



TO: Chehalis River Basin Flood Authority members

FROM: Scott Boettcher, Staff

SUBJECT: Alternative Approaches for Allocating Annual Maintenance Costs of the Flood-Warning System

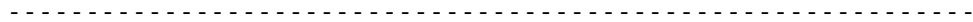
The following has been prepared for CRBFA members to structure their discussions at the upcoming July 18, 2013 CRBFA meeting regarding alternative approaches for allocating the annual costs (maintenance, invoicing) of the Flood-Warning System. The analysis presented here offers a range of allocation approaches intended to spur discussion and provide staff direction. The issue of allocating the annual costs of the Flood Warning System is being revisited at this point in time because the present allocation approach has only been agreed to through December 2013. If you have any questions please feel free to contact me a 360/480-6600 or scottb@sbgh-partners.com.

Flood-Warning System Overview (www.chehalisriverflood.com)

- ✓ Flood Warning System is a system of integrated components that offer the public, weather forecasters and emergency management personnel real-time access to rain, temperature and stream data throughout the basin.
- ✓ Flood Warning System components include:
 - Sophisticated rain/temperature/stream gages distributed throughout the Basin.
 - Central, publically-accessible website to access and chart gage data, see trends, view inundation maps and access other key information sites (e.g., National Weather Service forecasts).
 - Real-time satellite data feeds to National Weather Service forecasters.
- ✓ Benefits include:
 - Accuracy of National Weather Service weather and river forecasts is substantially improved with real-time, on-the-ground information.
 - Having access to a Flood Warning System can reduce a jurisdiction's National Flood Insurance rates.
 - Enables basin residents to individually make decisions in advance of emergency management announcements, e.g., a farmer can proactively move cattle and farm equipment to higher ground based on his/her own tracking of upstream gage readings.
 - System is 24/7 accessible.
- ✓ See Attachment I.

**Current Allocation Approach
"Population in Basin by Jurisdiction"**

Description	Methodology	Strengths	Weaknesses
This approach uses a jurisdiction's resident population in the basin as the basis for distributing proportionate shares of the annual cost (see Attachment II).	<ol style="list-style-type: none"> 1. Determine County population in the Basin. 2. Determine City and Town population in the Basin. 3. Use 2010 census data from OFM. 	<ul style="list-style-type: none"> + Method and approach are generally straightforward, understandable. + Method and approach are relatively easily doable (implementable). 	<ul style="list-style-type: none"> - Correlation with actual use and value of the system (to direct users as well indirect beneficiaries) is not pronounced (strongly apparent).

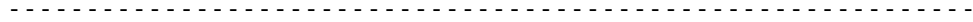


**Alternative Allocation Approach 1
"Population in Floodplain by Jurisdiction"**

Description	Methodology	Strengths	Weaknesses
This approach uses a jurisdiction's resident population in the floodplain as the basis for distributing proportionate shares of the annual cost.	<ol style="list-style-type: none"> 1. Identify floodplain (via county GIS departments, resources). 2. Overlay census tract information (via county GIS departments, resources). 	<ul style="list-style-type: none"> + This approach makes a rationale, logical step toward aligning FWS value with potential direct users. + Method and approach are relatively easily doable (implementable). 	<ul style="list-style-type: none"> - This approach does not account for non-floodplain users or indirect beneficiaries (e.g., those benefitting from up-to-date National Weather Service forecasts).

**Alternative Allocation Approach 2
"Assessed Value in Floodplain"**

Description	Methodology	Strengths	Weaknesses
<p>This approach uses a jurisdiction's assessed value in the floodplain as the basis for distributing proportionate shares of the annual cost.</p>	<ol style="list-style-type: none"> 1. Identify floodplain (via county GIS departments, resources). 2. Overlay county assessor information (via county assessor departments, resources). 	<ul style="list-style-type: none"> + This approach makes a rationale, logical step toward recognizing that different locations in the basin may assign different levels of value to the FWS (in this case using assessed value as the means to understanding this differentiation). + Method and approach are relatively easily doable (implementable). 	<ul style="list-style-type: none"> - This approach does not account for non-floodplain users or indirect beneficiaries (e.g., those benefitting from up-to-date National Weather Service forecasts).



**Alternative Allocation Approach 3
"Assessed Value Zones"**

Description	Methodology	Strengths	Weaknesses
<p>This approach allocates FWS annual maintenance costs on the basis of "assessed value zones" with higher assessed value zones paying more (proportionally) than lower assessed value zones. See Attachment III for Basin map.</p>	<ol style="list-style-type: none"> 1. Determine assessed values throughout the Basin (via county assessor departments, resources). 2. Establish "assessed value zones" (high assessed value, med. assessed value, low assessed value). 3. Allocate costs as follows: <ul style="list-style-type: none"> o medium assessed value zones pay twice the cost of low assessed value zones. o high assessed value zones pay three times the cost of low assessed value zones. 	<ul style="list-style-type: none"> + This approach makes a rationale, logical step toward recognizing that different locations in the basin may assign different levels of value to the FWS (in this case using assessed value zones as basis for assigning value/cost). + Method and approach are relatively easily doable (implementable). 	<ul style="list-style-type: none"> - Delineating "assessed value zones" (high-value, medium-value, low-value) could be complex, time-consuming and likely imperfect. - Allocating costs to a jurisdiction that spans multiple assessed value zones adds additional complexity.

Resources:

- a. **OFM Census Data** -- <http://www.ofm.wa.gov/pop/census2010/>.
- b. **Flood Protection and Ecosystem Services In The Chehalis River Basin (May 2010)** -- http://www.ezview.wa.gov/pr/Portals/_1492/images/default/May%2024,%202010%20Earth%20Economics%20Report%20Flood%20Prot%20and%20Ecosys.pdf.
- c. **County GIS Information.**
- d. **County Assessor Information.**

Attachment I

Flood-Warning System

Front-facing website. Back-end data collection, data synchronization system.

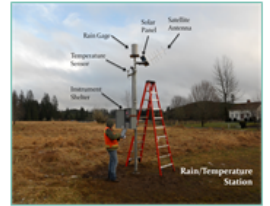
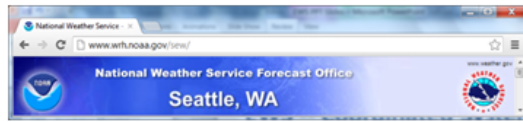
www.chehalisriverflood.com

Tools -- Flood Warning System

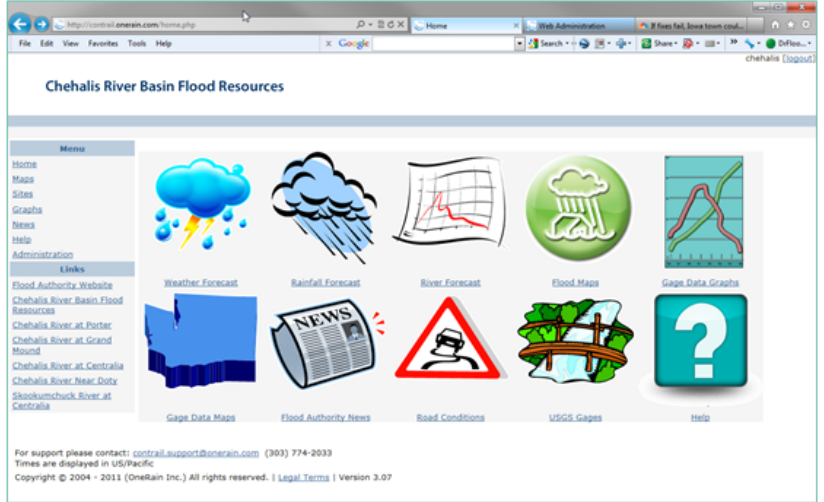


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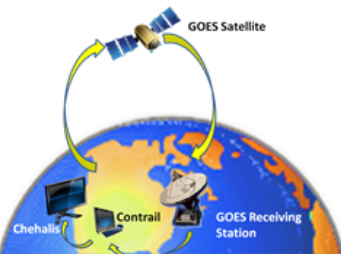
- Front-facing website.



- Back-end data collection, data synchronization.

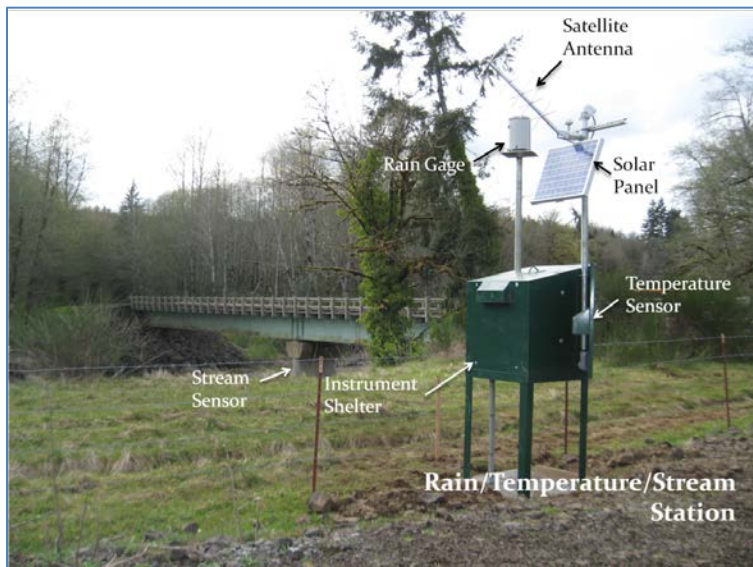


- Improves forecasting and early-warning.



July 2013

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Attachment II

**Current Approach
"Population in Basin by Jurisdiction"**

Allocation of O&M Costs for Flood-Warning System			
Annual O&M Costs for Flood-Warning System -->		Current Annual Cost	
		\$53,585.00	
Jurisdiction	Population in Basin	Percent of Total	Totals
Grays Harbor County	34,381	0.26	\$13,804.39
o Aberdeen	16,896	0.13	\$6,783.95
o Cosmopolis	1,649	0.01	\$662.09
o Montesano	3,976	0.03	\$1,596.41
o Oakville	684	0.01	\$274.63
Lewis County	22,887	0.17	\$9,189.41
o Centralia	16,336	0.12	\$6,559.10
o Chehalis	7,259	0.05	\$2,914.58
o Napavine	1,766	0.01	\$709.07
o Pe Ell	632	0.00	\$253.76
Thurston County	26,430	0.20	\$10,611.96
o Bucoda	562	0.00	\$225.65
Total	133,458	1.00	\$53,585.00

Note: Payments are made in two installments as follows:

- 1st half due 3/29/2013 (covers January through June).
- 2nd half due 7/31/2013 (covers July through December).

Attachment III

Basin Map

