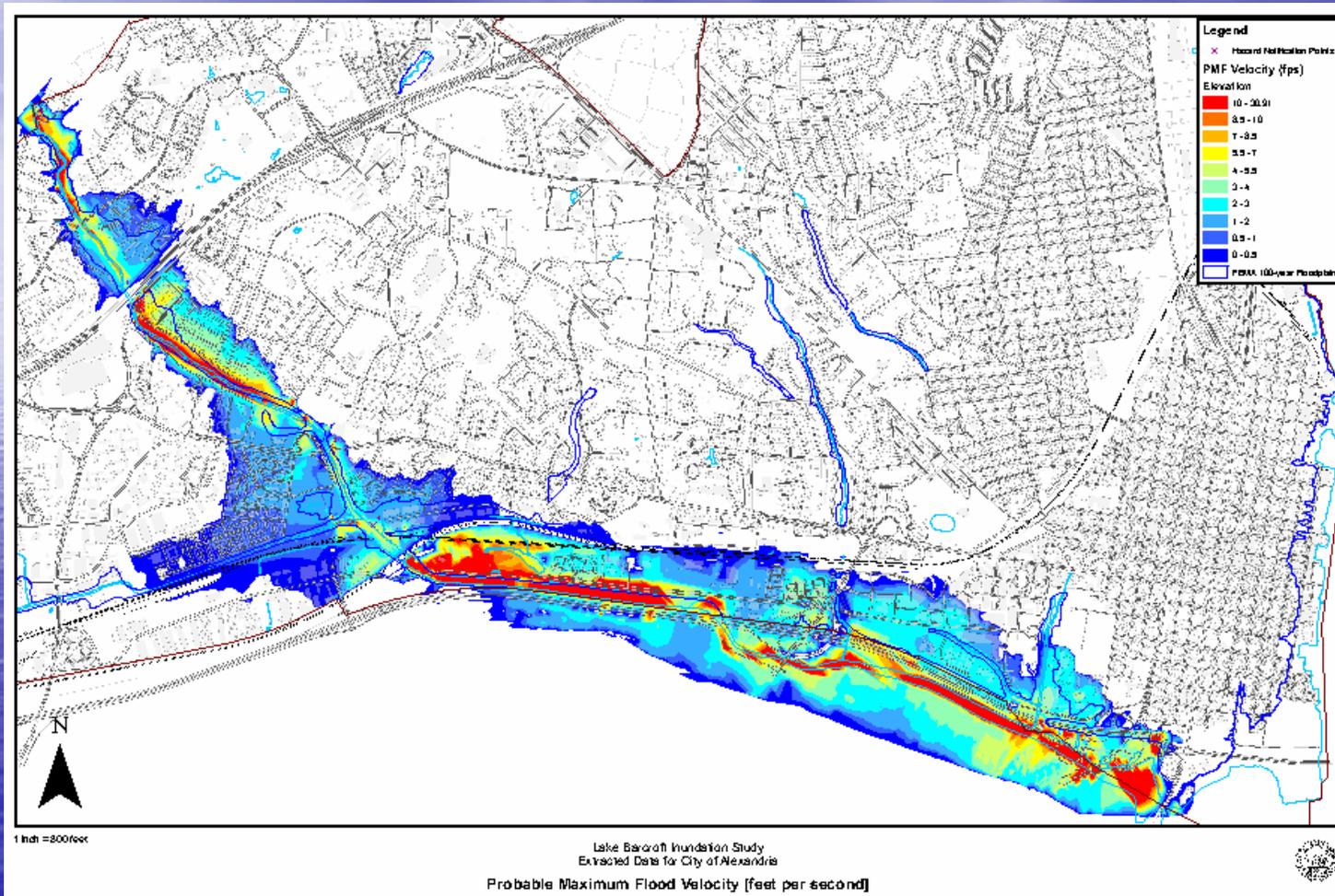


# PMF Inundation Depth



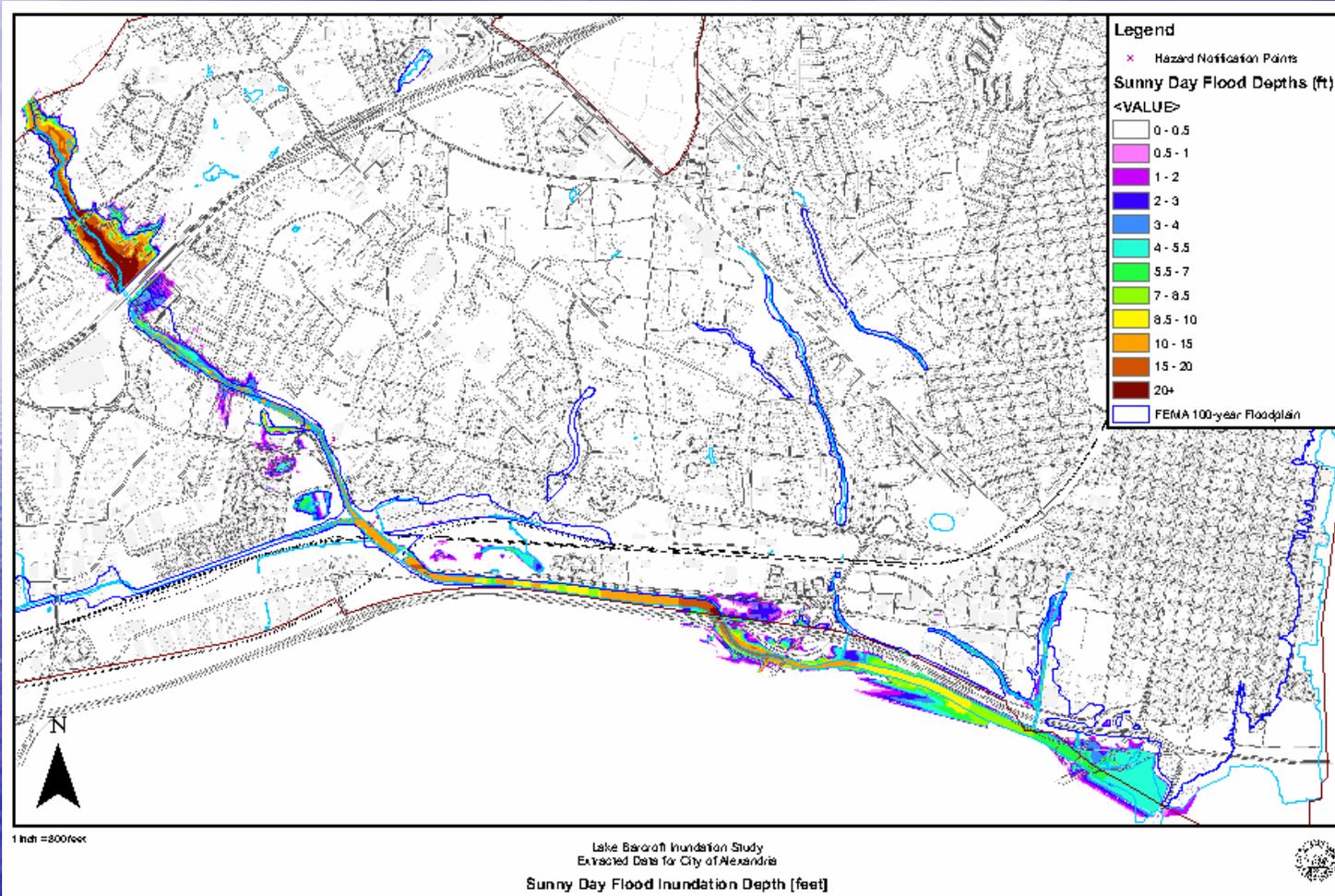
June 24, 2009

# PMF Velocities



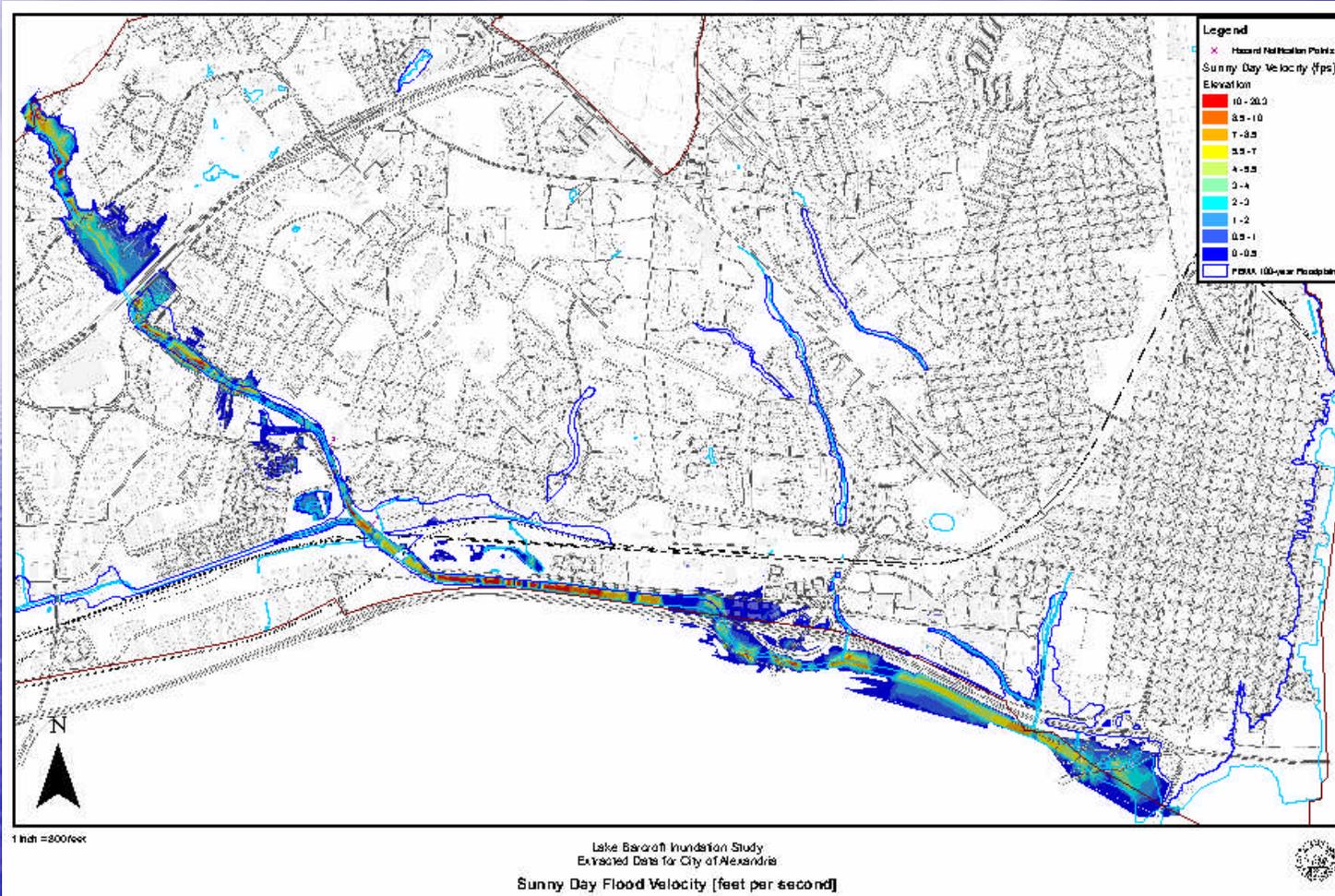
June 24, 2009

# Sunny Day Inundation Depth



June 24, 2009

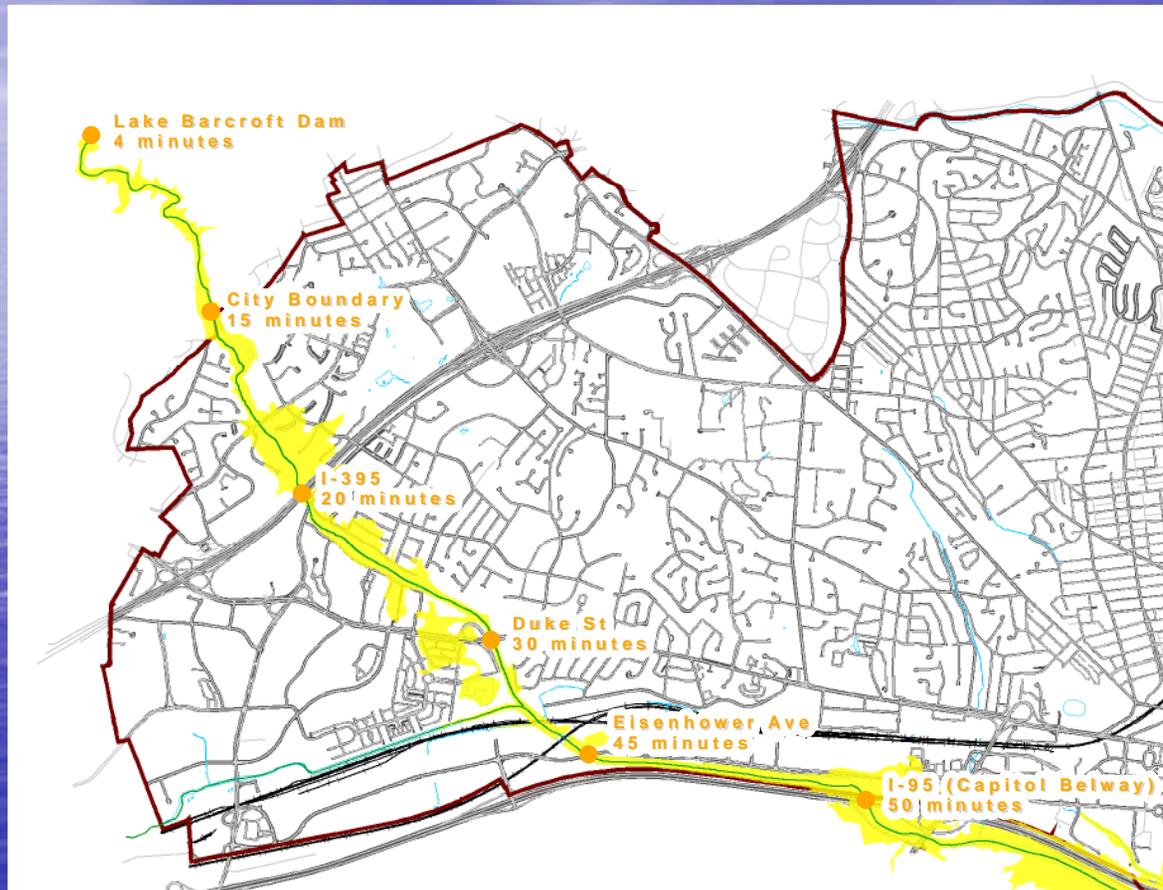
# Sunny Day Velocities



June 24, 2009



# Flood Travel Time



June 24, 2009

*Time to hazardous flow for sunny day event.*



# Holmes Run Pk/Chambliss Area

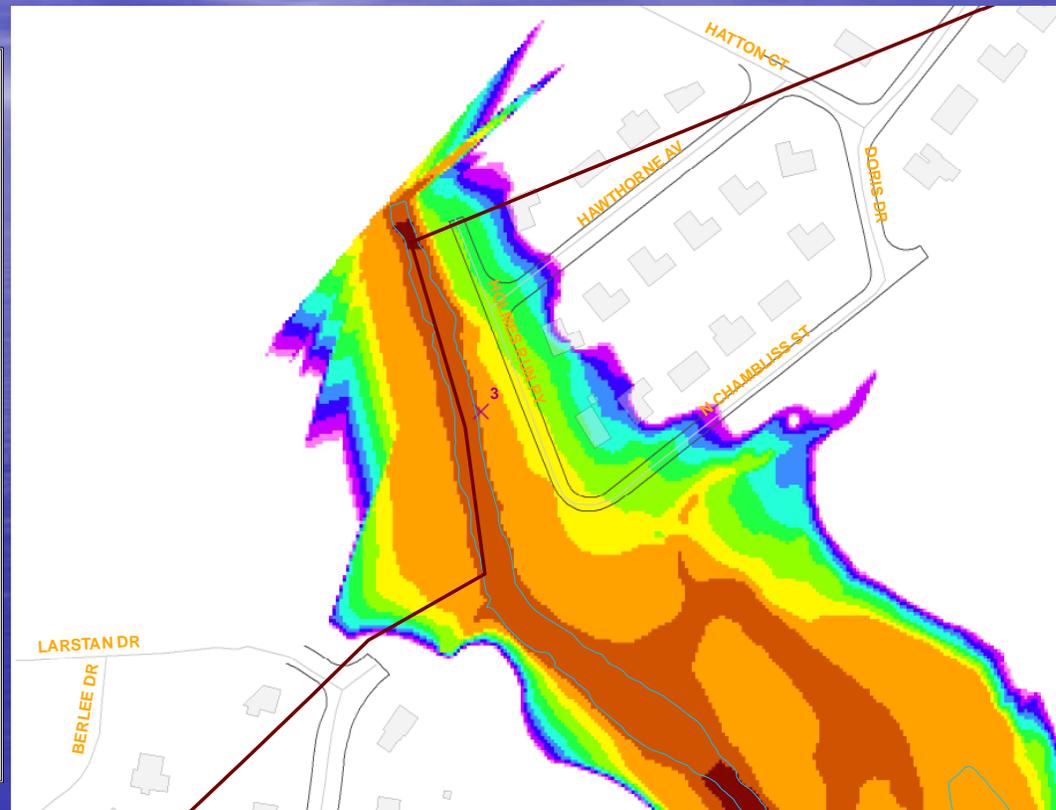
## Legend

D Hazard Notification Points

## Sunny Day Flood Depths (ft)

<VALUE>

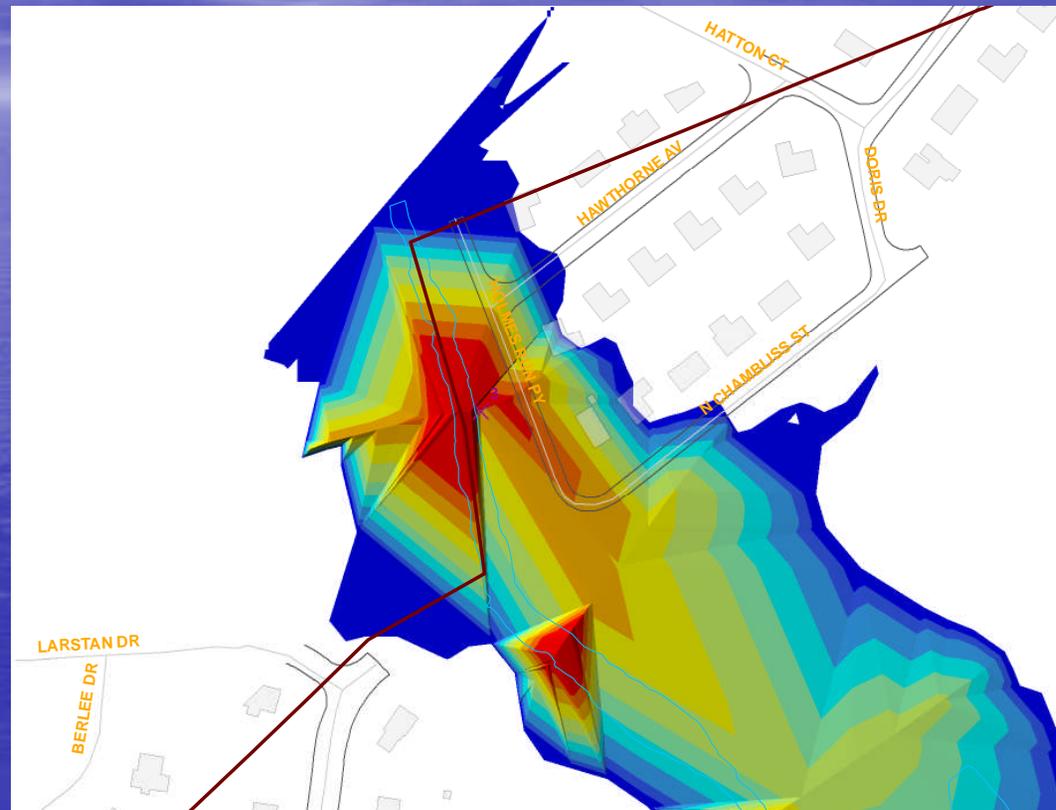
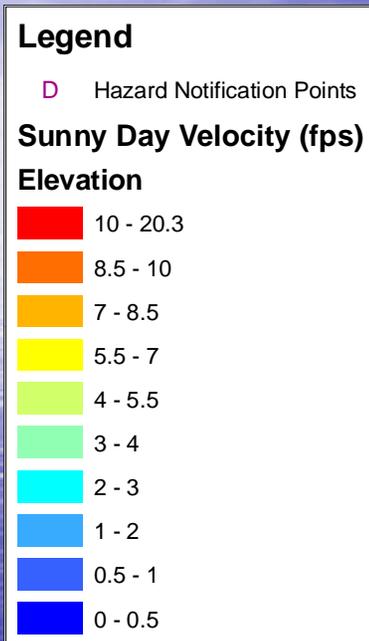
0 - 0.5
0.5 - 1
1 - 2
2 - 3
3 - 4
4 - 5.5
5.5 - 7
7 - 8.5
8.5 - 10
10 - 15
15 - 20
20+



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# Holmes Run Pk/Chambliss Area



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# North of I-395

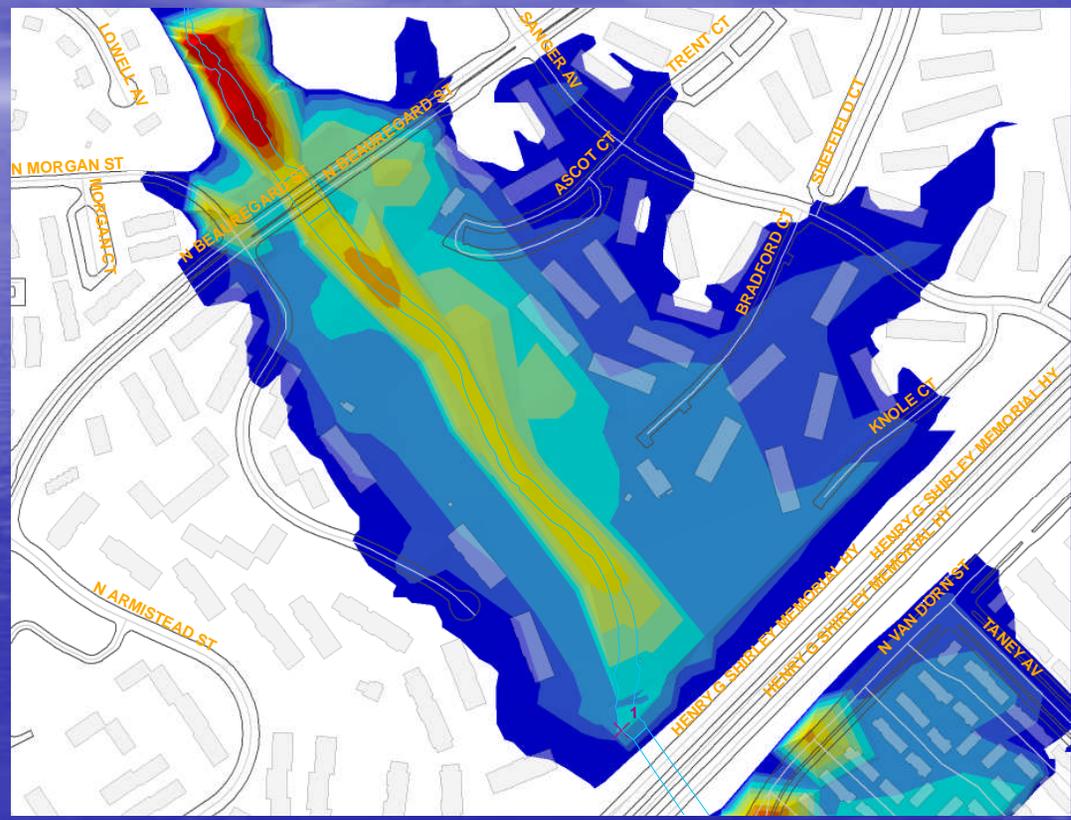
**Legend**

- D Hazard Notification Points

**Sunny Day Velocity (fps)**

**Elevation**

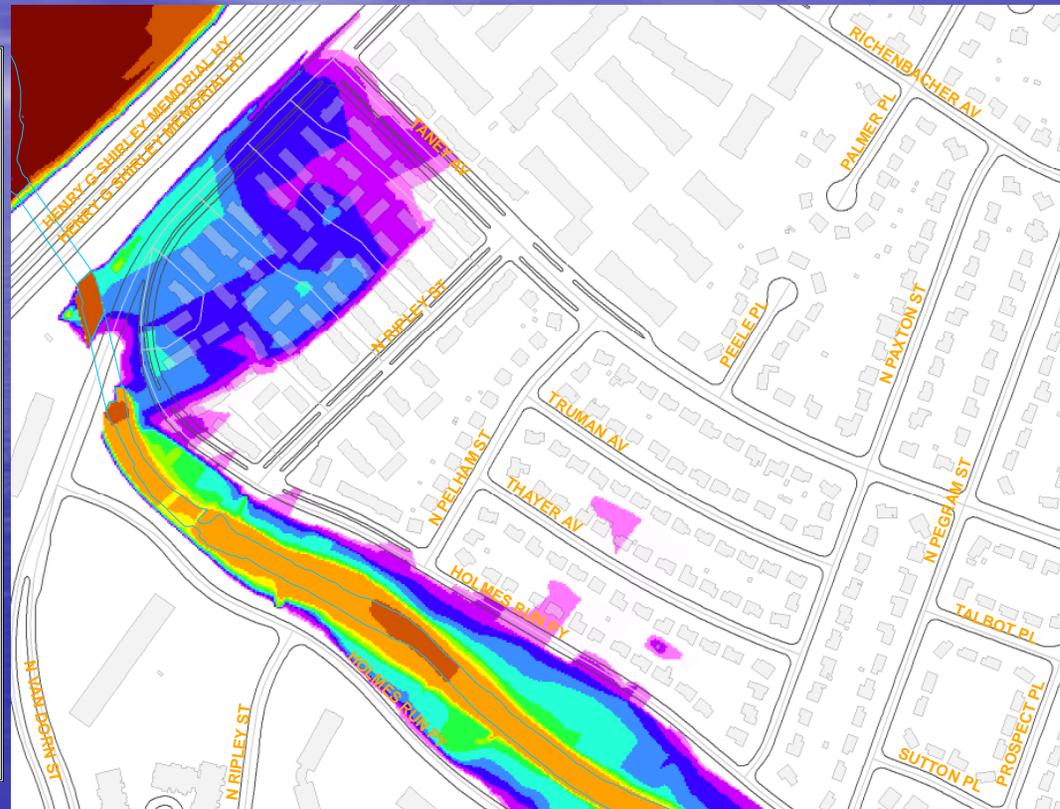
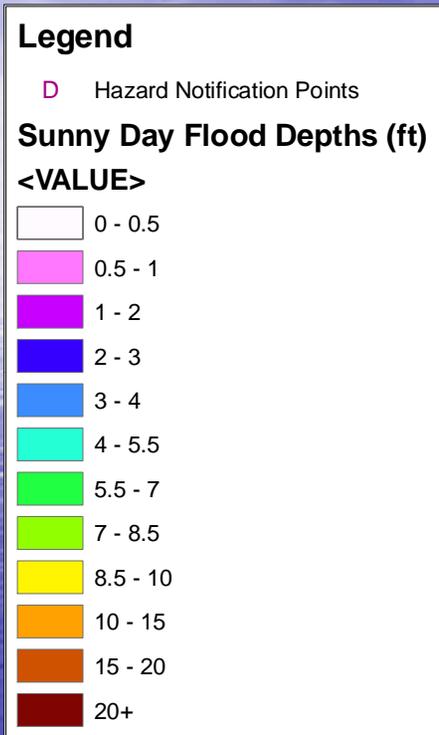
Red	10 - 20.3
Orange	8.5 - 10
Yellow	7 - 8.5
Light Green	5.5 - 7
Green	4 - 5.5
Cyan	3 - 4
Blue	2 - 3
Light Blue	1 - 2
Dark Blue	0.5 - 1
Very Dark Blue	0 - 0.5



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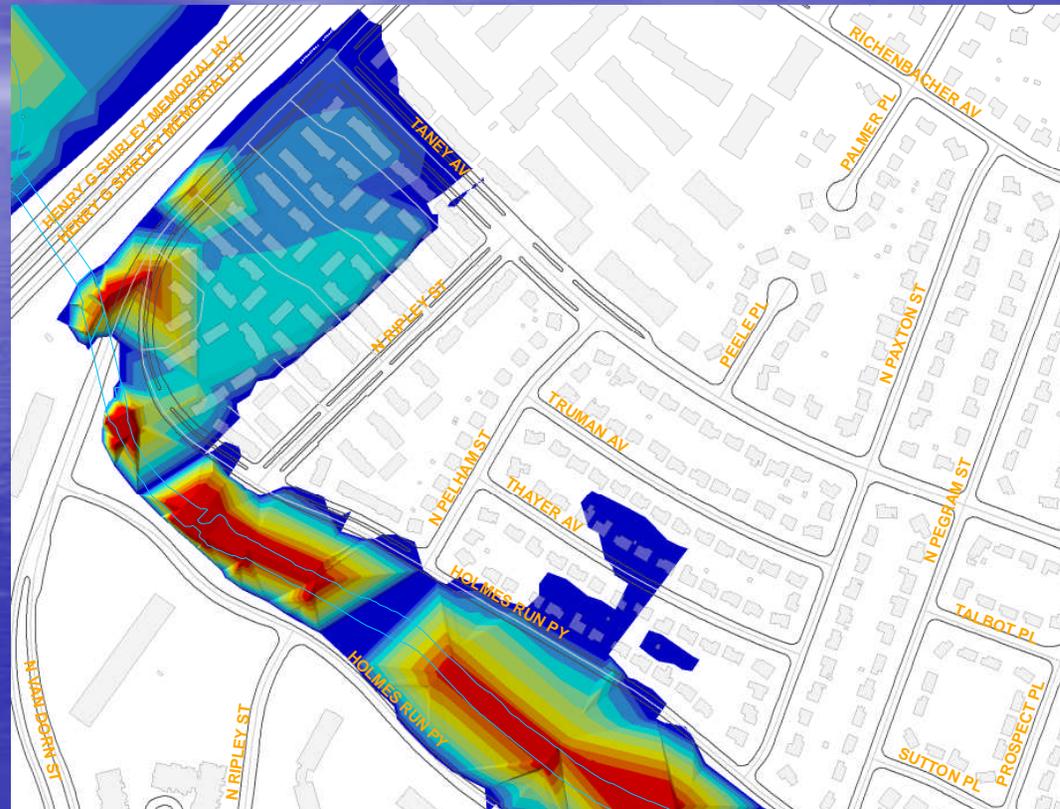
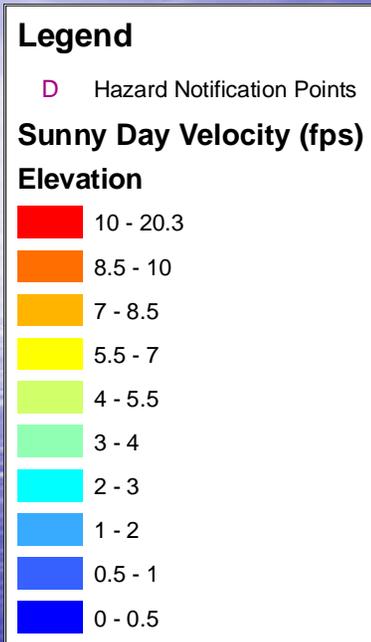
# South of I-395



June 24, 2009



# South of I-395



June 24, 2009



# Cameron Station

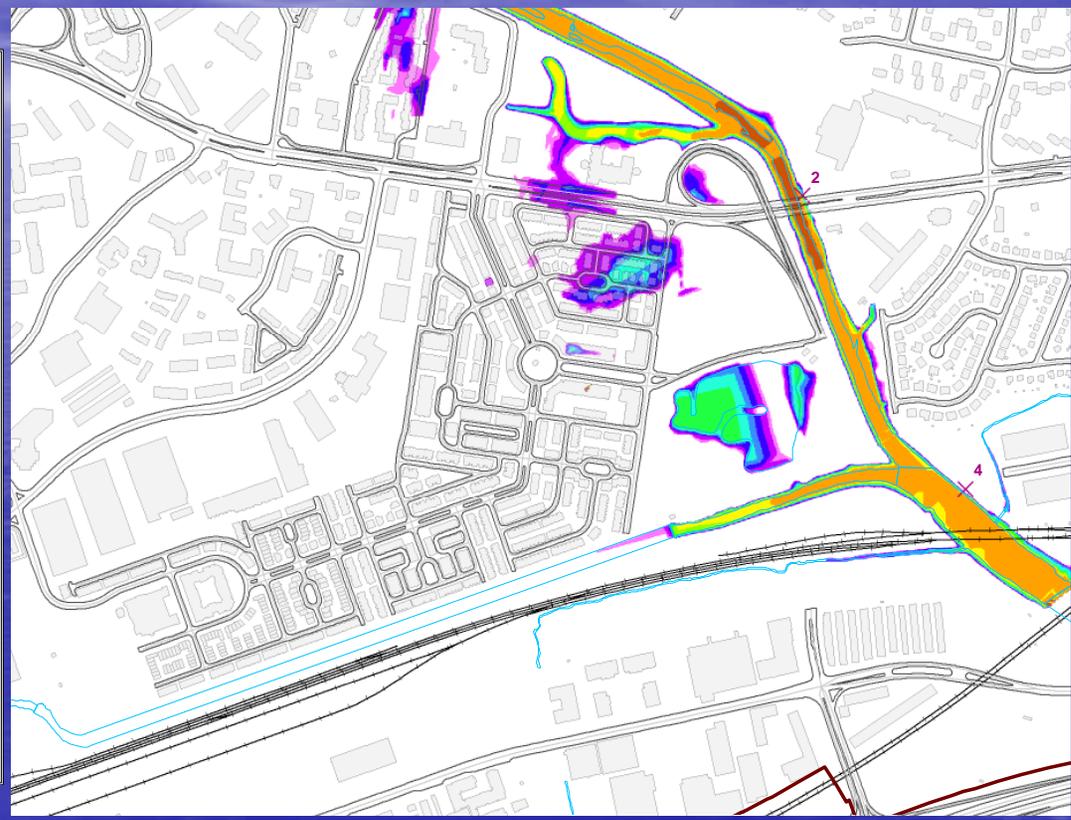
**Legend**

Hazard Notification Points

**Sunny Day Flood Depths (ft)**

**<VALUE>**

	0 - 0.5
	0.5 - 1
	1 - 2
	2 - 3
	3 - 4
	4 - 5.5
	5.5 - 7
	7 - 8.5
	8.5 - 10
	10 - 15
	15 - 20
	20+



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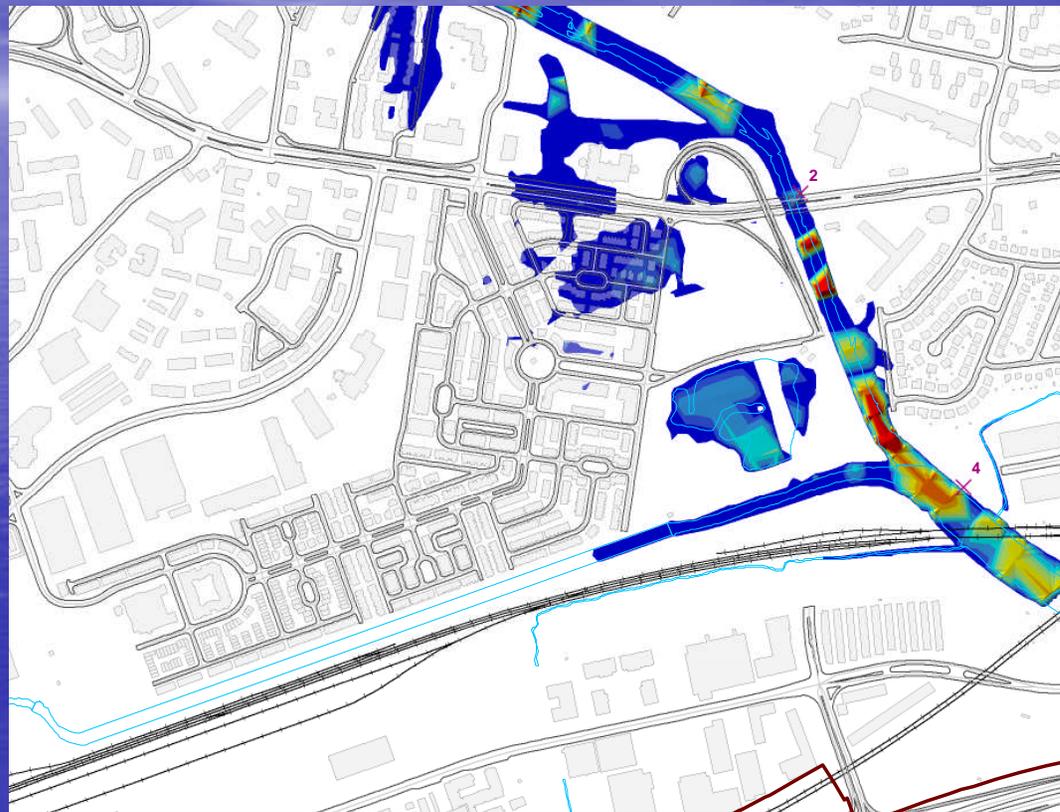
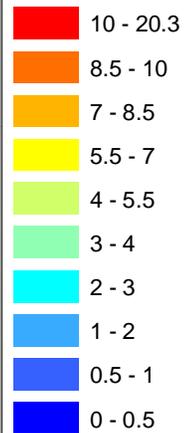
# Cameron Station

## Legend

D Hazard Notification Points

## Sunny Day Velocity (fps)

### Elevation



June 24, 2009



# Eisenhower Valley

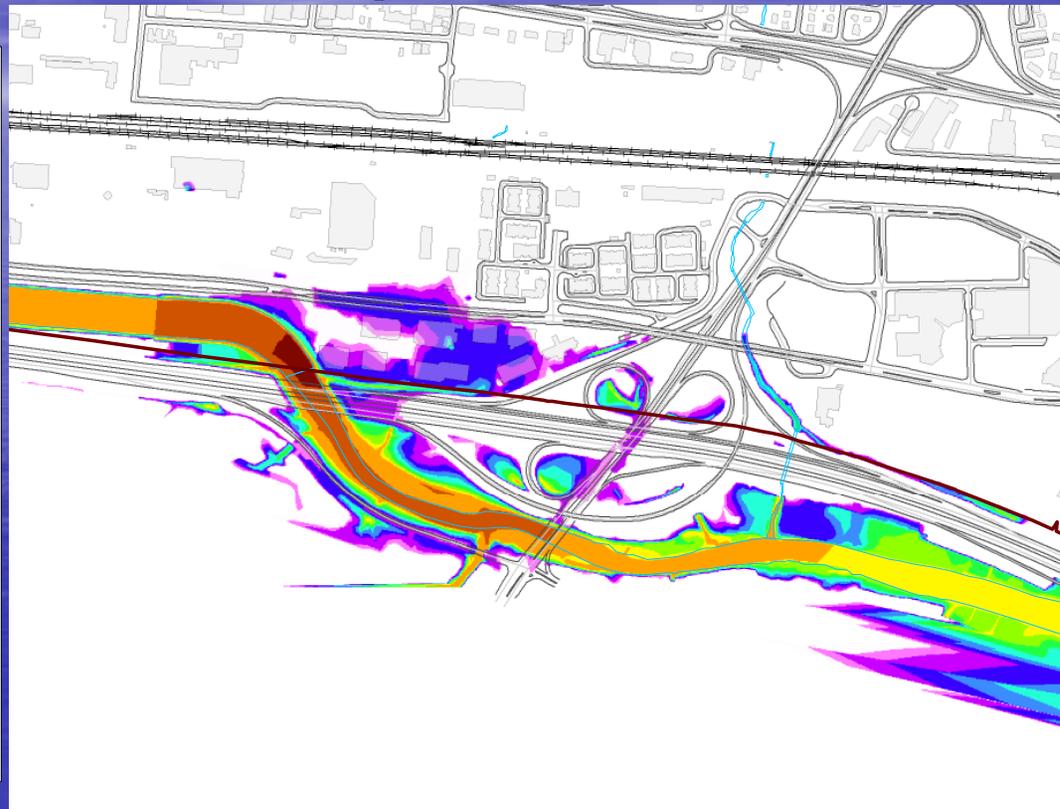
## Legend

 Hazard Notification Points

## Sunny Day Flood Depths (ft)

<VALUE>

	0 - 0.5
	0.5 - 1
	1 - 2
	2 - 3
	3 - 4
	4 - 5.5
	5.5 - 7
	7 - 8.5
	8.5 - 10
	10 - 15
	15 - 20
	20+



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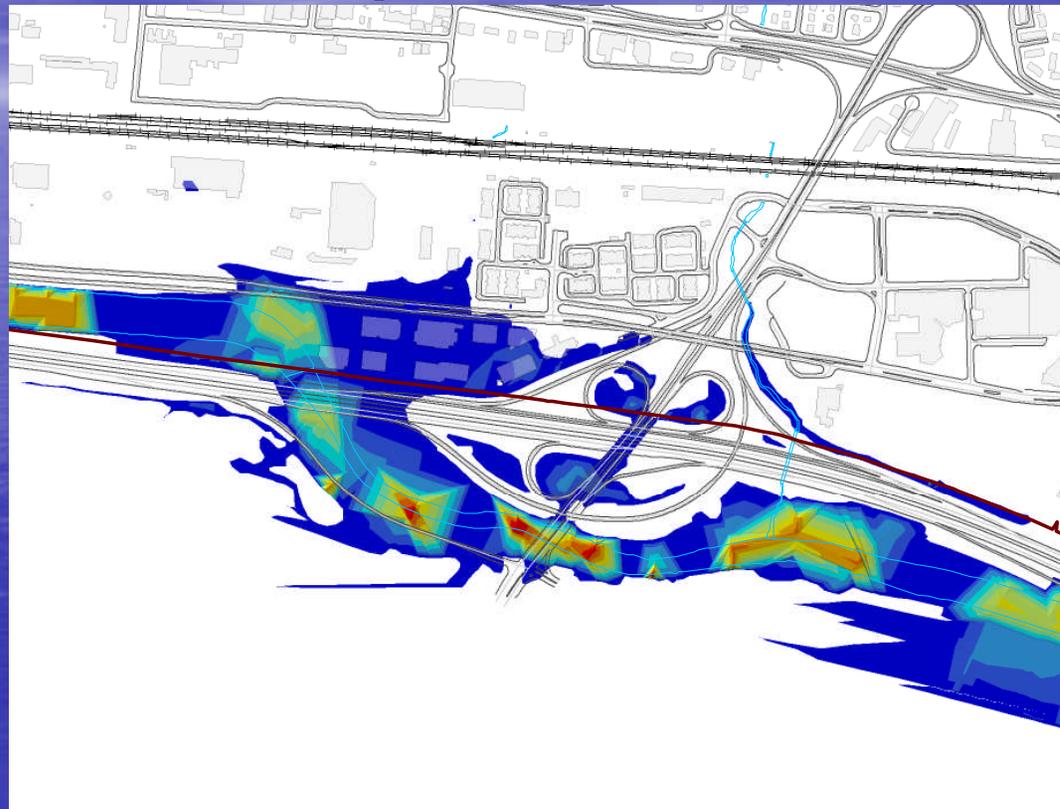
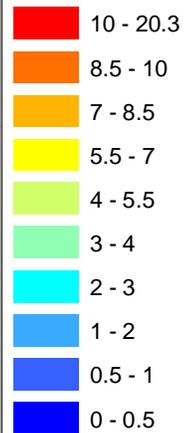
# Eisenhower Valley

## Legend

D Hazard Notification Points

## Sunny Day Velocity (fps)

### Elevation



June 24, 2009



# Emergency Planning

- Draft flood plan developed
- Flood response matrix created
- Preliminary Notification groups created

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**FLOODING RESPONSE TRIGGERS (NOT MUTUALLY EXCLUSIVE): (example)**  
 (“I” equals immediate, “C” equals consider \*Factors for consideration include time of day, type/duration of rain event, amount of rainfall current and predicted, speed of event etc.



<b>ACTIONS:</b>	Observations or gages indicating flood conditions	NWS inland/flash flood watch	NWS inland/flash flood warning	Barcroft dam opening $\geq 20\%$	Barcroft dam opening $\geq 40\%$	Barcroft dam breach	Approaching major rain event
EM & TES monitoring gages and weather	I	I	I	I	I	I	I
Deploy City staff to Tier I flood monitoring points	C	C	C	I	I		C



# Flood response activities

- Monitor gauges
- Notify City staff
- Deploy staff to monitoring points
- Alert residences and businesses
- Close parks, bike trails and roads
- Recommend evacuation
- Activate Emergency Operation Center
- Provide sandbags
- Open reception centers
- Open shelters

June 24, 2009



# Emergency Notification

- Use all communications methods:
  - E-news, our electronic text messaging system
  - TENS, our telephone notification system
  - Weather Alert Radio
  - City's website
  - Loudspeakers on police and fire vehicles



# Emergency Evacuation Planning

- If evacuation is recommended the City will open reception centers in conjunction with Fairfax County.
- At the reception centers residents will be informed about the situation.
- The John Adams and Patrick Henry Recreation Centers will serve as the primary reception centers in the City.



# What should residents do?

- Take basic preparedness steps
  - Have a plan
  - Make a kit
  - Be informed
- Be prepared to evacuate if recommended without regard for personal property.
- Sign up for e-news at:  
[enews.alexandriava.gov](http://enews.alexandriava.gov)



For more information:

[AlexandriaVA.gov/LakeBarcroftDam](http://AlexandriaVA.gov/LakeBarcroftDam)

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