

Slide 1: Introduction I'll be presenting an overview of the Final design of the Little Creek restoration project, our goals, what's been done, and what lies ahead.

Slide 2: Project Overview Map This slide shows a map of the project area. The City of Union is located here, and the upstream boundary of the project extends to Kofford Road.

Slide 3: Current and Future Vision Here's a conceptual illustration comparing the existing conditions with our long-term restoration vision for the site. This helps visualize the transformation we're working toward.

Slide 4: Past and Planned Restoration This map highlights completed and upcoming work in the Little Creek drainage.

- **Green stars** mark completed diversion improvements.
- **Red stars** indicate future diversion upgrades.

Slide 5: Read

Slide 6: Historical Land Management Historically, the landowner used riprap to address bank erosion a common practice at the time.

Over 50 years, riprap was placed at **41 locations** on the property.

While this method has been discontinued and now requires permitting, the existing riprap continues to cause channel instability by redirecting flow and eroding adjacent banks.

Slide 7: Current Bank Conditions These photos were taken between riprap sections. Even without significant spring runoff, large soil slumps are evident in the stream channel, highlighting ongoing instability.

Slide 8: Riparian Condition Most of the reach looks like this:

- Tree and shrub cover on one side, and nearly no vegetation on the other.
- The dominant species is non-native **English willow**, which provides limited ecological benefit.

Slide 9: Biological and Habitat Data Project planning began with data collected by **ODFW (2012–2015)** showing that steelhead are spawning both upstream and downstream of the site.

- Summer temperatures remain suitable for **steelhead** and **Chinook**.

- In fall of 2024, USFWS, CTUIR, and the District **relocated 9,999 mussels** estimated to be half of the population in the reach.
- This spring (2025), we conducted **spawning ground surveys**, confirming active **steelhead spawning**, juvenile fish, and other native species in the project area. Jesse Steele (GRMW) in front of a channel spanning Redd from a steelhead on the property.

Slide 10: Read

Slide 11: Flood Modeling and Design After consulting FEMA, we shifted to a "**no-rise**" design, due to inaccuracies in FEMA's existing flood maps for Little Creek.

- **Right panel:** 1-year flood model
 - Top = pre-project, Bottom = post-project
 - Notice **increased inundation on-site** without affecting downstream properties.
- **Left panel:** 100-year flood model
 - The post-project model shows a **reduction in downstream flooding**.
 - Dark blue = deeper water; note the lighter blue areas downstream in the post-project model.

Slide 12: Site Design Overview This slide presents a site-wide view of the planned improvements.

- At the **downstream end**, a buffer allows runoff to continue exiting the property as it historically has.
- In the **upper section**, riprap will be removed with minimal alteration to the existing channel alignment.

Slide 13: Plan Detail Here's a closer look at a section of the design plan. Under this zero rise design we can see:

- **Brown** = fill material in the existing main channel
- **Blues** = new channel cuts to distribute flow into 3 braided channels
- **Black, tan, yellow, green** = large wood structures
- **Green and orange lines** = willow trenches and flood fences
These features work together to stabilize banks, slow water, and enhance habitat. Construction is planned for summer of 2026.

Slide 14: Questions I'd be happy to answer any questions you may have.