

To: Chehalis River Basin Flood Authority
From: John Ghilarducci, FCS GROUP
CC: Bruce Mackey, ESA Adolfson
RE: Chehalis River Basin Flood District Formation Study

Date: June 9, 2011

This memo summarizes the key content and findings in the Chehalis River Basin Flood District Formation Study report by section. Report sections are listed below.

- Section I. Introduction, Goals, and Background**
- Section II. Economic Benefit Analysis**
- Section III. Governance Structure of a Chehalis River Basin Flood District**
- Section IV. Public Outreach Workshops, 2010**
- Section V. Interlocal Agreement Direction**
- Section VI. Results**
- Section VII. Interlocal Agreement Development**
- Section VIII. Financial Analysis**
- Section IX. Bibliography**
- Section X. Interviews**

Additional work products and background information are provided in Appendices A – J of the report.

Report Summary

Section I. Introduction, Goals, and Background

Section I contains background information on the Chehalis River Basin, the Flood Authority, the June 2010 Comprehensive Flood Hazard Management Plan, and the project – including a summary of the work plan and schedule. The 2008 interlocal agreement that formed the Flood Authority and all the presentation materials prepared for Flood Authority meetings are referenced as Appendices A and B, respectively.

Section II. Economic Benefit Analysis

Section II contains the Economic Benefit Analysis in its entirety. The results of the Economic Benefit Analysis are organized into the following sub-sections:

- ◆ **Summary of Findings** – This section includes a summary of key findings and preliminary recommendations. In short, the recent 2007 flood event cost the state and region an estimated \$925 million in total economic losses (2010 dollar estimates). Based on supporting facts provided by local and state government agencies, the majority (64 percent) of these losses were incurred by local

Chehalis River Basin Flood Authority

Chehalis River Basin Flood District Formation Study

businesses and residents in the form of property damage, business disruption and infrastructure damage. Nearly 36 percent of the total economic losses were statewide in the form of transportation disruption and state highway and railway damage).

Local economic benefits from reduced future flooding can be consistently measured in terms of:

- Residential benefits (population and households)
- Business benefits (economic valued added that is “at risk” in the floodplain)
- Property valuation benefits (measures of assessed values)

Other types of economic benefits, including potential reductions in property damage or loss avoidance, reduced flood insurance premium payments, and ecosystem benefits are difficult to apply across the region in a consistent and accurate manner given the limited nature of existing data.

The total amount of economic value that is at risk due to one day of major flooding is an estimated \$5.98 million, of which 71 percent is within the floodplain area, and 29 percent is within the larger regional area.

The relative measures of economic activity used in the Economic Benefit Analysis could serve as a basis for potential allocation of future flood mitigation project costs or funding commitments.

- ◆ **Overview** – This section provides an overview of the Chehalis River Basin and the 100-year floodplain area in terms of acres, land use, population, employment, and socio-economic patterns. It includes a Basin boundary and floodplain map, a description of the Basin, and a list of prior studies
- ◆ **Economic Benefit Analysis** – This section provides a summary of the Economic Benefit Analysis, including an analysis of documented damages and losses from prior flood events, and an assessment of business disruption attributed to lost business activity.

Cost Type	Local/Regional Impact	Statewide Impact	Total
Local Business Disruption ¹	\$45,000,000	-	\$45,000,000
Property & Content Damage, Cleanup ²	\$340,343,000	-	\$340,343,000
Transportation/Infrastructure Damage ³	\$86,696,000	\$23,375,000	\$110,071,000
Government Revenue Loss (tax dollars)	\$70,087,000	-	\$70,087,000
Transportation Disruption ⁴	\$48,782,000	\$310,998,000	\$359,780,000
Total	\$590,908,000	\$334,373,000	\$925,281,000

Notes:

¹ Based on IMPLAN analysis for Lewis, Thurston, and Grays Harbor counties.

² Reflects findings from Lewis County "One Year Later Report" and Thurston County estimates.

³ Reflects findings from Lewis County "One Year Later Report".

⁴ Includes findings from Lewis County "One Year Later Report" and WSDOT estimates.

Compiled and adjusted to 2010 dollars by FCS GROUP, Inc.

The section also includes the finding that assessed values of real property are approximately 40 percent higher outside the floodplain than inside the floodplain.

- ◆ **Construction Benefit Analysis** – This section describes the potential short-term construction-related benefits attributed to flood project construction activities. The results indicate that \$1 million in capital spending can be expected to generate approximately \$1.4 million in direct and indirect/induced annual economic output.

June 9, 2011

Chehalis River Basin Flood Authority

Chehalis River Basin Flood District Formation Study

- ◆ **Potential Funding Allocation Methods** – This section introduces a number of potential metrics that may serve as a basis for formulating a locally preferred funding allocation method (among members and between the floodplain and the contributing area within the Basin). The reader is referred to Appendix C for the full list of metrics.

Section III. Governance Structure of a Chehalis River Basin Flood District

Section III includes an examination of options for flood district authorization. The section includes summaries and a comparison of flood control district (RCW 86.09) and flood control zone district (RCW 86.15) statutes, further summarizing existing authorizations to create multi-jurisdictional entities through interlocal agreements (RCW 39.34). The full sections of these statutes are referenced as Appendices D and E. Related policy papers are referenced as Appendix F.

Stormwater utilities are also described as optional funding entities, in large part due to the existence of utilities in Thurston County and in several cities in the Basin. A table is provided, comparing county stormwater utility authorization with county flood control zone district authorization.

It is noted that while existing legislation provides the means to form a regional Chehalis River Basin Flood District, it did not meet all the objectives desired in a new regional flood entity, such as:

- ◆ A directly elected multi-jurisdictional Board
- ◆ Direct ability of the multi-jurisdictional flood district to raise revenue

This section also summarizes legislation drafted for this study that would provide these and other amendments to more closely match the objectives of a new Multijurisdictional Flood District for the Chehalis River Basin. The complete draft legislation is referenced in Appendix G.

On July 15, 2010 the Flood Authority provisionally selected the model of a regional flood agency formed by Interlocal Agreement of FCZDs within Grays Harbor, Lewis, and Thurston Counties, and the Chehalis Tribe. In the case of Thurston County it was understood that the existing SWM Utility could be a signee as an alternative to forming a Thurston County FCZD. The Flood Authority further agreed to initiate new state legislation to achieve the additional objectives of a directly elected Board that would have the authority to raise revenues.

Section IV. Public Outreach Workshops, 2010

Section IV summarizes the execution of the Community Outreach and Education Plan, notably the public workshops in each of the three participating counties. Prior to the public workshops, FCS GROUP met with the commissioners of each county to explain the scope of the project, the provisional decision by the Flood Authority to form a Chehalis River Basin Flood District through the formation of FCZDs (or SWM utility) and negotiation of a basin-wide Interlocal Agreement, and the purpose of the public workshops to obtain input on this provisional decision prior to proceeding with development.

Citizens provided input on the following topics at the public workshops, summarized in report Appendix H:

- ◆ **Public Vote.** Many participants felt that there should be a public vote on Flood District formation.
- ◆ **Flood reduction project costs.** Participants said they wanted to know more about the projects before a district was formed.
- ◆ **Concern about infrastructure projects.** Participants were concerned about the cost and environmental impacts of large scale infrastructure projects, wanted to know more about potential non-structural solutions.

June 9, 2011

Chehalis River Basin Flood Authority

Chehalis River Basin Flood District Formation Study

- ◆ **Flood reduction project benefits.** In general, participants said that they do not want to pay to address problems if they are not contributing to them.
- ◆ **Types of project revenue levies.** Participants asked a number of questions about how money could be raised to pay for flood reduction projects.
- ◆ **Land use concerns.** Participants expressed that they do not want to pay to fix problems caused by questionable land use decisions.
- ◆ **Flood District boundaries.** Participants had a number of questions about the Flood District boundary.
- ◆ **Public meeting notification.** Participants were concerned by the low turnout and suggested methods to be used to notify the public.

Section V. Interlocal Agreement Direction

Section V describes the process used to obtain direction on key elements of the interlocal agreement. The key elements were first discussed with the Flood Authority, some in great depth. Then, to facilitate obtaining input to draft ILA language for Flood Authority consideration, FCS GROUP and ESA Adolfson met individually with each member of the Flood Authority during December 2010 and January 2011. It was assumed that the ILA would reflect (1) the constraints of existing legislation, (2) a June 2011 formation deadline, (3) compatibility with proposed new state legislation, and (4) responsiveness to public input received. The following key elements were discussed as inputs to the ILA:

- ◆ **Membership**
- ◆ **Boundaries**
- ◆ **Voting**
- ◆ **Capital Improvement Plan**
- ◆ **Funding allocations**
- ◆ **Bonding**
- ◆ **Public votes**
- ◆ **Floodplain management**
- ◆ **Advisory Committee**

Section VI. Results

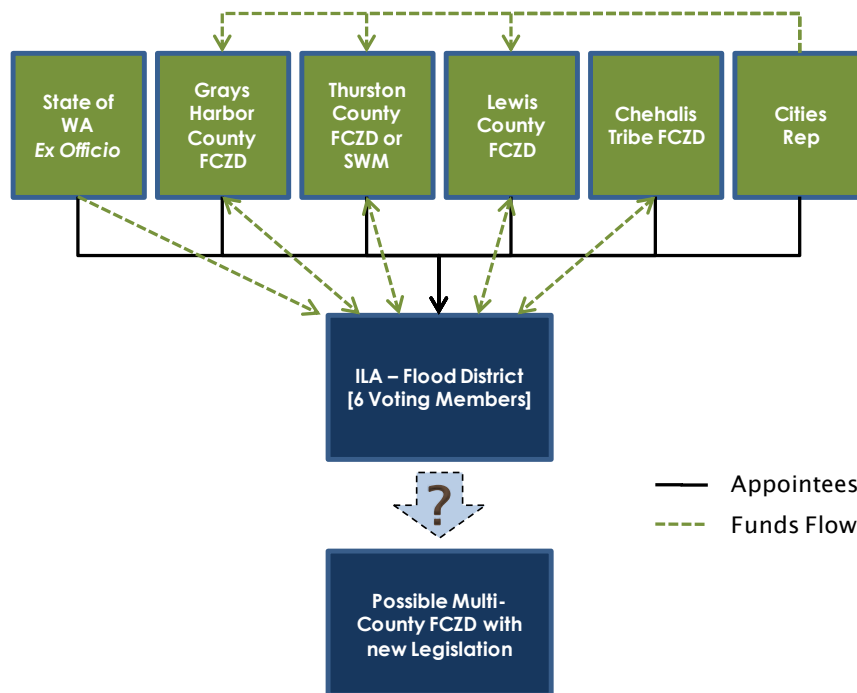
Section VI summarizes the results of the interviews described in Section V.

- ◆ **Membership.** All Flood Authority members considered the current 11-member Flood Authority too large. All members preferred Board membership of four to six. All members recognized the importance of city representation, which was supported by the public workshop input as well. All members realized that the initial Board must be appointed, but members could later stand for election. All members recognized the value of the State as an *ex officio* Board member. Most members were considering the pros and cons of elected versus appointed Board members.

June 9, 2011

Chehalis River Basin Flood Authority

Chehalis River Basin Flood District Formation Study



- ◆ **Boundaries.** It was understood that the boundaries would initially be set by each jurisdiction when they form their FCZDs, or equivalent.
- ◆ **Voting.** All Flood Authority members preferred Robert’s Rules of Order to the current consensus voting structure. With a smaller Board, supermajorities were mostly deemed unnecessary. A few Flood Authority members desired a supermajority for financial votes. Value of even numbers was recognized as requiring greater consensus. There was recognition that without the new state legislation, all tax votes and potentially all revenue votes would remain with each underlying FCZD, or equivalent.
- ◆ **Capital Improvement Plan.** See **Public votes**, below.
- ◆ **Funding allocations.** See **Floodplain management**, below, and **Section VIII. Financial Analysis**.
- ◆ **Bonding.** See **Public votes**, below.
- ◆ **Public votes.** All Flood Authority members recognized the importance of public voting on capital projects, funding plan and/or bonding. All members recognized that Flood District formation was not the most important issue for holding a public vote, but rather the projects or the financing were more important. Many members acknowledged the value of electing the Flood District Board members.
- ◆ **Floodplain management.** Flood Authority members indicated some desire for consistency of floodplain management. There was recognition that existing development in the floodplain is not changing, but that the focus should be on new development. There was further recognition that urban development in the floodplain is an economic benefit to a jurisdiction. There was interest in acknowledgement in the ILA that those who protect the floodplain should not pay for protection of those who do not. There was recognition that agriculture “lives” with flooding. And finally there was recognition of tidal influence as special case.

It was proposed that FCS GROUP develop options for including incentives and/or disincentives in the ILA for enactment of the recommended floodplain regulations contained in the adopted Flood Plan.

- ◆ **Advisory Committee.** See **Membership**, above.

Section VII. Interlocal Agreement Development

Section VII references the draft ILA provided on March 31, 2011, and summarizes the process surrounding the cessation of work on the ILA. That draft ILA is referenced as Appendix I.

Section VIII. Financial Analysis

Section VIII includes a summary of known and unknown flood district costs (revenue requirement), an evaluation of cost recovery options provided in RCW 86.15 regarding FCZDs, and a proposed methodology for allocating costs among participating jurisdictions.

- ◆ **Revenue Requirement.** The total of operating and capital costs, in addition to other financial obligations of the program, is known as the revenue requirement. The “local shares” of the following known costs are forecasted to be near-term (2012) obligations of the flood district.

Description	Estimated Cost	External Share	Local Share
Early Warning System	\$?	\$?	\$?
District Staff/Management	\$645,000	? ¹	? ¹
Hydraulic Analysis	\$400,000	? ¹	? ¹
Fish Study	\$275,000	\$275,000 ²	\$0
Twin Cities Project	\$130 million	\$130 million	\$0
Basin-wide G.I. Study	\$6 million	\$3.5 million ³	\$2.5 million ³
Potential Projects (2010 Plan)	? ⁴	? ⁴	? ⁴

Notes:

- ¹ Request for State funds pending.
- ² Re-appropriation of existing State funds.
- ³ Assumes \$1 million already funded; remainder 50/50 split.
- ⁴ No available cost estimates.

- ◆ **Cost Recovery Options.** FCZDs are authorized to impose rates (charges), property taxes, and/or local improvement district and other assessments to recover program operating and capital costs. In this sub-section, each option is described and evaluated for its applicability. It is likely that each participating jurisdiction will choose its own approach to recovering the costs allocated to it as part of the Flood District. Should a common approach be adopted or desired, our preliminary recommendation is that floodplain-related costs be recovered in ongoing service charges to developed property. Remaining basin costs would be recovered in a property tax.
- ◆ **Proposed Allocation Methodology.** It is assumed that the allocation of costs or portions of costs providing disproportionate benefit to specific areas *would be negotiated based on a number of factors*. The proposed allocation methodology is intended to apply to those expenses identified as providing proportionate benefits to all areas within the Chehalis River Basin. It is predicated on the principle that the primary beneficiaries of flood control are the residents and businesses located in the

Chehalis River Basin Flood Authority

Chehalis River Basin Flood District Formation Study

floodplain. The following information, from the Economic Benefit Analysis, is used in the allocation:

	Grays Harbor County	Thurston County	Lewis County	Chehalis Tribe	Total
Floodplain Area Direct Economic Value Added p/Day ^[1]	[A] \$ 1,950,898	[B] \$ 67,549	[C] \$ 2,036,831	[D] \$ 128,469	[E] \$ 4,183,747
Floodplain Area Total (Dir. & Indir.) Benefit in Basin ^[2]	[F] \$ 2,844,161	[G] \$ 92,879	[H] \$ 2,761,940	[I] \$ 174,781	[J] \$ 5,873,761
Floodplain Area Total Assessed Value ^[3]	[K] \$2,854,000,000	[L] \$ 550,619,000	[M] \$ 957,000,000	[N] \$ 9,473,000	[O] \$4,371,092,000

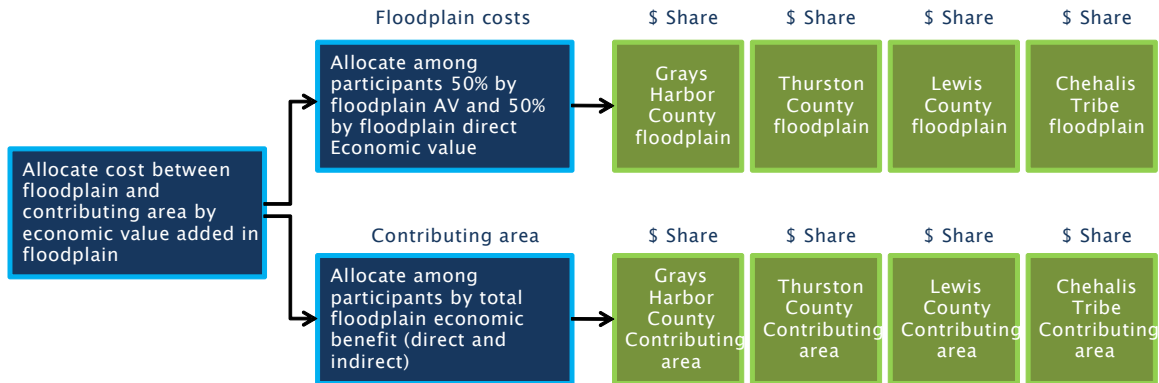
Notes:

¹ Floodplain area direct economic value added per day is an estimate of net economic output, or gross domestic product, in the 100-year floodplain from economic activity located in the 100-year floodplain.

² Floodplain area total (direct and indirect) benefit in the basin is an estimate of net economic output in the Chehalis River Basin from economic activity located in the 100-year floodplain.

³ Floodplain area total assessed value is the sum of taxable and non-taxable assessed value of land and improvements located in the 100-year floodplain.

In this sub-section, the proposed allocation methodology is described in detail, and summarized (for a sample expense of 1 million) and represented graphically as shown below.



	Grays Harbor County	Thurston County	Lewis County	Chehalis Tribe	
Floodplain	71.2%				by AV Factor
	\$ 712,277				
50%	65.3%	12.6%	21.9%	0.2%	by Floodplain Economic Factor
	\$ 356,139	\$ 44,862	\$ 77,972	\$ 772	
50%	46.6%	1.6%	48.7%	3.1%	by Total Economic Factor
	\$ 356,139	\$ 5,750	\$ 173,384	\$ 10,936	
Contributing Area	28.8%				
	\$ 287,723				
100%	48.4%	1.6%	47.0%	3.0%	Floodplain Costs
	\$ 139,320	\$ 4,550	\$ 135,292	\$ 8,562	
	\$ 398,601	\$ 50,612	\$ 251,356	\$ 11,708	Contributing Area Costs
	\$ 537,921	\$ 55,162	\$ 386,648	\$ 20,269	Total Costs
	53.8%	5.5%	38.7%	2.0%	

- ◆ **Floodplain Development Disincentive.** In this sub-section, a method for calculating a disincentive to developing in the floodplain is proposed that would offset the direct economic benefit of new development in the floodplain with a commensurate cost. The resulting premium would be \$1,941.75 per developed acre per day.

June 9, 2011

Chehalis River Basin Flood Authority

Chehalis River Basin Flood District Formation Study

Section IX. Bibliography

Section IX includes a list of information sources.

Section X. Interviews

Section X includes a list of additional persons interviewed in the development of the study.