



# Washington State Department of Transportation Regional Project Coordination

## SMARTER WORK ZONES PROJECT COORDINATION CASE STUDY

The Federal Highway Administration (FHWA)'s Every Day Counts (EDC) Program aims to accelerate the deployment of innovative practices that focus on reduced project delivery schedules, increased roadway safety, reduced congestion, and/or enhanced environmental sustainability. The Smarter Work Zones (SWZ) initiative is one of the three innovations focused on safety and mobility under round three of the EDC Program. SWZ was developed to promote safe and operationally efficient work zones through project coordination and technology application strategies.

This case study focuses on regional project coordination by the Washington State Department of Transportation (WSDOT). **Project coordination is the proactive planning and management of construction projects to minimize work zone traffic impacts. Project coordination may involve a single project or multiple projects within a corridor, network, or region, and possibly across agency jurisdictions.** WSDOT embraced a cultural shift from a project-based focus to a collaborative interagency focus with multi-agency regional coordination in the Puget Sound area.

### Background

The Puget Sound region in Washington encompasses the cities of Seattle, Tacoma, Olympia, and Everett, which contain two-thirds of the state's population. The region includes an extensive transportation network with many planned and ongoing construction activities overseen by the Olympic and Northwest WSDOT regions and many local transportation agencies. With each of these agencies independently focusing on many projects, scheduling construction activities was becoming increasingly difficult. It left the potential for conflicting closures that could require costly last minute change orders.

Early funding support from WSDOT leadership led to the development and implementation of the Construction Impact Analysis (CIA) project coordination tool. The CIA tool is a mapping tool and database that helps to identify conflicts between construction activities and formalize multi-agency project coordination in the Puget Sound region. WSDOT gathers information on planned construction activities for the tool from WSDOT project teams and local transportation agencies to generate outputs for recurring meetings with these stakeholders, as well as transit agencies, ports, and the freight community to anticipate and plan activities to minimize traffic impacts.

### Early Leadership Initiative and Support

In Washington, the State Legislature approves transportation funding and defines when funding will



Figure 1: The Olympic and Northwest WSDOT regions needed a better way to program and organize all of the funded construction activities within a pre-defined timeframe with minimal impacts to traffic. Source: WSDOT

be available for individual construction projects. When determining the timing of projects, many factors are considered in the prioritization. However, the traffic impacts of multiple projects, especially local projects, may not be known or considered. As a result, on an already-congested transportation network, the influx of additional projects made it increasingly difficult to prevent conflicting lane or road closures on parallel routes, and better organization was needed to complete all projects within the allotted time period without severe disruptions to traffic. Agency leadership recognized the need to better coordinate planned construction activities in the Puget Sound region.

WSDOT Executives supported the initiative and allocated funding to internally develop a software program in 2010 called the Construction Impact Analysis (CIA) project coordination tool. This tool helped to formalize and facilitate mid- to long-term project coordination activities that had previously been intermittently conducted using informal spreadsheets.

Leadership support was critical since project coordination can be a challenging culture shift. Sustained project coordination requires dedicated long-term staff time and resources involving

many project teams and stakeholders who are managing many other activities. Additionally, management buy-in was crucial for encouraging both internal and external stakeholders to undertake a communications shift and voluntarily provide tentative, but specific, construction closure information, sometimes two years in advance and often before project design has been completed.

## Establishing Goals and Collaborative Relationships

WSDOT has dedicated additional staff and resources to support project coordination since 2009 to reduce the potential for conflicting lane and road closures. The CIA tool outputs are the basis for several regularly recurring meetings with various impacted stakeholders to minimize traffic impacts. The CIA tool is managed by the statewide Public Transportation Division in WSDOT. This was intentionally done to ensure interaction and collaboration between otherwise separate stakeholder groups:

1. WSDOT recognized the importance of including transit stakeholders given the disruptions that work zones can cause to transit schedule, stops, and routes, and this division had established relationships with those agencies, and
2. Collaboration between WSDOT regions and jurisdictions could be enhanced with facilitation occurring by a group not directly responsible for construction projects, providing a neutral assessment of projects with cross-regional or cross-jurisdictional impacts.

In order to make the CIA tool useful, collaborative relationships with many stakeholders in the Puget Sound region were leveraged both for gathering and distributing information, including cities, counties, transit agencies, ports, and the freight community. Internal marketing at WSDOT was also important to garner and maintain support, with targeted efforts directed to the agency executives, design and construction divisions, project managers, and project engineers on the benefits of these project coordination efforts. Additionally, annual briefings are made to other agency executives to provide a high-level overview of construction activities and ongoing project coordination efforts.

## Implementing Project Coordination

**Information Gathering.** Because the CIA tool is used for medium- to long-term coordination, it is updated on a quarterly basis. An e-mail request for information on construction activities is sent to approximately 200 individuals from project teams in eight counties within the two WSDOT regions and the local jurisdictions in the Puget Sound region. These construction activities include longer-term projects that are planned for up to two years in the future. Requested inputs include the specific location of the construction area, and projected dates for each closure. An example input is:

- I-5 / NE 117th St to SR 104 - Pavement Repair
- Dates: 8/1/2014 - 10/5/2014



Figure 2: WSDOT generates and distributes maps showing construction activities planned by quarter for each identified hot spot with links to the project websites. Source: WSDOT

- Location: I-5 from Milepost 173.14 to Milepost 177.75
- Impacts: Planned partial closure, nighttime, Sun-Thu; Possible full closure nighttime Sun-Thu; Possible partial closure daytime Sun.

Other information is also compiled for the CIA tool:

- Sporting events, marathons, and concerts, including special events with fewer than 8,000 attendees
- Transit routes to help identify routes that might be impacted by construction activities.

**Tool Outputs.** Outputs from the tool are distributed on a quarterly basis to approximately 400 interested stakeholders in the Puget Sound region, and include detailed maps of scheduled projects and Gantt charts of detailing the specifics of upcoming projects as shown in Figure 2 and Figure 3. The Gantt chart identifies projects as having full or partial lane closures, increased demand, and reduced capacity, and also distinguishes about whether such conditions are certain or possible. Customized outputs are also generated, as requested by project teams, based on a variety of factors, such as:

- Date – any specified range of dates;
- Time – any specified time period, including only one or both peak period, overnight, etc.;
- Geography – between specific mileposts on corridor, within a custom-drawn map area, or by county;

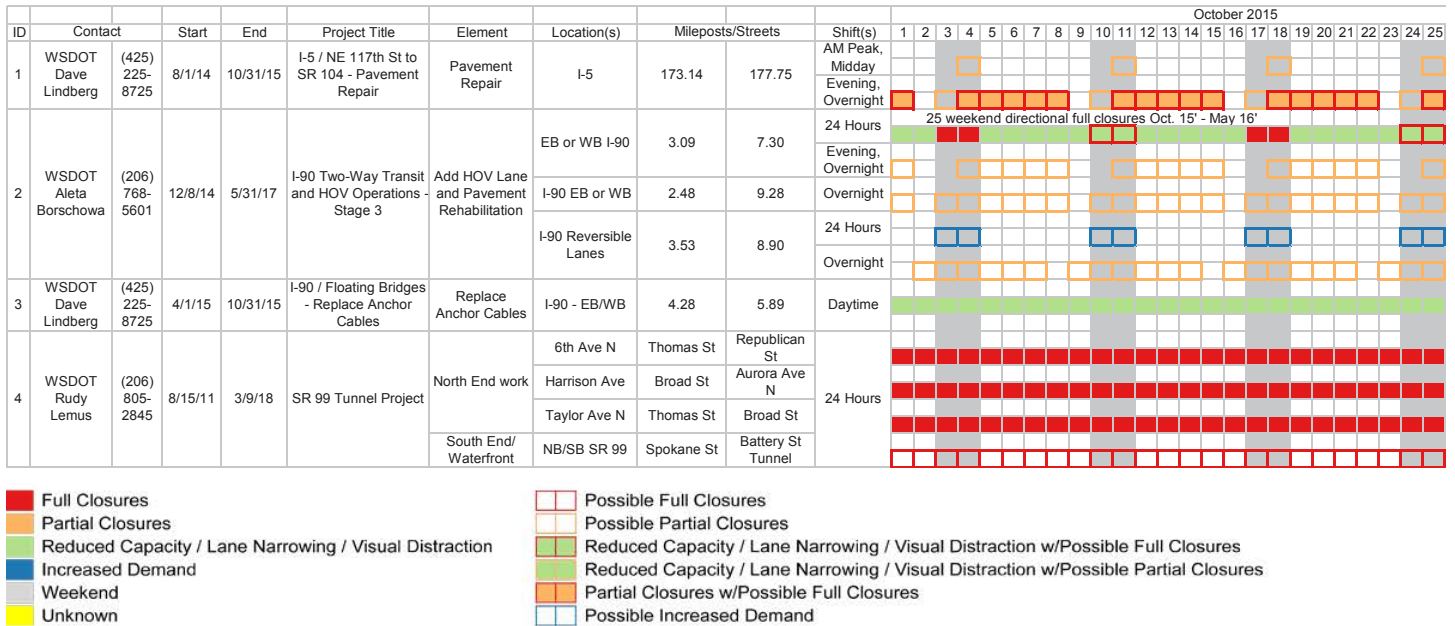


Figure 3: WSDOT generates Gantt charts that lists projects and their expected daily impacts. Source: WSDOT

- Special events – can be overlaid as desired based on the projected attendance, e.g., <8,000 people, 8,000-25,000 people, etc.

Hot spot and watch list areas are identified annually before the summer construction season, primarily on the basis of engineering judgment. Considerations for these area designations include the number of projects in close proximity, and the types, frequency and duration of impacts that could incur cumulative traffic impacts. Hot spots have a larger number of projects with greater traffic impacts and a higher potential for conflict that requires more focused coordination amongst the project teams. Watch lists have lesser impacts and conflict potential, but if additional projects were added they could become hot spots. As an example, in the past, an identified hot spot in Redmond had multiple projects affecting every major roadway into the city. Although only one of these was a WSDOT project, combining this with the multiple local projects from different jurisdictions necessitated an extra focus to minimize impacts to the local community.

**Recurring coordination Meetings.** Annual meetings are held with a wide variety of interested stakeholders, including WSDOT, local road and transit agencies, and private sector trucking and port representatives to discuss projects taking place over the next couple of construction seasons. This meeting provides an opportunity for the stakeholders to be aware of planned construction activities in order to make adjustments for conflicting activities. Generally, WSDOT identifies major project conflicts for discussion, and the various groups work together on ways to resolve them. This may include schedule changes like switching between weeks of weekday overnight closures

to shorter, more intense 24-hour weekend closures, or even in rare circumstances delaying whole projects to another construction season. Examples include:

- When WSDOT was planning the launch of Express Toll Lanes on I-405 the hot spot materials were used to plan other major projects, including the nearby SR 520 Bridge Replacement project and smaller ongoing maintenance work to improve clarity of information for drivers.
- A decision was made to delay a major rehabilitation project on I-5 because the transportation network had so many weekend construction closures planned it could not accommodate this additional work.

More frequent coordination meetings are conducted for specific hot spots. For instance, coordination meetings are held with impacted agencies for the downtown Seattle hot spot every two months to share information, identify risks, and opportunities for improved coordination of planned construction activities.

WSDOT also schedules shorter-duration but impactful maintenance activities like cleaning storm drains and inspecting bridges using the CIA tool outputs as a reference. These efforts sometimes allow maintenance staff to perform activities during already-planned closures to expedite work, reduce traffic impacts, and save money. In the Seattle area, shorter term coordination is focused on a three-week outlook and weekly meetings are held with affected parties to coordinate project details and address potential work zone issues. Information from these shorter-term coordination efforts is shared with affected businesses and major sports venues.

## Institutionalizing Project Coordination

Working relationships with stakeholders have developed over time, and the CIA project coordination tool has been accepted as stakeholders see the value demonstrated with its use. There are no requirements that stakeholders submit construction activity inputs, but it is in everyone's best interest to do so to minimize congestion impacts in their local jurisdictions. Internal marketing was required to help alleviate initial stakeholder concerns that they would be held accountable to the dates provided about projected impacts. On the contrary, receiving more detailed information sooner is very beneficial to other stakeholders, even if these estimated impacts are later modified.

The CIA project coordination tool outputs have become routinely used by many stakeholders for a variety of purposes:

- **Stakeholders** request customized, comprehensive outputs to facilitate project planning efforts that would otherwise require much more time to compile from many sources.
- **Project teams** use the tool as they develop their schedules to adapt their approach based on other planned construction activities in the area. Many special provisions in contracts now include a section that lists projects they must coordinate with based on the CIA tool outputs.
- **WSDOT regions** approve requests for state road closures, and the CIA tool outputs provide a good basis for making those decisions.
- **Transit agencies** generally require a six-month lead time to revise bus routes and schedules, and the future outlook provided by the CIA tool outputs are very helpful for making necessary changes to minimize impacts.
- **WSDOT's communications group** is a closely engaged partner in construction coordination. They participate in meetings, encourage and facilitate the flow of information, and use the CIA tool for coordination and public messaging for the construction season.

The CIA mapping tool and database developed and owned by WSDOT is a web-based application that is flexible to include any geographic area, however its use has been confined to the Puget Sound region, which experiences the most congestion in the state. Because WSDOT developed the CIA tool in-house, it could be made available to other interested agencies.

## Conclusions

This case study illustrates one example of regional project coordination. WSDOT initiated a communications and culture shift with project coordination by taking a comprehensive view of all planned WSDOT and local agency work zones in the Puget Sound region. However, other agencies should examine their existing practices and needs to identify ways to best coordinate projects.

Through these project coordination efforts, agencies in the Puget Sound region have reduced the potential for conflicting lane and road closures, while also enhancing efforts to reach more stakeholders and travelers in affected areas with better information. Key takeaways from this case study include the need for:

- A multi-agency communications and culture change to collaboratively shift the focus from individual projects to network performance.
- Internal marketing to demonstrate the value of project coordination and encourage stakeholder involvement
- Buy-in from management to support the potential need for additional staff and resources.
- Regularly scheduled meetings with all affected agencies to plan for future work zone impacts.

**Additional resources on SWZ project coordination strategies can be found at: [https://www.workzonesafety.org/swz/project\\_coordination](https://www.workzonesafety.org/swz/project_coordination)**

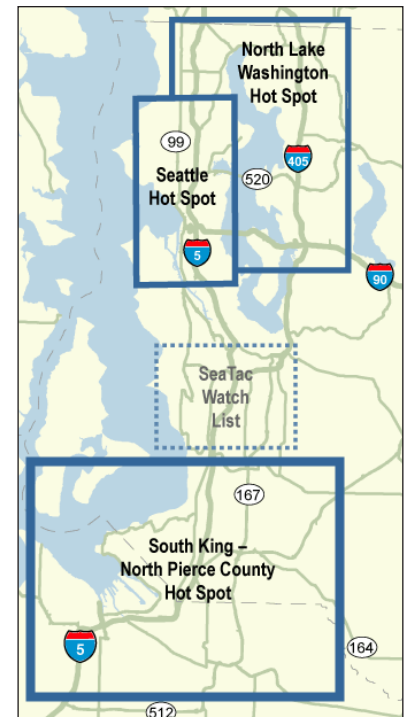


Figure 4: The WSDOT construction traffic management team analyzed impacts of road projects for 2015 and 2016, identifying three hot spots and two watch list areas in the Puget Sound region (Everett watch list area not pictured). Source: WSDOT

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