

Seattle Daily Journal of Commerce

ACEC2022

ENGINEERING EXCELLENCE AWARDS

NATIONAL FINALISTS

BEST IN STATE

ENGINEER OF THE YEAR

INCLUSION AWARDS



March 28, 2022

NATIONAL FINALIST: PLATINUM AWARD

SPECIAL PROJECTS

Haley & Aldrich

Project: Climate Pledge Arena
Client: Oak View Group/CAA Icon

The iconic KeyArena building at the Seattle Center served the city of Seattle well since the World's Fair in 1962, hosting concerts, professional sports, and much more, but it eventually became obsolete. In 2017, Oak View Group was selected by the city to build a new world-class arena at the site of the existing KeyArena, which was too small by today's standards.

The new arena would be twice the size of the old one, meaning the current playing surface would need lowering and the area enlarged. Haley & Aldrich engineers and scientists worked with the ownership team, the structural engineer, the architect, and contractors to make the vision of Oak View Group and the city a reality.

When Oak View Group and the city were awarded a National Hockey League expansion franchise in 2018 to begin to play in the 2021-2022 season, scheduling and efficiency became a priority. In most cases, demolition of the old facility and construction of the new would have begun routinely. But for this project, there was one catch, the new arena had to maintain and protect the existing concrete roof. The unique roof and exterior cladding had become a recognizable part of the Seattle skyline, and in 2018 the city's landmarks preservation board designated it as a historical structure that could not be altered. Architect Paul Thiry designed the roof for the Washington State Pavilion built on the Seattle Center grounds for the World's Fair.

The engineers at Haley & Aldrich worked to solve never-before-encountered challenges to help design and build a state-of-the-art facility. Plans called for more than doubling the size of the previous arena while holding up a brittle roof weighing 22,000 tons and covering an area of nearly 200,000 square feet. Constructing the new building under the old roof was like building a world-class arena under a circus tent. What was more, the supports for the landmarked roof weren't deep enough for the new structure. Constructing a new arena under its existing roof has never been done before, and each step of the project required new approaches to solving traditional problems.

Haley & Aldrich provided geotechnical design and foundation construction criteria, environmental assessment and remediation, preconstruction surveys, roof and excavation performance monitoring, and reporting to the

In order to more than double the size of the existing arena, the excavation had to be bigger and go deeper.

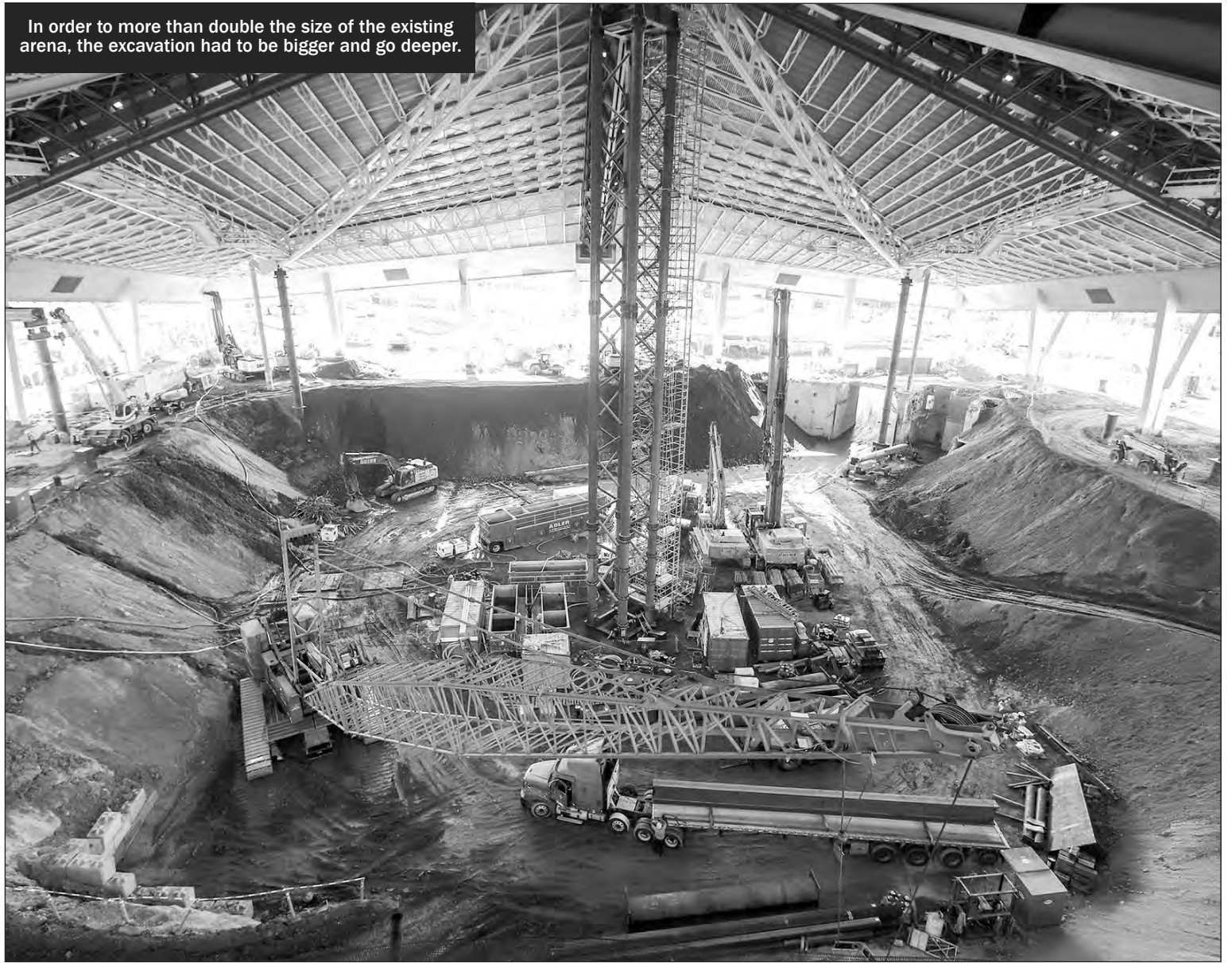


PHOTO COURTESY OF MORTENSON

ownership group and the city.

To hold the existing roof in place during excavation required the design and construction of a complex temporary support system. The Haley & Aldrich team developed soil support and seismic loading criteria vital for more than just supporting the new arena. The requirements also allowed transitioning the roof weight from the shallow existing supports — to temporary roof supports during construction of the new building below — and finally to permanent foundations that were 60 feet lower than the original footings. To keep the roof stable during construction, the structural engineers determined it couldn't be allowed to move more than ¼-inch between the supports. The team's challenge was not just to support the roof but also to design and implement a monitoring plan to ensure it stayed in place and in one piece.

To monitor any roof movement, the team developed and installed an automated survey monitoring system to track any movements at 475 points on and around the roof every four

hours and report them to the design and construction team.

The scale of the excavation is hard to visualize. The ice floor would be 15 feet deeper than the previous playing surface, already over 35 feet below the ground. But the extent of the excavation would dwarf the old KeyArena — and most excavations in Seattle — removing over 680,000 cubic yards of dirt. That is equivalent to three large Seattle city blocks excavated to a depth of 95 feet.

Under and around this fragile structure, the engineers guided the design. They oversaw the construction of more than a mile of excavation shoring and 187 temporary and permanent foundation drilled shafts to hold everything in place. Creating a space twice as large as the existing facility required 651 drilled soldier piles and 2,593 tieback anchors, all done under minimal roof clearance.

The tight schedule required several concurrent operations. During the shoring installation and with the excavation beginning, the team also began transferring the roof load to the

temporary roof supports. These simultaneous activities required a large group of engineers and geologists from Haley & Aldrich and many other project engineers to meet daily. The teams shared huge volumes of information on daily activities to allow continued design, conduct tests, help the contractor schedule activities, and interpret all testing and monitoring results.

Building a world-class sports arena in less than three years in a busy downtown setting is a challenge in and of itself. Despite millions of dollars of enhancements added to the program dur-

ing construction, Climate Pledge Arena, the first net-zero carbon professional sports venue in the nation, opened on time. The stands and the ice were ready for the first home puck to drop on the 2021-2022 NHL season opener featuring the Seattle Kraken versus the Vancouver Canucks on Oct. 23, 2021. This new showpiece facility is the home of Seattle's National Hockey League team, the Kraken; the Women's National Basketball Association team, the Seattle Storm; and will host countless other entertainment events for the Seattle region.

ON THE COVER

Building the Climate Pledge Arena under the old landmarked roof was like building a world class arena under a circus tent. The project won a Platinum Award.

PHOTO COURTESY OF CLIMATE PLEDGE ARENA

DJC SPECIAL SECTION TEAM

SECTION EDITOR: SAM BENNETT • SECTION DESIGN: JEFFREY MILLER
 WEB DESIGN: LISA LANNIGAN • ADVERTISING: MATT BROWN

HALEY & ALDRICH WINS TOP PRIZE FOR CLIMATE PLEDGE ARENA

Haley & Aldrich is the top winner in the American Council of Engineering Companies of Washington's annual Engineering Excellence Awards program. The firm took home the top honor — the Platinum Award — for its design to hold up the existing roof on KeyArena, while doubling the size of the arena below.

Sponsored by ACEC's Washington state chapter, the awards program recognizes projects that represent a wide range of engineering achievements and demonstrate the highest degree of skill and ingenuity.

Twenty-seven projects were honored in this year's program. The top national awards will go on to compete in the ACEC national competition in Washington, D.C., in April.

Project entries were evaluated by a five-judge panel: Robert Axley, engineer emeritus, Wood Harbinger; Steve Johnston, engineer emeritus, Landau Associates; Supriya Kelkar, senior design manager, Sound Transit; Benjamin Minnick, construction editor, Daily Journal of Commerce; and Kathy Robertson, engineer emeritus, Picketts Engineering.

ACEC Washington is a professional trade association representing consulting engineering, land surveying and affiliated scientific and planning firms statewide.

NATIONAL FINALISTS

PLATINUM AWARD

SPECIAL PROJECTS

Haley & Aldrich
Project: Climate Pledge Arena
Client: Oak View Group/CAA Icon

GOLD AWARDS

STRUCTURAL SYSTEMS

Magnusson Klemencic Associates
Project: Rainier Square
Client: RSQ Tower LLC

WATER RESOURCES

HDR
Project: Anacortes Water Treatment Plant clearwell
Client: City of Anacortes

SPECIAL PROJECTS

Shannon & Wilson
Project: TAPS-Lost Creek thermal improvements
Client: Alyeska Pipeline Service Co.

TRANSPORTATION

KPFF
Project: Mukilteo Multimodal Ferry Terminal
Client: WSDOT Ferries Division

SILVER AWARDS

TRANSPORTATION

McMillen Jacobs Associates
Project: Northgate Link Extension
Client: Sound Transit

Jacobs
Project: SR 167/70 Avenue East vicinity bridge replacement
Client: WSDOT/Atkinson Construction

H.W. Lochner Inc.
Project: Issaquah-Fall City Road 242nd-Klahanie Drive Southeast
Client: City of Sammamish

Aecom
Project: Sea-Tac Airport North Satellite modernization
Client: Port of Seattle

HDR Inc.
Project: I-90, Barker Road Interchange improvement
Client: City of Spokane Valley

WATER RESOURCES

Inter-Fluve
Project: Nason Creek Upper White Pine restoration
Client: Chelan County and U.S. Bureau of Reclamation

BEST IN STATE

GOLD AWARDS

UNIQUE OR INNOVATIVE APPLICATION OF NEW OR EXISTING TECHNIQUES

BHC Consultants
Project: Salmon Creek WWTP solids handling improvements
Client: Southwest Suburban Sewer District

FUTURE VALUE TO THE ENGINEERING PROFESSION

P2S
Project: EvergreenHealth Critical Care Unit
Client: Evergreen Health/KMD Architects

Tetra Tech
Project: Lake Ketchum restoration
Client: Snohomish County Surface Water Management

SUCCESSFUL FULFILLMENT OF CLIENT/OWNER NEEDS

Herrera Environmental Consultants
Project: Albany Street stormwater park
Client: Thurston County

COMPLEXITY

Wood Harbinger
Project: Harborview Medical Center water damage repair
Client: King County

SOCIAL, ECONOMIC AND SUSTAINABLE DESIGN

David Evans and Associates
Project: John Lewis Memorial Bridge
Client: City of Seattle DOT

Landau Associates
Project: Bay Wood shoreline restoration and cleanup
Client: Port of Everett

SILVER AWARDS

UNIQUE OR INNOVATIVE APPLICATION OF NEW OR EXISTING TECHNIQUES

Coughlin Porter Lundeen
Project: 2005 Poplar
Client: Rowley Properties/VIA (a Perkins Eastman Studio)

COMPLEXITY

WSP USA
Project: Duportail Bridge
Client: City of Richland

FUTURE VALUE TO THE ENGINEERING PROFESSION

Shannon & Wilson
Project: US 101 Siebert Creek — fish barrier removal
Client: WSDOT

SOCIAL, ECONOMIC AND SUSTAINABLE DESIGN

Reid Middleton
Project: Edmonds Waterfront Center
Client: Environmental Works Community Design Center

SUCCESSFUL FULFILLMENT OF CLIENT/OWNER NEEDS

Reid Middleton
Project: Pier 62 evaluation and replacement
Client: City of Seattle

BRONZE AWARDS

COMPLEXITY

PS2 Inc.
Project: P-401 Ship Maintenance Support Facility
Client: U.S. Navy

SOCIAL, ECONOMIC AND SUSTAINABLE DESIGN

Parametrix
Project: Veterans Drive Southwest improvements
Client: City of Lakewood

SUCCESSFUL FULFILLMENT OF CLIENT/OWNER NEEDS

Moffatt & Nichol
Project: A Dock reconfiguration
Client: Port of Anacortes

SUCCESSFUL FULFILLMENT OF CLIENT/OWNER NEEDS

KBA Inc.
Project: Link Operations and Maintenance Facility East
Client: Sound Transit

ENGINEER OF THE YEAR

Shelley Clark
Magnusson Klemencic Associates

DIVERSITY AND INCLUSION AWARDS

LARGE FIRM

Brown and Caldwell

MID-SIZE FIRM

KBA Inc. Coughlin Porter Lundeen



MKA designed the new Rainier Square complex to complement the neighboring iconic Rainier Tower while implementing new technology for efficient construction.

PHOTO COURTESY OF NBBJ

NATIONAL FINALIST: GOLD AWARD

STRUCTURAL SYSTEMS

Magnusson Klemencic Associates

Project: Rainier Square
Client: RSQ Tower LLC

Once in a while, a project makes history and forever changes the future of building construction by introducing an innovation that interrupts the “way things are done.” Rainier Square is one of those projects. The 58-story, 850-foot-tall, 1.4 million-square-foot mixed-use tower in downtown Seattle was built using a first-of-its-kind system, making way for faster, safer and more efficient tall-building construction with unprecedented schedule and cost savings.

When developer Wright Runstad & Co. enlisted Magnusson Klemencic Associates to transform the site of the outdated, 40-year-old downtown shopping center into a vibrant mixed-use destination using an efficient, time- and cost-saving design a new concept emerged.

Engineers at Magnusson Klemencic proposed using newly developed SpeedCore panels for construction of the new high-rise complex. This system put a 16-year-long collaborative research effort to the test and relied on the efficiency of the system’s modular, prefabricated, concrete-filled, composite-plate steel shear wall panels, which comprise the structural core.

Traditionally, a building of this size and scope is built with a reinforced concrete core surrounded by structural steel and composite-floor framing. This labor-intensive process requires setting formwork, installing reinforcing steel, placing embedded plates, and pumping and curing concrete level by level. With SpeedCore, all these steps are eliminated from the construction sequencing, saving time and money without compromising structural safety or stability — even in a seismically active region.

Using the SpeedCore system takes advantage of prefabricated elements and modular erection on-site with an unprecedented efficiency allowing construction

to proceed 43% faster than conventional methods. As a result, construction ended 10 months sooner than first planned, saving the developer tens of millions of dollars and providing earlier revenue streams for the owner from rent paid for office floors, retail spaces and apartment units.

At the maximum pace of four floors per week, erection occurred at a lightning-fast tempo compared to traditional cores (one floor every three to five days). As a result, the project team celebrated the tower’s topping-out less than a year after the first modules arrived on site — an amazing achievement considering the building’s scale.

The new Rainier Square development successfully incorporates a vertical stack of residential apartments over commercial office space with a retail podium, an adjacent 10-story office building, and a grand hall lobby space that seamlessly connects the new development to its iconic neighbor, Rainier Tower, designed in 1970 by famed architect Minoru Yamasaki (most known for his design of the original World Trade Center towers).

Designed to preserve, enhance, and pay homage to its neighbor, 40-story Rainier Tower, the design had to achieve goals for the project and the surrounding neighborhood. Sloping steel columns not only give Rainier Square its unique, sweeping form, but also allow the new building’s east facade to curve upward so as not to block Rainier Tower. The unique duality of the design results in a visually stunning form that does not compromise on strength or height, but still sensitively maintains Rainier Tower’s views.

Named one of America’s Top 10 decade-defining steel projects by AISC’s Modern Steel Construction magazine, the use of SpeedCore to build Rainier Square is a winning combination of engineering innovation and industry advancement. As non-proprietary technology, SpeedCore is available to all, has captured the AEC industry’s imagination, and is reinventing the rules of high-rise steel construction.



FOR LEASE

Journal of Commerce Building

83 COLUMBIA STREET, SEATTLE, WA



STEVE PELLUER
425.450.1180
steve.pelluer@kidder.com

KIDDER.COM

Kidder Mathews

Property Details

±4,700 SF available on first floor
RENTAL RATE \$25.00/SF/yr, gross
ABUNDANT natural light

FERRY TERMINALS one block away
QUIET open space with mezzanine
20' HIGH CEILINGS with exposed brick and wood beams

This information supplied herein is from sources we deem reliable. It is provided without any representation, warranty, or guarantee, expressed or implied as to its accuracy. Prospective Buyer or Tenant should conduct an independent investigation and verification of all matters deemed to be material, including, but not limited to, statements of income and expenses. Consult your attorney, accountant, or other professional advisor.

Searching spec books has never been easier.
PlanCenter covers the Great Northwest with projects located in **Washington, Idaho, Oregon and Alaska.**



PlanCenter.com
Send us your plans, we'll post them.

PUBLIC AGENCIES POST FOR FREE



Shannon & Wilson designed an economical and environmentally sensitive system using vertical freestanding thermosyphons and wood chips to cool the ground and stabilize the Trans Alaska Pipeline.

PHOTO FROM ACEC

NATIONAL FINALIST: GOLD AWARD

SPECIAL PROJECTS

Shannon & Wilson

Project: TAPS-Lost Creek thermal improvements

Client: Alyeska Pipeline Service Co.

The Trans Alaska Pipeline System is a 48-inch-diameter pipeline sending 500,000 barrels of oil per day from Prudhoe Bay to Valdez, Alaska. The pipeline traverses 800 miles of continuous and intermittent permafrost and is either supported above ground or buried, depending on subsurface conditions. In the 1970s, when the Trans Alaska Pipeline was originally built, no one anticipated that Alaska's permafrost would soften, but continued climate-warming trends are causing problems with structures that support it.

Since 1990, the Alyeska Pipeline Service Co. has performed extensive maintenance at its remote Lost Creek site

about three hours north of Fairbanks. Here complex soil and thermal conditions cause continuous slope movement and threaten a landslide that could disrupt the Trans Alaska Pipeline. Above ground, the pipeline is supported on vertical support members constructed with 18-inch-diameter steel pipe piles that extend 35 to 50 feet deep.

Unfortunately, the 40-foot fill embankment the Trans Alaska Pipeline sits on at Lost Creek was constructed over a frozen peat bog during the winter. After construction, a shear zone developed within the frozen permafrost peat layer, which displaces at about half an inch per year. This slope movement causes the pipeline's vertical support members to tilt, putting stress on the pipeline.

Shannon & Wilson designed new piles to replace those with excessive tilt and a thermal improvement system to cool the peat zone to stop the creeping movement and prevent a rapidly moving landslide.

The thermal improvement system is an array of free-standing heat pipe thermosyphons drilled 40 to 60 feet into the ground and surface insulation to keep it cool. These thermosyphons provide long-term cooling in a completely passive manner, requiring no moving parts, pumps, or supplied power. Using locally available woodchips for surface insulation to prevent excessive heat gain during warm weather seasons creates a smaller carbon footprint.

Using state-of-the-art design methods, Shannon & Wilson geotechnical engineers significantly reduced the number of thermosyphons and amount of wood-chip surface insulation needed to cool and maintain permafrost even with the most severe climate warming scenario. The innovative Lost Creek project design combined two emerging technologies (transient thermal creep testing and 3D finite element thermal simulation) and one existing technology (passive thermo-

syphons) to solve a costly and potentially dangerous problem.

Using new and more accurate 3D FE modeling software, Shannon & Wilson's design provided a less costly and more efficient design that allowed construction to fit in one season instead of two. The final design saved over \$1 million by using 40% fewer thermosyphons and incorporating units already in storage for maintenance, saving precious fabrication time.

With continued climate warming trends and consequent permafrost degradation, many other slopes in Arctic regions have similar problems. The Lost Creek thermal improvements project exemplifies engineering excellence, demonstrating that emerging and existing technology — applied in unique ways — can solve not only the issues of today but can provide new engineering solutions for the future.

HDR designed a creative solution that solved complex issues to help the city of Anacortes run a second water pipeline under the Skagit River.



PHOTO FROM ACEC

NATIONAL FINALIST: GOLD AWARD

WATER RESOURCES

HDR

Project: Anacortes Water Treatment Plant clearwell
Client: City of Anacortes

The city of Anacortes owns and operates an intake pump station on one side of the Skagit River that supplies water to the city's water treatment plant on the opposite side of the river through a 42-inch-diameter concrete cylinder pipe, buried within the riverbed. The original pipeline, installed in 1969, has been in continuous use and has never been inspected or serviced but is believed to be in good condition.

Recent climate change has increased the potential risks to the original pipeline associated with more frequent and intense high river flows, causing concern that this original concrete pipeline was a single point of failure for the city's water supply. To sig-

nificantly increase the reliability of uninterrupted water supply, the city of Anacortes planned to construct a second raw water pipeline providing for full redundancy for the original pipeline, which will remain in service.

The city of Anacortes is a significant provider of water in the region, supplying water to over 60,000 people, including those in Anacortes, and its wholesale customers: the town of La Conner, the Swinomish Indian Tribal Community, the city of Oak Harbor, two major petroleum refineries in Skagit County, and the Naval Air Station on Whidbey Island.

The HDR team provided planning, alignment analyses, trenchless pipe installation analysis, preliminary engineering, cost analyses, design, and construction management for the pipeline project. Engineers designed a second pipeline that could carry the total capacity of

the city's 54.9 million gallons per day water right from the Skagit River combined with an additional 2.1 million-gallon clearwell tank to double the disinfection contacting time for treated water produced by the water treatment plant. Combining the new raw water pipeline and the second tank into a single construction project reduced costs, administrative effort, and risks.

The new 42-inch-diameter welded steel pipeline has a total length of approximately 3,100 lineal feet and consists of three segments. Two segments, one on each side of the river, were installed using typical open trench pipe construction. The third segment, extending for 1,960 lineal feet under the river between the two facilities, was installed using the horizontal directional drill method. The scale of this pipeline was immense, drilling approximately 60 feet below the riverbed at its

deepest point, for 1,950 feet underground.

The river crossing segment was staged and assembled in sections within a temporary construction easement across adjacent farm property. After almost a month of drilling, the borehole was complete at a diameter of about 48 inches. Assembly and testing of the entire pipe string requiring field welding of 33 pipe segments happened concurrently with the boring operation. The pipe pull-in took 10 hours on Oct. 27, 2020.

The Skagit River is a significant salmon habitat and popular fishing destination, with dikes that extend along the project area providing critical flood protection for a large portion of Skagit County. These physical and construction constraints at the river crossing posed significant complexity to the design of the boring to work within the protective dikes, around the existing water

treatment plant, and below the river. The horizontal directional drill construction method provided several advantages. It would not require any work within the ordinary high-water level for the river and the depth of the boring meant no impact to the existing dikes on either side of the river. These factors significantly reduced the timeline and complexity of the project permitting process and increased the allowable construction window, saving both time and costs.

The addition of the second raw water pipeline provides for full redundancy for the original pipeline, which will remain in service, significantly increasing the reliability of uninterrupted water supply to the city and its wholesale water customers. Having a second pipeline also allows inspection and service of either pipeline without loss of water service.

The new ferry terminal at Mukilteo is the centerpiece of a modern multi-modal transportation hub.



PHOTO FROM ACEC

NATIONAL FINALIST: GOLD AWARD

TRANSPORTATION

KPFF

Project: Mukilteo Multimodal Ferry Terminal

Client: WSDOT Ferries Division

The ferry terminal in downtown Mukilteo negatively impacted the city's small downtown core and its waterfront for decades. Cars waiting for the ferry to travel the popular Whidbey Island route frequently overflowed the large holding lot and spilled up through town, blocking local access to businesses and the popular beach park.

With a new light rail station built a short distance to the north, it was time to relocate the existing Mukilteo Ferry Terminal to connect ferry, vehicle, train, bus, bike and pedestrian transportation. The new terminal improves user safety and will accommodate the significant ridership increases forecasted for the route and surrounding communities. Relocating the ferry terminal also supports the city of Mukilteo's downtown waterfront master plan.

The new Mukilteo Ferry Termi-

nal — Washington State Ferry's first new terminal in 40 years — was designed to be “light on the earth” and honor the site's sensitive environment and cultural significance to the Native American peoples of the Salish Sea.

Cultural stewardship of the surrounding land was paramount. KPFF engaged local tribes throughout the design process. Native American longhouses historically used by the region's Coast Salish tribes inspired the design featuring exposed timbers that simulate traditional cedar logs. Designed to LEED Gold standards, the building features a photovoltaic system, rainwater harvesting, efficient heat pumps and natural ventilation. Native American artists created the cultural artwork distributed throughout the site. Plants significant to local Native cultures enhance the landscaping with signs identifying the plants in English and the Lushootseed language spoken among the Salish Sea peoples.

Permeable concrete paving used in conjunction with engineered substrates for the vehicle holding lanes treats stormwa-

ter runoff that could include oil, fuel, and other pollutants likely to come for vehicles waiting for the ferry. This innovative use of materials was the first of this type for the state ferry system. Lessons learned on this project will improve the performance of the technology to apply more broadly across the ferry system's 19 other terminals in future upgrades.

In the surrounding area, upland work included an extension of state Route 525, a new local street, transit center, utilities, landscaping, and innovative “enhanced stormwater treatment” consisting of bioretention facilities, modular wetlands, and pervious pavement/sand filtration. Portions of the site were raised 7 feet to reduce coastal flooding, sea-level rise, and contaminated soil risks. In-water marine work included a moveable vehicle transfer span, overhead passenger boarding bridge, cab, apron, ferry berthing structures, shoreline stabilization, and an ADA-accessible fishing pier.

Because the building foundation is essentially a pile-supported wharf and serves as a vehicle bridge, engineers at

KPFF designed it to meet the client and code seismic requirements. The structural design team implemented innovative concrete-filled steel tubes using recent research conducted at the University of Washington to control foundation displacements and protect lives.

Our region leads the nation in developing and understanding the potential ramifications of sea-level rise because of several local climate change groups and university researchers. State and local municipal leaders are ahead of the curve and require facilities to be designed for potential changes in sea level in the decades ahead. The new terminal site design can accommodate a projected rise in sea level of 13 inches and approximately 6 inches with slight modifications to the in-water ferry berthing structures. KPFF's new design protects the facility from coastal flooding that results from a high-tide event combined with a high-wind event, which has previously caused damage at the site. In addition, the project coastal engineer evaluated the shoreline to identify and, where

necessary, improve the riprap revetment that minimizes the potential of coastal erosion.

By listening carefully to the tribes and other key stakeholders, the KPFF design team identified various challenging design goals that required collaboration and interdisciplinary thinking to meet. This integrated effort by the designers, architects, engineers, contractors, and operators resulted in a project that goes beyond simply being a functional transportation facility to being an integrated and valuable asset to the community, enhancing the experience of users and neighbors through the incorporation of artwork, landscaping and signage.

Relocating and building the new transportation hub and ferry terminal provided many benefits for travelers and the public. Everyone can now enjoy the new pedestrian waterfront promenade, including a new fishing pier and recreational boating facility, access the waterfront and views of the Olympic Mountains and Whidbey Island, and a connection to a mile-long trail to two popular local parks.

BEST IN STATE: GOLD AWARD

UNIQUE OR INNOVATIVE APPLICATION OF NEW OR EXISTING TECHNIQUES

BHC Consultants

Project: Salmon Creek WWTP solids handling improvements
Client: Southwest Suburban Sewer District

The Salmon Creek Wastewater Treatment Plant, constructed in 1956 and upgraded once in 1988, needed significant upgrades to meet current demands for capacity and modernization of electrical, control, office, and laboratory facilities.

Owned and operated by the Southwest Suburban Sewer District, the plant treats sewage from about 40% of the district's service area, including portions of Seattle, Burien and unincorporated King County.

The Salmon Creek solids handling improvements project included significant design challenges for the BHC Consultants team. The site, located at the bottom of two ravines, is surrounded by sensitive areas on almost all sides with limited land available. Expansion required some unique and creative solutions to accommodate a new anaerobic digester and expand the biosolids loading bay, the



The new office and lab building were constructed on top of an existing structure to maximize available space.

PHOTO FROM ACEC

office, and the laboratory.

The project goals included increasing biosolids digestion capacity, improving biosolids dewatering efficiency and haul-

ing capabilities, and modernizing and expanding office and laboratory space for current staffing levels. The electrical and control systems needed upgrades to

increase reliability and redundancy. Additionally, it was necessary to maintain the continuous operation of the treatment system throughout construction while keeping costs low to rate-payers.

The only location available for a new anaerobic digester was at the toe of a steep slope with artesian groundwater and overlapped with the existing operations building and odor control system. The modifications to the operations building required the removal of a digester tank and converting another tank into a basement for mechanical equipment. The replacement digester design accommodated the seismic-derived lateral loading requirements by making the soldier pile and tie-back shoring system needed for construction a permanent system. This reduced lateral loadings on the digester tank structure and significantly simplified the tank design and construction.

An expanded biosolids loading bay was required to accommodate larger 40-foot semi-trailers, which necessitated the removal of the existing office and laboratory space. The available footprint was too small to accommodate a new larger building, so the design team's solution located the building on top of an existing structure.

Hollow-core concrete planks with concrete topping and a cantilevered perimeter spanning the existing tank streamlined construction and provided the necessary footprint. A hybrid building frame using structural steel, structural insulated panels, and conventional pre-engineered wood trusses offers high energy efficiency and natural lighting.

The new building and reconfigured structures met all project objectives using a hybrid-design approach, combining multiple materials and systems to accommodate structural needs and architectural goals.

TETRA TECH

Changing the world, project by project

Tetra Tech restored life to Lake Ketchum through an innovative program using alum to inactivate phosphorus, reduce toxic algae blooms, improve lake water quality, and restore recreation and habitat.

tetrattech.com | [f](#) [t](#) [in](#) [@](#)

Searching spec books has never been easier. **PlanCenter** covers the Great Northwest with projects located in **Washington, Idaho, Oregon and Alaska.**



PlanCenter.com

Send us your plans, we'll post them.

PUBLIC AGENCIES POST FOR FREE



AMERICAN COUNCIL OF ENGINEERING COMPANIES
of Washington

Why should your firm be a member of the American Council of Engineering Companies of Washington?

**It's Simple.
Ask our Members!**

- ✓ ACEC Washington is the primary advocate for the protection and promotion of your business interests
- ✓ ACEC Washington is your primary resource for business practice information and education
- ✓ ACEC Washington is the voice of the consulting engineering industry in Washington State



**Working for Washington's
Engineering Community**

"One of the primary functions of ACEC of Washington is to lobby in Olympia on behalf of the consulting engineering community regarding proposed new legislation critical to our industry and members statewide. We find the advocacy one of the biggest benefits, among many, that makes our membership a good investment for our company."



Larry Swartz, Principal/ Engineering Group Leader - P2S, Inc.



"ACEC is a world of information about everything you need to know in the context of running your engineering business. As a new member, I have found this such a great opportunity for networking, collaborating and education."

Sherry Harris, CEO, Ergosynch Engineering

"Our membership to ACEC of Washington provides benefits well above the annual membership fee. The education and training opportunities for our employees at all levels are invaluable, from the Core Competencies for Professionals series and conferences to the educational seminars provided each month. We rely on ACEC to keep us informed on emerging issues and current best practices in our industry."



Ben Upsall, Associate Geotechnical Engineer, GeoEngineers, Inc.



"I am a member of ACEC of Washington because advocacy for small engineering firms has never been more important. ACEC provides invaluable tools, information and networking opportunities to help my business thrive in a highly competitive, rapidly evolving market."

Robin Kirschbaum, PE, LEED AP, ENV SP, President, Robin Kirschbaum, Inc.

"Through the efforts of ACEC, we continue to build paths that help us collaborate more successfully with our clients and be more innovative on the projects we help develop for our communities. ACEC is the voice that represents our collective business interests."



Mike Clark, Transportation Group Manager, David Evans and Associates, Inc.

BEST IN STATE: GOLD AWARD

FUTURE VALUE TO THE ENGINEERING PROFESSION

P2S

Project: EvergreenHealth Critical Care Unit

Client: EvergreenHealth/KMD Architects

Faced with a likely overload of its facilities' ability to handle airborne infections during the COVID-19 pandemic, in addition to acute public health care, EvergreenHealth's administrators asked P2S to conduct a feasibility study for changes to a planned remodel. Original plans to add four new critical care rooms suddenly expanded to 20 rooms that could convert to negative-pressure isolation rooms as soon as possible.

Negative-pressure hospital rooms prevent infectious illnesses from invading other public spaces. The construction of these rooms is so tight that a pressure difference is measurable between the patient room and adjacent corridors and rooms. These rooms require floor-to-structure sealed walls and additional exhaust air to suck outside air under the doors and through cracks to maintain negative air pressure.

For this effort, P2S worked directly with Dirtt Environmental

Services to develop a custom extended wall panel that enables sealing to the existing structure to create an isolated negative pressure room.

P2S and Dirtt also collaborated to develop a flex gas system, which allows medical gas hook-ups to be integrated into the Dirtt wall using flexible interior piping. This innovation accommodates construction coordination changes without time-consuming and costly replacement of standard piping. The newly developed walls provide connection points for compressed air, medical gases, and other necessary patient room utilities.

The innovation of integrating utilities and medical gases into the wall system created significant time savings during the construction coordination phase of the project and ultimately saved EvergreenHealth precious time and resources. This flex gas system has since been used extensively in Dirtt wall systems throughout North America, and P2S continues to provide consulting for health care code compliance for Dirtt's development of helpful new technologies.

When the project scope expanded from four to 20 isolation-capable rooms with ventila-



PHOTO FROM ACEC

tors, P2S worked closely with the general contractor and architect to design and install new HVAC equipment on the roof. This design was a complex undertaking, with the ventilation demands for the third-floor rooms requiring twice the amount of above-ceiling ductwork as standard installed in minimal space.

With safety a priority, air

exhausted from the CCU rooms is heavily treated. The new systems include HEPA filters and 100% redundant exhaust fans to ensure that the isolation exhaust system is always functional, even during routine maintenance.

The installation and design of many complex and large mechanical systems in a confined area presented complex

challenges that required close collaboration between the architect, P2S and other design consultants, and the construction team. The teams completed the final functioning unit within the project budget and timeline, even when construction was taking place in a working hospital under potentially dangerous pandemic conditions.

BEST IN STATE: GOLD AWARD

FUTURE VALUE TO THE ENGINEERING PROFESSION

Tetra Tech

Project: Lake Ketchum restoration

Client: Snohomish County Surface Water Management

Lake Ketchum, a beautiful 26-acre lake in northern Snohomish County just a few miles from Puget Sound, is home to about 60 residents and is also heavily used by the public for swimming, fishing, boating, and aesthetic enjoyment. The lake provides essential habitat for various fish, amphibians, birds and other wildlife.

As development increased in the Lake Ketchum watershed, its water quality markedly deteriorated until, eventually, it was the most polluted lake in Snohomish County and one of the worst in the state. Harmful algal blooms plagued Lake Ketchum, fueled by extremely high phosphorus levels in the water. Before restoration, phosphorus levels in Lake Ketchum were 13 times higher than regional standards and some of the highest in Washington state. At times, phosphorus concentrations in the lake's bottom water (hypolimnion) were similar to those in raw sewage.

Through ongoing collaboration between Snohomish County and the Lake Ketchum community, with technical support from Tetra Tech, the lake water quality has been successfully restored.

The primary source of phosphorous runoff was a former dairy farm draining to the Lake Ketchum inlet stream. Release of phosphorus from lake sediments accounted for 73% of the total annual load to the lake, with the primary inlet stream making up 24%.

In 2010, Snohomish County initiated a project to develop a feasible restoration plan for Lake Ketchum. Tetra Tech was selected to design a lake study, conduct data analysis, develop a lake phosphorus model, and identify the best and most cost-effective restoration options. The county collected data during a one-year study of sources and amounts of phosphorus entering the lake. Modeling showed that conventional management options would not meet the project goals or were infeasible due to the high cost.

The innovative final restoration plan included a whole lake sediment alum treatment to inactivate phosphorus in the

The innovative water treatment plan developed by Tetra Tech successfully restored Lake Ketchum's water quality.



PHOTO FROM ACEC

sediments, combined with a novel approach of using annual water column alum treatments to remove phosphorus entering the lake from external sources.

Using small, annual maintenance treatments each spring to inactivate the large amounts of external phosphorus pollution redefined the use of alum as a lake management tool. The conventional use of alum applications to lakes had been primarily to inactivate phosphorus in lake sediments, preventing internal loading to the lake. External water sources were controlled or treated in other ways.

While it may seem simple, Tetra Tech's innovative solution to conduct small treatments across

multiple years to address external loading was a first. Careful monitoring and data collection were essential to determine the project's efficacy. Under the guidance of Tetra Tech, the county conducted monthly tracking of the physical, chemical, and biological changes in the lake and the lake inlet to assess the treatment impacts. Seven years after the initial treatment, including five years of small dose treatments, the project has proven to be highly successful at meeting and exceeding all project targets to reduce phosphorus levels, nearly eliminating potentially toxic blooms of algae.

The project monitoring by the county was instrumental

in demonstrating this success to ensure other lake managers were aware of this innovative concept. The results have been shared multiple times during the past several years at local, state, and national lake management conferences and on the county's website. In addition to advancing engineering thinking, the Lake Ketchum project has improved the public perception of engineered solutions to restore a natural waterbody. Despite the initial concerns, the community is delighted with the results and continues long-term financial support of the project. The lake flourishes with recreational activities, including fishing, boating and swimming.

BEST IN STATE: GOLD AWARD

SUCCESSFUL FULFILLMENT OF CLIENT/OWNER NEEDS

Herrera Environmental Consultants

Project: Albany Street stormwater park
Client: Thurston County

The small community of Rochester in the rural prairie lands of Thurston County and the Black River watershed suffered from multiple drainage and flooding issues. Herrera collaborated with Thurston County to develop a stormwater solution to reduce flooding, improve water quality treatment and provide the community with an amenity. The designers' creative vision included a stormwater park that transformed a vacant land parcel into a peaceful natural area filled with native vegetation, a trail and an amphitheater gathering space connected to the adjacent athletic field and playground.

The stormwater park stores and infiltrates nearly 100% of stormwater that flows into the facility while also accounting for extreme weather events that can exceed the facility's storage and infiltration capacity. Rainwater drains from nearby streets into the pond that cleans the water as it gradually soaks into the ground before entering the underground aquifer and eventually the Black River. The facility will collect and soak in the same amount of water as a football field flooded 12 stories high in a year.

After collecting a large amount of community input, Herrera designed the stormwater facility to double as a three-tier amphitheater inspired by the shape of a fiddlehead fern. The community desired "a natural pond look," a walking path, and a crosswalk to get safely between an existing park and the new amphitheater.



Herrera designed the stormwater facility to double as a three-tier amphitheater inspired by the shape of a fiddlehead fern.

PHOTO FROM ACEC

The design moved forward with a naturalized layout using native vegetation for wildlife habitat and minimizing maintenance needs. Located at the intersection of Albany Street and Littlerock Road, the facility project site has a history of accidents with vehicles losing control at the curve. These accidents are partly due to the lack of a visual indicator to let drivers know they are approaching a curve. New trees installed outside the roadway create

a visual indicator for drivers approaching the curve. A new crosswalk at the Albany/Littlerock intersection calms traffic and improves pedestrian safety.

The new perimeter path creates a short nature trail with a vegetated buffer between the trail's edge and adjacent properties or roadways to connect the old and new park areas. During typical rainstorms, flooding between the stage and the amphitheater seating area generates

a dramatic visual separation between the two.

Herrera helped the county win a streamflow restoration grant that funded a large portion of the construction by demonstrating the relationship between stormwater infiltration and streamflow. To adapt to the county's needs, Herrera completed the design in four phases, allowing for multiple opportunities to change course to maximize project benefits.

MADISON
DOUBLE R

Legendary. Spectacular. Wild.

Fly Fishing in Montana can be a rugged, sometimes-tiring adventure—that's why Madison Double R will be a welcome respite at the end of each day.

Located on 2 miles of the world-renowned Madison River south of Ennis, Madison Double R offers first-quality accommodations, outstanding cuisine, expert guides, and a fly fishing lodge experience second to none.



MADISONRR.COM • 406-682-5555 • office@madisonrr.com

BEST IN STATE: GOLD AWARD

COMPLEXITY

Wood Harbinger

Project: Harborview Medical Center water damage repair

Client: King County

When a fire suppression system failed during a routine test at Harborview Medical Center, it flooded the main electrical room and the emergency power electrical room serving three hospital buildings. Harborview Medical Center called in Wood Harbinger to determine the extent of the damage and design replacement systems for construction with maximum reliability and minimum impact to hospital operations.

The system failure resulted in about 40,000-60,000 gallons of water flowing through the Ninth and Jefferson building and down into the normal and emergency power rooms in the underground parking garage. While none of the equipment faulted or tripped during the event, the water significantly damaged vital systems and equipment. A Washington state law requiring replacement or manufacturer reconditioning of electrical equipment that has been submerged or exposed to water made immediate evaluation necessary.

Harborview Medical Center is the only Level 1 adult and pediatric trauma center for Washington, Alaska, Montana and Idaho, and must provide safe and continuous medical operations at the highest level of care 24/7.

Wood Harbinger led a study team including electrical engineers, electrical technicians, electri-

cians, electrical testing personnel, and equipment manufacturer representatives. The study identified damaged equipment that would need replacing in the regular power system and the emergency power system at the heart of the hospital's power distribution systems.

The engineers designed upgraded replacement switchgear and connections and a temporary switchgear system with connections that served the hospital for the two-year-long construction period. The temporary electrical systems required close to 10 total miles of cabling routed around and through existing infrastructure to power the hospital's three buildings during the installation of the new electrical systems.

Constructing any project in an occupied facility is a complex challenge — replacing electrical distribution systems in an occupied and continuously operating facility brings complexity at every stage of the work. Wood Harbinger worked closely with HMC personnel, the contractor, and Seattle City Light to ensure compliance with all Department of Health and city of Seattle requirements at every phase of construction.

Carefully phased construction minimized planned outages. The project included 18 distinct power shutdowns to install and test the new equipment and affected several areas in three HMC buildings, including elevators, lighting and medical equipment. The team developed detailed time estimates and "worst-case" disaster plans for each one. All cutovers to new power systems were successful, with no unplanned outages and zero safety issues, and the project finished on schedule and under budget.

Wood Harbinger assessed flood damage and designed replacement electrical systems to be constructed with maximum reliability and minimum impact to hospital operations.



PHOTO FROM ACEC

WE'RE ON YOUR TEAM!

When you work with Star Rentals, you add powerful players to your project team—pros that are skilled, knowledgeable, and easy to work with.

Star Rentals employees are the most experienced in the industry. From our extensive training and safety programs to our equipment expertise, you can count on us to deliver the goods. We make sure you get fast, responsive service, and headache-free billing.

Do we think it's important to be a team player? Absolutely.

100+ Years of Outstanding Service.

Star Rentals is the oldest, largest and most reliable independent rental company in the Pacific Northwest.



www.starrentals.com

Bellevue • Bremerton • Eugene • Everett • Ferndale • Hillsboro • Kent • Longview • Olympia
Pasco • Portland • Salem • Seattle • Spokane • Tacoma • Vancouver • Wenatchee • Yakima

BEST IN STATE: GOLD AWARD

SOCIAL, ECONOMIC AND SUSTAINABLE DESIGN

David Evans and Associates

Project: John Lewis Memorial Bridge

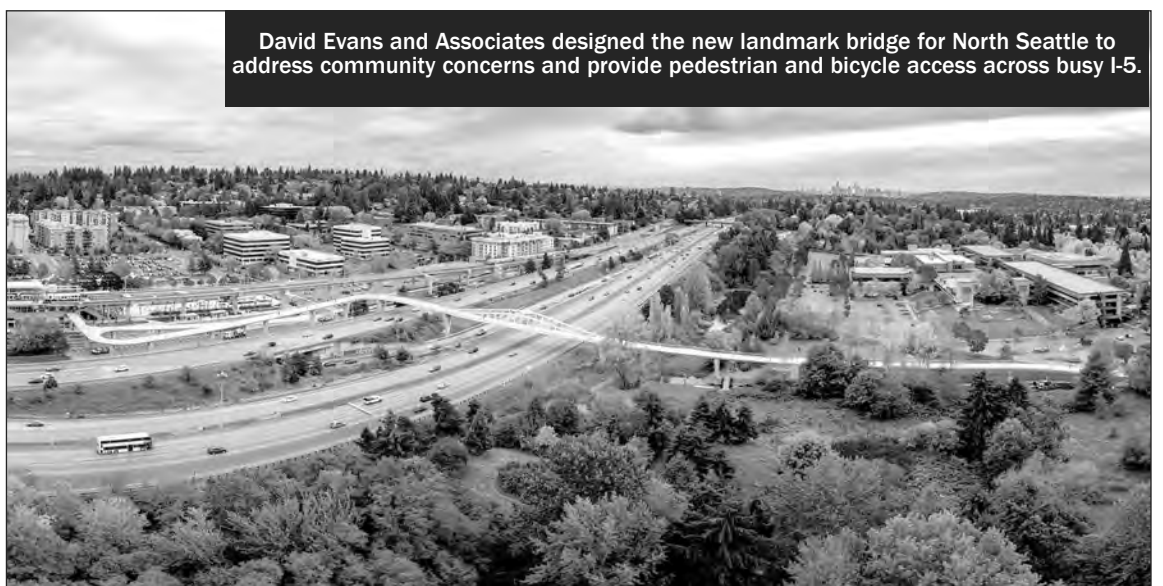
Client: City of Seattle DOT

The construction of I-5 in the 1960s through North Seattle divided the Northgate neighborhood, separating residents and North Seattle College on the west side of the freeway from shopping districts, business parks, and currently major transit stations for bus, light rail, and parking east of I-5. For those traveling locally by foot, travel times of 22 minutes to cross I-5 were not uncommon. The two existing crossings are approximately one mile apart, neither of which directly connect to significant points of interest.

The John Lewis Memorial Bridge connects 1,500 projected daily users across I-5. Overall, the bridge creates a third centralized crossing that reduces local travel time to 10 minutes on average to cross I-5. This new pedestrian and bicycle connection improves access to transit, North Seattle College, the University of Washington satellite medical facility and neighborhoods to the west of I-5 with transit, the Northgate urban growth center and neighborhoods east of I-5.

The David Evans and Associates team used a value-engineering approach to designing the new span within budget constraints while meeting the design and pragmatic goals set by the community. These priorities included safe and easy access for bicycles and pedestrians, mitigating environmental and ecological issues, managing drainage and stormwater, and addressing site constraints to minimize disruption to traffic on I-5 during construction. Input from extensive public outreach helped inform the design while addressing these challenges. Designing an aesthetically pleasing landmark structure was essential for the Seattle Department of Transportation due to the high visibility for those traveling on I-5 and the surrounding communities.

Through collaboration with the architect, the David Evans and Associates design team utilized a visually pleasing Vierendeel truss to serve as an iconic landmark for this North Seattle neighborhood. The design seamlessly blends four different span types with a family of V-shaped columns to create visual continuity without negatively impacting the local environment while providing visual rhythm along the bridge. The bridge alignment creates clear sightlines for



David Evans and Associates designed the new landmark bridge for North Seattle to address community concerns and provide pedestrian and bicycle access across busy I-5.

PHOTO FROM ACEC

safety, and a highly transparent cable netting barrier enhances visibility and protection for those crossing the bridge.

The main span over I-5 was divided into two spans to reduce the construction cost and address constructability challenges. A 234-foot-long Vierendeel steel truss and a 135-foot-long steel through-girder span over an on-ramp, the southbound, northbound, and express lanes of I-5 with a single column pier founded on a drilled shaft placed between the express lane ramp and the northbound lane where space allowed. These truss and through girders were crucial for minimizing traffic disruption on the

busy freeway because assembly used the accelerated bridge construction method. This method allowed the superstructure to be assembled off-site, transported to the site using a self-propelled modular transporter, and erected overnight, limiting the closure of I-5 to just two nights.

The city of Seattle Department of Transportation led the project as the prime consultant, supported by a team composed entirely of small disadvantaged business enterprises operating as subconsultants to deliver this complex bridge project. Working with the small/DBE firms generated revenue for the local economy, expanded the capabilities and capacity of the small/

DBE firms, and created relationships with SDOT for possible future work.

Sustainable design was a high priority for the Department of Transportation, the public, and the project team. The project site is in the upper reaches of Thornton Creek, in an urban watershed that drains into Lake Washington. Plantings restored the project site and enhanced the ecological value of the project area. With a broad range of environmental and cultural conditions on-site, the selected plant communities meet the specific needs of each location. Wetlands were enlarged and restored, and trees were replaced at a ratio of nearly 5:1.

BEST IN STATE: GOLD AWARD

SOCIAL, ECONOMIC AND SUSTAINABLE DESIGN

Landau Associates

Project: Bay Wood shoreline restoration and cleanup

Client: Port of Everett

The Port of Everett is working to redevelop former industrial sites along the desirable waterfront to pave the way for modern uses that provide jobs, housing and recreation. The Bay Wood shoreline restoration/cleanup and economic development project was a top-priority for the port.

The port partnered with consultant Landau Associates, private developer Latitude Development, and the state Department of Ecology to deliver the required permitting entitlements and complete the shoreline restoration and remaining environmental cleanup in record time. The permitting path proved to be complex, but through creativity, perseverance, and collaboration with its regulatory partners, the port and the Landau team were able to deliver on the promise to the developer.

For nearly 30 years, the Bay Wood site sat unused and unproductive as a result of environmental challenges. Preparing the site for redevelopment was a significant undertaking for the port, both operationally and financially. The project cost more than \$2 million and had to be

conducted on a fast track to dovetail with a property developer's timeline. Funding from an Ecology remedial action cleanup grant was essential to the project.

To prepare the site for plans presented by the port's development partner while also addressing environmental contamination required a multi-disciplinary design team, including environmental and biological experts, construction personnel experienced with both environmental and shoreline work, and dedicated port and Ecology personnel. Landau was the consultant team lead for characterization of contamination, environmental engineering, and Ecology coordination and documentation.

The shoreline restoration design plans were driven by development needs, but Landau's careful integration with the environmental cleanup plans included in the same project facilitated a comprehensive set of construction plans that were easy for the contractor to follow.

The Bay Wood project provides a significant enhancement at the mouth of the Snohomish River, creating over 2,600 linear feet of restored shoreline habitat for salmon, new wetlands, landscaping with native plants, and public access. To accomplish this work, the port conducted significant tribal and stakeholder outreach as part of the tribal engagement process and community meetings



The restored and improved shoreline is ready for future development.

PHOTO FROM ACEC

associated with the shoreline substantial development permit.

With the port's on-site work complete, Latitude Development executed its \$5 million purchase and sale agreement to acquire the site and has started construction on an approximately \$30 million light-industrial complex that will restore jobs to the vacant site for the first

time in nearly 30 years. This will create a new job hub to support up to 300 on-site jobs, 1,000 off-site jobs and returns the property to city tax rolls, generating an estimated \$330,000 a year in state and local taxes. A huge benefit to the community is the new public access to this area and a new nature trail along the cleaned-up shoreline.

ENGINEER OF THE YEAR

Shelley Clark Magnusson Klemencic Associates

The Engineer of the Year for 2022 is Shelley R. Clark, an owner and senior principal at Magnusson Klemencic Associates.

She currently leads the firm's Retail/Mixed-Use Specialist Group and has been responsible for some of the most significant projects in the firm's history.



Clark

Clark joined Skilling Ward Rogers Barkshire — now known as MKA — as an entry-level engineer. Throughout her 37-year career in structural engineering, she has proved to be an outstanding leader — both within the firm and the profession — whose contributions exemplify technical, management, and service excellence.

Clark is responsible for the structural engineering of some of

the world's most iconic, impactful, and creative mixed-use projects. Her experience working with the industry's top developers gives her unique insights into the creation of structures that are efficient, economical, and offer a special "sense of identity." Shelley's impressive portfolio of over 250 structural engineering projects showcases her incredible technical knowledge, engineering prowess, and leadership skills.

The massive retail, mixed-use, shopping, and entertainment projects in her portfolio are larger and more complex than Burj Khalifa — the tallest building in the world today with 3.6 million square feet. One example is the City Creek Center in Salt Lake City, an ACEC national award-winning project. This 5.5 million-square-foot, \$1.5 billion mixed-use development serves shoppers, residents, and office workers and covers two city blocks. City Creek Center is the only shopping center in the United States with a retractable glass roof that provides an open-air or covered experience as desired and a water feature "city creek" running through the center of the site, including two 15-foot waterfalls.

Another example is Miami's Brickell City Centre, a 5.4 million-square-foot, \$1.05 billion mixed-use development serving shoppers, residents, office workers, and hotel visitors. It features an innovative steel-and-glass "climate ribbon" that collects rainwater and harnesses ocean breezes to provide comfortable and natural climate control.

Shopping centers across the U.S., Panama City, Panama, and Washington state feature Clark's innovative designs. Many local favorite shopping centers were completed under her watchful eyes, in addition to the Pacific Science Center Boeing Imax Theater, Inn at Suncladia, and Microsoft Redmond West, to name just a few.

Throughout her distinguished career, Clark has provided leadership and service to the engineering profession, serving at one time as president of the Seattle Chapter of the Structural Engineers Association of Washington, the first and only woman honored in SEAW history. Clark is an active member of the International Council of Shopping Centers (ICSC), the only structural engineer to claim a leadership role in the organization, and a recognized ICSC Certified Development, Design,

and Construction Professional. She is sought after by professional organizations and industry peers to speak and share her insights on topics ranging from the design of mixed-use retail projects to strategies for anchor box redevelopment.

Clark believes women bring new perspectives to the engineering industry, and she takes seriously her position as a mentor to young women who aspire to become successful engineers. Through her contributions to promoting STEM education at local elementary and middle schools, Clark recognizes the importance of expanding diversity, equity and inclusion in engineering. She has taught graduate-level classes at the University of Washington on retail engineering and structural facilities management.

Clark is particularly interested in sharing her knowledge with peers and advancing the profession by offering presentations that address vital issues facing the retail industry. Current topics include retrofit versus demolition, anchor box redevelopment, mixed-use integration, retail repositioning, strategies for successful mixed-use projects, and incorporating high-rise tower designs into retail centers.

"Shelley has an innate ability to explain very complex structural principles in a way that laymen can understand and fully appreciate," says Mark DeCapri, senior vice president at Brookfield Properties. "Anyone who has sat through thousands of meetings like I have in which, ultimately, a decision needs making that commits millions of development dollars to construction knows the importance of this skill. She epitomizes this spirit of collaboration through full engagement on a project," he says.

"It starts with her selecting the structural project team for compatibility with the project needs," DeCapri says. "She continues with initial input based on a depth of broad experience during the concept phase, and throughout the project has thoughtful exchanges through discourse on solution-based engineering options.

"Shelley Clark's highest qualification for this honor exists in her commitment to excellence. No matter how large of a project Shelley is working on, she consistently provides leadership on structural engineering solutions that meet the owners' and clients' highest expectations, as well as budget considerations."

Connecting the community, delivered by the community

SPECIAL THANKS TO OUR SUBCONSULTANT TEAM

Boart Longyear
Bolima Drafting & Design
Bright Engineering
C&N Consultants
Casseday Consulting
Chudgar Engineering
Elcon
ESA Adolphson
Hayre McElroy & Associates
Holt Services
J.A. Brennan Associates
Jonasson Consulting
JTS
KPFF
Furtado & Associates
Lin and Associates
LMN
Michael Minor & Associates
Moniz Art + Architecture
PanGEO
Perrone Consulting
Power Engineers
Schemata Workshop
Shannon & Wilson
Swift Company LLC
Systems Consulting
The Greenbusch Group
Tiscareno Associates
Triunity Engineering
TTG Schwab
Wilson Ihrig Associates
WSP
Yonemitsu Geological



MCMJAC.COM

**McMILLEN
JACOBS
ASSOCIATES**

DIVERSITY AND INCLUSION AWARD

LARGE FIRM

Brown and Caldwell

Brown and Caldwell's culture welcomes different opinions, experiences, and perspectives because it knows that diversity and inclusion are everything in the fast-moving world. Company leadership identified 10 actionable and measurable commitments, including an emphasis on training, mentorship, D&I programs, accountability, recruiting, and community engagement.

Employees at all levels receive training, tools, and resources to have conversations about race in the workplace and take productive, informative, and impactful daily actions to foster a culture of inclusion. Hiring decisions focus on diverse candidates driving innovation and advancing the corporate culture.

Mentorship is key to retaining and promoting employees. Brown and Caldwell teams in Washington have developed a successful mentoring program to assist deputy client service managers in advancing to the client service manager role. Employees also volunteer, mentoring area elementary and middle school students with the STEM (science, technology, engineering, mathematics) virtual academy. Teams focus on developing long-term relationships with minority- and women-owned subcontractors in the community and investing in their overall success.

DIVERSITY AND INCLUSION AWARD

MID-SIZE FIRMS

KBA Inc

KBA Inc. is guided by four core values: value people, relationships and community; provide creative solutions; professionalism and integrity; delivering quality results. Each and every one of these core values support fostering an inclusive work environment and are supported by having an inclusive and diverse workforce.

Having a diverse workforce that is not constrained by "group think" is one of those best practices used to build teams, both internally and when choosing consultants to work with. KBA's workforce comprises 35.4% women, 27.3% minorities, and includes veterans and people with disabilities. Both women and minorities are represented in firm leadership positions, including but not limited to; president, engineer of record, and chair of the board. This diversity extends throughout all positions, including internships to students that help fill the

pipeline of future talent to the engineering community.

KBA has reaped the benefits from starting as a certified WBE firm and believes in this program that helps emerging businesses enter the market. As a mid-sized firm that benefited from OMWBE certification, KBA now gives back to the S/DBE community by mentoring other firms and partnering on projects, as well as through the ST/WSDOT Capacity Building Mentorship program.

As a firm that has recently grown from a single founder to a mid-size firm of over 100, its recent experiences help emerging firms with business practices, including accounting software selection, employee benefit selection, ownership transition, leadership transition, business management practices, marketing, and introductions to leaders at large and small firms that may have business teaming opportunities. KBA believes that good competition and a diverse and inclusive workforce makes everyone better in business.

DIVERSITY AND INCLUSION AWARD

MID-SIZE FIRMS

Coughlin Porter Lundeen

Coughlin Porter Lundeen is committed to advancing diversity and inclusion.

Company leadership continues following engineering qualities documents, providing equal opportunity for career advancement for all staff. This process continues to be a game-changer for the firm. More than 30% of CPL engineering staff is

female, exceeding industry averages and bolstering the firm's recruitment and retention achievements.

CPL continues pursuing ways for underrepresented and underserved minorities to access its internship program better by developing relationships with colleges and universities to attract diverse candidates. This year, a new endowed scholarship at Seattle University will provide financial assistance and mentorship to local BIPOC high school or com-

munity college transfers.

Company-supported community programs related to diversity in STEM engage a large percentage of the engineering staff, including the ACE Mentor Program for high schoolers and other opportunities for younger students. CPL has sponsored the annual UW Women in Science & Engineering conference and sent female engineers for panel discussions and recruitment for several years.

THE SEATTLE DAILY JOURNAL OF COMMERCE is the most useful resource for Northwest businesses.

Locally-owned, the DJC has been serving the construction community for over 100 years. Publishing Six days a week, the DJC covers areas of construction, architecture, engineering, consulting, commercial real estate, government, urban planning and law.

- **Construction reporting**
- **Jobs out to bid**
- **Contracts awarded**
- **Upcoming Projects**
- **Sub-bids Wanted**
- **Rosters**
- **Fed Bizops**
- **Building Permits**

And More!

Get access to all this online, in print, or both

PLUS online plans from PlanCenter.com

Go to DJC.COM to subscribe



Many options for you to choose from, the most popular are...

Online \$210 annual

Consultant Package

Stories and Public Notices plus all architectural, engineering and other professional services projects, RFPS, proposals opened and awards

Online \$350 annual

Construction Package

Stories, Public Notices, plus all construction contracting projects, RFPS, bids opened and awards

Online \$440 annual

All Access Package

Everything in Consulting, Construction and Real Estate Packages, plus new statewide business licensing, bankruptcy data.

In print \$220 annual

NEWSPAPER DELIVERY

All access only in print

AND FOR PLANS...

Online \$325 down plus an additional \$50 per month plan view charge

PLANCENTER.COM

Access to plans and spec books and much more!

AECOM

Delivering a better world

We're honored to receive a 2022 ACEC Washington Engineering Excellence Award for the Seattle-Tacoma International Airport North Satellite Modernization in partnership with our client, the Port of Seattle. The 468,000-square-foot expansion and modernization provided a 50% expansion and complete architectural redesign with seismic upgrade and all new building systems – transforming the 1970s facility to provide an improved and enriching experience for travelers.

By working with clients to take on their most complex challenges, we are making a positive, lasting impact for our communities and delivering services spanning transportation, buildings, water, new energy, and the environment. We're one team driven by a common purpose, to deliver a better world.

 [aecom.com](https://www.aecom.com)