

# Steigerwald Reconnection Project

## *A Case Study in Emissions Reduction and Sequestration*



Chris Collins, Curtis Helm, Doug Kreuzer, Catherine Corbett, Erica Keeley, \*Curtis Loeb, \*\*Darlene Siegel



# Overview of Presentation

- Project overview
- Emissions footprint
- Sequestration of project emissions
- Mitigation - reducing emissions on future projects
- Concluding Thoughts



# Project Overview

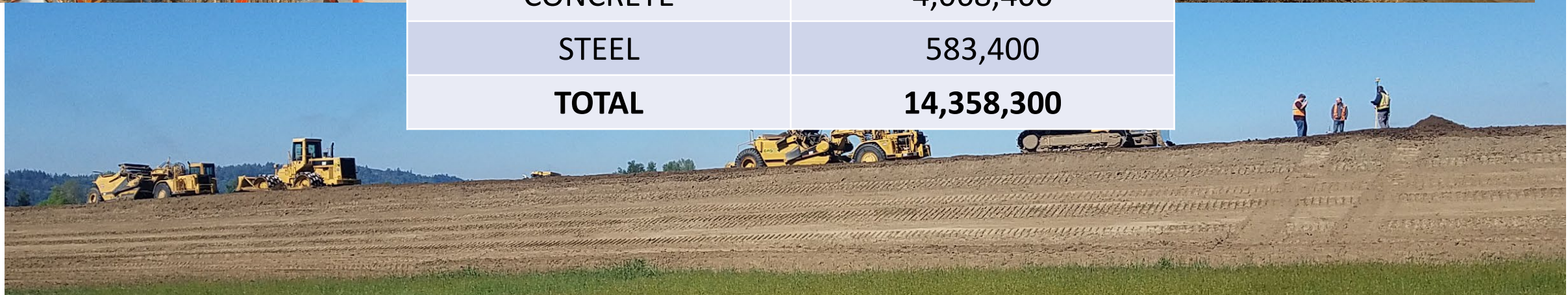
- 1. Reconnected 1.5 square miles of Columbia River floodplain
- 2. Realigned a federally regulated levee system
  - Constructed 1.6 miles of setback levee
  - Removed 2.2 miles of existing levee
  - Raised 1,200 linear feet of State Route 14
  - Placed >2,200 pieces of LWD
  - Planted 250 acres of riparian forest
- 3. Climate change considerations
  - ✓ Adaptation
  - Mitigation
  - ✓ Sequestration



# Emissions Footprint – Carbon Intensive Infrastructure



IMPACT	POUNDS CO <sup>2</sup>
EARTHWORK	9,706,500
CONCRETE	4,068,400
STEEL	583,400
<b>TOTAL</b>	<b>14,358,300</b>



1.7M cubic yards of earthwork (429,500 gal of diesel)

# Sequestration of the Project's CO<sup>2</sup> Emissions – 250 acres of riparian forest; ~750,000 plants

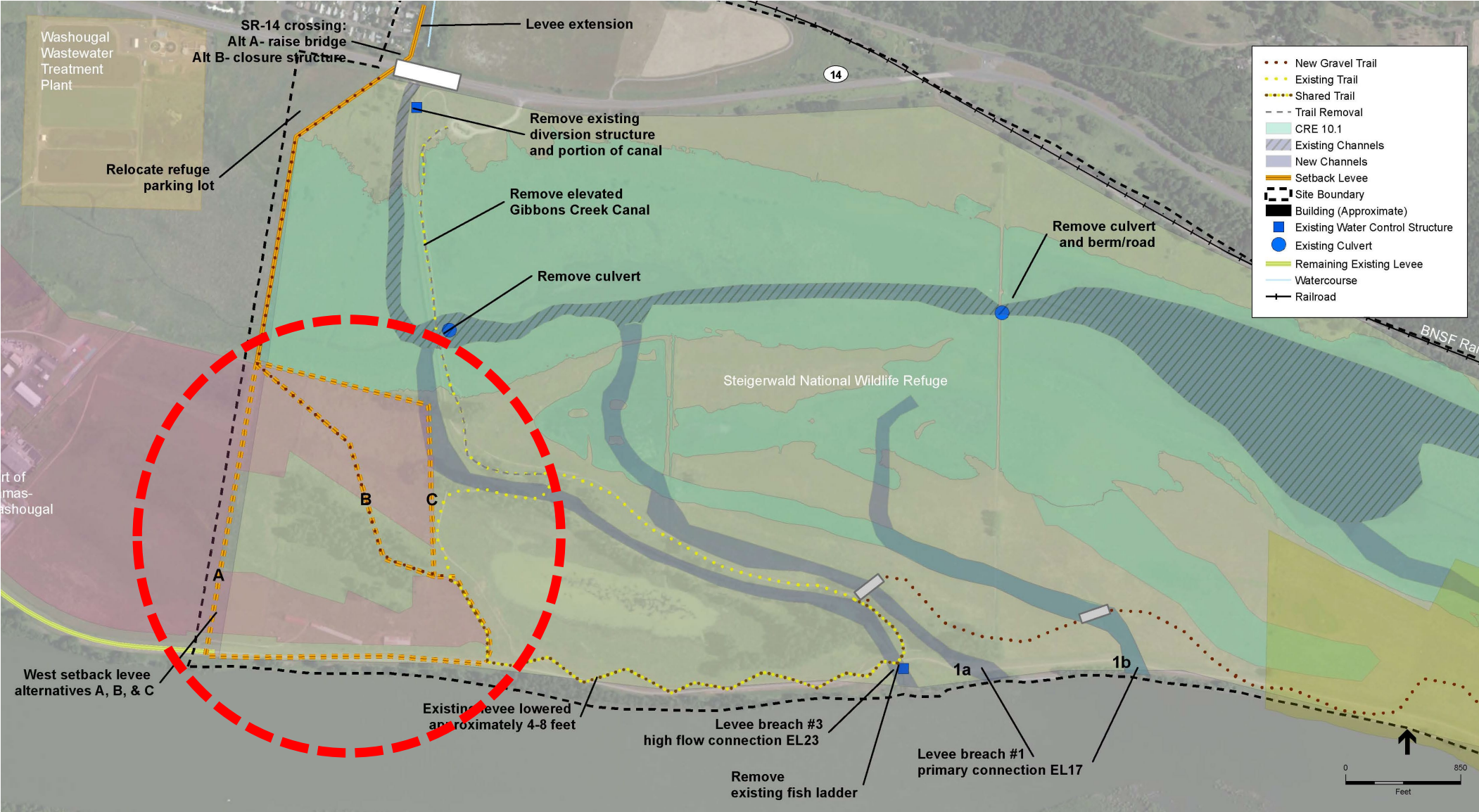


# Emissions Footprint/Sequestration – *this was an informal accounting!*



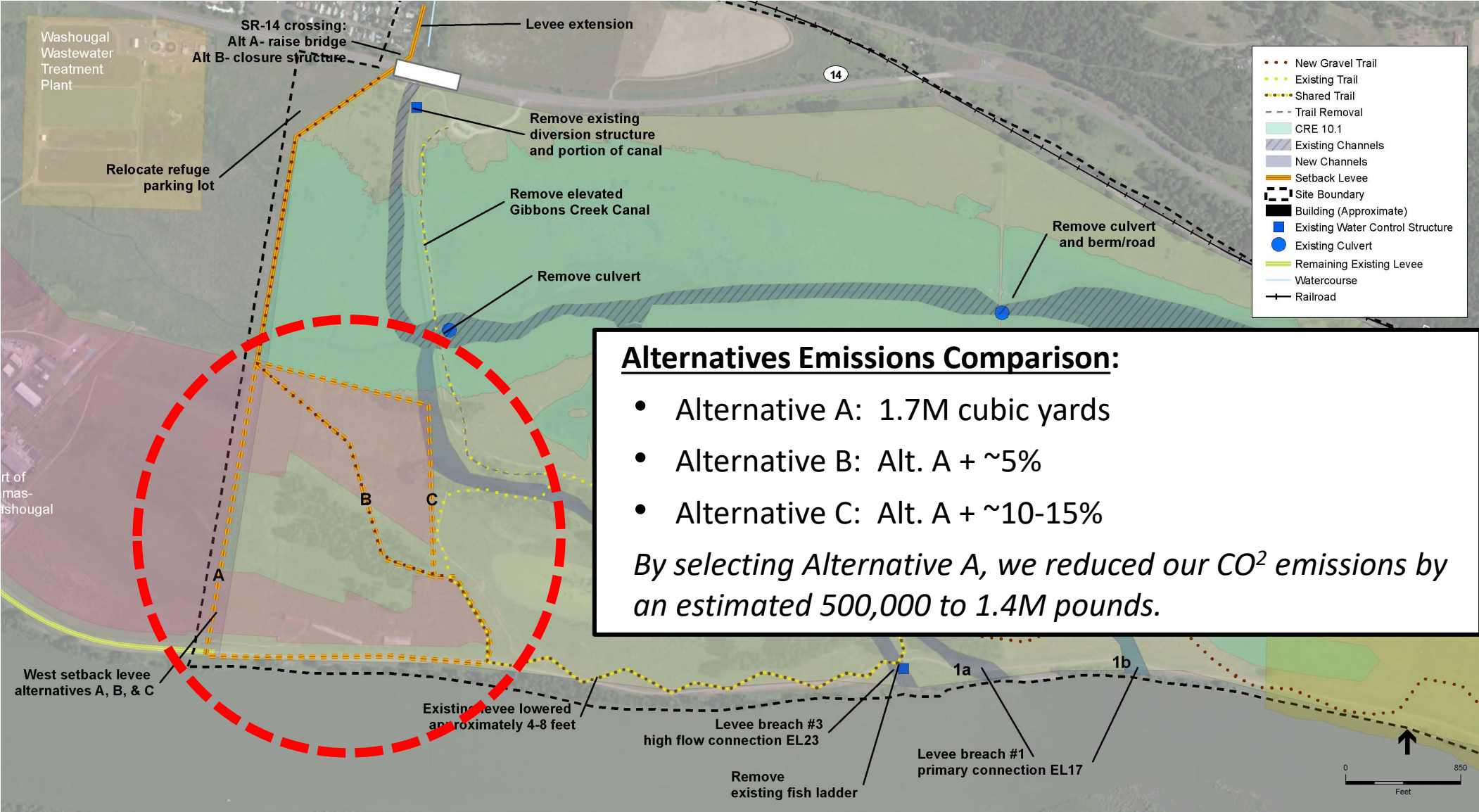
# Mitigation – How do we more effectively reduce emissions on future projects?

1. Start early! The alternatives analysis can be the most critical phase.



# Mitigation – How do we more effectively reduce emissions on future projects?

1. Start early! The alternatives analysis can be the most critical phase.





## Mitigation – *How do we more effectively reduce emissions on future projects?*

1. Start early! The alternatives analysis can be the most critical phase.
2. Focus stakeholder conversations on emissions, not only cost.



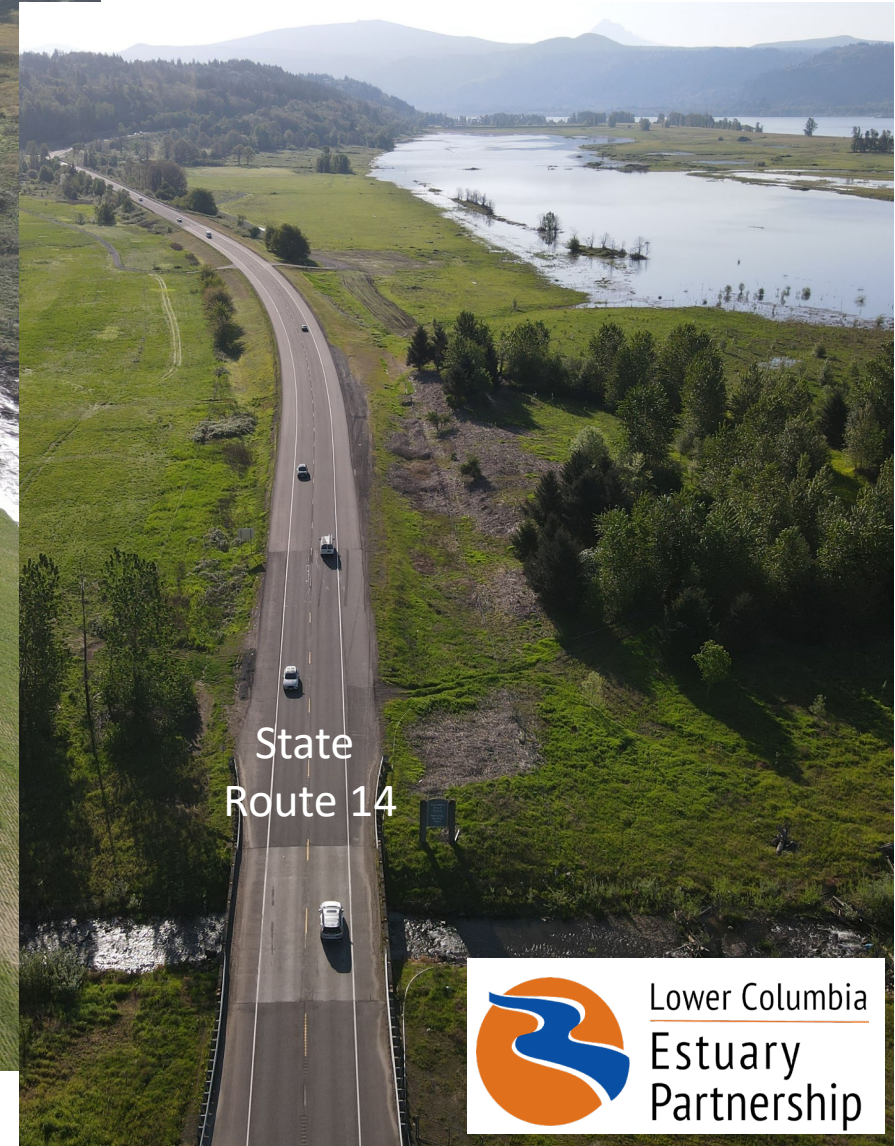
West Setback Levee



## Mitigation – *How do we more effectively reduce emissions on future projects?*

1. Start early! The alternatives analysis can be the most critical phase.
2. Focus stakeholder conversations on emissions, not only cost.
3. Rebuild infrastructure to meet future levels of risk.

West Setback Levee



# Mitigation – How do we more effectively reduce emissions on future projects?

- 1. Start early! The alternatives analysis can be the most critical phase.
- 2. Focus stakeholder conversations on emissions, not only cost.
- 3. Rebuild infrastructure to meet future levels of risk.
- 4. Less wood. More BDAs, willow trenches, and microtopography.



# Mitigation – How do we more effectively reduce emissions on future projects?

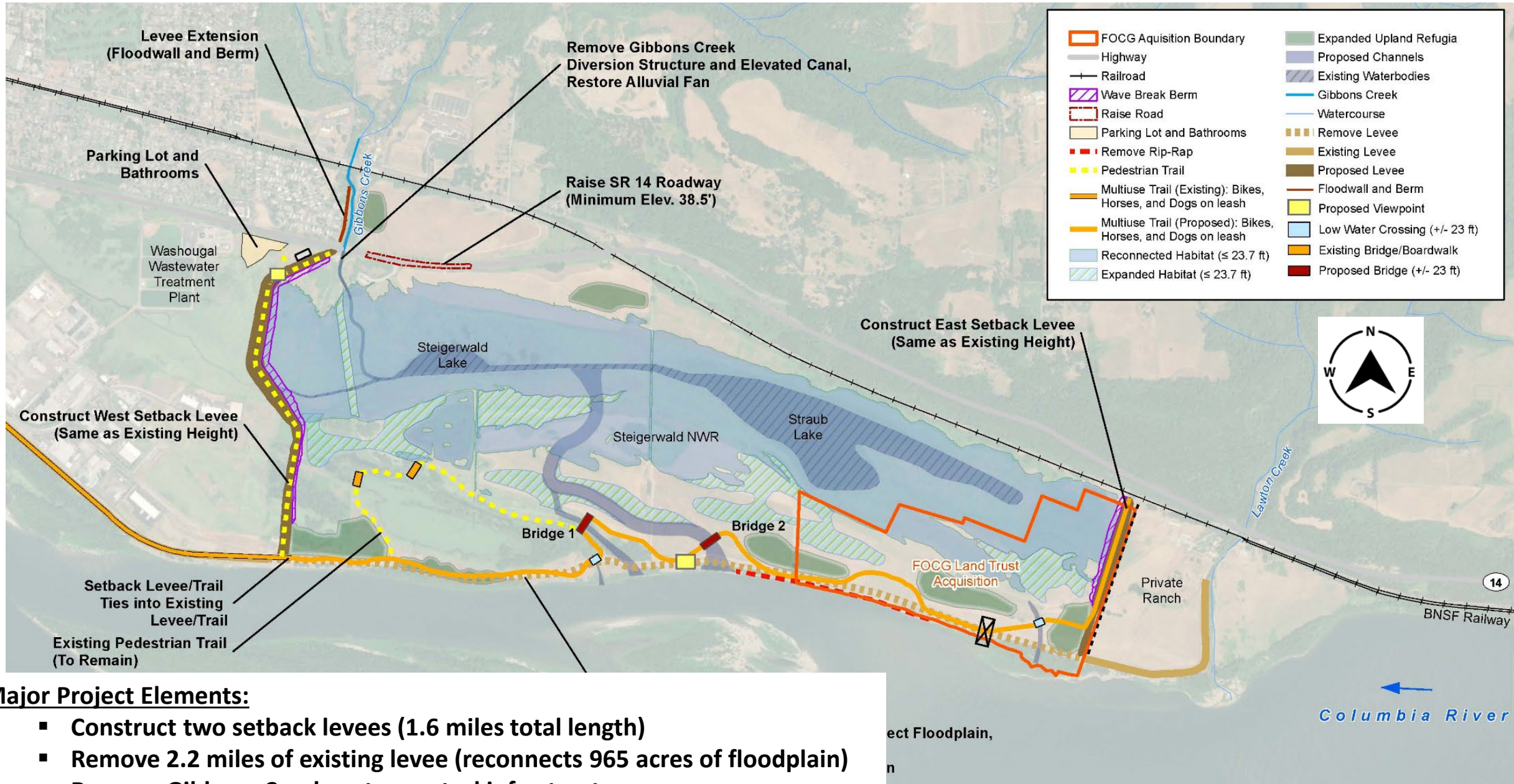
- 1. Start early! The alternatives analysis can be the most critical project
- 2. Focus stakeholder conversations on emissions, not only cost.
- 3. Rebuild infrastructure to meet future levels of risk.
- 4. Less wood. More BDAs, willow trenches, and microtopography.
- 5. Less *imported* wood. More *salvage* wood.



# Concluding Thoughts

- ✓ Emissions are unavoidable.
- ✓ Start early!
  - Build stakeholder support for emissions reduction as a project objective.
  - Alternatives analysis and design phases are critical.
- ✓ Emissions reduction has the added benefit of reducing cost & schedule risk.
- ✓ Sequestration is a powerful tool. Be aggressive with plantings (and their survival).





**Major Project Elements:**

- Construct two setback levees (1.6 miles total length)
- Remove 2.2 miles of existing levee (reconnects 965 acres of floodplain)
- Remove Gibbons Creek water control infrastructure
- Raise 1,300 linear feet of State Route 14
- Reforest 250 acres of native riparian habitat (635,000 plants)

# Concluding Thought #1 – *Expect Some Type 3 Fun*

## Type I Fun

Enjoyable while it's happening.



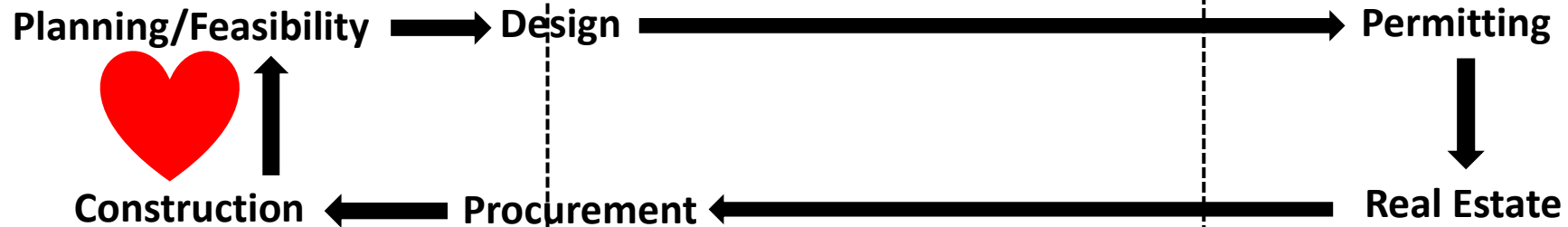
## Type II Fun

Miserable at the time;  
enjoyable only in retrospect.



## Type III Fun

Never enjoyable;  
miserable at all times.



# Historic Conditions & Limiting Factors

