ASCE Seattle Section Local Outstanding Civil Engineering Achievement (LOCEA) Projects 2021

Outstanding Transportation and Development Engineering Project:

NE Spring Boulevard

Owner: City of Bellevue

Project Team: HDR, GeoEngineers; Lin & Associates; Ott Sakai; KPFF; PanGEO; Pacific Rim Environmental; Dickson Company; Johansen Excavating; Tran Tech; Krazen & Associates; Mayes Testing Engineers; KLB Construction; Interwest Construction, Inc

Long used for light industry, the BelRed subarea of Bellevue, Washington, is transforming into a state-of-the-art, mixed-use and transit-oriented neighborhood. Its backbone is the new NE Spring Boulevard, a one-of-a-kind urban gateway with four travel lanes, five intersections, two bridges, a multipurpose pathway, cycle tracks, and parking and drop-off zones. As the first ground-up designed multimodal corridor in Bellevue, this project used complete streets to improve mobility for people who walk, bike, drive or take transit.

The first two of a planned five-zone corridor, this project is a blueprint for future segments and corridors around the state. Designed for comfort and safety, the corridor features innovative non-motorized facilities and 14-foot-wide sidewalks. The design leans on a high level of detailing and material use to intuitively delineate space, including pigmented pavement, asphalt, pavers and ADA-compliant steel inlays. It also balances aesthetics and long-term maintenance with native plantings and sustainable water treatment infrastructure.

The team overcame significant hurdles, including remediating a former industrial area and weathering a global pandemic to continue construction. Completed on time and on budget, the new NE Spring Boulevard is poised to serve the neighborhood with multimodal amenities and regional connections.

Photo courtesy King County DNR/Parks

Outstanding Structures Project:

SR 203 Loutsis Creek Fish Passage

Owner: WSDOT

Project Team: WSDOT, Goodfellow Bros., Advanced Infrastructure Techologies (AIT)

This project used an innovative composite arch structure to remove a fish barrier where SR 203 crosses Loutsis Creek south of Duvall. This is the first use of the composite arch on the West Coast. Before this project, Loutsis Creek flowed through a five-foot diameter concrete pipe that was buried 40 feet under the highway. Water traveled too swiftly through the pipe for salmon and other fish to continue upstream. This project removes the concrete pipe and replaces it with a 50-foot-wide arch, allowing Loutsis Creek to flow freely underneath. The new creek bed gives access to about 3.1 miles of additional upstream habitat and spawning grounds for Coho salmon, steelhead, coastal cutthroat trout and resident fish like trout and lamprey.

The arch was furnished by AIT Bridges and used 12 one-foot diameter arched fiberglass tubes to form its frame. After the tubes were erected, they were covered with corrugated plates and filled with cement grout. Crews then constructed structural earth headwalls and wing walls, backfilled the arch and repaved the highway. This pilot project demonstrated the effectiveness and viability of this type of construction, which reduced the time and cost of the project compared to alternative structure types.

Outstanding Water Resources & Environmental Engineering Project:

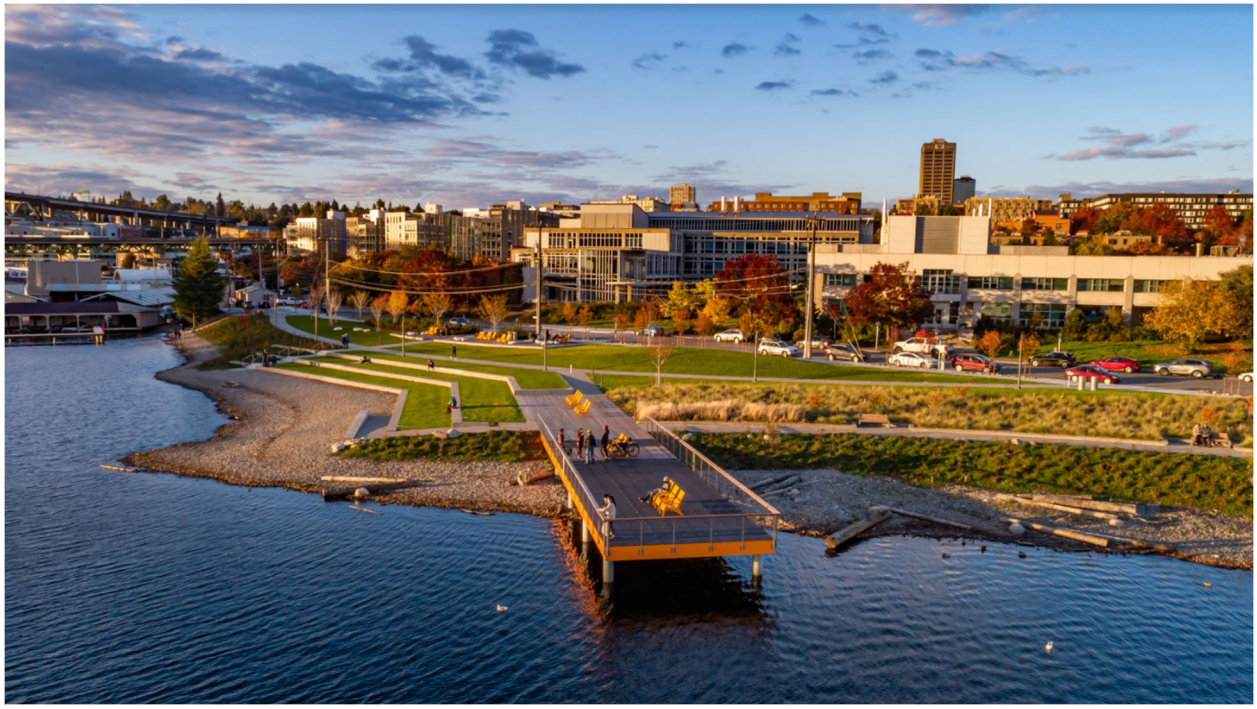
Fritz Hedges Waterway Park

Owner: City of Seattle - Seattle Parks and Recreation
Project Team: Osborn Consulting; Walker | Macy; KPFF; Maul Foster Alongi; Tres West Engineers; Merit Engineering; Design Two Four / Two Six; dark | light; Grette Associates

The Portage Bay waterfront was transformed into the beautiful new Fritz Hedges Waterway Park by Seattle Parks and Recreation (SPR), a multi-year project completed in fall of 2020. The new 3.5-acre park makes creative use of the compact area which has seen many uses throughout its history. Native Americans traversed this area, carrying their canoes along the Portage Bay Trail between Lake Union and lake Washington. Since then, the site has been used for a lumber mill site, then boat marina, and most recently the location of the University of Washington police station and recycling center.

These varied uses of this site over the years resulted in contaminated soils, which could potentially endanger the Portage Bay salmon habitat along the shoreline if disrupted. Innovative design solutions were employed to keep the contaminated soil on-site and prevent it from spreading during or after construction. Due to the prominent location at the south terminus of the University of Washington, the design focused on providing a cost-effective approach that can withstand the rigors of a very popular park.

The final project delivers a much-needed green space to the surrounding community, improves the local habitat for salmon, and turns this once inaccessible waterfront into a beautiful public space.



Outstanding Ports and Waterways Project:

Mukilteo Ferry Terminal

Owner: WSDOT / WSF

Project Team: KPFF; LMN Architects; Jacobs Engineering

The Mukilteo Ferry Terminal—WSF's first new terminal in 40 years—was designed to be "light on the earth," considering the site's sensitive environment and historic significance to the Native American peoples of the Salish Sea.

The new terminal is a true multimodal facility, marrying ferry, vehicle, train, bus, bike, and pedestrian access into a single transit hub. The new terminal improves user safety and will accommodate significant ridership increases.

WSF worked with local tribes to identify how key project elements could honor their history, via the building form, sustainable design, artwork, and native landscaping.

The Native American longhouse inspired the terminal buildings, which incorporate traditional, sustainable wood materials. Designed to LEED Gold, the buildings include a photovoltaic system, rainwater harvesting, efficient heat pumps, and natural ventilation.

Upland work included major roadway construction, utilities, landscaping, and innovative "Enhanced Stormwater Treatment" consisting of bioretention facilities, Modular Wetlands, and pervious pavement/ sand filtration. The site was raised up to seven feet to reduce coastal flooding, sea-level rise, and contaminated soil risks.

In-water marine work included moveable bridges, ferry berthing structures, shoreline stabilization, and an ADA accessible fishing pier. The team implemented innovative Concrete Filled Steel Tubes (CFST) research to control foundation displacements.