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FALL 2022

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**APWA-WA Fall Conference
October 5–6, Spokane, WA**

The Emerging Professionals Committee | Transportation Benefit Districts



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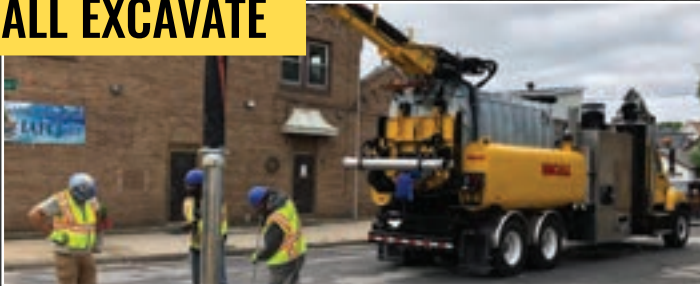
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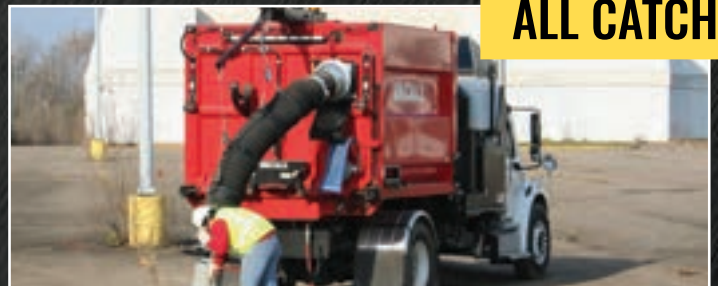
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Scott Sawyer, 2022 Chapter President



Thoughts on Delegation

How of hands – in the past year who has experienced a day when you sat slumped in your chair, sighed deeply, and muttered, “I’m feeling overwhelmed!” Was it a pile of to-do’s at work, multiplying like rabbits? Was it challenges at home adding to the stress of work deadlines? Maybe a combination of both?

Who has had days when you lift your gaze longingly toward the sky and think, “I need more help!”

Have you ever been staring down a looming deadline where you decide, “I can do this faster myself than the time it would take me to explain it to someone else.”

Or maybe you’ve felt defeated with a hint of resentment when you vent to a sympathetic ear, “I have to do this myself if I want it done correctly.”

Ever feel like you never get ahead, like the more productive you become, the more work that finds you? It’s common to attribute this truism to Benjamin Franklin:

If you want something done, ask a busy person.

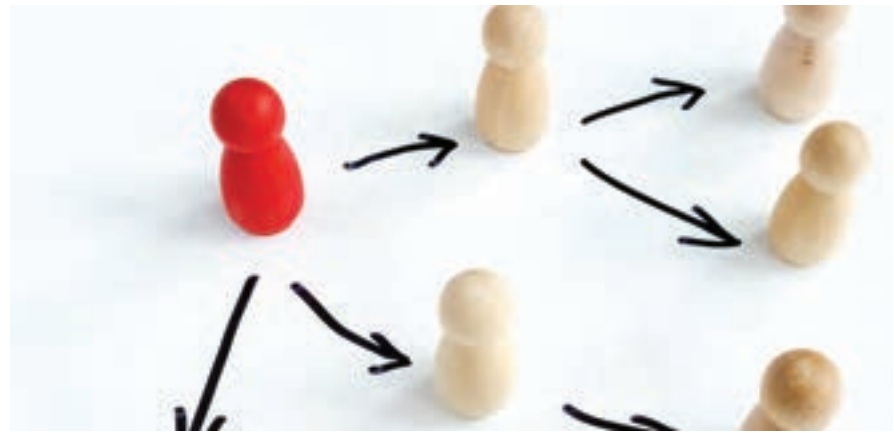
The actual attribution is fairly muddled, but it feels like something Ben would say. And more importantly, it feels true!¹

OK, you can all put your hands down now. With all of us living these challenges, how is it no one has ever discovered some magic time management tip that *actually* works? So what’s the answer? How do we solve this riddle wrapped in a mystery inside an enigma (Winston Churchill)?²

Delegation.

I can hear many of you harrumphing now. You were expecting something revelatory and all you got was “delegation.” Mumbling, “That’s all you’ve got?!”

Stick with me. Delegating is proven to be the path to addressing these vexing challenges. Notice I called it delegating. A verb. An action. Delegation can get a bad rap because often times it isn’t done well. Doing it well requires purposeful, intentional action.



Before we continue, let’s make sure we are on the same page. What is delegation? Maybe it helps to start with what it is not. Delegation is not taking those things you don’t want to do and giving them to someone else. That’s the short-cut form of faux-delegation that underpins the bad rap.

So what is delegation?

- A purposeful, intentional act
- A long-term investment... not a quick fix
- A teaching moment
- A growth opportunity
- And a powerful force multiplier

And what about the benefits for the delegee?

- A growth opportunity
- A show of trust
- A confidence builder
- Empowering

I offer the following as my suggestions on how to delegate well:

- Get very comfortable with *your* success being defined by the success of *others*
- Meet people where they are at
 - * Sometimes it calls for baby steps with lots of interim check-ins on progress.

- * Sometimes all it takes is providing clear direction and a due date.
- * These are the book-ends. Most instances fall somewhere in between.
- * Be thankful for the later and patient with the former.
- * But no matter what, meet the delegee where they are at.
- Be patient – it’s a long game
- Pay attention to your emotional bank account (see *The 7 Habits of Highly Effective People*)³
 - * Give praise *with specifics*
 - * Be constructively critical *followed by instruction*
 - * Teach others how to do it well

1, 2, 3. See resources link.

Scott Sawyer, P.E.
APWA-WA President,
Principal, SCJ Alliance



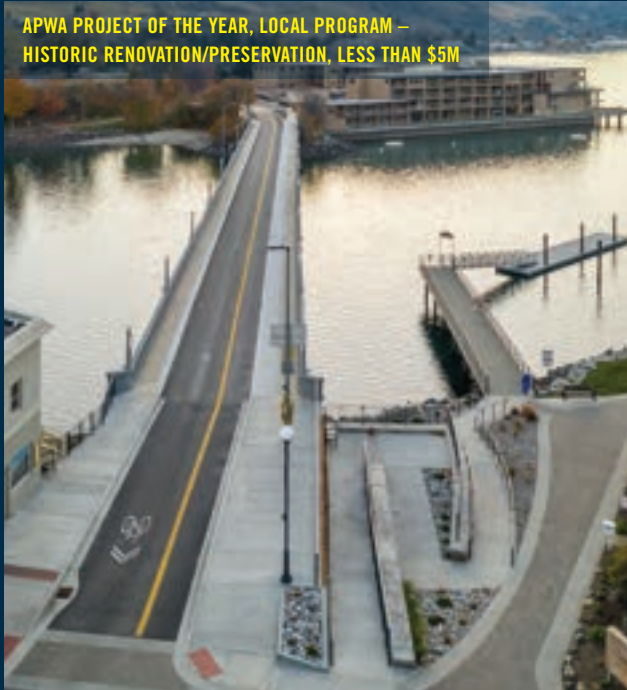
Resources

Head to the Chapter website to get video and book resources on this topic.
<http://washington.apwa.net/>

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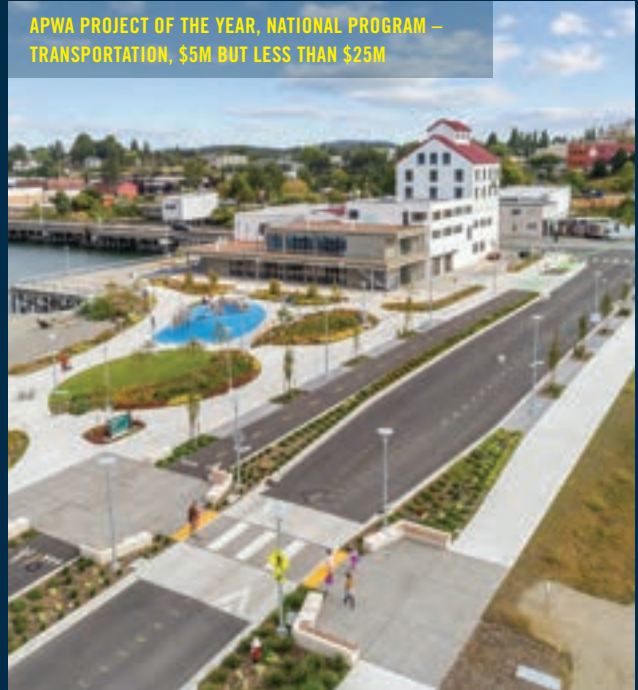
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City of Tacoma: Hood Street Interceptor Project

Above: Ribbon cutting for the tunneling boring machine

Below: Tunneling boring machine removal after final tunnel drive



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New and Returning Members

May 10, 2022 to August 2, 2022

Scott Adamek, Capital Project Engineer,
City of Bothell

Aaron Bert, Public Works Director,
City of Redmond

Paul C. Beskow, Civil & Water Resources
Project Engineer, PBS Engineering and
Environmental Inc.

Lisa Blake, Operations Coordinator,
City of Ridgefield

Cameron Bloomer, Project Manager,
KBA Inc.

Jackie Y. Caldwell, Civil Engineer,
City of Camas

Rebecca Fox, Wastewater Treatment
Plant Manager, City of Anacortes

Kathleen Fritz, Contracts Administrator,
Kitsap County WA

Steve Hartwig, Engineering Supervisor,
City of Redmond

Mark K. Hasbargen, Public Works Inspector
Supv., City of Seatac

Jesse Hoffman, Operations Manager,
City of Mountlake Terrace

Danica Hope, Contract Coordinator,
Benton County

Jennifer Kammerzell, Assistant Division
Manager, City of Tacoma

Josh Klika, Procurement & Contracting
Consultant, MRSC

Josh R. Lauer, Project Manager,
City of Tacoma

Courtney Littrell, Assistant Engineer,
City of Sumner

Justin D. Monsrud, Civil Engineer,
City of Camas

Veronica M. Munyao, Project Manager,
City of Tacoma

Brianna Navarro

Will Noonan, Operations Manager,
City of Camas

Alisa O'Haver Ayala, Associate City
Engineer, City of Sumner

Samuel Owen, Senior Engineering Tech.,
City of Kelso

Jud Riddle, Street/Storm Superintendent,
City of Chehalis

Uma Singh, Utilites Business Systems
Manager, City of Bellevue

Frank Sukosd, Sales Manager,
J Stout Auctions

Amy Summe, Associate,
Shannon & Wilson, Inc.

Tanya Taylor, Administrative Support
Specialist, City of Tukwila

Brad Wainwright, Street Superintendent,
City of Deer Park

Allen S. Westersund, Civil Engineer,
City of Camas

Dale Anderson, Regional Sales Manager,
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Lance T. Bunker, Public Works Director,
City of Chehalis

Shelli Edwards, Capital Projects
Coordinator, City of Mountlake Terrace

Brennan D. Kidd, Assistant Division
Manager – Transportation,
City of Tacoma

Serena Lee, Civil Engineer I, City of Seatac

Gloria Mantz, City of Spokane Valley

Robert A. McAndrews, Public Works
Director, City of College Place

Sam B. Ottov, Senior Construction
Inspector, City of Lynnwood

Daniel G. Pratt, CIP Inspection Coordinator,
City of Pasco

Hawk Radosevich, Silver Lake Water
& Sewer District

Kevin J. Thomas, District Road
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County Public Works

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Chapter. Community.

October 5-6, 2022
Spokane, WA

There is one choice, regardless of every other decision, that profoundly affects how we feel about our journey: Do we go alone, or do we go together? It is the courageous few who ask for help and the giving few, that are willing to help others. We can find the courage and fortitude we need and know the joy of service when we learn that together is better. However, to be at the top of their game, teams require trust. How do we find that trust to foster collaborative creative solutions that value our team members and bring out the best in ourselves? Join APWA for our Fall Conference to be challenged to be your best self and to enrich Public Works. *Together we are 1 Chapter, 1 Community.*

CONFERENCE HIGHLIGHTS

- » **TWO DAYS OF EDUCATION**
Earn CE credits, October 5 & 6
- » **EXHIBIT HALL**
Expanded Exhibit Hall hours!
For more details: www.apwawaconf.com
- » **APWA GIVES BACK**
APWA's annual charity support effort raises funds and lifts spirits!
- » **KEYNOTE PRESENTATION**
Mike Lee, October 5, 11:45am
- » **GOLF TOURNAMENT**
October 4, 2022
- » **EXCELLENCE AWARDS**
October 6, 7PM - 9PM
Recognizing the best Public Works Individuals & Teams of 2022.

Extracurricular activities are accurate as of August 8, 2022, but are subject to venue availability and current safety protocols.

THE APWA WA CHAPTER WILL BE COMPLYING WITH STATE AND CDC GUIDELINES REGARDING MASKING AND DISTANCING AT THE FALL CONFERENCE. FOR MORE INFORMATION, VISIT: WWW.APWAWACONF.COM

The NIGHT OF EXCELLENCE Awards

THURSDAY, OCTOBER 6

7:00PM: Dinner & Entertainment

8:00PM: Awards Presentation

APWA-WA is honoring the outstanding individuals and groups at the annual Night of Excellence Awards Banquet October 6th at the Davenport Grand Hotel. With a Comedy and Stunt Show by Matt Baker, the event is sure to be a memorable celebration. The Night of Excellence recognizes the outstanding contributions of chapter members to public works. Six individual awards and three group awards:

- » *Outstanding Service Award*
- » *Inclusion Advocate Award*
- » *Chapter Pillar Award*
- » *Roy Morse Award*
- » *Young Leader Award*
- » *The President's Award*
- » *The Committee in Action Award*
- » *Empowering Teams Award*
- » *Our Heroes Wear Dirt Award*



MIKE LEE

WEDNESDAY, OCTOBER 5, 11:45AM

Unshakeable –

Transformational Leadership Lessons from Basketball's Elite

Never before have leaders faced more things at once. The Great Resignation, economic uncertainty and a digital-first work environment have created the toughest leadership crisis of our time. During these pivotal moments, a generation of leaders and their businesses will be defined by how they decide to show up.

Through Mike's experience building an international basketball brand from his college apartment, and growing it while battling anxiety and depression, he understands the challenges leaders are facing in these very moments. Drawing on the latest research from sports psychology, neuroscience and mindfulness, leadership keynote speaker Mike Lee shares exercises he's personally embraced to move through adversity.

When combined with his inspiring storytelling approach, they create an experience that has helped people across the world develop the purpose-driven, future-focused and heart-centered leadership skills crucial in these unprecedented times.

Mike is also the author of the internationally sold book, UN/TRAIN and founder of The MindShift Lab.

SESSION PREVIEW

October 5 - 6, 2022

TWO DAYS OF EDUCATION



BARRIER BREAKERS: FISH PASSAGE PANEL DISCUSSION

In 2018, WDFW estimated there were likely 20,000 fish passage barriers in Washington State. At this panel, you will hear from our region's experts who have been driving the increasing amount of fish passage barrier removal/replace-ment projects in their jurisdictions in recent years, navigating unique challenges and improving habitats.

MODERATORS:

- **Tarelle Osborn, PE**
Osborn Consulting, Inc.
- **Peter Wurdan-Foster, PE**
Osborn Consulting, Inc.

PANELISTS:

- **Betsy Lyons**
City of Seattle
- **Daniel Howe**
Snohomish County
- **Stephanie Sullivan**
City of Sammamish
- **Matt Ellis**
City of Issaquah
- **Julie Heilman**
WSDOT
- **Miles Penk**
Washington Department of Fish and Wildlife



GET THE STATE AGENCY PERSPECTIVE

PUBLIC WORKS AND PARKS - BENEFITS OF CROSS- POLLINATION

Billions of gallons of untreated stormwater, a koi pond, combined sewage overflows, parking en-hancements, millions of gallons of irrigation water conserved, iconic bridges, a round of golf, and ur-ban plazas. Highlighting the creative partnership between Parks and Public Works, saving millions of dollars and delivering exceptional recreational and environmental outcomes.

SPEAKERS:

- **Kyle Twohig**
City of Spokane
- **Nick Hamad, PLA**
City of Spokane Parks and Recreation





WEST SEATTLE BRIDGE, THE FINAL CHAPTER

Retrofitting and repairing this 40-year-old structure for re-opening has proved to be an opportunity in strategic thinking. How did implementation of the design go? How did GC/CM delivery benefit the project? What lessons were learned? We will answer those questions and more on the successful completion of this project.

SPEAKERS:

- **Timothy Barry, PE**
RS&H
- **Paul Garrett, CCM**
KBA

POINT CLOUD COLLECTION & MODELING

Point cloud data and modeling is on the verge of becoming the industry standard. Learn about data collection tools and how this technology is advancing our industry.

SPEAKER:

- **Mike Bowen**
KPG Psomas



DEMYSTIFYING TREE PLANNING FOR PUBLIC STREETSCAPES

From heat island reduction to stormwater uptake, trees play a critical role in urban environments. Designing for public street trees is often challenging for municipalities. Review what healthy street trees need and how the collaboration between city arborists and consultants can result in a viable, long-lasting urban canopy.

SPEAKERS:

- **Liz Browning, PLA, ASLA**
Osborn Consulting, Inc.
- **Ben Roberts**
Seattle Department of Transportation, Landscape Architecture Office

SESSION PREVIEW

October 5 - 6, 2022
TWO DAYS OF EDUCATION

PLAN AHEAD TO LEVERAGE SAFETY GRANT FUNDING

Developing local road safety plans and action plans is critical for communities to leverage grant funding from the Highway Safety Improvement Program (HSIP) and Safe Streets and Roads for All (SS4A) program. This session will review safety funding sources and requirements, and hear lessons learned about safety plan development.

SPEAKER:

► **Daniel Dye**
Fehr & Peers



OVERCOMING CHALLENGING CONDITIONS IN MAJOR UTILITY REPLACEMENT

The City of Renton Downtown Utility Improvements Project included replacing City-owned water, wastewater, and stormwater utilities. Challenging factors successfully addressed included pipe inverts up to 30 feet deep; highly variable soil conditions; shallow groundwater; areas of contaminated soil and groundwater; and extensive existing and legacy utilities.

SPEAKER:

► **Marcus Byers**
Kleinfelder

MODELING AND PLANNING A SUSTAINABLE TRANSPORTATION SYSTEM

The session provides insight into developing and evaluating strategies and policies that can reduce greenhouse gas emissions within the transportation sector. An example from the City of Bainbridge Island will be presented along with lessons learned through travel demand modeling for King County.

SPEAKERS:

- **Aaron Gooze**
Fehr & Peers
- **Mark Epstein**
City of Bainbridge Island



ESTIMATING IN A TIME OF CHANGE

We've all seen the effects of COVID: supply chain issues, inflation, and skilled labor shortages impacting our project costs in the last few years. Lisa will share recent information gathered across Washington from recent transportation bids and provide best practice approaches for preparing engineering estimates for transportation projects when markets are changing.

SPEAKER:

- **Lisa M. Reid, PE, PMP**
SCJ Alliance

A CITY WITH A DRINK(ING) PROBLEM

Walla Walla is facing capacity issues at its wastewater treatment plant, requiring a multi-pronged approach. This presentation will take you through the multi-year enforcement of a juice processor and the decision to create a high-strength rate to ensure winemaking facilities, breweries, and distilleries pay for their share of the upgrades.

SPEAKER:

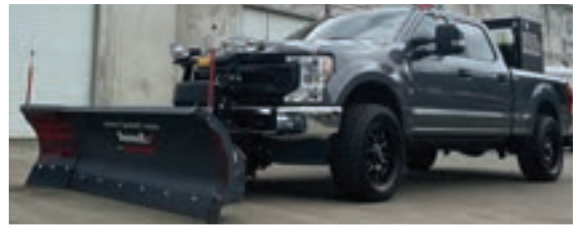
- **Leah Rohan, PE**
City of Walla Walla



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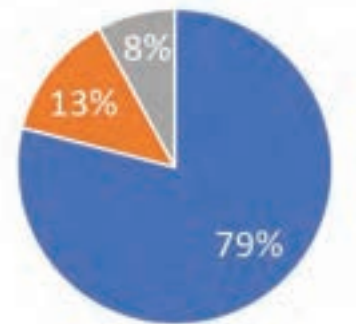
'MOVE AHEAD WASHINGTON' FUNDING PACKAGE LEAVES CITY ROAD MAINTENANCE COMING UP SHORT

BY BRANDY DELANGE, GOVERNMENT RELATIONS ADVOCATE, ASSOCIATION OF WASHINGTON CITIES

Washington cities are diverse, ranging in population from less than 100 to more than 600,000, and with responsibilities for anywhere from two to 1,667 lane miles. Cities are responsible for multimodal transportation facilities that include the street, sidewalk, and bicycle infrastructure; certain aspects of state highways; and the interface between transportation infrastructure and utilities and the natural environment. In addition to transportation infrastructure, cities are also responsible for providing a broad range of local services based on community needs and demands. With competing demands and limited resources, cities are challenged with prioritizing needs. This often results in diminished or delayed investments in preservation and maintenance.

Nearly 80% of city transportation funding comes from local revenue sources including property tax, sales and use tax, business and operations tax, and utility tax. These funding sources are dependent on the fluctuations in the economy, with property taxes limited to a 1% growth factor per year. This creates an inherent structural deficit – increasing costs of goods and services, with capped revenue growth that are unable to keep up with the rate of inflation. Only 13% of city transportation funding comes from the state, and of that, only 8% comes from the state's overall transportation investments through the city's share of gas tax and multimodal fund distributions. The remainder of

City transportation funding



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City streets are more than pavement - a typical urban mile costs \$16 million



funding is secured through competitive grant programs like the Transportation Improvement Board (TIB), WSDOT Local Programs, and local project appropriations. Less than 10% of total funding comes from federal sources. Despite this, small cities are deeply dependent on state funding to support basic maintenance and preservation.

This year, legislators approved a ~\$17 billion, 16-year transportation package – Move Ahead Washington – one of the largest transportation packages in state history. The package prioritizes transit and other multimodal options, directs funding to complete Connecting Washington projects, and invests in state preservation and maintenance needs. The package drew from several revenue sources, including a one-time \$2 billion dollar transfer from the general fund, \$5.4 billion from the Climate Commitment Act, and ongoing annual transfers from the operating fund and the Public Works Assistance Account (PWAA). The transfer from the PWAA is deeply disappointing to municipalities that use the account to support critical infrastructure needs. Though the Move Ahead Washington package makes significant investments in several key areas, collective city preservation and maintenance needs were largely ignored. More specifically, despite being one of the largest transportation packages in state history, this is the first time in recent history that a statewide package was passed without meaningful funding for broad city transportation needs. While the Complete Streets program will double from \$14.7 million per biennium to approximately \$31 million a biennium, only \$5 million annually is dedicated to the Transportation Investment Board (TIB) for city street preservation over the 16-year period (totaling \$80 million). Though important and appreciated, these investments remain a substantial underinvestment in what cities need to address significant preservation and maintenance costs. This delay in maintenance also compounds with time, as preserving a mile of pavement in a state of good repair may cost \$1 million, costs can balloon to \$4–5 million if the pavement reaches a state of failure.

Despite Move Ahead making limited investments in city preservation and maintenance needs, the package did provide expanded authority to Transportation Benefit Districts (TBDs), removing the 10-year sunset provision on the sales and use tax, and allowing voters to reauthorize extensions into perpetuity.

“THIS CREATES AN INHERENT STRUCTURAL DEFICIT – INCREASING COSTS OF GOODS AND SERVICES, WITH CAPPED REVENUE GROWTH THAT ARE UNABLE TO KEEP UP WITH THE RATE OF INFLATION.”

Additionally, the package approved councilmanic authority (through a majority vote of the governing body), allowing the sales tax to increase by 0.1%. TBDs are an important transportation funding tool for cities, often used to support preservation and maintenance needs or as matching funds for competitive loans or grants.

While cities utilize revenue tools like TBDs to support local transportation needs, the capacity of these tools are limited and do not sufficiently meet the needs of cities. Cities need meaningful investments from the state. Looking ahead to the 2023 legislative session, Association of Washington Cities will be working with transportation leads to explore a Road Usage Charge (RUC) along with other revenue options that include an equitable distribution to cities. By increasing support for preservation and maintenance through new and focused funding, overall lifecycle costs are reduced. Moreover, investments in city streets support the statewide transportation system. ▀

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MAKING THE MOST OF YOUR APWA MEMBERSHIP WITH THE *Emerging Professionals Committee*

By the Emerging Professionals Committee, co-chaired by Alyssa Ardourel and Brenna Harrington.

For more information you can contact them at aardourel@huitt-zollars.com and bharrington@parametrix.com.

Are you early in your career and looking for opportunities to connect, grow, and get involved in the APWA Washington Chapter? The Emerging Professionals committee is a group that offers all that and more!

The Washington APWA Chapter's Emerging Professionals committee is made up of young professionals just starting their career in public works, and most committee members have worked in the field for 10 years or less.

As the industry continues to grow and adapt to change, the skills we learn and the relationships we build with one another will help us navigate the path forward. APWA membership and committee participation offer a knowledge network and a community of support, and both are key to building a successful and fulfilling career as an engineer in public works. Overall, the purpose of the group is to support that growth by getting emerging professionals involved with and networking with other members of APWA.

What has the committee accomplished this year?

Spring Conference 2022 –

Emerging Professionals Session Track

Conferences, online workshops, and webinars are some of the best ways for emerging professionals to optimize their APWA membership. As a learning community, APWA members provide valuable insights, technical knowledge, best practices, and fellowship to one another, and this interaction makes us all better professionals.

In April 2022, the Emerging Professionals committee contributed to this learning community by organizing a track of sessions for the Spring Conference in Vancouver. These sessions were a series of presentations and panel discussions geared towards and presented by emerging

professionals in the Chapter. Session titles included Career Arcs in Public Works; Integrating Young Professionals into the Workforce; Making the Most of your APWA Membership; Get Connected, Recharge Your Network, and Accelerate Your Career; Team Building During a Pandemic; and Street and Utility Design with Point Clouds.

One panel discussion the Emerging Professionals committee sponsored was comprised of different public works professionals explaining the wide reach of disciplines and roles in the public works industry. This session explored the major career arcs that fall within the realm of public works and discussed how career paths can branch into many different roles to suit any combination of career goals and skills.

A different conference session reviewed strategies for integrating young professionals into a generationally diverse workforce. This panel discussed the importance of understanding what young professionals are looking for in a career to promote involvement, and the benefits of generational diversity in exchanging ideas.

Another panel discussion was between two senior engineers, one marketing professional, and a public works director. The panelists offered an overview of the importance of networking

and getting connected in the Chapter and they provided suggestions on how to start building those important networking skills early.

On a technical note, one presentation was all about the opportunities, advantages, and limitations of utilizing point clouds for a typical street and utility rehabilitation project.

This year, the Emerging Professionals committee is celebrating its 10-year anniversary!

On August 16, 2012, the Washington chapter's Emerging Professionals committee was born! The group's kickoff event was at Jillian's Billiards in Seattle, and the EPs have been on a roll ever since.

Since 2012, the group has organized and attended events including project tours and networking events, and it has hosted a monthly conference call. Each year the committee has organized blood drives for Washington Chapter conferences, and in the past, the group hosted an annual poker tournament to raise funds for scholarships. Overall, the purpose of the group is to get emerging professionals involved with APWA and to create a network with other members.

Thank you to everyone who has participated in or contributed to the growth of this group over the past 10 years. ▀



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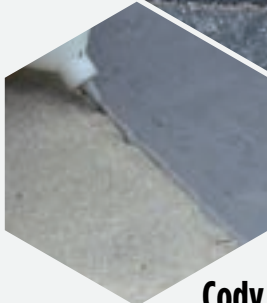
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STORMWATER AND ORCAS AND SALMON, OH MY!

.....

How Evolving Science May Impact Your Public Works Projects

By Jay Drye, PE, Director
of Local Programs, WSDOT

Recently, Washington State residents have been hearing bad news about the health of salmon and orcas in our state's waters. We typically do not stop and think about what aspects of our modern lifestyle contribute to their decline, but it turns out the main culprit is something we take for granted yet rely on extensively: our roads. These roads transport us and toxic hitchhikers. Specifically, drainage features convey polluted stormwater from road surfaces when it rains, sometimes discharging untreated stormwater to streams, creeks, and marine waters where salmon and orcas live.

When Puget Sound Chinook were first listed as threatened under the Endangered Species Act (ESA) in 1999, Seattle Mayor Paul Schell prophetically stated:

"There has never been a listing with such consequences in a metropolitan area. This tells us how we are doing, not just the salmon. What's needed to save the salmon is a culture change to address how we live, salmon are telling us."¹

Twenty years later, municipalities in Washington State are still realizing the weight of Mayor Schell's words.

Despite the progress made over the last decade, emerging science says we need to collectively do more to protect the quality of our state's surface waters.

WHAT SCIENCE LEADS US HERE?

Stormwater has always been a concern for Washington State municipalities. The Washington State Department of Transportation (WSDOT) first implemented the Highway Runoff Manual (HRM) in 1995 to address stormwater discharges from paved surfaces. Municipalities in Washington design their roads to meet standards in the HRM or equivalent approved stormwater manuals, and the HRM receives regular updates based on emerging science.

Once salmonids (i.e., salmon, trout, charrs, freshwater whitefishes, graylings, taimens, and lenoks) were listed under the ESA, WSDOT and partners at the Federal Highway Administration (FHWA), National Marine Fisheries Service (NMFS), and the United States Fish and Wildlife Service (USFWS) agreed to develop a model to analyze project-level stormwater impacts. Known as the HI-RUN model, it targets copper, zinc, and sediment



for measurement. Scientists discovered that these metals impair salmonid sense of smell, leaving them vulnerable to predation. It also clogs gills and suffocates fish eggs.

WSDOT integrated the *Endangered Species Act Stormwater Design Checklist* into the HRM to address this new regulatory dimension. The HI-RUN model uses this checklist to predict how effectively target pollutants are captured in stormwater treatment facilities

and how they dissipate in the receiving water bodies.

Federal agencies and WSDOT crafted a written policy on how to apply HI-RUN results in the ESA Section 7 regulatory context on transportation projects, and policy implementation began in 2009. This policy described thresholds for three different review processes under ESA:

1. Determined to have no effect, with no project-level ESA consultation required;
2. Determined not likely to adversely

affect, requiring a project-level informal ESA consultation; and

3. Determined likely to adversely affect, requiring a project-level formal ESA consultation.

WHY INCREASE FOCUS ON STORMWATER NOW?

Southern resident killer whales (SRKW), also known as orcas, were listed under the ESA in 2005. SRKW spend most of their lives in the Salish Sea (which includes Puget Sound), feeding almost exclusively on salmonids. SRKW overwhelmingly prefer Chinook but will feast on other salmonids as a second choice.²

Metrics continue to decline in Washington State for SRKW, Chinook and other salmonids. Mass die-offs of Coho salmon were observed in Puget Sound area urbanized watersheds over the last decade. Geospatial analysis indicated road density most correlated with this phenomenon, known as urban runoff mortality syndrome, and the results implied that stormwater from road pavement has become more lethal to salmonids.³

Use of mass spectrometry analysis allowed researchers to compare stormwater samples with those taken from urban streams experiencing high Coho mortality. Eventually a pollutant called 6PPD-Quinone (6PPD-Q) – a byproduct of antioxidants added to vehicle tires – was identified as the cause. Research indicates that the exposure toxicity to 6PPD-Q is acute and irreversible. While Coho are most severely affected, other salmonids experienced mortality when exposed.⁴

While 6PPD-Q received the most attention, many even more toxic pollutants exist in stormwater, including petroleum products at-large, polychlorinated biphenyls (PCB), per-and polyfluoroalkyl substances (PFAS), and other “forever chemicals” that do not break down in the natural environment and remain available for biological uptake. Additionally, design standards for stormwater collection and run-off are based on specific storm levels. When more powerful storms happens, these design standards are insufficient, resulting in the release of untreated discharge to surface water, which flows, ultimately, to the Salish Sea.

SRKW are impacted in an additional way. Chemicals from their prey accumulate within their blubber, causing hormone disruption, reproductive failure, and

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impaired immune function in the affected individuals. These substances can cumulatively affect SRKW when they are most vulnerable – once the base of prey on which they depend is depleted and SRKW must rely on their fat reserves to survive.⁵

WHAT DOES THIS MEAN FOR PUBLIC WORKS PROJECTS?

When a public works project has a federal nexus (federal funds, permits, or land ownership), the lead federal agency must ensure ESA Section 7 compliance before they can make a decision under the National Environmental Policy Act (NEPA). Projects with a federal nexus that expand pollution-generating impervious surfaces (PGIS) are now more likely to cause adverse effects and require formal ESA consultations. This includes projects with components expanding contiguous paved surfaces such as bicycle lanes, turn lanes, and roundabouts.

WSDOT and its federal partners are drafting updates to Chapter 17 of WSDOT’s Biological Assessment Manual to reflect this emerging science. Projects can be labeled “no effect” in Washington when all runoff from PGIS within the project limits is managed in one or more of these ways:

- Runoff infiltrates,
- Runoff naturally disperses over terrain with no entry to surface waters, and/or
- Runoff drains to isolated depressions with no outlet to surface waters.

In a climate like western Washington this will be difficult to achieve, especially in constrained urban settings. Projects in eastern Washington will stand a better chance at avoiding adverse effects. WSDOT was expecting that its federal partners would agree to this updated written policy by June 2022.

From a project planning perspective, the NEPA process will take longer to complete for federally-funded road projects, especially in western Washington. It is taking one to two years for NMFS and USFWS to draft biological opinions once the formal ESA consultation is initiated, and NEPA cannot be approved until this process is complete. This will delay obligation of right of way or construction funds. Project managers can expect longer timelines during the design phase and will need to arrange their schedules accordingly,

setting realistic expectations with their elected officials, their constituents, and their funders.

WHAT IS WASHINGTON STATE DOING ABOUT THIS?

The 2022 Washington State Legislature funded research to create testing protocols for 6PPD-Q. Once standardized testing is adopted, researchers can start exploring methods to remove this pollutant from stormwater and develop ways to apply these to road projects. However, this only addresses one of the new pollution targets and there will likely be a prolonged emphasis on stormwater management in the state for years to come.

We expect to see a regulatory emphasis on a watershed-based approach, possibly resulting in off-site stormwater improvements. We are working with our federal partners to craft a programmatic approach that streamlines project-level reviews while attaining measurable ecological success.

Salmon are a vital link in the Pacific Northwest ecosystem and retain cultural and commercial significance to the communities and the economy. Here in Washington State, we struggle to balance the needs of these iconic species with increasing human population demands. Ultimately this requires a commitment to conservation and financial investments to create an environment where all species can thrive.

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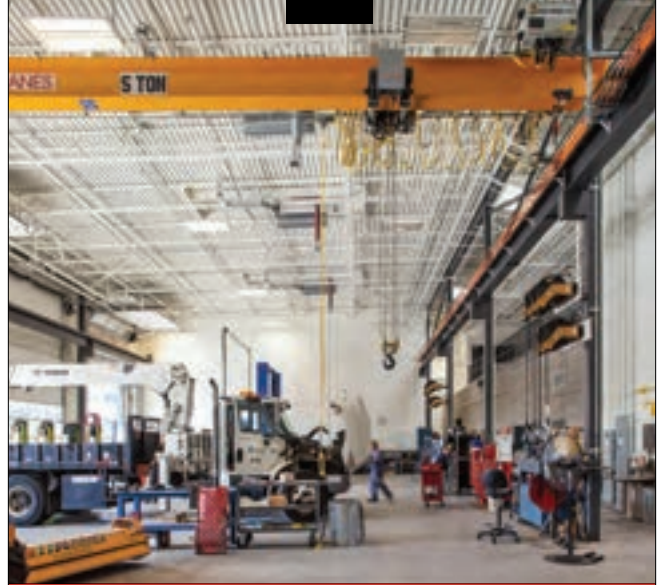
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What We Are Reading Now

Managing Management Time: Who's Got the Monkey, By William Oncken, Jr.

“Let us imagine that a manager is walking down the hall and that he notices one of his subordinates, Jones, coming his way. When the two meet, Jones greets the manager with, ‘Good morning. By the way, we’ve got a problem. You see....’ As Jones continues, the manager recognizes in this problem the two characteristics common to all the problems his subordinates gratuitously bring to his attention. Namely, the manager knows (a) enough to get involved, but (b) not enough to make the on-the-spot decision expected of him. Eventually, the manager says, ‘So glad you brought this up. I’m in a rush right now. Meanwhile, let me think about it, and I’ll let you know.’ Then he and Jones part company.

Let us analyze what just happened. Before the two of them met, on whose back was the ‘monkey’? The subordinate’s. After they parted, on whose back was it? The manager’s. Subordinate-imposed time begins the moment a monkey successfully leaps from the back of a subordinate to the back of his or her superior and does not end until the monkey is returned to its proper owner for care and feeding.”

–Book review by Stephen R. Covey for the Harvard Business Review



Book Synopsis

This book, originally published in 1974, has been reissued many times over as a classic on delegation. Bill Oncken, Jr. hits both the absurdities and realities of organizational life in America with such accuracy that it hurts. Get out the handkerchiefs because this book reads as accurately and humorously as Bill tells it “live.” He offers practical, realistic, workable solutions to the dilemmas facing the overloaded manager. His advice on “How to Delegate” is, by itself, many times worth the price of this book.

The book poses the question, “Why is it that managers are typically running out of time while their subordinates are typically running out of work?” It explores the many obligations that managers have including boss-imposed time, system-



imposed time, subordinate-imposed time, and self-imposed time, and how to keep monkeys from jumping from your subordinate’s back to your own. So if you are feeling like you work for your subordinate, this book is for you. ▀

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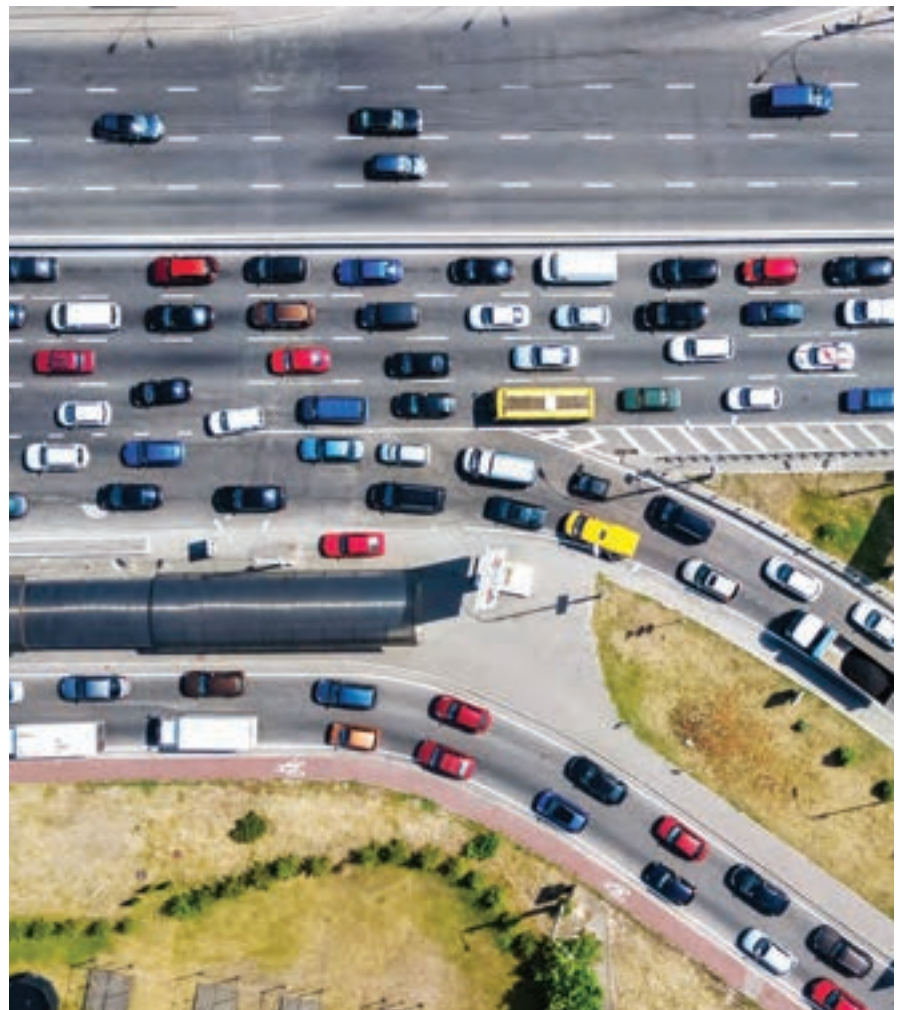
MRSC is a research nonprofit that offers local government staff free, one-on-one guidance with legal and policy consultants. Below are inquiry responses the MRSC Public Works Consultant. If you work for a city, county, or contracted special purpose district, Ask MRSC by calling 800-977-6553 or emailing mrsc@mrsc.org.

Transportation Benefit Districts

A transportation benefit districts (TBD) is a quasi-municipal corporation and independent taxing district that can raise revenue for specific transportation projects, usually through vehicle license fees or sales taxes. TBD revenue may be used for transportation improvements included in a local, regional, or state transportation plan. Below are questions MRSC has received related to transportation benefit districts.

Q: What can my city do to increase the percentage of revenue it receives from car tab fees?

A: Cities that want to take advantage of car tab fees, which are also referred to as vehicle license fees, must establish a TBD under chapter 36.73 RCW. This TBD may



impose a non-voted vehicle license fee up to \$50, though initially, it can only impose a \$20 vehicle license fee. Once the \$20 vehicle license fee has been in effect for at least 24 months, the TBD may increase the fee up to \$40. After the \$40 fee has been in effect for 24 months, the district may impose a \$50 vehicle license fee (Note: Any amount over \$40 is subject to a potential referendum.)

Revenues received from the TBD vehicle license fees are restricted revenues, meaning they are limited in how they may be spent. As stated in our *Revenue Guide for Washington Cities and Towns*:

The revenues may be used for eligible “transportation improvements” listed in a local, regional, or state transportation plan in accordance with chapter 36.73 RCW. Improvements can

range from roads and transit service to sidewalks and transportation demand management. Construction, maintenance, and operation costs are eligible.

Q: Can TBD funds be used to purchase equipment for transportation projects?

For example, a crack sealer unit?

A: This is a common question other local governments have asked. If the proposed equipment is being used for the maintenance and operation costs of a transportation project described in an agency's transportation plan, then the agency can use TBD revenues to purchase it.

Q: My city is looking at placing a measure on the voter ballot for sales tax for our TBD. We have some existing TBD funds remaining. Can these funds be used to pay for election-related costs?

A: To answer this question, look to RCW 36.73.020, which states:

(1) The legislative authority of a county or city may establish a transportation benefit district within the county or city area or within the area specified in subsection (2) of this section, for the purpose of acquiring, constructing, improving, providing, and funding a transportation improvement within the district that is consistent with any existing state, regional, or local transportation plans and necessitated by existing or reasonably foreseeable congestion levels.

Looking at the statute, the TBD can only spend money it collects on transportation improvements: Expenses related to election costs would not be an appropriate use of funds.

Q: When a city assumes a TBD, does it also assume the annual reporting obligation?

A: MRSC is of the view that cities are required to continue to complete a separate annual report for the assumed TBD in fulfillment of the statutory requirement of RCW 36.73.160(2), and until the project or projects that are funded by the assumed TBD has been completed.

RCW 36.74.020 provides that a city may assume "the rights, powers, functions, and obligations of a transportation benefit district." Since issuing an annual report is an obligation of a TBD, it is one of the obligations assumed by a city when it assumes a TBD.

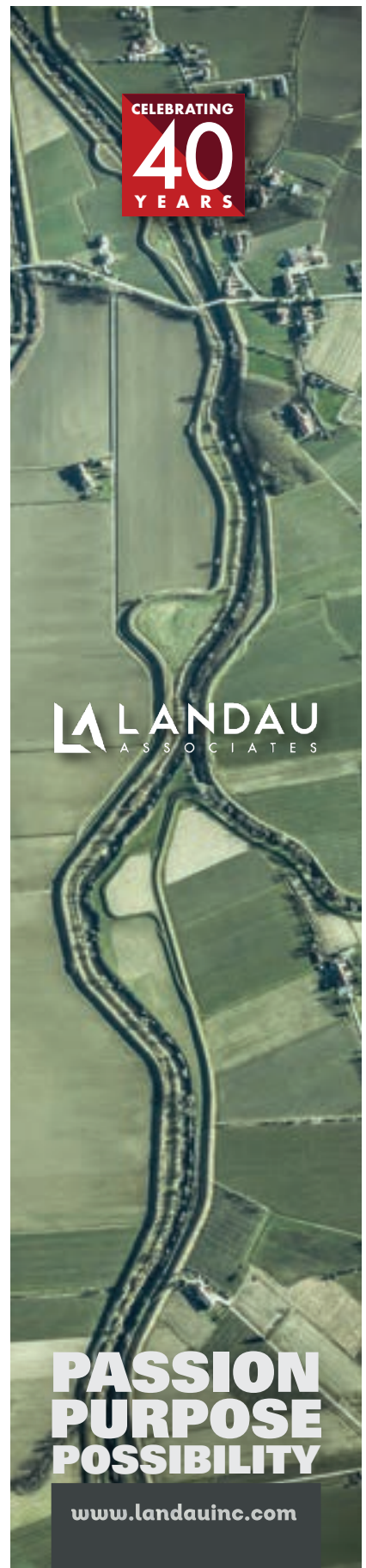
For an example of cities continuing to comply with the annual report requirement, see the Bellingham 2015 Transportation Report on Annual Mobility (Bellingham assumed its TBD effective January 1, 2016). This report fulfills not only the TBD reporting requirement but also supports the comprehensive plan and several other city transportation plans and programs.

Q: Could you summarize the changes to TBDs that will happen under ESSB 5974, which just passed in 2022?

A: Under ESSB 5974, or Move Ahead Washington, TBDs will have the ability to impose a TBD sales and use tax rate up to 0.3%. Most of the 0.3% authority is subject to voter approval, but ESSB 5974 allows TBDs that include all the territory within the boundaries of the establishing jurisdiction to councilmanically (e.g., through a majority vote of the governing body) establish a TBD sales and use tax of up to 0.1%. If a TBD already has a TBD sales and use tax with a rate of 0.1% or higher, then it would still need voter approval for any rate increases.

Q: My city is considering getting the .2% sales tax for its TBD on a future ballot for approval. In communicating this with the public and planning for future street improvements, how should the city calculate estimated revenues from adding this sales tax?

A: In order to determine the revenue that would be generated from the TBD sales tax, the finance department would need to forecast total sales revenue for the city. Once they forecast total projected sales revenue, the department would then need to apply the proposed TBD sales tax rate to the forecasted total sales revenue to get the estimated TBD sales tax revenue. ▀



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Cost Savings from Improving Construction Best Practices

Based on Construction Industry Institute Research

By Ronald Leaders, Contract Solutions Group

Why do so many public works owners fail to realize more than 10% construction savings from implementing best practices on their projects? The Construction Industry Institute (CII) research has determined that less than 50% of all private and public project owners effectively implement best practices. This is even though project owners can realize an average cost improvement of 10.9% and schedule improvements of 9.7% when utilizing best practices. Pacific Northwest public projects are not immune and follow this national pattern of poor best practices implementation. At a time when training budgets are slim, this article outlines which areas to focus training on to get the most return on your investment.

Experience Alone Is Poor Predictor of Successful Best Practices Implementation

A typical trap that organizations fall into is relying on experience alone without supplemental knowledge and skills training. Reliance on experience alone frequently involves the acceptance of doing what has been done for many years, without periodic improvements based on industry guidance of best practices. Professional job experience has proved to not be an accurate predictor of the level of knowledge, skill, and judgment needed to implement construction best practices. However, specific training on skills, knowledge, and implementation techniques has been proven to be highly effective to supplement experience.

In addition to regular project costs savings, public works projects have also incurred significant unnecessary claim resolution costs when relying solely on construction management teams with many years of practical experience but with little knowledge and skill training to supplement their personal experience. Some examples of projects that could have greatly benefited from best practices implementation in the area of contract change management procedures include:

One team of construction managers with more than 40 years combined experience failed to implement accepted change management and contract interpretation practices, resulting in a successful bad faith contract administration claim against them and their public owner. This bad faith claim caused the owner to incur more than \$500,000 of additional costs.

A second construction management team with more than 40 years of combined experience on a different public agency project failed to properly administer the change management provisions, causing a small family-owned contractor with



20 years of successful contracting to file for bankruptcy due to cash flow problems because change order entitlements were not promptly and properly administered. A claim for bad faith administration was brought against the agency.

In both cases, investment in specialized training would have gone a long way towards better outcomes for both the organization and the contractor.

Best Practices Training Content

Per CII research the construction phase best practices which have the greatest impact on cost and schedule are:

- constructability reviews
- improved project communication
- change management
- team building/partnering
- negotiation skills for dispute and conflict resolution

Many experienced contract and construction management professionals and organizations lack additional in-depth knowledge and skills to effectively implement change management best practices. Entitlement/merit evaluation knowledge and negotiations skills to resolve cost and schedule change order disputes are two of the most important and easiest to assess when evaluating change management best practices.

Assessing Capabilities to Implement Best Practices

Assessment of current practices, knowledge, and skills is a good starting point for organizations to evaluate how to improve their best practices implementation. However, self-assessment of internal practices and consistency with industry best practices is often difficult to perform accurately, since many professionals are very comfortable relying on their individual or organizational experience as a sound basis for performing contract management activities. For example, a recent survey of large public agencies in the Seattle area did not identify a widespread use of project performance assessments and lessons-learned analyses to determine improvements in current practices. The survey also did not identify staff training efforts to implement any industry guidelines or lessons-learned analyses of areas for improved cost and schedule performance. Bottom line, we'd all like to think that our methods are proficient until it's too late.

Next Steps to Implement Best Practices

Successful implementation of best practices requires a combination of organizational leadership, expanded training in required skills and knowledge, and sound judgment in implementing these best practices based on relevant experience. Expanded training on best practices skills and knowledge is frequently the best area where significant improvements can be quickly realized. Many training programs and skill levels of public works staff and consultants have not effectively focused on construction contract best practices, instead focusing on the mechanics of project management of data and information through detailed information management systems. Increased change entitlement knowledge and negotiation skill development are substantial areas of opportunity for cost savings.

In view of the limited budgets available for training, now is the time for construction industry leaders to think outside the box and develop a collaborative best practices training and implementation program for the benefit of all construction projects across the region.

Several approaches can be considered to achieve rapid improvement.

- Large public works owners can perform an assessment of areas for improvement in their practices and then prepare customized training for improved knowledge, negotiation skills, and judgment to implement best practices. Training focused on change management would be a good first step in training focus.
- Washington State organizations serving smaller public agencies such as MRSC or WSDOT Local Agency Programs can sponsor the presentation of training and implementation guidance for construction best practices.
- Washington State has a successful model for implementing a legislature-mandated state agency contract training content statewide. This model can be expanded to cover state and local agency construction best practices training.

Elected legislative or executive officials at state and local levels can provide critical leadership to change the status quo of public construction methods and practices, in order to achieve significant best practices cost savings. Washington has demonstrated a state-wide contracts management training for state employees can be implemented successfully. Now would be an excellent time to implement that approach to cover state and local public works construction.



About the Author

Ronald Leaders, of Contract Solutions Group, has over 40 years of experience in construction dispute avoidance, claim resolution, and construction process improvements. He has developed and presented over 100 training workshops and webinars on negotiating construction disputes and creating more effective construction individuals and teams. Questions? Contact Ronald at 206.734.7126 or rleaders@contractsolutionsgroup.com.

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New Hampshire Law Recognizes Public Works Professionals as First Responders

Source: APWA.net

New Hampshire Gov. Chris Sununu has signed legislation into law that formally recognizes public works professionals as first responders.

Senate Bill 325, which had bipartisan support, defines first responders and includes them in New Hampshire’s definitions of “emergency management” and “local organization for emergency management” within the New Hampshire Homeland Security and Emergency Management:

*“First Responders’ means state, county, and local governmental and nongovernmental emergency public safety fire, law enforcement, public safety telecommunications or dispatcher, emergency response, emergency medical services providers including hospital emergency facilities, emergency management, public health, clinical care, **public works**, and other skilled support personnel, such as equipment operators, that provide immediate support services necessary to perform emergency management functions.”* (Emphasis added)

With the governor’s signature, New Hampshire becomes just the second state to recognize public works professionals as first responders. However, it’s been



12 years since Mississippi became the first state to do this. New Hampshire’s law took effect on August 6, 2022.

In Mississippi, the Silver Alert System was created in 2010 after Gov. Haley Barbour signed **House Bill 664** into law. The statute recognizes first responders this way:

*“(b) ‘First responders’ means state and local law enforcement personnel, fire department personnel, emergency medical personnel, emergency management personnel and **public works personnel** who may be deployed to bioterrorism attacks,*

terrorist attacks, catastrophic or natural disasters and emergencies.” (Emphasis added)

APWA members have been at the forefront of these efforts for legal recognition as they know – and have experienced – the demands of being first on a scene. They also continued to work during the COVID-19 shutdown in 2020.

Life and death scenarios consistently arise, yet public works first responders carry out their responsibilities with the upmost professionalism. New Hampshire’s and Mississippi’s laws are important as these states now formally recognize public works people the same as fire, police, EMS, and others. ▀

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Three National Groups Announce Partnership to Highlight Innovative Engineering, Public Works Projects

Infrastructure Works – An Engineering and Public Works Roadshow’ will spotlight visionary projects tackling America’s pressing challenges

Source: APWA.net

Washington D.C. — The American Council of Engineering Companies (ACEC), American Public Works Association (APWA), and American Society of Civil Engineers (ASCE) announced on August 1, 2022 a nationwide partnership and awareness effort to highlight the meaningful, transformational work of engineers and public works professionals.

America’s engineers and public works professionals are responsible for addressing some of society’s most pressing challenges. Over the coming months, Infrastructure Works – An Engineering and Public Works Roadshow will focus the public’s attention on industry projects that improve climate resiliency, ensure the delivery of clean air and water, promote energy efficiency, and open access to mobility.

The partnership comes at a critical time. According to the ACEC Research Institute, the bipartisan infrastructure bill Congress passed earlier this year is expected to add more than 82,000 full-and part-time jobs in engineering, public works, and design services over the next five years. Finding the professionals to fill these roles is critical now at a time when workforce shortages are already threatening the timely and successful completion of essential construction and design projects across the nation.

The importance of filling the talent pipeline for engineering and public works jobs has been underscored by the Biden Administration’s announced summer-long “Talent Pipeline Challenge.” The campaign will help amplify this effort with students and future employees by showcasing the dynamic projects engineering and public works professionals design across the country.

“This partnership brings together three leading organizations representing the engineering and design community and the clients they serve,” said ACEC President and CEO Linda Bauer Darr. “This campaign will focus public attention on the fact that engineering is essential to our modern society and demonstrate why policymakers and clients should continue to invest in engineering solutions and students should plan to join the ranks of the nation’s best problem solvers... because they are needed now more than ever.”

“We have the opportunity to move this nation’s infrastructure forward in a positive way that benefits communities for generations to come,” said APWA CEO Scott D. Grayson, CAE, “but we need to make sure generations of workers are available to deliver on the promise of the bipartisan Infrastructure Investment and Jobs Act.

“The bipartisan infrastructure bill Congress passed earlier this year is expected to add more than 82,000 full-and part-time jobs in engineering, public works, and design services over the next five years. Finding the professionals to fill these roles is critical.”

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“Working in tandem with ASCE and ACEC to keep public officials’ focus on workforce development, we will showcase excellent public works, engineering and design projects that are unfolding before our eyes so we can capture the imagination of future workers who will dream bigger dreams and make our neighborhoods more resilient.”

“The future of engineering is unbounded,” said Tom Smith, ASCE executive director, “and the design profession is front and center in solving the challenges of the day and building a brighter future for communities. This partnership will showcase future-ready engineering projects and innovation, and introduce the public, and particularly

our young citizens, to the wonder of engineered systems and infrastructure, as well as the benefits of a creative and rewarding career in engineering and design.”

Without more engineers and public works professionals, projects vital for our communities and the economy could be delayed. A recent ACEC Research Institute survey found two-thirds of ACEC member firms expect to increase their backlog of projects over the next year. Right now, the median backlog stands at 11 months with 49% of respondents reporting a backlog of one year or more.

This industry-wide partnership brings many voices to the table to tackle the workforce shortage.

ACEC represents more than 5,000 of America’s engineering firms, ASCE represents more than 150,000 members of the civil engineering profession in 177 countries, and APWA represents more than 30,000 public works professionals and is the only organization to represent all facets of public works.

In the coming months, the partnership will hold events across the country that highlight projects that showcase the essential value that engineering and public works delivers for our communities and underline the need to leverage the historic investment opportunity of IJJA and the expansion of workforce opportunities for the next generation of America’s engineers and public works professionals. ▀

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The New **strowski's** Outlook **34**

I recently sought out an 1972 *New York Times* article by the Administrator of the Environmental Protection Agency (EPA), William Ruchelshaus. I was curious to see what Ruchelshaus identified as the major problems facing the transportation industry 50 years ago.

He compared the urban breakdown due to congestion, pollution, and more to the last days of imperial Rome. He cited a need for a broad approach to solving our problems because "We need transportation that is fast, safe, reliable and ecologically responsible."

He thought that improved public transportation could "...open up suburban light industrial jobs to inner city residents." However, he said the automobile is here to stay – which 50 years later looks like an easy prediction to get right.

In a curious pseudo-prediction, he questioned the status quo stating: "In a broader context, we must question

whether we need to do so much moving about the landscape in the first place. The four-day week would eliminate up to 20 per cent of rush hour pollution weekly. Maybe people could even do more of their work at home."

The IBM PC wasn't introduced until 1981 with the start of possible work-from-home almost 10 years away when Ruchelshaus suggested its plausibility. We can only guess what he thought would be done there. The official birthday of the internet was two years later in 1983 – so even if computing at home was possible, the ability to talk to other home-workers was a way off.

What's interesting is that he saw work-from-home as a way to reduce traffic and we now know he was right thanks to a hostile virus. However, the four-day work week has become the 4-10 schedule that some agencies use but the rest of the world is open

for business five days a week and retail businesses are open seven days a week.

While Ruchelshaus wasn't in the business of predicting the future, his article is a good summary of progressive but conventional thinking at the time. Did that thinking provide a pathway to a better world for us all? Back then I was driving a VW bug and getting similar gas mileage to what I get with my 2015 Honda Civic. Bill thought that we'd have to consider our options to comply with the clean air act deadlines in 1975. I think we found options for how to comply without having to change much.

We tend to forget that in 1972 the downfall of Rome was an apt comparison to our transportation problems back then. What surprises me is how little we've changed about our basic approach to thinking about transportation since then and yet things have actually gotten better... or at least not deteriorated as badly as was a possibility.



All those ineffective laws and deadlines and improved engines have somehow gotten us to where we are today. I think Bill might be surprised at how little things have changed in 50 years and yet the world didn't end.

I started looking for something from 1972 to see if I could find anything funny about what people back then (I was one of them) thought the future would look like. Instead I found an article full of fine sounding aspirations and some platitudes that sound in many ways like it could have been written last week.

I was really looking for material to support my argument that we need to re-invent the wheel. I know people say we shouldn't do that, but what if we're missing something revolutionary that will solve all our problems if we don't give it a try. If necessity is the mother of invention then we know why the wheel hasn't been re-invented. It seems to keep rolling along and doing a good job.

But it doesn't do a good job in winter. We've made temporary modifications to the wheel to help us drive on snow and ice but all those fixes might not be necessary if we just had a better wheel. If wheels could only display traction assistance when needed we wouldn't have studs tearing up dry roads for no good reason. I often wonder how many people actually have a good reason for using studded tires. No one wants to use chains unless they absolutely have to because they're a pain to put on. If wheels were re-invented we could make something better.

Ruckelshaus was probably on to something when he asked if we really need all this mobility. We've taken for granted the idea that mobility is a good thing. In many ways we've gotten addicted to it. Being in lockdown made people feel trapped and yearning for their mobility. It could be argued that our return to normality coincided more with the return of mobility than social interaction. We can do without people but not without the open highway.

In 1972 congestion and pollution were big problems. Global warming wasn't even mentioned and there were quite a few scientists who thought that global cooling was more of a problem. A lot of talk was dedicated toward to keeping the ozone layer intact because the

solution could be found in passing laws to eliminate aerosols.

Aging infrastructure was another problem that went unnoticed in 1972. The interstate highway system wasn't even completed then. The second Interstate Bridge between Portland and Vancouver was only 13 years old. I-205 hadn't been built yet to relieve congestion on I-5 through Portland. In fact, several freeway projects were killed during this time period so they never had a chance to grow old and deteriorate.

Social justice wasn't a term that was used during the 1970s. There were riots in major cities and the Vietnam War was the major cause of student unrest. Highways were built through poorer neighborhoods because the land was cheaper. The anti-freeway movement was more about social disruption than social justice.

What are we missing today that will be the most important issues 50 years from now? If we could answer that we'd change history and then the future would look different and our prediction would be wrong because of it. Maybe we're just better off dealing with what we know and trying to fix the things that are wrong without worrying about how short sighted or naïve we'll look in 50 years.

We live in a world full of problems that keep materializing even after we solve the current batch. So, once again, people in public works have job security.

Back in the early '70s I remember a public works official saying that there was no agency protecting the environment because the Environmental Protection Agency only looked at specific problems

without considering the overall environmental effects of solving those problems. He cited Lake Tahoe as an example because in treating the human waste to a level beyond secondary treatment, the high use of chemicals and energy to get the job done, not to mention the ongoing operating expenses. We never found out if he was right about the cure being worse than the disease because there's no balance sheet to keep track of these things. Systems thinking advocates rail against unintended consequences forgetting that as human beings, that's what we do.

Before sewage treatment plants, the saying was that dilution is the solution to pollution. Today we could be saying that the solution to vehicular pollution is electrification. But there still is no universal balance sheet to tell us if a totally electric fleet will be a good thing since there's still no balance sheet to look to for the answer to whether creating all the electricity needed will be environmentally affordable.

We got away with Lake Tahoe; maybe we'll get away with this one, too.

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"What surprises me is how little we've changed about our basic approach to thinking about transportation since then."

Reader Responses

Larry Southwick

I recall sitting in a highway design class in 1963 and having an argument with the professor about the future design speed for major highways. The then-current standard was typically 70 mph and I argued that would go up because there would also be a great improvement in vehicle design to allow higher speeds. I was wrong. Most of I-5 and I-90 were already freeways with 60 mph speed limits. I had a '55 Ford Victoria and could do that and more. And here we are – our freeways have been upgraded with safety improvements but the fundamental design speed hasn't changed significantly (to my knowledge). And our typical highway speed limit is still 60 mph with some at 70 – not much has changed.

But, on the environmental side, everything has changed. As you said, dilution was the solution and stormwater and sewer design was just about the size of the pipe, the bigger, the better. There were small sewage treatment plants everywhere discharging primary treated waste to local streams and rivers and more were being added for a growing population. CSOs weren't a concern. The changes in environmental engineering have been huge over the last 50 years.

John Lisenko

I remember in the early 1980s when we had just spent \$50 million to upgrade our sewage plant our consultant suggested we do a shellfish study to see how effective the upgrade was. No one, from the feds, state, or locals wanted to know. That's the problem with environmental improvement projects – they are assumed to be beneficial and cost effective, but no one wants to take the time or make the effort to see if they really are. It's like the argument police put forward during budget time – "no price is too high to pay for public safety"..."no price is too high to pay to stop global warming."

Tim Heydon

You have hit on a number of issues which were just beginning to be thought about in '72. I had recently graduated from college about that time, so I was out in the world with my engineering degree, ready to solve any problem which came my way. I think that we, at that time, had a higher expectation that technology was the answer to anything difficult. I don't think that society feels that way now. As you stated, problems just keep happening.

One of the biggest present issues which you did not mention is the shortage of water. With increased heat and so many people wanting to live in the southern part of the country, I am just not sure what the solution might be. I for one do not want all of them to move up here to Washington State.

As you stated, always new problems for public works to tackle.



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More Than Lights And Poles

Bob Moorhead, P.E.

I think the look back to 1972 merely illustrates the more things change, the more they stay the same. It would be nice to think we are doing better at foreseeing and avoiding unintended consequences of our actions, at least on the macro-scale. But a couple anecdotal examples on the micro-scale of the last decade or two come to mind.

1. We all raced to replace incandescent traffic signal bulbs to reduce energy use and maintenance costs. But in colder regions, the LED bulbs didn't produce enough heat to keep the lenses clear of ice in the winter. The solution: Add electric heaters to the signal heads.
2. Urban arterial roundabouts reduce the severity of collisions at intersections, and allow for smoother traffic flow, reducing idling times. But, they didn't address pedestrian safety very well. The solution: Add manually-activated pedestrian signals to the entry and exit lanes.

Perhaps it does boil down to job security for the public works industry!



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