ASCE SEATTLE SECTION RECOGNIZES LOCAL OUTSTANDING CIVIL ENGINEERING PROJECTS

University of Washington (UW) Montlake Triangle and Rainer Vista Project is Top Honoree

By Stefanie Herzstein, Immediate Past President

ASCE Local Outstanding Civil Engineering Achievement 2016 Awards Announcements

The Seattle Section of the American Society of Civil Engineers (ASCE) has chosen University of Washington (UW) Montlake Triangle and Rainer Vista Project for top honors in their 16th Annual Local Outstanding Civil Engineering Achievement (LOCEA) Awards.

The LOCEA Awards recognize projects that have improved the quality of life and contributed to the economic development of the local community, area, or region. These projects represent the successful combination of multiple engineering objectives, including design innovation and excellence, environmental sustainability, cost effectiveness, the effective use of materials, and aesthetics.

The Seattle Section ASCE is also recognizing three projects with Honor Awards as part of this year's LOCEA Award competition, including: Windermere Combined Sewer Overflow Reduction (Seattle, WA), Honor Award: Water Resources Category; the Ivar's Pier 54 Seismic Upgrades & Renovation (Seattle, WA), Honor Award: Structures Category; and the Tiger Mountain Lower High Point Bridge (Issaquah, WA), Honor Award: Small Project Category.

ASCE Seattle will formally present the outstanding achievement and honor awards at its June 8, 2016 meeting at Mirabella in Seattle.

University of Washington Montlake Triangle and Rainer Vista Project

The ASCE Seattle Section has chosen UW Montlake Triangle and Rainer Vista Project in Seattle, WA for recognition as a 2016 Local Outstanding Civil Engineering Achievement in the Transportation and Development Category. The award-winning project team includes KPPF Consulting Engineers, Gustafson Guthrie Nichol Landscape Architects, Sellen/Merlino JV, and Shannon & Wilson. UW is the project owner.

Photo courtesy of Gustafson Guthrie Nichol

The UW Montlake Triangle and Rainier Vista Project simultaneously created a seamless grade-separated multimodal transportation hub while transforming the main gateway to the University of Washington, completing the historic Olmstead Brothers' campus vision. The project serves as a hub for the University Link Light Rail Station, the Burke Gilman Trail, Metro Bus Transit, UW Medical Center and Husky

Stadium. The project is a seamless collaboration of urban design and engineering satisfying the needs of multiple stakeholders, and is the future of integrating all modes of urban travel.

The project team overcame significant challenges, including:

- Restoring the historic view corridor to Mt. Rainier required 19,000 cubic yards of fill to be added above a 30-year old parking garage, with fill depths ranging from 18-inches to 10-feet. This may be the largest earthwork project over an existing building structure ever attempted.
- Achieving the signature hourglass shape of the landbridge required an innovative 3D post-tensioning (PT) system.
- Lowering a city street by 19-feet for the landbridge resulted in exposing one side of an existing underground parking garage requiring seismic retrofits within the garage, which could not be shut down as it is a critical facility for the UW Medical Center.
- Resolving complex geometric constraints to achieve safe, accessible and efficient pathways that include the regional Burke-Gilman Trail that currently carries over 1,200 bikes and pedestrians per hour (peak PM) and is expected to grow to over 2,100 people per hour by 2030.

Honor Awards

The ASCE Seattle Section recognized three additional projects as Honor Award recipients as part of the 2016 Local Outstanding Civil Engineering Achievement Awards competition.

<u>Honor Award, Water Resources Category</u>

Windermere Combined Sewer Overflow Reduction (Seattle, WA)

Project Owner: Seattle Public Utilities

Project Team: HDR, CH2M, CDM Smith, HBB Landscape Architects

In order to meet Department of Ecology regulatory requirements of no more than one untreated combined sewer overflow (CSO) per year per outfall in the Windermere Basin, Seattle Public Utilities constructed a new 2.05 million gallon CSO storage facility and two system retrofits. The storage tank, in a parcel adjacent to Magnuson Park, was designed to minimize impacts to the park and future development. The project also included approximately 2,250 linear feet of conveyance piping, associated controls, and mechanical and odor control equipment. The system retrofits consisted of a new modulating combined sewer control gate, improvements to existing weirs, addition of instrumentation for level and flow measurement, and real time monitoring and controls.

Honor Award, Structures Category

Ivar's Pier 54 Seismic Upgrades & Renovation (Seattle, WA)

Project Owner: Ivar's

Project Team: Reid Middleton, Inc., Hikari Consulting, Mithun, CB Anderson Architects, RS Consulting, GeoEngineers, W.G. Clark Construction Co. & Pacific Pile & Marine

Photo 2: Pier 54 looking north. Note the reconstructed west and south aprons, the outdoor dining area, and the revised window openings.

Reid Middleton provided structural engineering for the renovation of Ivar's Pier 54 in Seattle. Project includes the complete replacement of the existing timber aprons on the north and west sides of the building and partial replacement of the south apron with new steel piling, precast concrete caps, and deck panels. The aprons were designed to seismically strengthen the remaining portion of the timber pier supporting the building. A seismic renovation was also completed on the historic restaurant building on the pier. The nearly 100-year-old heavy timber structure required structural upgrades to strengthen the building. Upgrades included installing steel moment frames and upgrades to existing heavy timber trusses to support additional loads.

Honor Award, Small Project Category

Tiger Mountain Lower High Point Bridge (Issaquah, WA)

Project Owner: Washington State Department of Natural Resources

Project Team: RHC Engineering and Shannon & Wilson

The 200-foot long self-weathering steel truss pedestrian bridge is 30-feet above the Lower High Point Creek. The bridge replaced an existing shorter and lower wood bridge damaged by flooding in 2009. The width of the bridge is only 4'6", and the height of intermediate piers is 30-feet. The superstructure is a 4'10" pony truss, with top chord of the truss also working as the top of the railing to save the cost in installing separate railings. The bridge deck is 4" thick treated timber deck. The two intermediate columns are made of curved 12 inch square steel tubes. The spread footings, column pedestals, and abutments are cast-in-place concrete. The foundations were laid outside of potential geological hazard areas.

Conventional construction vehicles were not able to access the bridge site; therefore, smaller helicopters were used to transport materials. The design used smaller truss segments and field bolting to stay within the lifting limitations of the helicopter.