



**Oregon's Partnership
for Effective Transportation
Program Delivery**

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In anticipation of a substantive transportation funding package from the 2017 Oregon legislative session, the Department of Transportation (ODOT) engaged the American Council of Engineering Companies (ACEC) of Oregon, which includes the prime consulting firms that provide engineering services to ODOT, to discuss the challenges and opportunities that need to be addressed in order to deliver a smooth, transparent and well-coordinated transportation program. ACEC also met with the Association of Engineering Employees (AEE) of Oregon in an effort to develop agreement on how ODOT's in-house staff and the private sector consultant community have a shared interest in supporting efficient and high quality project delivery for the benefit of all Oregonians. AEE is the employee union that represents ODOT's engineering and technical staff.

From the discussions between these three entities, this report was created to identify **guiding principles** and provide **recommendations** for efficient and effective project delivery in response to a scalable funding package of any size.

With ODOT's statewide outsourcing level currently at 52% for Preliminary Engineering and 34% for Construction Engineering, partnership with consultants and contractors has been and continues to be vital to ODOT. Outsourcing ranges from discipline specific services (i.e. bridge design) to full service multi-discipline contracts; Consultants may deliver individual projects with ODOT oversight or augment ODOT staff in delivering projects as part of blended project teams.

Successful and effective delivery of projects in the transportation program is the shared vision for ODOT, AEE, and ACEC. To attain this goal, guiding principles to support cost effective and transparent delivery of the transportation program have been identified. The guiding principles are important for improving and strengthening partnerships and ensuring effective program delivery. ODOT is already taking steps to ensure its staff and private sector companies doing business with ODOT are implementing the guiding principles below.

Following is a discussion of each of the guiding principles, an explanation of the issues involved, and resulting next steps for ODOT and recommendations developed by ACEC and AEE.

Collaborative, Transparent, and Streamlined Program Delivery

Expected Outcome: Cost effective, collaborative, innovative, scalable, and reliable program delivery.

Discussion: A streamlined process within ODOT improves the agency's program delivery and its partnership with the private sector, furthering cost effective program delivery. To further improve and maintain a successful streamlined program in partnership with the private sector, a number of improvement initiatives are currently underway within ODOT. To understand the return on investment of some of the process improvement initiatives, ODOT commissioned Oregon State University (OSU) to study the return on investment of the first five initiatives listed below.

- **Electronic Data Management** – use of a digital content management system, ProjectWise™, to manage, store, modify, and query engineering data and documents

through the project lifecycle. Eliminates searching for documents in multiple locations; one central, version-controlled repository for use by both ODOT and consultant engineers collaboratively.

- **e-Construction** – construction goes paperless. e-Construction uses tablets and an electronic exchange service to digitize traditional construction document routing, review, and approvals.

Per OSU's findings, the expected benefit from both Electronic Data Management and e-Construction ranges from \$1 to \$23 million.

- **3D Engineered Models** – use of electronic, computerized 3D engineering models of a project completed to a very high degree of accuracy, representing an evolution of traditional 3D modeling.
- **Automated Machine Guidance** – this technology determines the position of the construction machinery in real space and time and ensures highly accurate material placement and conformity. Automated machine guidance is deployed by contractors in collaboration with ODOT-supplied 3D engineered models.

Per OSU's findings, out of 10 ODOT's projects that have so far utilized 3D Engineered Models and Automated Machines Guidance, ODOT exceeded an average net benefit of \$1.5 million, with an expectation of increase as more projects use these technologies.

- **Mobile Mapping** – a Light Detection and Ranging (LiDAR) mobile mapping system gathers highly-detailed, survey-grade geospatial data that is currently being used in surveys for roadway design with potential application in other areas.

Per OSU's findings, ODOT's total return on investment is \$322 for every \$1 spent.

- **Project Delivery Streamlining** – reducing the number of forms and steps during project development and construction to simplify interaction with consultants as well as provide consistency throughout the agency.
- **Funding Flex: Coordination of funding to allow for maximum flexibility** – strategically coordinating funding to allow for maximum flexibility to ensure that program dollars are spent in the most effective manner in the best interest of the transportation system.
- **Efficient Use of Local Federal Funds** – promoting efficient use of local federal funds by increasing local ownership of projects and reducing additional oversight by ODOT.
- **Work Zone Safety** – implementing different strategies that promote protection of the travelling public, ODOT employees, and workers, who build, operate and maintain Oregon's transportation system.

ODOT Next Steps

Continue to leverage technology solutions that create time and cost efficiencies and **continue its process improvement efforts.**

ACEC/AEE Recommendation

ODOT should continue their process improvement efforts.

Streamlined and Reliable Procurement

Expected Outcome: Reliable design and construction contracting cycle times that support reliable and predictable project delivery schedules; reduced procurement costs for both ODOT and consultants; and equitable contracting opportunities for firms of all sizes including Disadvantaged Business Enterprises (DBE's), Minority Business Enterprises (MBE's), and Emerging Small Businesses (ESB's).

Discussion: As stated in the recent McKinsey & Co.'s Management Assessment, "ODOT's procurement of both consulting services and construction contracts are resource consuming, lengthy, and highly variable." As highlighted in that report, efficient contracting is a current challenge for ODOT. With the added demands of outsourcing that a potential funding package represents, the pressure to improve procurement and contracting efforts would undoubtedly be magnified. Implementation of the following improvement efforts is currently underway:

- **New Full Service Price Agreement Methodology and Projections** – ODOT's Procurement Office is actively working with the Project Delivery Leadership Team to establish full service price agreements that meet the needs for increased procurement and provide fair and equitable opportunities to firms of all sizes to compete for work.
- **A&E Cycle Time Streamlining Effort** – Improving A&E contracting cycle times and improving contracting efficiency by eliminating non-value added processes and improving quality in procurement.
- **A&E Procurement Streamlining Efforts** – In support of the A&E cycle time streamlining effort, ODOT created a task force to focus on longer term A&E contracting improvement efforts by starting with improving the quality of scope of services/statements of work, negotiations process, and cost estimating.
- **Establishment of Statewide Negotiation Team** – A task force has been formed by ODOT whose sole purpose is to ensure timely and consistent negotiations statewide.

ODOT Next Steps

ODOT will continue its process improvement work in the area of procurement as well as explore resource allocation that provides for needed staffing for this critical path function.

ACEC/AEE Recommendation

In anticipation of increased outsourcing, staffing **resources need to be added** within ODOT to support contracting / procurement. ODOT needs to partner with Oregon DOJ to streamline contracts and price agreement reviews. **The threshold for DOJ legal sufficiency reviews should be increased from its current level of \$150,000 to a new higher level of \$350,000** where reviews of all contracts below this threshold are delegated to ODOT. Then, upon proven demonstration of compliance by ODOT in legal sufficiency reviews at **\$350,000**, increase the threshold up to **\$1,000,000**. These two incremental threshold increases will **require legislative action**.

Appropriately Sized and Skilled ODOT Project Delivery Staff

Expected Outcome: A well-balanced, appropriately sized, and highly skilled workforce for effective program delivery that also supports a sustainable, strong owner role.

Discussion: As ODOT employees retire or transition to jobs outside the agency, the need for workforce succession planning and development is critical to ensure the institutional health of the organization. A well-skilled ODOT workforce also works to support the success of the private sector transportation consulting and contracting community with whom they partner. Both internal and external project delivery staffs work most effectively and efficiently when there is competent oversight and collaborative, well-executed work products.

ODOT Next Steps

ODOT will continue their work of reviewing the internal technical competencies identified as at-risk and proficiency levels in known career ladders to develop and retain these highly technical roles in the Highway Division. **Mitigation strategies, training, and succession plans** will be developed for those highly technical positions most at risk of turnover.

Additionally, ODOT will work to retain internal staff capable of **delivering large, complex projects that will allow for growth of internal technical competencies** in order to increase retention.

Lastly, ODOT will review existing training programs for technical staff and assure that adequate opportunities are provided for professional growth.

ACEC/AEE Recommendation

In order to provide effective and timely support to consultants and contractors, ODOT requires **additional project delivery and appropriate support staff** including but not limited to Consultant Project Managers, Agreement Writers, Lab Technicians, and Quality Assurance Engineers. ODOT needs strong technical skills and strong project management skills to protect the transportation investment, exercise stewardship, and be a sustainable organization to successfully delivery the program.

In order to address hiring and retention, ODOT must also work with Department of Administrative Services (DAS) to review employee compensation packages as compared to other public agency staff. This could be done through a salary survey of public agencies across the state. ODOT and DAS should also review the cost of living throughout the state and consider adjustments based on **geographic locations and market competitions**. This may require **legislative action**.

Also, ODOT should work with DAS to develop **transportation specific position classifications** in order to effectively recruit and retain the appropriate skilled project delivery staff. This would provide recognition that engineers and project managers in the transportation industry are different than engineers and project managers working for other agencies. This same approach is being used in other states. This may require **legislative action**.

Lastly, ACEC concurs with the McKinsey Report that ODOT has a significant number of **managers that are "over-leveraged."** ODOT should work with DAS to review this issue to identify the cause and define improvements. This issue affects ODOT's ability to retain staff and also hinders efficient project delivery. This may require **legislative action**.

Sustainable Strong Owner Role and Performance Management

Expected Outcome: Timely, consistent and cost effective decision-making that increases accountability and transparency in the program delivery.

Discussion: Implementing performance measures will inform decisions and actions that meet established operational and strategic objectives.

A strong owner role requires ODOT staff be provided appropriate tools and the authorities to make timely and consistent decisions statewide to accelerate program delivery and improve efficiencies with the private sector. As identified in the recent McKinsey & Co.'s Management Assessment, it was recommended to "Consolidate Key Performance Measures (KPM) most critical and relevant to ODOT's near-term challenges." Performance management involves measuring the performance of different processes and organizational units then using that information to inform decisions take action to meet established operational and strategic objectives, and hone-in on needed improvement areas. As a fundamental principle of strategic decision-making, having the right performance management system is essential to both ODOT and the private sector.

ODOT Next Steps

ODOT to continue its current efforts of strengthening its performance management program and **align performance measures with strategic objectives.**

ACEC/AEE Recommendation

To facilitate and maintain a stronger owner role, ODOT must continue to take actions that empower staff to make timely and consistent decisions while maintaining accountability and transparency to achieve high standards for effective program delivery. **Project leaders, project managers, local agency liaisons, and consultant project managers must be given more decision-making authority.**

Ability to Utilize Multiple Program Delivery Methods

Expected Outcome: A flexible and reliable program that is capable of using different project delivery methods in response to projects of varying size and complexity.

Discussion: Design-Bid-Build is the delivery method that is currently primarily utilized by ODOT but there are alternative delivery methods that ODOT has used in the past which could be utilized in the future when appropriate. Alternative project delivery methods available to ODOT include:

- **Construction Manager/General Contractor (CM/GC)** – ODOT contracts for professional services from an A&E firm for the design and contracts with a prime contractor for pre-construction and construction services.
- **Design-Build** – ODOT contracts with a prime contractor, where the Design-Builders are joined via one contract for design and construction services.
- **Price plus Multi-Parameter Bidding** – ODOT either performs design in-house or outsources design to an A&E firm and awards a separate contract to a prime contractor for construction. Factors such as time taken to complete the project, qualifications of the bidder's key personnel and bidder's delivery approach are used in selecting and awarding a contract.

Some of the challenges/obstacles to using these alternative contracting methods are as follows:

- Additional requirements on ODOT and DOJ staffing and schedule time for developing, reviewing and finalizing special provisions and solicitation documents. Developing evaluation and scoring criteria and evaluating and scoring bidder proposals.
- Additional requirements on ODOT and DOJ resources and schedule time for developing, reviewing and finalizing ORS required Findings of Fact for exemption from competitive bidding requirements. In addition, the Price plus Multi-Parameter Bidding method requires

an exception from competitive bidding, a Special Experimental Project NO. 14 (SEP-14), from FHWA for projects that have FHWA oversight.

- CM/GC and Design-Build require increased ODOT staff involvement and time during design and construction.
- Limited number of ODOT staff with working knowledge and experience with alternative contracting methods.
- For **Design-Build** project delivery method, confidential Alternative Technical Concepts (ATC's) are a proven way to partner with the professional construction community to develop innovative and efficient investments. However, DOJ guidance does not allow confidential ATC's. They have determined that all ATCs must be made public to all bidders in order to provide a fair bidding environment. This determination has resulted in an inability to use ATC's because any potential advantage gained from submitting an ATC is lost when the ATC is shared with all teams.

Due to the challenges above, ODOT continues to utilize alternative project delivery methods whenever appropriate for very minimum number of projects.

ODOT Next Steps

ODOT must continue to **explore different program delivery methods** for cost effective, timely, and reliable program delivery particularly with the increase in outsourcing.

ACEC/AEE Recommendation

ODOT should pursue a way to **allow ATC's to be evaluated confidentially** within the Design-Build delivery method. ATC's are being used effectively in other states to achieve the highest project value. Continuing ODOT's current design-build procurement method without allowing confidential ATCs significantly decreases the potential savings associated with the design-build method. It is recommended that a **partnering workshop be undertaken with representatives from the Oregon DOJ, Federal Highway Administration, and other DOT's with successful ATC experience (i.e. Washington DOJ, Nevada DOJ) to collaborate on how Oregon can allow confidential ATCs as part of ODOT's design-build procurement tools.** Allowing ATC's to be evaluated confidentially may require **legislative action.**

Conclusion

As emphasized throughout this report, ODOT's partnership with the private sector transportation consulting and contracting community is integral to the successful delivery of transportation projects and the overall efficiency of the program. The healthy and collaborative meetings with ACEC, AEE and ODOT created critical dialog and insights into how best to address a potential transportation funding package, the inherent expectations of Oregonians in passing such a package and our collective commitment to stewardship of Oregon's transportation infrastructure.

The recommendations shared in this report have been identified as next steps to improve ODOT's ability to deliver the program effectively, especially in an environment of increased outsourcing. We all look forward to the continued partnership.