



September 18, 2024

TO: Flood Authority Members

FROM: Scott Boettcher, Staff

SUBJECT: 2025 Flood Warning System Budget and County Shares

Purpose of this memo is to discuss and allocate 2025 Flood Warning System annual operations and maintenance costs (www.chehalisriverflood.com). We will discuss at Thursday's Flood Authority meeting.

We will walk through the following attachments:

- Attachment 1 (pg. 2) -- Breakdown and Comparison of Annual O & M Costs (2014 through 2030).
- Attachment 2 (pg. 3) – Allocation Options.
- Attachment 3 (pg. 4) -- Staff Recommendation.
- Attachment 4 (pg. 5) -- Flood Authority Gage and Webcam Assets.

Please feel free to contact Scott (360/480-6600, scottb@sbgh-partners.com) with any questions.

Attachment 1

Breakdown and Comparison of Annual O & M Costs (2014 through 2030)

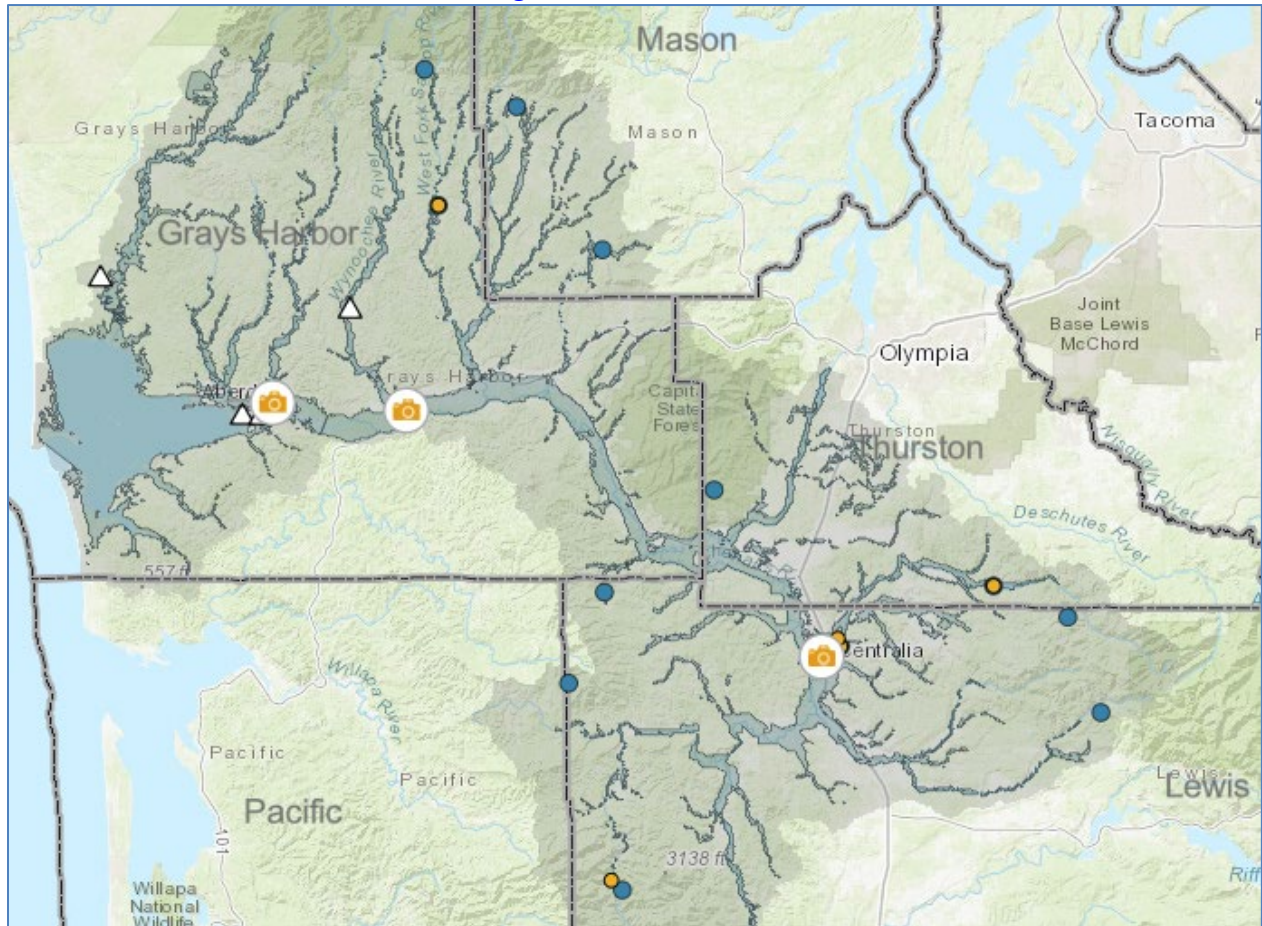
Operations & Maintenance (O & M)														Projection ^a				
2024/25 Theme --> <u>Increased usage, Improved lower basin forecasting.</u>																		
Breakdown of Annual O & M Costs		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025 ^a	2026	2027	2028	2029	2030
WEST Consultants (Jeff et al)	<i>Gage/Webcam maintenance</i> -- 2024 (15 gages, 3 webcam locations). 2025-2030 (19 gages, 3 webcam locations).	\$38,438	\$38,438	\$38,438	\$38,438	\$39,207	\$39,991	\$46,391	\$53,031	\$56,212	\$64,585	\$68,460	\$70,856	\$76,336	\$108,508	\$138,306	\$143,147	\$148,157
WEST Consultants (Jeff et al)	<i>Operational/Administrative support</i> -- On-going support for website monitoring and updates for both routine operations and during potential flood events.	\$11,336	\$11,336	\$11,336	\$11,336	\$11,563	\$11,794	\$12,030	\$12,270	\$13,007	\$13,787	\$14,614	\$24,114	\$24,958	\$25,831	\$26,735	\$27,671	\$28,640
WEST Consultants (Jeff et al)	<i>GIS support</i> -- On-going support for ArcGIS gage alerts dashboard and ArcGIS Survey 123 alerts sign-up.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	\$8,684						
WEST Consultants (Jeff et al)	<i>Spare parts inventory</i> -- Extra parts in event of broken or malfunctioning gages.	n/a	\$6,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,623	\$3,749	\$3,881	\$4,016	\$4,157	\$4,302
Mobility Help Desk	<i>Webcam cell fees</i> -- 3 cell data plans.	n/a	n/a	n/a	n/a	n/a	n/a	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,553	\$1,607	\$1,663	\$1,721	\$1,782
OneRain (Contrail)	<i>Webcam subscription fees</i> -- 4 subscriptions.	n/a	n/a	n/a	n/a	n/a	n/a	\$1,260	\$1,260	\$1,260	\$1,680	\$1,848	\$1,913	\$1,980	\$2,049	\$2,121	\$2,195	\$2,272
OneRain (Contrail)	<i>Website</i> -- One-rain annual subscription (306 sensors).	\$3,811	\$3,811	\$5,261	\$5,261	\$5,500	\$5,877	\$6,000	\$6,500	\$6,500	\$6,500	\$7,000	\$0	\$0	\$25,000	\$25,875	\$26,781	\$27,718
Lewis County (Mindy, Sarah)	<i>Billing and processing.</i>	n/a	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$932	\$964	\$998	\$1,033	\$1,069	\$1,106
Total -->		\$53,585	\$60,485	\$57,935	\$57,935	\$59,169	\$60,562	\$70,081	\$78,461	\$82,379	\$91,952	\$106,007	\$102,937	\$109,540	\$167,873	\$199,749	\$206,740	\$213,976
Note a -- <i>Gage/Webcam maintenance</i> and <i>Operational/Administrative support</i> increased 2% for 2018-21, 6% for 2022-24. All costs increase 3.5% for 2025-30.																		
Note b -- <i>Website</i> software is upgraded to Elements 360 in 2025. Two years of calibration are paid with capital funding. In 2027, the yearly fee for OneRain's software is to be covered through O&M.																		

Comment:

- 2026-2030 cost increases are attributable to:
 - ✓ Increasing O&M costs for Flood Authority assets from 15 gages and 3 webcams (2024) to 19 gages and 3 webcams (2025).
 - ✓ Factoring in a 3.5% across-the-board inflation rate
 - ✓ Upgrading underlying software to Elements 360.
- 2026-2030 costs will continue to be scrutinized to ensure appropriate alignment with Flood Authority needs, e.g., NOAA maintenance standard vs. lesser maintenance standard for proposed new tide gage.

Attachment 2 Allocation Options

[19 Gage and 3 Webcam Assets](#)



Allocation Option 1 (existing approach, 2014-2024)

Allocated among Flood Authority counties since [2014](#) as follows:

- Grays Harbor County -- 22%.
- Lewis County -- 64%.
- Thurston County -- 14%.
- ✓ 50% of allocation based on populations of communities prone to flooding.
- ✓ 50% of allocation based on historic FEMA flood insurance payments.

Allocation Option 2 (proposed new approach, 2025-forward)

Proposed alternative allocation approach:

- Grays Harbor County -- 40%.
- Lewis County -- 40%.
- Thurston County -- 20%.
- ✓ Today assets are equitably distributed across the basin (e.g., 11 upper basin, 11 lower basin).

Attachment 3 Staff Recommendation

1. At the 8/01/2024 CBB meeting, the CBB approved \$363,000 in unspent 2023-25 funds for four new gages in the lower basin (three rain gages, one tide gage).
2. These four gages equalize the division of upper basin and lower basin gage/webcam assets at 11 each.
3. Once these four new gages come on-line (late-2024):
 - a. the whole basin will share in the benefits of Flood Authority gage/webcam assets.
 - b. the NWS can complete it's modelling for lower basin river forecasting also benefiting the whole basin (this time with access to a complete Chehalis river forecast).
4. Given the resultant whole basin benefit of these new gages, as well the relatively equal distribution of gage and webcam assets across the basin (11 upper, 11 lower), **staff recommends**:
 - a. The Flood Authority modify its allocation of annual O&M costs for 2025 in favor of a 40/40/20 split between Grays Harbor County, Lewis County and Thurston County as follows:

	Old = 22% / 64% / 14%		Proposed = 40% / 40% / 20%					
	2023	2024	2025	2026	2027	2028	2029	2030
Grays Harbor County	\$20,229	\$23,321	\$41,175	\$43,816	\$67,149	\$79,900	\$82,696	\$85,590
Lewis County	\$58,849	\$67,844	\$41,175	\$43,816	\$67,149	\$79,900	\$82,696	\$85,590
Thurston County	\$12,873	\$14,841	\$20,587	\$21,908	\$33,575	\$39,950	\$41,348	\$42,795
Total -->	\$91,951	\$106,006	\$102,937	\$109,540	\$167,873	\$199,749	\$206,740	\$213,976

- b. Staff and Lewis County (as fiscal agent) implement and prepare payment schedules (1st half due 3/31/2025; 2nd half due 7/31/2025).

Note1: Lewis County, acting as Flood Authority's fiscal agent, has historically handled billing and processing for costs with Flood Warning System. It is assumed this practice will continue for 2024.

Note2: Gage alert sign-ups for 2023/24 flood season were 3,995 resulting in a per capita O&M cost of \$27. If gage alert signups reach 5,000 for 2024/25 flood season, per capita O&M costs would be \$21. See dashboard [here](#).

Note3: Key benefits of new Elements 360 software platform include:

- ✓ Backend asset management and tracking system.
- ✓ Spanish language translation capability.
- ✓ More stable platform with dedicated webspace ensuring greater uptime.
- ✓ Supported by Contrail.

Attachment 4
22 Flood Authority Gage and Webcam Assets

Current (C) and Proposed (P) Gage and Webcam Assets	
1. BEEVILLE RAIN GAGE - (MATLOCK 3NE) (D15015CE)	(C)
2. CEDAR CREEK RAIN GAGE NR LITTLEROCK, WA (D1503322)	(C)
3. CHEHALIS RIVER AT CENTRALIA, WA (GOES) (D1501B1C)	(C)
4. CHEHALIS RIVER BELOW THRASH CREEK NEAR PE ELL, WA (D15080AC)	(C)
5. CHINA CREEK ABOVE FCS AT CENTRALIA, WA (D1503DF0)	(C)
6. DOTY HILLS RAIN GAGE (D150635E)	(C)
7. MASON FD13 AT CLOQUALLAM (D1502E86)	(C)
8. NEWAUKUM RIVER FOOTHILLS (D1507028)	(C)
9. RIVERSIDE RAIN GAGE (RFA-STA8) (D15045B2)	(C)
10. SKOOKUMCHUCK RAIN GAGE (D15056C4)	(C)
11. SKOOKUMCHUCK RESERVOIR NEAR BUCODA, WA (D1504B60)	(C)
12. SKOOKUMCHUCK RIVER AT CENTRALIA, WA (GOES) (D150086A)	(C)
13. WEATHERMAX RIDGE RAIN GAGE (D15006B8)	(C)
14. WEST FORK SATSOP RIVER AT COUGAR SMITH ROAD NEAR SATSOP 13NNW (D1502054)	(C)
15. Willapa Hills (D15093DA)	(C)
16. WEBCAM -- Wynoochee River at Montesano, WA	(C)
17. WEBCAM -- Chehalis River at Centralia, WA	(C)
18. WEBCAM -- Wishkah River at Aberdeen, WA	(C)
19. Aberdeen Tide Gage	(P)
20. New Rain Gage #1	(P)
21. New Rain Gage #2	(P)
22. New Rain Gage #3	(P)