

# THE COSTS & BENEFITS OF THE CRS PROGRAM IN VIRGINIA



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**2018 Association of State Floodplain Managers Conference**



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# PROMOTING THE CRS AS A TOOL TO BUILD RESILIENCE

*INCENTIVIZES LONG-TERM SEA LEVEL RISE ADAPTATION STRATEGIES*

Highest CRS credit earning activities  
promote resilience and adaptation to increased flooding



Open Space Preservation (Activity 420) 

Acquisition &  
Relocation  
(Activity 520)



Image: [www.portseattle.org](http://www.portseattle.org)



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# CRS OPEN SPACE PRESERVATION CREDIT

## *FLOOD PROTECTION VALUE OF WETLANDS*

US coastal wetlands reduce damage by \$20 billion each year



Image: NOAA

**Superstorm Sandy (2012):** Coastal wetlands reduced property damage by \$625 million in impact area; protected against average ~ 10% damage reduction in states impacted; NJ restored wetland absorbed ~10 inches rain

**Tropical Storm Irene (2011):** In Middlebury VT, floodplains & wetlands reduced damages by 84% - 95%: ~ \$1.8 million in damages



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Source: Lloyds, Coastal Wetlands & Flood Damage Reduction, 2016.

Source: [https://www.nature.org/ourinitiatives/regions/northamerica/nature-protects-coastal-flooding-storm-damage.xml?src=e.gp.oct2017.info\\_img](https://www.nature.org/ourinitiatives/regions/northamerica/nature-protects-coastal-flooding-storm-damage.xml?src=e.gp.oct2017.info_img)

Source: <http://www.vermontbiz.com/news/study-floodplains-saved-middlebury-18-million-damage>



## CRS in Virginia

**25 communities in CRS**

**9% participation rate**

(6% national CRS rate)

**7 in process of joining, with growing interest**

**-Increasing flood insurance premiums driving interest-**



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# VA COASTAL ZONE MANAGEMENT PROGRAM

- **VA CZM Program investing in CRS research & analysis**
  - How can we best use the CRS to incentivize resilience building in coastal communities?
- **CZM Administered NOAA Grants**
  - **FY16 → CRS Cost Benefit Analysis Report**
  - **FY17 → Briefing Documents**
    1. **CRS Program recommendations to support coastal communities (your input is welcome!)**
    2. **VA regional CRS Coordinator(s) analysis**
    3. **Resilience data needs assessment**
    4. **Grant funding/financing resilience opportunities**



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# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)



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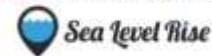
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## THE COSTS & BENEFITS OF THE CRS PROGRAM IN VIRGINIA



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# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)



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## **CRS participation is growing, but many uninterested localities. Perceived barriers to joining CRS:**

- CRS is a time intensive program with complicated documentation requirements
- No money in locality budgets to staff joining program + yearly participation/compliance costs
- CRS discounts only benefit SFHA policies → often wealthier waterfront residents (taxpayer investment in staff time benefits those most fortunate)

***Project: Survey both participating/non-participating communities to validate barriers, quantify costs & benefits of CRS participation, & create a marketing strategy for increased CRS participation.***



# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)



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## Start with CRS Costs & Benefits

The existing research is **BENEFITS** saturated, with emphasis on flood insurance discounts & flood damage loss avoidance

Research Data Gaps: We need info on the **COSTS** of joining the CRS & maintaining participation in Program

*Overview of the BENEFITS Research to date...*





# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)

## Obvious Primary Benefit:

Flood Insurance Premium Discounts

## Secondary Benefits:

### ***CRS Localities Experience Less Flood Damage***

(National Study)

- CRS communities experienced ~38% less insured flood damage *in the SFHA* compared to non-CRS communities
- CRS communities experienced ~36% less insured flood damage *outside the SFHA* compared to non-CRS communities

Source: Highfield, W. E., & Brody, S. D. (2017). Determining the effects of the FEMA Community Rating System program on flood losses in the United States. *International Journal of Disaster Risk Reduction*, 21, 396-404.



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## ***CRS Activities Save Against Flood Losses*** (National Study)



1 CRS Point for Freeboard (430) = \$8,289 flood loss savings/year



1 CRS point for Flood Protection (530) = \$4,175 flood loss savings/year



1 CRS point for Open Space (420) = \$3,532 flood loss savings/year

Source: Highfield, W. E., & Brody, S. D. (2013). Evaluating the Effectiveness of Local Mitigation Activities in Reducing Flood Losses. *Natural Hazards Review*, 14, 229-236.



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## ***CRS Premium Savings Reinvested in Locality***

(Case study completed by City of Virginia Beach in determining whether to join CRS)

Class 8 Rating (10% discount) = **\$853,813** premium savings

**Direct Spending:** City determined that of the \$853,813 saved, \$362,666 (42%) would be spent directly in the City.

**Indirect Spending:** City determined that of the \$362,666 directly spent, \$145,831 (40%) would be spent in the City by the business recipients of the direct spending.

***This analysis helps localities overcome the barrier  
“CRS-only-benefits-SFHA-policyholders”***



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## ***Wetlands Watch Analysis***



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## *Costs of Participating in the CRS Program*

### Direct Costs

- Staff time (largest cost & basis of Benefit Cost Analysis)
- Outreach Projects materials
- GIS/Online mapping support
- Acquisition
- Elevations/Mitigation

### Indirect Costs

- FEMA L-278 Course
- CFM certification/ASFPM membership
- VFMA membership
- Continuing education



# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)

## CRS Participation Burden - Not As Advertised

CRS Coordinator's Manual Burden Disclosure Analysis		
CRS Coordinator's Manual Version	Application Process Hours (Joining the CRS)	Annual Recertification Hours (Maintaining CRS Rating)
2007	31 hours (1% FTE)	4 hours (manual error, should report 24 hours) ( $<1\%$ FTE, but the correct percentage is 1%)
2013	46.6 hours (includes completing environmental & historic preservation certifications) (2% FTE)	4 hours (some manual versions report 4, some report 24, but should report 24 hours) ( $<1\%$ FTE, but the correct percentage is 1%)
2017	46.6 hours (includes completing environmental & historic preservation certifications) (2% FTE)	4 hours (manual error, should report 24 hours) ( $<1\%$ FTE, but the correct percentage is 1%)

*Note: Most manuals contained an error for the annual recertification hours – the correct number of hours is 24, not 4.*

- VA CRS Coordinator, Joining CRS: 80-120 hours (over x2 times the manual)
- VA CRS Coordinator, Annual Recertification: At least 80 hours to ensure the files are in the correct format for ISO (over x3 times the manual)
- Manual burden section doesn't include 5 year cycle visits ("massive effort")



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# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)

## *Direct Costs: Staff Time*

Surveyed 21/25 VA CRS Coordinators:

*How much time spent on CRS ONLY each year?*

**Reported estimates ranged from 1% to 100% Full-Time Employee**

**The median estimated percentage of time CRS Coordinators in Virginia spend on the CRS Program each year is **13%****



Does not include support staff (range of 1-8 support staff)

Does not include duties shopped out of small localities (town to county)

Estimates difficult to get from Coordinators → no one is tracking CRS time

**CRS Coordinator's other responsibilities influence the amount of time:**

*"CRS is always in the back of my mind because everything I do on the building inspection side is always CRS & floodplain management"*

***"There is never enough time."***



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## *Valuation of Staff Time: Estimated VA CRS Coordinator Salary*



**\$89,000**

- Does not include benefits/fringe
- Average of yearly median wages for 5 different occupation categories, including emergency management directors, engineers of varying levels, & planners (data via VA Labor Market Information)
- Reflects high/low cost of living in state regions
- Captures salary differences for senior/junior career positions



# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)

## *Estimated CRS Program Cost to VA Locality*



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**13%**  
average time  
spent on CRS



**x \$89,000** =  
estimated CRS  
coordinator salary



**\$11,570**  
estimated cost  
to locality



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## ***VA CRS Benefit Cost Ratio***



**Average Benefit Cost Ratio for 21 participating CRS localities = 15:1**

**Median Benefit Cost Ratio for 21 participating CRS localities = 8:1**

**Highest Benefit Cost Ratio = 68:1 (City of Norfolk)**

- Average BCR uses the 13% median Coordinator staff time: does not favor localities investing less staff time for a proportionally smaller benefit
- Small localities reporting 1% FTE with a small premium discount get a positive benefit cost ratio, but their ratio turns negative when using the 13% time estimate
- Asked localities for permission to use benefit cost ratio with actual estimated percentage of time. 17 of 21 localities said yes – 4 use 13%



Virginia CRS Benefit Cost Ratios				
CRS Locality	CRS Rating	Locality Wide Savings	Total Eligible Policies	Benefit Cost Ratio (Average Year)
Accomack County	8	\$142,454	1,524	18:1
Alexandria, City of	6	\$224,740	998	7:1
Arlington County	8	\$16,916	482	4:1
Ashland, Town of	9	\$1,197	27	1:1
Bridgewater, Town of	8	\$7,126	45	1:1*
Cape Charles, Town of	9	\$1,063	34	0.1:1*
Chesapeake, City of	8	\$431,296	5,113	19:1
Chincoteague, Town of	8	\$140,530	1,202	12:1*
Fairfax County	6	\$432,822	3,200	37:1*
Falls Church, City of	6	\$36,341	176	1:1
Gloucester County	6	\$287,084	1,200	25:1
Hampton, City of	8	\$867,643	8,456	49:1
James City County	7	\$65,910	420	9:1
Norfolk, City of	8	\$789,211	8,314	68:1
Poquoson, City of	8	\$304,420	2,925	9:1
Portsmouth, City of	7	\$355,453	2,862	31:1
Prince William County	8	\$53,077	340	5:1*
Richmond, City of	8	\$40,198	274	6:1
Roanoke County	8	\$43,226	290	2:1
Roanoke, City of	7	\$196,898	516	22:1
Stafford County	7	\$39,187	179	3:1*
Vienna, Town of	8	\$4,316	35	0.4:1*

\* Median Percentage of Time (13%) Used to Calculate Benefit Cost Ratio

Town of Vinton joined within the past year, so did not provide an annual percentage

# COST BENEFIT ANALYSIS OF CRS IN VIRGINIA (2017)

## *Primary Costs & Primary Benefits Captured in BCRs*



## *What about the secondary benefits?*

- 17/25 Virginia CRS Coordinators Interviewed
  - “Urban Well-Staffed Tidewater Communities”
  - “Rural Well-Staffed Tidewater Communities”
  - “Rural Limited Staff Tidewater Communities”
  - “Urban/Rural Limited Staff Mountain Communities”
- Also interviewed locality staff from communities: in the process of joining the CRS, interested in joining, and those not interested in the CRS



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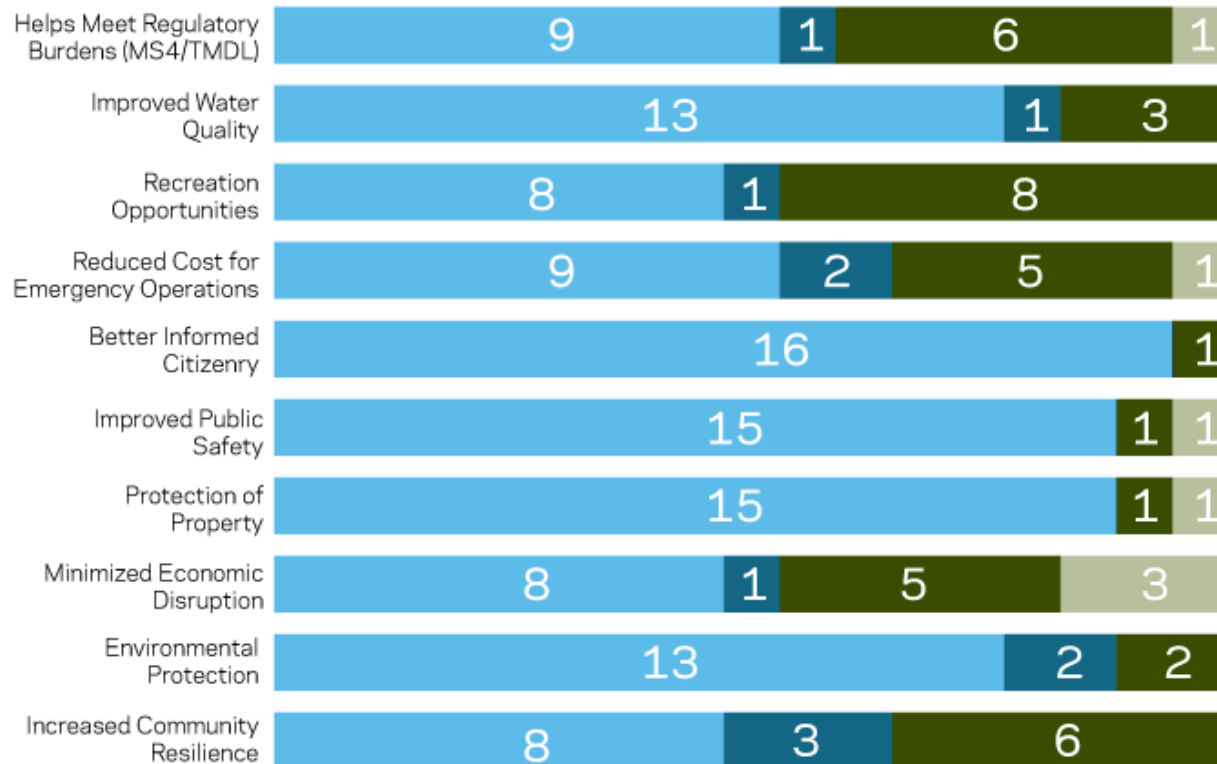


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## Co-Benefits of the Community Rating System

Responses collected from 17 of the 25 CRS Coordinators in Virginia



Yes || Somewhat || No || N/A



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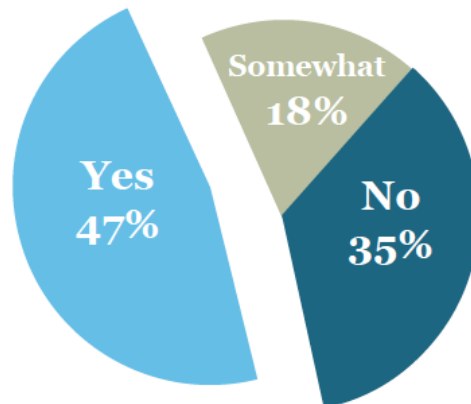
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## *Coordinators View the Following as Secondary Benefits of CRS*

- 94% Better informed citizenry
- 88% Improved public safety
- 88% Protection of property
- 76% Improved water quality
- 76% Environmental protection

## The CRS Program and Resilience: Virginia Locality Perspectives



**47%** of localities interviewed are using the CRS as a tool for resilience

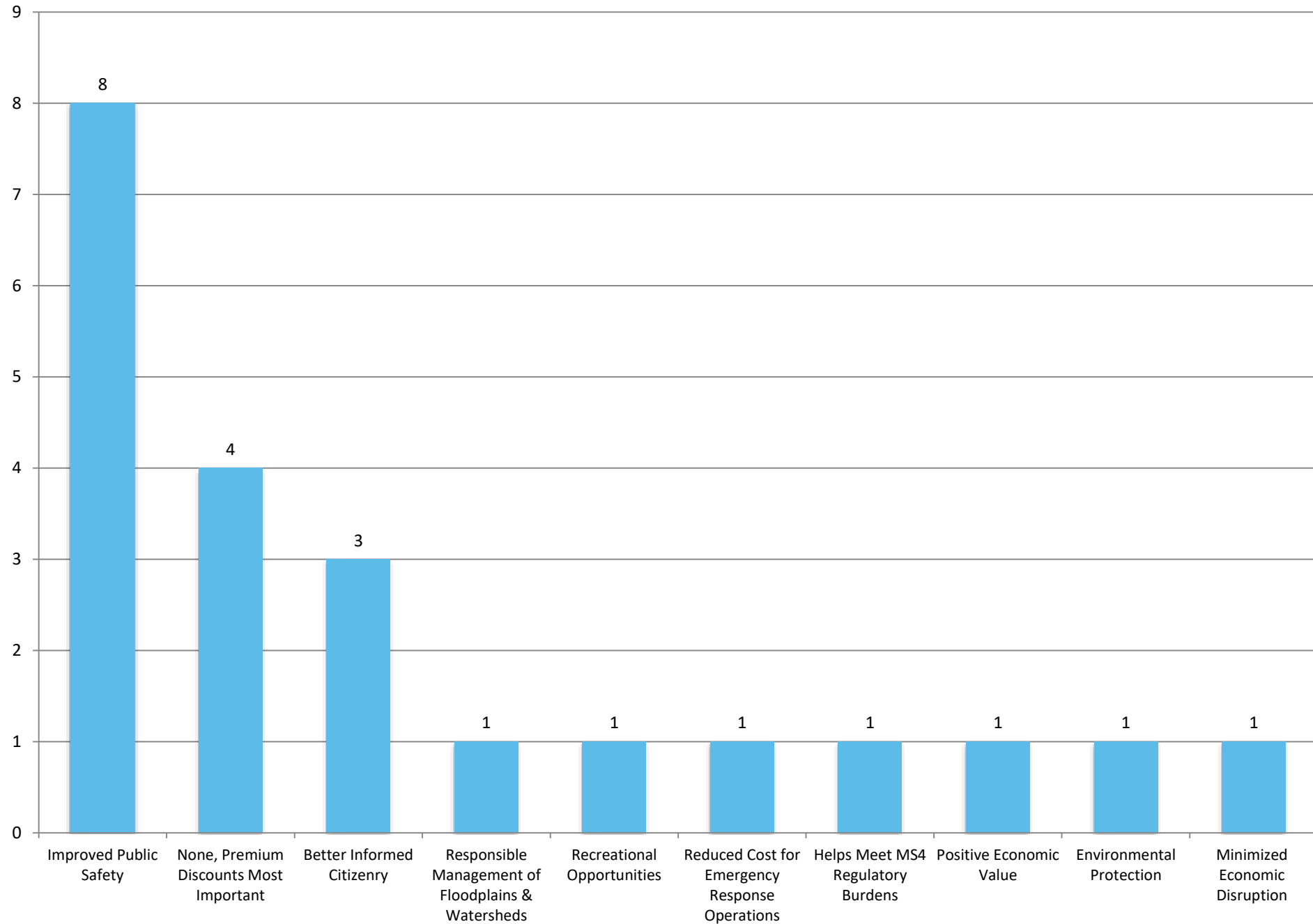


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## Most Important Secondary Benefits of CRS Program



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## ***Additional Secondary Benefits of the CRS***

- Helps strengthen organization, coordination, and encourages the break-down of silos across locality departments
- Helps minimize harmful impacts to the community
- Helps promote shoreline protection\*
- Participation in the CRS provides positive economic value
- Helps build political support for CRS earning activities\*
- Helps earn more grant funding
- Helps save localities money
- The CRS savings have a snowballing effect



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## ***Validation of Barriers to Earning Benefits in the CRS***

- Limited staff time
- CRS only discounts policyholders in the floodplain (big barrier to joining)
- CRS too complex & documentation intensive
- Costs of earning some credits outweighs the points awarded
- General CRS information is overwhelming and complicated
- Enrolling in the CRS could expose the locality to liability

**Report includes suggestions for overcoming each barrier**



# QUESTIONS?



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