

Technical Memo



To: Mr. Forrest Kelley, Capitol Region Watershed District

From: Todd Shoemaker, PE, CFM
Eric Osterdyk, EIT

Date: September 27, 2018

Subject: Research for Potential 2018 Permit Cost Cap Changes

Capitol Region Watershed District (CRWD) and Ramsey Washington Metro Watershed District staff met on December 18, 2017 to discuss potential changes to their permit program rules. Staff tasked Wenck with researching and providing information regarding cost cap adjustment. Our research and recommendations are presented below.

Determine if Cost Cap Adjustment is Necessary and, if so, by How Much.

1. Issue
 - a. Cost cap has not been adjusted since March 2008.
 - b. Should the cap amount be adjusted?

2. Considerations
 - a. National Numbers:
 1. Chesapeake Bay = \$150k/imp acre
 2. San Francisco = \$600k+/imp acre
 3. Pittsburgh = \$150k – 200k/imp acre
 - a. (<http://apps.pittsburghhpa.gov/pwsa/7. Cost Estimates Development.pdf>)
 4. New York = \$129k/imp acre
 - a. Water Environment Federation (WEF)
<http://stormwater.wef.org/2015/12/real-cost-green-infrastructure/>
 - b. Filtered list such that only linear projects that hit the cost cap were included in analysis.
 1. Of the projects considered, two were constructed when the cost cap was \$20,000 per acre. Resolution increasing the cost cap to \$30,000 per acre was adopted on March 5, 2008 (Resolution #08-03-07). Permits 07-011 and 07-013 were approved in 2007.
 2. The oldest project with the \$30,000 cost cap is 10-003 (CCLRT).
 3. Four projects were excluded: one because it resulted in extremely high \$175/cf and three that provided bank credits, which resulted in 195%, 325%, and 1,925% of required volume.
 4. Volumes used in charts/calculations below reflect “equivalent” volumes.
Equivalent Volume = Volume Retained + Volume Filtered / 1.82

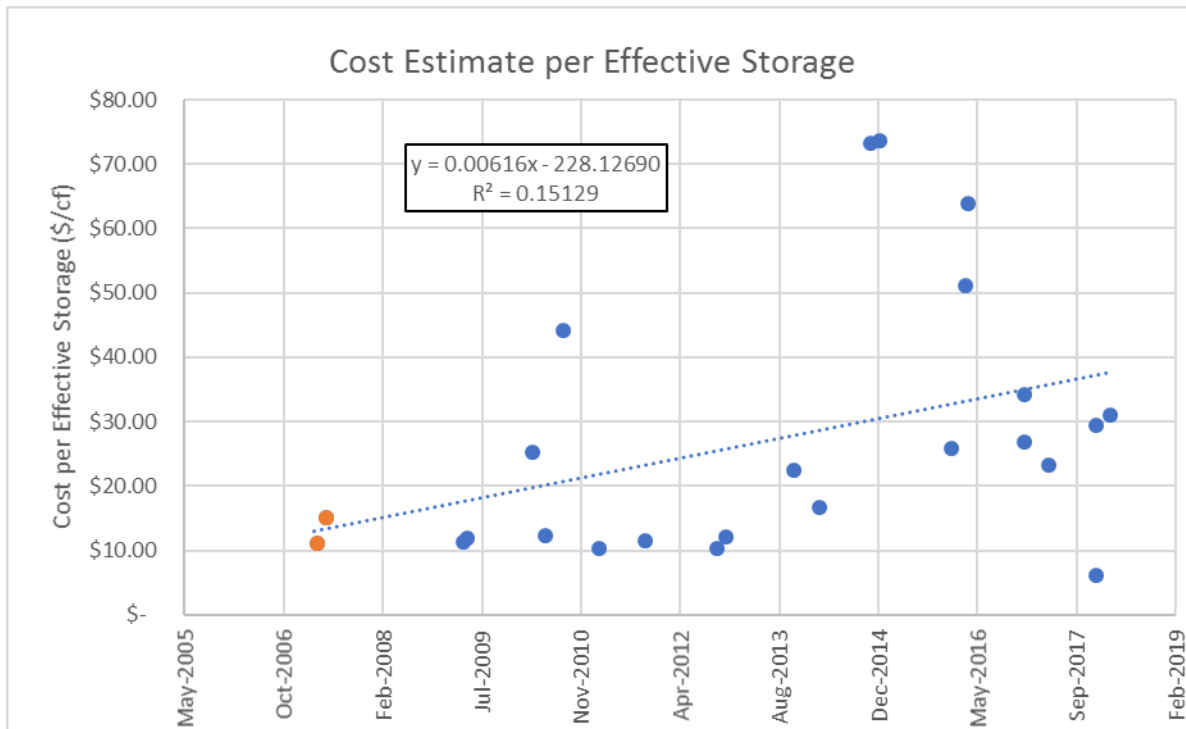


Figure 1. Cost estimate per effective storage.

Based on Figure 1:

5. Increasing trend but poor correlation (R^2 value is 0.15).
6. In 2008, one cf of storage cost approximately \$15.
7. In 2018, one cf of storage costs approximately \$37.
8. The increase from \$15 to \$37 over ten years corresponds to an average increase in cost of 9.7%/yr. Average US inflation rate over the same period was about 2.7%/yr.

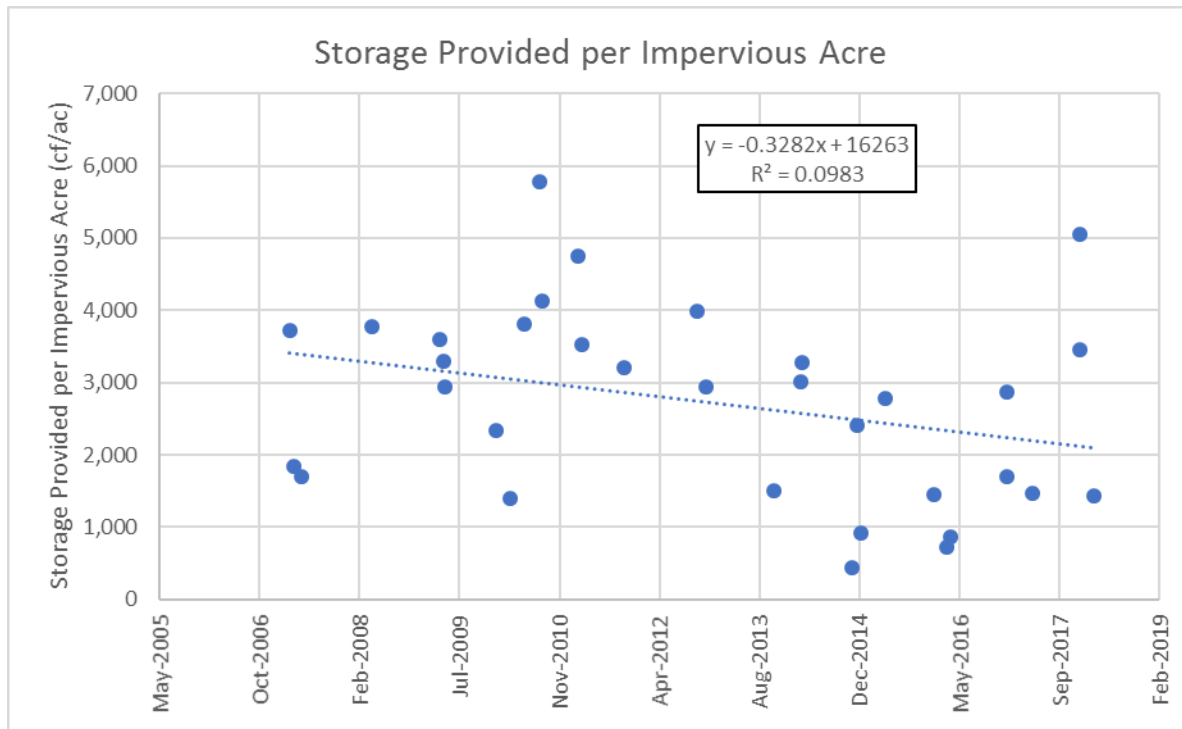


Figure 2. Storage provided per impervious acre.

Based on Figure 2:

9. Decreasing trend but poor correlation (R^2 value is 0.10).
10. In 2008, approximately 3,316 cf of storage was provided per impervious acre.
11. In 2018, approximately 2,117 cf of storage will be provided per impervious acre.

3. Options

- a. Option 1: Set cost cap to \$75,000/impervious acre.
 1. This was determined by taking the 2008 cost cap (\$30,000/imp acre) plus the average increase of stormwater management cost (9.7%) over the past 10 years.
 2. \$75,000 in 2018 achieves approximately 2,017 cf of storage or 0.56" runoff depth off impervious.
 3. For reference, 0.56" is approximately the abstraction depth (0.55") recommended by MIDS for linear projects.
- b. Option 2: Set cost cap to \$150,000/impervious acre.
 1. This was determined by taking the 2018 cost/cubic ft trendline from Figure 1.
 2. \$150,000 in 2018 achieves approximately 3,993 cf of storage or 1.1" runoff depth off impervious.

Mr. Forrest Kelley
Regulatory Division Manager
Capitol Region Watershed District
September 27, 2018



-
- c. Option 3: Set cost cap to \$112,000/impervious acre (halfway between options 1 and 2 above)
 - 1. \$112,000 in 2018 achieves approximately 3,005 cf of storage or 0.83” runoff depth off impervious.

 - d. Option 4: No cost cap, applicant will be required to meet full 1.1” of runoff regardless of cost.