

PUBLIC WORKS PROJECT OF THE YEAR AWARD NOMINATION FORM

Deadline March 4, 2013
(electronic submittals only)

Project Name

OR 213/I-205 to Redland Road Crossing

Project Completion Date

Must be substantially completed (90%) and available for public use as of December 31, 2012.

September 30, 2012

Public Agency

City of Oregon City

Project Category

- Structures
- Transportation
- Environment
- Historical Restoration/Preservation
- Disaster or Emergency Construction/Repair

Project Division

- Less than \$5 Million
- \$5 Million, but less than \$25 Million
- \$25 Million—\$75 Million
- More than \$75 Million

Managing Agency

Aleta Froman-Goodrich

Name

Senior Project Engineer

Title

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Primary Consultant

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Continued...

PUBLIC WORKS PROJECT OF THE YEAR AWARD SUPPORTING DATA FORM

Please address each of the following areas in your supporting documentation, adhering to the sequence below when possible.

- Completion date contained in contract. Any time extensions granted should be addressed in the submittal.
- Construction schedule, management, and control techniques used.
- Safety performance including number of lost-time injuries per 1,000 man-hours worked and overall safety program employed during the construction phase.
- Environmental considerations including special steps taken to preserve and protect the environment, endangered species, etc., during the construction phase.
- Community relations—a summary of the efforts by the agency, consultant and contractor to protect public lives and property, minimize public inconvenience and improve relations.
- Unusual accomplishments under adverse conditions, including but not limited to, adverse weather, soil or site conditions, or other occurrences over which there was no control.
- Additional considerations you would like to bring to the attention of the project review panel, such as innovations in technology and/or management applications during the project.

NOTE: Supporting documentation is **limited to 20 pages**, exclusive of photographs and nomination form. Photographs will be used for promotional purposes by the association. Submittal should include nomination form and supporting documentation form, and photographs.

Nominated by: *(Can only be nominated by managing public agency or APWA chapters.)*

John Lewis

Name

Award Committee Chair

Title

City of Oregon City

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1. PROJECT OVERVIEW

1.1 PROJECT BACKGROUND AND DESCRIPTION

This project started as part of off-site improvements associated with a large commercial development in Oregon City. The conceptual phase of this project established the preferred jughandle configuration after developing more than 10 interchange concepts at the beginning of this project. The project team guided all involved parties (ODOT, Clackamas County, the City of Oregon City, and other stakeholders including private property owners and Clackamas Community College) through a public involvement process to establish the preferred alternative.

The OR 213/I-205 to Redland Road Crossing project—also known as the Highway 213 (OR 213) Jughandle Improvement—is a set of constructed improvements commissioned by the City of Oregon City that result in a grade separation of Washington Street and Clackamas River Drive from OR 213. These facilities are connected via a realigned local roadway (Washington Street) crossing under OR 213 and are equipped to serve pedestrian, bicycle, transit, vehicular, and freight goods movement. The at-grade intersection of OR 213 with Washington Street and Clackamas River Drive has been reconfigured to operate as separate, signalized right-in/right-out connections. OR 213 has been improved to a six-lane divided facility that includes raised median control for the entire segment.

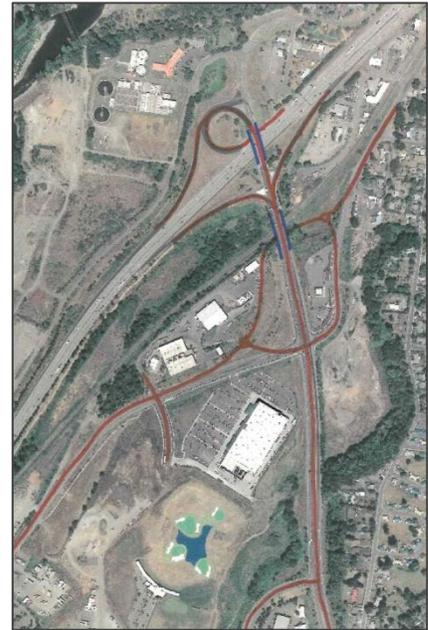


Figure 1. Original 2007 Jughandle sketch.



Figure 2. The completed OR 213/I-205 to Redland Road Crossing project.

1.2 CONSULTANT TEAM

The joint effort of Kittelson & Associates, Inc. (KAI) and OBEC Consulting Engineers (OBEC), acting as consultants to the City of Oregon City from the beginning of this project through the end, was instrumental to the success of the OR 213 Jughandle project. The key aspects of the project that were managed by the lead consultants include:

- **Kittelson & Associates, Inc.** – traffic operations analyses, traffic control, traffic signal design and timing, intelligent transportation systems applications, illumination, and signing and striping design
- **OBEC Consulting Engineers** – surveying; roadway, utility, bridge, structural, and stormwater design; design specifications; and utility and railroad coordination; and project management and inspection during construction phase



Additional work was completed by an outstanding team of subconsultants, including:

- Mason, Bruce & Girard – public involvement and environmental permitting
- GreenWorks – landscaping and irrigation
- Shannon & Wilson, Inc. – geotechnical and hazardous materials
- Heritage Research Associates – archeological and historic resources
- David Place – construction expert
- Michael Minor & Associates – noise and air quality analysis
- Universal Field Services – right-of-way acquisition



Figure 3. Team members from the Oregon DOT, City of Oregon City, OBEC Consulting Engineers, and Kittelson & Associates, Inc. accept the Grand Award at the 2013 American Council of Engineering Companies Award Dinner.

2. COMPLETION DATE AND EXTENSIONS

The project special provisions only gave the contractor 595 days to complete the project. This schedule was challenging due to extensive weather sensitive work, including landscaping, asphalt paving, concrete pavement, and pavement markings. The contractor, Mowat Construction Company, completed 99% of the work within the tight time constraints, and the project was fully operational by December 2012. Due to weather constraints, the contractor was granted a suspension of work until the following spring to complete weather sensitive work. Mowat met many major milestones, including early completion of the accelerated bridge construction (ABC) four-day closure, as described in the Community Relations section below. Completing the \$17.5 million construction contract of complex tasks with the 20-month contract was a feat and was accomplished through the diligence of the construction management and engineering staff.

3. SCHEDULE, MANAGEMENT, AND CONTROL TECHNIQUES

Recognizing the potentially divergent viewpoints concerning the project, an intensive collaborative process was initiated early and maintained consistently throughout the project duration. Many meetings involved stakeholders, the general public, and jurisdictions, which gave the consultant team a clear understanding of the issues that could not be violated and those that were flexible. Most importantly, the extensive collaborative scope of this project resulted in a solution that the community supported and in which jurisdictions took ownership and pride.

The consultant team was able to complete the design elements within budget while accommodating additional tasks from the client and adapting to changes in scope and schedule. The accelerated schedule was still able to accommodate significant comments and changes late in the project; even with the accelerated schedule, the consultant team was able to deliver the project a full month early on September 30, 2012 when the original date was set for October 30, 2012. This flexibility was successful in part due to monthly check-ins with all of the consultant team members and through keeping the client informed of progress and accommodating requests outside the original scope.

The construction cost was slightly higher than the original bid amount, but during the 18-month construction period several additional activities were addressed through contingencies. The full amount covered under the contingencies was \$26.8 million and the project was completed at \$26 million. The City used the opportunity to address other deficiencies within the project influence area. KAI and OBEC were allocated \$6,225,996 and ultimately received \$4,768,989.

4. SAFETY PERFORMANCE

Mowat instituted a detailed site safety plan for the project and completed a safety questionnaire before starting construction, as required by the project contract. Not only did this project have the usual safety hazards typical of a transportation project on a heavily traveled highway, but it also had some unique safety hazards that needed to be addressed and mitigated. For example, this project was constructed over an existing decommissioned landfill. The landfill contained hazardous and contaminated materials as well as methane gas that needed to be mitigated during the construction of numerous drilled shaft foundations. The project also included the construction of a bridge using ABC. ABC has all the usual safety hazards of a construction project but compressed time and space amplify the safety concerns. Lastly, a large portion of the project was constructed at night—including pile driving, excavation, paving and underground utility work—which increases the potential for accidents.

Mowat's staff of safety officers, traffic control supervisors, and foreman did an outstanding job ensuring that the traveling public and construction staff went home safely at the end of the work day. Mowat and the 29 subcontractors on the project recorded no lost time injuries, resulting in a Lost Time Incident Rate of zero.

5. ENVIRONMENTAL CONSIDERATIONS

5.1 ENVIRONMENTAL AND FLOODPLAIN MITIGATION

The project had a fill area of approximately 39,000 cubic yards in the floodplain. In order to meet City code requirements that balance cut and fill, an additional 27,000 cubic yards was necessary to meet the code requirements. The site was previously a lumber mill and was converted to wetlands populated with native species to address the City's floodplain and natural resource protection requirements. The tree stumps from the excavation were used onsite to create habitat, and sawdust that was over-excavated from the site to improve growing conditions was processed and reused by local landscape companies.



Figure 4. Previously the site of a lumber mill, land adjacent to the project was converted to wetlands.

5.2 OTHER ENVIRONMENTAL CONSIDERATIONS

- The limited four-day closure of OR 213 reduced fuel emissions from idling cars and other environmental impacts caused by traffic delays compared to other considerations.
- Native trees and shrubs were used in the enhanced streetscape and aesthetic features.

6. COMMUNITY RELATIONS

6.1 PUBLIC INVOLVEMENT

Although many technical, detailed analyses and design tools were used to identify deficiencies and develop appropriate solutions, instrumental to the success of this project were the methods used to convey technical information to a broad audience in a manner that was understandable and conducive to consensus-building and decision-making. The City was passionate about creating and executing a comprehensive and effective public information and outreach plan to communicate about the planned four-day closure of OR213 as well as all other aspects of the design and construction of the project that might affect or be of interest to adjacent, local, and regional stakeholders.



Figure 5. Stakeholders at a successful public involvement meeting.

A detailed outreach plan identified the materials and media that would be used, who the target audience was for each piece, and the schedule for implementation. Given the sizable and diverse audience, strategic resource allocation was essential. For example, 15-second radio advertisements were one of the tools used to reach the tens of thousands of affected motorists throughout the region with basic information about the closure. Door-to-door canvassing with detailed fact sheets and maps, on the other hand, was conducted to reach the much smaller number of residents and businesses located on Oregon City streets directly impacted by the detour route and traffic management plan.

Outreach tools used to raise awareness about the closure included:

- Roadway signage
- Project website
- ODOT TripCheck website and City of Oregon City website
- Websites, newsletters, and email lists of established organizations and agencies
- Twitter and Facebook
- Direct mail
- Utility bill inserts
- Project email updates to list of ~700 stakeholders
- Presentations at business group meetings, neighborhood association meetings, and meetings of elected officials in Oregon City and neighboring jurisdictions
- Flyers
- Tabling at the Home Depot adjacent to the construction zone
- Canvassing
- Phone calls to key institutional stakeholders
- Radio advertisements
- Newspaper display advertisements

OREGON CITY Highway 213 Jughandle Project

Welcome to the City of Oregon City's Jughandle Project website - your source for news and information about the construction of improvements to Highway 213, Washington Street, Clackamas River Drive, and Redland Road.

The Jughandle Project improvements are designed to reduce congestion and enhance safety on Highway 213 near the Interstate 205 interchange. Construction of the project began in spring 2011 and will conclude by spring 2013. The City, in partnership with the Oregon Department of Transportation (ODOT), is using night work and a rapid bridge construction method to ensure that during the vast majority of the project's construction, all travel lanes on Highway 213 will be open to traffic in the daytime.

Please explore this website to learn more about the project's purpose, design, and how it will modify some local routes of travel. You can also check back to this page throughout construction for updates on the project's current and upcoming work (posted below).

Follow the action with live pictures of Highway 213 from the Jughandle Project Construction Cam.

CONSTRUCTION UPDATES

December 18, 2012: The City and its contractor have completed major construction operations for the Highway 213 Jughandle Project. Temporary speed limit reductions in the work zone have been removed. The contractor will occasionally be on site, making minor touch-ups, through the end of February 2013. Traffic impacts during this period will be limited to intermittent single travel lane closures.

Permanent striping for the travel lanes on Clackamas River Drive, Prairie Schooner Way, and Redland Road has been rescheduled for late spring 2013 because several consecutive days of dry weather are needed to apply the striping material. Permanent striping will not involve changes to the current travel lane configuration.

Landscapeers will also wait for dry weather in spring 2013 to plant shrubs on steep slopes adjacent to Washington Street, Prairie Schooner Way and Clackamas River Drive. Final planting of trees and shrubs at the project's environmental mitigation site near the Main Street extension will also be completed in spring 2013.

> DIVIDED HIGHWAY

A barrier now prevents left turns and straight movements across Hwy 213 at the northbound I-205 ramps and the Clackamas River Drive-Prairie Schooner Way (formerly Washington Street) intersection. View maps of the new travel routes.

> Learn about Oregon City's first modern roundabout.

Take a Tour of the Jughandle Project.

Figure 6. The project website kept the public informed of progress on the project and even featured a live webcam.

The plan also outlined a strategy for attracting media coverage that leveraged both the significance of the expected traffic congestion and the unique bridge construction method.

Positive comments from stakeholders around the region support the conclusion that the objectives of producing accurate information materials about the closure and alerting the public through a diversity of media were met. The relatively limited number of calls to register complaints is also a measure of the outreach campaign's success. Clackamas County expected to receive calls from motorists who had complaints—they received none. The City of Oregon City fielded approximately 30 calls during the four-day closure, but none of the callers reported not knowing about the closure in advance. The staff person that manages the ODOT public hotline, who has extensive experience responding to calls from motorists.

6.2 ACCELERATED BRIDGE CONSTRUCTION

The project contractor—Mowat Construction Company—built the new 130-foot bridge superstructure next to OR 213 starting in the fall of 2011. On March 22, 2012 at 8:00 PM, OR 213 between Washington Street and the northbound I-205 on/off-ramps was closed for five nights and four days. Extensive public involvement, including a newsletter and webpage featuring a live construction camera, was implemented prior to and during the closure to ensure that all roadway users were aware of the closure. The entire process—which included excavating approximately 433 cubic yards of asphalt and between 8,000–10,000 cubic yards of material under the existing roadway and moving approximately 3.2 million pound bridge into place—was completed on time by the afternoon of March 27, 2012.



Figure 7. The bridge was built next to the existing roadway and moved into place during a four-day closure of OR 213.

The ABC allowed Mowat to maintain unrestricted day time traffic on OR 213 during all but four days of the nearly two-year construction timeline; it also shorted the project construction by approximately six months. Traditional bridge construction methods such as staged construction would have required unacceptable traffic impacts that would have closed at least two travel lanes on OR 213 all day and night for 12 to 16 months. This was especially important because this segment of highway has an average daily traffic (ADT) count of 65,000. A traditional detour structure was also prohibitive due to the close proximity to both Union Pacific Railroad and ODOT's I-205 interchange bridges at exit 10.

6.3 INCIDENT ACTION PLAN

To support the ABC, the consultant team worked with the City of Oregon City, Clackamas County, emergency responders, and ODOT to create an Incident Action Plan. This plan clearly outlined the objectives of the roadway closure; established a Communication Plan for the internal team, as well as a Media Plan to get the word out to the public; established contingencies for any possible interruptions or issues; and clearly delineated a schedule of activities. By including all affected agencies in the development of the Incident Action Plan, the consultant team ensured that operations would run smoothly in almost any possible situation.



Figure 8. Traffic was rerouted to local streets during ABC.

6.4 OTHER INNOVATIVE ASPECTS

- Worked on an accelerated schedule to deliver final plan, specifications, and estimates (PS&E) in less than six months to meet the City's desired construction start date.
- Minimized construction costs by applying context sensitive design best practices, as well as the *Highway Safety Manual* to quantitatively highlight trade-offs from a safety perspective for design exceptions.
- Constructed the City's first roundabout that offers significant safety benefits and reduces the average delay for drivers during all hours of the day.
- Used video detection and GPS clocks to optimize traffic operations during construction.
- Implemented temporary street lighting to allow crews to work at night and during numerous lane shifts, thereby speeding up construction.
- Designed noise abatement curtains to shroud pile driving equipment, lessening noise during nighttime construction.
- Designed a shoring system that was constructed during the night time closures to allow for continued foundation work under traffic during day light hours.

7. UNUSUAL ACCOMPLISHMENTS

7.1 DECOMMISSIONED LANDFILL

The project area overlapped a decommissioned landfill, which challenged the consultant team to find creative solutions to minimize contamination and promote environmental mitigation. The solutions included:

- Eight shafts were drilled in the landfill to penetrate and found on competent soil below; six of these were between 60–80 feet deep.
- 500 tons of trash and 20,000 gallons of contaminated water were removed to construct the foundation of the improvements.
- Cement-Bentonite-Soil trench dams were constructed to prevent gas migration in new utility trenches.
- Structure foundations were constructed below the landfill to prevent settlement. To span shallow landfill areas, roadways were constructed with stone embankment and geotextile fabrics and ductile iron pipe was used in place of CMP and concrete pipe.

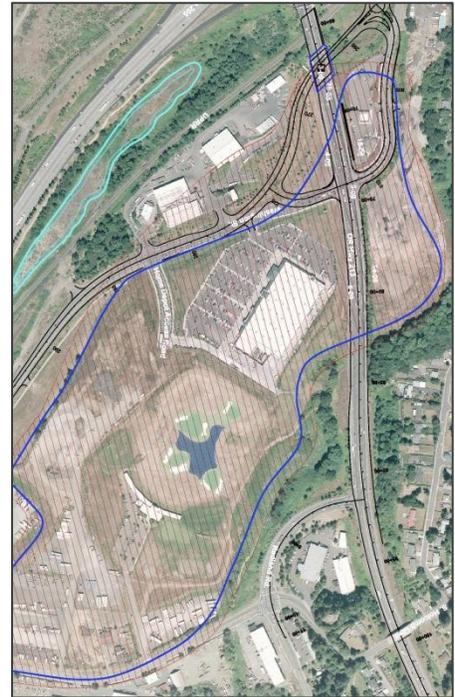


Figure 9. Much of the project area was built atop a decommissioned landfill.

8. ADDITIONAL CONSIDERATIONS

8.1 JOBS AND TRANSPORTATION ACT

The consultant team was instrumental in assisting the City to secure construction funding for this \$26 million project through the Jobs and Transportation Act (JTA). State of Oregon JTA funds provided \$22 million of the project budget, with additional funds coming from the City of Oregon City and federal congressional appropriations. The project was chosen for JTA funds due to the significant employment, cultural, and residential benefits that additional capacity on OR 213 will bring to approximately 100,000 residents of Oregon City and surrounding areas.

8.2 ALTERNATIVE CONTRACTING

The consultant team used an A+C+D “Best Value” contractor selection process, which allowed for selection of a contractor based not only on the lowest price, but also factored in technical qualifications and construction approach. In order to maximize available funding and capitalize on the competitive bidding climate in 2010, contractors submitted costs that included a deductive bid alternate. This allowed the consultant team to see a more comprehensive breakdown of the price of services, as well as be able to choose the most cost effective upgrades and alternatives. Mowat, who was ultimately successful in being chosen for the project, had the lowest bid and scored second in qualifications and approach.

8.3 OREGON CITY'S FIRST ROUNDABOUT

Roundabouts have been demonstrated both in research and in practice to be proven options for intersection design, and their safety and operational performance in many cases is superior to other alternatives. National research has indicated from “before” studies that the public is generally opposed to introduce a roundabout, while “after” studies indicates overwhelming support of roundabouts as an intersection design option.

The implementation of the first roundabout in Oregon City simplifies the operations at one of the jughandle intersections. It was important to inform the public and educate users through the project website and public open houses how to use a roundabout. The roundabout has been in operation for several months and users are pleased with the outcome. This shows that the implementation of the first roundabout in Oregon City is similar to national studies and that there may be more roundabouts to come in Oregon City.



Figure 10. A view of Oregon City's first roundabout before landscaping.

8.4 KEY ACHIEVEMENTS

In sum, the key achievements of this project include:

- Super structure constructed adjacent to highway and moved into place during four-day closure (<http://www.jughandleproject.com/cam.html>).
- Successful public outreach that minimized impact of closure for a section of highway with 65,000 ADT.
- Planning for bicycle and pedestrian detours during construction.
- Successful implementation of Incident Action Plan.
- Noise abatement measures that allowed nighttime construction.
- Successful environmental and floodplain mitigation at a decommissioned landfill.