Title VI Notice to Public

It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT’s Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, please contact OEO’s Title VI Coordinator at 360-705 7090.

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This material can be made available in an alternate format by emailing the Office of Equal Opportunity at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

Notificación de Titulo VI al Público

Es la política del Departamento de Transporte del Estado de Washington el asegurarse que ninguna persona, por razones de raza, color, nación de origen o sexo, como es provisto en el Título VI del Acto de Derechos Civiles de 1964, ser excluido de la participación en, ser negado los beneficios de, o ser discriminado de otra manera bajo cualquiera de sus programas y actividades financiado con fondos federales. Cualquier persona quien crea que su protección bajo el Título VI ha sido violada, puede presentar una queja con la Comisión Estadounidense Igualdad de Oportunidades en el Empleo. Para obtener información adicional sobre los procedimientos de queja bajo el Título VI y/o información sobre nuestras obligaciones antidiscriminatorias, pueden contactar al coordinador del Título VI en la Comisión Estadounidense de Igualdad de Oportunidades en el Empleo 360-705-7090.

Información del Acta Americans with Disabilities Act (ADA)

Este material es disponible en un formato alternativo enviando un email/correo electrónico a la Comisión Estadounidense de Igualdad de Oportunidades en el Empleo wsdotada@wsdot.wa.gov o llamando gratis al 855-362-4ADA (4232). Personas sordas o con discapacidad auditiva pueden solicitar llamando Washington State Relay al 711.
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Purpose of the Work Program

Within the Multimodal Development and Delivery area of WSDOT, The Multimodal Planning Division (MPD) informs decision making through expertise and innovation in planning, policy, data and analysis services to support a statewide sustainable and integrated multimodal transportation system.

In support of the WSDOT mission and consistent with the mission of the USDOT, the Multimodal Planning Division develops this SPR Biennium Work Program to support a transportation system that enhances quality of life and economic vitality. The SPR Biennium Work Program is required by Federal regulation.

When the Federal Highway Administration (FHWA) determines that planning activities of national significance, identified in regulation (23 CFR 420.105; 23 USC 134, 135, 303, 505) are being adequately addressed, the FHWA will allow state DOTs and MPOs maximum possible flexibility in the use of FHWA planning and research funds to meet highway and local public transportation planning and RD&T needs at the national, state, and local levels.

The work detailed in this 2019-2021 SPR Biennium Work Program informs decisions through expertise and innovation in planning, policy, data, analysis, and research services to support a sustainable and integrated statewide multimodal transportation system. It supports performance-based decisions that are based on sound data and planning processes, and ensures Washington travelers have a safe, sustainable and integrated multimodal transportation system.

This work program includes a summary of major work items and a description of the work to be accomplished and cost estimates by activity or task, according to regulation. It also includes a description of the activity, office or area responsible for completing the activity, and a financial summary including levels of state, federal, or other funding, noted by funding type.

The WSDOT SPR program recognizes that the transportation system is multimodal and inextricably linked to the economy, environment, politics, and quality of life. Our approach supports the FHWA strategic plan, the WSDOT strategic plan, and the transportation policy goals in state statutes.
SPR Funding and Reporting

Funding

The Washington State Legislature provides state and federal appropriation authority for the SPR program on a biennial basis, from July 1 through June 30 of odd-numbered years. The state appropriation is used to provide a 20 percent match to the 80 percent federal funds available, as well as provide for a certain level of nonfederal expenditures. The federal appropriation establishes a limit for federal expenditures for SPR funds based on estimates of availability of these funds for the biennium. This limit can be increased if more federal funding becomes available than was anticipated at the time of the biennial appropriations, with a corresponding decrease to the state funds appropriation. However, this limit must be approved before any expenditure of additional funds can be made. The federal appropriation can also be increased when other unanticipated federal funds become available through supplemental appropriations or unanticipated receipts. Supplemental appropriations are made by the Legislature; unanticipated receipts are approved by the Office of Financial Management through the Finance and Administration Division.

Because the federal fiscal year begins October 1 and new apportionments are not available until that time, WSDOT reserves enough of the prior federal fiscal year’s apportionment to finance the new work program for the first three months of each state fiscal year. Additional obligation documents are submitted to the Federal Highway Administration (FHWA) Washington Division when additional federal funds become available to fully finance the approved work program.

Reporting

WSDOT will monitor implementation of the 2017-2019 SPR work program and provide periodic progress reports to federal partners.

Timing:

- Jan 2020 – progress report
- July 2020 – progress report
- Jan 2021 – progress report
- July 2021 – FY 19-21 closeout report
Federal Requirements

This approach ensures continued eligibility to receive and use federal transportation funds. The 2019-2021 SPR Biennium Work Program elaborates on the resources available to support identified activities. Emerging needs are prioritized against the existing program and adjustments made as necessary. The SPR Biennium Work Program development process defines the policy direction and identifies priorities for activities. The policy direction includes guidance toward funding levels, source of funds, and – in some instances – project scope. Taken as a whole, the WSDOT SPR Biennium Work Program recognizes that the state's transportation system is multimodal and inextricably linked to Washington's economy, environment, and politics, driven in large part by the pattern of our communities' physical development and social fabric.

WSDOT's approach to the SPR program supports the required federal statewide planning framework and the state's transportation policy goals. The SPR Biennium Work Program includes both federal and state funds. Since neither the federal planning factors nor the state policy goals are prioritized, the program seeks to balance overarching policies for safety and asset preservation with the need to develop strategies to address both current and anticipated future system performance need.

The SPR plan is required by 23 CFR Part 420 to implement the planning and research requirements in Title 23 USC.
Part 1: Planning and Data

Area 1 | System Performance and Analysis

WSDOT is required by federal law to use a performance-based approach to transportation decision-making. MAP-21 performance measures, established by federal rule, are an important component of WSDOT’s performance-based approach to decision-making. The work to implement these measures is described in Subarea 1.2. Additionally, WSDOT is working on the development of a performance framework that builds on the MAP-21 measures and addresses more fully our federal and state transportation policy goals. This work is described in Subarea 1.1.

Subarea 1.1 | Performance Framework

Objective
The objective of the Performance Framework is to implement WSDOT’s strategic direction based on federal and state transportation policy goals through the identification of performance measures and metrics beyond the required MAP-21 measures. This broader set of measures and metrics will be integrated into WSDOT decision-making through WSDOT guidance documents and manuals related to asset management, planning, scoping, programming, and design. WSDOT will engage MPOs, RTPOs, Tribes and other transportation stakeholders in the development of the frameworks in order to improve alignment with our partners.

Mandates
- 23 CFR 450.206(c)

Major Milestones and Products
- Identify performance measures and metrics related to preservation and safety policy goals (December 2020).
- Identify performance measures and metrics related to the environmental policy goal (December 2021).

Ongoing Tasks
- Provide technical assistance to WSDOT region staff and develop resources for the implementation of the Performance Framework.
• Provide outreach to share progress in developing a performance framework with MPOs, RTPOs, Tribes and other transportation stakeholders.
• Conduct technical analysis to evaluate new statewide performance metrics including accessibility to jobs and non-work destinations by car, transit, biking and walking.
• Provide input on the selection of performance metrics into the Active Transportation Plan, the Human Services Transportation Plan, Highway System Plan, Rail Plan, corridor plans, and other agency plans.
• Provide input regarding performance measures and metrics into existing WSDOT manuals and guidance including the Design Manual and Planning Studies Guidelines.
  Provide input regarding performance measures and metrics into WSDOT training materials, including materials for the Practical Solutions 101 and Practical Solutions 201 courses.

Summary Revenues and Expenditures

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Contact

Karena Houser | Multimodal Planning Division, Statewide Planning Office | 360-705-7876

Subarea 1.2 | Performance and Accountability Analysis

Objective

Provide strategic direction and management through systems analysis, performance management and external Federal reporting responsibilities for WSDOT programs, functions, transportation modes and systems. Provide reliable, timely and relevant policy direction and recommendations for WSDOT programs and agency executives. Support WSDOT’s strategic plan and its goal areas of Inclusion, Practical Solutions and Workforce Development; Results Washington; MAP-21; and other key initiatives.

Mandates

• 23 CFR Part 490 Subpart B (Safety); 23 CFR Part 490 Subparts C (Pavement Condition), D (Bridge Condition); 23 CFR Part 490 D Subparts E (National Highway System), F (Freight Movement), G
(Congestion Management and Air Quality—Traffic Congestion), and H (Congestion Management and Air Quality – Traffic Congestion)

**Major Milestones and Products**

- Collaborate with MPOs, WSDOT program leads and FHWA to review/ adjust MAP-21-era safety performance targets (Performance Measure 1 [PM1]) (Annual Report, August 2019 and August 2020). Watch for and incorporate strategies to address applicable updates in subsequent Federal transportation funding authorizations.

- Prepare and publish Washington State's MAP-21 PM1 folio; help internal/ external parties understand Washington’s current target status and implications (October 2019 and October 2020).

- Collaborate with MPOs, WSDOT program leads and FHWA to review/ adjust MAP-21 pavement/bridge performance targets (PM2), and system performance/ freight/ CMAQ performance targets (PM3) (Mid-performance Period Progress Reports, October 2020).

- Prepare and publish Washington State’s MAP-21 PM2 and PM3 folios; help internal/ external parties understand Washington’s current target status and implications (December 2020).

- Develop a WSDOT safety implementation plan (December 2019).

- Prepare and publish WSDOT's quarterly performance report, the “Gray Notebook” and the Gray Notebook Lite (Quarterly basis; August, November, February, May of 2019-20 and February and May 2021).

- Conduct Corridor Capacity Report stakeholder engagement process and a Lean process to develop recommendations for the mobility system performance monitoring program (March 2020).

- Prepare and publish WSDOT’s annual multimodal system performance report, the “Corridor Capacity Report” or a similar product - December 2020.

- Provide Corridor Capacity Report presentations to Legislative House and Senate (January 2021).

- Prepare and publish biennial WA State Transportation Attainment Report (October 2020).

- Provide Attainment Report presentations to Legislative House and Senate (February 2021).

- Develop a prototype for multimodal transportation system performance dashboard (December 2020).

- Develop Gray Notebook dashboard prototype - WSDOT’s quarterly performance report (June 2021).
• Continuously refine the strategic plan dashboard to provide performance metrics that accurately reflect progress toward current agency priorities (June 2021).
• Incorporate all applicable WSDOT-related performance measurements/information for the governor’s Results WA performance dashboards (June 2021).
• “Deploying Practical Solutions using Lean Techniques and Knowledge Management” project milestones:
  o Develop a proposal for WSDOT data governance and knowledge domains (July 2019).
  o Publication of WA-RD 897.2 Lessons Learned for Developing a Knowledge Book (August 2019).
  o Publication of WA-RD 896.6 Manual Modernization: Streamlining Production and Improving User Experience (October 2019).
  o Deliver a series of webinars on the products of this project (December 2019).

Ongoing Tasks

• Provide strategic direction, analysis and coordination of MAP-21/FAST Act.
  o Collaborate with other DOTs, MPOs, FHWA and AASHTO on transportation performance management rules.
  o Coordinate target setting process with MPOs and WSDOT program leads.
  o Maintain documents and communication materials for final rules and target setting processes for MPOs, tribes and other stakeholders.
  o Maintain WSDOT’s approval process for target setting recommendations and assist with developing formal recommendations for WSDOT executives.
  o Conduct before and after studies of mobility, safety, and other projects.

• Agency accountability and analysis.
  o Continuous collaboration/vetting process to prepare the “Gray Notebook” and the Gray Notebook Lite.
  o Facilitate processes that lead to strategically aligned state and federal performance measures, policy recommendations and agency-wide strategic direction associated with the Gray Notebook.
  o Provide policy direction and recommendations for WSDOT programs that contribute to the Results Washington process.
Facilitate WSDOT’s involvement with new and upcoming outcome measures and leading indicators under development with the Results WA team.

Assure agency-wide strategic alignment, enhance partnerships, and increase efficiencies by providing tactical guidance in support of WSDOT’s strategic plan, Results Washington, MAP-21, and other initiatives.

- **Strategic planning and policy.**
  
  - Continue to help programs improve knowledge and information practices through assessment, strategy development, and implementation actions.
  
  - Chart the planning process, educate participants on the value of strategic planning, conduct engagement and research processes.
  
  - Work with agency budget staff to ensure the strategic plan informs the budget.
  
  - Provide consultant services to WSDOT executives and senior managers.

- **Dashboard development/maintenance for WSDOT’s Strategic Plan, Gray Notebook and Corridor Capacity Report.**
  
  - Ascertain availability and reliability of data, compile data and conduct data analysis.
  
  - Direct the alignment of reporting systems, setting performance expectations.
  
  - Provide tools and ensure that all plan elements and measuring systems use the same language and terminology and properly reflect agency priorities and performance.
  
  - Update web-based dashboards to inform WSDOT’s performance story.

- **System performance analysis.**
  
  - Refine Mobility Analysis software to streamline travel time data for WSDOT systems analysis and MAP-21 System Performance rule.
  
  - Conduct Corridor Capacity Report (CCR) stakeholder engagement to identify how customers are using the CCR, and the extent to which the CCR aligns with WSDOT and partner agency goals.
  
  - Conduct a Lean process based on stakeholder engagement outcomes.
  
  - Define roles and responsibilities in producing annual analysis of transportation system performance.
  
  - Develop and refine workflow templates as necessary for the MAP-21 System Performance rule.
Develop multimodal capacity methods to streamline transit data processing and performance evaluation.

Lead Congestion Working Group.

Publish web based application of mobility performance data (e.g. ArcGIS online).

Facilitate peer exchanges, research, innovations, and best practices including FHWA requests.

Support FHWA, USDOT, TRB, AASHTO, and NCHRP systems analysis and performance measurement activities.

- Lead WSDOT’s analysis and comprehensive performance reviews of the 2020 biennial Transportation Attainment Report.
- Continue to improve the knowledge and information practices to strengthen and streamline the practices across the Practical Solutions lifecycle.
  - Clarify roles for multimodal decisions throughout the Practical Solutions lifecycle.
  - Develop knowledge domains to improve the governance of data and information used to support decision-making.
  - Share report and product information with other state DOTs.

### Summary Revenues and Expenditures

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### Contact

John Milton | Transportation Safety and Systems Analysis Division | 360-705-6363

### Subarea 1.3 | Travel Demand and Economic Modeling and Analysis

**Objective**

The U.S. Code requires a performance-based approach in transportation planning and states “The statewide transportation planning process shall provide for the establishment and use of a performance-based approach to transportation decision-making to support the national goals described in 23 U.S.C. 150(b) and the general purposes described in 49 U.S.C. 5301.”
A key objective is to support WSDOT’s Practical Solutions approach and federal government’s performance-based planning needs by the following:

- Develop and maintain data aggregation and analysis tools for statewide system performance measurement.
- Provide travel demand modeling and expertise to WSDOT projects and regions.
- Analyze emission data, lead special transportation studies, and manage consultant contracts for special projects including various types of modeling.
- Provide project cost estimation tool and develop models for assessing broader economic impacts of transportation projects and policies.
- Provide guidance in the application of current modeling techniques required by transportation planning, corridor planning, engineering, and performance measurement activities.

The travel demand and economic modeling helps WSDOT and regions make decisions among competing projects during planning stage and analyze future operational characteristics.

**Mandates**
- [23 CFR 450.206(c): 23 USC Sec 505](#)

**Major Milestones and Products**
- Maintain access to travel demand modeling and traffic operational simulation software for WSDOT projects and regions.
- Perform travel demand modeling, dynamic traffic assignment, and traffic operational simulation modeling for traffic forecasting, engineering analyses, corridor studies, and toll projects.
- Maintain software to leverage traffic-flow data and evaluate performance of the transportation system, including ongoing development of the tool’s ability to meet organizational needs.
- Assess statewide, regional, and corridor-level operational performance.
- Support performance reporting and identify capacity deficiencies within the road network.
- Maintain an in-house planning-level cost estimation tool for planning and project support by developing planning-level cost estimates for projects and conceptual alternatives for corridor studies and plans and benefit-cost analyses to assist in selecting projects and/or alternatives that provide the most significant improvements to the transportation network relative to cost.
- Model short- and long-term operational and economic effects of proposed transportation projects and policies.
• Manage research, studies, and projects funded by the Transportation Research Board and FHWA.
• Provide project oversight and assist educational institutions and consultants in writing reports for executive management.
• Serve on committees focused on regional land use and federal transportation-related research.

Ongoing Tasks
• Conduct travel demand modeling and analysis, economic modeling and analysis, and performance analysis to support WSDOT’s planning projects.
  o At present, helping Olympic Region and Northwest Region on multiple Connecting Washington Projects by providing expertise on model assumptions, estimate and review of consultant’s product, etc.
• Conduct travel data analysis and performance calculations to support Corridor Capacity Report and quarterly reports.
  o This work involves quarterly and annual reports. We constantly process data and do analyses.

Summary Revenues and Expenditures

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Contact
Natarajan Janarthanan | Multimodal Planning Division, Transportation Data, GIS and Modeling Office | 360-570-2369
Area 2 | Transportation Data and Planning Stewardship

Subarea 2.1 | Travel Data Collection, Processing, Analysis, and Reporting

**Objective**

In order to meet state and federal planning needs, collect, maintain, analyze, and report motorized vehicle usage data for the state's highway system. Collect bicycle and pedestrian usage data for both roads and trails within the state. Capture and maintain video imagery of the state highway system.

**Mandates**

- [23 USC Sec 119; 23 CFR Parts 420 and 470; 23 USC 505](#)

**Major Milestones and Products**

- Acquire, deploy, and maintain traffic counting hardware and equipment for short-duration counts and permanent installations to capture system usage data such as vehicle volumes, speeds, and weights.
- Process data and apply seasonal, day-of-week, and other factors for annual usage statistics.
- Design and steward internal and external data reporting systems and data transformation and analysis tools to meet departmental needs (such as assigning corridor designations within the state’s Freight and Goods Transportation System).
- Estimate traffic statistics from available data and implement studies involving travel time, origin and destination, vehicle occupancy, etc.
- Calculate interim liquidated damages for construction projects that will close lanes, close shoulders, or interrupt Intelligent Transportation System (ITS) equipment.
- Collect 360-degree imagery of the state highway system every two years. Imagery ties to the department’s roadway geometric database so that information such as speed limit, shoulder width, etc. are also provided. This tool has many uses, such as allowing engineering staff to do preliminary site assessments from their desks.

**Ongoing Tasks**

- Collect travel data using automated and short-duration counters.
- Provide reports to FHWA on a regular basis.
- Collect digital imagery on state routes to provide latest information.
- Support planning projects through special projects and data collection.
Summary Revenues and Expenditures

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Contact

Natarajan Janarthanan | Multimodal Planning Division, Transportation Data, GIS and Modeling Office | 360-570-2369

Subarea 2.2 | Crash Data Collection, Analysis, and Reporting

Objective

Crash data supports the Highway Safety Improvement Program (HSIP), Strategic Highway Safety Plan, planning, research projects and engineering efforts to help identify safety improvements and decrease fatalities and serious injuries on Washington’s roadways.

With input from safety partners, WSDOT collects or derives crash data to maintain the statewide crash database and serves as the authoritative source of crash data for Washington. WSDOT ensures data accuracy, completeness and timeliness by conducting performance measurements and analysis. We provide expert level stewardship, support, and management of WSDOT’s Crash Data Mart and Crash Data Portal while providing technical support and training WSDOT planners, engineers and MPO/RTPO representatives.

WSDOT provides crash data to MPOs/RTPOs, federal and state agencies, state and local engineers as well as fulfilling public disclosure requests received from the public, media, legislature, research institutions and others within the boundaries of RCW 42.56 while ensuring the protection afforded under 23 USC Sections 148 and 409.

A dedicated support team provides project management, application development, and support services to the Transportation Data, GIS and Modeling Office (TDGMO) to coordinate and develop projects with federal, state and local agencies for safety data applications used by the TDGMO, Washington State Patrol, and county engineers to meet the objectives of this section.
Mandates

• 23 USC Sec 112; 23 USC Sec 148; 23 USC Sec 149; 23 USC Sec 402; 23 USC Sec 405; 23 USC Sec 503; 23 USC Sec 517; 23 USC Sec 505

Major Milestones and Products

• Implement a GIS layer that will allow crash data users to associate crashes with a junction (intersection) (July 2020).

• Support the collaborative Map 21 performance measure and target setting model by implementing methods that will allow MPO/RTPO and other local agencies to easily access crash data to perform their business functions, this includes the ability perform analysis at specific corridors and/or locations (September 2019).


• Provide an annual Crash Data Engineering Report (July 2019, July 2020).

• Implement a secured Crash Data Portal to provide crash data to WSDOT regions, MPOs/RTPOs, cities and counties (September 2019).

• Participate on a multi-agency project to modernize and sustain the Statewide Electronic Collision and Ticketing Online Records (SECTOR) application (July 2020).

• State Funds ($50,000) will be passed through to WaTech to support the Justice Information Network Data Exchange (JINDEX), which is responsible for routing electronic ticket and crash reports to all agencies that require the data in order to meet their business obligations (May 2020 and May 2021).

Ongoing Tasks

• Represent WSDOT on the state’s Traffic Records Coordination Committee to ensure the timely and accurate collection and reporting of crash data that supports the Strategic Highway Safety Plan.

• Analyze and process crash reports into the statewide database within 30 days from the date of the crash.

• Provide MPO/RTPO and other local jurisdictions crash data for performance measurements as outlined in 23 USC Section 148.
Summary Revenues and Expenditures

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Contact

Warren Stanley | Multimodal Planning Division, Transportation Data, GIS and Modeling Office - Crash Data and Reporting Branch | 360-570-2497

Subarea 2.3 | Enterprise GIS Services and Roadway Data Collection, Analysis, and Reporting

Objective

Deliver geospatially-based data, applications, and technical services that enable multimodal planning, project development, and maintenance decision-making within WSDOT and the Federal Highway Administration. Maintain roadway network inventory and characterization data as a linear referencing system (LRS) with associated geometric descriptors, functional class, performance characteristics, and safety feature attributes. Compile, analyze, report, and certify key roadway data to meet multiple agency and federal planning business needs and uses.

Mandates

- 23 CFR 490; 23 CFR 470.105; 23 USC Sec 119; 23 USC 505; FHWA HPMS Field Review Guidelines; Heavy Vehicle Travel Information System Field Manual; 23 CFR 658.11

Major Milestones and Products

- Annual products:
  - State Highway Log.
  - GIS Linear Referencing System data set.
  - Highway Performance Monitoring System data sets.
  - Certification of state routes through cities and towns.
  - Certify public roadway mileage.
  - Statewide training on agency GIS software technologies.
Operational roadway data deliverables include:

- Updates to highway sections based on city boundary annexations for use in taxation assessments (February 2020, February 2021).
- Updates to public roadway functional classification and National Highway System designations to FHWA (July 2020, July 2021).

Ongoing Tasks

- Continue update and maintenance of the agency Linear Referencing System and State Route Milepost location data in the system of record (TRIPS) and in GIS formats.
- Staff compile Highway Performance Monitoring System data delivery to FHWA annually.
- Continue certification of state roadway mileages and city streets designated as state highways.
- Verify updates of federal roadway designations for functional class and National Highway System approved by FHWA.
- Ongoing operation of the agency’s GIS Help Desk and GIS training services.
- Continue administration of the agency’s geospatial web portal and coordinate with interagency Washington State Geospatial Program initiatives.
- Support for more than 30 geospatial applications and tools used for transportation planning, project development and maintenance activities is ongoing.
- Operational geospatial services deliver agency GIS Helpdesk assistance, GIS user training, custom application development, enterprise geospatial web service administration, and business analysis, project management, and application development to meet planning and decision-making business needs.

Summary Revenues and Expenditures

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Contact

Elizabeth Lanzer | Multimodal Planning Division, Transportation Data, GIS and Modeling Office -GIS and Roadway Data Branch | 360-596-8925
Subarea 2.4 | Annual Federal Reporting of Vehicle and Financial Statistics

Objective

- Serve the needs of WSDOT and the federal government by completing mandatory federal highway reports. Collect and evaluate state and local revenue and expenditure data for FHWA financial and statistical reports reflecting transportation related activities.
- Collect detailed information from the state’s 39 counties and 280 cities, reflecting their highway-related financial activities. Work with the local agencies to ensure accuracy of data provided and prepare required FHWA report.
- Work with the state auditor, state agencies, and local governmental units furnishing transportation financial information to improve the quality and timeliness of data provided and work to merge out two web based reporting systems into one financial reporting system.
- Use data accumulated in the preparation of required FHWA reports, develop and maintain databases of state and local financial and statistical information for use in legislative requests, transportation studies, and special analyses.
- Study proposed federal legislation to determine the impact to WSDOT on federal funding levels for WSDOT program areas receiving federal funds.
- Provide a quarterly federal funds forecast with information on the federal authorization act and other federal appropriation laws.

Mandates

- 23 CFR 420.105(b)

Major Milestones and Products

- Local financial special reports used by metropolitan and other local planning organizations, cities, counties, educational institutions, state legislative transportation committees, and WSDOT management.
- Federal forecast tables used by state legislative transportation committees, WSDOT management, and local governments.
- FHWA financial reports used by FHWA and various divisions of WSDOT.
  - 531 – State Highway Income
  - 532 – State Highway Expenditures
  - 534 – Highway Expenditures by Functional Class and System
- 536 – Local Finance Report
- 539 – Toll Facility Receipts and Disbursements
- 541 – Transportation Bonds Issued
- 542 – Status of Bond Debt
- 556 – Fuel Tax Receipts
- 561 – Vehicle Registrations and Fees
- 562 – Operator’s Licenses and Fees
- 566 – Vehicle Fees and Distribution
- 571 – Motor Carrier Tax Receipts

- Special economic analyses and reports used by state legislative transportation committees, Transportation Improvement Board, the State Auditor’s Office, County Road Administration Board, local government agencies, and other WSDOT divisions.

**Ongoing Tasks**

- Collection, analysis and reporting of transportation financial data will be maintained.
- Data from Washington’s 39 counties and 280 cities will be processed for the 2019 and 2020 FHWA reports.
- Prepare FHWA reports for state motor fuel tax collections, motor vehicle registrations and fees, state bonding activities, and highway income and expenditures will be prepared on a fiscal year basis for FFY 2019 and FFY 2020.
- Educate local city and county officials on financial transportation reports.
- Support the Transportation Commission benchmark performance measures, transportation planning, legislative analyses, and special studies using data from FHWA reports.
- Participate in national work groups on federal reporting issues and reforms.
- Participate on federal forecast and upcoming federal transportation funding package work groups.
- Produce quarterly forecasts of federal revenue and a breakdown of those revenues by state and local programs.
- Respond to requests for local, state and federal financial and economic data.
Summary Revenues and Expenditures

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Contact
Lizbeth Martin-Mahar | Budget and Financial Analysis Division, Economic Analysis Office | 360-705-7942

Subarea 2.5 | Information Technology Development and Support

Objective
- Provide project management, application development and support for the collection, storage, processing and reporting of Crash, Travel Analysis and Roadway Branch data in support of their federal and state mandates. Improve the security of these systems in accordance with the State Auditor’s Office as well as compliance with the Office of the Chief Information Officer (OCIO) policies and procedures. Upgrade and modernize existing applications as necessary to ensure they are kept current as deficiencies are identified from either a technology or security standpoint.

Mandates
- Work with the state auditor’s office and state chief information office to investigate, validate and document compliance with new and existing policies and procedures as it relates to the acquisition, storage, processing and dissemination of data at the Category 2 and 3 data elements.

Major Milestones and Products
- Implement programming modifications to existing systems to accommodate the new version of the Statewide Police Traffic Collision Report (PTCR).
- Implement programming modifications to existing systems to supply the Highway Safety Information System (HSIS) a more robust XML dataset instead of the existing mainframe database extract.
- Create a new application for a restricted version of the Crash Data Portal for use by Regional Transportation Planning Organizations (RTPOs) and Metropolitan Planning Organizations (MPOs).
• Implement a new application that would allow the Crash Branch to perform Suspense File Processing using a web/server architecture instead of the current mainframe architecture.

**Ongoing Tasks**

• Maintain high availability of the systems required to collect, store, process and report those data elements needed by either the Crash, Travel Analysis or Roadway Branches enabling them to successfully complete their work.

• Work with the Crash Branch as needed to assist in fulfilling highly-complex public disclosure requests.

**Summary Revenues & Expenditures**

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**Contact**

Paul Sullivan | Information Technology Division | 360-705-7619
Area 3 | Statewide Multimodal Plan Implementation

Subarea 3.1 | Statewide Long-range Transportation Planning and Implementation

Objective

Federal regulation (23 CFR 450.216) requires that each state create a “long range” transportation plan – commonly referred to nationally as the long-range plan or LRP – with a minimum 20-year forecast period at the time of adoption that provides for the development and implementation of the multimodal transportation system for the State. The long-range statewide transportation plan shall consider and include, as applicable, elements and connections between public transportation, non-motorized modes, rail, commercial motor vehicle, waterway, and aviation facilities, particularly with respect to intercity travel. The regulation provides additional requirements at the CFR citation above.

In the state of Washington, WSDOT is responsible for developing the LRP. By state law, the Washington Transportation Commission also creates a 20-year plan that looks at the strategic aspects of transportation planning. The Commission’s 20-year plan is referred to as “the Washington Transportation Plan Phase 1,” and the WSDOT LRP is referred to as “Washington Transportation Plan, Phase 2 (WTP Phase 2).” The efforts in this SPR Biennium Work Plan refer only to WSDOT’s WTP Phase 2.

WSDOT adopted its most recent LRP (WTP Phase 2) on April 30, 2018, with an end date of 2040. WSDOT consulted and coordinated with MPOs, RTPOs, ports, transit agencies, federal land management agencies, and the Washington Indian Transportation Policy Advisory Committee during development of the plan. WTP Phase 2 achieves the state policy goals and the federal planning factors through 4 focus areas and 11 action items based on scenario planning exercises. WSDOT is now working on implementing the statewide long-range transportation plan, including carrying out a continuing, cooperative and comprehensive statewide transportation planning process and coordinating planning process activities with MPOs, Tribes, Federal land management agencies, and other transportation stakeholders.

WSDOT will also implement the long range transportation plan through coordinating e, integrating and aligning statewide, modal, and system plans across WSDOT and with the Washington State Transportation Commission. WSDOT develops separate system plans that describe the state’s interests in ferries, state highways, rail, aviation, freight, active transportation, and public transportation. These modal plans are funded by the state or through specific agreements with USDOT agencies. Each modal plan update is an opportunity to implement the long-range statewide transportation plan. Decision
makers rely on the recommendations from modal plans to inform investment decisions supported by data and based on community engagement.

Mandates

- 23 CFR 450.206; 23 CFR 450.208; 23 CFR 450.210; 23 CFR 450.216

Major Milestones and Products

- Consolidate comments from WSDOT region and modal planners on the draft Active Transportation Plan (October 2019).
- Community engagement documentation plan or appendix for the State Rail Plan (July 2019).
- Collect, analyze and interpret data related to highway system preservation, safety and performance in support of a continuing, cooperative and comprehensive statewide transportation planning process – documented in the Highway System Plan (December 2021).

Ongoing Tasks

- Integrate current statewide long-range transportation plan into other WSDOT modal plans including the Active Transportation Plan, the Rail Plan, the Highway System Plan, the Transportation System Management and Operations Plan, and other statewide system and modal plans.
- Coordinate statewide planning process activities with MPOs, tribes, federal land management agencies, and other transportation stakeholders.

Summary Revenues and Expenditures

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Contact

Karena Houser | Multimodal Planning Division, Statewide Planning Office | 360-705-7876
Jeremy Jewkes | Multimodal Planning Division, Statewide Planning Office | 360-705-7508
Subarea 3.2 | Planning Policy Guidance, Training, Tools, and Data

Objective

Work in this area administers tracking and prioritization of training, guidance, data and tools related to transportation planning issues. This work identifies needs in the planning community and prioritizes investments to meet those needs. This involves working closely with partners to identify areas that could benefit from tools, data, guidance or training. This work guides investments in classes, guidance, data, and tools including software and web applications. Identifying needs of state, regional, and local planners helps prioritize investments that improve planning decision making and processes.

Mandates

- 23 CFR 450.208; 23 USC Sec 505; 23 USC Sec 119

Major Milestones and Products

- Compile planning training community list serve (December 2019).
- Identify and prioritize needs regarding training, guidance, technology, data and tools (September 2020)
- Plan and execute statewide planning conference (June 2021).
- Improve meeting participation through technology such as improved remote-access capability (April 2021).
- Publish intranet planning training web page (February 2020).
- Evaluate transportation related data services to supplement existing core data managed by the department (June 2020).

Ongoing Tasks

- Update work plan for the training program.
- Lead regular conference calls with region planners regarding training needs and opportunities.
- Share training information.
- Continue research, organization, coordination, and preparations required for statewide planning conference.
- Evaluate the potential of commercially available data sets to improve planning decisions.
Summary Revenues and Expenditures

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Contact

Bill Bennion | Multimodal Planning Division, Program Administration and Communications Office | 360-705-7968

Subarea 3.3 | Community Engagement Plan

Objective

WSDOT’s federally compliant Community Engagement Plan is an important part of the agency’s emphasis on greater community engagement, inclusion, workforce development, and practical solutions. The plan and its implementation are important milestones in achieving the agency’s inclusion goal. The plan meets federal requirements for a documented public involvement process for statewide planning, and guides how WSDOT engages with partners, stakeholders, Tribes, communities, and the public. It lets people know what to expect from WSDOT during engagement processes.

Mandates

- 23 CFR 450.210; 23 USC Sec 505

Major Milestones and Products

- Adopt Community Engagement Plan (December 2016; Update June 2021).
- Implement Community Engagement Plan through the Inclusion goal of Results WSDOT and our Community Engagement Training Program (Ongoing).
- Provide progress reports under the online inclusion dashboard (Biannually).

Ongoing Tasks

- The Community Engagement Plan was adopted in December 2016 and is currently guiding WSDOT public involvement statewide. The policy is sound but we are examining some outdated
references to our strategic plan, which has been replaced. None of the current content is in conflict with our policy.

- Implementation is underway through the community engagement training program. Approximately 40 trainers statewide hold community engagement classes. In addition to the full-day class, an e-learning and an executive-level half-day class are offered.
- Coordination about outreach is ongoing among the WSDOT Multimodal Planning Division, Environmental Services Office, and Office of Equal Opportunity.
- A community engagement strategy team works to make progress under the WSDOT strategic plan goal of Inclusion. This includes four staff (one HQ, three region) meeting to discuss engagement opportunities, best practices, and how to improve agency engagement policy and practices.

**Summary Revenues and Expenditures**

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**Contact**

Bill Bennion | Multimodal Planning Division, Program Administration and Communications Office | 360-705-7968

**Subarea 3.4 | Cooperative Automated Transportation (CAT) Program**

**Objective**

The WSDOT Cooperative Automated Transportation program develops and advances the agency’s CAT role and strategic vision, with a focus on how new, semi-automated and automated capabilities can advance the state’s multimodal transportation system and enhance the communities we serve. WSDOT envisions a future where automated, connected, electrified, and shared mobility contributes toward a safe and efficient transportation system that emphasizes public transit and active transportation and promotes livable (walkable/bikeable), economically vibrant communities with affordable housing and convenient access to jobs and other activity centers.
**Mandates**
- **23 CFR 450.206** (Scope of the statewide and nonmetropolitan transportation planning process)

**Major Milestones and Products**
- Support state and national efforts working toward implementation of CAT technologies. During the 2019-2021 biennium, the WSDOT CAT program will provide staff level support to the following work groups and association:
  - Governor’s Autonomous Vehicle Work Group.
  - American Association of State Highway and Transportation Officials Cooperative Automated Transportation Coalition.
  - Intelligent Transportation Society of America.

- Develop a CAT policy framework (June 2020).
- Develop project selection criteria and discuss potential funding approaches to enable the selection of near-term pilot deployment proposals and projects. (June 2020)

**Ongoing Tasks**
- Participate in CAT-related forums, conferences, legislative meetings and other engagement and communication opportunities from a technical, research and/or planning level support perspective.
- Pursue sustainable funding to establish capability and capacity to support CAT within the existing agency organizational structure.
- Identify multi-modal deployment opportunities (i.e. mobility on demand applications, micro-mobility options such as automated shuttles and other CAT related shared mobility services).
- (Note: The physical deployments of these projects require internal and external funding commitments that will continue to be identified throughout the biennia.)

**Summary Revenues and Expenditures**

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Subarea 3.5 | Active Transportation Plan Update

Objective
Include data-driven active transportation countermeasures in the Washington State Target Zero Plan. Create a network analysis of pedestrian and bicycle facilities that includes consideration for pedestrian and bicycle level of traffic stress and identify investment needs on the state system and relevant state-interest connections on local systems. Develop resident and stakeholder input to inform planning for active transportation policies, process and future projects. Identify and assess active transportation issues related to emerging technologies (e-bikes, bikeshare, e-scooters, personal delivery vehicles, automation). Incorporate an active transportation focus to the performance measures for ongoing efforts and for the next long range statewide multi-modal transportation planning effort.

Mandates
- 23 CFR 450.206; 23 CFR 450.208; 23 USC Section 148; 23 USC Section 119

Major Milestones and Products
- Pedestrian and bicyclist chapter in the Washington State Strategic Highway Safety Plan (Target Zero).
- Planning maps and data sheets that identify active transportation planned and existing facilities, level of pedestrian and bicyclist traffic stress, gaps in the network and policies to prioritize investments.
- Regional meetings to begin development of ongoing active transportation advisory structures for WSDOT region offices.
- Active Transportation performance measures.
- White paper on implications of emerging technologies for active transportation in Washington.

Ongoing Tasks
- Washington's Strategic Highway Safety Plan (Target Zero) is being implemented and the 2019 update is underway (July 2019).
WSDOT is currently scoping the next long-range statewide multimodal transportation planning effort.

Summary Revenues and Expenditures

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Contact
Barb Chamberlain | Active Transportation Division | 206-716-1130

Subarea 3.6 | Rail, Freight and Ports

Objective
Develop federally required planning studies and engage in emerging activities relevant to the rail, freight and port industries. Improve rail planning and policy through an expanded focus on multimodal connectivity and accessibility for the intercity passenger rail system, integrated modal plan development with other WSDOT divisions, and enhanced external outreach to various stakeholders. Broaden data collection, analysis and reporting of freight data to support planning and decision-making. Participate in initiatives that relate to improving or forming new freight policies, programs and plans in response to changing technologies and priorities; some of which are in infancy or early planning stages.

Mandates
- 23 CFR 450.208; 23 CFR 450.210; 49 CFR 266.15

Major Milestones and Products
- Develop the 2019 Rail System Plan using SPR funds to meet federal requirements by:
  - Coordinate with freight and passenger rail stakeholders and associations, including MPOs, RTPOs, tribes, ports, host railroads, and state agencies.
  - Conduct outreach consistent with the WSDOT Community Engagement Plan.
  - Combine outreach with relevant WSDOT plans and planning processes.
Collaborate with WSDOT divisions to ensure rail plan consistency with the statewide long-range transportation plan’s vision statement and focus areas, including other agency priorities such as Practical Solutions and Multimodal Development and Delivery integration.

- Update the Washington State Freight and Goods Transportation System (FGTS) procedures by performing the following activities using SPR funds:
  - Improve freight data collection and analysis to include urban and rural freight data, first and last mile intermodal connectors within the FGTS classification system.
  - Refine process for collecting multimodal freight data statewide.
  - Refine the communication process of presenting FGTS information to the freight industry, relevant associations and stakeholders, including MPOs, RTPOs and Tribes.

- Engage in the Connected Automated Transportation (CAT) initiatives by:
  - Lead freight-related tasks during policy development, testing, and implementation of truck platooning and other priorities consistent with CAT initiatives.
  - Ensure consistency with freight related plans, policies and requirements.
  - Provide consistent messaging and relevant materials to the broader freight industry, MPOs, RTPOs and tribes.

- Engage in other ongoing freight planning activities:
  - AASHTO Special Committee on freight priorities.
  - WSDOT planning concurrence, planning studies, and Practical Solutions coordination.
  - Great Northern Corridor Coalition, Washington Public Ports Association, Freight Mobility Strategic Investment Board, and other industry related planning engagement.

### Ongoing Tasks

- Washington State Rail Plan update underway; final product expected in the fourth quarter of 2019.
- Freight and Good Transportation System update underway.
- Engagement in Connected Automated Transportation initiatives.
Summary Revenues and Expenditures

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Contact
Jason Beloso | Freight Systems Division, Rail, Freight and Ports Strategic Planning Office | 206-464-1259

Subarea 3.7 | Washington State Ferries Transportation Planning

Objective
The Washington State Ferries 2040 Long-Range Plan is a blueprint for transportation investment for Washington State’s Marine Highway and mass transportation system (RCW 47.60.017). The plan is built around the guidance listed in RCW 47.60.327 and 47.60.375. The plan was developed with extensive public outreach (over 50 meetings) and consultation with advisory groups for technical, policy and executive staff. It was completed in December 2018 and identifies numerous follow-on studies to be addressed in the 2019 – 2021 biennium. These follow on studies will assist in making periodic revisions to the plan to keep it updated more frequently than every ten years.

Washington State Ferries also plans for seasonal service adjustments, including significant data analysis and public participation (RCW 47.60.330).

Mandates
- RCW 47.60.327; RCW 47.60.330; RCW 47.60.375

Major Milestone and Products
- Update joint Operational Efficiency report to the Legislature (RCW 47.60.327) (December 2020).
- Complete ferry terminal parking studies (June 2021).
- Draft mobility on-demand and other “first and last mile” analyses (June 2021).

Ongoing Tasks
- Sailing schedules are adjusted on a quarterly basis.
Summary Revenues and Expenditures

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Contact
Ray Deardorf | WSF Senior Planning Manager | 206-515-3491
Area 4 | Metropolitan and Regional Planning

Subarea 4.1 | MPO/RTPO Program Stewardship and Coordination

Objective

Guide the work of each MPO/RTPO and foster working relationships among all levels of government to ensure compliance with 23 CFR 450 and improve long-range transportation planning practices in Washington. By law, distribute FHWA and Federal Transit Administration (FTA) planning funds to Washington’s 12 MPOs and oversee expenditures to ensure compliance with federal law. Lead the Plan Alignment Work Group, which is a forum of representatives from WSDOT headquarters, regions, and external partners that works to improve data sharing, compliance with federal requirements, and consistency among regional and statewide plans. This work helps ensure that collaboration occurs between MPOs, RTPOs, and WSDOT to develop an integrated multimodal investment strategy. To facilitate this effort, WSDOT will work to ensure that MPOs and RTPOs receive the necessary data, collaboration, and project priorities they need to develop their long-range plans. This way, regional transportation priorities, including those of WSDOT, counties, and local agencies, will be identified in a unified planning process prior to programming and implementation.

Coordinate with tribes, RTPOs and WSDOT Regions on transportation planning activities in order to fulfill WSDOT’s requirements to consult with nonmetropolitan local officials as specified in 23 CFR 450.210. This coordination helps WSDOT make informed decisions about how state transportation investments can bring the intended benefits to the rural and tribal areas throughout the state and ensures that WSDOT is able to connect the statewide perspective to each local context.

Mandates

- 23 USC 134; 49 USC 5303; 23 CFR 420; 23 CFR 450; 49 CFR 613; 23 USC 135; 49 USC 5304

Major Milestones and Products

- Provide annual UPWP Guidance and facilitate UPWP reviews and approvals (December 2019, December 2020).
- Review MPO annual performance and expenditure reports and recommend approval to FHWA/FTA (October 2019, October 2020).
- Ensure each MPO self-certifies compliance with applicable requirements (October 2019, October 2020).
• Review and approve MPO TIPs and process monthly TIP amendments (October 2019, October 2020).

Ongoing Tasks

• Ensure proper agreements are in place with each MPO.
• Meet with MPO/RTPO, FHWA/FTA and WSDOT partners regularly to collaborate on transportation planning issues (e.g. air quality).
• Provide guidance, service and support to MPOs, RTPOs and WSDOT regions.
• Collaborate with federal partners to provide UPWP guidance to the MPOs by December 31 every year for the following state fiscal year. Guidance for SFY 2021 will be to the MPOs by December 31, 2019, and UPWP Guidance for SFY 2022 by December 31, 2020.
• During the spring of 2020 and 2021, schedule and conduct UPWP onsite review meetings for SFY 2021 and SFY 2022 (LCV MPO meetings to take place during the summers).
• Distribute final UPWPs to FHWA/FTA for approval upon receipt after adoption by each MPO policy board. This is required by June 30, 2020 and 2021 (LCV MPO by September 30, 2020 and 2021).
• Distribute the MPO Annual Performance and Expenditure Reports to FHWA/FTA by September 30, 2020 and 2021 (LCV MPO by December 31, 2020 and 2021).
• Approve MPO self-certification forms by October 31 each year.
• Review and approve MPO TIPs for the upcoming 4-year period by November 15, 2020 and 2021.
• MPO TIP Amendments are processed on an ongoing basis each month from January through October.
• Review and update biennial funding agreements with each MPO for SFY 2022-23 to ensure these agreements are in place at the start of the 21-23 biennium.
• Process requests for reimbursement from each MPO.
• Work with each MPO to update agreements specified in 23 CFR 450.314 as needed. Most of the current agreements are on a five-year cycle; timing is specific to each MPO.
• Assist FHWA and FTA in the review and certify each Transportation Management Area (TMA) to ensure compliance with the Congestion Management Process. These certifications are on a four-year cycle, timing is specific to each TMA.
• Organize quarterly coordination meetings with MPOs/RTPOs, FHWA/FTA, and WSDOT each year.
• Lead Plan Alignment Work Group (PAWG).
• Attend MPO Policy Board and Technical Committee meetings as required.
• Attend Air Quality Interagency Consultation Group, International Mobility and Trade Corridor Program, and other regional coordination meetings.
• Assist in development of each Metropolitan/Regional Transportation Plan as they are updated.
• Participate in statewide Tribal Transportation Planning Organization (TTPO) meetings and Tribal Transportation conferences.
• Provide funding support for the TTPO.
• Participate in RTPO Policy Board and Technical Committee meetings.
• Organize WSDOT HQ/Region/Modal Planning Managers coordination meetings.
• Coordinate with tribes and RTPO members planning for improvements to state facilities of local significance.
• Process requests for reimbursement from tribes.

Summary Revenues

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Contact
Gabe Philips | Multimodal Planning Division, Tribal and Regional Planning Office | 360-705-7954

Subarea 4.2 | Metropolitan Planning Funding

Objective
A Metropolitan Planning Organization (MPO) is a federally mandated organization of representatives from local government and transportation agencies in urbanized areas that have 50,000 or more in population. MPOs provide a forum and governing group for local decision-making on transportation issues of a regional nature. The metropolitan planning process promotes consistency between transportation improvements and state and local planned growth and economic development patterns. MPOs cover urbanized areas only and receive federal funding in support of their planning efforts.

State law requires the MPO to be the planning lead agency when its boundaries overlap with an RTPO. Federal rules require WSDOT to provide fiduciary oversight and stewardship for the MPOs. State law
and rules require WSDOT to perform similar functions for RTPOs. When an MPO is acting as lead for an RTPO, it uses non-SPR funding. When it is acting as lead for an MPO, it uses SPR funding. There are 12 MPOs in the state, and 10 of these serve as the RTPO lead agency.

**Mandates**

- [23 CFR 420.109](#)

**Summary Revenues**

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Contact

Gabe Philips | Multimodal Planning Division, Tribal and Regional Planning Office | 360-705-7954
Area 5 | Local, Network, and Corridor Planning

Subarea 5.1 | Land Use and Transportation Planning Integration

Local comprehensive planning for planned growth and economic development patterns is the foundation for all other planning in Washington, including that of WSDOT and the regional and metropolitan organizations (RTPOs and MPOs). As local governments update their comprehensive plans, the state has an opportunity to review these plans to improve consistency with state transportation plans and investment programs.

WSDOT engages with local jurisdictions to ensure that statewide transportation perspectives are considered, distinct from the more regional or urbanized area perspective of RTPOs and MPOs. Collaboration at this level also ensures that WSDOT meets its federal responsibilities to consider and analyze factors in the transportation planning process based on the scale and complexity of “transportation systems development, land use, employment, economic development, human and natural environment, and housing and community development.” [23 CFR 450.206]

Objective

Broaden WSDOT’s understanding, appreciation and use of integrating planning and decision-making for land use, growth, economic development and transportation systems. This, in part, implements WSDOT’s federal planning responsibilities under 23 CFR 450.206. This subarea develops influence on, and involvement with, local and sub-regional transportation and land use decision-making for the state’s transportation systems. This HQ function serves as the lead with WSDOT region planning teams on these topics; and guides WSDOT regions to influence local land use decision making to improve WSDOT’s ability to manage the transportation system that supports social, economic, and environmental goals.

Develop policies and methods applicable throughout WSDOT related to practical solutions, economic development, land use and growth, transportation-efficient communities, multi-modal accessibility and connectivity, climate and energy, and sustainability and resiliency.

- Understand the existing local land use and growth and development context and future vision for the areas our state transportation facilities serve, including supporting the economic vitality, safety, security, accessibility and mobility of people and freight.
- Integrate local and state information to be used in planning for roadways, non-motorized facilities, transit operations, freight, and other transportation modes to identify common problems and solutions.
• Work with communities toward a common understanding of the desired performance, condition, and needs of our shared transportation network and how local land use decision-making may affect the state's transportation system.
• Identify least-cost and practical solutions that support community, economy, and the environment.
• Identify partnership opportunities to align efforts and leverage resources.

Mandates

• 23 CFR 450.206; 23 CFR 450.208; 23 USC 505 (a)(1-3); 23 CFR 450.210; 23 CFR 450.216; 23 CFR 450.220; 23 USC Sec 505

Major Milestones and Products

• Update and maintain Transportation Efficient Communities website content (on-going as needed).
• Co-host planning short courses or other related workshops with Washington State Department of Commerce (as available and requested).
• Support increased understanding of land use and transportation challenges and solutions with local jurisdictions, RTPOs and MPOs, and WSDOT Regions.
• Create quarterly reports of enhanced collaboration work with jurisdictions and areas updating or revising land use decisions.
• Provide data and analysis via the WSDOT Community Planning Portal Fact Sheet, Quick Start Guide, and webpage; WSDOT Online Map Center, and custom reports on collision, travel, and roadway data on request). Coordinate additional datasets to be included in the Community Planning Portal.
• Develop a set of incentives for encouraging increased consideration of state transportation facilities during local land use and transportation planning (Spring 2020).
• Provide technical assistance and shared planning recommendations, data, tools, and other resources (e.g., access management, bicycle and pedestrian planning, transportation demand management, aviation, freight, signage). (Resource: WSDOT Local Planning Resources).
• Develop tools and resources to assist in the update process: Growth Management Act (GMA) Comprehensive Plan Resources.
• Collaborate with WSDOT Region Planners and RTPOs on recommendations and potential legislation deriving from the Ruckelshaus study on growth management planning (Fall 2019-Spring 2020).
• Provide assistance to senior leaders, as needed, such as legislative requests or legislation development.

Ongoing Tasks

• Comprehensive plan review work group. Support enhanced collaboration efforts with local governments through the comprehensive plan review workgroup.
• Joint Transportation Efficient Communities efforts with Washington State Departments of Health, Commerce, and Ecology.
• Coordinate with modal and specialty offices to review comprehensive plans, as needed.
• Provide oversight and direction for the maintenance of specialized GIS tools for analysis and visualization to support decision-making (Community Planning Portal).
• Participate in updates of comprehensive plans and associated documentation, as requested.
• Assist in the development of regional plans to ensure consistency among jurisdictions and between state, regional, and local plans.
• Participate in discussions with local transportation advocacy groups.

Summary Revenues and Expenditures

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Contact

Elizabeth Robbins | Multimodal Planning Division, Community Collaboration and Network Planning Office | 360-705-7371
Subarea 5.2 | Transportation Planning Studies

Objective

Produce planning studies that implement WSDOT’s integrated scoping process and provide decision makers with multimodal recommendations that reflect Practical Solutions. The studies will be conducted, reviewed, and approved through the concurrence process recently adopted by WSDOT and its regional partners. Planning studies will mainly be led by the regions with WSDOT HQ acting as liaison between the regions and HQ subject matter experts; who will provide review and input to the regions on their respective studies.

The studies will align with statewide and regional goals and priorities, funding recommendations, and customer input that identify and prioritize investments and other actions in the state’s transportation system. Planning Studies will build upon the corridor sketch initiatives that were supported and funded by the Washington State Legislature, or initiated by a WSDOT region.

Planning studies will have extensive community engagement through stakeholder and public outreach; coordinating with the MPO/RTPOs, tribes, transit agencies, and other inter-jurisdictional entities as deemed appropriate by the region conducting the planning study. MPD staff will participate in each region’s local stakeholders’ group; and as needed or requested by a region to assist in public outreach activities.

Mandates

- 23 CFR 450.206; 23 CFR 450.208; 23 CFR 450.210

Major Milestones and Products

- Coordinate regions’ presentations to the multimodal, multidisciplinary (M2) Team. These presentations are ongoing and are scheduled as needed.
- Attend regions’ multimodal, multidisciplinary, multijurisdictional (M3) Team meetings.
- Provide review and input on regions’ planning studies products.
- Provide input to the state’s highway system plan/integrated scoping process.
- Regions have conducted stakeholder and public outreach/surveys for their planning studies.
- Present to the WSDOT Practical Solutions Roundtable (ongoing – dates TBD).
- Prepare for any new studies required by legislative budget provisos (3rd Quarter 2019).
• Coordinate with Regions to develop a common approach to identifying and prioritizing new planning studies. Continue development and testing of Planning Studies (1st and 2nd quarters 2020).

• Assessment of trial period of concurrence process and implementation of steps 0-4 of the integrated scoping process (July 2019).

• One-year trial period for planning studies concurrence ends (September 2019).

• Lead assessment of Concurrence Pilot Process with HQ and Regions. Document recommendations for adjustments to the Concurrence Pilot process. Coordinate with MPD director and Region planning managers for agreement and implementation of recommended changes. (3rd and 4th quarters of 2019).

• Develop scope of work for development of a Planning Studies recommendations tracking tool. (3rd and 4th quarters of 2019).

• Update the 2007 Planning Studies Guidelines; developing scope of work, outreach, and coordination with multiple parties (1st quarter 2020 through second quarter 2021).

• Work with Regions to develop a common approach to identifying and prioritizing new planning studies (1st quarter 2020 through second quarter 2020).

• Continue development and testing of Planning Studies and planning studies tracking tool (1st quarter 2020 through fourth quarter 2021).

**Ongoing Tasks**

• The MPD designated liaison will continue to be the primary point of contact for the regions and headquarters regarding all planning studies and to coordinate HQ support and input.

• HQ M2 Team: Standing group of WSDOT technical experts from HQ. The M2 Team provides feedback through the MPD liaison on the regions’ planning studies products; regions give in-person presentations to the M2 Team. The M2 Team addresses internal multidisciplinary concerns to ensure an expedited concurrence and endorsement of the planning study by the MPD director and appropriate regional administrator.

• External M3 Teams: Each region convenes a group or groups of multiagency and multidisciplinary teams to provide feedback on planning studies products. These teams coordinate with region partners, conduct outreach to the public, and reach agreement on final recommendations. WSDOT HQ participates in these meetings.
Summary Revenues and Expenditures

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Contact

Richard Warren | Multimodal Planning Division, Community Collaboration and Network Planning Office | 206-464-1283

Subarea 5.3 | WSDOT Regional Planning

Objective

Each WSDOT Region has four primary work areas within its transportation planning directives and funding:

- Enhanced collaboration with local governments to promote greater consideration of the state’s transportation systems and assets during local land use planning and decision-making.
- Planning studies at the corridor and sub-area level to provide a performance-based analytical approached to this level of transportation planning and to incorporate and/or pilot methods and initiatives.
- MPO/RTPO coordination, support, and assistance to promote greater consideration of the state’s transportation system and assets among the perspectives during planning at metropolitan and regional levels, especially during updates to MPO and RTPO plans or MPO/RTPO-led planning.
- Participation, as needed, in Headquarters-led statewide planning initiatives, such as statewide multimodal transportation plan updates, specific modal or policy issue plan updates, and similar statewide efforts.

In the central Puget Sound region, there is an emphasis on the Interstate System, the regional HOV system, and coordination to ensure an efficient and equitable regional multimodal transportation system. This builds on the I-5 System Partnership work in 2018 and the adopted regional plans in the central Puget Sound that address the planning factors in federal rule and 23 CFR 450.206.
The work in the central Puget Sound involves managing a legislative proviso for the SR 167 Master Plan Update, pursuing grant funding in order to conducting scenario planning for the I-5 system and regional HOV system, supporting the implementation and monitoring of near-term solutions for the I-5 system adopted as part of the I-5 Near-Term Action Agenda completed in 2018, reviewing countywide and local plans, and coordinating with regional planning efforts conducted by the Puget Sound Regional Council, Thurston Regional Council, and other key regional and local agencies.

**Mandates**

- 23 CFR 450.206; 23 CFR 450.208; 23 CFR 450.210

**Major Milestone and Products**

- Reporting on the above items.
- Production of planning studies.
- SR 167 Master Plan Update (June 2021).
  - Manage consultant selection and project delivery.
  - Manage inter-agency coordination and outreach.
  - Oversee and coordinate scope development and implementation.
- I-5 Scenario Planning (June 2021).
  - Pursuing grant opportunities such as the BUILD grant in order to implement this work item.
  - Manage a consultant-led scenario development and analysis process.
  - Manage scenario planning executive leadership and technical committees.
  - Conduct stakeholder engagement/outreach and planning.

**Ongoing Tasks**

- I-5 Near-Term Action Agenda.
  - Research project funding opportunities and partnerships to implement the near-term practical solutions projects adopted through the 2018 planning process.
  - Provide advanced coordination with project/agency partners.
  - Monitor the progress and performance of projects.
- Plan Review.
WSDOT State Planning and Research Work Program | 2019-2021 Biennium

- Review population and employment growth targets that drive local comprehensive plans and the distribution of growth in the region.
- Review updates to local comprehensive plan amendments and coordinate among WSDOT departments.
- Draft comment letters addressing countywide and local planning.

Regional Planning and Coordination.

- Explore opportunities to improve HOV performance in close coordination with transit agency and local government partners.
- Represent WSDOT at the Puget Sound Regional Council, including the Growth Management Policy Board, the Regional Staff Committee, the Regional Project Evaluation Committee, as well as the various countywide level forums.

Building on the State Facilities Action Plan and work completed under the I-5 System Partnership in 2018, complete the first phase of scenario planning that considers how best to address the current and anticipated challenges facing the I-5 system and HOV system from 107 miles stretch of I-5 from Tumwater to Marysville.

Building on the planning conducted in 2018 under the I-5 Near-Term Action Agenda, support implementation and monitoring of the near-term practical solutions projects.

Review and provide input into the countywide population and employment growth targets and local comprehensive plan resulting from the adoption of the Puget Sound Regional Council’s VISION 2050, ensuring planning throughout the central Puget Sound supports integrated, multimodal travel options. These updates will begin in late 2020.

Coordinate with regional plans and planning processes, including PSRC’s VISION 2050 and its 2020 Project Selection Policy Framework, as a key input into successful system-wide planning and implementation. This will include participation in the development and adoption of VISION 2050, scoping of the next regional transportation plan, and adoption of the Policy Framework for the 2020 Project Selection Process.

Summary Revenues

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Contact

Elizabeth Robbins | Multimodal Planning Division, Community Collaboration and Network Planning Office | 360-705-7371
Richard Warren | Multimodal Planning Division, Community Collaboration and Network Planning Office | 206-464-1283
Jeff Storrar | Management of Mobility Division, Systemwide Planning Office | 206-716-1152
Area 6 | Economic and Financial Planning

Subarea 6.1 | Financial Planning

Objective

To serve the needs of WSDOT and other state and local agencies by developing financial plans for transportation accounts, support debt issuances to fund capital projects and toll financing. This includes supporting the Office of the State Treasurer (OST) to issue debt and work with OST, toll division, capital programs, and mega projects to ensure the department is in compliance with federal IRS regulations, Bond Resolutions, and the TIFIA Loan. Financial planning is also responsible for maintaining financial plans and cash balances for transportation accounts. Additionally, financial planning develops and updates financial models used to analyze various transportation revenue sources and uses.

Mandates

- State law requires OFM and state agencies in support of this mission to create and publish quarterly transportation revenues and expenditures in order to establish statewide budgets and financial plans by the Governor’s Office and the Legislature.
- The department is required to manage cash balances for approximately 50 different accounts to ensure it is compliant with RCW 43.88.050 and RCW 43.88.260.
- The department is required to follow federal bond compliance laws for transportation debt.

Major Milestones and Products

- Support the Office of the State Treasurer (OST) to issue debt and work with OST, toll division, capital programs, and mega projects to ensure the department is in compliance with federal IRS regulations, Bond Resolutions, and the TIFIA Loan.
- Develop 10-Year biennial financial plans; utilized by: Department of Licensing, Department of Revenue, Office of the State Treasurer, State Legislative Transportation Committees, Office of Financial Management, Transportation Improvement Board, County Road Administration Board, local government agencies, and other WSDOT divisions.
- Develop monthly financial plans; utilized by: Office of Financial Management, Office of the State Treasurer, and WSDOT Program Managers.
- Develop publications and presentations; utilized by local, state and federal agencies and the public.
• Upload revenue forecast and fund balance to The Executive Information System (TEIS); utilized by: Office of Financial Management, State Legislative, Transportation Committees, and other state agencies.

• Develop special financial analyses and reports; utilized by the Office of the Governor, Office of Financial Management, WSDOT Executive Management, Office of the State Treasurer, State Legislative Transportation Committees, Washington State Transportation Commission, Tacoma Narrows Bridge Citizen Advisory Committee, Counties, Cities, Transit Agencies.

• Support legislative analyses and fiscal notes; utilized by the Office of Financial Management, WSDOT Executive Management, Department of Licensing, State Legislative Transportation Committees.

Ongoing Tasks

• Provide financial planning to support the development and implementation of the state transportation budget, including the planning for long-term debt issuance and tolling.

• Analyze and recommend the size of bond sales and developed related official statements and rating agency presentations.

• Monitor and analyze the agency’s cash flow requirements.

• Responsible for compliance with the Master Bond Resolutions, certificates, and federal loan agreements.

• Prepared Official Statements for the sale of general obligation bonds, various purpose general obligation bonds, and bonds sold for SR 520 Floating Bridge and Eastside Project.

• Ensure compliance with Internal Revenue Service (IRS) regulations as they relate to the assignment and use of bond proceeds.

• Maintain the financial plans for transportation accounts as a tool for cash management.

• Develop new enterprise-wide financial planning system.

• Manage debt service payments for outstanding bond issues.

• Prepare presentation materials for the Secretary of Transportation.

• Support in developing Federal Financial plans.

• Analyze cash flow plans for projects and provide recommendations.

• Production of Fuel taxes: A State-by-State Comparison and assist in development of the Gray Notebook.

• Forecast WSDOT business revenues on a quarterly basis.

• Monitor monthly tax collections.
- Support in analyzing toll-rate setting and other tolling issues.
- Analyze state and national fee revenue issues to assess the impacts on transportation policies, plans, and programs.

**Summary Revenues & Expenditures**

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**Contact**

Nguyen Dang | Budget and Financial Analysis, Financial Planning Office | 360-705-7512

**Subarea 6.2 | Economic Forecasting and Analysis**

**Objective**

Serve the needs of WSDOT and other state and local agencies by producing unbiased economic and revenue forecasts for transportation. Maintain databases and evaluate economic and demographic factors impacting transportation revenues to communicate the importance of transportation in our state and local economies. Develop and update econometric models used to forecast various transportation revenue sources to have as accurate a forecast for budgeting and long range planning as possible. Interact with all agencies interested in transportation revenues and support economic and financial studies. Analyze state and national economic activities, policies, laws and forecasts to assess impacts on transportation policies, plans, and programs. Evaluate proposed state and federal legislative and financing alternatives for all modes of transportation.

**Mandates**

- Not applicable.

**Major Milestones and Products**

- Quarterly Transportation Revenue Forecast Council documents (Volumes I-III and twice a year Volume IV).
- Cash Flow Forecast.
• Monthly cash flow analyses: fuel revenue, fuel revenue distribution, vehicle fees and distribution.
• Special economic analyses and reports.
• Legislative analyses and fiscal notes.
• Quarterly Fuel and Vehicle Trends Reports.

**Ongoing Tasks**

• Quarterly long-term forecasts and monthly cash flow forecasts of transportation revenues.
  
  o Motor fuel taxes.
  o License, permits, and fees.
  o Federal funds.
  o Fuel prices and other economic variables.

• Forecast fuel prices and highway construction cost indices quarterly for setting budgets.
• Quarterly forecast summary report and detailed tables describing the forecast, and make presentations.
• Quarterly fuel price and vehicle trends reports.
• Annual vehicle miles traveled long-term forecasts.
• Bi-monthly Vehicle Hybrid Report.
• Update econometric models used in forecasting.
• Complete fiscal notes and bill analysis for legislative transportation revenue proposed changes.
• Local government long-term forecasting guidelines document to assist local government with best “practices” for creating long-term forecasts and financial plans.
• Analyze new federal and state legislation and new revenue proposals.
• WSDOT-ESD data sharing agreement of employment data.
• Economic Impact Analysis of Selected Transportation Projects.
• REMI-Transight contract maintenance for economic impact analysis software (update annually).
• Update a technical work group to review the Connecting Washington transportation projects for economic impact analysis.
• Supervise staff members on utilizing the Washington state REMI-Transight economic impact model for Washington state transportation.
• Supervise WSDOT staff on highway system HERS-ST software.
• Coordinate the results from various economic impact analysis and prepare summary reports on economic impacts.
Summary Revenues and Expenditures

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Contact
Lizbeth Martin-Mahar | Budget and Financial Analysis Division, Economic Analysis Office | 360-705-7942

Subarea 6.3 | Grant Research and Applications

Objective
Research, track, prioritize, apply for and share transportation related grant opportunities to bolster funding and pursue the WSDOT and multimodal planning division missions.

Mandates
- 23 CFR 420; 23 USC Sec 505; FAST Act § 1202; 23 U.S.C. 135

Major Milestones and Products
- Identify, catalog, and track available grant opportunities (April 2020).
- Plan for, and prioritize grant opportunities (October 2020).
- Apply for and track grant opportunities (November 2019).
- Share opportunities that may be relevant to other areas of WSDOT (Ongoing, beginning around November 2019).

Ongoing Tasks
- Regularly research, collect, and coordinate information about grants that are available for planning activates at WSDOT or MPOs/RTPOs.
- Make recommendations regarding which planning grants should be pursued by WSDOT or other partners.
- Continue to prepare pertinent grant applications and collect all the necessary documents required for a successful grant application.
- Track progress on completing planning activities funded by grant funding.
• Complete any necessary reports or documentation regarding completed activities.

Summary Revenues and Expenditures

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Contact

Bill Bennion | Multimodal Planning Division, Program Administration and Communications Office | 360-705-7968
Area 7 | Prioritization and Programming

Subarea 7.1 | Prioritization and Programming of Capital Improvement Projects (State Highway Performance Program)

Objective

The Prioritization and Programming of Capital Improvement Projects implements RCW 47.05 (Priority Programming for Highway Development). This aligns with the state transportation policy goals listed in RCW 47.04.280 (Economic Vitality, Preservation, Safety, Mobility, Environment, and Stewardship) as the RCW states: “The priority programming system must ensure preservation of the existing state highway system, relieve congestion, provide mobility for people and goods, support the state’s economy, and promote environmental protection and energy conservation.” These RCWs also align with 23 U.S. Code § 150 National goals and performance management measures, as it uses performance-based planning and decision making considering the seven national goals (Safety, Infrastructure Condition, Congestion Reduction, System Reliability, Freight Movement and Economic Vitality, Environmental Sustainability, and Reduced Delivery Delays).

The primary deliverable is an annual Project Delivery Plan. This plan meets the Federal Highway Administration's requirement for states to program four years of projects in the State Transportation Improvement Program (STIP) and includes all projects funded by the State Legislature. The plan is updated annually to ensure that budget changes on projects match up with enacted budgets.

Mandates

- 23 USC Sec 119; 23 USC Sec 148

Major Milestones and Products

- Develop and publish the 2020 Project Delivery Plan (July 2020).
- Develop and publish the 2021 Project Delivery Plan (July 2021).

Ongoing Tasks

- Continue to expand the use of geospatial analysis and presentation of existing and future processes, including expansion of existing map library.
- Implement an asset management process for state highway features consistent with FHWA’s final rules on asset management and update or coordinate changes to meet established performance objectives.
• Develop criteria and a model that prioritize WSDOT’s capital assets.
• Continue to work with the Traffic Office, Development Division and Transportation Safety, Quality, and Enterprise Risk and the Washington State Traffic Safety Commission on implementing “Target Zero,” which is in 23 USC Sec 148.
• Update WSDOT project scoping and program management manuals.
• Continue to evaluate and implement a series of project performance estimates based on specific investment scenarios.
• Work with the Environmental Services Office to refine and implement the department’s fish barrier program. This includes working with all programs to consider addressing fish barriers in the context of other transportation improvement work.
• Further develop and refine processes for robust project scenario analysis given differing funding and revenue assumptions.
• Develop a ten-year plan for retrofitting existing impervious roadway surfaces for storm water treatment. Primary emphasis will be placed on urbanizing areas in the Puget Sound.
• Work with the Development Division to update and refine Scoping Instructions to make the transition to and design phase of projects more efficient.

Summary Revenues and Expenditures

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Contact

Jay Alexander | Capital Program Development and Management Division | 360-705-7121
Area 8 | Statewide Transportation Improvement Program (STIP)

Subarea 8.1 | WSDOT’s Local Programs Division

Objective

WSDOT’s Local Programs (LP) Division develops and manages the Statewide Transportation Improvement Program (STIP). The STIP is a four-year, fiscally constrained, prioritized multimodal transportation program of regionally significant state, local, tribal, and public transportation (transit) projects, which includes highways, streets, roads, rail roads, transit-hubs, park-and-ride lots, bridges, sidewalks, bike lanes, ferry terminals, trails and safety projects funded with federal, state, tribal and local sources.

The STIP is compiled from local, metropolitan and regional transportation improvement programs (TIPs); projects are identified through state, metropolitan, regional, tribal and local planning processes. These projects are the highest priority for the available funding, to preserve and improve the state’s transportation network and achieving the national goals established in the Moving Ahead for Progress in the 21st Century Act (MAP-21) and continued in the Fixing America’s Surface Transportation Act (FAST).

Projects in the STIP are organized in alphabetical order by MPO/RTPO and lead agency and are shown in a standardized format (Appendix E: STIP Format and Project Listing). Project information such as project phases including design (PE – preliminary engineering including environmental), planning activities only (PL), right of way (RW) and construction (CN) surface transportation projects and public transportation capital and operating projects.

Projects listed in the STIP are the only projects that can be authorized by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) to utilize federal funds. Once projects are approved in the STIP, agencies may request federal fund authorization of the project. STIP programming generally occurs every year.

Finally, WSDOT must certify that the transportation planning process is addressing the major issues facing the state and its non-urbanized areas and is being conducted in accordance with all applicable requirements.

Mandates

- 23 CFR 450.218
Major Milestones and Products

- Develop, prepare and submit the 2019-2022 and 2020-2023 STIP to FHWA and FTA for approval.
- After federal approval, continue to provide public access via the web: http://www.wsdot.wa.gov/LocalPrograms/ProgramMgmt/STIP.htm.

Ongoing Tasks

- Continue to work with FHWA, FTA, MPOs, RTPOs, and other partners in meeting the federal STIP requirements (fiscal constraint by year).
- Develop monthly amendments for the STIP as applicable throughout this timeframe.
- Provide annual training, best practices and on-call training for the web-based STIP.
- Continue to review and update the public involvement process, as applicable.
- Continue to review, engage and coordinate on the research and proposals for inclusion of performance measures, as applicable.
- Provide on-call assistance and troubleshooting as issues arise with the program for all users.

Summary Revenues and Expenditures*

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*Funded through other sources

Contact

Stephanie Tax | Local Programs Division, Program Management Office | 360-705-7389
Area 9 | Management and Administration

Subarea 9.1 | Program Management

Objective

The management and administration section of the SPR covers planning functions for the Assistant Secretary's Office, Multimodal Planning Division (MPD) and Budget Support Office.

The Assistant Secretary's Office will provide for policy formulation and executive administration. Cost incurred to this item are salaries, benefits, travel expenses, materials, supplies, and other expense of the Assistant Secretary, executive assistant and administrative assistant.

MPD will provide for policy formulation and executive administration of itself. It performs policy, technical, and fiduciary oversight of planning activities. Additional management and support activities include budget development and monitoring assistance, and financial systems services for the MPD. Costs incurred to this item include salaries, benefits, travel expenses, materials, supplies, and other expenses of the director and administrative assistant. Also included are funds to support Transportation Data and GIS Office Management and Administration.

The Budget Support Office prepares and manages a transportation planning and research program plan, which optimizes available revenue. This work provides support to the Planning Division and the Office of Research and Library Services in program development, accounting and financial management, budget support, work orders, contracts and agreements.

Mandates

- [23 CFR Part 420; 23 CFR Part 420.113]

Major Milestone and Products

- Practical Solutions Development.
- 19-21 Planning Budget (Program T in state transportation budget) and SPR Work program monitoring.
- 21-23 Planning Budget (Program T in state transportation budget) and SPR Work Program development.
- Staff communications and workforce development.
Ongoing Tasks

- Practical Solutions is one of three goals for WSDOT’s Strategic Plan. Under the Assistant Secretary’s direction, five strategies and associated work plans were developed in 2019, and will be implemented during the 19-21 biennium.
- Address emergent Practical Solutions initiatives and planning data needs that may be identified during the biennium.
- Program T Budget and SPR work program monitoring begins with the new biennium and is addressed periodically throughout the two-year period. Development of the budget and SPR work program for the 2021-2023 biennium will likely begin in Fall 2022 and will be completed at the close of State Fiscal Year 2021.

Summary Revenues

<table>
<thead>
<tr>
<th>Federal</th>
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</table>

Contact

Kerri Woehler | Multimodal Planning Division | 360-705-7958

Subarea 9.2 | Program Administration

Objective

This core function within the Multimodal Planning Division (MPD) administers the state transportation planning, data and research budget (Program T), planning budget, reports on budget status, tracks and manages multiple budget work orders, and assists with over and under running budgets. In addition, the program administration function helps identify, track, and prioritize needs related to training, guidance, data and tools for the planning discipline. This subarea also develops the state planning and research work program (SPR) to support a transportation system that enhances quality of life and economic vitality.

Mandates

- 23 CFR 420; 23 USC Sec 505; FAST Act § 1202; 23 U.S.C. 135; 23 CFR Chapter I, Subchapter E
Major Milestone and Products

- Identify and assign work orders to all Program T Fund recipients. (June/July 2019)
- Track and report on work order status. (December 2019)
- Manage budget change requests and over/under runs. (Ongoing, June 2021)
- Define the policy direction for the SPR work program and identify priorities for activities. (December 2020)
- Meet federal requirements for the implementation of a comprehensive, cooperative, and continuing (3C) planning process to ensure continued eligibility for federal transportation funds. (July 2019)
- Close 2017-2019 budget. (June 2019)
- Assign work orders to each SPR subarea. (July 2019)
- Collaborate with 20 offices to compile SPR reports into one document. (January – June 2021)
- Submit the SPR for approval by our federal partners. (June 2021)

Ongoing Tasks

- Track progress on activities identified in the SPR and insure alignment with available budget.
- Coordinate with Capital Program Development and Management office to ensure that work orders are assigned to each SPR subarea. Administer planning training, guidance, data, tools and resources.
- Continue to identify and prioritize all guidance, data, tools and resources required for various activities in the planning program. A work plan will be developed by December 2019.
- Continue to coordinate and provide quarterly update to FHWA.

Summary Revenues

<table>
<thead>
<tr>
<th>Federal</th>
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</table>

Contact

Faris Al-Memar | Multimodal Planning Division, Program Administration and Communications Office | 360-705-7956
Subarea 9.3 | Goldsmith Lease and Administrative Support

Objective
This core function pays for share of expenses associated with leasing office space at the Goldsmith building in Seattle. The space will be shared by MPD, Active Transportation, UMA, and other WSDOT offices. Additionally, this subarea covers the costs associated with providing administrative support to the above offices.

Mandates
- 23 CFR 420

Major Milestone and Products
- On-time lease payments

Ongoing Tasks
- Provide ongoing administrative support.

Summary Revenues

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Contact
Faris Al-Memar | Multimodal Planning Division, Program Administration and Communications Office | 360-705-7956
Part 2: Research

The WSDOT office of Research and Library Services (RLS) develops and manages innovative, specialized research studies to produce information to help inform strategic decisions, adapt new smart technologies, and create better products and work practices. The transportation library provides accurate, curated information for agency employees and the public. Librarians utilize a global network of resources to share information that supports technology transfer, educates, and addresses customer inquiries.

Consistent with WSDOT’s Community Engagement Plan, staff solicit and document feedback that provides clarification, transparency, accountability, and supports the linkage between planning and programming.

RLS partners with universities, national and regional transportation institutions, federal, state, and local agencies, and private companies to conduct research with experts. The studies produced by these researchers identify solutions and recommendations that help WSDOT plan, construct, and operate a vast multimodal transportation system.

RLS aligns transportation research funding strategically to maximize resources by sharing costs and information with federal, state, and local agencies with similar research needs. In addition to the SPR funded projects described in this work program, other research programs are also funded. WSDOT leads seven Transportation Pooled Fund (TPF) projects involving 30 other state transportation agencies and participates in 25 additional TPF projects.

Quick Response (QR) projects address emerging issues that require research support. Student research studies create opportunities by pairing college students seeking experience in the transportation field with limited research inquiries. Funds and in-kind resources also are used to provide matching requirements for research led by the three university transportation centers in our geographic region. The Washington Transportation Center (TRAC) is supported by a partnership with WSDOT, University of Washington, and Washington State University to link research needs with the knowledge and technologies at the universities.
Research Connections to Federal Planning Factors and Statewide Transportation System Goals

<table>
<thead>
<tr>
<th>Federal Planning Factors</th>
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<tbody>
<tr>
<td>Support the economic vitality of the United States, the states, non-metropolitan areas,</td>
<td>x</td>
</tr>
<tr>
<td>metropolitan areas, especially by enabling global competitiveness, productivity, and</td>
<td></td>
</tr>
<tr>
<td>efficiency.</td>
<td></td>
</tr>
<tr>
<td>Increase the safety of the transportation system for motorized and non-motorized users.</td>
<td>x</td>
</tr>
<tr>
<td>Increase the security of the transportation system for motorized and non-motorized users.</td>
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<tr>
<td>Increase accessibility and mobility of people and freight.</td>
<td>x</td>
</tr>
<tr>
<td>Protect and enhance the environment, promote energy conservation, improve the quality of</td>
<td>x</td>
</tr>
<tr>
<td>life, and promote consistency between transportation improvements and state and local</td>
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</tr>
<tr>
<td>planned growth and economic development patterns.</td>
<td></td>
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<tr>
<td>Enhance the integration and connectivity of the transportation system, across and</td>
<td>x</td>
</tr>
<tr>
<td>between modes, throughout the State, for people and freight.</td>
<td></td>
</tr>
<tr>
<td>Promote efficient system management and operation.</td>
<td>x</td>
</tr>
<tr>
<td>Emphasize the preservation of the existing transportation system.</td>
<td>x</td>
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<table>
<thead>
<tr>
<th>Strategic Plan Values</th>
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<tr>
<td>Innovation</td>
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Mandates:
- **23 USC 505**

Estimated Costs for Research

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</table>

Contact

Anne Freeman | Research and Library Services | 360-705-7945
Area 1 | Program and Research Management

The research project selection for 2019-21 started with seven workshops during the summer of 2018 with over 130 participants from various transportation disciplines and experts from four universities. RLS evaluated 33 research problem statements totaling $5.2 million and rated each against criteria established in the solicitation. Eleven projects were approved for funding totaling $2,106,327 for the 2019-21 biennium beginning July 1, 2019. An additional three projects were selected for $380,000 in funding beginning July 1, 2020, if additional funding is available.

Proposed Research and Library Activities

- Increase resources for research, library, and technology/knowledge transfer activities by exploring NCHRP, SHRP 2, AID, EDC, and STIC and other funding opportunities.
- Efficiently execute with full compliance all agreements, contracts, task orders and other administrative requirements in the conduct of research and library services.
- Administer research funding for ongoing and new SPR projects. Evaluate project requests for QR funding and assess match fund requests from university transportation centers.
- Continue support for client-sponsored research through contracting, study design and knowledge transfer activities.
- Participate in peer exchanges with other states to broaden range of options for modernizing research and library services.
- Recruit college students to perform limited research studies to gain transportation-related experience to enhance job opportunities and perform research that is unfunded across various transportation programs.
- Participate in the State Transportation Innovation Council (STIC) to seek ideas and innovative solutions to explore and share with other jurisdictions.
- Continue to develop and deploy technology and knowledge transfer activities to ensure implementation of research results and accessibility of information by a diverse users.
- Per the Library’s 2017 five-year strategic plan, continue to provide and improve library services and research assistance to customers, including distribution of WSDOT research reports.
- Develop and implement a research communication program that targets audiences using diverse methods, including internet, webinars, training, events, electronic documents, and print media.
- Continue to review and update WSDOT Research Manual as needed.
- Certify the SPR Research Program.
Area 2 | Research Projects

Completed SPR Projects and Outcomes FY 2017-2019 Biennium (by June 30, 2019)

**Design Guidance and Long-Term Monitoring of Flow Deflection Structures | $125,000**

This Phase II work will field test the instrumentation that generates data for the development of design guidelines for flow deflection structures.

**Assessment of Lube Oil Management and Self-Cleaning Oil Filter Feasibility in WSF Vessels | $120,000**

A new oil management system will be deployed and evaluated on Washington State Ferries (WSF) vessels. A cost benefit analysis will determine whether to switch to the new methods.

**Shear Design Expressions for CFT and RCFT Bridge Components | $250,000**

The research objective is to develop design models to predict the shear resistance of CFT and RCFT members. It is expected that there will be different expressions for the elastic and inelastic behaviors, as well as different locations in the member. Results will be in a format that can easily be adopted into the Bridge Design Manual as well as the AASHTO LRFD specifications.

**Project Inspection Using Mobile Technology – Phase II | $300,000**

Phase II of the research effort will evaluate the benefits of transitioning job and documentation functions that are performed by a project inspector to a mobile device data platform. The research will develop appropriate tools and methodologies to capture additional field data elements (Field Note Records, Pay Items, and Force Account) using the data collection platform developed during Phase I. Based on findings from Phase I, WSDOT inspectors are wasting over $400,000 per month in lost productivity that could be prevented with broader usage of mobile applications.

**Maintenance of WSDOT/UW Travel Weather Information System | $128,000**

This research project provides the system software and hardware for the University of Washington to provide travel weather information for over 60,000 computer hits per day.
Use of Electronic Fare Transaction Data for Transportation Planning and Travel Demand Management | $225,000

This research project will use data analytics on electronic transit fare data in the Puget Sound Region to guide strategies for demand management and congestion reduction programs.

Implementing the Routine Computation and Use of Roadway Performance Measures with WSDOT | $400,000

This project will provide WSDOT with overall roadway performance measures that are specifically oriented toward truck freight movement.

Support and Align Operational and Demand Strategies and Business Processes with Planning and Programming with WSDOT | $200,000

This research project will help to change the WSDOT culture into one that more effectively integrates Transportation System Management and Operations strategies into the planning and programming process in a multidisciplinary way.

Traffic Office Support | $400,000

This research effort will provide analytical assistance and data resources to the various WSDOT groups at the request of the Headquarters Traffic Office. The assistance will take the form of analytical results (data, graphs, presentation materials, and reports) produced the UW TRAC office.

Enhancing Traffic Incident Management | $50,000

In collaboration with the Mobility Innovation Center (MIC), the Center for Collaborative Systems for Security, Safety, and Regional Resilience (CoSSaR) at the University of Washington (UW) is conducting research that will take a foundational step towards the design and delivery of an enhanced traffic incident management (TIM) system and related services WSDOT and the city of Seattle. In the larger scheme, these services will enhance the capabilities of traffic managers, first responders and others involved in traffic incident management to take actions to prepare for, cope with, and recover from traffic congestion and associated delays.
Develop Analytical Tool for Ranking Existing Bridges Built using Hollow Pile Columns | $200,000

This research will result in an analytical tool for ranking WSDOT’s existing bridges built using hollow precast, pre-stressed concrete pile-columns (approximately 25 total) in order of importance for retrofit, and a retrofit method to include design procedures and details. The pile-columns fail prematurely by implosion when bent into the inelastic range during a major earthquake, and the usual solution of external confinement does nothing to prevent this failure mode. They pose a serious seismic risk for WSDOT, especially some of the associated bridges on major highways such as I-5. The consequences of a failure of these structures would be disastrous in terms of potential loss of life and economic impacts.

Design of Coarse Bands and Channel Shape for Stream Simulation Culverts | $215,000

The objective of this project is to evaluate the hydraulic performance and sediment transport characteristics of stream beds containing coarse bands of different layouts, cross section geometries, and grain size distributions. The study will consist of a survey of design practices for stream simulation culverts and mobile bed laboratory flume experiments. WSDOT is required by a federal court injunction to fix a significant number of fish blocking culverts in Western Washington and this research will provide the science-based design criteria for stream channel bed design that are required to install coarse bands.

Best Practices of Using Shotcrete for Wall Fascia and Slope Stabilization (Phase 2) | $120,000

As a continuation to the Phase I study, the goal of this project aims to address the impeding issues (i.e. cracking, curing practices, short and long-term performance, LCA and cost benefits, etc.) identified in Phase I, and to ensure the proper use of shotcrete for wall fascia, slope stabilization, and other potential applications. Results of this research will provide assurances with respect to construction practices, field performance, and long-term durability, as well as test methods and acceptance guidelines in the field for shotcrete application.

Field Analysis of Wood Guardrail Post Decay | $92,000

Building upon the Phase 1 study, this project will utilize the stress wave device developed in Phase 1 to collect non-destructive, real time data about wood decay condition on wood guardrail posts. The information would help improve guardrail design guidance, specification and construction practices, and ultimately reduce post deterioration in the future.
Statewide Road Weather Information System (RWIS) Plan | $175,000

The research will provide direction on future RWIS deployment, implementation and overall sustainment activities, determine a set of data and criteria for winter snow and ice fighting performance measurement, and provide accurate and timely roadway weather data to users and stakeholders. The cost of a typical RWIS station is $60,000 and this project will ensure future deployment will be done in a strategic manner and RWIS assets managed within the constraints of the agency’s asset management plan.

Simulation Environment to Optimize Public Investments in Electric Vehicle Charging Infrastructure | $100,000

The proposed research will provide a decision support tool that WSDOT staff and contractors can use to evaluate how well different investments in EV charging infrastructure will support WSDOT’s goals of improving transportation efficiency, equity, and sustainability. The tool will help WSDOT prioritize investments in EV charging infrastructure, and estimate how much, if any, public support is needed to encourage private sector actors to invest in such stations. A single DCFC station typically costs between $100,000 and $150,000, therefore the benefit to WSDOT will exceed the cost if this research results in the agency avoiding even one wasted investment.

Recycled Asphalt Pavement (RAP) Reset | $170,000

The objective of this research is to collaborate with stakeholders to enhance WSDOT Hot Mix Asphalt (HMA) materials selection, mix design process, and standard specifications to responsibly optimize the use of recycled materials based on current and readily implementable technology that will improve pavement performance. Benefits to include improved mix design, pavement life, and environmental conditions (reduction in greenhouse gases and carbon footprint), as well as cost savings.

WSLIQ Update: Probabilistic Liquefaction | $85,000

The objective of the proposed research is to develop, implement, and test new probabilistic liquefaction hazard analysis (PLHA) procedures and to update the WSLiq program to incorporate the resulting improvements. This affects the design of bridges, fish passage structures, walls, etc., especially in Western Washington where earthquake ground motions are substantial. The research will improve WSDOT’s designs for liquefaction effects on structures and reduce conservatism for routine liquefaction design, the latter of which would translate into significant project cost reduction.

Aviation Emergency Response Airport Infrastructure Resource Manual | $125,000
This research will compile information related to the physical layout and infrastructure attributes of selected airports in Western Washington. This information is critical when a large earthquake occurs, and emergency responders need the airports up and running quickly to bring in supplies and additional personnel.

**Open Sidewalks: Standardizing and Maintaining Sidewalk Connectivity Data for Accessible Trip Planning | $175,000**

This research will ultimately produce high quality, high granularity sidewalk map data, and automate the process of identifying the connectedness of sidewalk segments, with an initial goal of improving automatic routing services for pedestrians. This project will fill a longstanding gap in data about key roadway attributes associated with sidewalks.

**Enhancing Roadway Safety Using Real-Time DSRC Messaging in the Connected and Autonomous Vehicles Context | $250,000**

This project will enhance traffic safety through the dedicated short-range (radio) communications (DSRC) supported technologies. It will implement DSRC-related technologies that will put WSDOT in a competitive position among state DOTs by demonstrating a will to take on challenging, cutting-edge research problems and usher in the imminent era of connected and autonomous vehicles. Findings and deliverables of this project will likely affect access to future funding for connected vehicle-related projects as national agencies, such as USDOT, will be more likely to support agencies with a proven track record in this research field and those that have already established the necessary supporting infrastructure (i.e., SRC-enabling devices).

**Ferry Vessel Propeller Wash Effects on Scour at Terminal Structures | $175,000**

Recent studies have shown an alarming trend of scour at various ferry terminals due to vessel propeller wash. This research will measure vessel propeller wash and its distribution through the water towards the soil around structures. The research will produce guidelines and modeling techniques for estimating the effects of prop wash onto the surrounding soils, and how to account for scour over the design life of the terminal structure.
Advancing Multimodal Safety through Pedestrian Risk Reduction | $150,000

The project will develop pedestrian risk models for identifying urban and suburban pedestrian risk locations throughout the WSDOT roadway network. The sites will be analyzed and potential contributing factors selected so lower-cost pedestrian counter measures can be applied.

Asset Management: Bridge Elements Deterioration Rates and Curves for WSDOT Bridges | $60,000

The scope of this research is to develop deterioration rate curves for specific WSDOT bridge elements. These curves will allow the Bridge Office to assign costs to existing bridge elements and assign monetary values to efficiently prioritize their bridge inventory for timely repair, rehabilitation, and replacement.

Preparing for Traffic Signal Operations in a Multimodal Connected and Autonomous Vehicle Environment | $200,000

The proposed research is will result in approach for how WSDOT can prepare to control signal operations in a connected vehicle environment that will yield significant reductions in traffic congestion while considering sustainable lifecycle cost implications. It also will allow WSDOT to identify the best locations for implementation of connected corridors, with highest expected payoffs and least technological issues.

Hot Mix Asphalt (HMA) Reset | $230,000

This research will update WSDOT asphalt pavement policy, mix design, and specifications to reflect what has been learned in Washington and nationwide over approximately the last 15 years. This effort, termed a “HMA reset”, would lead to improved pavement performance by reducing the risk of early pavement failure from mix design or construction issues and an associated reduction in cost.

Mountain Goat Research | $5,000

This research will purchase five satellite telemetry collars for a mountain goat collaring project associated with the translocation of goats out of Olympic National Park (non-native range) and into the Cascade Mountains (native range). WSDOT South Central Region will participate in the purchase of the collars and three years’ worth of satellite data transmission showing the movement of all the collared goats. The Washington Department of Fish and Wildlife and the National Park Service lead the project. Other partners include the U.S. Forest Service and the Muckleshoot, Tulalip, Stillaguamish, Sauk-Suiattle, and Swinomish Tribes.

Pollinator Project | $20,000
This project develops a GIS layer that identifies prioritized areas of pollinator habitat across the state on WSDOT-owned right-of-way (ROW). The project team developed a ranking method to help identify where pollinator habitat should be created, enhanced or protected. After generating a map, a high priority site at the Scatter Creek Rest Area was selected for testing of pollinator seed mixes to see what grows well and if it is attractive to pollinators.

**Ferry Noise Pilot Study | $25,000**

This project, in collaboration with Washington State Ferries (WSF), hired an on-call consultant to do a pilot study on ferry noise. Marine vessel noise having an impact on marine life (especially marine mammals like Orcas) is an emerging issue in the Pacific Northwest and for WSF. This smaller quick response study will assist in narrowing the scope and methodology for a much larger study that is needed for the entire WSF fleet and is in the planning stages for the 2019-21 biennium.

**Rumble Strip Study | $10,000**

The primary objective in this research by WSDOT is an evaluation of one sinusoidal and three traditional rumble strip designs that, based on previous findings, show potential for reducing external noise due to incidental contact, while maintaining their ability to alert drivers.

**Underwater Sound Level Meter Upgrade | $30,000**

WSDOT collaborated with FHWA ($10,000) and the University of Washington to upgrade its Underwater Sound Level Meter (USLM). Improvement in hardware and software were made to WSDOT’s USLM, which is used for measuring underwater sound caused by in-water construction associated with infrastructure improvements. WSDOT is responsible for estimating a zone of influence (ZOI) of underwater sound for the protection of marine mammals, fish and birds covered under the Endangered Species Act.
Area 3 | Strategic Highway Research Program (SHRP2), Every Day Counts (EDC), State Transportation Innovation Council (STIC) and Accelerated Innovation Deployment (AID)

The *second Strategic Highway Research Program (SHRP2)* is a national partnership of key transportation organizations: the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials, and the Transportation Research Board. Together, these partners conduct research and deploy products that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the nation’s highway system.

SHRP2 has undertaken more than 100 research projects designed to address critical state and local challenges, such as aging infrastructure, congestion, and safety. The research results are available in a series of effective solutions that will improve the way transportation professionals plan, operate, maintain, and ensure safety on America’s roadways.

In 2009, the FHWA launched *Every Day Counts (EDC)* in cooperation with the American Association of State Highway and Transportation Officials (AASHTO) to speed up the delivery of highway projects and to address the challenges presented by limited budgets. EDC is a state-based model for identifying and rapidly deploying proven but underutilized innovations to shorten the project delivery process, enhance roadway safety, reduce congestion and improve environmental sustainability.

Proven innovations and enhanced business processes promoted through EDC facilitate greater efficiency at the state and local levels, saving time and resources that can be used to deliver more projects for the same money. By advancing 21st century solutions, the highway community is making every day count to ensure our roads and bridges are built better, faster and smarter.

The FHWA *State Transportation Innovation Council (STIC)* Incentive Program provides resources to help support this state-based initiative. A STIC brings public and private transportation stakeholders together to evaluate innovations and spearhead deployment in their state. This puts each state’s transportation community in the driver’s seat when it comes to selecting innovations that best fit their program needs, and then putting those innovations into practice quickly.

The STIC Incentive Program offers federal funding of up to $100,000 per state, per federal fiscal year to support or offset some of the costs of standardizing innovative practices in a state transportation agency or other public-sector STIC stakeholder. STICs consider innovations from a variety of sources, including but not limited to FHWA’s Every Day Counts initiative, to deploy proven technologies and practices, AASHTO’s Innovation Initiative, and SHRP2.
Similar to STIC, FHWA's Accelerated Innovation Deployment (AID) Demonstration program also provides funding assistance to state DOT's to accelerate implementation and adoption of the proven innovations to deliver highway transportation projects faster, better and smarter.

The following are the programs under SHRP2, EDC, STIC, AID and the WSDOT projects underway under each program:

**Strategic Highway Research Program (SHRP2)**

The second SHRP program has undertaken more than 100 research projects designed to address critical state and local challenges, such as aging infrastructure, congestion, and safety. The research results are available in a series of effective solutions that will improve the way transportation professionals plan, operate, maintain, and ensure safety on America's roadways. SHRP2 builds on the success of the first SHRP program

**R01A – 3-D Utility Data Repository | $150,000**

This project will deploy/implement R01A tools on select projects for subsurface utility engineering (SUE) investigation and development of a data repository using the collected 3-D data. Three components would be explored with respect to R01A: 1) development of a stand-alone 3-D data repository using a combination of Bentley's ProjectWise for engineering content management and ESRR's ArcGIS software for geospatial storage; 2) exploring incorporating third party 3-D utility data into WSDOT's GIS/CAD model (under development) to make 3-D project as-built and field measured data available within the GIS platform; and 3) exploring opportunities to utilize the online utility permitting system “GoeNoesis” to incorporate and access collected 3-D data.

**R15B – Identifying and Managing Utility Conflicts | $100,000**

This SHRP2 Implementation assistance project will be used by design teams and utility engineers for utility conflict identification. It also provides a common platform for communicating utility conflicts between agency and utility company stakeholders. The R15B project includes training modules through the TRB research team that will be presented to and used by WSDOT region office design teams and utilities coordinators.
R26 – Training for High Volume Roadway Maintenance Treatments | $100,000

This program will develop and provide just-in-time training materials specifically designed for WSDOT, primarily in electronic formats that the agency can use for training district supervisors and others involved in delivering preservation programs. The R26 product will be incorporated into the P1 Maintenance efforts.

State Transportation Innovation Councils (STIC)

The STIC Network is about establishing a group of representatives from various levels of the highway community in each state to comprehensively and strategically consider all sources of innovation.

Ground Penetrating Radar | $100,000

This WASTIC project will evaluate the use of Ground Penetrating Radar (GPR) to assess, evaluate and measure the density of new asphalt pavement for quality assurance of freshly placed pavement density. Newer technology in the area of GPR has shown the ability to measure the density of new asphalt pavements quickly and with better coverage than the nuclear density gauge currently used. If trial projects are successful with the GPR, the goal would be to integrate the GPR as a new method to determine asphalt density on pavements within the next five years.

Accelerated Innovation Deployment (AID)

The AID Demonstration Program provides funding as an incentive for eligible entities to accelerate the implementation and adoption of innovation in highway transportation.

Practical Solutions Project | $750,000

WSDOT is nearing completion of the project titled Deploying Practical Solutions using Lean Techniques and Knowledge Management. This project used established Lean methodology to develop a high level business process map and develop recommendations to streamline processes and improve deployment of Practical Solutions through knowledge management practices. This project evaluated targeted capital projects to align knowledge resources with the Practical Solutions lifecycle. The Practical Solutions approach involves identifying effective low-cost solutions to address the management and improvement of the multimodal transportation system. As new practices are integrated into all aspects of transportation lifecycle, the expected result is improved efficiency, productivity, and cost savings. Savings from applying Practical Solutions to capital projects may also be used for other needed transportation projects.
Light-Emitting Diode (LED) Adaptive Roadway Lighting on Interstate 5 | $1,000,000

This project will convert a 7-mile interstate lighting system to a Light-Emitting Diode (LED) Adaptive Roadway Lighting System and provide an opportunity to encourage public acceptance of adaptive, reduced, and curfew lighting while expanding the use of adaptive controls as part of a larger statewide LED conversion project. It will improve the sustainability, efficiency, and service life of the system. The new lighting system has been installed and is operational in an area on Interstate 5 near Olympia, Washington. Over the subsequent two years, its performance will be evaluated based on motorists’ experiences and energy savings. This project is expected to result in significant operational and maintenance savings.

Portland EDC Conference – 2018 Selected Research Projects

The following research projects were selected by WSDOT to move forward from the ten initiatives presented at the Portland EDC Conference in November 2018:


Conventional subsurface exploration methods provide limited data for project design, which can result in constructability issues and increased cost. Advanced geotechnical exploration methods offer solutions for generating more accurate geotechnical characterizations that improve design and construction, leading to shorter project delivery times and reducing the risks associated with limited data on subsurface site conditions. WSDOT sought to further this initiative since the agency is already utilizing a combination of these methods in many projects.

**Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE), 2018-2019 | $100,000**

Advances in hydraulic modeling tools are providing a more comprehensive understanding of complex flow patterns at river crossings versus traditional modeling techniques. These 2-D hydraulic modeling and 3-D computer visualization technologies also facilitate more effective communication and collaboration, improving agency’s ability to design safer and more cost-effective and resilient structures on waterways. WSDOT was recently awarded STIC Incentive Program funds to revise the Collaborative Hydraulics Manual to incorporate 2-D modeling and increase its consistency with other WSDOT manuals. WSDOT is currently at “Assessment” stage” and to achieve the implementation of all components of the hydraulics design that will utilize 2-D modeling, including fish passage and floodplain work, additional funds and likely another year would be required to move into the “Institutionalized” stage. WSDOT will hire a
consultant to lead a collaboration team in updating the hydraulics manual. It will include 2-D modeling and its anticipated completion date is March 2019. WSDOT will seek funds to complete this effort during 2019.

**Reducing Rural Roadway Departures, 2018-2019**

Reducing fatalities on rural roads remains a major challenge in the United States. Roadway departures on the rural road network account for one-third of traffic fatalities. Systemic application of proven roadway departure countermeasures, such as rumble strips, friction treatments, and clear zones, helps keep vehicles in their travel lanes, reduce the potential for crashes, and reduce the severity of those crashes that do occur. WSDOT is currently at “Demonstration” stage:

- Since 2014, all counties must develop a Local Road Safety Plan (systemic) to apply for HSIP funds. Projects in 33 counties have been funded in 2014 and 2017.
- In rural areas on state system rumble strips have been widely installed based on evident risk factors.
- Median protection on state system has been extended systemically to all narrow medians on high speed routes in both urban and rural areas.

**Safe Transportation for Every Pedestrian (STEP), 2018-2019**

Pedestrians accounted for 16 percent of all roadway fatalities, and crashes are predominantly located at midblock and intersection crossings. As pedestrian safety continues to be a concern for transportation agencies across the country, cost-effective countermeasures are available to provide safer crossings for all pedestrians. WSDOT continues to work with the University of Washington on the Advancing Multimodal Safety through Pedestrian Risk Reduction research study. The study is developing pedestrian risk models that will identify high pedestrian incident locations and the contributing characteristics at pedestrian crashes that result in severe injuries and fatalities. WSDOT is currently at "Assessment" stage and is seeking funding to construct STEP treatments.

**Unmanned Aerial Systems (UAS), 2019**

UAS can benefit nearly all aspects of highway transportation, from inspection to construction and operations, by collecting high-quality data automatically and remotely. These relatively low-cost devices allow agencies to expedite the data collection needed for better-informed decisions while reducing the adverse impacts of temporary work zones on work crews and the traveling public. WSDOT is currently at “Assessment” stage, with WSDOT Regions having established UAS Coordination Officers to oversee
region programs. WSDOT has begun using UAS to conduct infrastructure inspections and roadway planning analysis. WSDOT has a UAS user manual with policies and procedures in place. A UAS SharePoint site was established but cross-coordination is limited at this point. WSDOT Aviation Division has requested approval for a full-time Aeronautics Emerging Technology position that would cover UAS.

Crowdsourcing for Operations

State DOTs and local agencies traditionally rely on data from fixed sensors and cameras that monitor single locations to operate and manage their transportation systems. Using new sources of crowdsourced traffic data, agencies have access to large amounts of reliable, real-time data with more geographic coverage of the transportation system than with traditional sources. Combining crowdsourced data with traditional data sources enables better management and operation of the transportation system through faster detection of and response to problems, faster and more accurate traveler information to the public, and more proactive and effective operations strategies. WSDOT has extensive and reliable data throughout the state, so there is not a need at this time to supplement agency data with crowd-sourced data. One exception, however, is a contract with Inrix to provide travel times over I-90 Snoqualmie Pass. WSDOT is currently at “Development” stage and has weighed the benefits of signing the Waze Connected Citizens Program, but at this time those benefits appear nominal. After engaging in preliminary discussions with Waze and sharing WSDOT’s legal concerns with some language in their agreement, both parties have been unable to agree to mutual terms.

Virtual Public Involvement

Robust public engagement during transportation planning and project development can accelerate project delivery by identifying issues and concerns early in the process. Virtual public involvement techniques, such as telephone town halls and online meetings, offer convenient, efficient, and low-cost methods for informing the public, encouraging their participation, and receiving their input. WSDOT is currently at “Assessment” stage and is using most of the VPI tools in public engagement processes. However, these tools are applied without intentional department-wide coordination or directing policy. Some public engagements take advantage of some of the VPI tools while other engagements do not. The goal of adopting this initiative is to have collective knowledge and guidance defining a consistent, statewide business practice.
Area 4 | Transportation Pooled Fund (TPF) Projects

WSDOT is either leading or participating in the following Transportation Pooled Fund projects:

**TPF-5(198) Urban Mobility Pooled Fund**

This fund seeks to form a steering committee, which will decide on the congestion reduction methods to include in the new methodology and which cities will be included in study. It will continuously refine the Congestion Index to include multimodal operations or regional operational improvement programs (i.e., ITS service, incident detection and response, travel demand management, transportation systems management, and computerized signal control coordination). Additional objectives include maintaining existing congestion measures, adding additional urban areas, and responding to requests for mobility data.

**TPF-5(206) Research Program to Support the Research, Development, and Deployment of System Operations Applications of Vehicle Infrastructure Integration (VII)**

The purpose of this fund is to develop and evaluate Connected Transportation Systems large-scale system level operations applications. It will independently research and address issues that will affect the deployment of Connected Vehicle Systems by state and local transportation agencies. It will also support AASHTO’s strategic and deployment plans, and support USDOT’s Connected Vehicles programs and initiatives.

**TPF-5(276) Full-Scale Shake Table Testing to Evaluate Seismic Performance of Reinforced Soil Walls**

The objective of this project, led by WSDOT, is to perform numerical studies and use the large high performance outdoor shake table (LHPOST) to investigate the dynamic performance of one or two full-scale (7m) reinforced soil retaining walls constructed using realistic materials and methods.

**TPF-5(284) Near Road Air Quality**

This study objective, led by WSDOT, is to address current and future challenges resulting from newer EPA requirements associated with national air quality standards that will result in tighter emission standards and their influence on transportation project development.
TPF-5(290) Aurora Program

The Aurora Pooled Fund Program is a consortium of public road agencies focused on collaborative research, evaluation, and deployment of advanced technologies for detailed road weather monitoring and forecasting.

TPF-5(291) Development of an SPS-2 Pavement Preservation Experiment

The Strategic Study of Structural Factors for Rigid Pavements, led by WSDOT, is the most comprehensive ongoing concrete research effort in the nation. It represents a national investment of on the order of $15-20 million for the construction, sampling and testing, monitoring, and analysis of concrete pavements.

TPF-5(312) Western Maintenance Partnership (WMP)

This 5-year continuation of the WMP will pool the efforts of the participating agencies to provide a focused look at maintenance, and will partner with WASHTO states to share experiences, innovations, expertise and solutions regarding the complex management of highway assets. Maintenance issues include policies, practices, specifications, field investigations, applied research, materials, and training.

TPF-5(313) Technology Transfer Concrete Consortium

The purpose of this pooled fund project is to identify, support, facilitate and fund concrete research and technology transfer initiatives. Contributions support the pooled fund and allow one WSDOT materials engineer to attend semi-annual meetings.

TPF-5(315) National Accessibility Evaluation Pooled Fund

This project has two main objectives. First, it will create a new, national census block-level accessibility dataset that can be used by partners for local transportation system evaluation, performance management, planning, and research efforts. Second, it will produce and publish a series of annual reports describing accessibility to jobs by driving and by transit in metropolitan areas across America.

TPF-5(317) Evaluation of Low-Cost Safety Improvements

This project will encompass safety-effectiveness evaluations of priority strategies from the NCHRP Report 500 Guidebooks, Guidance for Implementation of the AASHTO Strategic Highway Safety Plan. The safety effectiveness of many of the strategies in the guidebooks has not been rigorously evaluated.

TPF-5(323) Underwater Noise Attenuation Experimental Methods Pooled Fund
This project, led by WSDOT, will test experimental attenuation treatments for structural pile driving to address environmental regulations protecting listed species and marine mammals.

TPF-5(326) Develop and Support Transportation Performance Management Capacity Development Needs for State DOTs

The focus of this pooled fund project is to research and assess training and educational needs of contributing members, develop and deliver training, and to facilitate the sharing and retention of performance management best practices.

TPF-5(330) No Boundaries Roadway Maintenance Practices Pooled Fund

This research effort provides a forum for state DOTs to exchange their maintenance innovations, support technology transfer activities and develop marketing and deployment plans for the implementation of selected innovations. Resources will be provided for implementing the innovations that includes travel, training and other technology transfer activities.

TPF-5(332) Performing Forensic Evaluations of LTPP Remaining Sections Before They Leave Service

This WSDOT-led project investigates LTPP test sections as they prepare to go out of service, capturing data on exactly why the section failed and required removal. This may entail trenching and coring, measuring lift deflection, and lab testing of field samples for materials characteristics.

TPF-5(337) Avalanche Research Pooled Fund

The study’s mission is to support collaborative research efforts in the field of avalanche hazard assessment and mitigation, with the goal of improving the safety, efficiency, and quality of control efforts, along with providing better information gathering and analysis techniques and seamless integration of new technologies to further these goals.

TPF-5(343) Roadside Safety Research for AASHTO’s Manual for Assessing Safety Hardware (MASH) Implementation

The objective of the Roadside Safety Pooled Fund Program, led by WSDOT, is to provide a cooperative approach to conducting research on roadside safety hardware. Emphasis will be placed on assisting state DOTs with their implementation of MASH and addressing other roadside safety needs of common interest.

TPF-5(349) Western Alliance for Quality Transportation Construction (WAQTC) Pooled Fund
The Western Alliance for Quality Transportation Construction (WAQTC) is a partnership of western states and federal highway agencies in cooperation with industry associations. This organization was formed to assure qualified personnel for the transportation construction workforce and serve as a unified body to meet today’s challenge of improving the transportation products and services that it provides to the public. WAQTC is focused in three main areas: standardization of test methods (WAQTC, AASHTO, and ASTM), accreditation of the Transportation Technician Qualification Program (TTQP), and collaboration on national programs of significance, including research, training, and technology deployment.

**TPF-5(352) Recycled Materials Resource Center (RMRC) – 4th Generation**

This pooled fund will focus on recycled bound materials (e.g., asphalt and Portland cement concrete), unbound materials (e.g., base, sub-base, structural fill), the highest and best use of these materials in transportation infrastructure, stabilization of materials using industrial byproducts (e.g. fly ash, lime, other binders) and other related research projects. Factors that affect long-term physical and environmental performance of recycled materials will be evaluated using scientific principles and applied research.

**TPF-5(353) Clear Roads Phase 2 Pooled Fund**

This Clear Roads project will maintain its focus on advancing winter highway operations nationally through practical, practice-ready research related to materials, equipment and methods. State departments of transportation are aggressively pursuing new technologies, practices, tools, and programs to improve winter highway operations and safety while maintaining fiscal responsibility.

**TPF-5(355) Stormwater Testing and Maintainability (STTC) Center Pooled Fund**

The STTC will verify the maintainability performance characteristics and costs of innovative commercial-ready stormwater treatment technologies that have the potential to improve protection of water quality and the environment. STTC will provide designers, owners, and permittees of stormwater treatment technologies with an independent and credible assessment of the technology they are purchasing or permitting. The STTC will also have the capability to test three technologies simultaneously for compliance with the Washington Department of Ecology’s Technology Assessment Protocol – Ecology (TAPE) guidelines.

**TPF-5(357) Implementing ShakeCast Across Multiple State Departments of Transportation for Rapid Post-Earthquake Response Pooled Fund**
ShakeCast, short for ShakeMap Broadcast, is a fully automated system for delivering specific ShakeMap products to critical users and for triggering established post-earthquake response protocols. This collaborative effort will bring participating DOTs into full ShakeCast operation for post-earthquake assessment of state and local bridge inventories. The project will improve emergency response capabilities by providing a means to actively engage representatives from state DOTs that are interested in implementing and expanding the application of ShakeCast technologies.

**TPF-5(358) Wildlife Vehicle Collision Reduction and Habitat Connectivity**

The goals of this project include developing, selecting and providing support for priority research of new wildlife mitigation solutions; exploring and encouraging collaboration for research and implementation of wildlife mitigation measures by state DOTs, land management agencies, wildlife agencies and their partners; and convening an annual meeting of the Pooled Fund’s Technical Advisory Committee and invited guests.

**TPF-5(361) Strategic Highway Research Program (SHRP) Naturalistic Driving Study Pooled Fund: Advancing Implementable Solutions**

This study will support groundbreaking research using data from the second Strategic Highway Research Program (SHRP 2) Naturalistic Driving Study (NDS). The goal is to advance the development of implementable solutions for state and local transportation agencies with an emphasis on the broad areas of safety, operations, and planning. This will be a Federal Highway Administration (FHWA)-led pooled fund with very active participation from member state and local agencies to determine the research undertaken.
TPF-5(362) Improvements to the Infrastructure Carbon Estimator (ICE)

In 2014, FHWA developed a relatively simple to support analysis of infrastructure-related GHG emissions at the planning and/or project-level: the Infrastructure Carbon Estimator (ICE). FHWA has been able to make modest improvements to the tool over time but based on input from stakeholders/users of the tool, more substantial updates are needed. By pooling resources, agencies will be able to conduct more extensive studies across a greater range of conditions than could be done by any single agency with only its own funds. Collaboration, sharing information, and conducting impromptu surveys will allow agencies to benefit from each other’s experiences and avoid the duplication of research efforts.

TPF-5(365) National Hydraulic Engineering Conference

The purpose of this pooled fund is to hold three hydraulic engineering conferences (2018, 2020, and 2022) for collaboration, technology deployment, and best practice information sharing among transportation hydraulic engineers and practitioners to improve the state of the practice of transportation hydraulic engineers and practitioners.


Ultra-High Performance Concrete (UHPC) has been recognized as a choice of material for mitigating bridge infrastructure challenges and introducing innovative construction projects. In recent years, the use of UHPC has gained momentum in bridge projects across the country. However, formal structural design guidance for this material does not exist in North America, and a comprehensive effort is required to formulate recommended design guidance so that the application of this material can be broadened.

TPF-5(370) Fostering Innovation in Pedestrian and Bicycle Transportation Pooled Fund Study

This study will supplement existing research venues and fill an important missing gap by emphasizing short turnaround practical research on issues immediately relevant to practitioners. It will address national goals and priorities identified through input from local, state, and national partners in FHWA’s Strategic Agenda for Pedestrian and Bicycle Transportation.

The research objectives of this project are to develop the highway capacity adjustments for Connected and Autonomous Vehicles (CAVs) at different levels of volume and market penetration in order to adapt the use of Highway Capacity Manual (HCM) in analyzing CAV applications. The major highlight of this project will be the project team working closely with a Technical Advisory Committee (TAC) through an iteratively updating and revising process.

TPF-5(376) Northwest Passage Phase 4

The purpose of the North/West Passage (NWP) Corridor Pooled Fund is to focus on developing effective methods for sharing, coordinating, and integrating traveler information and operational activities across state and provincial borders. The results will provide a framework to guide the states' future projects in the corridor.

TPF-5(380) Autonomous Maintenance Technology (AMT)

This study supports and promotes collaborative research efforts in the field of autonomous technologies in work zone applications, with the goal of improving the safety, efficiency and quality of work efforts, along with providing better solutions and valuable lessons learned for the integration of new technologies that further these goals.

TPF-5(383) 2019 Innovations in Freight Data Workshop

This pooled fund will bring together freight data users and decision makers to learn and share the latest applications of emerging “big” data sources to improve freight planning, freight operations and mobility, and freight visualization to:

- Showcase data applications, with particular emphasis on identifying adaptable/open source user-friendly tools.
- Invite participation from across the modal spectrum of goods movement, including highway, rail, marine, and air.
- Invite participation from data scientists and technology developers to move the conversation beyond making incremental improvements to traditional freight planning and analysis methods.
TPF-5(386) Gravel-Bed River Assessment Tool for Improved Resiliency of Engineering Design

WSDOT will develop practical guidance and methods for assessing bed load transport in gravel-bed rivers for more resilient road infrastructure. This guidance will inform engineering design, hazard assessment, and maintenance strategies of roads along or near gravel-bed rivers. Other federal and state agencies support the pilot and are willing to assist in the development and review process. WSDOT anticipates that U.S. Forest Service, U.S. Fish and Wildlife Service, Oregon DOT, Caltrans and other public works agencies will use the gravel-bed assessment tool developed by this pilot project.

TPF-5(388) Developing Implementation Strategies for Risk Based Inspection (RBI)

This project will result in a handbook for implementation of RBI practices that will provide a resource to participating states for defining suitable attributes and characteristic for RBI, including examples and case studies. Workshops and training will be provided to participating states to assist with implementation of RBI, and tools will be developed to assist with future implementation of the RBI technology. Analysis of the bridge inventory to evaluate risk-based strategies will provide data for better asset management.
Area 5 | National Research Programs

WSDOT participates in the following national research programs:

National Cooperative Highway Research Program (NCHRP)

Administered by the Transportation Research Board (TRB) and sponsored by the member departments (individual state departments of transportation) of the American Association of State Highway and Transportation Officials (AASHTO), in cooperation with the Federal Highway Administration (FHWA), NCHRP was created in 1962 as a means to conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance nationwide.

Three problem statements submitted by WSDOT staff were selected for funding in 2018:

- B-7 – Methods for State DOT’s to Reduce Greenhouse Gas Emissions from the Transportation Sector.
- B-8 – Applications and Use of Crash Severity Safety Performance Functions.
- C-15 – Benchmarking Study of Software for One-Dimensional, Nonlinear Seismic Response Analysis with Pore Water Pressure Generation.

Transportation Research Board (TRB) Core Program

WSDOT invests in the TRB’s Core Program, which provides a forum for transportation professionals to identify, facilitate, and share research and information related to transportation. The contribution is based on distributing the cost of the approved budget to all sponsors. Each state DOT’s share is prorated to the amount of SPR funding received.

WSDOT’s investment provides the framework for a significant amount of collaboration on transportation research. The Core Program supports the TRB standing committees, Transportation Research Information database, Research in Progress database, Research Needs Statements database, state DOT visits, and planning for the TRB annual and mid-year meetings.
## Financial Summary Data

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*Funded through other sources*