

Chehalis Basin Strategy: Reducing Flood Damage and Enhancing Aquatic Species

Walls and Levees

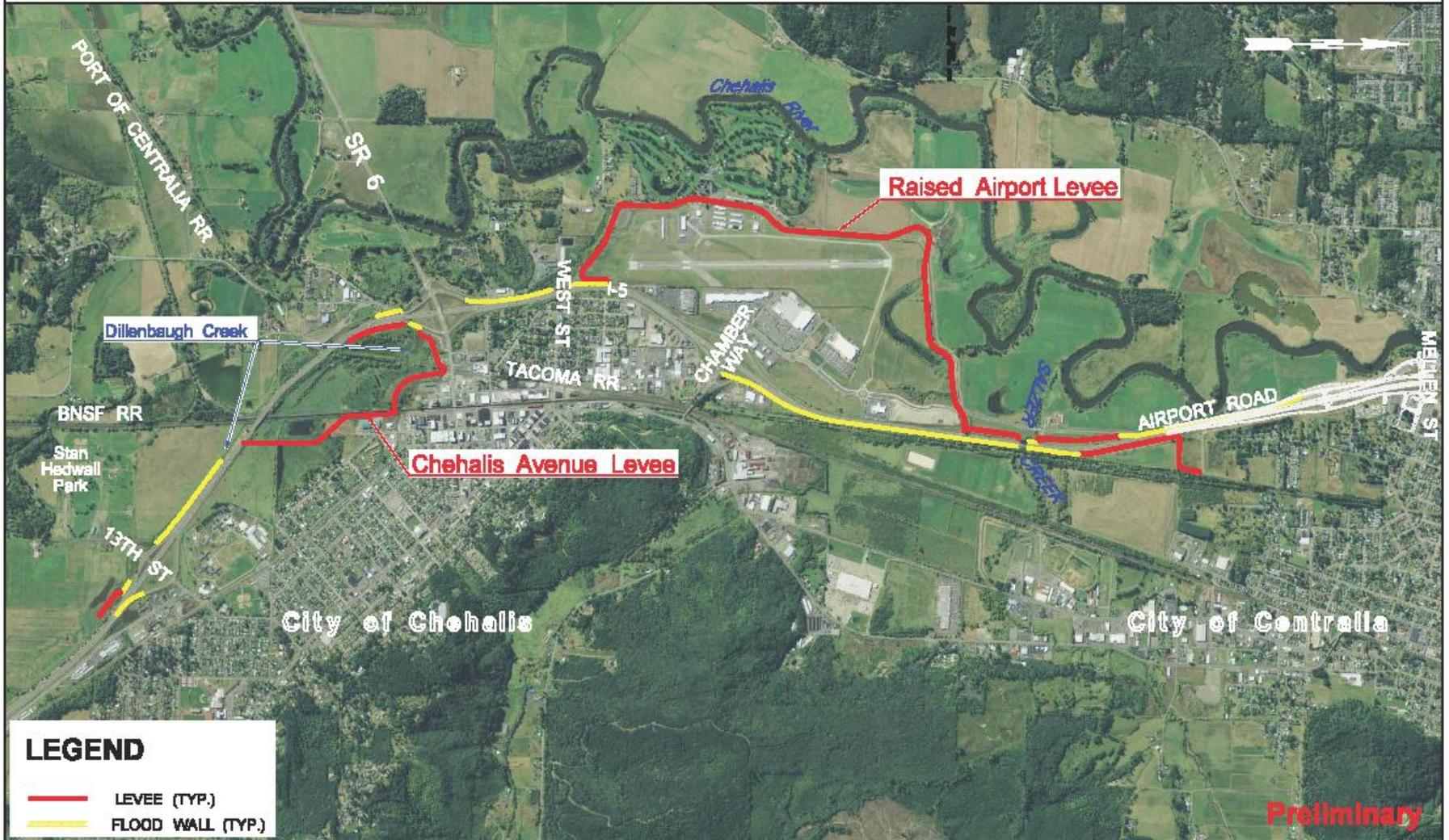
Policy Workshop

September 25, 2014





I-5/Chehalls River Basin Flood Protection Alternative 1: Levees and Walls



Utilization of Gas Tax Revenue for Highway Purposes

An Amendment to the State Constitution

To Be Submitted to the Qualified Electors of the State for Their Approval or Rejection at the

GENERAL ELECTION

TO BE HELD ON

Tuesday, November 7, 1944

CONCISE STATEMENT

PROPOSED amendment to Article II of the Constitution, by adding a new section to be known as Section 40, limiting exclusively to highway purposes the use of motor vehicle license fees, excise taxes on motor fuels and other revenue intended for highway purposes only; providing for their payment into a special fund of the State Treasury; defining highway purposes; and excepting from its provisions certain other designated fees and taxes.

HOUSE JOINT RESOLUTION NO. 4

Be it Resolved by the Senate and the House of Representatives of the State of Washington in Legislative Session Assembled:

That, at the general election to be held in this state on the Tuesday next succeeding the first Monday in November, 1944, there shall be submitted to the qualified voters of this state for their adoption and approval or rejection an amendment to Article II of the Constitution of the State of Washington, by adding thereto a new section to be known as section 40 to read as follows:

Section 40. All fees collected by the State of Washington as license fees for motor vehicles and all excise taxes collected by the State of Washington on the sale, distribution or use of motor vehicle fuel and all other state revenue intended to be used for highway purposes, shall be paid into the state treasury and placed in a special fund to be used exclusively for highway purposes, such highway purposes shall be construed to include the following:

(a) The necessary operating, engineering and legal expenses connected with the administration of public highways, county roads and city streets;

(b) The construction, reconstruction, maintenance, repair, and betterment of public highways, county roads, bridges and city streets: including the cost and expense of (1) acquisition of rights-of-way, (2) installing, maintaining and operating traffic signs and signal lights, (3) policing by the State of public highways, (4) operation of movable span bridges, and (5) operation of ferries which are a part of any public highway, county road, or city street;

(c) The payment or refunding of any obligation of the State of Washington, or any political subdivision thereof, for which any of the revenues described in section 1 may have been legally pledged prior to the effective date of this act;

(d) Refunds authorized by law for taxes paid on motor vehicle fuels;

(e) The cost of collection of any revenues described in this section:

Provided, That this section shall not be construed to include revenue from

Utilization of Gas Tax Revenue for Highway Purposes

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Economic Analysis

Alternative 1: Levees and Walls

Table 1 I-5 Project plus Airport Levee Economic Analysis (\$2014), Millions ¹

| | Expected Annual Impact | One-Time 100-Year Event |
|------------------------------------------------|------------------------|-------------------------|
| Structure Content Inventory | \$30.3 | \$5.4 |
| Emergency Aid | \$20.2 | \$5.6 |
| Clean-up Costs | \$9.8 | \$1.2 |
| I-5 Delay | \$16.2 | \$11.5 |
| Agriculture | (\$0.1) | \$0.1 |
| Total Impact | \$76.4 | \$23.9 |
| Project Cost (Capital, O&M, IDC), 100-year NPV | \$106.8 | \$106.8 |
| Net Benefit | (\$30.4) | (\$83.0) |
| Benefit/Cost Ratio | 0.7 | 0.2 |

¹EES Consulting. Economic Analysis of I-5 Project and Airport Levee. Draft Memorandum September 2014.

Economic Analysis

Alternative 1: Levees and Walls

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Economic Analysis

Alternative 1: Levees and Walls

Table 4 IO Results Expected Annual Impact over 100 Years, \$2014¹

| | EXPECTED ANNUAL IMPACT, 100-YEAR NPV | VALUE ADDED | MULTIPLIER | TOTAL IMPACT | EMPLOYMENT (FTE) |
|------------------------------|--------------------------------------------|---------------------|------------|----------------------|---------------------|
| Avoided Emergency Aid | \$5,045,700 ¹ | \$6,133,200 | 2.2 | \$11,178,900 | 119 |
| Avoided Damages (Structures) | \$30,324,000 | \$23,642,000 | 1.8 | \$53,966,000 | 250 |
| Avoided Clean-Up Costs | \$9,808,000 | \$5,845,000 | 1.6 | \$15,653,000 | 61 |
| Avoided I-5 Closure | \$16,214,000 | \$16,376,000 | 2.0 | \$32,590,000 | 186 |
| Total | \$60,065,700 | \$51,996,200 | 1.9 | \$113,387,900 | 616 |

1. State share only (25%).

Table 5 shows the results of the economic analysis when both direct (Table 1) and indirect impacts (Tables 2 and 3) are included.

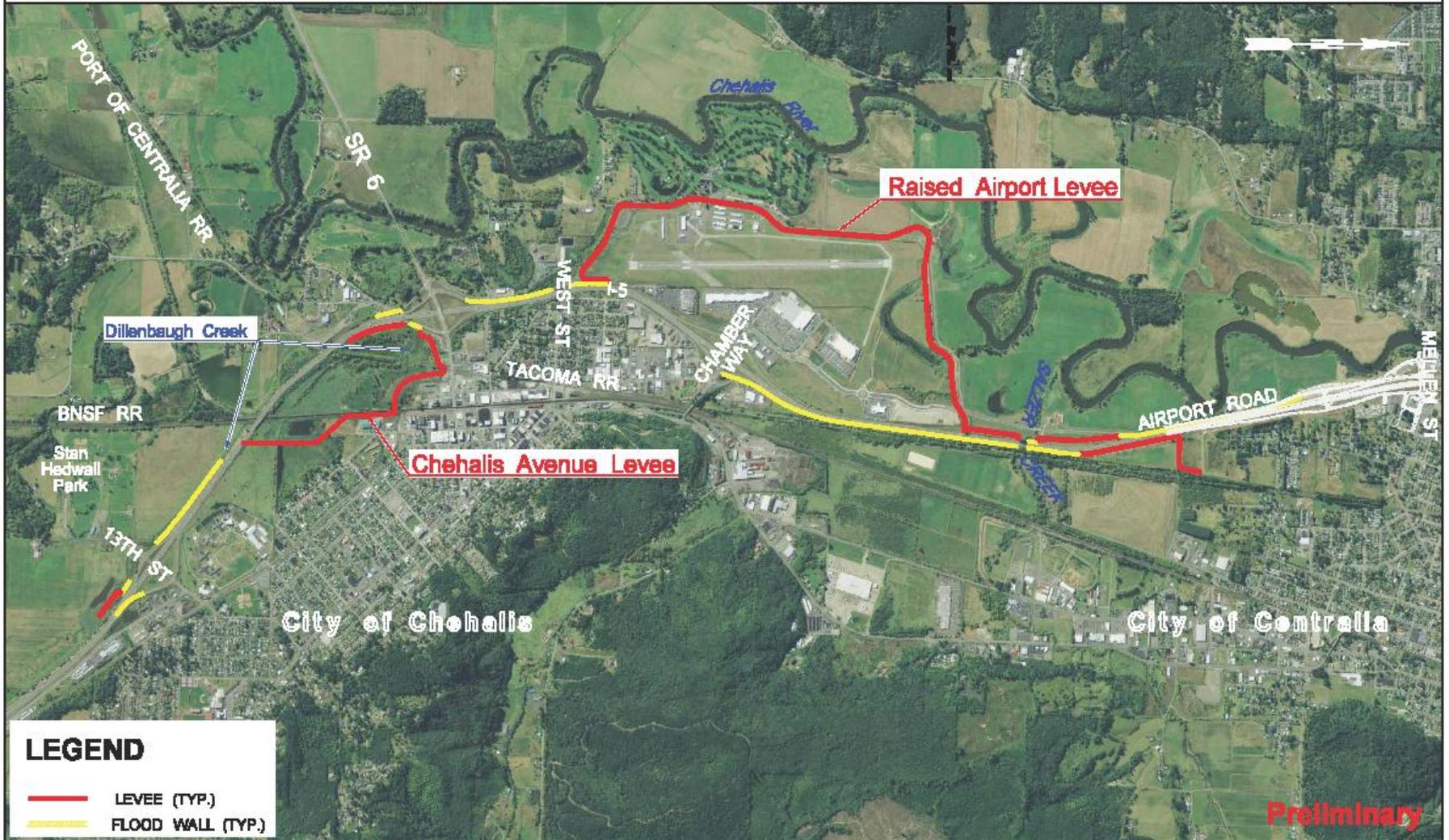
Table 5 Economic Analysis Results with IO Impacts, \$2014

| | I-5 Project Only Expected Annual Impact | I-5 Project Only 100-Year Event |
|------------------------------------------------|--------------------------------------------|------------------------------------|
| Direct Impact | \$76.4 | \$23.9 |
| Value Added | \$50.6 | \$18.90 |
| Total Impact | \$127.1 | \$42.8 |
| Project Cost (Capital, O&M, IDC), 100-year NPV | \$106.8 | \$106.8 |
| Net Benefit | \$20.2 | (\$64.1) |
| Benefit/Cost Ratio | 1.2 | 0.4 |

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I-5/Chehalls River Basin Flood Protection Alternative 1: Levees and Walls



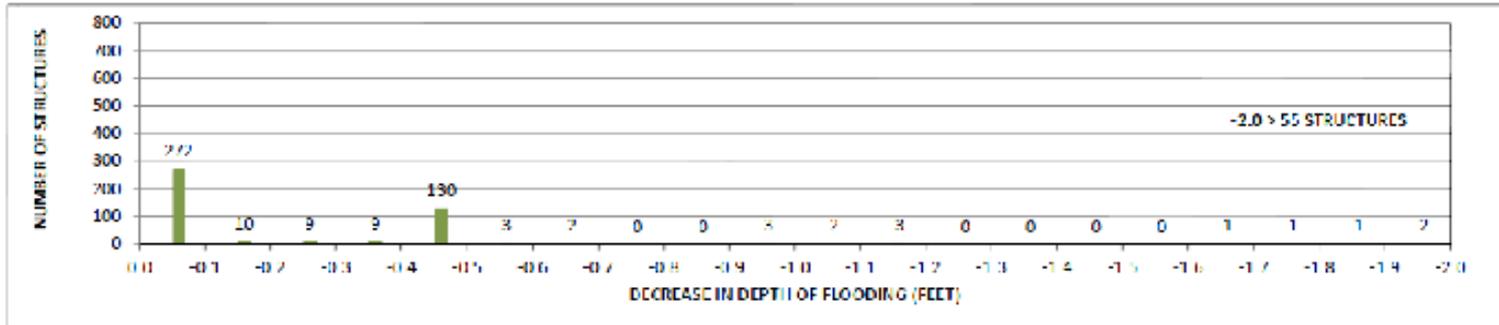
Alternative 1: Levees and Walls Chehalis Avenue Levee



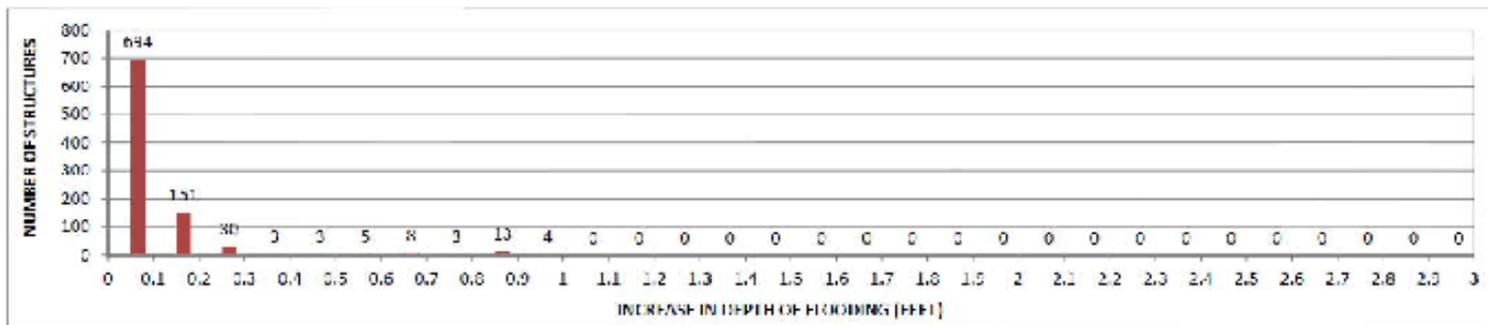
Alternative 1: Levees and Walls

Number of Structures Affected 100 Year Event¹

Alt 1 - 100-year_DECREASE

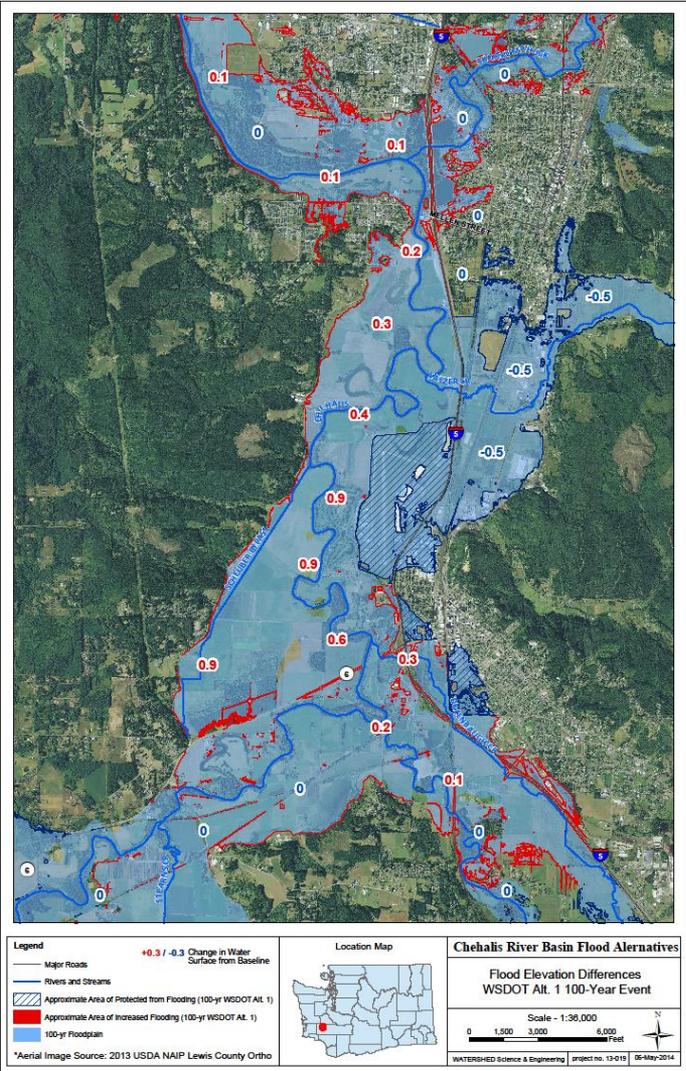


Alt 1 - 100-year_INCREASE



¹Data provided by: WATERSHED Science and Engineering.

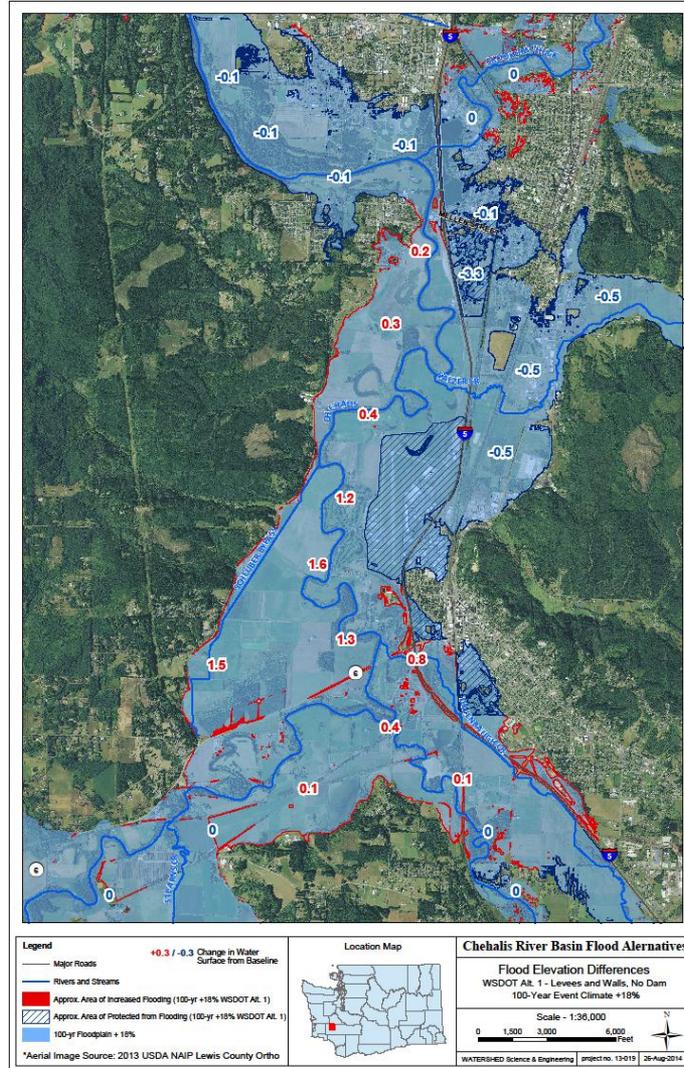
Alternative 1: Levees and Walls Flood Elevation Difference 100 Yr. Event¹



¹WATERSHED Science and Engineering.

Alternative 1: Levees and Walls

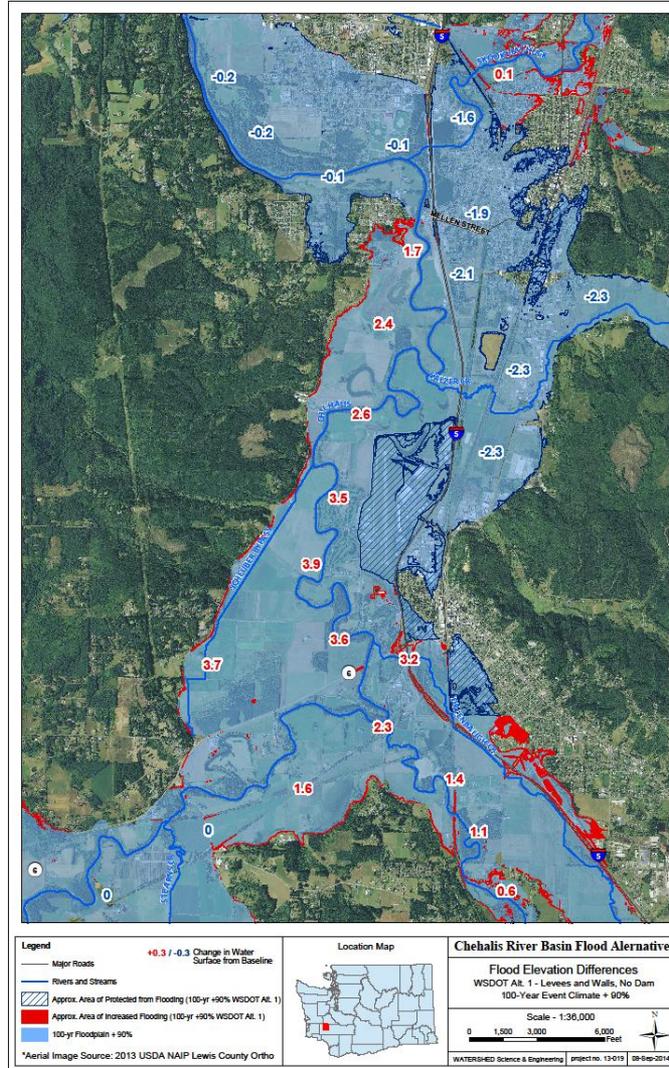
Flood Elevation Difference 100 Yr. Event Climate +18%¹



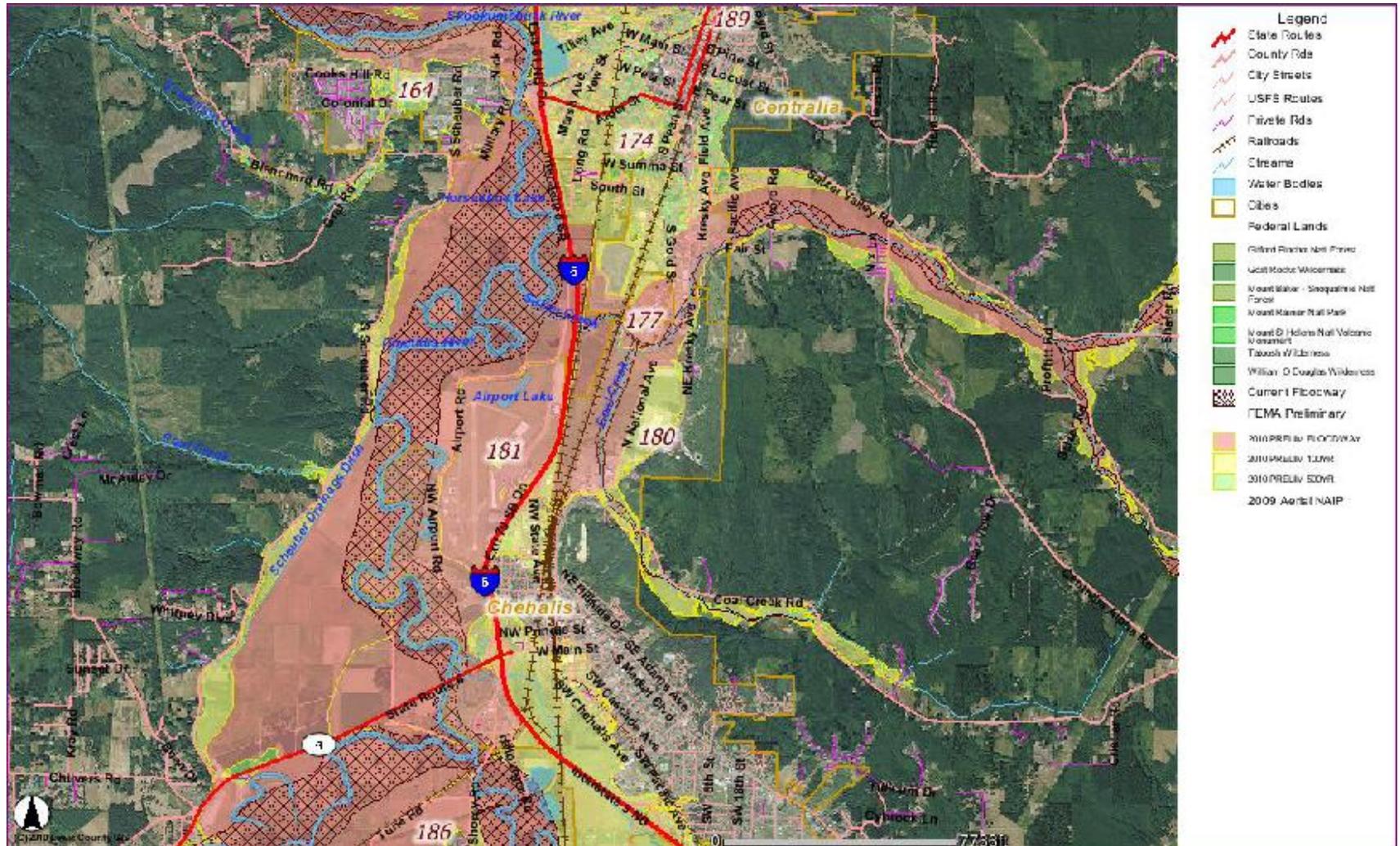
¹WATERSHED Science and Engineering.

Alternative 1: Levees and Walls

Flood Elevation Difference 100 Yr. Event Climate +90%¹



Lewis County: Proposed vs. Adopted Floodways¹



¹Lewis County Washington. GIS Map.