



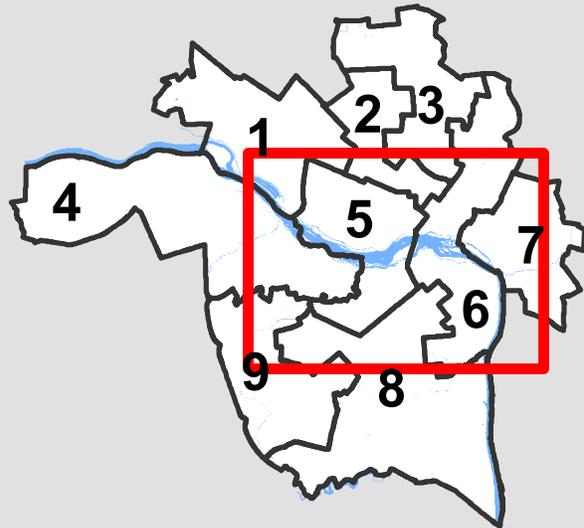
**City of Richmond  
Department of Planning  
& Development Review**

**Location, Character, and Extent**

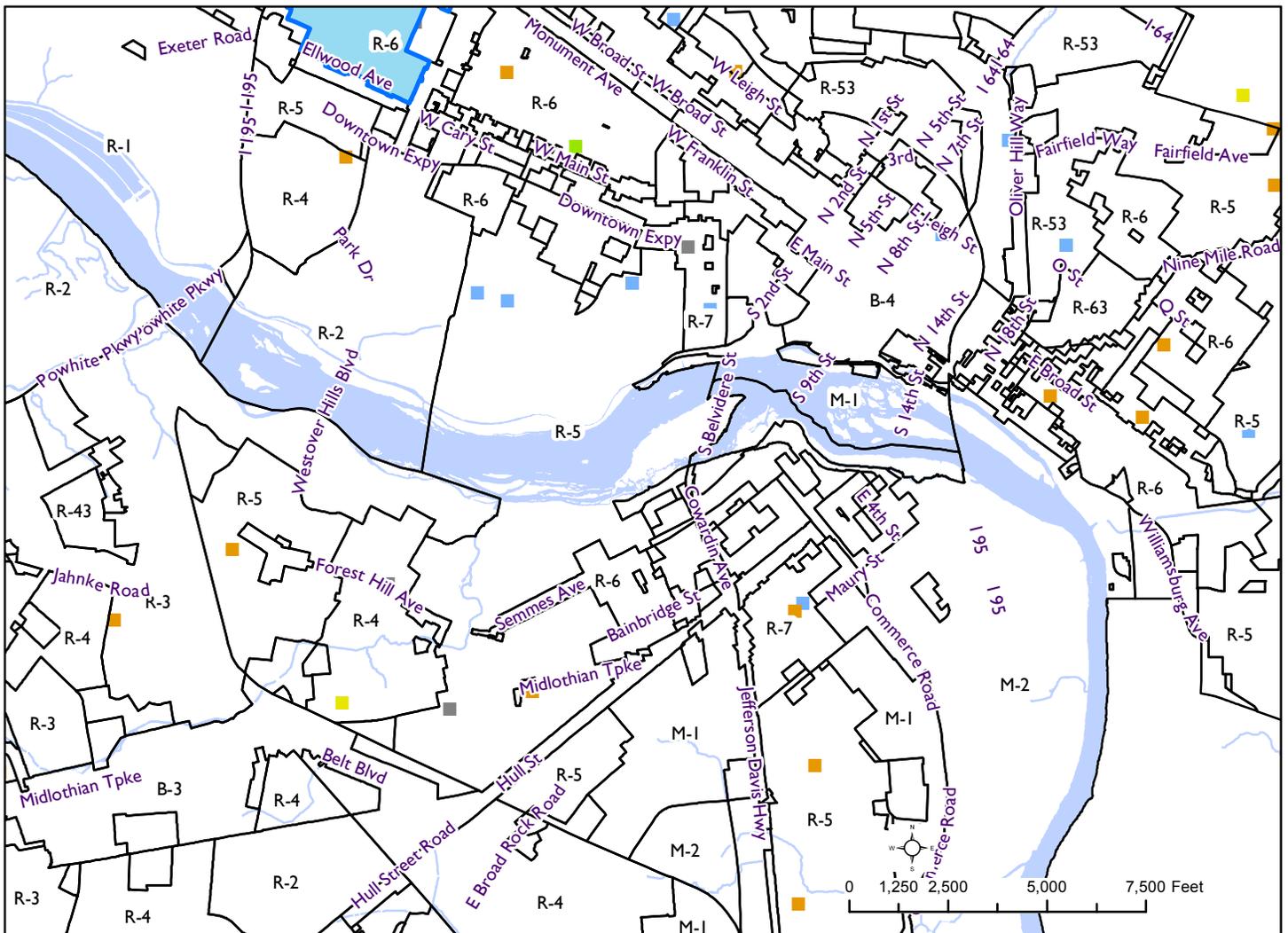
**LOCATION:** Multiple

**COUNCIL DISTRICT:** Multiple

**PROPOSAL:** Development of High Water Mark commemorative & interpretive signage and installation at Phase 1 locations



For questions, please contact Kathleen Onufer at 646-5207 or [Kathleen.Onufer@richmondgov.com](mailto:Kathleen.Onufer@richmondgov.com)



## CITY OF RICHMOND HIGH WATER MARK SIGN INITIATIVE SIGN NARRATIVE

**Background:** In June 1972, Richmond fell victim to unprecedented flooding caused by heavy rainfall from Hurricane Agnes that resulted in setting a new flood record within the city. While the impact of the flooding was devastating, the lessons learned from it have dulled in local memory. This new initiative will remind people of the community's history and potential for flooding and of the simple steps they can take to protect themselves should it happen again.

**Purpose:** Phase I of High Water Mark Initiative comprise of High Water Marks permanently located at Pony Pasture Rapids Park, Brown's Island, Plant Zero and Great Shiplock Park and a set of outreach activities to encourage local residents to take action. The goal of the initiative is to draw attention to Richmond's flood risk by showcasing how high the water has come, and encourage its citizens to take steps to reduce their risk. The initiative was developed in partnership with the Virginia Silver Jackets and includes Venture Richmond, the Virginia Department of Conservation and Recreation, Virginia Department of Emergency Management, Federal Emergency Management Agency High Water Mark Initiative and Region III, National Weather Service Weather Forecast Office Wakefield, U.S. Geological Survey Water Science Center and the U.S. Army Corps of Engineers, Norfolk District to promote flood awareness within the city. Should the project be approved, Richmond will be the pilot community program for the entire state of Virginia.

**Construction Process:** The city plans to unveil one of four signs at Pony Pasture on the anniversary date of Hurricane Agnes, Thursday, June 23<sup>th</sup>. Construction should begin between June 8<sup>th</sup> and June 15<sup>th</sup>. Our hope is that Mayor Jones will unveil a High Water Mark at Pony Pasture Rapids Park on Thursday, June 23, 2016 at 10 AM and announce supporting outreach efforts.

**Funding:** The city will incur the estimated \$8,600 cost of the design, signs and installation. FEMA will reimburse the City for the cost of signs and installation. Two existing poles will be used to mount the signs in Pony Pasture and great Shiplock Park. One sign will be mounted on the building at Plant Zero, and one sign will be mounted on a wooden 4" x 4' post at Browns Island.

**Materials:** Each sign group (Three signs at each location, except for Browns Island) will be 24" x 36", 30" x 36", and 30' x 9". The sign material substrate will be 6mm Dibond with white surface, black back side, rounded 3/4" corners, anti-graffiti laminate and UV inks. One post to be installed using 4" x 4" wood.

Know Your Line. Be Flood **Aware.**

# Scope of Work

04-14-2016

Client Name: DPU  
Client Contact: Jonet Prevost-White  
Project Name: High Watermark Signs  
Project Number: DPU16008

## Project Background

Partnered with several agencies, Richmond has been select to be the pilot for the High Watermark Awareness Program. This program strives to create awareness about flooding by providing signs to show the public how high the water has risen in certain areas during a major storm. This helps inform citizens of potential dangers of flooding.

## Client Objectives

For this program, four locations have been selected to place watermark signs. Richmond DPU has a basic design, but would like West Cary Group to design a map, personalize the sign for Richmond, determine the best material and vendor to produce and possibly install the signs.

## Product/Service Description

- Determine the best material for the sign (high density plastic or metal). For safety, use rounded corners.
- Format all three portions of the sign.
- Design a simplified stylized map of the James River marking the locations of all four signs.
- Provide the formatting for the information for each sign location.
- Include messages about “flood safety” to use on each sign.
- Choose the best type of pole to display the signs. Of the 2 to 3 poles required, one may have to be 25 feet in the air. The others may be smaller.
- Use the logos for all of the involved parties on the base of the informational sign.
- Provide the cost for design, pole materials, and installation.
- Install date of week of June 13<sup>th</sup>. Our unveiling date will be on June 23<sup>rd</sup>.

## Target Audience

The target audience is Richmond citizens, who may not be aware of the potential for flooding.

## Channel Specifics

Locations:

1. Pony Pasture - 13 feet
2. Browns Island – minus 8 feet
3. City Locks - 17 feet
4. Plant Zero – 17 feet

## Project Timeline

Task	Timeline
Kickoff	March 22
Vendor Quotes	March 31
Round 1 - Internal Creative Review <ul style="list-style-type: none"> <li>Proposed sign designs</li> <li>Initial production quote</li> </ul>	March 31
Show first sign layout with copy to client	April 4
Round 1 - Client Review	April 4
Round 2 – Internal Review	April 8
Final Client Review <ul style="list-style-type: none"> <li>Final designs for all four signs (copy and design) assuming we can get all that in the next couple of weeks;</li> <li>Suggested sign material</li> <li>Installation costs if we undertake it ourselves with a vendor</li> </ul>	April 14
Client Approval	April 22
Send to Vendor to produce	April 26
Install Date	Week of June 13
Unveiling Date	June 23

## Anticipated Hours and Cost

Task	Hours
Project Management, Coordination	7
Vendor quotes and interface  Sign sizes: 24" x 36" 30" x 36" 30" x 9"	4
Round 1 - Creative <ul style="list-style-type: none"> <li>Proposed sign designs</li> <li>Sign copy</li> <li>Initial production quote</li> </ul>	7
Final Creative <ul style="list-style-type: none"> <li>Final designs for all four signs (copy and design) assuming we can get all that in the next couple of weeks;</li> <li>Suggested sign material</li> <li>Installation costs if we undertake it ourselves with a vendor</li> </ul>	7.5 (revised from 4 hours to include photo-shopping sign locations on actual site locations; site visits and photos; copy revisions, visual content revisions)
Final Art to Vendor; Printer Coordination	3
Install Oversight	TBD
Unveiling Event Organization	TBD
Agency Hours	28.5
Agency Fee	\$4,987.50
Sign Production and Installation - four locations, three signs per location	Signage - \$2,024 Hardware- TBD based on each pole Installation - \$1,560
<b>PROJECT TOTAL</b>	<b>\$8,571.50</b>

# HIGH WATER MARK

## ▶ 13 FEET | June 19-23, 1972 HURRICANE AGNES

This red line above marks the highest known flood level at this location.

On June 20, 1972, Hurricane Agnes brought torrential rainfall to the Richmond region, with the flood crest occurring on June 23. On this spot, flood levels reached a height of 13 feet above ground, or 113 feet NAVD88. One of the costliest hurricanes to hit the U.S. in recorded history, Hurricane Agnes caused:

- > Entire watersheds to reach record flood levels, including the James
- > Thirteen local, storm related fatalities
- > Over \$140 million in local damage

### Know Your Line. Be Flood Aware.

For more information on flood safety contact:

RICHMOND CITY EMERGENCY MANAGEMENT  
richmondgov.com

NATIONAL FLOOD INSURANCE PROGRAM  
floodsmart.gov

NATIONAL HURRICANE CENTER  
nhc.noaa.gov



## PONY PASTURE

### In the Event of a Major Storm:

- Learn your risk for flooding and develop a plan
- Follow local alerts and warnings
- Prepare emergency supplies in advance
- Flash flooding can occur without warning
- Never walk or drive through flood water



# FEMA High Water Mark Sign 30' x 36' Template

## ▶ 13 FEET | June 19-23, 1972 HURRICANE AGNES

**This red line above marks the highest known flood level at this location.**

On June 20, 1972, Hurricane Agnes brought torrential rainfall to the Richmond region, with the flood crest occurring on June 23. On this spot, flood levels reached a height of 13 feet above ground, or 113 feet NAVD88. One of the costliest hurricanes to hit the U.S. in recorded history, Hurricane Agnes caused:

- > Entire watersheds to reach record flood levels, including the James
- > Thirteen local, storm related fatalities
- > Over \$140 million in local damage

### **Know Your Line. Be Flood Aware.**

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RICHMOND CITY EMERGENCY MANAGEMENT  
[richmondgov.com](http://richmondgov.com)

NATIONAL FLOOD INSURANCE PROGRAM  
[floodsmart.gov](http://floodsmart.gov)

NATIONAL HURRICANE CENTER  
[nhc.noaa.gov](http://nhc.noaa.gov)



FEMA



# FEMA High Water Mark Sign 24' x 36' Template



## PONY PASTURE

### In the Event of a Major Storm:

- Learn your risk for flooding and develop a plan
- Follow local alerts and warnings
- Prepare emergency supplies in advance
- Flash flooding can occur without warning
- Never walk or drive through flood water

# FEMA High Water Mark Sign 30' x 36' Template

▶ **13 FEET | June 19-23, 1972**  
**HURRICANE AGNES**

**This red line above marks the highest known flood level at this location.**

On June 20, 1972, Hurricane Agnes brought torrential rainfall to the Richmond region, with the flood crest occurring on June 23. On this spot, flood levels reached a height of 13 feet above ground, or 113 feet NAVD88. One of the costliest hurricanes to hit the U.S. in recorded history, Hurricane Agnes caused:

- > Entire watersheds to reach record flood levels, including the James
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 For more information on flood safety contact:

RICHMOND CITY EMERGENCY MANAGEMENT  
 richmondgov.com

NATIONAL FLOOD INSURANCE PROGRAM  
 floodsmart.gov

NATIONAL HURRICANE CENTER  
 nhc.noaa.gov



Pony Pasture

▶ **17 FEET | June 19-23, 1972**  
**HURRICANE AGNES**

**This red line above marks the highest known flood level at this location.**

On June 20, 1972, Hurricane Agnes brought torrential rainfall to the Richmond region, with the flood crest occurring on June 23. On this spot, flood levels reached a height of 17 feet above ground, or 35.5 feet NAVD88. One of the costliest hurricanes to hit the U.S. in recorded history, Hurricane Agnes caused:

- > Entire watersheds to reach record flood levels, including the James
- > Thirteen local, storm related fatalities
- > Over \$140 million in local damage

**Know Your Line. Be Flood Aware.**  
 For more information on flood safety contact:

RICHMOND CITY EMERGENCY MANAGEMENT  
 richmondgov.com

NATIONAL FLOOD INSURANCE PROGRAM  
 floodsmart.gov

NATIONAL HURRICANE CENTER  
 nhc.noaa.gov



Plant Zero

▶ **June 20-24, 1972**  
**HURRICANE AGNES**

On June 20, 1972, Hurricane Agnes brought torrential rainfall to the Richmond region, with the flood crest occurring on June 23. In this location, the floodwater was about two feet below where you are standing, or 40 feet NAVD88. One of the costliest hurricanes to hit the U.S. in recorded history, Hurricane Agnes caused:

- > Entire watersheds to reach record flood levels, including the James
- > Thirteen local, storm related fatalities
- > Over \$140 million in local damage

**Know Your Line. Be Flood Aware.**  
 For more information on flood safety contact:

RICHMOND CITY EMERGENCY MANAGEMENT  
 richmondgov.com

NATIONAL FLOOD INSURANCE PROGRAM  
 floodsmart.gov

NATIONAL HURRICANE CENTER  
 NHC.NOAA.GOV



Brown's Island

▶ **17 FEET | June 19-23, 1972**  
**HURRICANE AGNES**

**This red line above marks the highest known flood level at this location.**

On June 20, 1972, Hurricane Agnes brought torrential rainfall to the Richmond region, with the flood crest occurring on June 23. On this spot, flood levels reached a height of 17 feet above ground, or 35.5 feet NAVD88. One of the costliest hurricanes to hit the U.S. in recorded history, Hurricane Agnes caused:

- > Entire watersheds to reach record flood levels, including the James
- > Thirteen local, storm related fatalities
- > Over \$140 million in local damage

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RICHMOND CITY EMERGENCY MANAGEMENT  
 richmondgov.com

NATIONAL FLOOD INSURANCE PROGRAM  
 floodsmart.gov

NATIONAL HURRICANE CENTER  
 nhc.noaa.gov

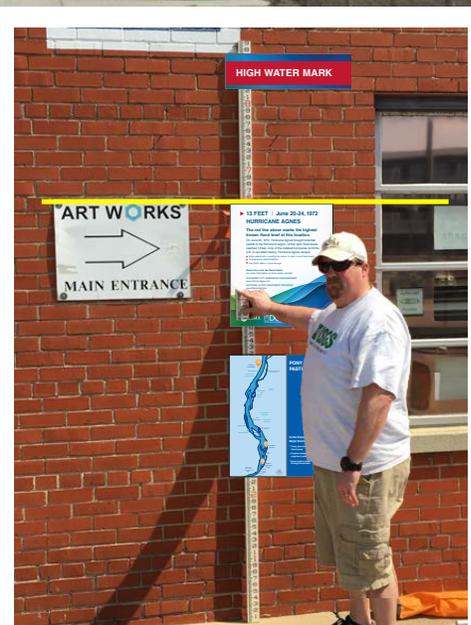
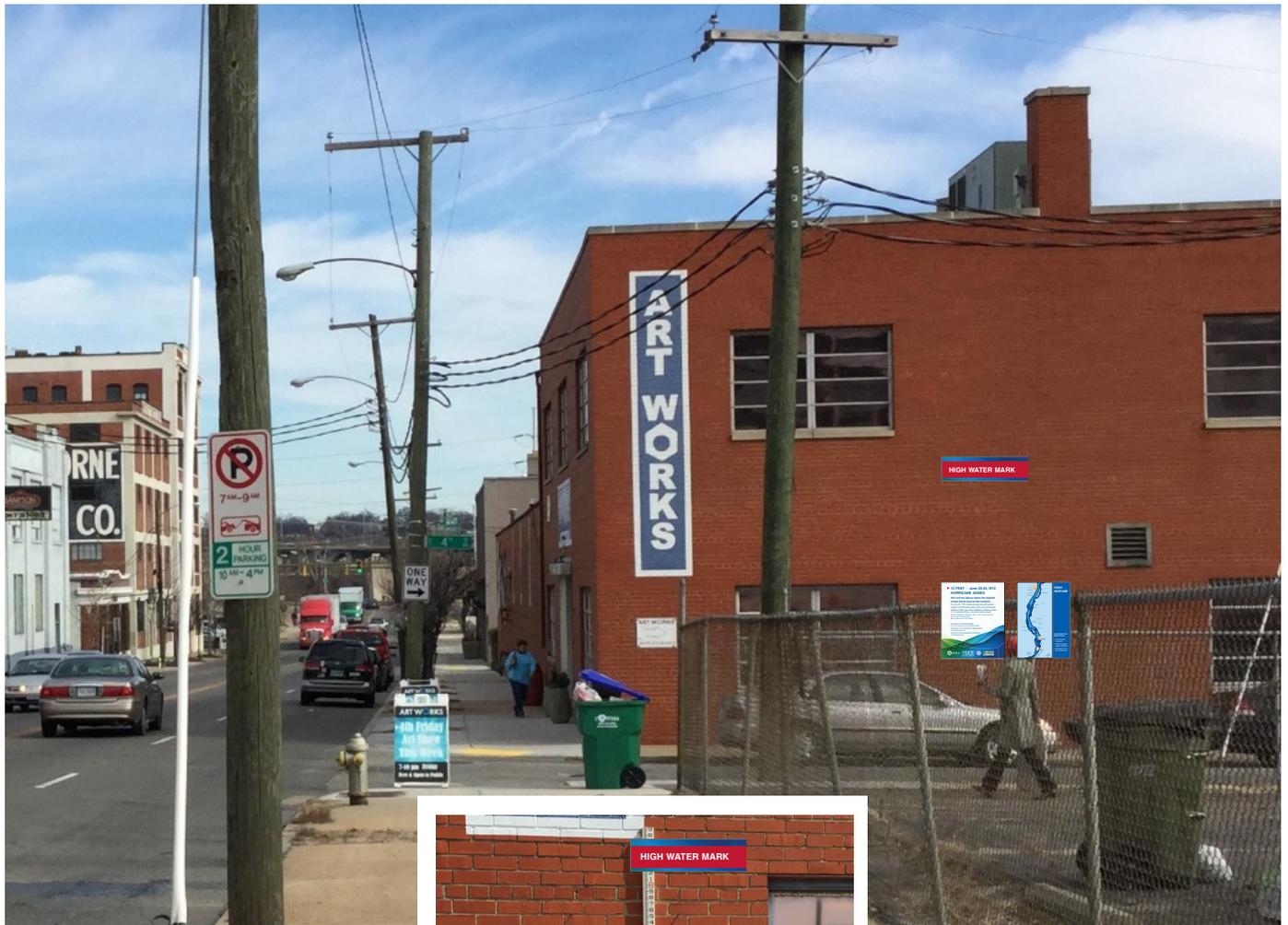


GreatShip Lock Park

# Pony Pasture Rapids Park / 13 FT



# Art Works / Plant Zero / 17 FT



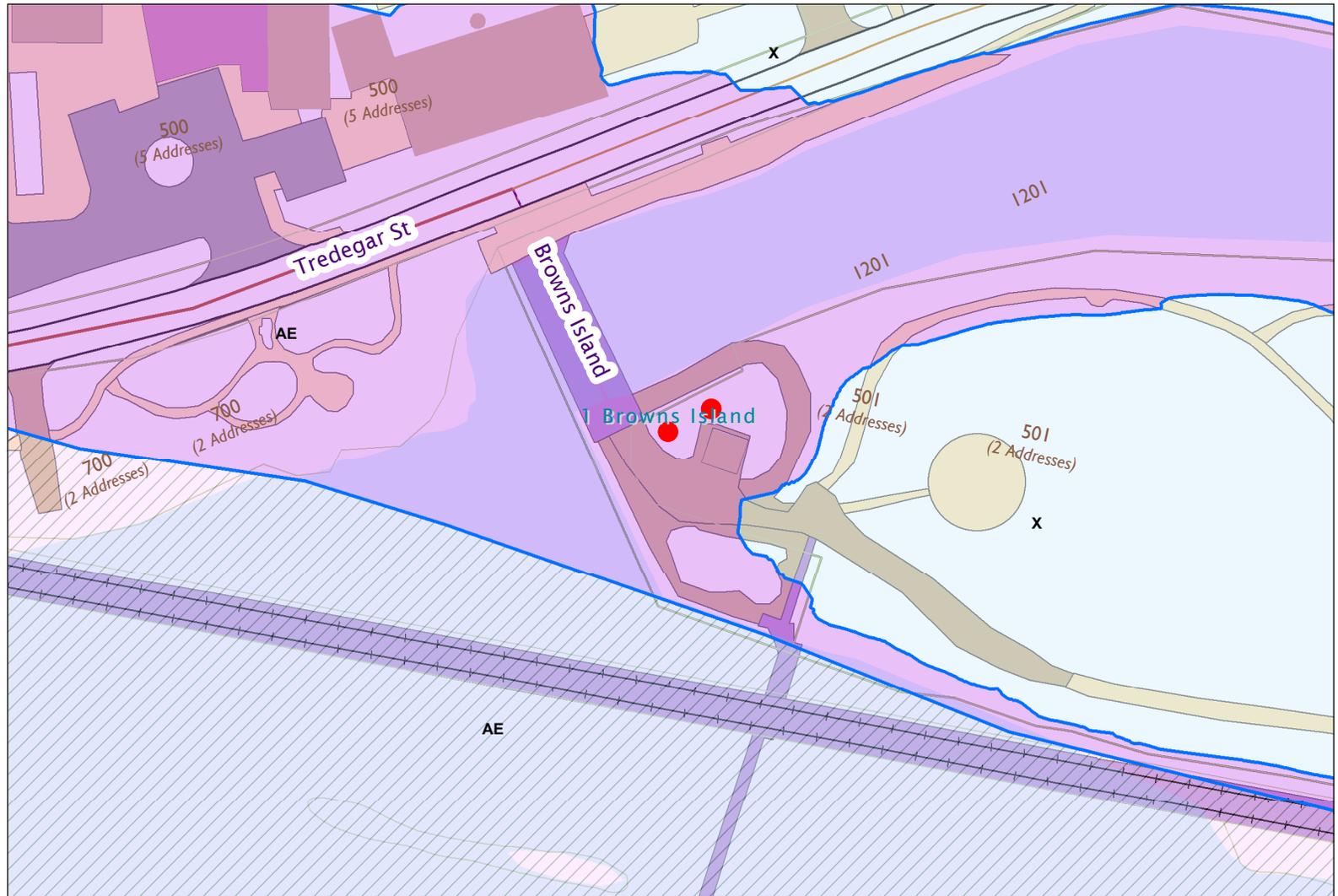
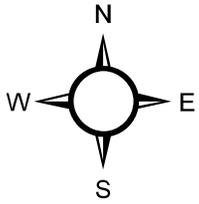
# Browns Island / -8 FT



# Great Shiplock Park / 17 FT



# City of Richmond High Water Mark Locations - 2016



## Legend

fema\_DFIRM

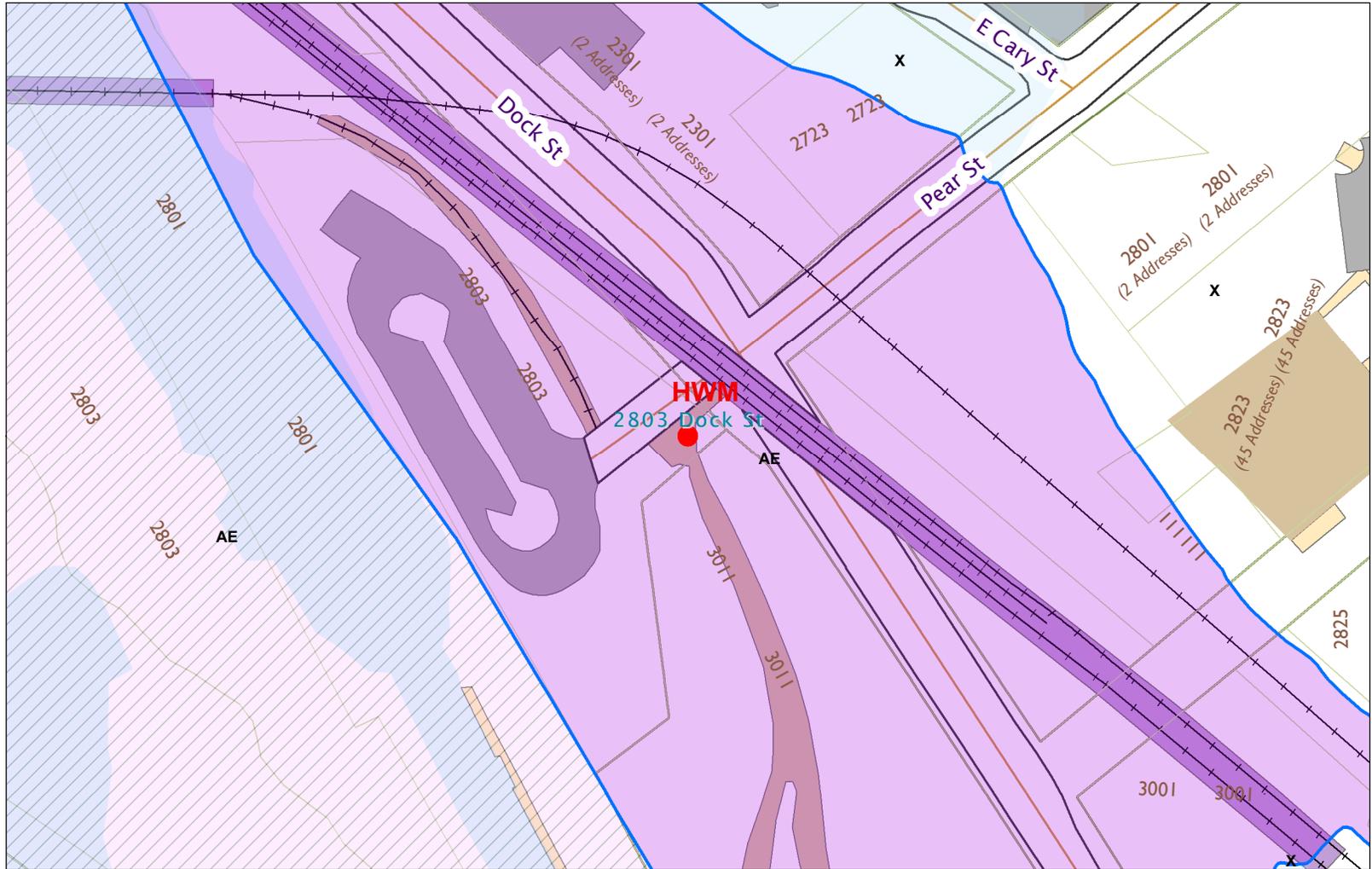
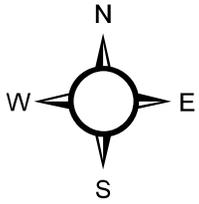
FLD\_ZONE\_Revised

- Zone AE: Floodway Areas
- Zone AE: 1% Annu. Chance FLD (Base FLD Elev) (100 yr)
- Zone A: 1% Annu. Chance FLD (No Base FLD Elev) (100 yr)
- Zone X: 0.2% Annu. Chance FLD (500 yr)
- Zone X: 0.2% Protected by Levee (500 yr)
- Zone X: Outside 0.2% Annu. Chance FLD

1 inch = 100 feet

Browns Island - 1 Browns Island

# City of Richmond High Water Mark Locations - 2016



## Legend

fema\_DFIRM

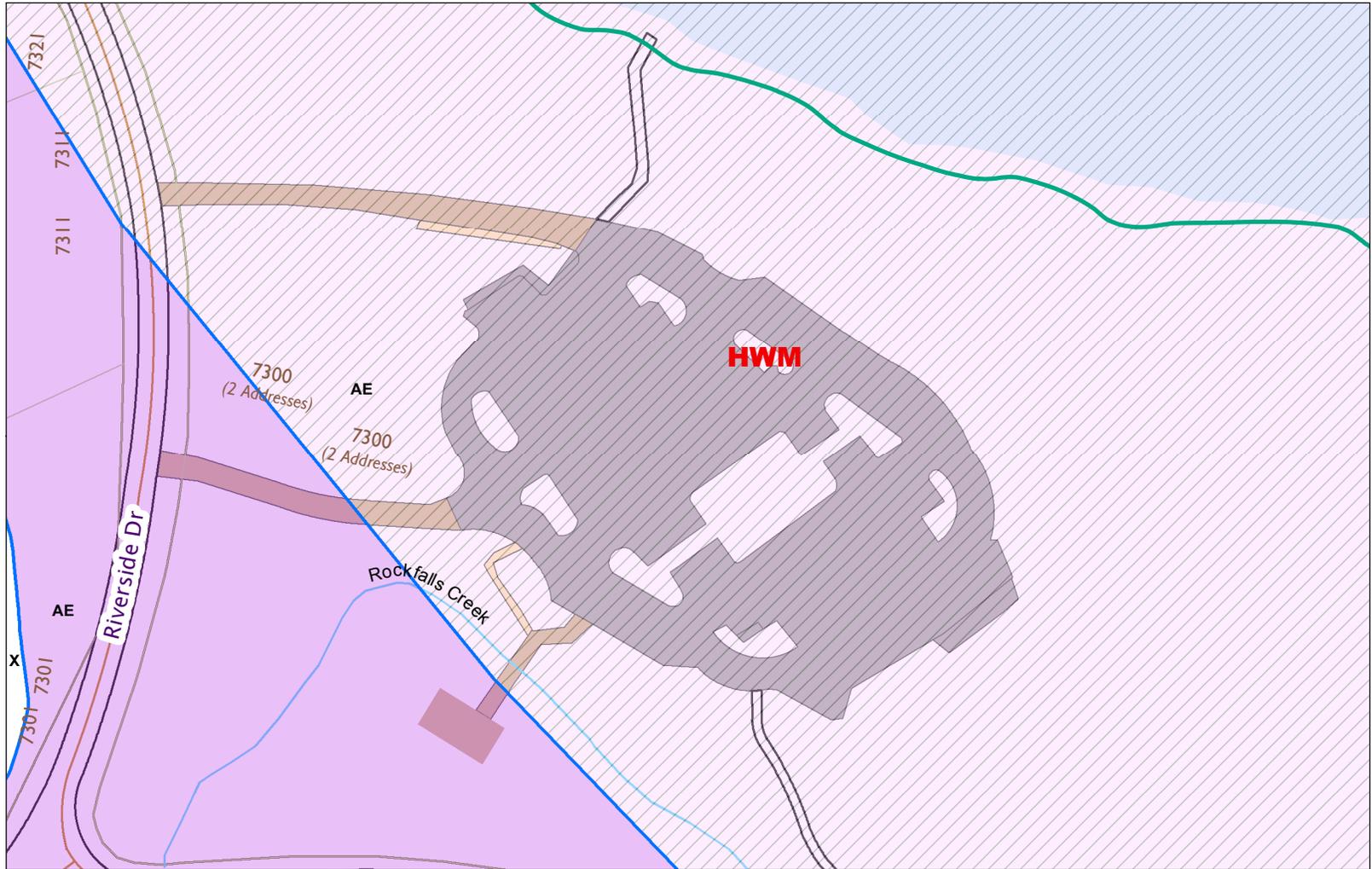
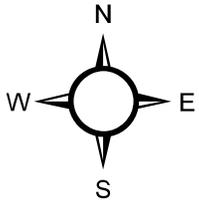
FLD\_ZONE\_Revised

-  Zone AE: Floodway Areas
-  Zone AE: 1% Annu. Chance FLD (Base FLD Elev) (100 yr)
-  Zone A: 1% Annu. Chance FLD (No Base FLD Elev) (100 yr)
-  Zone X: 0.2% Annu. Chance FLD (500 yr)
-  Zone X: 0.2% Protected by Levee (500 yr)
-  Zone X: Outside 0.2% Annu. Chance FLD

1 inch = 100 feet

Great Ship Lock Park - 2803 Dock Street

# City of Richmond High Water Mark Locations - 2016



## Legend

fema\_DFIRM

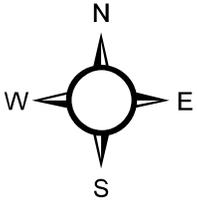
FLD\_ZONE\_Revised

- Zone AE: Floodway Areas
- Zone AE: 1% Annu. Chance FLD (Base FLD Elev) (100 yr)
- Zone A: 1% Annu. Chance FLD (No Base FLD Elev) (100 yr)
- Zone X: 0.2% Annu. Chance FLD (500 yr)
- Zone X: 0.2% Protected by Levee (500 yr)
- Zone X: Outside 0.2% Annu. Chance FLD

1 inch = 100 feet

Pony Pasture - 6700 Riverside Drive

# City of Richmond High Water Mark Locations - 2016



## Legend

fema\_DFIRM

FLD\_ZONE\_Revised

-  Zone AE: Floodway Areas
-  Zone AE: 1% Annu. Chance FLD (Base FLD Elev) (100 yr)
-  Zone A: 1% Annu. Chance FLD (No Base FLD Elev) (100 yr)
-  Zone X: 0.2% Annu. Chance FLD (500 yr)
-  Zone X: 0.2% Protected by Levee (500 yr)
-  Zone X: Outside 0.2% Annu. Chance FLD

1 inch = 100 feet

Plant Zero - 320 Hull Street

## Prevost-White, Jonet M. - DPU

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**From:** Gibson, Thomas (DEQ) [Thomas.Gibson@deq.virginia.gov]  
**Sent:** Monday, March 21, 2016 9:53 AM  
**To:** Prevost-White, Jonet M. - DPU  
**Subject:** RE: City of Richmond Flood Monument (staff gauge)

To all whom this project concerns I (Thomas Gibson) have given permission for City of Richmond Department of Public Works/Silver Jacket High Water Mark Program to attach High Water Makers to our (DEQ) Flood Monument located at Great Shiplock Park. If you need any further information or have any questions please feel free to give me a call or e-mail me.

Thomas L Gibson  
Hydrologist  
900 Natural Resources Drive  
Charlottesville, VA 22903  
434-293-1025  
E-MAIL: [thomas.gibson@deq.virginia.gov](mailto:thomas.gibson@deq.virginia.gov)

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**From:** Prevost-White, Jonet M. - DPU [mailto:Jonet.Prevost-White@richmondgov.com]  
**Sent:** Monday, March 21, 2016 9:31 AM  
**To:** Gibson, Thomas (DEQ)  
**Cc:** Lotspeich, Robert (Russ); Johnarthurhay@aol.com; Hamor, Michelle L NAO  
**Subject:** City of Richmond Flood Monument (staff gauge)

Good morning Mr. Gibson,

Thank for your help this morning with the DEQ flood monument located at Great Shiplock park. If you could please write a brief email to me granting the City of Richmond Department of Public Utilities the right to use the gauge to display a high water mark sign for the Silver Jacket High Water Mark Program, I would greatly appreciate it.

Jonét Prévost-White, CFM  
Operations Manager  
City of Richmond, DPU  
Water Resources Division  
804-646-6964

**Notice to all pending permit applicants:** "Due to staffing changes, Water Resources Permits may have longer review times. We hope this is only a temporary delay and we will be fully staffed in the very near future. We apologize for any inconvenience."

Find the new updated Chapter 14 at [Municode](#).

**Prevost-White, Jonet M. - DPU**

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**From:** Burrell, Nathan J. - DPR  
**Sent:** Friday, March 11, 2016 9:16 AM  
**To:** Prevost-White, Jonet M. - DPU  
**Subject:** Re: New High Water Mark Signage at Pony Pasture

I would be happy to work with you guys on this!  
I am working to limit/consolidate signage so, placement would be key for me!  
I would suggest we meet at pony pasture sometime soon and discuss.

Sent from my iPhone

> On Mar 10, 2016, at 9:25 AM, Prevost-White, Jonet M. - DPU <[Jonet.Prevost-White@richmondgov.com](mailto:Jonet.Prevost-White@richmondgov.com)> wrote:

>  
> Good morning Nathan,

>  
>  
> I am working with the Army Corps and FEMA to develop a new pilot program in Virginia called the High Water Mark Campaign. While the program is not new to the country, if completed, Richmond would be the first locality to participate in the State.

>  
>  
> We have identified Pony Pasture as being an ideal place to put a High Water Mark sign in the park to let activity goers know the high of the James during a flood of record.

>  
>  
> I am asking for permission to use the Kiosk board there to post additional information as well as permission to place a sign on the site. Please let me know if you think JRP would be willing to help us with getting this project going. We would like to be completed and have a kick-off on by June 23rd the date of Hurricane Camille.

>  
>  
> I have attached some photos of past high water mark signs as well as a sample of the sign we'd like to use in the park.

>  
>  
> Please let me know if you have any questions.

>  
>  
> Jonét Prévost-White, CFM  
>  
> Operations Manager  
>  
> City of Richmond, DPU  
>  
> Water Resources Division  
>  
> 804-646-6964

>  
>  
>

> Notice to all pending permit applicants: "Due to staffing changes, Water Resources Permits may have longer review times. We hope this is only a temporary delay and we will be fully staffed in the very near future. We apologize for any inconvenience."

>  
>  
>  
> Find the new updated Chapter 14 at Municode <<http://www.municode.com/>> .

>  
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>  
> <example\_nashville.jpg>  
> <fl\_high\_water\_mark-2226.jpg>  
> <FEMA\_High\_Water\_Mark\_Signage\_v1 (3).pdf>  
> <Signage\_Edited\_w\_signs.pdf>

## Prevost-White, Jonet M. - DPU

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**From:** Beth Jacobs [bjacobs@corerva.com]  
**Sent:** Thursday, March 31, 2016 2:07 PM  
**To:** Prevost-White, Jonet M. - DPU  
**Subject:** High Water Mark Campaign for the City of Richmond

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Good afternoon,

We are thrilled to be a part of the High Water Mark Campaign at Plant Zero. I would be your contact if you have any questions or concerns. I look forward to seeing the signs placed upon our building.

Please feel free to reach to me with any questions.

Thank you,

Beth Jacobs  
Regional System and Support  
Manager  
CoreRVA Properties, Inc.  
220 Hull Street Suite 200  
Richmond, VA 23224  
804.234.8113  
[Corerva.com](http://Corerva.com)



Redefining Richmond's living experience through empowered employees, impeccable service, and immaculate design.

**From:** Prevost-White, Jonet M. - DPU [<mailto:Jonet.Prevost-White@richmondgov.com>]  
**Sent:** Thursday, March 17, 2016 11:11 AM  
**To:** Safra Granot <[sgranot@corerva.com](mailto:sgranot@corerva.com)>  
**Cc:** Hamor, Michelle L NAO <[Michelle.L.Hamor@usace.army.mil](mailto:Michelle.L.Hamor@usace.army.mil)>

**Subject:** High Water Mark Campaign for the City of Richmond

**Importance:** High

Good morning Ms. Granot,

Thank you for taking my call yesterday. As I explained on the phone, The City of Richmond would like to begin a High Water Mark campaign with the support of the US Army Corps of Engineers and FEMA. The program would simply locate signage around the City marking areas where during Hurricane Agnes, flood waters caused significant damage to buildings, infrastructure, roads as well as loss of life. This information would hopefully educate the public on flood awareness and how damaging large storm events can be to the public.

The Plant Zero building located at is one of the structures still remaining in the Manchester area that was existing during the hurricane. The city would like to install signage on the side of the building facing Hull Street marking the height of the water as well as information on the storm. I have attached a sample of the what the sign will look like. The final design and specifics have not been completed yet; we are still designing the final product. The sign will be in three parts: one informational, a map and the high water mark (which may be around the 14' above the sidewalk) denoting the high of the flood waters during the hurricane.

Please forward this information to the appropriate persons that would allow the City to place the sign on the building. I have attached some examples of signage in other localities as well as a sample of the signage that we are designing for Richmond.

We would hope that you would want to be a part of this exciting project adding to the rich history of Richmond and the Manchester community. This is a pilot program sponsored by multi-agency parties including USGS, NWS, Virginia Department of Environmental Quality, & FEMA's Silver Jackets Team for the State of Virginia. You would help us to be a first of many communities sharing this important information.

We would like to have **your approval by April 1<sup>st</sup>**, 2016 to keep us on track of our presentation date of June 23, 2015.

Please contact me if you have any questions or need additional information.

[http://silverjackets.nfrmp.us/Portals/0/doc/Virginia/Silver\\_Jackets\\_Draftv13final3.pdf](http://silverjackets.nfrmp.us/Portals/0/doc/Virginia/Silver_Jackets_Draftv13final3.pdf)

Jonét Prévost-White, CFM  
Operations Manager  
City of Richmond, DPU  
Water Resources Division  
804-646-6964

Beth Jacobs  
Regional System and Support  
Manager  
CoreVA Properties, Inc.  
220 Hull Street Suite 200  
Richmond, VA 23224  
804.234.8113  
[Corerva.com](http://Corerva.com)



# Richmond High-Water Mark Sign Survey Results

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## Introduction

The USGS was asked to provide elevation information at five locations along the James River in and around the City of Richmond, VA. Flood elevations were determined at the five locations to document the Hurricane Agnes event of 1972 (table 1). These elevations were determined using survey-grade GPS equipment and historical research of published high-water mark elevations from the event.

The body of this report summarizes the high-water mark elevations at each location, including information on sign placement. All elevations included in this report are referenced to the North American Datum of 1988 (NAVD88) and are in feet (ft). For each location, pictures are provided showing suggested sign locations and reference elevations. The orange flagging on the survey rod indicates the elevation of the high-water. Where possible, yellow lines were added to the pictures to indicate the flood elevation.

Site	Surveyed Point Elevation (ft, NAVD88)	Remark	Approximate 1972 HWM Elevation (ft, NAVD88)	Height Above Surveyed Point (ft)
Pony Pasture	99.7	MAG nail in parking lot	113	13
Brown's Island	47.8	Tack in concrete pad	40	-8
Zero Café	35.6	MAG nail in parking lot	38	2
City Locks	18.7	Benchmark	35.5	17

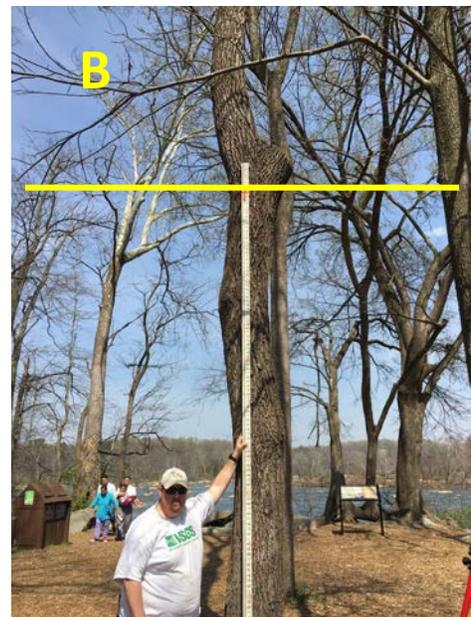
**Table 1.** Table showing the surveyed point, approximate high-water elevation, and elevation difference between the two at each location.

## Location-Specific Details

The following sections provide specific information for each of the five locations.

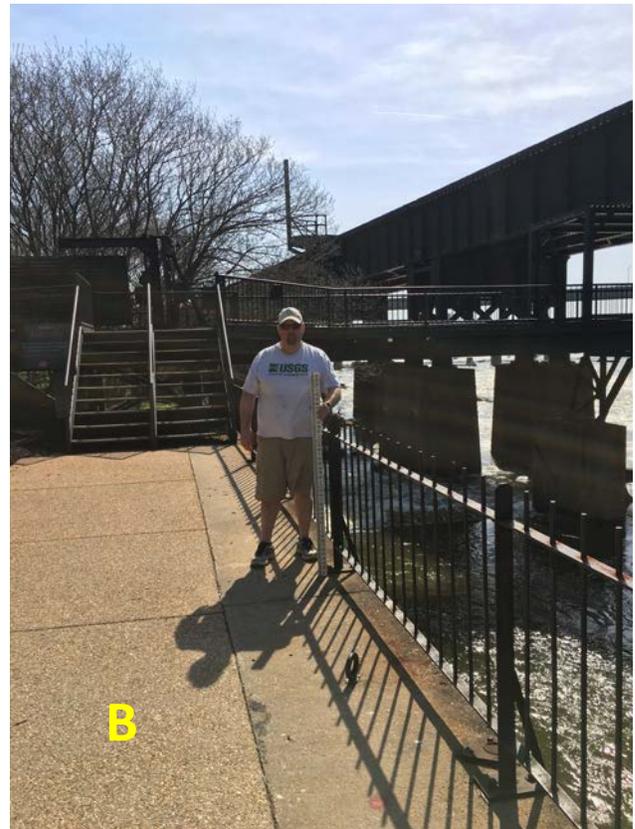
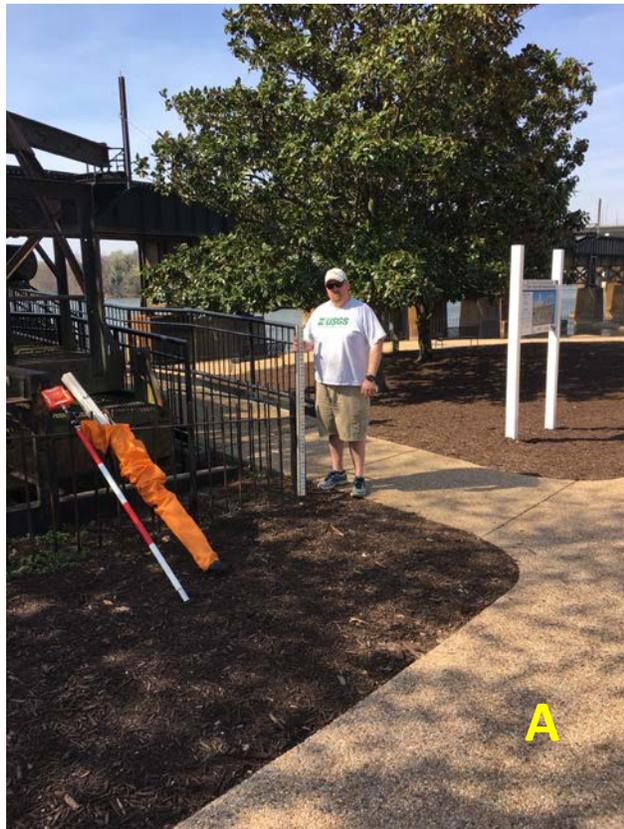
## Pony Pasture

Pony Pasture is the most upstream high-water mark sign location along the study reach. The location is at a public park with a large parking area and minimal existing structure. The flood reached an elevation of approximately 113 ft, NAVD 88, which is 13-15 ft above the parking lot. Sign placement options are (A) on the emergency call box pole, (B) on one of the trees near the information kiosk, (C) on the bath house on the hill, or (D) on a new pole that would need to be installed (no picture).



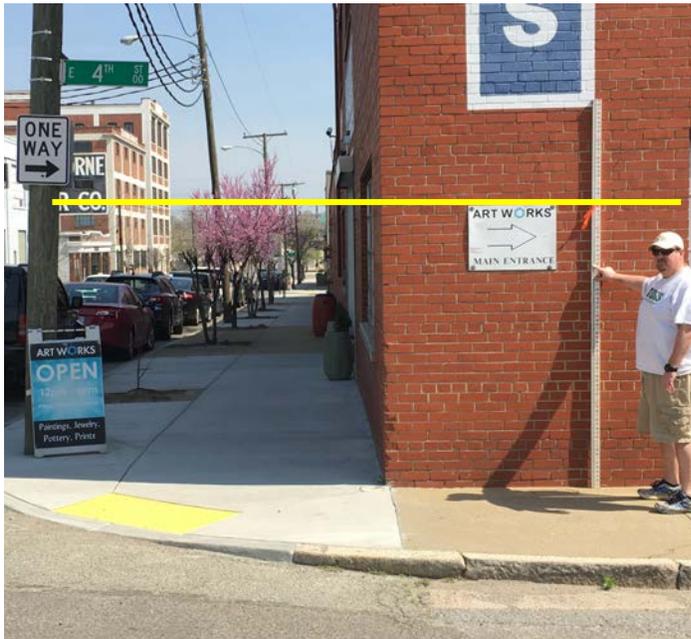
## Brown's Island

Brown's Island is the next location moving downstream from Pony Pasture. It is also located in a public park area with limited existing structure. The flood reached an elevation of approximately 40 ft, NAVD 88, which is actually 8 ft below the surveyed point in the circle at the top of the hill near the new footbridge that is under construction. The ground surface at the entrance to the footbridge is about 6 ft above the flood elevation and the low-point of the park area along the river is still 1-2 ft above the flood elevation. Sign placement options are (A) at the entrance of the footbridge or (B) on the railing just west of the footbridge.



## Zero Cafe

Zero Café is located on the south side of the river, downstream of Brown's Island. The Art Works building at the corner of 14<sup>th</sup> Street and 4<sup>th</sup> Street has been discussed as the best option for placement of the high-water mark sign. The flood reached an elevation of approximately 38 ft, NAVD 88, which is about 2 ft above the surveyed point in the parking lot across 4<sup>th</sup> Street from the building. This elevation is about 6 ft above the sidewalk on the southwest corner of the building. This elevation is confirmed by historical photographs located in the Agnes report.



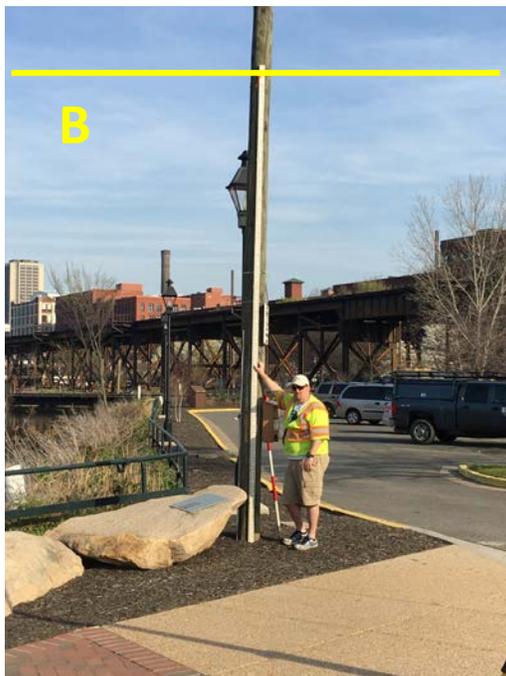
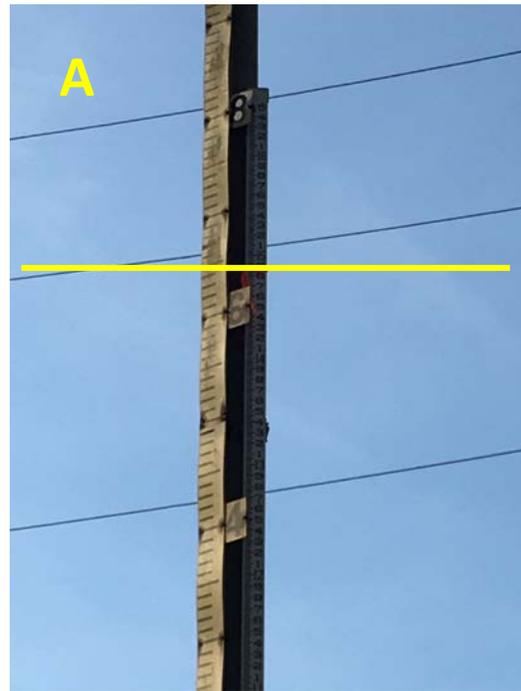
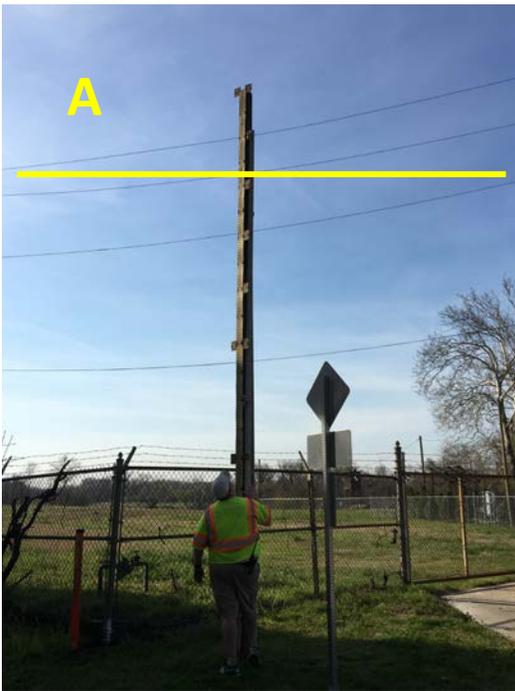
## 17<sup>th</sup> Street Farmer's Market

17<sup>th</sup> Street Farmer's Market is located on the north side of the river at the intersection of 17<sup>th</sup> Street and Main Street. The flood reached an elevation of approximately 37 ft, NAVD 88, which is about 16 ft above the surveyed point on the curb across from River City Diner. There is no existing structure at the market that is high enough to house a sign (A) and there is talk of renovations being made to the market, which could affect the sign. There is a building next to the Irish pub on the west side of the market that could serve as the location for the sign (B).



## City Locks

City Locks is located on the north side of the river at the Great Shiplock Park. The flood reached an elevation of approximately 35.5 ft, NAVD 88, which is about 17 ft above the NGS benchmark on the wall of the lock structure. There is a concrete water level gage, which is owned by DEQ, at the entrance to the park (A) and a power pole near the flag pole (B) that could be considered as options for sign placement. Additionally, the structure that houses the USGS tide gage could also be considered (C). It is recommended that improvements be made to the DEQ structure if that is chosen as the location. The numbers and scale are in poor condition and our survey indicated the numbers are referenced to a datum different than NAVD88, which could cause confusion to the public.



# HIGH WATER MARK PROJECT

## MEMORANDUM OF UNDERSTANDING



### *High Water Mark Project*

### *Memorandum of Understanding*

Between the Federal Emergency Management Agency (FEMA) Region 3  
and the community of the City of Richmond

This is a voluntary partnership agreement between the City of Richmond and FEMA Region 3 in support of a High Water Mark (HWM) Project as part of FEMA's High Water Mark Initiative (HWMI). As part of participating in a HWM Project, the City of Richmond, in coordination with the FEMA Region, will host a high-profile HWM sign unveiling/launch event, develop continuous flood risk awareness and outreach activities around the signs and select and complete a specific mitigation action(s) that the community will take to reduce flood risk for residents. The mitigation action(s) will be: the community plans to form a Program for public Participation for the Community (PPI) expanding on flood awareness outreach, inundation mapping and targeted flood insurance information.

This memorandum of understanding (MOU) reflects the mutual desire of both parties to collaborate and develop the strategy behind the launch event, awareness activities and the mitigation action(s). The community will immediately assume lead responsibility for following the HWM project strategy, while the FEMA Region is committed to providing time and resources, as needed, to help the community achieve its goals. The responsibilities of each party—the FEMA Region and the community—are summarized below.

#### **Community Responsibilities**

- Provide subject matter expertise as needed.
- Coordinate with the FEMA Region to schedule a kick-off meeting with local, State, and Federal participants to garner widespread support and collaboration for the project.
- Schedule post-launch event meetings in the community and provide brief status reports, as needed.
- Appoint a representative as HWM Project Coordinator and notify the FEMA Region designee of any change in the designated liaison.
- Determine the date, time, and location of the HWM Launch Event, manage local logistics, and leverage media engagement and outreach and local partnerships.
- Determine and agree to the specific mitigation action(s) that will drive the theme and messaging of the HWM Launch Event and awareness activities.
- Hold a high-profile HWM sign unveiling/launch event to unveil the HWM signs and to announce the project to the public, inviting local, State, and Federal officials, the media, the public and other key entities.
- Determine locations of and post HWM signs in high-profile locations throughout the community.
- Conduct ongoing outreach to share details on how individuals can protect themselves and their property from flood risk.
- Following the HWM Launch Event, provide updates to the FEMA Region designee on the status of the mitigation action(s) the community is completing.

#### **FEMA Region Responsibilities**

- Appoint a HWM Regional Project Coordinator.
- Facilitate HWM project development, which includes conducting an initial planning meeting to address HWM Project logistics and strategy with the community.
- Work with the community to schedule a kick-off meeting with local, State, and Federal participants to garner widespread support and collaboration for the Project.
- Provide tools, templates, best practices, and guidance to help the community plan the launch event and other activities.
- Provide guidance and assistance in selecting and completing the mitigation action(s).
- Lead strategic development of the HWM Project Plan including, where necessary, the identification of key milestones the community should meet.
- Engage Federal agency representatives on behalf of the community to provide additional assistance to the project when necessary (with FEMA HQ support as needed).
- Fund HWM sign development (through FEMA HQ).
- Attend the HWM launch event.

\*The duration of post-launch event follow up will be determined in the project planning phase.

# HIGH WATER MARK PROJECT

## MEMORANDUM OF UNDERSTANDING

### Other HWM Project Elements

#### Messaging, Communications and Outreach

- As a result of participation in the planning and execution of a HWM Launch Event and follow up actions, the community agrees to manage local outreach; including the use of social media, to increase awareness and engagement from the community.
- The FEMA Region agrees to help develop messaging and talking points in preparation for the HWM Launch Event as well as key messages for use in continued communications outreach as executed by the community.

#### High Water Mark Signs

- The community will determine the location and installation of the HWM signs.
- FEMA HQ agrees to fund the printing and development of the community's signs.

### Ongoing Project Activities

- The community will conduct outreach to the public to build awareness about flood risk.
- The community will conduct mitigation action(s) to increase resiliency and will report actions and completed milestones to the FEMA Region.
- The FEMA Region will provide subject matter expertise and resources to the communities as agreed upon by both parties.
- The FEMA Region will coordinate quarterly or biannual meetings to touch base with the community.
- FEMA will post information and case studies about the community on the [www.fema.gov/knowyourline](http://www.fema.gov/knowyourline) website and other venues and take actions to increase the public's knowledge of the community's involvement with this beneficial project. This may include publishing articles or case studies to partner organization Websites or publications.

### General Terms

- As a general principle of the HWM Project, each party to this agreement agrees to assume the good faith of the other party and to notify the other if any issues arise. Either party can terminate this agreement, without cause or penalty, and both will then cease to publicize the community's participation in the HWMI (must be submitted in writing).
- The community agrees that the activities it undertakes connected with this memorandum are not intended to provide services to the Federal Government and that the community will not submit a claim for compensation to any Federal agency/department.
- The community agrees that it will not claim or imply that its participation in the HWMI obligates FEMA beyond what's included in this MOU or endorses anything other than the community's commitment to the HWMI.

### Period of Performance

- The awareness and mitigation action activities outlined in this agreement shall be continuous and ongoing, in order to sustain and enhance community resilience.



The undersigned officials execute this memorandum of understanding (MOU) on behalf of their parties.

FEMA Region

Designated HWM Project Coordinator (Name/Title):

Signature: \_\_\_\_\_ Date: April 6, 2016

Email address: mari.radford@fema.dhs.gov Phone: 215/931-2880

Community

Community name: the City of Richmond

Authorized Representative (Name/Title): Robert C. Steidel, Director of Public Utilities

Signature:  Date: 6. April. 2016

Address: 730 E Broad Street Suite/Floor Number: 6th floor

City: Richmond State: VA Zip: 23219

Phone: 804-646-1378 Fax Number: 804-646-2870

E-mail Address: robert.steidel@richmondgov.com

Community Web Site (if applicable): www.richmondgov.com

**Please return this signed MOU to:**  
Vincent Brown  
FEMA  
1800 S. Bell St.  
Arlington, VA 20598  
Or electronically to [Vincent.Brown@FEMA.DHS.GOV](mailto:Vincent.Brown@FEMA.DHS.GOV)



# High Water Mark Initiative: Moving Communities Toward Action

*November 2, 2015*



FEMA



## Many Americans do not believe they are at risk of flooding

### Public Perception

- Less than a third (30%) of respondents to a FEMA national survey believe their community is at risk of flooding
- Only 10% of respondents believe their residence is at risk of flooding
- Proximity to hazards did not change behaviors

### COMMUNITY FLOOD RISK AWARENESS

**30%**

Believe their  
community is at risk  
of flood



**10%**

Believe their residence  
is at risk of flood



Source: 2013 FEMA Risk MAP Flood Risk Awareness Study results - <http://www.fema.gov/protecting-homes/public-survey-findings-flood-risk>

To raise flood risk awareness, FEMA conducted five pilot HWM Launch projects in 2012 and 2013; and from there we learned the value of these launch events to the Region and the community

### Benefits and Values of HWM Launch Events

- **Communities Could Lead:** Communities managed the events with Regional and/or Federal support
- **Raising Flood Risk Awareness:** HWM events were effective at sparking discussion around flood risk
- **Establishing Partnerships:** HWM events were effective in building relationships across federal, state, and local entities because of the shared goal of putting on an event
- **Incorporating Community Rating System Activities:** The HWM initiative could ease the transition for communities interested in using CRS, and garner more CRS points for those already engaged
- ❖ **Discussing Mitigation Action:** The campaign was a good entry point for discussing current and/or long-term mitigation actions to build community resilience

**The HWM Initiative is a community-led, Federally-supported program**



**2012-2013 Pilot Communities**  
**NOTE: Three were in Region IV!**



# And the projects are managed with the following in mind

## Description

### Project Planning

- The activities associated with running the HWM project
- Examples include setting goals for the project, conducting coordination with partners, managing scope

### Mitigation Planning

- The activities associated with furthering mitigation discussions with the community
- Examples include identify areas of mitigation interest, identify resources for mitigation activities

### HWM Launch Event

- The activities associated with planning, execution, and evaluation of a launch event in the community
- Examples include date and venue selection, coordination of VIP participation

### Long –term Mitigation and Outreach

- The activities associated with continue the partnership with the community and ensuring the mitigation goals and opportunities are realized
- Examples include areas for future outreach leveraging the signs, furthering a mitigation action

## Gulfport, MS Project Overview

**2015 Project: Gulfport, MS Event, Friday, August 28, 2015**

### Highlights

- 1. Strong participation from local, state and federal partners**
  - FEMA HQ, FEMA Region IV, HUD, NWS and FEMA FloodSmart
    - FEMA HQ, Region IV and NWS spoke at the event
- 2. Attendance and support from community leadership**
- 3. Local Official Support**
  - State and local officials, including two county commissioners were at the event and unveiled the sign
- 4 .Successful media outreach**
  - The community was the first to incorporate social media to raise awareness as well as garner TV and radio interviews before the event
- 5. Successfully promote future actions**
  - Conduct outreach efforts to increase awareness about the dangers of storm surge by providing information to realtors, insurance agencies and property owners



## Gulfport, MS HWM Project Overview – Launch Event Activities

### 2015 Project: Gulfport, MS Event, Friday, August 28, 2015



#### Launch Event Activities

##### Overview:

- 18 plaques and high water markers placed in high visibility locations along MS Gulf Coast in Harrison and Jackson Counties
- Biloxi held sign unveiling in public ceremony at Biloxi Visitor Center.
- Gulfport held sign unveiling during public gathering at Pavilion

##### Other Sign Locations:

- Waveland
- Bay St. Louis
- Diamondhead
- Pass Christian
- Long Beach
- Gulfport
- Carpenter's Park Boat Launch
- Andrew Jackson Drive Boat Launch
- Russell Harbor Landing Park
- Deaton Bridge
- Woodlawn Beach Boat Ramp
- South Side of Avalon Bridge

**Future Action:** Conduct outreach efforts to increase awareness about the dangers of storm surge by providing information to realtors, insurance agencies and property owners so they can encourage citizens to take actions today that will reduce their likelihood of loss during future flooding event.

# The Santa Rosa County, FL Project Overview

**2014 Project: Santa Rosa County, FL Event, Tuesday, December 9, 2014**

## Highlights

### 1. Heavy participation from local, state and federal partners

- FEMA HQ, FEMA Region IV, HUD, NWS and FEMA FloodSmart
  - FEMA HQ, Region IV and NWS spoke at the event

### 2. Attendance and support from community leadership

### 3. Local Official Support

- State and local officials, including two county commissioners were at the event and unveiled the sign

### 4 .Successful media outreach

- The community was the first to incorporate social media to raise awareness as well as garner TV and radio interviews before the event

### 5. Successfully promote future actions

- The community promoted flood risk awareness and flood insurance as their main action
- The community will post 12 additional signs with launch events, as well as continue CRS activities in community awareness and education



## Santa Rosa County HWM Project Overview – Launch Event Activities

2014 Project: Santa Rosa County, FL Event, Tuesday, December 9, 2014



Karen Thornhill, CFM, Santa Rosa County, FL

11/3/2015

### Launch Event Activities

#### Overview:

- Santa Rosa County unveiled a High Water Mark sign at Navarre Beach State Park.
- County Commissioner, Don Salter, gave the introductory remarks, followed by Doug Bellomo (FEMA), Susan Wilson (FEMA) and John Werner (NWS).
- Karen Thornhill (Santa Rosa County) recognized the students from the Gulf Breeze High School Multimedia Academy and students Alexandria Holloway and Caleb Homa, who designed the sign.

#### Future HWM Sign Locations:

- Shoreline Park Boat Launch
- Navarre Visitors Center
- Riverwalk on Blackwater River
- North Side of Avalon Bridge
- Oriole Beach Boat Ramp
- Bay Bridge Boat Launch (West Side of Gulf Breeze Parkway)
- Carpenter's Park Boat Launch
- Andrew Jackson Drive Boat Launch
- Russell Harbor Landing Park
- Deaton Bridge
- Woodlawn Beach Boat Ramp
- South Side of Avalon Bridge

**Future Action:** The county promoted flood insurance as their mitigation action and flood insurances policies **increased 9%** in the same month as the HWM launch event.

# San Anselmo, CA HWM Project Overview

Town of San Anselmo, CA Event Saturday December 13, 2014

## Highlights

- 1. Heavy participation from local, state and federal partners**
  - FEMA HQ, FEMA Region IX, and NWS
- 2. Congressional support**
  - Congressman Jaren Huffman (D-Ca) spoke at the event
- 3. Community and local official support**
  - Regional Flood Mitigation Task Force was already engaged in mitigation actions to reduce flood risk and saw the HWM Initiative as a way to promote future action and awareness
- 4. Successful media campaign**
  - The Region and NWS used social media to raise awareness
- 5. Future actions were projects focused on reducing flood waters**
  - The community promoted several structural engineering projects which were already funded



## San Anselmo, CA HWM Project Overview – Attendees and Launch Event Activities

### Town of San Anselmo, CA Event Saturday December 13, 2014

#### Launch Event Activities

##### Overview:

- San Anselmo posted 5 signs along Main Street before their HWM to draw interest and awareness.
- The HWM launch event took place at the San Anselmo firehouse where citizens were invited to a pancake breakfast.
- Booths from local, regional, and Federal organizations (NWS and FEMA) were located right outside the firehouse.
- The public stayed and interacted with FEMA and the other partners.
- The event was attended by Congressman Jared Huffman (D-Ca) who drew on his personal experiences with flooding in San Anselmo and talked about the importance of flood risk protection.
- Vince Brown (FEMA HQ) and Katie Rice (Marin County Supervisor ) spoke about flood risk and in particular, the importance of future flood risk mitigation actions.
- Public Works Director, Sean Condry spoke of several specific projects the town has proposed, in an effort to draw public support.

**Future Action:** The community will embark on several engineering projects to reduce flood waters and apply for the CRS program.





## CRS Credit for a High Water Mark Initiative

*The National Flood Insurance Program's Community Rating System (CRS) provides a flood insurance premium discount for policy holders in communities that participate in CRS. The discount is based on an assessment of floodplain management activities implemented by the community to reduce flood losses, promote flood risk awareness and flood insurance, and protect natural floodplain functions.*

### CRS Outreach Projects and Programs for Public Information

Communities that participate in CRS earn credits toward flood insurance premium discounts through a variety of activities including public information programs and projects. One of these is Activity 330 (Outreach Projects), which provides credit points based on the type of project, the audience reached, and the message(s) conveyed. Other public information activities credit providing floodplain map information, disclosing a property's flood status to a potential buyer, putting references in a library, posting information on a website, and providing one-on-one technical advice.

A CRS Program for Public Information (PPI) is an ongoing public information effort designed to transmit the messages that the community determines are most important to its flood safety and the protection of its floodplains' natural functions. It is developed following a seven step process designed to assess the community's public information needs, determine messages and outcomes appropriate for different audiences, and implement the most effective measures. Working with partners is a key factor throughout the process, resulting in greater credit for more involvement of other organizations and agencies.

### High Water Marks and CRS Points

One activity that communities are implementing more often is providing information on past floods, such as posting high water marks in public places and maps and photographs of past floods on their websites. These high water mark initiatives and a CRS-credited PPI have a lot in common. To maximize CRS credit for such an initiative,

communities are encouraged to use high water marks as a way to generate greater flood risk awareness. For example, a ceremony to unveil flood level signs could be used to announce the formation of a PPI committee or the release of the PPI report.



### CRS High Water Mark Highlights

Four communities occupy the highest levels of the CRS.

- CRS points can be earned through high water mark posting and ongoing outreach
- The greater the supporting outreach, the greater the possible CRS points that can be earned
- CRS points are explained in the *CRS Coordinator's Manual*



To learn more about CRS, visit:

[www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-rating-system](http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-rating-system)

FEMA and seven other Federal agencies have recently been promoting such efforts in its “Know Your Line: Be Flood Aware” initiative. This initiative encourages communities to post signs showing historical high water levels and educating residents about the risk of flooding.

## Ongoing Outreach and CRS Points

It is important to note that both the High Water Mark initiative and the CRS call for more than just putting lines on a building or a sign. High water marks can be a catalyst for a master cooperative and coordinated public information program. Such an approach can receive CRS credit through a PPI, also credited under Activity 330 in the 2013 *CRS Coordinator’s Manual*. Reviewing the criteria for both the High Water Mark Initiative and PPI is recommended, so communities can benefit from both programs via the same local activity. Credits are based on three factors:

- What and how many messages are conveyed;
- What type of projects they are (e.g., informational materials that people pick up, activities that reach out to people, or projects targeted to a specific audience); and
- How often they are delivered. Outreach Projects in CRS must be delivered at least once each year.

The 2013 *CRS Manual* provides more detailed information about the priority topics areas to be communicated for CRS credits, with sample messages for each.

## Promoting Action

Community outreach is one of many things communities can do to promote flood risk awareness. More than awareness, communities need to promote action. By examining ways communities can bolster mitigation actions, a community may discover how CRS points can be earned. In fact, there are activities communities can do concerning everything from floodplain mapping, flood damage reduction planning, or enacting new flood warning and response actions that can make communities more resilient...and safer!

### For More Information

For more information on CRS credit for public information activities, contact your ISO/CRS Specialist. They are listed at <http://crsresources.org/100-2>.

More information on “Know Your Line: Be Flood Aware” can be found at [www.fema.gov/knowyourline](http://www.fema.gov/knowyourline).

### Contact Information for the High Water Mark Campaign

**Vince Brown:** [vincent.brown@fema.dhs.gov](mailto:vincent.brown@fema.dhs.gov)

**Website:** [www.fema.gov/knowyourline](http://www.fema.gov/knowyourline)