ITE Washington Section Newsletter

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Looking to 2020: ITE/IMSA Conference

Save the Date!

February 10th & 11th

Bellevue Hilton

300 112th Ave SE, Bellevue, WA 98004

Washington ITE and IMSA are excited to announce our upcoming annual joint conference with a full-day technical program covering topics in Advanced and Emerging Technologies, Regional Transportation Projects, Transit, and an Engineering Managers Discussion Panel. The event also offers a comprehensive exhibition featuring the latest in traffic products and vendor workshops. General registration to the technical events and exhibition is free and parking is free of charge.

Join Us!

WSDOT Northwest Region Traffic Management Center (TMC) Tour

November 19th, 2019

4:00PM-5:00PM

Location: Northwest Region TMC

15700 Dayton Ave N, Shoreline, WA 98133

Photo Courtesy of WSDOT

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president's message

We are well into our fall programs and the involvement by our members is going strong. Our September kick-off meeting was record attendance. Justin Chan, Scribe, from the Transpo Group has a report out in this newsletter. Thank you, Justin, for continuing as scribe for the 2019-2020 ITE year.

In October our Student Activities chairs, Darcy Akers and Sarah Keenan with additional assistance from committee member Manaswini Condoor and advisor Daniel Lai, prepared for the ITE Student Chapter kick-off meeting at the University of Washington. Darcy presented the students activities and opportunities available through Western ITE which includes a data collection program where the student chapter is paid to generate transportation data, the traffic bowl competition, and the ITE student night in May with awards for the best presentation and solution of a real-life traffic engineering project. In addition, Western ITE has financial support for qualifying traffic bowl teams to compete at Western ITE. Seattle University students are welcome to join the UW ITE Student chapter.

I am pleased to announce and congratulate the following officers of the student chapter:

- President – Mayuree Biinjolkar
- Vice President – Ollie Yang
- Traffic Bowl Chair - Chun-Yuan Lin
- Undergraduate Student Affairs Chair - Kate Poon
- Data Collection Chair - Jin Wu

And speaking of students, Western ITE has developed a great promotional video for careers in transportation. Please check out this video: https://www.youtube.com/watch?v=ZONQYdBpa-k It is very well done and could be shared with high school or undergraduate college students.

For ITE members interested in K-12 STEM outreach ITE has these resources available.

Texas A&M has resources available to assist you and your teachers.

These resources are examples of many positive changes all resulting from ITE's new approach as ONE ITE. One change I am excited to share is that each section will have a representative to Western ITE. I am pleased to announce ithat Daniel Lai, City of Bellevue, and immediate past-president, has been appointed by the ITE Washington Executive Board to serve as the ITE Washington Section representative to Western ITE!■

Claudia Hirschey

2019-2020 ITE Washington President

Vice President Message

We had a great turn out at the September's kickoff event at our traditional location of Salty's on Alki attended by 85 transportation professionals. It was good to see you all there.

Our October meeting was held at Pyramid Brewing Company in Seattle's stadium district. The topic,

Managing and Monitoring use of Curb Space was unique and of great interest to our members. The meeting was attended by 53 transportation professionals. Justin Chan, ITE Scribe has a summary of our September and October programs in this newsletter.

Upcoming meetings include: an operations tour in November, the annual safety training and conference in January, and the ITE/IMSA conference in February. I am looking forward to serving you.■

Jamal Mahmoud, P.E.
Vice-President/Treasurer
Transportation Operations Engineer
City of Bothell, Washington

Community Spotlight

Measuring Differently: What's the value of our public space?

By Kendra Breiland and Sarah Saviskas, Fehr & Peers

In recent years, there's been a marked shift in the way we evaluate the performance of transportation right of way. Gone are the days when the value of these spaces was measured solely based on vehicle throughput. Agencies like WSDOT and Seattle, and organizations like APWA, the Institute of Transportation Engineers (ITE), and the National Association of City Transportation Officials (NACTO) are recognizing a much broader set of objectives. Key examples include WSDOT's Practical Solutions Performance Framework, which measures economic vitality, preservation, safety, mobility, environment, and stewardship and SDOT's Public Life Program, which is focused on providing vibrant, active, and well-used public spaces.

For the US 2 Upper Wenatchee Valley Transportation Study has leveraged a variety of innovative data sources, including drone footage, to better understand modal interactions along the corridor.

What you measure is what you get. This year, WSDOT is piloting key aspects of the **Practical Solutions Performance Framework** in each of its regions. This includes the US 2 Upper Wenatchee Valley Transportation Study in North Central Region, the Discovery Corridor Adaptive Infrastructure Needs Analysis in the Southwest Region, and the West Plains Subarea Transportation Management Plan in the Eastern Region. These test cases are applying innovative, "big data" sources such as StreetLight and Sugar Access to better understand metrics like reliability, pedestrian and bicycle accessibility, and system resiliency, which have historically been overlooked by more traditional transportation planning studies.

At the national level, the Institute of Transportation Engineers released a **Curbside Management Practitioners Guide** to guide local jurisdictions on how to inventory, assess, enhance, and prioritize curb spaces to meet the multimodal demands at the curb in a safe and efficient way. This guide recognizes that the way we use our transportation right of way is expanding from more traditional uses (such as on street parking, bike and pedestrian infrastructure, transit stops, and emergency responder access) to uses that

EDITORIAL STAFF

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Newsletter Contact Information

Please let us know if your contact information changes so that you continue to receive monthly ITE WA announcements and newsletters by email. To update your information, click on the Membership tab on the our website: **www.wa-ite.org**

Send comments and submissions to itewaeditor@gmail.com

Articles must be received by the third Thursday of the month to be considered for publishing in the next issue.

Annual Advertising Rates

business card ad	**$75**
quarter page ad	**$100**
half page ad	**$250**
full page ad	**$500**

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Ads run from September through May. The cost of ads submitted during the year will be prorated after December 31st.

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September Report

Justin Chan, EIT
ITE Scribe
Transportation Engineer
Transpo Group
Kirkland, Washington

2019-2020 ITE Washington Kick-Off Meeting

September 17th, 2019 – Salty's at Alki, Seattle

This year's Annual Kick-Off Meeting at Salty's on Alki was as well attended as ever. As members settled in and began tucking into the always delicious servings of chowder, salmon, and steak, our Past President Daniel Lai took the opportunity to swear in our new Secretary, Jeanne Acutanza. Congratulations Jeanne! President Claudia Hirschey then introduced this year's Committee Chairs to the membership.

Seattle Waterfront Program Technical Design Manager Mike Johnson presenting on the traffic sequencing for the various projects.

Building on top of last year's presentation that highlighted the Alaskan Way Viaduct Replacement Program, which included the demolition of the viaduct and the construction of the SR99 tunnel, this year's lunch presentation highlighted the more long-term outcomes resulting from these projects. With the removal of the Alaskan Way Viaduct, the Seattle Waterfront Program, led by the City of Seattle, strives to reconnect the city to its waterfront with the addition of 20+ acres of new public space. Barbara Lee, the Seattle Waterfront Program Manager, discussed the various projects that are associated with this program, including the SR 99 Bored Tunnel Project, SR 99 Demolition Project, the construction of a park promenade along the water, the construction of new surface streets along Alaskan Way and east-west connections to the downtown area, reconstruction of Piers 58 and 62, construction of the seawall, construction of the overlook walk, and coordination with the construction of the Seattle Aquarium Ocean Pavilion and Pike Place Market connection. The entirety of the Seattle Waterfront Program is scheduled for completion by Fall 2024. Given the sheer number of large-scale complex projects that are occurring in tandem, careful consideration needs to be taken to ensure the construction phasing results in minimal impacts to the public. Overall, the program's goals are to maintain equitable access, support nearby freight, port, and transit operations, maintain utility services, and coordinate with adjacent projects. Technical Design Manager Mike Johnson discussed the efforts that have been underway with regard to the traffic sequencing. Projected volumes, which included transit, vehicular traffic, loading, pedestrian/bicycle routes, ferry traffic, and cruise ship traffic were all accounted for in determining the traffic sequencing. ■

Rendering of Seattle Waterfront Project

Project Information

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2019-20 ITE Washington Section Events

Date	Subject	Location
NOV 19	TMC Tour	TMC NW Region
JAN 7	ITE Annual Safety Training	Renton Community Center
FEB 10/11	ITE/IMSA Conference	Bellevue Hilton
MAR	Traffic Trivia Night	TBD
APR	ITE Program	TBD
MAY 21	Student Night	TBD
MAY 22-23	Joint ITE/Quad Conference	Sheraton Vancouver BC
JUNE	ITE Washington Annual Meeting	TBD

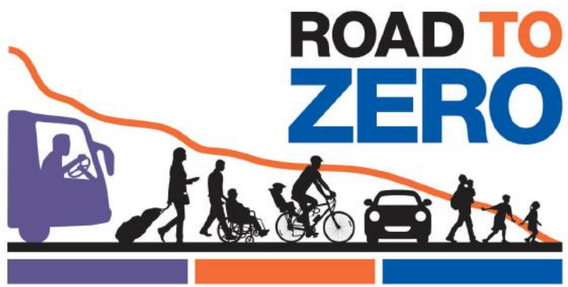
Save the Date!

2020 ITE Washington's Annual Safety Conference

Tuesday, January 7, 2020, 8:30 AM to 4:30 PM at the Renton Community Center.

For the 2020 event, ITE is collaborating with the Washington Traffic Safety Commission and the Washington State Department of Transportation to provide expanded safety training from a variety of perspectives. Please join us for: Traffic Safety – Getting to Zero – What Can I Do! This year's training will include: A review of the Washington State Strategic Highway Safety Plan; Discussions on the MUTCD; Research on road safety culture from Montana State University; Engineering Perspectives on sources of crashes; Traffic and roadway design for all system users, and much more.

Registration information coming soon.



2019 ITE Associate Events

DEC 2-3	ITS Washington Annual Conference & Exhibition	University of Washington

2020 ITE Associate Events

APR 14-16	APWA Washington Spring Conference	Vancouver, Washington
AUG 9-12	ITE National Annual Meeting	New Orleans, Louisiana

WSDOT Northwest Region Traffic Management Center (TMC) Tour

November 19, 2019 4:00PM to 5:00PM
Northwest Region TMC
15700 Dayton Ave N, Shoreline, WA 98133
Meet in the lobby at 3:45 pm

The Washington State Department of Transportation crews keep their eyes on traffic and highways via six Traffic Management Centers located at key locations around the state: Shoreline, Tacoma, Vancouver, Wenatchee, Yakima and Spokane, with a winter operations center on Snoqualmie Pass. Traffic Management Centers are the nerve center of highway monitoring and operations. Engineers, radio operators and other staff: monitor traffic and identify problems using hundreds of cameras located throughout the state on the highway system. Coordination occurs with the Washington State Patrol, incident and emergency response crews, operating reversible lane control systems and ramp meters, and provide up-to-the-minute traffic information. The Traffic Management Centers are in operation 24 hours a day, seven days a week to help clear roads and keep traffic moving safely. The event is free, but we ask for registration via Eventbrite. Following the tour, or if you can't make the tour, please join ITE for a Holiday Networking Happy Hour from 5:30 to 7:30, Place To be determined. More details and directions coming soon.

Gary Norris, P.E., P.T.O.E
Safety Chair

DN Traffic Consultants
Project Manager/Senior Traffic Engineer

The Washington Section Safety Committee has begun its work program for 2019 – 2020. We are in the midst of planning our January 2020 Safety Conference building on our successful program last year and emerging issues. If anyone has comments about last year or issues they would like to see addressed this year please contact one of the committee members.

In addition, we are beginning our sub committee work identified at the June 2019 annual meeting. Specifically we have sub committees addressing Legislative Action, Education, Local Actions, and Target Zero. The leads for these committees include:

- Legislative Action: Claudia Hirschey, (claudiahirschey@comcast.net)
- Education: Caroline Brabrook,(CBrabrook@Kleinfelder.com)
- Local Action: Rick Perez, (Rick.Perez@cityoffederalway.com)
- Target Zero: Brian Chandler, (brian.chandler@dksassociates.com)

If you have interest in joining these committees please contact the committee lead.

We are all working towards zero deaths and serious injury crashes within the State of Washington. It is imperative each of us individually and collectively do our part to achieve this goal. I challenge you, as I do myself, to observe state laws in your driving habits including cell phone use or texting; be courteous to other drivers even though there are a lot of "jerks" on the road, and finally in your professional work you diligently employ the standards and guidance we have accepted as the standards for our profession.

Thanks
The Safety Committee ■

EXHIBITORS -SAVE THE DATE

ITE/IMSA 2020 CONFERENCE

FEBRUARY 10/11, 2020

FEBRUARY 10/11 MONDAY SETUP/TUESDAY CONFERENCE

The Washington State Section of I.T.E. and the Northwest Section of I.M.S.A. are hosting the annual vendor exhibition. This exhibition is held in conjunction with the annual joint meeting of these two professional associations. This will be an excellent opportunity for you to display your products to the transportation engineers, signal electricians, and traffic technicians of the great Northwest. Mark your calendars for Tuesday, February 11, 2020.

ITE/IMSA 2020 will be at the Bellevue Hilton this year which features a larger exhibition space to accommodate the high interest and excitement that this event typically draws. Last year was a record-year for the ITE/IMSA conference with over 350 people attending and we hope to match or exceed this number again in 2019. The ITE/IMSA conference will once again be free-admission for those attending the technical sessions and exhibition hall. This has been an important hallmark for this meeting to encourage attendance from ITE and IMSA membership. ITE and IMSA continues to maintain this long-standing tradition to ensure that our participating vendors get the most out of this conference.

Again, this year, vendor registration will take place online only. Each vendor registration includes:

- One 8-foot wide booth that includes a 6'x30" table, Wi-Fi, and basic power (Vendors requiring more exhibition space, please register for multiple booths to establish the area you need.)
- One lunch ticket per registered booth. Additional lunches must be purchased in advance through Eventbrite and are non-cancellable and payment is non-refundable. *If you would like to donate your lunch to a student or a speaker please note that when you check in.*

Exhibit Setup:

NOON-9 PM Monday, February 10, 2020

6 AM-7:00 AM Tuesday, February 11, 2020

Exhibits: **7:30 AM to 4:00 PM** Tuesday February 11, 2020

Conference: 8AM to 4:30 PM, Tuesday

Location: Bellevue Hilton

300 112th Ave SE

Bellevue, WA. 98004

We will continue last year's sponsorship packages. The ITE and IMSA sponsorships help support the conference to keep it free for attendees. It is also an opportunity for your company to highlight their participation support for ITE/IMSA. Sponsorship provides access to priority selection for exhibit space and technical presentation timeslots, along with other benefits described in the Sponsorship announcement.

BOOTH SELECTION BASED ON A TIER SYSTEM

Vendor registration will officially launch in **November**.

Booth Selection is similar to last year with a couple of updates. Booth location selections are not guaranteed Please read and understand the information below or contact:

ED ARISTO, ITE/IMSA EXHIBITS ORGANIZER
SEATAC LIGHTING & CONTROLS 206.898.0542 / EARISTO@SEATACLIGHTING.COM.

EXHIBITORS -SAVE THE DATE

ITE/IMSA 2020 CONFERENCE

FEBRUARY 10/11, 2020

ITE will accept vendor registrations in the following sequences. Tier notices will follow a one week sequence:

- **TIER 1-** Exhibitors who purchase a Sponsorship package are eligible in Tier 1 for prime booth selections. Sponsorship includes one booth. This is open to any company agreeing to a sponsorship.
  - TIER 1 – Sponsorship Exhibitors will have 1st choice booth location selection in order of Platinum, Gold, Silver, Bronze order and by date of sponsorship commitment.
  - Prime booth locations are included to Sponsors
- **TIER 2:** Exhibitors who displayed at the 2019 conference are eligible. Booths selection follows Tier 1. Location preferences can be selected but are not guaranteed. Date of commitment will be the order of selection for the committee.
- **TIER 3:** Vendor registration will be open for all remaining booths on a first-come-first-serve basis.

EXHIBIT LAYOUT [see details LOAD IN OUT MAP.PDF]

Two Load in areas at the lower level near the Exhibit Halls. See map. Signage will be in place on Monday.

Parking is free during the day and overnight free to ITE/IMSA. Register your vehicles at the front desk and follow their instructions.

Room Rates: Special Hotel Room rates for those staying overnight are available for this event. To make reservations please see below:

Vendor Presentations: Vendors may also register to provide attendees with a 25-minute seminar on your product. *Seminar registration is limited to a first-come-first-serve basis.* Please contact the conference technical program chair Ryan Peterson at ryan.peterson@transpogroup.com with any additional questions.

Shipping items for your booth to the hotel:

For special hotel shipping arrangements, please mark boxes to the attention of ITE/IMSA Annual Joint Meeting and Vendor Exhibition, include the name of the person that will be attending ITE or the vendor company picking up the boxes on your shipping label. Ship boxes/cartons to arrive 3-days prior to the event but no earlier. Large boxes might require a$25 handling fee. **Shipping Address:**

Hilton Bellevue
ATTN: KYLEE PETRIN
MARK: ITE/IMSA EXHIIBTS
Box ___ of _____
300 112th Ave SE
Bellevue, WA 98004
Tel: 425-455-1300

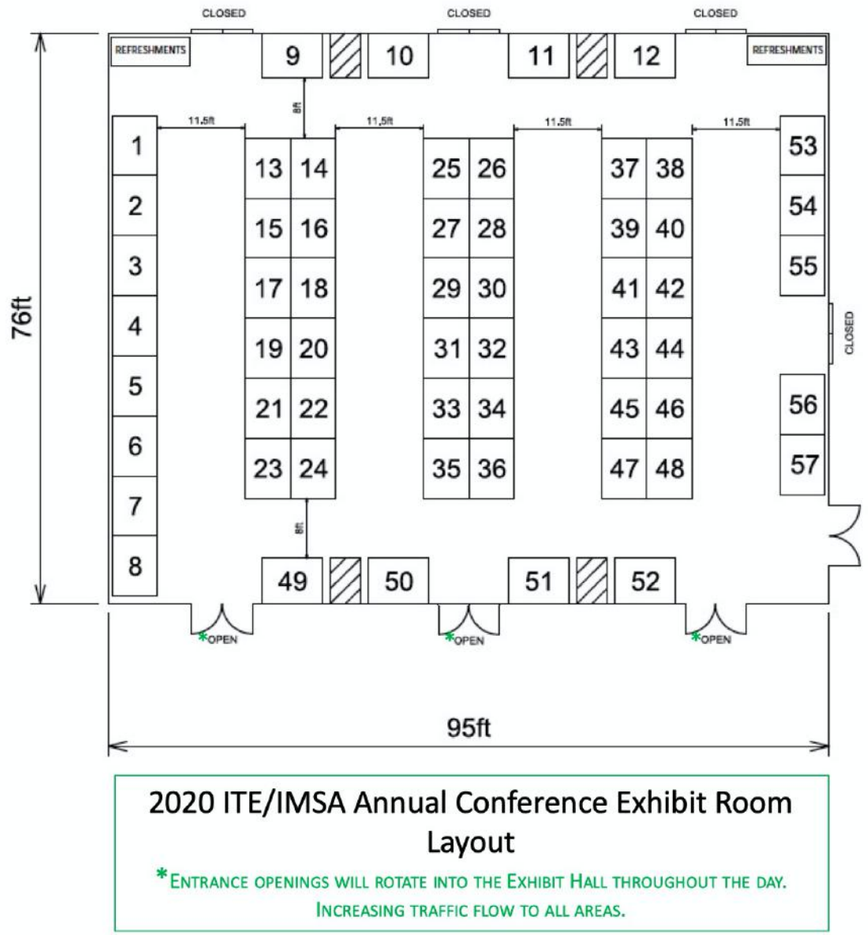
EXHIBITORS -SAVE THE DATE

ITE/IMSA 2020 CONFERENCE

FEBRUARY 10/11, 2020

Exhibition Layout:

BOOTH TYPE (Total 57 Booth Spaces)	TIER	# Available	FEE
Platinum Sponsorship	1	1	$2,500.00
Gold Sponsorship	1	1	$2,000.00
Silver Sponsorship	1	4	$1,500.00
Standard Booth	ALL	44	$550.00
Standard Booth after DEC 01	ALL		$650.00
Vendor Presentations 25-minute Detailed Seminar on your Product			$75
Additional Lunches/person			$50



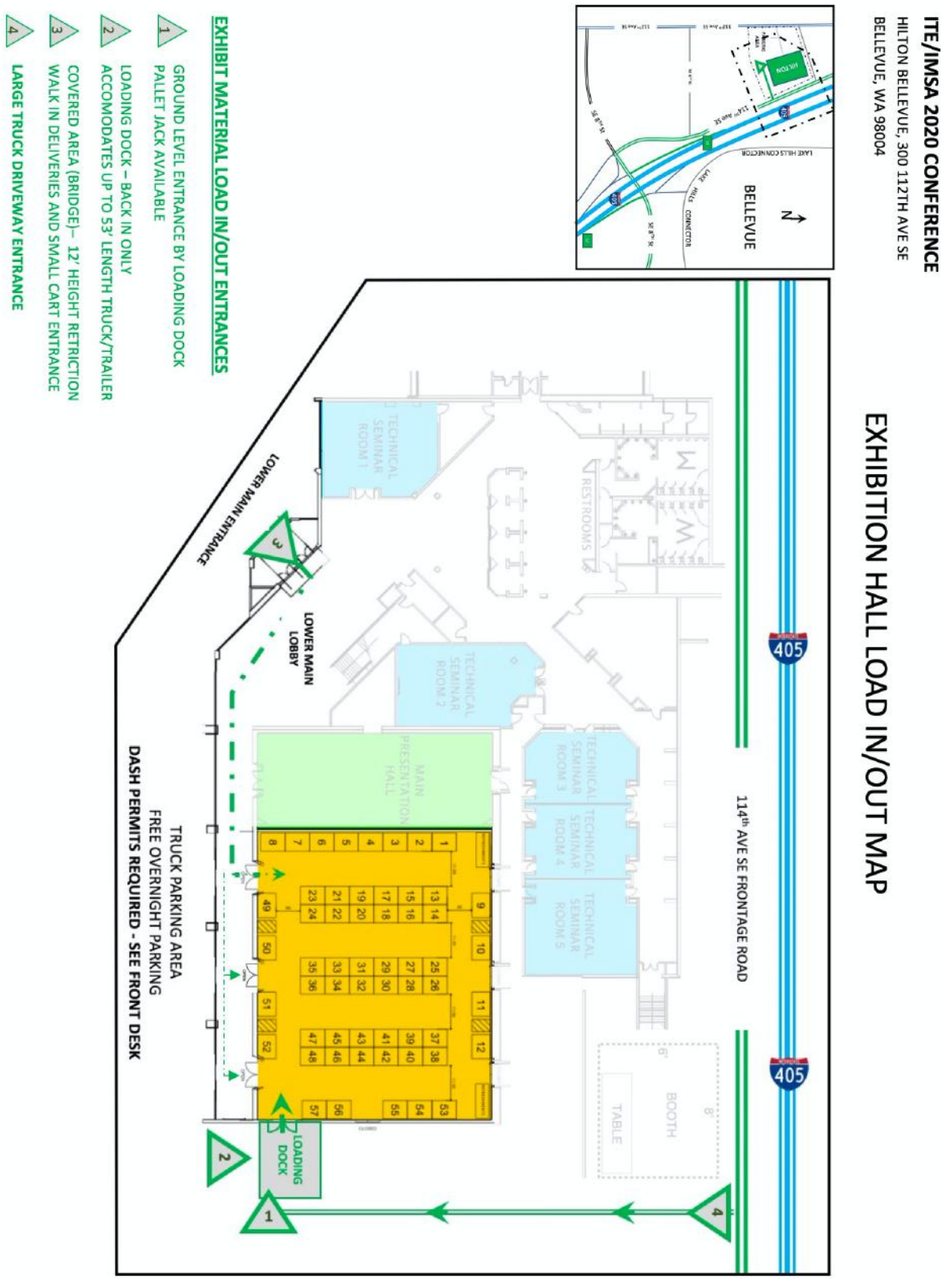
2020 ITE/IMSA Annual Conference Exhibit Room Layout

*Entrance openings will rotate into the Exhibit Hall throughout the day. Increasing traffic flow to all areas.

EXHIBITORS -SAVE THE DATE

ITE/IMSA 2020 CONFERENCE

FEBRUARY 10/11, 2020



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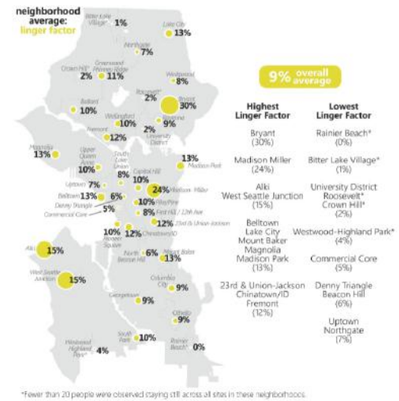
have only recently emerged or are increasing rapidly, including drop offs/pick ups from ride hailing services, deliveries due to e-commerce, micromobility options (car share, bike share, scooters), electric vehicle charging stations, and activation in the form of parklets and streetscape. Thus, the ways that we measure the performance of these spaces should expand accordingly.

At the local level, the City of Seattle's **Public Life Program** is working to quantify what produces vibrant, active, and well-used public spaces. Recognizing that streets and sidewalks full of social and commercial activity have the power to improve a city's health, prosperity, and happiness, the Seattle Department of Transportation (SDOT) collaborated with the Gehl Institute, City of San Francisco, and Copenhagen Municipality to develop a Public Life Data Protocol. This program establishes a common methodology for evaluating the vibrancy of public spaces across different cities and regions. SDOT has leveraged this data protocol to conduct public life studies at the citywide scale (over 100 block faces studied in 38 neighborhoods) and at the neighborhood scale, measuring the number of people using public spaces and the types of activities they are engaged in. The results of the public life studies are displayed visually through an interactive dashboard and provide SDOT with people-centered data to make investment decisions, evaluate designs and interventions, and understand what makes a successful public space. SDOT hopes that other cities and communities throughout Washington can use this new process to collect their own public life data and utilize it to create better public spaces for the communities they serve.

Communities all around the country are wrestling with how to keep up with emerging transportation technologies. Shared micromobility services like electric scooters and electric bikes are rapidly changing how people travel around cities, and that pace of change is only accelerating. While shared micromobility offers many potential benefits, such as reducing car trips and lowering carbon emissions, it carries new challenges, including lack of regulation, how to address ADA accessibility, and safely managing multiple modes on limited sidewalk space. To address these concerns and take advantage of potential benefits, several cities around the country have created micromobility policies that provide direction on how shared mobility operators must operate in their city. Currently, there are three main resources that provide guidance on what these policies should include: NACTO's Guidelines for the Regulation and Management of Shared Active Transportation, Remix's Micromobility Policy Survey, and Transportation for America's Shared Mobility Playbook. These offer guidance on topics like parking, service area and distribution, maintenance, safety, fleet caps, fees and pricing, data sharing, equity, and communications as they relate to micromobility. Data is one way that agencies can quantify the benefits of micromobility. Requiring that service providers provide data helps agencies to understand not only how micromobility services are operating but also how the presence of micromobilty modes might influence the function of other transportation systems by highlighting where people are going for short trips, where the activity centers are, and where there is demand for transportation services.



SDOT's Public Life Study looked at the ratio of people staying still to people observed moving through the study areas ("linger factor")

It's a brave new world in managing our transportation rights of way. While the competition for this space has grown with e-commerce, app-enabled modes, and changing perspectives about the best use of the curb zone, the ways that we can evaluate and effectively plan its uses are also growing. It's an exciting time to be a transportation professional or a data scientist and the distinctions between these two fields are growing less and less every day. ■

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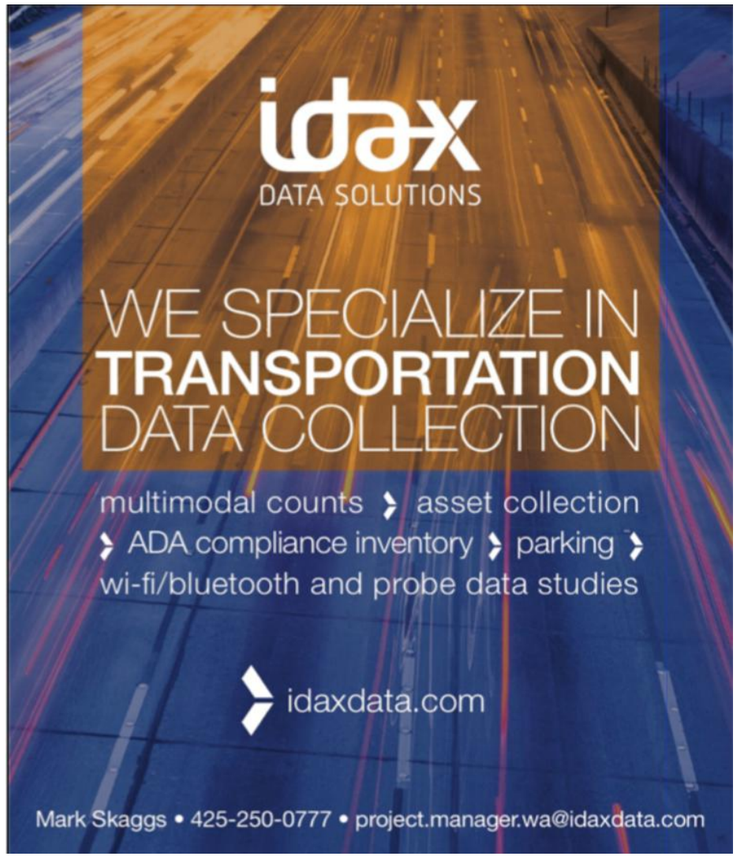

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James J. Hill and associates cross Columbia River on first railroad bridge linking Washington and Oregon, whose opening has just completed Hill's Spokane, Portland & Seattle Railway, on November 5, 1908.

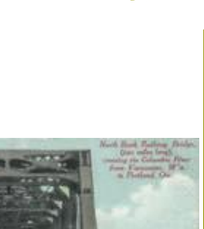
By John Caldbick
HistoryLink.org Essay 8740

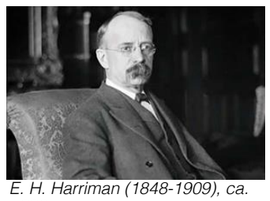
On November 5, 1908, a train bearing James J. Hill (1838-1916), chairman of the Great Northern Railway, and several business associates and dignitaries leaves Spokane, crosses the Columbia River from Pasco to Kennewick on a bridge owned by the Northern Pacific (also controlled by Hill), then travels along the north bank of the Columbia River to Vancouver on the tracks of the recently completed Spokane, Portland & Seattle Railway (SP&S). From there the train moves on to Portland, crossing the Columbia on the first railroad bridge to link Washington and Oregon. The following evening a gala banquet in Portland will celebrate the completion of the new line, commonly called the North Bank Road. The SP&S is jointly owned by the Northern Pacific and Great Northern railroads. Built at a cost well in excess of $40 million, the new line provides an alternative to the punishing rail routes over the Cascade Mountains and frees the Northern Pacific from its earlier reliance on Oregon tracks owned by Hill's chief rival, E. H. Harriman (1848-1909).

Spokane, Portland & Seattle Railway Bridge (future Burlington Northern Bridge, Ralph Modjeski, 1908) spanning the Columbia River from Vancouver, Washington to Portland, Oregon

Hill, Harriman, and Elliott

James J. Hill's train ride across the Columbia River that November day signaled a major victory in his long and bitter competition with E. H. Harriman for railroad dominance in the Northwest. Hill, known as the "Empire Builder," had completed the Great Northern Railway (GN) into Seattle in 1893, coming down from the north after crossing the Cascades at Stevens Pass. In 1901 he won indisputable control of the Northern Pacific Railway (NP) after a stock-purchase battle with Harriman that almost brought down the New York Stock Exchange. The NP line reached Tacoma and Seattle from the east over Stampede Pass, and with these two transcontinental lines Hill had a near monopoly over long-distance rail access to the rapidly growing cities on Puget Sound. Harriman's interests were concentrated farther south. He had purchased the Union Pacific in 1897 and the Southern Pacific in 1901, and these lines gave him dominance both in Oregon and on the valuable routes that served California.


James J. Hill (1838-1916), ca. 1900


E. H. Harriman (1848-1909), ca. 1900

These were ambitious men, and each had something the other wanted. Hill's Northern Pacific trains originating in Spokane had only a tortuous route to Oregon that was punishing, long, and required two crossings of the Columbia River. The first linked Pasco and Kennewick on a span the NP had completed in June 1888, the first permanent railroad bridge to cross the mighty river (the NP had opened a temporary bridge there in December 1887). From Kennewick, NP trains traveled west, crossing the Cascade Mountains at Stampede Pass to reach Tacoma and Seattle. To access Portland, then the largest city in the Northwest, NP trains had to travel south from the Puget Sound cities to Kalama on the Washington side of the Columbia, from where they were barged across the river to Goble, Oregon. At that point, their only access to Portland was on the eastbound tracks of the Harriman-owned Oregon Railroad & Navigation Company. What Hill wanted was direct access to Vancouver and Portland and to get rid of both the train barges at Kalama and the need to use tracks from Goble to Portland that were controlled by his primary competitor.

For his part, Harriman wanted rail access to Washington. He had been unable to penetrate the rapidly growing Puget Sound country, where Hill's Great Northern and Northern Pacific held sway. Harriman offered to trade the continued use of his Oregon tracks by the NP in exchange for use by the Union Pacific of Hill's line that ran north to Puget Sound, an offer that did not fit with Hill's ambitions and was brushed aside.

Spokane, Portland & Seattle Railway Bridge under construction, Vancouver, Washington, June 29, 1908

A Very Open Secret

One of the peculiarities of the complicated railroad battles of the nineteenth and early twentieth centuries was that separate lines that were controlled by the same men often directly competed against one another, and with considerable vigor. Although the Northern Pacific was controlled by Hill through stock ownership, it was run with a great deal of independence by a veteran railroad executive, Howard Elliott (1860-1928). It appears to have been Elliott who first developed the plan for a new railroad that would link the NP's existing facilities in Spokane directly with Portland. The proposed route would travel much of the way along the north bank of the Columbia to Vancouver in Clark County. From there, two bridges would carry trains across the Columbia and a third across the Willamette River to reach the railroad yards of Portland.

There were reports as early as 1903 that someone was quietly buying up rights-of-way along the north bank of the Columbia River, and by early 1905 these efforts had become too obvious to ignore. Attempts at secrecy were not helped by the fact that surveyors were using tools clearly marked as belonging to the Northern Pacific and cashing paychecks issued by that company. Nonetheless, it was not until September 1905 that the Portland & Seattle Railway Company was incorporated. Although the railroad's initial name did not include the word "Spokane" and none of its original

see 'yesteryears' page 10

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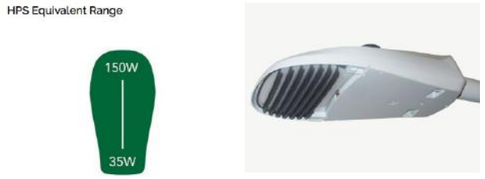

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incorporators had clear ties to Hill or the Northern Pacific, it was now obvious that the NP's primary goal was not to link Seattle and Portland, as the name implied, but rather to link Spokane and Portland with a new railroad that would in large part follow north bank of the Columbia. As Elliott later put it, "Someday some road would have it. We wanted to be that road" (Pease, 2-3).

Hill Builds, Harriman Hesitates

In October 1905 James J. Hill dropped the other shoe, announcing at Portland's Lewis & Clark Centennial Exposition that his Great Northern would join in the development of the new railroad as an equal partner with the Northern Pacific. Hill rather coyly explained, "I suppose the Northern Pacific would be jealous of the Great Northern building there, and we would be jealous of their building there, so we concluded that we would build jointly ... ." (Pease, 4). Asked why the chosen route went through the difficult Columbia Gorge, where hard, basalt cliffs shouldered right to the water's edge, Hill answered, "Nature made the pass. Water follows the line of least resistance, and so does commerce" (Pease, 5). He was referring to the fact that the gorge was the only place in the entire state of Washington that offered a way across the Cascades without significant changes in elevation. All other rail routes through the mountains required switchbacks and steep climbs and descents that were hard on equipment, were wasteful of fuel, and limited maximum loads. In contrast, said The Seattle Times, the new road was "to all intents as level as a table and as straight as a string" ("North Bank Line Is Formally Opened").

The normally astute Harriman seemed for once to have been, in railroad terminology, asleep at the switch, and he waited too long to challenge the Hill forces. When he finally stirred to action, he sent large crews of lawyers to court and small crews of workmen, armed with little more than picks and shovels, to various points along the planned route where the Hill forces had not yet secured full rights-of-way. Harriman's legal efforts failed, and his construction activity was so desultory that in 1907 a court ruled that he in fact had no real plans, was merely trying to harass his competitors and slow their progress, and should be legally barred from further interference.

With Harriman's challenge now beaten back, work proceeded without cease. No longer needing subterfuge and facing pressure from the citizens of Spokane, Hill announced in early 1908 that the entity incorporated as the Portland & Seattle Railway would in fact be called the Spokane, Portland & Seattle Railway, reflecting its true route and larger ambitions.

Building the Road

As noted above, the NP already had tracks, laid in the 1880s, that ran from Spokane to Pasco, crossed the Columbia by bridge to Kennewick, then ran northeast and over the Cascades to Tacoma and Seattle. The new railroad, although owned in its entirety by the NP and GN, was a separate legal entity, and its managers decided in early 1906 to build a better set of tracks between Spokane and Pasco as part of the new route. This work would be saved for the last, however, and the main effort between late 1905 and 1908 was to lay tracks from Kennewick to Vancouver and there build the bridges that would carry the trains on to Portland.

It would be neither easy nor cheap. Thirteen tunnels and nearly 30 bridges and trestles were required along the 220-mile section between Kennewick and Vancouver. The original estimates of cost were in the range of $8 million; in the end, it totaled well more than $40 million, an outlay that reportedly had Hill privately expressing regret for having ever started the project. But when completed, the SP&S accomplished several things. It provided the first rail access by bridge between Washington and Oregon. Its tracks passed through nearly 80 villages and towns, providing a source of business for the railroad while also connecting long-isolated communities to the wider world. It allowed the two Hill lines, the Northern Pacific coming from the east and the Great Northern coming from Puget Sound country, to meet up at Vancouver, from whence both would eventually share the bridges of the SP&S to reach Portland. Finally, by providing a route to Portland that didn't rely on Harriman's OR&N tracks on the Columbia's south bank, the project brought Hill closer to his long-term goal of running his own railroads all the way to California (an accomplishment that came only some years after his death).

The Washington portion of the SP&S was completed by January 1908 and two months later, on March 11, 1908, the new railroad held its Golden Spike ceremony at Sheridan's Point in Skamania County (just upstream from the future location of Bonneville Dam). A 10-coach train left Vancouver that morning for the event, carrying nearly 400 celebrants. Regular passenger traffic between Vancouver and Pasco/Kennewick began later than month, and trains could continue on from Pasco to Spokane (at first along using the Northern Pacific's existing tracks). However, spanning the Columbia from Vancouver into Portland to complete the road was to take a little longer.

Route map, Spokane, Portland & Seattle Railway timetable, 1941

Crossing the Columbia

As it flows between Vancouver and Portland the Columbia River is bifurcated by the long and narrow Hayden Island (called Shaw Island in years past). The river fork that flows on the north side of the island was called on some maps the Washington Channel, while that on the south side was referred to as the Oregon Slough. Each fork of the river would need a separate bridge, and each would require a swing-span to allow water-borne commerce to pass. The two spans would be connected by a plate-girder viaduct that carried trains across the island. A third draw span would be needed to cross the Willamette River to the south.

To design the bridges, the SP&S hired the best in the business, Ralph Modjeski (1861-1940), a Polish-born civil engineer who had immigrated to America in the 1880s. It was decided that although the railroad was a single-track line between Spokane and Vancouver, the bridges should carry two separate tracks, allowing simultaneous traffic into and out of Oregon.

see 'yesteryears' page 14

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Improving Access to Healthy and Sustainable

yesteryears continued

Because the Columbia River was a navigable waterway under federal jurisdiction, the U.S. War Department had to approve the construction, which it did on February 14, 1906.

The 2,806-foot-long steel-truss bridge to be built across the north fork of the Columbia (the Washington Channel) was touted as the longest double-track railroad bridge in the United States. Its 446-foot swing-span would pivot on a concrete pier that, ironically, Harriman had built several years earlier during an abortive attempt to extend his rail empire into Western Washington.

The bridge across the Oregon Slough, of similar design, would be shorter, at 1,466 feet, and the Willamette River crossing was 1,762 feet in length. The latter had its own claim to fame: the bridge's swing-span, at 521 feet, was deemed at the time to be the longest of its type in the entire world. (In 1989 the Willamette swing-span was replaced by a vertical-lift section, while the two northern bridges have retained the original pivot design.)

Work on the bridges began immediately after the War Department's approval, and with the exception of the draw-span machinery they were completed by late July of 1908. Putting the finishing touches on the Columbia and Willamette river crossings took until the fall of that year. Although at least one work train had used the spans during late-stage construction, the ceremonial passage on November 5, 1908, that carried Hill and his cohorts to Portland marked the first time a passenger train had crossed between Washington and Oregon by bridge.

The Celebration

Left to right: Louis W. Hill, James J. Hill, Francis B. Clarke, and Howard Elliott, opening ceremony, Spokane, Portland & Seattle Railway, Portland, 1908

James J. Hill and several of his party arrived in Spokane by train from the East. On November 4, 1908, a morning train trip to the large lumber mill in Potlatch, Idaho, was followed by a luncheon at Spokane's Hall of the Doges. In a lengthy speech, published verbatim in the next day's Spokesman-Review, Hill stressed the interdependence of the city and the SP&S:

"Bear this in mind, the railroads can only prosper with your prosperity, and if you are not prosperous, depend upon it, your railroads will be poor.... It is [in] our own selfish interests to help you to grow, and we always expect to hold that position toward you" ("Hill Foretells Greater Spokane").

On November 5, Hill and his party boarded the special train for the celebratory run west. They traveled in comfort and safety to Vancouver, and as they crossed the Columbia to Portland Hill stood on the train's rear platform, looking up and down the river. According to a newspaper account, a friend asked Hill, "How do you like it?" and he answered "Great." He was then asked if he considered the completion of the new railroad "the crowning achievement of your life." He laughed and responded, "I am still young -- as young as I was 30 years ago" ("Hill Inspects His North Bank Road").

Among those accompanying Hill on the celebratory run were his son Louis W. Hill (1872-1948), who was president of the Great Northern; Howard Elliott, president of the Northern Pacific; George B. Harris (d. 1918), president of another Hill-controlled line, the Chicago, Burlington & Quincy; H. C. Nutt, general manager of the Northern Pacific; A. M. Gruber, general manager of the Great Northern; and, prominently, Francis B. Clarke (1839-?), the president of the new SP&S. Hill's longtime rival, E. H. Harriman, was not in evidence.

After arriving at Portland, the train was switched onto tracks owned by the Astoria & Columbia River Railroad, another joint enterprise of the NP and GN. The party traveled on that line to Astoria near the mouth of the Columbia for what was billed as an inspection tour, and apparently stayed the night. They returned to Portland on November 6 for a banquet sponsored by the city's Commercial Club, reputed to be the largest such commercial celebration the city had ever seen. More than 350 were in attendance, including many regional business leaders, along with Oregon Governor George Earle Chamberlain (1854-1928) and his Washington counterpart, Albert Edward Mead (1861-1913).

Inevitably, there were speeches galore, including by the two governors, and by Hill the elder, Elliott, Clarke, and at least seven other dignitaries. Hill was circumspect in his remarks about future plans; statements he made years earlier about the development of the SP&S had led property owners along its route to demand high prices for rights-of-way across their land. Hill was not one to make the same mistake twice, and generally addressed the assembled with commercial platitudes. He did, however, express some farsighted views about natural resources and population growth:

> "Let us educate ourselves to take care of our resources ... We have, in the past, been reckless. Formerly, we could abandon the old field and move on to a new one, but the tide of immigration has already reached the Pacific Ocean ... and people will come to the United States from other countries as long as we pay the highest scale of wages in the known world" (Pease, 11).

The Morning Oregonian waxed ecstatic and, given future developments, excessively so:

see 'yesteryears' page 16

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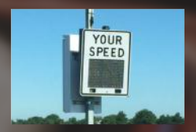

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Managing and Monitoring the Use of Curb Space

October Meeting Recap
Justin Chan

The first technical presentation of the year kicked things off with a topic that has increasingly been at the forefront of planners' and engineers' minds across the country. Over the past several years, the demand for usage of the curb has dramatically increased with the proliferation of shared-use mobility services like ride hailing and bike sharing. Furthermore, we have seen ever-increasing uses of the curb in other ways as well, such as public transit, bicycle facilities, parking, freight/deliveries, and public spaces and parklets. For this presentation, we heard from various experts in the field who offered different perspectives on the topic. Kendra Breiland, a Principal with Fehr and Peers, served as the facilitator for the panelists and provided an overview of the various curb uses to start things off.

Jose Luis Machadon Leon, a PhD Candidate at the University of Washington Urban Freight Lab, shared the findings from a pilot project he recently completed along Boren Avenue in South Lake Union. In an effort to change the curb-use allocation, the pilot project worked with Lyft and Uber to create designated passenger load/unload zones using a geofence to help improve safety, reduce traffic impacts, and increase customer satisfaction.

Chris Eaves, a Senior Engineer with SDOT, presented on the interesting challenges that Seattle faces in the Pioneer Square area. In Seattle, there are a series of underground areaways located beneath the sidewalk that were constructed over 100 years ago. As these structures were not designed to accommodate heavy loading such as from delivery vehicles, SDOT is investigating methods to limit heavy vehicles adjacent to the curb. They are hoping to achieve this through a variety of methods, including relocating loading zones, implementing turning movement restrictions, and increasing information, outreach, and enforcement efforts.

Chris Iverson, a Senior Transportation Engineer with the City of Bellevue, shared some of the efforts Bellevue is undertaking in terms of curb management. Similar to Jose's South Lake Union project, Bellevue also worked with Uber and Lyft to geofence designated load/unload zones along its 108th Avenue Bikeway project. This, in conjunction with other physical improvements like the installation of planter boxes, resulted in a 93% reduction in curb blockages along the bike lane. In addition to this, Bellevue also has several other on-going and upcoming projects, including an Employer Shuttle Pilot Permit program, completing an existing curb inventory, evaluating curb monitoring technologies, and creating a Curb Management Plan. ■

yesteryears continued

"The opening of this railroad means the commercial supremacy of Portland in the Pacific Northwest. In addition to connecting the city directly with two transcontinental railroad systems — the Great Northern and the Northern Pacific — Portland is made the natural gateway and metropolis of a water-grade route from the wonderfully productive Inland Empire to the sea" ("Portland Greets Empire Builder").

Certainly the SP&S proved of great benefit to Portland, and it remains today a vibrant port city. But after their visit there, Hill and several members of his party traveled on his train north to Seattle and on to Vancouver, British Columbia. In later years, both those cities would surpass Portland as commercial and shipping centers, due in significant part to Hill's Great Northern and Northern Pacific lines. ■

Sources:

Walter R. Grande, The Northwest's Own Railway (Portland, Oregon: Grande Press, 1992), 82-88; Lute Pease, "The Story of the 'North Bank' Road," The Pacific Monthly, Vol. 11, No. 1 (January 1909), pp. 1-14; "Hill Foretells Greater Spokane," The Spokesman-Review, November 5, 1908, pp. 1, 10; "Hill Inspects His North Bank Road," The Morning Oregonian, November 6, 1908, p. 12; "Portland Greets Railroad Builder," Ibid., November 7, 1908, p. 1; "North Bank Line Is Formally Opened," The Seattle Times, March 11, 1908, p. 2; "Railroad Officials Coming to Coast," Ibid., October 31, 1908, p. 14; "Portland Trains to Shorten Time," Ibid., November 5, 1908, p. 4; "Hill Party Coming Tomorrow," November 7, 1908, p. 4; HistoryLink.org Online Encyclopedia of Washington State History, "Portland & Seattle Railway completes Washougal River Bridge on November 1, 1907" (by John Caldbick), "Washougal River Bridge" (by John Caldbick), "Railroading in Vancouver and Southwest Washington" (by Gregg Herrington), and "First trains cross the Northern Pacific Railroad bridge spanning the Columbia River between Pasco and Kennewick on December 3, 1887" (by Kit Oldham), http://www.historylink.org/ (accessed January 10, 2015).

ITE hosted November Training Opportunity!

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Time: 11:00 AM - 1:00 PM Pacific

Location: WSP office, 999 3rd Ave SUITE 3200, Seattle, WA 98104

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Washington Transportation Professionals

Washington Transportation Professionals is a transportation peer exchange and networking group.

The group networks, shares best practices and lessons learned, and discusses ideas about traffic and transportation-related issues at free peer exchanges on both sides of the state. WSDOT's Local Programs division leads the group, with help from WSDOT's Active Transportation division, local agencies, and businesses. The goal is to develop transportation professionals and create professional connections between them to improve communities across the state. We also have an email distribution list where people can learn about training and funding opportunities and get updates on technical and policy topics related to traffic and transportation.

Group members

Our group includes all cities and towns, all counties, metropolitan planning organizations, Washington state agencies, Federal Highway Administration, vendors, consultants, universities, and other professionals. Roles include city engineers, traffic and transportation engineers, planners, technicians, supervisors, managers, directors, mayors, clerks, council members, sales people, product developers, programmers, professors, and related professionals.

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Fall 2019 peer exchange

WSDOT is looking for a location in Western Washington to hold this peer exchange, and are also looking for ideas for topics and presenters. Please let them know if you have ideas. This free event will be held in person and will also be available by a free, live webinar to allow an exchange of ideas across Washington.

Contact: City Safefty & Traffic Programs Manager ■

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