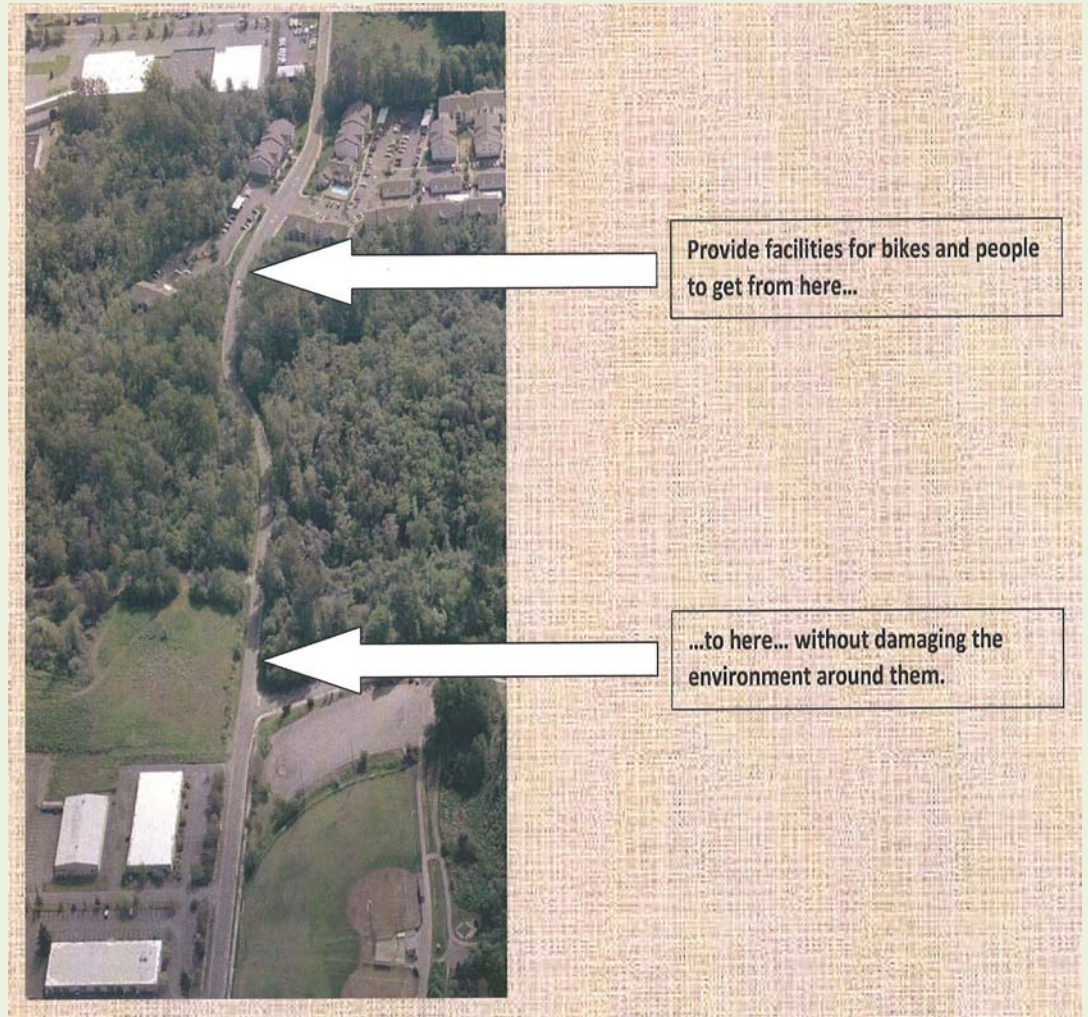


# **Fraser Street Bicycle and Pedestrian Improvements – Phase 3**

**ASCE – Outstanding Award 2010  
Transportation and Development**

# Project Scope

- Third phase of bike/ped improvements in central Bellingham
- Key link for bike routes, pedestrian facilities and regional interurban trails.
- First two phases completed in 2006 and 2008.
- Phase 3 was final link and funded via a Federal STPE grant.
- Adjacent to high quality wetlands

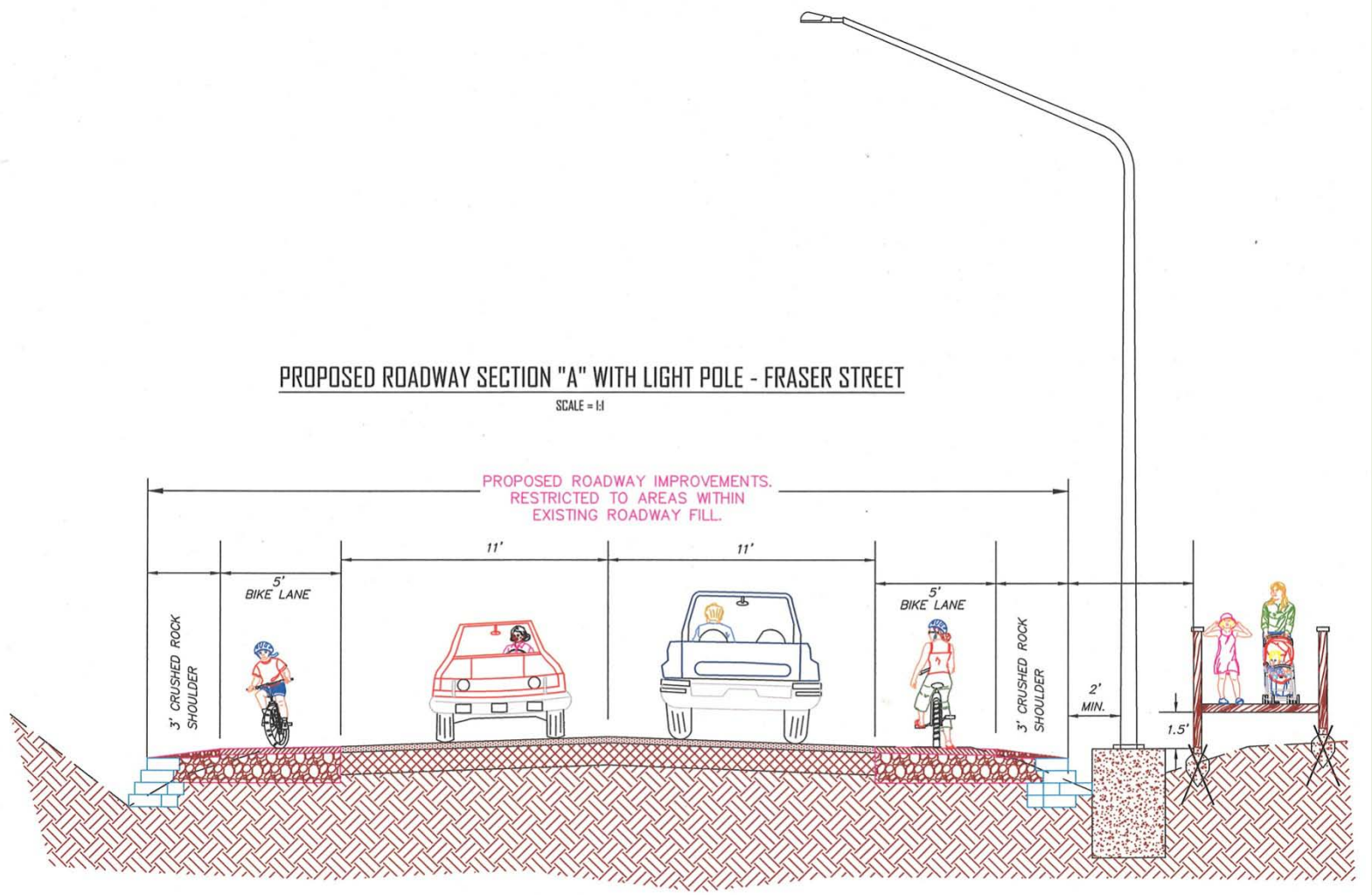


# Design Challenges

- Limited to existing fill footprint
- Existing culverts provided limited crossing width
- A boardwalk would require substantial footings
- Water quality impacts on adjacent wetlands
- Minimal space for stormwater treatment facilities



# Fraser Phase 3 - Proposed Road Section



# Design Solution – Bike lanes and stormwater

- Shift alignment to center design on culverts.
- Reconstruct shoulders with structural backfill within footprint for bike lanes and 3' shoulder.
- Geo-cell system allowed for installation around existing culverts, structures, and guardrails.
- Outer cells filled with sand to provide a linear sandfilter embedded in the roadway shoulder.
- Top course of clear crushed rock as pre-filter for sandfilter.



# Bike lane/shoulder construction



# Design Solution - Boardwalk

- Construct with pin foundation system
  - Designed for soft soils
  - Required minimal excavation.
- ADA compliant while providing 40% light transmittance for wetland vegetation underneath.
- Boardwalk elevated 18" above roadway to provide views into reserve and better light penetration to wetland vegetation.
- Two interurban trail connections included via ramps or connection at grade.



# Boardwalk Construction



# Finished Project



# Thanks!

