



ACEC

AMERICAN COUNCIL OF ENGINEERING COMPANIES  
*of Oregon*

# 2018 Engineering Excellence Awards



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## WHAT IS ENGINEERING EXCELLENCE?

The Engineering Excellence Awards (EEA) competition recognizes engineering firms for projects that demonstrate an exceptional degree of innovation, complexity, achievement and value. The EEA program was created by ACEC to increase the public's perception of what engineers really do.

For more than 50 years engineering firms have entered their most innovative projects and studies in state competitions.

A distinguished panel of judges is convened for a day to evaluate and select the best engineering projects based on criteria such as uniqueness and/or innovative application of new or existing techniques; future value to the engineering profession and enhanced public awareness/enthusiasm for the role of engineering; social, economic and sustainable development considerations; complexity; and successful fulfillment of client/owner needs.

Projects procured through the Qualifications-Based Selection (QBS) process are highlighted in this publication with a red ribbon. QBS procurement ensures a competitive selection process for engineering that promotes innovation and cost-savings. These projects are real, award-winning examples of how the QBS process works to deliver successful and innovative projects that benefit the residents of Oregon.

## 2018 ENGINEERING EXCELLENCE AWARDS JUDGING PANEL

### Mark Kennedy, PhD

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Donald P. Shiley School of Engineering  
University of Portland

### Tova Peltz, P.E., G.E., C.E.G.

Region 1 Geo-Environmental Unit Manager  
Oregon Department of Transportation

### Nick Bjork

Publisher  
Daily Journal of Commerce

### Mark Hanson, P.E.

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**Publisher: Nick Bjork**

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to the 2018 ACEC  
Award Winners!**

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## About ACEC Oregon



Founded in 1956, the American Council of Engineering Companies of Oregon (ACEC Oregon) represents more than 115 firms, employing approximately 3,500 employees. Our primary goal is to protect the public welfare and advance the professional quality of consulting engineers and land surveyors in private practice.

### ACEC Oregon offers:

- **Advocacy** - ACEC Oregon is the only engineering association represented by a lobbyist in Salem.
- **Education** - ACEC Oregon offers educational programs presented by experts on a variety of business and management topics, including legal issues facing consultants, risk management, leadership development, ownership transition and more.
- **Resources and Networking** - Membership offers valuable business resources such as the annual Oregon/Washington Salary & Benefits Survey, access to expertise and best practice information and regular networking opportunities, which lead to improved firm business practices.
- **Client Committees** - Members find great value in the liaison committees

that facilitate communications and problem-solving with agency personnel. Current committees include: Oregon Department of Transportation, U.S. Army Corps of Engineers and SW Washington Public Agency Liaison.

- **National Representation** - In addition, ACEC Oregon is a member organization of ACEC National. The national organization is the voice of the engineering industry in Washington, D.C. ACEC promotes infrastructure investment and other important issues for the engineering industry.
- **Engineering Excellence** - The awards recognize and celebrate the important work ACEC member firms perform. We also acknowledge and celebrate the owners and public officials that provide the vision, support and leadership required to ensure the execution of these projects.

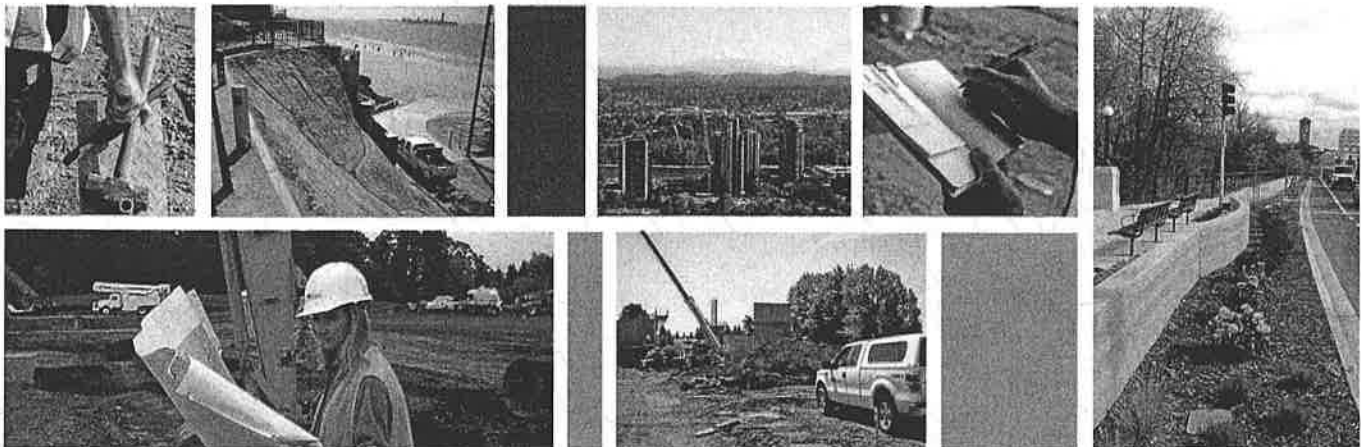
Congratulations to the 2018 award winners! Thank you to the sponsors and to the DJC for your support of this publication and for your support of Engineering Excellence.

**Alison Davis**  
**Executive Director**  
**American Council of Engineering Companies of Oregon**

# GEO DESIGN INC.



*Congratulations to all Excellence Award nominees!*



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## February Legislative Session Preview



On February 5, 2018, the Oregon Legislature will convene for a 35-day session. With tight timeframes and limited entry for bill introductions by legislators, only those issues that are well organized

with pre-committed legislative votes will move forward.

Implementation of the 2017 transportation package (HB 2017) is a key issue for ACEC in the short session. Our ongoing positive partnership with the Oregon Department of Transportation and local governments will be important to ensure the necessary assets are in

place for timely project delivery. ODOT will introduce a staffing package in the 2018 session and is initially asking for upwards of 180 new staff to implement the many elements of HB 2017.

ACEC testified to the Oregon Transportation Commission in December that our members are staffed and ready to implement our key design role as ODOT looks to significantly increase reliance upon the private sector for design services. The realities of the workforce will make it difficult for ODOT to hire experienced staff and this will add to the need for ACEC members to play a vital role in project delivery.

Qualifications-Based Selection (QBS) will again be an issue as some local governments will bring legislation to allow price bidding as an element of design procurement. ACEC has been,

and continues to be, committed to an educational campaign to ensure that local governments are comfortable with the QBS process.

ACEC is open to conversations about ways to improve the QBS process, but the short session does not allow the necessary time to fully scrutinize the proposed bill and offer constructive options. We understand there will be a public hearing on the QBS issue, which we welcome as a way to educate many new legislators who will be hearing about it for the first time.

As always, ACEC Oregon will be actively engaged supporting or opposing a number of issues during the February session. We look forward to member involvement, testifying and attending hearings as needed.

**Marshall Coba**  
ACEC Oregon Lobbyist  
CobaCo Government Relations

and the winner is... **OREGON!**

## Congratulations to all the 2018 ACEC Award winners!

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~Loren Eisley

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## ACEC Oregon Member Firms

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|--------------------------------------|-----------------------------------|--|---|
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| 2G Associates, Inc.                  | Cornforth Consultants Inc         | Haner Ross & Sporseen, Inc.            | McMillen Jacobs Associates                |
| 3J Consulting Inc                    | Crow Engineering Inc.             | Harper Houf Peterson Righellis Inc     | Mead & Hunt, Inc.                         |
| AAI Engineering                      | Curran-McLeod Inc                 | Hart Crowser Inc                       | Miller Consulting Engineers               |
| Adapt Engineering                    | David Evans and Associates Inc    | HDR                                    | MKE & Associates Inc                      |
| Advanced Remediation Technologies    | DKS Associates                    | Herrera Environmental Consultants      | Mott MacDonald                            |
| AECOM                                | DOWL                              | HK Electrical Engineers                | Murraysmith                               |
| Akana                                | E-PUR, LLC                        | Hood River Consulting Engineers, Inc.  | Nemariam Engineers & Associates, LLC      |
| Aligned Engineering LLC              | Emerio Design                     | Hood-McNees Inc                        | Nishkian Dean                             |
| Anderson Engineering & Surveying Inc | Engineered Monitoring Solutions   | Humber Design Group, Inc.              | Northwest Engineering Service Inc         |
| Anderson Perry & Associates, Inc.    | ESA                               | ICHTHYS Engineering PLLC               | NW Engineers LLC                          |
| Aspect Consulting LLC                | Exeltech Consulting Inc           | Integral Consulting Inc                | OBEC Consulting Engineers                 |
| BergerABAM Inc                       | Fluent Engineering, Inc.          | Inter-Fluve, Inc.                      | Otak Inc                                  |
| Boatwright Engineering Inc           | Focused Engineering LLC           | Jackola Engineering & Architecture, PC | PACE Engineers Inc                        |
| Brown and Caldwell                   | Forensic & Mechanical Engineering | JAS Engineering, Inc.                  | PAE                                       |
| Cascade Earth Sciences, Ltd          | Foundation Engineering Inc        | Keller Associates, Inc.                | Parametrix Inc                            |
| Cascade Forensic Engineering         | Froelich Engineers, Inc.          | Kennedy/Jenks Consultants Inc          | Pavement Services Inc                     |
| Cascadia Associates LLC              | GeoDesign Inc                     | Kittelson & Associates Inc             | PBS                                       |
| Casso Consulting, Inc.               | GeoEngineers Inc                  | KPFF                                   | Peterson Structural Engineers Inc.        |
| Central Geotechnical Services, LLC   | GeoPacific Engineering, Inc.      | Kramer-Gehlen & Associates Inc         | Pinnell/Busch, Inc.                       |
| Century West Engineering Corporation | GHD                               | Lewis & Van Vleet Inc                  | Professional Service Industries Inc (PSI) |
| CH2M                                 | Golder Associates Inc             | Locke Engineers, Inc.                  | Quincy Engineering Inc                    |

# Congratulations

As proud sponsors of the Engineering Excellence Awards, we would like to congratulate our clients and all of the ACEC Oregon award winners.

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## LEADERSHIP DEVELOPMENT PROGRAMS

### WHO SHOULD ATTEND

These programs are ideal for project managers, designers and engineers who are:

- Interested in a leadership track in their career
- Shifting their focus from projects to organizational and financial goals of the firm
- Challenged by competing priorities
- Being asked to take on more responsibilities with the same resources
- New to managing multiple or complex projects
- New to managing people and teams

**ALL CLASSES HELD ON THE FIRST WEDNESDAY OF THE MONTH AT DAVID EVANS AND ASSOCIATES IN PORTLAND**  
 (EXCEPT FEBRUARY 7 IS IN SALEM)

## ACEC Oregon

### SCHEDULE

- 7:30 a.m. - Check-in & breakfast
- 8:00 a.m. - Programs begin (varying lengths from 2 to 3 hours)

**February 7** - Political Involvement & QBS (*Salem*)

**March 7** - A/E Firm Financial Management

**April 4** - Contracts & Liability / Negotiation Process (Scope & Budget)

**May 2** - Executive-level Mentoring & Panel Discussion

Continuing Professional Development credits vary by class from 2.0 to 3.0.

Wed., June 20, 2018

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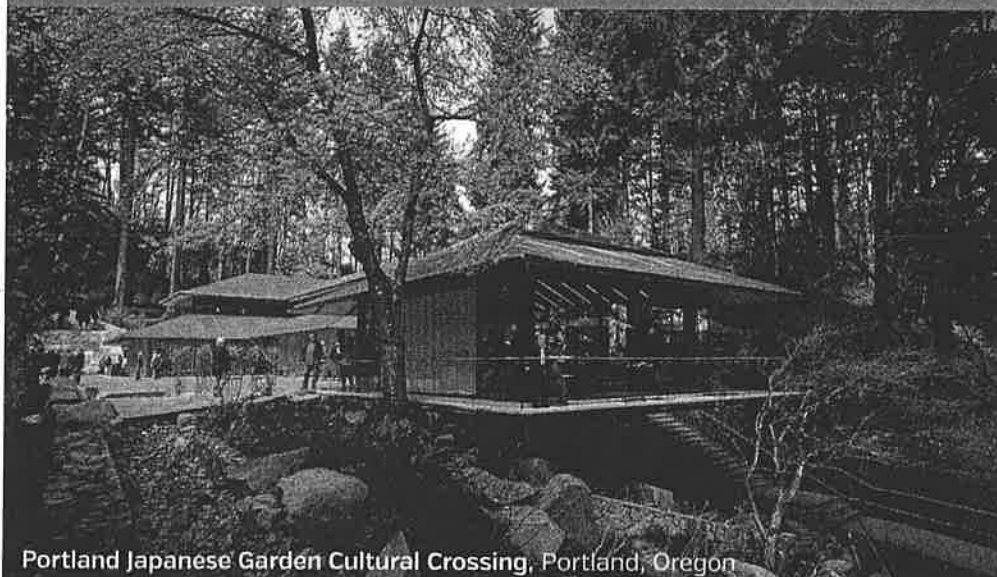
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celebrating **engineering excellence**



Portland Japanese Garden Cultural Crossing, Portland, Oregon

*Congratulations!*

to all of the ACEC Engineering Excellence award winners



# Project of the Year:

## CROOKED RIVER WETLANDS

**Submitting Firm:** Anderson Perry & Associates Inc.

**Client/Owner:** City of Prineville

**Other Consultants/Key Participants:** Aquatic Contracting (subcontractor), George Chadwick Consulting (subcontractor), Rotschy Inc. (general contractor)



A wave of residential and business growth brought new vitality to Prineville. But even as the Central Oregon community celebrated its growing population, Prineville officials worried that boom was pushing the city's wastewater treatment facility to its operating capacity.

Replacing the old treatment plant with a new mechanical one would give Prineville a system that would serve the city even as it continued to grow while also allowing it to meet permitted discharge limits if they changed in the future. But it would also come with a \$62 million price tag that would likely require the city to increase some service development charges on new construction while also causing user rates to skyrocket.

In search of a more affordable solution, Prineville officials turned to Anderson Perry & Associates for help.

Known for finding cost effective and innovative solutions, Anderson Perry's team suggested the city consider a wetlands system for the treatment and disposal of wastewater. Not only would that approach cost \$57 million less than a full mechanical wastewater treatment facility, it also would provide an environmental benefit that would

allow the city to pursue grants from agencies and organization that could pay for as much as half of the project cost.

When the city embraced the idea, Anderson Perry designed a 120-acre project featuring a total of 15 cells. Eight treatment wetland cells are lined with bentonite and covered with top soil to prevent water from entering the ground. Seven disposal wetland cells allow water to be used by a park-like ecosystem and filtered as it flows through soil above the groundwater level and infiltrates into the Crooked River. The system works entirely by gravity flow from an existing irrigation storage pond, a sustainable solution that eliminates the cost of electrical power often needed to operate mechanical plants.

Anderson Perry's support of the project that came to be known as the Crooked River Wetlands went far beyond simply providing the city with the wetlands solution and design.

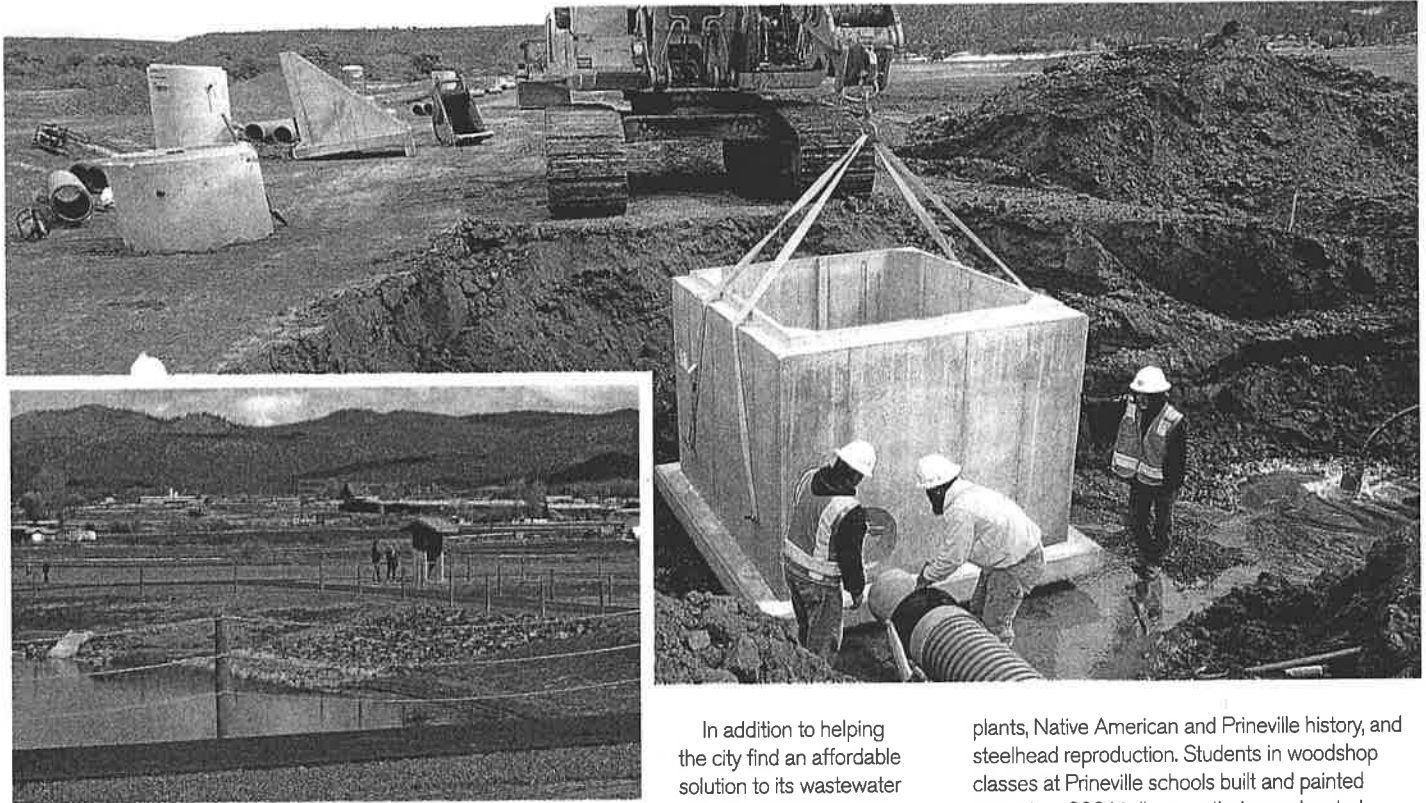
"They worked with the city to help us navigate a tremendously difficult permitting process with the Oregon Department of Environmental Quality and Environmental Protection Agency for this cutting-edge project," Eric Klann, Prineville's city engineer,

wrote of the firm's work on the project.

The main concern of the DEQ and EPA with using wetlands as a treatment and disposal method for wastewater was the potential for groundwater contamination. Before design work began, to alleviate the agencies' fears, Anderson Perry teamed with Dr. George Chadwick, a hydrologist engineer, and began holding meetings with the agencies to discuss the project. From those meetings, DEQ compiled a list of design requirements that included drilling monitoring wells, installing piezometers and developing a complex underground hydrogeological groundwater flow model. In addition to meeting each of those requirements, Anderson Perry also compiled several years' worth of water chemistry data resulting from the monitoring of the city of Baker City's aquifer storage and recovery well that provided proof that underground waters don't commingle. Anderson Perry's efforts finally led the state and federal agencies to give the project a green light, establishing the Crooked River Wetlands project as a baseline for future projects considering indirect discharge.

Anderson Perry also played a key role in helping the city not just find, but also pursue supplemental money to help keep the city's costs for the project





as low as possible.

Based on the benefits that the wetlands would provide to the natural environment, Anderson Perry was able to help the city locate and obtain grants from agencies and groups that included Oregon State Parks, the Oregon Watershed Enhancement Board, The Pelton Fund and the Confederated Tribes of the Warm Springs. Business Oregon and the U.S. Department of Agriculture Rural Development also provided some funding. In the end, Anderson Perry and the city were able to obtain enough grant money to pay for almost half of the \$8.3 million cost of the wetlands project.

Rotschy Inc., the contractor for the project, began work in February 2016. Because money to pay from the project came from numerous sources, Anderson Perry had to develop complex bidding documents that clearly separated and outlined the work and portions of the project that each source of funding was paying for. Despite the intricate situation, construction progressed well and the project was mainly completed a little more than one year after it began.

During construction, Rotschy excavated and placed almost 500,000 cubic yards of soil to create a wetland area. The project was designed so that every bit of soil excavated was used, requiring no additional material to be brought in or moved out. With the goal of allowing the city to control the flow of wastewater between all of the wetland cells, the construction phase also included the installation of more than 7,600 feet of gravity piping, 6,500 feet of pressurized irrigation piping and 32 concrete control structures and manholes.

In addition to helping the city find an affordable solution to its wastewater capacity challenges,

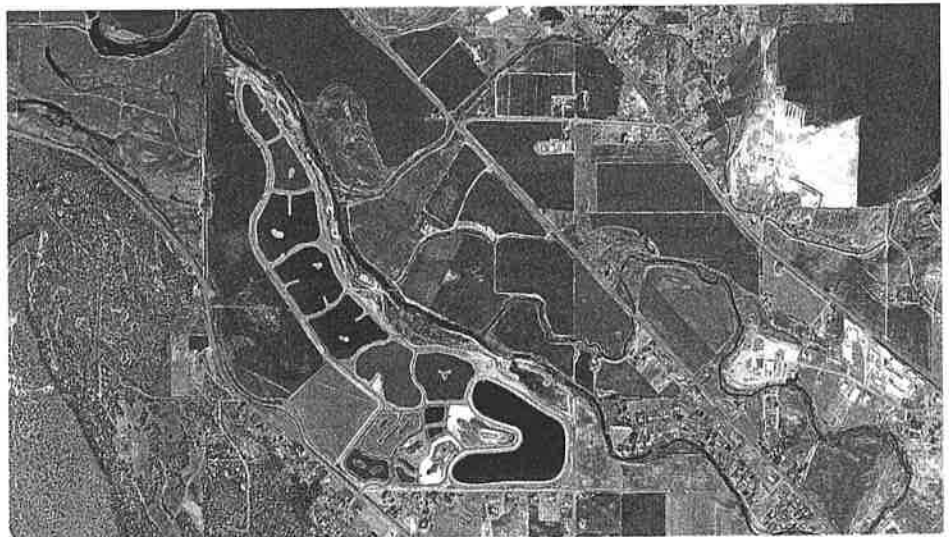
Anderson Perry helped include in the scope of the project the development of more than five miles of public trails and a perimeter loop. The firm designed walking paths, pavilions, gazebos, restrooms and a parking area that will provide area residents with education and recreation opportunities related to the new wetland and riparian areas.

Even before it opened, the wetlands project provided an opportunity to teach local school children about the unusual approach to handling wastewater. The students helped create 13 information kiosks located around the wetlands that offer information about watersheds, wetland

plants, Native American and Prineville history, and steelhead reproduction. Students in woodshop classes at Prineville schools built and painted more than 200 birdhouses that were located throughout the wetlands for use by swallows and other species, an effort expected to establish the Crooked River Complex as a prime spot for bird watchers.

From serving as an area offering educational and recreational opportunities for the community to providing significant savings for the city and its businesses and residents, the Crooked River Wetlands project – and Anderson Perry's contributions – far exceeded the city's original expectations.

Prineville, according to city engineer Klann, "is ecstatic with the success of this project."



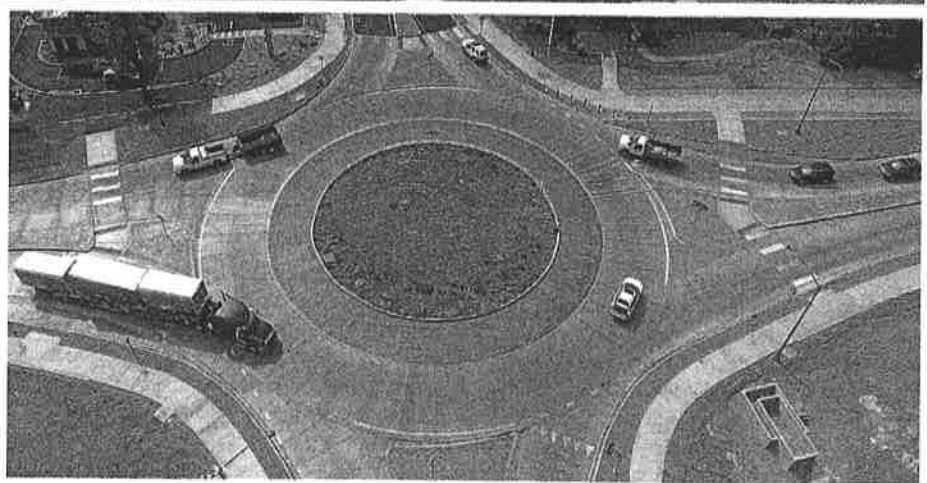
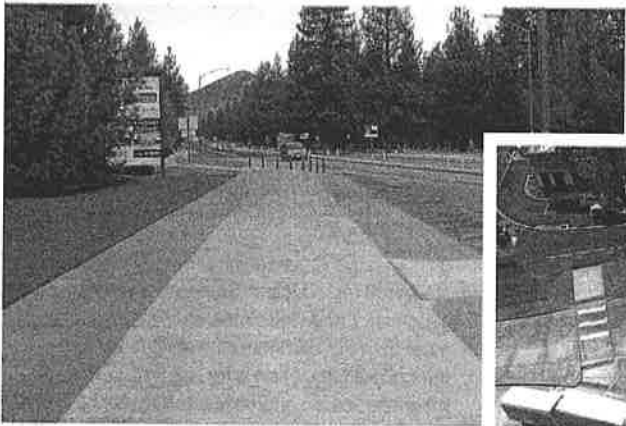
## Best in Category: Transportation

### US 20 BARCLAY ROUNDABOUT

**Submitting Firms:** Kittelson & Associates and Parametrix

**Client/Owner:** Oregon Department of Transportation

**Other Consultants/Key Participants:** City of Sisters, Knife River



History's dynamic duos have a new pairing to add to their ranks — the combination of Kittelson & Associates and Parametrix.

The two firms used their respective talents and expertise to help the Oregon Department of Transportation successfully complete the US 20 Barclay Roundabout, the first roundabout constructed on a state highway since the implementation of a moratorium on the structures in 2011.

Work that would eventually lead to the US 20 Barclay Roundabout project began in 2010 when the city of Sisters began looking for ways to reduce the number of crashes at the intersection of US 20 and Barclay Drive. Joined by Kittelson & Associates, the city studied alternatives to make the area considered to be the gateway to Sisters safer for drivers, pedestrians and other users. ODOT then took the lead on the project and a roundabout configuration was selected as the option of choice.

In 2017, though, ODOT issued a moratorium on building roundabouts on state highways, responding to the freight industry concerns about large, oversized vehicles trying to navigate them.

ODOT and Kittelson with support from Parametrix decided to use the US 20/Barclay intersection project as a pilot project to help reach a consensus about roundabouts with the freight industry. The project team worked tirelessly with the freight industry, including holding truck rodeo events using

full-scale models built at the Deschutes County Fairgrounds, to test the roundabout. The rodeos helped the team resolve design and policy issues, including the creation of a unique bypass lane for the roundabout that can be used by oversized vehicles with special permits.

The team also conducted outreach efforts to educate community players who were skeptical about the safety and efficiency of roundabouts. The team held informational and educational meetings with local residents and business owners. That open communication led to community input that convinced the team to keep the roundabout to one lane to make navigation as simple and easy as possible. Emergency and school district personnel became involved as well, helping the project team develop traffic management guidelines set in place during construction of the roundabout.

The project team, working with community input, also took steps to ensure the roundabout meshed as much as possible with the area's landscape. The bright yellow ADA ramps usually used for transportation-related projects were

changed to a muted reddish brown. Splitter islands and the center concrete apron are a desert tan color, while sign posts and light poles are brown.

In 2014, the outreach efforts by the project team working on the Sisters roundabout project drummed up support from the freight industry that resulted in ODOT lifting its moratorium on roundabouts.

In 2015, Kittelson and Parametrix found themselves working together again on the roundabout when ODOT selected Parametrix to complete the final design and provide construction services for the project. Kittelson provided support for that portion of the project, serving as a consultant on traffic, signage and illumination.

With a target to open the roundabout just three months after the start of construction, the project team worked collaboratively to keep two-way daytime traffic on US 20 moving throughout the work window. Despite weather challenges and changes in paving materials that required some quick adjustments, the roundabout opened for use on time in July 2017.

## Best in Category: Water, Wastewater & Stormwater Systems

### PORTLAND JAPANESE GARDEN EXPANSION

**Submitting Firms:** KPFF and GRI

**Client/Owner:** Portland Japanese Garden

**Other Consultants/Key Participants:**

Anderson Krygier (signage and graphics), Architectural Cost Consultants (cost estimating), Green Building Services (sustainability), Hacker Architects (architect of record), Hoffman Construction (construction manager-general contractor), Kengo Kuma & Associates (design architect), Luma Lighting and Design (lighting), PAC (energy consultant), Sadafumi Uchiyama (garden curator), Walker Macy (landscape architect)

To visitors, the new Cultural Crossing feature at the Portland Japanese Garden in Washington Park offers a beautiful and serene retreat from the bustle of the city.

The project team, which included KPFF and Geotechnical Resources Inc. (GRI) as project engineers, can tell a different story. The team's version outlines the hefty challenges inherent in the Cultural Crossing project that required all involved to dig deep into their expertise and talents to create an end result that appears to have risen organically and effortlessly from the surroundings.

With an eye toward expanding the garden and adding to the experience of visitors, the Cultural Crossing project aims to relate the story of a cultural village and surrounding gardens, gracefully and respectfully cradled into adjacent forest.

But that very location actually posed one of the first hurdles to the project. The Garden is located at the crest of a large, ancient, slow-moving landslide, which meant the project team engineers had to



find a way to keep water runoff from seeping into soils that were vulnerable.

In addition, stormwater, sewer and electrical systems had to be brought up the hill in a way that respected the project's location in an environmental conservation zone that included heritage trees and landscaping.

Adding to the complexity of the project was the requirement that all of the engineering solutions be invisible, blending into the serene landscape as if they didn't exist at all.

That latter requirement especially challenged KPFF and GRI to push their skills and talents in new directions and turn to innovative solutions.

When it came to managing stormwater runoff, for example, engineers had to bypass traditional building gutters, which would have marred the clean architectural lines of buildings featured in the project. Instead, KPFF turned to trench drains and manholes covered with removable pavers, all aligning perfectly with the plaza's stone pavers, creating a seamless and harmonious picture.



Biomass panels serve as green roots to further mitigate stormwater runoff.

The design and construction process used on the project also offered an opportunity for KPFF and GRI to add a new project approach to their toolboxes. In addition to the Portland design firms of Hacker and Walker Macy, the engineers worked with architect Kengo Kuma and his team and Garden curator Sadafumi Uchiyama, designers with traditional Japanese experience.

The dual nature of the design team meant that the project took on an organic configuration rather than a traditional linear one. It also required KPFF and GRI to work in close collaboration and keep up running dialogue with Uchiyama to ensure their engineering solutions meshed with the Garden curator's design intent and vision.

The two firms' flexibility and strong communication skills drew appreciation and admiration from the Garden curator.

"It is a monumental and sustainable achievement which has the ability to impact all who experience it," Uchiyama wrote about the work of KPFF and GRI.



## Small Project Award

### DESCHUTES RIVER TRAIL BOARDWALK

**Submitting Firm:** Parametrix

**Client/Owner:** Oregon Parks and Recreation Department

**Other Consultants/Key Participants:** The Wallace Group



For hikers and bikers traveling from Tumalo State Park along the North Reach of the Deschutes River Trail in Central Oregon, their trek was interrupted less than two miles in by a large boulder field. Those facing the hurdle had three options: try to maneuver over the boulders, hike up a steep 200-foot slope to level ground and then hike back downhill to continue on the path, or give up and turn around.

Thanks to a joint effort between Parametrix and the Oregon Department of Parks and Recreation, there's now a fourth alternative – the Deschutes River Trail Boardwalk.

In envisioning the Deschutes River Trail Boardwalk, the Oregon Parks and Recreation Department knew it wanted a feature that would blend into the environment and could be built with as little negative impact to the natural area as possible. In addition, the agency was going to build it using its own staff and resources, so the project would rely on a design-build approach.

The agency also had some definite ideas about the kind of partner it needed for the project. The firm needed to be able to easily handle basic design concepts while also providing technical assistance during

construction. The ideal team member also would be able to fill skill-set gaps such as surveying and permitting.

The agency's dream partner became a reality when it tapped Parametrix for the project. The agency and the firm soon set to work solving the challenges of the project.

The boardwalk needed to be flat and level enough to allow wheelchair access. Original plans called for the boardwalk to be made with wood; however, the remote location of the project required a lighter material that would require less maintenance. The team turned, instead, to fiberglass reinforced plastic. The material proved to be light enough to be carried to the project site while being sturdy enough to stand up to the snow and rain that often fall on the area.

For the boardwalk's railings, the team decided to use corton steel. The natural tendency of the material to rust fit in with the ruggedness of the landscape and eliminated the need for painting in future years.

Working with the existing terrain, the team decided to turn the field of boulders from an obstacle into an asset, using the large boulders as the foundation of the structural

system crossing the field.

Attaching the boardwalk structure to the boulders required precise connections, so the project team used a LiDAR scan to create an accurate terrain model of the boulder field. A point cloud developed through the scan helped the team select the best route through the field.

The actual construction of the boardwalk was planned to take advantage of the strengths and expertise of members of the project team. One of the agency employees, for example, is a skilled rock climber who established the bolted climbing routes in Smith Rock State Park. He handled the drilling of all of the anchors, where were each embedded a minimum of 12 inches into the boulders. A geotechnical engineer on hand conducted a field verification of the stability of each boulder used as an anchor.

The completed boardwalk now serves as a critical link in a regional trail system, allowing continuous travel from Tumalo State Park to the new 184-acre Riley Ranch park and providing access to bikers and hikers while protecting the designation of that portion of the Deschutes as a "wild and scenic" river.

# Grand Award

## CCtCap, SPACE LAUNCH COMPLEX 41, CAPE CANAVERAL AIR FORCE STATION

**Submitting Firm:** Nishkian Dean

**Location:** Cape Canaveral Air Force Station, Florida

**Client/Owner:** Hensel Phelps, United Launch Alliance

**Other Consultants/Key Participants:** Fives Lund, Nelson Engineering, Oregon Iron Works (now Vigor Industrial), Sauer Group, Western Integrated Technologies

With a goal of helping launch astronauts from U.S. soil once again, the Commercial Crew Tower Capability, or CCtCap, project was one with sky-high aspirations.

United Alliance Launch, the project owner, considered the CCtCap project at Space Launch Complex 41 in Cape Canaveral, Florida, to be an essential part of restoring the country's space



exploration program. The project required a retrofit of an existing structure that included a new crew access tower and connecting crew access arm for astronauts' use as well as modification to platforms inside a vertical access facility adjacent to the launch pad. The tower supported the access arm, moved by a hydraulic system, allowing astronauts easy access to the spacecraft, which sits 200 feet above the launch pad. The project also called for an egress system

that would allow astronauts to move quickly to a location a safe distance away in case of an emergency.

The project's daunting technical design challenges were compounded by the fact that construction would have to take place on an active launch pad without disrupting regular operations.

Known for its experience in the aerospace industry and a focus on responsive functional design and constructability, Nishkian Dean as prime design firm proved to be the perfect project team member for the five-year-long project, which began in October 2012.

Working in a highly collaborative capacity, Nishkian Dean and Hensel Phelps Construction Company as design-build lead employed Building Information Modeling in the preplanning and construction phases of the project. The approach helped the team overcome one of its biggest hurdles, allowing work to take place quickly and efficiently in often-tight work windows between scheduled launches.

The completed tower stands 200 feet tall. Its 60-foot hydraulic egress arm is able to move through a 120-degree swing radius, which allows astronauts to come within 10 inches of the capsule's outer platform. The system has been involved in 17 launches, all of which have been successful, ensuring that more than \$3.8 billion in costs associated with launches from Launch Complex 41 were uncompromised.



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# Grand Award

## OREGON ZOO EDUCATIONAL CENTER

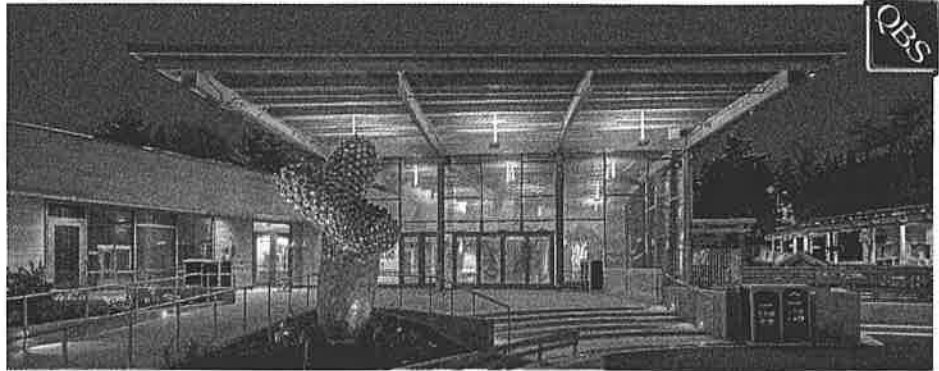
**Submitting Firm:** PAE

**Client/Owner:** Oregon Zoo/Metro

**Other Consultants/Key Participants:** Catena Consulting Engineers (structural engineer), Fortis Construction (general contractor), IQMagic (interpretive), Jones & Jones (landscape architect), KPFF Consulting Engineers (civil engineer), Opsis Architecture (architect), Work As Play (interpretive)

After local voters approved a \$125 million bond in 2008, the Oregon Zoo turned to PAE for help creating a master plan and design for four major projects, including the Oregon Zoo Educational Center.

With myriad programs and uses, the center immediately posed a challenge. The center needed to serve as a home for the zoo's camp program, its insect zoo, a turtle lab, an interpretive center, a café, and event space. But each of those spaces came



with unique environmental requirements, which posed challenges in designing HVAC systems for the building. Through close collaboration, PAE and the project owners came up with innovative solutions.

In keeping with the center's mission to provide education, the team carried that mindset into the design, creating features that would teach visitors about sustainable engineering and building approaches. A window that allows visitors to look into the water pump room offers a lesson in mechanical systems. A periscope-type feature allows kids and adults a chance to look at rooftop PV arrays while a screen provides a running count of how much energy the building is harvesting.

Outside the building, native plants are incorporated into the landscaping. Composting guides posted in the area show visitors that small

actions can add up to make a big difference in protecting the environment.

The center also features a rainwater harvesting and stormwater arrangement called the Rainwater Skid that, when combined with low-flow fixtures, helps the center reduce the amount of potable water it uses by more than 55 percent, when compared with more traditional water-conservation features.

During the project, the zoo received a grant that allowed it to greatly increase the solar panels on the building. Faced with a time-sensitive deadline, PAE quickly made necessary changes to the design, allowing the zoo to claim the building as its first net-zero and Platinum LEED structure and Metro to take a giant step toward its goal to increase sustainability and reduce greenhouse gas emission by 80 percent by 2050.

# Grand Award

## SOUTHERN FLOW CORRIDOR PROJECT

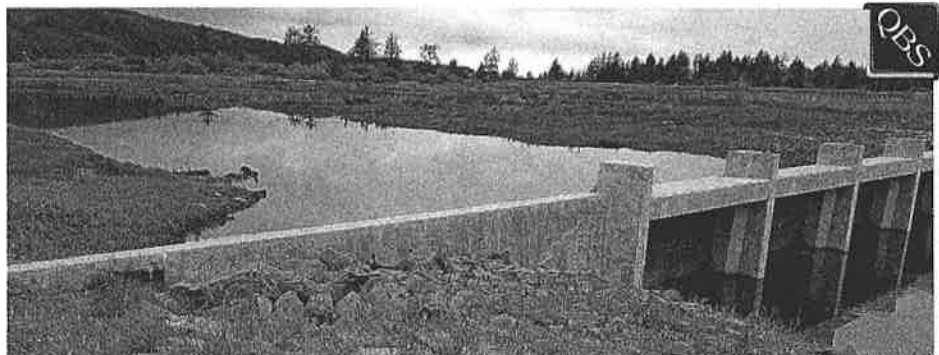
**Submitting Firms:** Shannon & Wilson Inc. and HBH Consulting Engineers Inc.

**Client/Owner:** Tillamook County/Port of Tillamook Bay

**Other Consultants/Key Participants:** Anderson Geological, Northwest Hydraulic Consultants

When heavy rains hit the Oregon coastal community of Tillamook, the three rivers that converge at the head of Tillamook Bay, create a recurring situation that causes flooding in the city's business corridor along Highway 101.

Looking to reduce the duration of the floods as well as restore more than 500 acres of tidally activated saltwater marsh area, Tillamook County and the Port of Tillamook Bay turned to a team



led by Northwest Hydraulic Consultants that included Shannon and Wilson and HBH Consulting Engineers as subconsultants.

The project site was loaded with challenges. Soft and compressible native soils presented soil stability and settlement issues. A former mill site in the area required a cleanup of contaminated soil. The location of the work area also held the potential for high tides that could possibly flood the area during construction.

With those challenges in mind, the project team came up with an innovative plan that included the construction of 1.6 miles of new setback levees and the upgrade of existing levees to protect adjacent agricultural land. The plan also featured construction of new culverts and a floodgate structure and a 4

million-gallon reservoir to allow flood waters to be discharged into nearby sloughs and Tillamook Bay.

The project team worked closely with port and county staff to help keep more than 100 stakeholders informed about the progress of the project as it moved forward, including holding tours of the project area to teach local high schools students about wetland mitigation, environmental stewardship, and the engineering and construction efforts related to the project.

The team's work was put to the test this past October when a flood hit the Highway 101 business corridor in Tillamook. When the rain stopped falling, the flood waters receded quickly, allowing businesses to keep their doors open for customers and serving as testament to the success of the project.

# Grand Award

## PETER COURTNEY MINTO ISLAND BRIDGE

**Submitting Firm:** OBEC Consulting Engineers

**Client/Owner:** City of Salem

**Other Consultants/Key Participants:** DKS Associates, GreenWorks



For decades, the city of Salem had envisioned a connected system that would provide residents with vehicle-free access to 1,300 acres of riverfront park space and more than 30 miles of off-street trails between Minto Island, Salem and West Salem. When the time finally came to build the last link in that system, the city turned to OBEC Consulting Engineers to oversee the design and construction phases of the project.

OBEC and its project partners had to overcome several challenges in designing and building the Peter Courtney Minto Island Bridge. The bridge's main span needed to clear a 100-year flood elevation by at least one foot over a

slough area. At its connection at Riverfront Park in downtown Salem, the bridge needed to meet existing path grades as well as cross a path in the park while providing adequate overhead clearance.

The OBEC-led team tapped its experience and knack for innovation in order to come up with a workable, unique solution for the main span and approach spans in order to achieve a seamless arrangement for the structure. The main span features a pair of tied arches supporting a precast panel stress-ribbon deck. The PC-panel design offered a multipurpose solution, meeting the constraints to clearing the

floodway as well as meeting existing grades in limited space in Riverfront Park.

In its first four months of use, the bridge hosted 400,000 crossings. That public enthusiasm for the bridge was in large part the result of a collaborative effort between OBEC and the city to keep the public informed about the progress of the project. Live construction-camera photos taken at 15-minute intervals were posted on the city's website, for example, and fifth-graders from a local school were given a chance to tour the bridge and talk with the contractor about the construction process that turned the bridge from a long-held dream into reality.

## Project of the Year

Congratulations to the City of Prineville on the success of the Crooked River Wetlands wastewater treatment project. We are honored to be recognized alongside them.



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## HONOR AWARDS

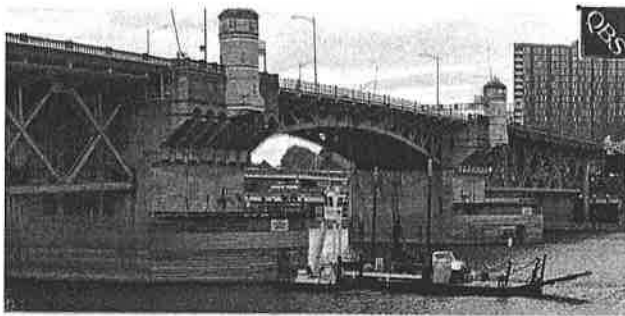
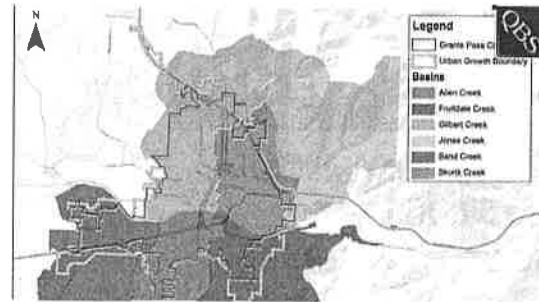
### GRANTS PASS STORMWATER MASTER PLAN

**Submitting Firm:** Keller Associates Inc.

**Location:** Grants Pass, Oregon

**Client/Owner:** City of Grants Pass

**Other Consultants/Key Participants:** HDR Inc.



### BURNSIDE BRIDGE SEISMIC RESILIENCY STUDY

**Submitting Firm:** Shannon & Wilson Inc.

**Location:** Portland, Oregon

**Other Consultants/Key Participants:** HDR Inc. (prime consultant), Parametrix (subconsultant)

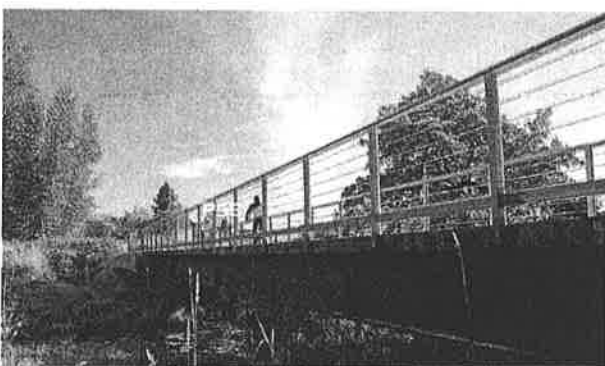
### BANFIELD PET HOSPITAL CORPORATE HEADQUARTERS

**Submitting Firm:** Interface Engineering Inc.

**Location:** Portland, Oregon

**Client/Owner:** Banfield Pet Hospital

**Other Consultants/Key Participants:** Gensler (interior architect), KPFF (structural engineer), Skanska (general contractor), TVA Architects (core and shell architect)



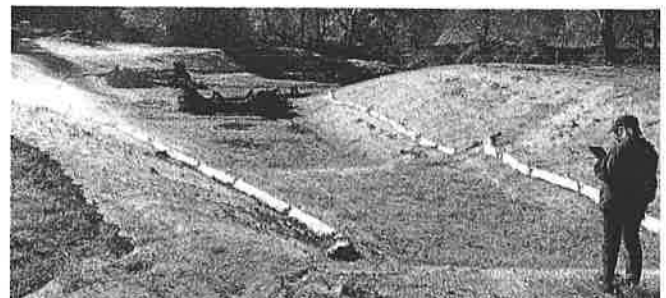
### WILLAMALANE PARKS MILL RACE PATH BRIDGES

**Submitting Firm:** Peterson Structural Engineers

**Location:** Springfield, Oregon

**Client/Owner:** Cameron McCarthy Landscape Architecture & Planning/ Willamalane Park and Recreation District

**Other Consultants/Key Participants:** Mason Bruce & Girard (environmental consultant), Murraysmith (civil engineer), Paradigm Engineering (electrical engineer), PBS Engineering & Environmental (geotechnical engineer)



### ODOT FULL DELIVERY TURNKEY MITIGATION – YAQUINA BASIN US 20 CORRIDOR IMPROVEMENTS

**Submitting Firms:** Otak Inc. with Mason, Bruce & Girard Inc.

**Location:** Lincoln County, Oregon

**Client/Owner:** Oregon Department of Transportation

**Other Consultants/Key Participants:** GeoDesign (geotechnical engineer), Habitat Contracting (vegetation management), Haglund Kelley (legal counsel), Hancock Forest Management (mitigation land owner rep), Henderson Environmental (construction contractor), Historical Research Associates Inc. (cultural resources specialist), Laura Herbon Landscape Architect (landscape architecture), Solmar Hydro (bathymetric surveying), The Wetlands Conservancy (long-term land steward), Trask Design & Construction (construction contractor), Tyler Woods Appraisal Services (Land appraiser), Western States Soil Conservation (hydrologic monitoring well installation)



## HONOR AWARDS

### CITY OF WEST LINN BOLTON RESERVOIR REPLACEMENT

**Submitting Firm:** GRI

**Location:** West Linn, Oregon

**Client/Owner:** City of West Linn

**Other Consultants/Key Participants:** Murraysmith (civil engineer), Peterson Structural Engineers (structural engineer)



### RIVER ISLAND RESTORATION PROJECT

**Submitting Firm:** Inter-Fluve

**Location:** Estacada, Oregon

**Client/Owner:** Metro

**Other Consultants/Key Participants:** Aquatic Contracting, Biohabitats, Clackamas County Parks, Clackamas River Basin Council, K&E Excavating, Oregon Department of Fish & Wildlife, Portland General Electric

### CROOKED RIVER RANCH WATER SYSTEM

**Submitting Firm:** Parametrix

**Location:** Terrebonne, Oregon

**Client/Owner:** Crooked River Ranch Water Company

**Other Consultants/Key Participants:** Newton Consulting (geotechnical engineering)



### CORNELIUS PASS ROAD – NW CORNELL ROAD TO US 26

**Submitting Firm:** David Evans and Associates

**Location:** Hillsboro, Oregon

**Client/Owner:** Washington County

**Other Consultants/Key Participants:** Archaeological Investigations Northwest, Casso Consulting Inc., GRI, Hahn and Associates, Kerr Contractors Oregon, Michael Minor & Associates

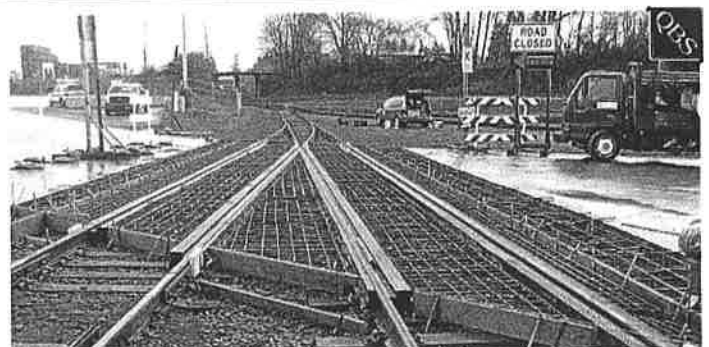
### TERMINAL 4 SUSTAINABLE STORMWATER STREET

**Submitting Firms:** GeoEngineers Inc., Century West Engineering, David Evans and Associates

**Location:** Portland, Oregon

**Client/Owner:** Port of Portland

**Other Consultants/Key Participants:** GreenWorks (landscape architect), RailPros (rail designer for preliminary design)



## HONOR AWARDS

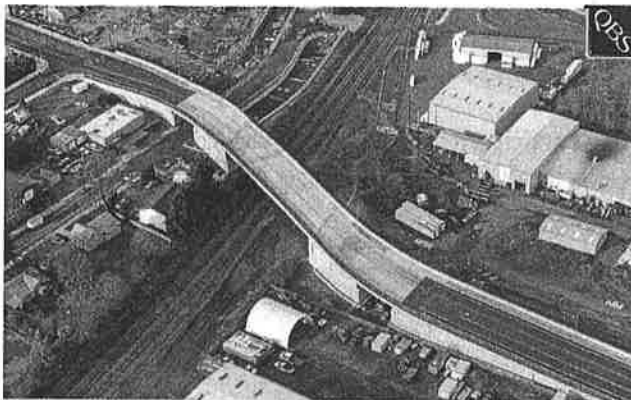
### FARMINGTON ROAD IMPROVEMENTS – HOCKEN TO MURRAY

**Submitting Firm:** Harper Houf Peterson Righellis

**Location:** Beaverton, Oregon

**Client/Owner:** Washington County

**Other Consultants/Key Participants:** City of Beaverton (owner/construction manager); DKS Associates (traffic engineer); GeoDesign (geotechnical services); K&E Excavating (general contractors); Mason, Bruce & Girard (environmental services); Pavement Services (pavement design)



### TOLBERT OVERCROSSING

**Submitting Firm:** Harper Houf Peterson Righellis

**Location:** Clackamas County, Oregon

**Client/Owner:** Clackamas County Development Agency

**Other Consultants/Key Participants:** DKS Associates (traffic engineer); GeoDesign (geotechnical services); Hanna McEldowney & Associates (right-of-way services); Mason, Bruce & Girard (environmental services); OBEC (structural engineering)

### I-5/LA CENTER ROAD INTERCHANGE PROJECT

**Submitting Firm:** Kittelson & Associates Inc.

**Location:** La Center, Washington

**Client/Owner:** City of La Center, Mohegan Gaming Advisors LLC

**Other Consultants/Key Participants:** CH2M, Lifescapes International, Olson Engineering, Swinerton Builders



### HIGHWAY 99 W NEWBERG-DUNDEE BYPASS – PHASE 1

**Submitting Firms:** Parametrix, OBEC Consulting Engineers, David Evans and Associates, Murraysmith, Geotechnical Resources Inc., DKS Associates

**Location:** Newberg to Dundee, Oregon

**Client/Owner:** Oregon Department of Transportation

**Other Consultants/Key Participants:** Hamilton Construction (phase 1D general contractor), K&E Excavating (phase 1G general contractor), Wildish Standard Paving (phase 1E general contractor)

## HONOR AWARDS

### WEST EUGENE EMX EXTENSION

**Submitting Firm:** WSP

**Location:** Eugene, Oregon

**Client/Owner:** Lane Transit District

**Other Consultants/Key Participants:** BHE Group (surveying), Cameron McCarthy Landscape Architecture & Planning (landscape architect), Cogito LLC (public outreach), DKS Associates (traffic engineer), Hohback-Lewin Inc. (structural engineer), JHR Transportation Engineering (street lighting), Northwest Geotech Inc. (geotechnical exploration), Pavement Services (pavement design), PBS Engineering and Environmental Inc. (hazardous materials review), PIVOT Architecture (architect), Universal Field Services Inc. (right-of-way acquisition)



### MOUNTAINSIDE HIGH SCHOOL

**Submitting Firm:** Harper Houf Peterson Righellis Inc.

**Location:** Beaverton, Oregon

**Client/Owner:** Beaverton School District

**Other Consultants/Key Participants:** Angelo Planning Group, Atlas Landscape Architecture, Bora Architects, DKS Associates, GeoDesign Inc., KPFF Consulting Engineers, Hoffman Construction Company, Pacific Habitat Services, PAE, Walker|Macy



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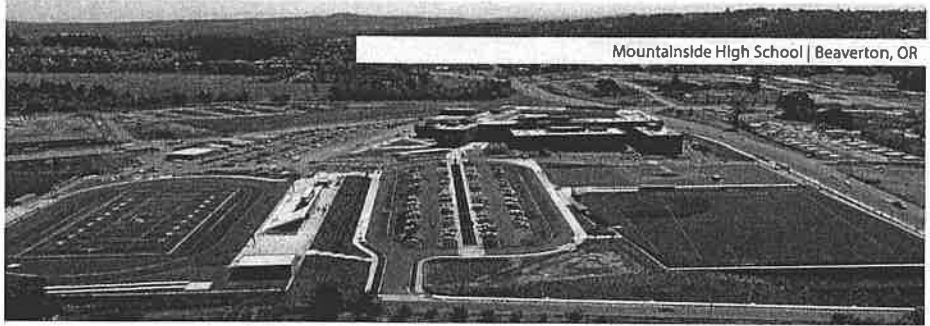
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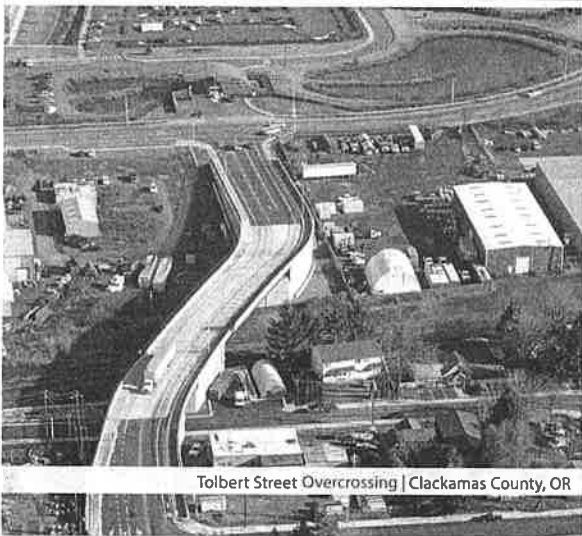
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