State and National Draft Environmental Impact Statements (EISs) Findings

For the Proposed Chehalis River Basin Flood Damage Reduction Project

Chehalis Basin Board Meeting
September 30, 2020

Presentation Overview

- Overview of environmental review process
- Alternatives screening and selection
- Key similarities and differences
  - Programmatic SEPA EIS
  - Project-level Draft SEPA EIS
  - Project-level Draft SEPA EIS

Purpose of Environmental Review

- Both SEPA and NEPA are intended to inform the public and decision-makers
- Programmatic SEPA EIS evaluated a suite of actions to support decision-making for the Chehalis Basin Strategy
- Project-level SEPA EIS supports future permitting decisions
- NEPA Record of Decision documents issuance or denial of the Section 404 Permit

Alternatives Screening and Selection

Alternatives Screening

- Programmatic SEPA EIS screened alternatives that reduced flood damage and restored aquatic species habitat
- SEPA and NEPA screened alternatives using the Applicant's project objectives
  - Reduce flooding coming from the Willapa Hills
  - Reduce flood damage in the Chehalis-Centralia area at specific locations
  - Improve levee protection level at the Chehalis-Centralia airport
- SEPA and NEPA evaluated alternatives based on further refinements to the Applicant's objectives

Alternatives Screening (Continued)

- Differences in number of alternatives screened
- Alternatives screened against
  - SEPA: Applicant's objectives
  - NEPA: Corps' accepted project purpose
- NEPA considered the Applicant's ability to implement an alternative

Alternatives Evaluated

SEPA	NEPA
No Action Alternative	Same as SEPA
Flood Retention Expandable (FRE) Facility and Airport Levee Changes (Proposed Project)	Same as SEPA
Local Actions Alternative	Flood Retention Only (FRO) Facility and Airport Levee Changes

Key Similarities and Differences

Methodologies

Climate Change

- Draft SEPA EIS incorporated climate change predictions into the modeling for all the alternatives
  - Mid-century peak flows would increase 12%
  - Late-century peak flows would increase 26%
  - Flood frequency also increases over time
- Draft NEPA EIS incorporated hydrology data from the past 30 years, and did not include climate change predictions in the modeling
- As a result, impacts were assessed based on differing environmental conditions

Flood Scenarios

FLOOD SCENARIO	SEPA	NEPA
Major flood	Water flow rate of 38,800 cfs or greater at Grand Mound gage *14% chance of occurrence currently, 20% chance in mid-century, 25% chance in late-century*	Same as SEPA *14% chance of occurrence*
Catastrophic flood	Water flow rate of 75,100 cfs at Grand Mound gage *1% chance of occurrence currently, 2% chance in mid-century, 4% chance in late-century*	Same as SEPA *1% chance of occurrence*
100-Year Flood (Late Century)	Water flow rate of 102,200 cfs at Grand Mound gage	Water flow rate of 75,100 cfs or greater at Grand Mound gage
Recurring or back-to-back flood	A major flood or greater that occurs in each of 3 consecutive years	A major flood one year that would be followed by a catastrophic flood the next year

Key Similarities and Differences

Resource Impacts from the FRE Facility

Overview of Resource Impacts

- Discuss specific resource areas relevant to past Board discussions
- Describe impacts from the flood retention facility, and not the airport levee improvements
- Identify how avoidance, minimization, and compensatory mitigation was evaluated in the EISs

Water Resources Impacts

- Both SEPA and NEPA identified significant adverse impacts to water quality in the summer from increased temperature
- Both SEPA and NEPA identified adverse impacts from dissolved oxygen
- PE Ell's water system and water rights would be affected, but to differing degrees for SEPA and NEPA

Geomorphology Impacts

- Both SEPA and NEPA identified adverse impacts on
  - Large woody debris input and transport
  - Loss of substrate
  - Changes to sediment transport
  - Changes to channel-forming flows and habitat creation downstream

Major Aquatic Impacts

- Water quality
  - Temperature
  - Dissolved oxygen
- Habitat loss
  - Direct elimination of habitat
  - Altered natural processes
  - Fish passage

Aquatic Species and Habitats Impacts

- Upstream and downstream of the FRE facility, both SEPA and NEPA identified significant adverse impacts on salmonids and lamprey
- At the Chehalis Basin scale, NEPA identified a high impact on spring-run Chinook salmon and low impact on other anadromous salmonids and lamprey
- Impacts to native fish were generally the same, but SEPA identified a significant adverse impact during operation of the FRE facility

Salmonid Habitat Modeling

- SEPA reported quantitative model results for both the EDT model and the Integrated Model (EDT-LCM)
- NEPA reported quantitative model results for the EDT model
- NEPA provides EDT salmonid modeling results at the basin-wide level, whereas SEPA does not

EDT Modeling Results (Construction)

SPECIES	ABOVE CRIM CREEK		RAINBOW FALLS TO CRIM CREEK		BASIN-WIDE
	SEPA EDT	NEPA EDT	SEPA EDT	NEPA EDT	NEPA EDT
Spring-run Chinook salmon	-84%	-78%	-29%	-7%	-3.2%
Fall-run Chinook salmon	-45%	-40%	-13%	-13%	-0.24%
Coho salmon	-81%	-72%	-3%	-2%	-0.85%
Steelhead	-54%	-53%	-42%	-27%	-2.9%

Note: SEPA EDT results includes climate change and FRE Facility impacts

EDT Modeling Results by Reach (Operation)

SPECIES	ABOVE CRIM CREEK		RAINBOW FALLS TO CRIM CREEK		BASIN-WIDE
	SEPA EDT	NEPA EDT	SEPA EDT	NEPA EDT	NEPA EDT
Spring-run Chinook salmon	-100%	-100%	-100%	-28%	-2%
Fall-run Chinook salmon	-93%	-70%	-79%	-27%	0%
Coho salmon	-65%	-44%	-100%	-5%	0%
Steelhead	-51%	-22%	-100%	-100%	0%

Note: SEPA EDT results includes climate change and FRE Facility impacts

Salmonid Impacts (Construction)

- Above Crim Creek
  - Reduced fish passage survival
  - Degradation of habitat conditions within the temporary reservoir inundation area
- Rainbow Falls to Crim Creek area
  - Increased water temperature associated with vegetation removal within the reservoir area

Salmonid Impacts (Operation)

- Above Crim Creek
  - Reduced fish passage survival
  - Degradation of habitat conditions due to recurring floods and ongoing vegetation management
- Rainbow Falls to Crim Creek area
  - Reduced substrate immediately downstream of the FRE
  - Reduced large woody material
  - Increased water temperature
- For SEPA, impacts are also driven by climate change

Major Aquatic Species and Habitat Impacts

- Salmonid habitat modeling provides data to inform species impacts, but is not the only consideration
- Water quality
  - Temperature
  - Dissolved oxygen
- Habitat loss
  - Direct elimination of habitat, such as vegetation removal and substrate loss
  - Altered natural processes, including loss of large woody material transport
  - Fish passage during construction and operation

Endangered Species Impacts

- Both SEPA and NEPA identified no significant adverse impact on federally listed bull trout, Pacific eulachon, or green sturgeon
- Southern Resident killer whales
  - SEPA: moderate impact
  - NEPA: low indirect impact
- Marbled murrelet
  - SEPA: significant impact from construction and operation
  - NEPA: high impact from construction, no impact from operation

Mitigation in the EISs

- SEPA Draft EIS
  - Describes programmatic measures to be considered by the Applicant
  - Identifies areas of uncertainty that need to be addressed by the Applicant
- NEPA Draft EIS
  - Describes mitigation measures proposed by the Applicant, including the *Mitigation Opportunities Assessment Report*
  - Does not include an assessment of the adequacy or feasibility of the Applicant's proposed mitigation

Flood Damage Reduction Findings

- Both NEPA and SEPA found the Proposed Project would reduce flooding in the upper Chehalis Basin
  - Reduction in number of structures inundated
  - Reduction in downstream areas flooded (in land acres)
  - No I-5 flooding during a catastrophic flood (NEPA)
  - One I-5 intersection flooded during a catastrophic flood (SEPA)
- NEPA identified a low impact from the potential for increased growth and development, and SEPA described this potential in cumulative impact

Questions?