Transportation Planning and Research:  
ANNUAL WORK PROGRAM AND COST ESTIMATE

Your Safety • Your Mobility • Your Economic Opportunity

Project – SPR Planning   A019(931)  
Project – SPR Research   A019(923)  

Fiscal Year 2020  
October 1, 2019– September 30, 2020

Idaho Transportation Department  
8/23/2019
ANNUAL TRANSPORTATION RESEARCH
WORK PROGRAM AND COST ESTIMATE

FISCAL YEAR 2020
October 1, 2019 – September 30, 2020

State Planning and Research (SPR)
Part A: Planning
Part B: Research

In cooperation with the
US Department of Transportation
Federal Highway Administration

APPROVED BY
Blake Rindlisbacher
Chief Engineer
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Part A: SPR Planning
Key #19931
ITEM 1.0 – PLANNING SERVICES (F20901A)

ITD CONTACT: Ken Kanownik
Planning Services Manager
Division of Engineering Services
(208) 332-7823

MISSION

Provide excellence in transportation planning through an inclusive and comprehensive planning process that provides products, services, and information to guide transportation decisions that balance safety, mobility, and economic opportunity needs.

Our mission is accomplished by:
- Management and coordination of transportation planning services/program management systems;
- Coordinating specific short-, mid- and long-range transportation planning activities throughout ITD;
- Developing effective tools to support informed programming decisions;
- Developing and implementing effective approaches to communicate planning activities and results with our transportation partners and customers;
- Tracking and reporting statewide performance measures in alignment with FAST Act goal areas;
- Coordination and oversight with the metropolitan planning organizations and other local government agencies on transportation planning activities;

ITEMS IN THIS SECTION

There are seven sub-items in this section:
- Item 1.1 – Planning Administration and Coordination
- Item 1.2 – Statewide Transportation Planning
- Item 1.3 – Highway Classifications and System Adjustments
- Item 1.4 – Air Quality Program
- Item 1.5 – State Planning Documents
- Item 1.6 – Metropolitan Planning Program
- Item 1.7 – Statewide Planning Events

TOTAL FY20 HIGHWAY PLANNING BUDGET

$450,860 Operating
$434,908 5.0 FTE – Personnel

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YOUR Safety  ●  ●  ●  YOUR Mobility  ●  ●  ●  YOUR Economic Opportunity
# Planning Service FY2020 Work Program Summary

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ITEM 1.1 – PLANNING ADMINISTRATION AND COORDINATION (FP-P801)

ITD CONTACT: Ken Kanownik
Planning Services Manager
Division of Engineering Services
(208) 332-7823

OBJECTIVES:

- Administer the overall statewide transportation planning process in an open and collaborative environment.
- Ensure ITD and MPO compliance with applicable provisions of Titles 23, 40, and 49 of the US Code and the Code of Federal Regulation that call for a continuing, comprehensive, and cooperative transportation planning process. This is also known as the 3-C planning process.
- Develop and track the Planning Services Work Program Items.
- Review planning program models at other state Departments of Transportation to see how they are structured for maximum success.

METHODOLOGY:

1.1.1 Planning Administration and Coordination ($55,860 Routine Operating + .90 FTE – Personnel, Item 1.0)

Program administration includes ongoing Planning Services Section management and operations. Most tasks identified in this work program item are on-going and include, but are not limited to:

- General Staff Management – Staff time reporting of personnel budget. Distribution of personnel budget shall be shown in following task items, but accounted under Item 1.1 for ease of accounting. Staff development may include trainings and conferences; computer hardware and software maintenance and purchases; etc.
- Fiscal and Work Program Management – Develop annual budget; review monthly financial reports; monitor SPR activity progress within Planning Services including GIS;
- Internal/External Communication and Coordination – Monitor and participate in relevant state, tribal and federal policy and/or funding matters; attend and present information at District and MPO meetings; update the Planning Services website as necessary to post current documents, plans and studies; etc.
- National Planning Committees – Represent ITD’s interests and participate on national committees
- Routine Operating Expenses – Routine expenses required for the work program not shown in the task operating budgets.

1.1.2 Grants Administration ($0 Routine Operating + .2 FTE – Personnel, Item 1.0)

Ensuring that the department fully takes advantage of available federal grants, Planning Services has been assigned the role of managing the grant administration process for ITD. In this role,
Planning Services manages the department’s grant application life cycle from Notice of Opportunity (NOFO) to grant submission. Planning Services will at minimum:

- Monitor available federal grant opportunities and work with others in the department to consider application.
- Vet all internal requests to ensure that grants meet the department’s mission and that financial resources are available for match.
- Work closely with applicants to develop the application and complete appropriate forms.
- Submit and monitor grants on behalf of the department.

**FY2020 PRODUCTS:**

- Develop and monitor FY20 SPR Work Program Items.
- Attend annual AASHTO Subcommittee on Planning (SCOP) meeting.

**PLANNING ADMINISTRATION AND COORDINATION FY20 BUDGET**

Budget for Item 1.1 includes section personnel budget of $434,908 and $55,860 for routine operating costs.

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**FY2020 CHANGES**

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ITEM 1.2 – STATEWIDE TRANSPORTATION PLANNING (FF-P801)

ITD CONTACT:  Sonna Lynn Fernandez
Planning Services Section
Division of Engineering Services
(208) 334-8209

OBJECTIVES:

- Increase consistency and coordination in statewide planning activities throughout the department and provide the districts and other sections with planning support as subject matter experts.
- Engage in discussions with other federal and state agencies, MPOs, local governments and regional organizations, as well as Indian Tribal Nations to keep them informed of planning and policy changes at the state and federal levels.
- Improve outreach and communication with the public to maintain transparency and incorporate input into the planning and project selection process.
- Establish the role of planning in the transportation development and management processes.
- Assist staff in applying for federal/state grants as they become available.

METHODOLOGY:

1.2.1 District/Modal Planning Coordination
($25,000 Operating + 0.60 FTE - Personnel, Item 1.0)

ITD Contact:  Ken Kanownik

Planning Services has defined the functional areas, roles and responsibilities both at HQ and the Districts when conducting planning activities throughout the state. Planning Services is responsible to ensure that these activities are maintained and being executed. Tasks include but not limited to:

- Provide assistance to District/Modal staff as their evolving roles within the agency change to a more planning centric process, especially during the development of plans and projects;
- Respond to programmatic questions regarding System Planning or Pre-project Planning projects;
- Assist Modal/District staff in the development of their Corridor Studies/Plan as they begin using ESRI Story Map; and
- Facilitate discussions between Modal/District planners and headquarters on data needs, project identification and needs, project development; and
- Participate in Modal/District specific planning efforts as requested.

1.2.2 Bicycle/Pedestrian Planning
($5,000 Operating + 0.4 FTE - Personnel, Item 1.0)

ITD Contact:  Vacant 2 (Ken Kanownik until filled)
Title 23 U.S.C. § 217(g) indicates that “Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each State.” Further, 23 U.S.C. § 135(a) specifies “...each State shall develop a statewide transportation plan and a statewide improvement program for all areas of the State...(which) provide for the development and integrated management and operation of transportation systems and facilities (including accessible pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system...”

Tasks include but are not limited to:

- Work closely with the long range transportation planning process to develop a bicycle/pedestrian component;
- Assist District corridor plans and improvement programs to ensure bicyclists and pedestrians are be given “due consideration” per Title 23 U.S.C. § 217 and § 135 and are consistent with the Long Range Transportation Plan;
- Encourage Districts to engage with and participate in local and regional bicycle and pedestrian planning efforts; and
- Facilitate the collection of all local and regional Bicycle/Pedestrian plans and documents making them available online along with other Idaho statewide and local planning documents.

1.2.3 Planning and Project Management Training
($0 Operating + 0.2 FTE - Personnel, Item 1.0)

*ITD Contact: Sonna Lynn Fernandez*

Planning Services will continue to work on developing training, guidebooks, and manuals to be used to educate ITD staff. The result is to continue streamlining the department’s planning and project development process. Tasks include but not limited to:

- Manage and assist with project management activities such as developing project management guidelines and assist districts with considering and developing projects.
- Enrich and develop project management training (i.e. online, person-to-person, just-in-time training) though a variety of events.
- Continue to implement planning through developing guidebooks and increased planning/project management training.

1.2.4 – Stakeholder Outreach and Public Involvement
($0 Operating + .2 FTE – Personnel, Item 1.0)

*ITD Contact: Sonna Lynn Fernandez*

Planning Services in conjunction with the Office of Communication will continue to develop a statewide public involvement communication portal to develop a “one-stop-shop” portal to gather all public comments – streamlining statements/responses into one database for the entire department. The online communication portal will provide the public and ITD staff with a common, easily navigable webpage for recording public input and comments as well as public involvement opportunities. The portal will collect public comments in a single database that can be accessed by all ITD staff to generate customized reports and search past public comments.
and activities. The portal will help ITD use limited funding more strategically, maximize efficiently, and the public a greater return on their transportation investment.

Tasks for FY20 will include but are not limited to:
- Use the business and technical requirements established in Phase 1 to develop an online application for the public to comment;
- Develop a database for staff to access public comments, assess feedback and develop a reporting mechanism;
- Establish a link between the portal and IPLAN to allow stakeholders to “pin” comments to a map and ensure comments are linked to the appropriate comment;
- Develop a public involvement calendar that enables ITD staff to announce events such as open public meetings, hearing, and summits so that stakeholders are aware of upcoming events happenings;
- Ensure links are established to appropriate project pages;
- The portal will be tested and verified in time for the FY20 STIP update, provide District staff with assistance during the public involvement processes including a comprehensive report of activities/interactions accomplished, public comments received, and any result actions from the comment; and
- Provide ITD staff training and develop a user manual for the use of the portal.

FY2020 PRODUCTS:
- A catalog of best available data for corridor studies.
- The “Communication Portal” will be ready and used for the FY20 ITIP comment period.
- Develop a “Communication Portal User’s Manual.”
- Development of an “Idaho Planning Database” in conjunction with the LRTP.
- Host the annual Planning and Scoping Summit.
- Develop and implement a grant process for the department.

STATEWIDE HIGHWAY PLANNING FY20 BUDGET

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OBJECTIVES:

- Review and submit to FHWA proposed updates, if any, to the functional classification systems and/or urban boundary areas by local jurisdictions and/or District planners.
- Ensure that approved changes are reflected on the official state map and within ITD’s Linear Referencing System.
- Establish a universal understanding of the functional classification, system and boundary adjustment procedure process.
- Participate on the Idaho Transportation Board Subcommittee on State Highways System Adjustments as a staff resource to the Executive Team Members, District Engineers and ITD Board Members.

METHODOLOGY:

1.3.1 Functional Classification
($0 Operating + 0.1 FTE - Personnel, Item 1.0)

The functional classification of a road defines the role of each element of the roadway network that plays in serving travel needs. Functional classification carries with it expectations about roadway design, including speed, capacity and relationship to existing and future land use development. The department manages and maintains functional classification for the state and works closely with local jurisdictions to modify or change their roadway classification. This is an ongoing task with tasks for this year to include, but are not limited to:

- Review and submit any interim recommendations for the State Highway System classification adjustments to FHWA for approval;
- Review and submit any interim recommendations for local road classification adjustments to FHWA for approval;
- Develop the process by which ITD and local road agencies will follow to propose changes to the NHS that are outside the bounds of errors and discrepancies; and
- Review and submit any recommendations for NHS adjustments to FHWA for approval.

1.3.2 State Highway Systems Adjustments
($0 Operating + 0.15 FTE - Personnel, Item 1.0)

Whenever a local highway jurisdiction proposes a change to the State Highway System (addition/removal/relocation/etc.), the Planning Services Section shall refer the request to the Board Subcommittee on State Highway System Adjustments. Upon board subcommittee concurrence, the highway's operating and network characteristics shall be determined using
evaluation criteria that have been approved by the Idaho Transportation Board. Tasks for this year shall include but are not limited to:
  o Generating evaluation reports on specified roadways as requested by the Board subcommittee.

1.3.3 Statewide Boundary Adjustments

($0 Operating + 0.1 FTE – Personnel, Item 1.0)

Cities/Counties/MPOs have the option to use the census-defined urban boundaries exclusively, or adjust the census-defined boundaries to be more consistent with transportation needs. ITD, in coordination with local planning partners, may adjust the urban boundary with FHWA having final decision on adjusted boundary. ITD’s Agile Asset Manager (NetMan) linear referencing system (LRS) has been migrated to ESRI’s Roads & Highways LRS; therefore a review and verification of official census-designated or adjusted boundaries needs to be done statewide.

FY2020 PRODUCTS:
  • Publish a revised statewide local roads functional classification map, if needed.
  • Develop a workflow diagram for the State Highway System Adjustment Process; include in the State Highway System Adjustment Procedure document.
  • Review, update and support geometry for the Urban Boundaries.
  • Update and Support events for the National Highway System, State Highway System, Federal-Aid System and Functionally-classed roads.

HIGHWAY CLASSIFICATIONS AND SYSTEMS FY20 BUDGET

| Federal Aid | $0 | Match | $0 | = | $0 |

FY2020 CHANGES

| Amendment Added: YES | NO | Date Amended: |
| Comments: | | |
ITEM 1.4 – AIR QUALITY (FT-P802)

ITD CONTACT: Margaret Havey
Planning Services
Division of Engineering Services
(208) 334-8469

OBJECTIVES:

- Manage the Memorandum Of Understanding (MOU) between ITD and the Department of Environmental Quality (DEQ).
- Facilitate ITD involvement in the Interagency Consultation Committees (ICC).
- Guide the creation of ICCs in non-attainment and/or maintenance areas outside MPO boundaries.
- Provide assistance to the affected MPOs for conformity determinations on TIPs as prescribed under 23 CFR 450, including donut areas.
- Guide conformity determinations on transportation plans and individual projects in non-attainment and/or maintenance areas outside MPOs.

METHODOLOGY:

1.4.1 ITD/DEQ MOU for Air Quality Conformity and Modeling Services, Conformity Coordination and Training
($104,000 Operating + 0.20 FTE - Personnel, Item 1.0)

Provide oversight of and funding for the ongoing MOU between ITD and DEQ to provide the following services: air quality conformity and transportation modeling services including the development and maintenance of Idaho-specific input databases for MOVES as well as assistance and training for ITD and the MPOs in their use of MOVES. Tasks include but are not limited to:

- Process and fund invoices for work associated with the MOU; and
- Provide ITD data input files to DEQ for use in MOVES in a mutually agreed upon format as necessary, e.g., Automatic Traffic recorder (ATR) data, county-level vehicle registration data, etc.

Act as a liaison between DEQ and District staff to facilitate ITD attendance and participation at ICC meetings. Guide the creation of ICCs and conduct interagency meetings, as necessary, for air quality technical reviews and for making conformity determinations in nonattainment and/or maintenance areas outside of MPO boundaries. Tasks include but are not limited to:

- Develop process, in concert with the Districts and DEQ, to create ICCs to assess air quality impacts on projects within nonattainment and/or maintenance areas outside MPOs;
- Provide technical and policy inputs on proposed revisions to motor vehicle emission factors and budgets; and
- Ensure Transportation Control Measures are implemented, if necessary.
ITD recognizes it generally lacks organizational knowledge and experience with the requirements of the Clean Air Act (CAA), related sections of 23 U.S.C., and with the Idaho Administration Code on Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01). This lack of knowledge and experience also extends to the fact there is no clear, internal understanding within ITD of the various roles and responsibilities of the various Divisions, Districts and sections with respect to air quality issues including the NEPA process. Given this situation, it is important that an organization-wide education and training plan be developed so that ITD can effectively and efficiently meet its statutory requirements. Tasks include but are not limited to:
  o Create a statewide air quality conformity education plan with objectives to increase organizational knowledge on requirements and to clarify roles and responsibilities.

FY2020 PRODUCTS:
  • Documentation as to MOU progress and expenditures.
  • Air Quality Technical Reviews and Conformity Documents
  • Air quality education and training plan for ITD staff
  • Documentation of the respective roles and responsibilities of all stakeholders both internal and external to ITD.

AIR QUALITY FY20 BUDGET

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OBJECTIVES

- Adopt/finish Long-Range Transportation Plan started in FY2018
- Produce scope of work for State Highway Plan (anticipated completion FY20)

METHODOLOGY

1.5.1 State Highway System Plan
($150,000 Operating + 0.75 FTE - Personnel, Item 1.0)

*ITD Contact: Ken Kanownik*

ITD Staff has identified updating ITD’s State Highway Plan as the next step in updating planning documents for the state highway system. In FY2020 Planning Services staff will establish a work group that will identify the data and information that will be incorporated into an updated state highway plan.

Tasks include but are not limited to:
- Identify data and information to be incorporated in state highway plan
- Update data and information as needed
- Vet proposed scope with state-wide stakeholders
- Proposed planning technique to help Idaho accommodate growth
- Establish planning procedures for areas of impact into the local highway network

1.5.2 Long Range Transportation Plan
($1,000 Operating + 0.15 FTE - Personnel, Item 1.0)

*ITD Contact: Margaret Havey*

The updated Long-Range Transportation Plan (LRTP) is scheduled to be approved in early FY20. There will be a few wrap-up and post-approval tasks associated with the updated LRTP in FY 20.

Tasks include but are not limited to:
- Follow recommendations as outlined in LRTP;
- Create and implement a statewide LRTP education plan to increase organizational knowledge on requirements;
- Research and produce innovative publications methods to make LRTP readily available to staff, partner agencies and to the public;
- Develop LRTP Story Map;
- Develop Idaho Transportation Plan Database/Inventory/Reference System; and
- Update Appendices as needed
FY2020 PRODUCTS
- Adopted Long-Range Transportation Plan
- Public oriented Long-range Planning Documents
- New data/information associated with the State Highway System Plan

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FY2020 CHANGES

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ITEM 1.6 – METROPOLITAN PLANNING PROGRAM (FO-P801)

ITD CONTACT: Cecilia Awusie
Planning Services
Division of Engineering Services
(208) 334-8483

OBJECTIVES:
• Provide administrative, planning, coordination, technical, and programming support to each of Idaho’s Metropolitan Planning Organizations as prescribed under 23 CFR 450;
• Ensure that each MPO participates in state planning and programming efforts;
• Actively support MPO planning and coordination processes including the continuing, coordinated, and comprehensive (3C) planning process

METHODOLOGY:

1.6.1 MPO Program Oversight and Administration
($0 Operating + 0.25 FTE - Personnel, Item 1.0)

ITD is responsible for the statewide coordination and oversight of the transportation planning process in Idaho’s five MPO areas to ensure compliance with Federal and State program requirements. The oversight and coordination process includes but not limited to:
- Maintain a current Memorandum of Understanding between each MPO and ITD.
- Interpretation of Federal Planning Requirements.
- Timely processing of reimbursements.
- Provide regular coordination, participation, and technical assistance.
- Review, approve and monitor progress on the annual work programs.
- Ensure coordination and integration with statewide transportation planning activities.
- Routinely participate in Metropolitan Planning Organization policy board and technical advisory committees.

1.6.2 ITD/MPO Guidelines and Procedures
($0 Operating + 0.20 FTE - Personnel, Item 1.0)

Consistency in communication and coordination is best served in the form of a comprehensive manual that provides guidance related to the planning processes and administrative requirements when facilitating transportation planning activities. Document shall clarify roles and responsibilities, improve efficiency among organizations and reduce questions and potential conflicts. Tasks to include but not limited to:
- Document review by District Planners and MPOs.
- Publish and post guidance document to ITD’s website.
1.6.3 New MPO Coordination/Discussions
($0 Operating + 0.1FTE - Personnel, Item 1.0)

Planning Services will continue assisting ITD District 4 with facilitating discussions with the Magic Valley area about the potential MPO designation; as well as, the MPO planning process and what that could mean for their area.

**FY2020 PRODUCTS:**
- Monitor Consolidated Planning Grant agreements.
- Host the MPO – ITD Partnership Meeting; create “ITD/MPO Improving Relations” document
- Publish and post an ITD/MPO Guidelines and Procedures.
- Continued discussions with District 4 staff and the City of Twin Falls for the development of a new MPO in the Magic Valley Area.
- Create MPO Story-Map.

**METROPOLITAN PLANNING PROGRAM FY20 BUDGET**

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ITEM 1.7 – STATEWIDE PLANNING EVENTS (AA-P801)

ITD CONTACT:  Sonna Lynn Fernandez
Planning Services
Division of Engineering Services
(208) 334-8209

OBJECTIVES:
- Provide administrative, planning, coordination, technical, and event support for statewide planning and program development meetings, trainings, conferences, events and other opportunities;
- Organize facilities and manage all event details; and
- Participate in stakeholder events as requested to further communication, capitalize on planning activities and represent ITD;
- Collaborate within ITD as well as with partners to identify training/conference needs, capitalize on opportunities to share ideas, and share innovative concepts.

METHODOLOGY:

1.7.1 Event Oversight and Administration
($110,000 Operating + 0.45 FTE - Personnel, Item 1.0)

The department is dedicated to providing a variety of educational, training and informational opportunities with the goal of value-added planning processes, improved program delivery, better overall project development, improved financial management and continuous operations of Idaho’s highways. Providing opportunities to train and educate staff allows the department to provide staff ways to fortify training, offer certification to develop specialized skills and continually build department-wide knowledge base. As a result, it was identified that offering a wide variety of educational opportunities would be best for the department. Planning Services has been identified as the section that works with all aspects of the department from pre-project planning to delivering a constructed roadway. Thus, Planning Services has been tasked with event oversight to educate and train department staff. Tasks include but not limited include:
- Administer event planning details/budget to maximize costs and staff opportunities.
- Manage all highway training/conference events to boost staff engagement and participation.
- Set up, promote, conduct and follow-up on all events.
- Manage development of training plans and allocation of credits.
- Assess successes/identify changes to better offer future events.

FY2020 PRODUCTS:
- Development of an Event Guidebook to help ITD staff plan for and manager events statewide.
• Develop an ITD “Earning Credit Manual” to help staff know how/when they can get professional development credits, reporting credits to the appropriate agency and managing their PDU information.
• Create an “Event Website” for staff to access the plan upon completion of events.

STATEWIDE PLANNING EVENTS PROGRAM FY20 BUDGET

| Federal Aid | $88,000 | Match | $22,000 | = | $110,000 |

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ITEM 2.0 – GEOGRAPHIC INFORMATION SYSTEMS (F20901G, CG-P230)

ITD CONTACT: Wendy Bates
Geographic Information Systems Manager
(208) 332-7889

MISSION
To maintain a single authoritative Linear Referencing System (LRS), enterprise GIS platform, Local Highway Program and mapping support to serve internal and external customers.

Our mission is accomplished by:
- Partnering with internal and external customers to develop GIS data, tools, workflows and applications to support their business needs;
- Maintaining an enterprise Linear Referencing System;
- Maintaining All-Roads Linear Referenced Data (ARNOLD) data to meet MAP-21 requirements and support the HPMS process;
- Maintaining the Local Highway Inventory System;
- Supporting deployment and use of GIS in ITD regional District offices;
- Sustaining GIS hardware and software infrastructure;
- Working cooperatively with Department of Administration’s Geospatial Office in the Transportation Technical Working Group and in partnership with Inside Idaho.

OBJECTIVES
- To provide data, workflows and maps for use by ITD, other government agencies, the private sector, and the public
- To implement GIS technology to support and enable ITD’s many business units
- To provide ITD with a single “source of truth” enterprise database
- To provide ITD with a single, authoritative GIS-enabled linear referencing system (LRS) by which information systems with various road-related business data can be uniformly located and cross-referenced
- To communicate to state and federal agencies, units of local government, and the public, information about state-maintained roads as well as locally maintained roads that receive state or federal aid
- To compile the Annual Local Highway Mileage Report
- To work directly with local road agencies in Idaho to manage local road data in linear referencing format, supporting HPMS, ARNOLD, and other requirements
- To ensure successful apportionment of funds for local improved road mileage to local county and road and bridge departments in Idaho
- To expand use of and implementation of GIS at ITD headquarters and district offices
- To develop strategy for application integration and deploying modular GIS components
- Ensure GIS projects and efforts align with and further ITD’s strategic goals
- Contract services for project management, business analysis, system engineering and architecture, for better LRS and GIS support for our and other units
METHODOLOGY

($529,857 personnel + $426,000 routine operating + $120,000 for project related contract services = $1,075,857 total budget for FY2020)

2.1 Digital Mapping
($240,864 Personnel) + ($22,000 Operating) + ($40,000 Special Projects)

The roadway base map is maintained to reflect the current road network based on information from highway plans, local highway district update submittals, imagery, or aerial photography. Special project maps are completed and specific training is conducted as necessary to meet department needs and customer requests.

2.2 Linear Referencing System
($132,244 Personnel) + ($12,000 Operating) + ($60,000 Special Projects)

ITD’s Agile Assets Network Manager has been migrated to ESRI’s Road & Highways linear referencing system, on an enterprise environment for easier maintenance and access by the many systems currently being used or developed within the department that utilize a location reference. The production deployment was complete in the first quarter of 2018, with continued system support and work to integrate additional ITD business systems that began in FY2019. Efforts to continue integration with multiple ITD business systems will continue with use of contracting for additional development will occur beginning in FY2020.

2.3 Local Highway Program
($44,817 Personnel) + ($12,000 Operating) + ($20,000 Special Projects)

Classification of roads and determination of mileage are submitted by local road authorities with provisions for annual updating. This classification serves as the basis for distributing state highway user revenues annually to local rural transportation agencies. Information submitted by local road authorities relative to location of roadway is the basis for the local roads database.

2.4 GIS Program Development
($111,932 Personnel) + ($380,000 Operating)

GIS is a long-term investment that matures over time. GIS Program Development addresses the following technical, financial, and institutional considerations:

- Coordination with Department strategic planning;
- Data and database requirements, standards and costs;
- System life cycle, annual software maintenance and replacement costs;
- Staffing requirements and costs;
- User training, skills development and costs;
- Application development and integration timelines and costs; and
- Partnership with Department of Administration’s Geospatial Office in the Transportation Technical Working Group and Inside Idaho.

FY2020 PRODUCTS
- Support implementation of ESRI Road & Highways LRS.
- Support All-Roads Linear Referencing (ARNOLD).
- Continued support of infrastructure for the Transportation Data Model in our GIS architecture.
- Process special requests.
- Submit the Annual Highway Road Mileage Report.
- Prepare data and maps for public distribution to local highway authorities.
- Work with local highway authorities to update the local roads database and maps.
- Work to adjust the measurements to agree with the actual distance shown on the GIS data.
- Provide progress reports to LHTAC.
- Conduct summer field checks for newly-reported or recently improved local improved roads.
- Conduct random sample of a portion of local improved road miles.
- Complete greater integration of Local Highway Program with GIS-enabled LRS.
- Advancements and development of applications and tools for redlining, for better support of related local highway program and LRS data development.
- Coordinate GIS software and data development training needs department-wide.
- Staff and manage the GIS office in support of the department’s needs.
- Work with ITD Districts to provide GIS support and further implement GIS at the District level.
- Continue to support and develop the GIS governance model.
- Maintain enterprise GIS databases for internal access to accurate data that enable GIS analysis.
- Create and maintain a GIS Data Warehouse that will support and enable users to use and conduct better analysis with authoritative data.
- Continuing assistance for ad-hoc mapping and data requests for district and headquarters users.
- Continue maintaining and building new GIS services, web tools and applications to mature ITD’s web GIS portfolio.
- Work with ITD business units to provide data and expertise for ongoing GIS-related projects.
- Further develop IPLAN using ESRI’s ArcGIS Online platform.

GIS FY20 BUDGET

| Federal Aid | $860,686 | Match | $215,171 | = | $1,075,857 |

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ITEM 3.0 – HIGHWAY DATA (F20901I)

ITD CONTACT:  Mark P. Snyder  
Data Analytics Engineer  
(208) 334-8253

MISSION
To assist decision makers to reach cost-effective transportation system improvement decisions.

Our mission is accomplished by providing accurate and timely information to internal customers, other government agencies, and the public by:

- Managing transportation-related databases;
- Data Analytics;
- Using professional engineering and planning judgment; and
- Implementing the division’s vision of transportation planning principles.

ITEMS IN THIS SECTION
There are 5 items in this section:

- Item 3.1 – Assess Pavement Condition of the State Highway System
- Item 3.2 – Vehicle Volumes, Classification, Weight, and Characteristics
- Item 3.3 – Data Analytics

TOTAL HIGHWAY DATA FY20 BUDGET

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YOUR Safety ••• YOUR Mobility ••• YOUR Economic Opportunity
ITEM 3.1 – ASSESS PAVEMENT CONDITION OF THE STATE HIGHWAY SYSTEM (FH-P113)

ITD CONTACT: James Poorbaugh
Asset Management Engineer
(208) 334-8268

OBJECTIVES

- Assess the State Highway System pavement condition and other select roadways using an inertial profilometer (Profiler Van) and a Pavement Friction Tester.
- Assess construction of pavement projects programmed for the year and decide if they are complete and should be recorded in the construction history.
- Manage the Pavement Management module of Idaho Transportation Department’s Transportation Asset Management System (TAMS).
- Provide statistical and performance data for Idaho’s highways, roads, and streets.
- Continue to calibrate the prediction modeling analysis engine in the PMS to predict accurate pavement deterioration or improvement.
- Provide a tool for districts to identify needed projects and related costs for transportation facilities improvement.
- Calibrate the Pathways® Profiler Van Automated Crack Rating Software package to accurately and consistently find the cracks in our pavement and assign the same crack index rating to the pavement that the visual survey by the pavement management engineer would yield.
- Continue to refine and calibrate the Automated Crack Rating Software to better detect cracking and consistently replicate results.
- To provide a Quality Assurance check to compare the visual survey performed by the asset management engineer with that produced by the Automated Crack Rating Software.
- Continued refinements to internal data processing and reporting processes to ensure consistency with the ITD Transportation Asset Management Plan (TAMP).
- Enhance HPMS sample data item coverage of the Federal Aid System.
- Automate HPMS submittal process via Python and GIS tooling.
- Create automated quality assurance tools.
- Focus on TPM data item quality and coverage.
- Submit an annual HPMS report to FHWA’s Office of Highway Policy Information (OHPI).
- Review HPMS data submittal annually and analyze gaps and identify prospective improvements.
- Plan implementation of any FHWA rulemakings that will impact HPMS.
- Provide post-submittal HPMS performance measure support.

METHODOLOGY

3.1.1 Annual Pavement Condition Survey
($304,005 Personnel) + ($166,100 Routine Operating)

The Highway Performance Monitoring System (HPMS) requires an inventory of roadway features and an assessment of pavement conditions for a sampling of all Idaho’s roadways, both for state highways and off-state roads. The asset management engineer inventories Idaho’s
state highway system roadways each year for the districts and HPMS. The Asset Management Engineer also compiles and reports pavement performance data as detailed in the ITD TAMP.

Additionally, ITD requires an annual pavement condition survey, by which the Asset Management Engineer assesses the cracking, roughness and rutting of the entire State Highway System. The Asset Management Engineer compiles the three data collection items into a comprehensive pavement condition. Construction projects are reviewed and monitored, upon completion and acceptance they are added to the construction history database within the Pavement Management Module of TAMS.

3.1.2 Administer Highway Performance Monitoring System ($80,300 Personnel)

The Highway Performance Monitoring System (HPMS) requires an inventory of roadway attributes related to condition, use, and geometry of a sampling of Idaho’s roadways, as well as a Geographic Information System (GIS) representation of all public roads within the state required to meet the All Roads Network of Linearly Referenced Data (ARNOLD) mandate. The route and attribute data is coordinated from a multitude of offices inside and outside of ITD, including GIS, Bridges, Pavement, Traffic, the U.S. Census Bureau, FHWA, and others.

The information is compiled and submitted as a data set to FHWA’s Office of Highway Policy Information (OHPI). The data is used in conjunction with other data sets to create the biennial Condition & Performance Report that is sent to the U.S. Congress. In addition, a multitude of other users request use of some of the data. These requests come from ITD, employees, legislators, consultants, and the general public. Finally, much of this data will be used to verify that the state is meeting performance measures established per MAP-21 and the FAST Act.

3.1.3 TAMS support & refinement of the ITD pavement performance curves. ($14,000 Personnel) + ($ 40,000 Operating)

These funds will be used to conduct validation of the current pavement performance curves utilized for predicting network pavement performance. Based on the validation process, existing curves may be modified and refined. Pavement performance curves may also be developed to better reflect both the diverse geological and climatic conditions. This work will enable ITD to have more confidence in the pavement performance it forecasts as well and enable ITD to more effectively plan future projects to drive alignment with Pavement Lifecycle Planning. Additionally, this effort will continue to support and augment ITD staff in the preparation of financial forecasts and performance predictions, ensuring compliance with the TAMP.

3.1.4 Travel Speed Deflectometer (TSD) support. ($14,000 Personnel) + ($33,100 Operating)

This effort supports and augments ITD staff for the TSD data collection. Effort will be led by Infrascense teamed with Kercher Engineering and Nickles Engineering. Specifically this work will
be assisting with TSD route Planning and coordination and working toward incorporating TSD data into TAMS and associated database modifications.

3.1.5 Development of a Prediction Model for Pavement Temperature. ($3,000 Personnel)

This item is for Asset Management staff time to oversee a research project with the University of Idaho to develop and calibrate a pavement mid-depth temperature prediction model based on the Bells2 method. The output of this produce will improve personnel safety while performing falling weight deflectometer collection as they will not need to exit vehicle to manually record pavement temperatures. This model will also improve the accuracy of pavement performance forecasting because the temperature information will be able to be determined at each test location and time versus using an average.

FY2020 PRODUCTS
- Inventory of a sampling of the state’s roadways.
- Updated pavement construction history file and assessment of pavement condition on the State Highway System.
- Analysis of the entire State Highway System’s profile data, friction data and visual surface condition data.
- Provide a tool and training for the districts to provide recommendations for the next 5 years (updated ITIP).
- An accurate prediction of how spending will impact pavement condition in the future.
- Provide highway data to consultants authoring studies for the department.
- Prepare and release pavement management reports.
- Continue updating the division’s internet/intranet site with the most recent information.
- Accurately answer inquiries from the Legislature, executive managers, and the public.
- Provide a more consistent system by which to rate pavement cracking.
- Provide an improvement in the pavement data collected, and thus the accuracy of the pavement reporting, by applying software that can analyze images collected by the Profiler van.
- Transportation Asset Management Plan.
- Refined Pavement Performance Curves.
- Movement toward total HPMS data item coverage of the Federal Aid System
- Automated HPMS submittal reporting tools nested in GIS software
- Improve the HPMS data collection and management processes to increase the accuracy and reliability of the data
- Continue to refine the method of gathering HPMS data from local jurisdictions to make it more effective.
- Work with FHWA to handle MAP-21 and FAST Act requirements affecting HPMS
- Provide maps and supporting pavement condition reports after each HPMS submittal.

ASSESS PAVEMENT CONDITION OF THE STATE HIGHWAY SYSTEM FY17 BUDGET

| Federal Aid       | $523,606  | Match          | $130,901 | = $654,507 |

30
OBJECTIVES

- Obtain traffic volumes and vehicle-classification counts statewide and determine the proportion and type of vehicles in a sample traffic stream.
- Maintain historical traffic-characteristic files and make them available for current and forecasted traffic analysis.
- Process traffic data of all types in support of other data-management systems.
- Review vehicle classification data. Develop statistics and reports to be used for highway location and design, evaluation of program priorities, evaluation of highway accidents, rural and urban statistical traffic assignments, travel trends, highway finance, and land developments.
- Work with annual data from 225 permanently installed Automatic Traffic Recorders (ATRs) with 191 on the state highway system and 34 at off-system sites. Develop traffic segment flow conclusions and provide seasonal variation factors, design hour volumes, and reasonable sampling and screen line data.
- Develop relevant statistics from portable counters used as required for intersection turning movements and a broad range of other traffic data collection activities. Analyze vehicle classifications, and traffic-volume flow based on portable counter data.
- Collect vehicle weight, axle spacing, speed, classification, and bumper-to-bumper lengths from a representative sample portion of the traffic stream.
- Collect and distribute Equivalent Single Axle Loadings (ESAL) information as well as the newer Load Spectra Data. This data is used for pavement-management purposes, roadway design and location planning, traffic operations and regulations, and highway funding requests.
- Support Transportation Systems modeling with traffic-related data models.
- Support freight monitoring on commerce and other identified routes.

METHODOLOGY

($713,190 Personnel) + ($674,500 Operating)

The Roadway Data Section collects the traffic volume, vehicle classification, and truck weight data via the use of permanent and portable traffic recording equipment. Server and desktop applications allow for the analysis and development of necessary statistics and traffic flow patterns. Receive, review, analyze, and process the field data for use by the department and private sector. Interface with server support personnel to maintain ongoing applications.

Maintain and operate 26 permanent Weigh-In-Motion (WIM) systems to collect classification and axle-loading data throughout Idaho. Perform regular maintenance functions at these sites including system calibration, electronics and telecommunications troubleshooting, plus sensor and loop repairs. An office employee handles all data processing, analysis, and reporting, plus federal data submissions. We also maintain and constantly update a website containing current and historical traffic survey related information.
monthly and annual reports. In order to support freight modeling and federal submittal process, data models are employed to extrapolate traffic information.

**FY2020 PRODUCTS**

- Generate reports and data sets from traffic counts including one-third of the HPMS and Principle Arterial System/National Highway System (PAS/NHS) sample sections.
- Review and collate classification data on selected HPMS sample sections for 24-hour and 48-hour periods.
- Analyze data and generate reports related to equipment verification or in conjunction with other studies.
- Participate in pooled fund studies.
- Compile statistics and data sets to be used with FHWA submissions as part of ITD’s annual program.
- Assist in equipment and data collection systems review to assess annual performance for accuracy.
- Install permanent WIM/ATR systems as replacements or to add new sites.
- Perform several major repairs and sensor installations on existing SHRP/LTPP WIM systems.
- Continue the upgrading of the Roadway Data Section of ITD’s website.
- Complete the federally mandated data submittal to the SHRP/LTPP regional office and the FHWA in Washington, D.C.
- Assist in various WIM data-related studies involving permanent system data and reports in conjunction with FHWA, private contractors and several research institutions.
- Participate in field system equipment reviews and meet with vendors to review new data collection systems and evaluate performance, data accuracy, and software.
- Contribute to MEPDG pavement design models as requested with traffic load related data inputs.
- Improve communication with ATRs by replacing the existing land lines with cellular modems and solar panels when possible.
- Document the data collection, quality assurance, and submittal processes.
- Calculate state-wide VMT and provide statistics for HPMS submittal.
- Work with other agencies and sections to meet federal HSIP requirements from MAP-21 and FAST Acts.
- The budget reflects a single year increase of $50,000 for research into factor analysis, partnering with the University of Idaho.

**VEHICLE VOLUMES, CLASSIFICATION, WEIGHT, AND CHARACTERISTICS FY20 BUDGET**

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ITEM 3.3 – DATA ANALYTICS (FL-P280)

ITD CONTACT:  David Coladner  
Research Analyst, Principal  
(208) 334-8233

OBJECTIVES

- Use principles of Data Science to discover patterns and relationships across ITD data sets as well as third party data sets
- Use existing models (such as the Statewide Travel Demand Model) to assess the impact of proposed capacity-improving projects, discover patterns of highway use
- Create models to predict outcomes from changing a variety of input variables (with previously unknown relationships)
- Put data analytics capabilities in the hands of as many ITD staff as possible
- Work with Information Management staff (in ETS) to develop metrics for assessing the usefulness of third-party data
- Manage and make available National Performance Management Research Data Set (NPMRDS)
- Statewide Travel Demand land use and travel network data refresh to 2017/2018 values
- Work with Planning Services staff to develop statewide congestion measure(s)
- Support Safety & Capacity Program project prioritization (TREDIS) efforts by supplying travel data as input

METHODOLOGY

Item 3.4.1 Data Analytics
($188,189 personnel + $135,000 project operating)

- We desire to roll out Data Analytics to ITD staff. The plan is as follows:
  - Organize our Data Analytics office to standardize our skills set (this includes a small staff with intern complement, $25,000)
  - Work with other work units throughout ITD to deliver actionable information using ITD tools
  - Work with Information Management on third-party data quality assessment
  - Obtain professional services to provide high-level technical support with ITD Performance Management and Data Analytics priorities ($50,000)
  - Obtain professional services to provide information regarding best practices for transportation data management ($60,000)

Item 3.4.2 System Modeling
($11,500 routine operating + $50,000 project-related operating)

- Perform model analyses of various types (such as Statewide Travel Demand to study the effects of changes in the highway system or in population characteristics)
- Obtain professional services for assistance in updating/restructuring the land-use zones in the Travel Demand Model to bring it up to date with 2017/2018 data
• Purchase Travel Speed Data (likely from INRIX) for 2020. Its full cost is $125,000, we budgeted $25,000 in hopes to partner with others (including external agencies) to get the full product. If this is not successful, we can purchase less coverage or fewer months of data.

FY2020 PRODUCTS
• A Data Analytics work group that is starting to deliver Data Analytics/Dashboards/Tools to users throughout ITD using industry best-practices
• Updated Travel Demand Model Land-Use data
• Useful modeled travel characteristics data inputs to the TREDIS model (ongoing for each year)
• Travel Speed Data available to ITD staff for the majority of well-traveled roads in Idaho

SYSTEM MODELING FY2020 BUDGET

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ITEM 4.0 – FREIGHT PLANNING (F20901J, FR-P802)

ITD CONTACT: Jeff Marker
Public Transportation Manager
(208) 334-4475

OBJECTIVES

- Support the goals of the Idaho Transportation Department’s Strategic Plan
- Fulfill Idaho Statewide Freight Strategic Plan recommendations regarding freight program execution and freight related infrastructure project and needs development
- Develop a statewide freight performance program
- Expand and/or maintain existing partnerships with organizations that focus on freight activity
- Develop a system and methodology to monitor statewide needs for freight improvements
- Identify potential freight projects and areas for improvement through innovative solutions
- Provide for an intermodal and coordinated plan that includes other modal plans that touch freight
- Identify and work to gather necessary data to continue to create a data-driven approach to freight movement in Idaho
- Identify significant freight system trends, needs, and issues
- A description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State
- Consideration of innovative technologies and operational strategies, including intelligent transportation systems, that improve the safety and efficiency of freight movement
- An inventory of facilities with freight mobility issues, such as truck bottlenecks, within the State, and a description of the strategies the State is employing to address those freight mobility issues
- Develop emerging transportation technologies statewide

METHODOLOGY

4.1 Freight Program Development
($41,570 Personnel) + ($5,615 Travel + Routine Operating)
Continue development of the state freight program based on the statewide freight strategic plan recommendations and integrating FAST Act requirements. Provide a framework to continually engage in policy, stakeholder outreach, and problem solving to find innovative solutions and opportunities to grow Idaho’s freight capacity and economy.

4.2 Freight Advisory Committee Functions
($11,878 Personnel) + ($3,745 Travel + Routine Operating)
Lead department liaison with Freight Advisory Committee. Refine program integrating Freight Advisory Committee recommendations into the Department’s long term infrastructure investment plan using FAST Act criteria, statewide freight strategic plan recommendations, performance measures and freight formula fund allocations.

4.3 Freight STIP Involvement
Administer an external and internal ITD process, that collects relevant information and data regarding freight movement in Idaho, allows for stakeholder input into high priority corridors and projects areas as identified by freight stakeholders and then passed on to ITD District leaders for consideration in the STIP project development and selection.

4.4 Freight Performance Measures
($5,937 Personnel)
Track and report on freight performance measures as required by the Federal Highway Administration and as recommended through the statewide freight strategic plan. Using performance measure outcomes recommend areas for improvement focused on improving safety, increasing mobility and enhancing economic opportunities.

4.6 Freight Summit
($11,880 Personnel) + ($20,000 Operating)
Create and implement a Freight Summit to foster relationships among freight stakeholders, disseminate freight related information and collect stakeholder input and recommendations for improving freight mobility. This Summit will focus on freight policies in Idaho, and regional and local trends that will affect Idaho’s economy in the coming years.

4.5 Emerging Technologies
($23,755 Personnel) + ($20,000 Travel and Routine Operating)
Coordinate the Idaho Transportation Department’s Economic Opportunity and Mobility Strategic Team which is tasked to address future development of emerging transportation technologies. Activities include developing automated and connected vehicle testing and deployment and alternate fuel vehicle corridor expansion. Act as the ITD liaison to intelligent transportation systems organizations and research programs.

FY2020 PRODUCTS

- Development of Program Structure for ITD’s Freight Program, includes Freight Advisory Committee Deliverables, Legislative Engagement, and STIP Project Engagement
- Implementing Freight Performance Measures
- Develop Freight Project Identification in the STIP process
- Execute outreach program with the private sector to drive economic growth
- Refine critical rural and urban freight corridors meeting FAST Act and FHWA requirements
- Develop emerging transportation technology opportunities to include implementing Autonomous and Connected Vehicle Testing and Deployment Committee recommendations

IDAHO STATEWIDE FREIGHT PROGRAM FY20 BUDGET

<p>| Federal Aid | $134,508 | Match | $33,627 | = | $168,135 |</p>
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ITEM 5.0 – FINANCIAL PLANNING AND PROGRAMMING (F20901K, TI-P301)

ITD CONTACT: Joel Drake
Financial Planning & Analysis Manager
(208) 334-8734

BACKGROUND

The Idaho Transportation Department’s Financial Planning and Analysis group (FP&A) is responsible for development and management of the Statewide Transportation Improvement Program (STIP). Additionally, FP&A conducts financial analyses as part of ITD’s project planning and selection process by determining the economic impact of candidate projects using Benefit Cost Analysis (BCA).

The approach to complete the annual update of the STIP has the following FP&A planning components and cost estimates for the 2019-2020 SPR planning year:

1. **STIP Pre-planning** ($13,238 Personnel + $491 Operating Expenses = $13,729)
   Develop planning task list, schedule and calendar for the FY2021 STIP/ITIP Program Update process. Identify and reflect involvements from all parties and jurisdictions involved in the process: ITD senior management, ITD’s FP&A and Planning Services sections, ITD asset and program managers, ITD District personnel, local jurisdictions including the Local Highway Technical Assistance Council (LHTAC), the five Metropolitan Planning Organizations (MPO’s), and the Federal Highway Administration and Federal Transit Administration, as applicable.

2. **Develop Highway Funding Plan, STIP Investment Levels, and Funding Targets** ($19,560 Personnel + $3,729 Operating Expenses = $23,289)
   FP&A analyzes and forecasts Federal and state funding levels for the seven-year ITIP/STIP planning horizon; funding and eligibility guidelines are developed for performance programs contained within the STIP such as Pavement Preservation, Highway Safety, etc.; an initial update of the Highway Funding Plan is developed for the seven year period of the STIP and ITIP updates.

3. **Develop Program Update Manual with STIP Update Guidance** ($15,335 Personnel + $2,923 Operating Expenses = $18,258)
   The FY2021 Program Update Manual will be developed, published and distributed in both hard copy and electronic form. The Program Update Manual contains all funding, program eligibility and timeline guidance for the planning process to create the FY2021-2027 STIP and ITIP updates and is prepared with input from all parties listed in the description for item #1 above.

4. **Develop & Deliver STIP Update Training** ($3,756 Personnel + $716 Operating Expenses = $4,472)
   FP&A develops and delivers training to departmental and external planners involved in the update of the STIP so they are prepared to utilize planning tools such as OTIS and the Program Update Manual.

5. **Develop Economic Analysis i.e. Benefit Cost Analysis (BCA) for Projects in the Draft Program** ($26,211 Personnel + $4,997 Operating Expenses = $31,208)
As part of the project selection process within the Program Update process, FP&A evaluates new projects to determine how well the project addresses the key Departmental goal of improving the state’s economic condition. A Benefit Cost Analysis (BCA) is conducted which includes as outputs a Benefit Cost Ratio (BCR). Comparison of these outputs for a portfolio of new projects helps in prioritizing the candidate projects and making a final selection of projects to include in the program.

6. **Develop Initial Draft of STIP** ($30,263 Personnel + $5,770 Operating Expenses = $36,033)
   ITD planners representing the department’s six districts along with program-specific ITD planners and planners from the COMPASS MPO electronically submit their selection of projects for the seven-year ITIP/STIP planning horizon. ITD public transit and aeronautics staffs electronically submit their programs. These are merged with local program project submittals from the five Idaho metropolitan planning organizations and the Local Highway Technical Assistance Council.

7. **Preliminary Analysis of Draft Program** ($17,768 Personnel + $3,388 Operating Expenses = $21,156)
   FP&A balances the draft STIP across all districts and program areas to ensure fiscal constraint by year, exhibits explaining program performance are developed for review by the Idaho Transportation Board.

8. **Prepare and Review Draft Program with Idaho Transportation Board** ($11,110 Personnel + $2,118 Operating Expenses = $13,228)
   FP&A reviews the process with which the Draft program was developed and presents analytical exhibits to the Board and responds to questions using system-developed reports and other materials; the Board directs proceeding to the public involvement step in the STIP Development process.

   ITD uses innovative means for improving its public involvement process regarding the draft program. This includes: use of an expanded project description field as a public scope statement providing a more detailed description of each project in ‘plain English’; and a GIS map-based public comment collector tool called the ‘Idaho Transportation Project Map’ which provides the public a geographic view of projects in their part of the state. For the FY2021 Program Update, the automated processes to create the public scope statements and geographic representations of project locations will continue to be optimized and streamlined. The public will be directed to the electronic draft program documents on ITD’s website and to the GIS map-based ‘Idaho Transportation Project Map’ described above. In addition to these tools and features, FP&A will also focus on developing various ‘views’ of the draft FY2021-2027 program as both hard copy documents and as electronic files on the “Draft ITIP” tab of this website [http://itd.idaho.gov/funding/](http://itd.idaho.gov/funding/).

10. **Prepare Recommended Program with Approval by IT Board** ($19,185 Personnel + $3,657 Operating Expenses = $22,842)
   FP&A shares the final version of the draft program along with a listing of comments received during the public involvement review period with the IT Board for their approval.
11. **Make Programming Adjustments to the Prior Version of the STIP** ($8,794 Personnel + $1,677 Operating Expenses = $10,471)

FP&A amends or administratively modifies the previous version of the approved STIP to allow new fiscal year projects to obligate funds without depending on approval of the updated new STIP. FP&A and the Planning Services sections use a set of guidelines and process document for STIP amendments and administrative modifications.

12. **Submit updated STIP for federal approval** ($19,560 Personnel + $3,729 Operating Expenses = $23,289)

FP&A submits the final IT Board-approved program to the FHWA and FTA along with all supporting documentation.

These twelve steps targeted towards the annual STIP update have a total personnel cost of $202,087 with total operating expenses of $36,496 for an overall total budget of $238,583.

To provide on-going planning support related to the maintenance and implementation of the ITIP and STIP, the following five task areas numbered 13 through 17 are identified:

13. **Perform Economic Analysis (BCA) of Additional Projects** ($59,025 Personnel + $2,191 Operating Expenses = $61,216)

As additional new projects are identified and brought forward during the program year, they are evaluated for their economic impact by performing the same type of Benefit Cost Analysis included within Step 5 of the Program Update Process. Outputs from this analysis help guide the planning decision to include these new projects in the program. This task area also includes development of Benefit Cost Analysis as needed to meet submittal requirements for discretionary funding opportunities such as through the INFRA and BUILD programs.


FP&A develops revenue forecasts and financial projections and utilizes financial analysis and evaluation techniques as a key component within its project and program planning toolkit. Financial analysis methods such as break-even analysis along with Net Present Value and Internal Rate of Return analysis of project costs and benefits helps in sorting through project options and making better decisions regarding project and program directions. This task area includes development of financial plans to meet US DOT/FHWA requirements such as for the Transportation Asset Management Plan (TAMP).

15. **Implement and Manage STIP** ($216,050 Personnel + $41,192 Operating Expenses = $257,242)

FP&A manages the FHWA/FTA approved STIP throughout the year including processing of changes to the approved program, processing obligation requesting and showing the status of these in the STIP project and program records, continuously maintaining fiscal constraint, providing reports on the status of projects in the STIP to program managers and project sponsors, generating STIP publications throughout the year for various audiences, and providing STIP performance information to all interested parties. FP&A uses a software application, the OTIS (Office of Transportation Investments System) to process transactions, record data, and report information used to implement and manage the STIP. Annual maintenance costs for the OTIS system are included within Operating Expenses allocated to this and other task areas.
FP&A also is responsible to develop and implement administrative and IT Board policies which address the STIP planning processes throughout the year.

   FP&A partners with other ITD section such as Planning Services to integrate its OTIS system into the workflow of other planning systems such as Project Online along with other financial systems such as AMS and FMIS.

17. **Archive STIP Transactions and Documentation** ($11,094 Personnel + $413 Operating Expenses = $11,507)
   Ongoing planning tasks for projects in the approved STIP span multiple years outside the 4 year time horizon of the current STIP require maintaining historical archive records and information for prior year projects; often, this is to check funding eligibilities for projects and fund sources from past years and prior highway funding bills.

These five task areas have a total personnel cost of $358,151 with total operating expenses of $49,304 for a total budget of $407,455.

Overall, the total personnel costs for all 17 STIP Planning areas is $560,238; the Total Operating Costs are $85,800. Total SPR personnel and operating costs for the 2019-2020 Program Year are $646,038.

**STAFFING**

FP&A has a lead manager with responsibilities for the entire section. Additionally, there are two managers responsible for distinct functions within the section. One has primary oversight responsibilities for the annual development and management of the ITIP and STIP. The other leads FP&A’s analytical responsibilities which are part of the ITIP and STIP development process in the context of ITIP/STIP project analysis and selection. There are nine FP&A staff of which six have ITIP/STIP development-related responsibilities. These six staff-members consist of transportation planners, financial planners and research analysts responsible for the performance of these STIP develop/implemention tasks throughout the year. Personnel involvement for all seventeen STIP/ITIP planning areas is as follows:

<table>
<thead>
<tr>
<th>STIP Planning Lifecycle Stages</th>
<th>FP&amp;A Staff Involvement</th>
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<tbody>
<tr>
<td>1 STIP Pre-planning</td>
<td>3 Mgrs. plus 4 staff</td>
</tr>
<tr>
<td>2 Develop HFP, STIP Investment Levels and Funding Targets</td>
<td>3 Mgrs. plus 4 staff</td>
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<td>3 Develop Program Update Manual with STIP Update Guidance</td>
<td>2 Mgrs. plus 4 staff</td>
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<td>4 Develop &amp; Deliver STIP Update Training</td>
<td>2 staff</td>
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<tr>
<td>5 Perform Economic Analysis (BCA) of Projects in Draft Program</td>
<td>3 Mgrs. plus 2 staff</td>
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<tr>
<td>6 Develop Initial Draft of STIP</td>
<td>3 Mgrs. plus 5 staff</td>
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<tr>
<td>7 Preliminary Financial Analysis of Draft Program</td>
<td>3 Mgrs. plus 3 staff</td>
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<tr>
<td>8 Prepare and Review Draft Program with Idaho Transportation Board.</td>
<td>3 Mgrs. plus 3 staff</td>
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<tr>
<td>9 Conduct Public Involvement Process - Review of Draft Program</td>
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<tr>
<td>10 Prepare Recommended Program with Approval by IT Board</td>
<td>3 Mgrs. plus 3 staff</td>
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<tr>
<td>11 Make Programming Adjustments to Prior STIP</td>
<td>3 Mgrs. plus 4 staff</td>
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</table>
For the FP&A staff listed above with responsibilities among these seventeen STIP/ITIP planning areas, other than administrative duties such as attending staff meetings and taking training, the majority of time is spent within the STIP/ITIP planning and implementation arena.

OBJECTIVES FOR FY2019-2020

Besides completing the update of the FY2020-2026 STIP/ITIP, and beginning the development of the FY2021-2027 STIP/ITIP as defined in the first twelve task areas defined above, FP&A will focus on the following overarching objectives for the year:

- FP&A will ensure that transportation project and program planning procedures and policies are developed and in place to guide internal and external transportation planners in the development of their portion of the STIP.
- FP&A will partner with other ITD sections and other entities such as the FHWA to ensure that diverse transportation planning systems are integrated in terms of process workflow and data.
- FP&A will ensure that internal and external planners and their management have access to data information systems such as OTIS to improve planning efforts for their own transportation improvement programs (TIP’s).
- FP&A will encourage metropolitan planning organizations, especially those outside the Boise metropolitan areas, to access and utilize the OTIS planning system in developing and managing their own TIP’s at no cost to their operation.
- FP&A will maintain fiscal constraint of the STIP/ITIP throughout the lifespan of the STIP.

METHODOLOGY

- FP&A will complete the planning process for the annual update of the multi-modal STIP/ITIP for public review and FHWA/FTA approval.
- FP&A will explore, research, and evaluate opportunities to integrate project and program planning/management tools managed by FP&A such as OTIS, with project and program planning and management tools developed elsewhere within the department.
- Through continuing improvements to its OTIS system, FP&A will improve the department’s capability to provide timely and accurate project planning, budgeting, funding, and financial performance information statewide to department project managers, and other transportation stakeholders, both inside and outside the department.
- FP&A will improve ITD’s public involvement process for the draft STIP/ITIP by leveraging existing methods and developing new ways to deliver project and program information using different media and communications channels.
- FP&A will collaborate with other ITD GIS planning sections and resources to explore and implement additional ways to utilize on-line mapping resources to display information for projects managed in OTIS for the draft STIP to interested stakeholders and constituents.
- FP&A will provide analysis and technical support along with content development in the creation and updating of ITD planning policies.
- FP&A will respond and adjust to changes in transportation funding programs from the federal FAST highway reauthorization bill along with analyzing and implementing transportation funding programs developed and promulgated through any subsequent highway reauthorization bill.
- FP&A will continue to support the development and implementation of the FAST Act- required performance measures utilizing data contained within OTIS.
- FP&A will continue to integrate additional state funding into its ITIP and STIP program planning processes.
FY2019-2020 PRODUCTS

- FP&A will finalize the approval of the FY2020-2026 STIP/ITIP that is currently in development.
- FP&A will develop highway-funding plans for the FY2021-2027 STIP/ITIP that reflects current transportation funding levels.
- FP&A will develop and distribute transportation funding targets for use in planning efforts for the development of the FY2021-2027 draft program.
- FP&A will develop and implement an updated multi-modal Idaho Transportation Investment Plan (ITIP) that meets the needs of stakeholders and statewide constituents and ensures optimal transportation program performance.
- FP&A will enhance the ability to generate meaningful public scope statements as a starting point for further refinement by planners and other staff involved in the Program Update process.
- FP&A will develop and make available a variety of planning documents for use in reviewing and assessing the FY2021-2027 Draft Program:
  1. Idaho Transportation Investment Program Update Packet (December);
  2. Idaho Transportation Investment Program Board Presentation analytical exhibits (June) and program sheets for the draft program;
  3. Draft ITIP published for public review and comment (July);
  4. Final Recommended & Board Approved ITIP (in September/October) along with updates as needed;
  5. Recommended STIP submittal in federal format for FHWA and FTA review and approval (late October);
  6. Approved ITIP publication in federal format (Year of Expenditure dollars);
  7. Supplemental approved program listings as dictated by changes in funding, investment policies, etc.
  8. Transportation program system user manuals and other system documentation.
- FP&A will develop and promulgate financial analysis templates and other tools to assist planning entities with incorporating financial analysis as part of their project selection and planning processes.
- FP&A will develop Benefit Cost Analyses to accompany applications for discretionary funding applications such as INFRA and BUILD.
- FP&A will develop and maintain a financial plan component to be incorporated within the federally-mandated Transportation Asset Management Plan (TAMP).
- FP&A will enhance the OTIS project and program planning system to support the equitable distribution of resources such as obligation authority between the state and local highways systems.
- FP&A systems such as OTIS will be used by staff to provide access to information in support of the transportation planning function.
- FP&A will deliver training and workshops in transportation planning, use of planning support systems such as OTIS.
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Part B: SPR RESEARCH
Key #19923
ITEM 6.0 – RESEARCH (F20901R)

ITD CONTACT:  Ned Parrish
Research Manager
(208) 334-8296

OBJECTIVES
- To support research, development, and technology transfer activities addressing the department’s strategic goals and initiatives.
- To enhance ITD’s ability to deliver efficient and effective transportation services.
- To offer practical solutions for problems facing the Department.
- To develop new tools/technologies and facilitate their implementation.

PROGRAM RESPONSIBILITIES
- To administer federal SPR (State Planning & Research) funds for ITD research, development, and technology transfer.
- To coordinate Department involvement in multi-state pooled fund projects.
- To identify ITD research needs and priorities.
- To help staff locate transportation research and information.
- To oversee ITD research projects performed by universities and consultants.
- To coordinate ITD involvement in national and regional transportation research with TRB, AASHTO, and other organizations.
- To coordinate, publish and maintain the annual work program for planning and research.

ITEMS IN THIS SECTION
There are 20 sub-items in this section:
- Item 6.1 – National Cooperative Highway Research Program (NCHRP)
- Item 6.2 – AASHTO Programs, Partnerships and Groups
- Item 6.3 – National and Regional Pooled Fund Projects
- Item 6.4 – 2016 Cooperative Research Project (Montana State University)
- Item 6.5 – 2017 Cooperative Research Projects (Boise State University)
- Item 6.6 – 2018 Cooperative Research Project (Boise State University)
- Item 6.7 – 2018 Cooperative Research Project (University of Idaho)
- Item 6.8 – 2018 Cooperative Research Project (Idaho State University)
- Item 6.9 – 2018 Cooperative Research Project (Montana State University)
- Item 6.10 – 2019 Cooperative Research Project (University of Idaho)
- Item 6.11 – 2019 Cooperative Research Project (Idaho State University)
- Item 6.12 – 2019 Cooperative Research Project (Private Consultants)

RESEARCH BUDGET

| Federal Aid | $1,913,932 | + | Match | $231,140 | = | $2,145,072 |

YOUR Safety  •  •  •  YOUR Mobility  •  •  •  YOUR Economic Opportunity
ITEM 6.1 – NCHRP PROGRAM (2020)

IDENTIFICATION: TPF-5(4XX)
Title: National Cooperative Highway Research Program (NCHRP)
Research Agency: Various, coordinated by the Transportation Research Board
Work Plan Approval: Annual Agreement
ITD Key #: TBD

OBJECTIVE
- To provide support for the National Cooperative Highway Research Program (NCHRP), a national research program funded by the state DOTs and administered by the Transportation Research Board (TRB) under direction from the American Association of State Highway and Transportation Officials (AASHTO).

PROPOSED ACTIVITY – FY2020
- Continue support for national highway research program and initiate new projects as approved by AASHTO’s Special Committee on Research and Innovation.
- Ned Parrish, Research Program Manager, is the ITD Project Manager.

COST
- FY2020: $344,334 (100% Federal SPR)

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)

| Federal Aid | $344,334 | + | Match | 0 | = | $344,334 |

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ITEM 6.2 – AASHTO PROGRAMS, PARTNERSHIPS, AND GROUPS (ONGOING)

This item contains descriptions of AASHTO Programs that ITD is participating in for FY2020. It includes annual contributions for selected Technical Service Programs and ITD Involvement in two AASHTOWare software projects. The total budgeted in FY2020 is $525,000, which includes $375,000 in prior year federal SPR funds to support the AASHTOWare Data Analytics Software project.

ITEM 6.2.1 – AASHTO Technical Service Programs

IDENTIFICATION:
Title: Support for AASHTO Technical Service Programs
Research Agency: AASHTO
Work Plan Approval: Ongoing Programs

OBJECTIVES
This item provides financial support for several AASHTO technical service programs, including:
- National Transportation Product Evaluation Program (NTPEP).
- Design Publication Maintenance (DPM)
- AASHTO Innovation Initiative (AII).
- Equipment Management Technical Services Program (EMTSP).
- Transportation System Preservation Technical Service Program (TSP²).
- Load and Resistance Factor Design (LRFD) Bridges and Structures Specification Maintenance.
- Development of AASHTO Materials Standards (DAMS).
- Environmental Technical Assistance Program (ETAP)
- Census Transportation Planning Products (CTTP) Technical Service Program
- Snow and Ice Cooperative Program (SICOP)
- Transportation Curriculum Coordination Council (TCCC) Technical Service Program

PROPOSED ACTIVITY – FY2020
Provide ITD continued support for programs listed above. Key ITD staff include:
- Tom Furrer, Design/Traffic Business Analyst, is the ITD Project Manager for NTPEP.
- Kevin Sablan, Design/Traffic Engineer, is the ITD Project Manager for DPM.
- Ned Parrish, Research Manager, is the ITD Project Manager for AII.
- Steve Spoor, Maintenance Program Manager, is the ITD Project Manager for EMTSP.
- Matt Farrar, State Bridge Engineer, is the ITD Project Manager for TSP² and LRFD.
- Mike Santi, Materials Engineer, is the ITD Project Manager for TSP² and DAMS.
- Wendy Terlizzi, Environmental Manager, is the ITD Project Manager for ETAP.
- Sonna Lynn Fernandez, Planning Services Project Manager, is the ITD Project Manager for CTPP.
- Steve Spoor and Nestor Fernandez, Mobility Services, are the ITD Project Managers for SICOP.
- Amanda Regnier, Training Program Supervisor, is the ITD Project Manager for TCCC.
COST
- FY2020: The budget for Technical Service Programs is $150,000 ($120,000 Federal SPR (80/20)).

AASHTO ENGINEERING TECHNICAL SERVICE PROGRAMS

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ITEM 6.2.2 – AASHTOWare Bridge Design Rating (BRDR)

IDENTIFICATION:
Title: AASHTOWare Bridge Design Rating (BRDR)
Research Agency: AASHTO
Work Plan Approval: Approved

OBJECTIVES
This item will develop and modernize the current AASHTOWare Bridge Design Rating (BRDR) software used by ITD and other state DOTs. AASHTO has estimated the total cost of upgrading the software at $14.8 million and requested that 20 states contribute $740,000 over four years to support this effort. FHWA determined that the project was eligible for SPR Part B (Research) funding. ITD support of the project will allow the department to help guide the modernization effort and ensure the software upgrades address ITD needs. The software modification project will enhance the system used by ITD by:

- Upgrading the core technology to a modern software architecture that better utilizes current and future hardware and the latest software development technologies.
- Improving analysis performance by taking advantage of the latest hardware and software advances – primarily parallelization by using the multi-threading capabilities of the new processors and the latest parallel task libraries (i.e. running multiple tasks simultaneously).
- Improving and simplifying the user interface – easier to use for beginners without losing modeling flexibility and robustness for advanced users.
- Improving reporting capabilities.
- Reduce maintenance costs.

PROPOSED ACTIVITY – FY2020
Continue ITD involvement in the multi-year AASHTOWare Bridge Design Rating (BRDR) Software Modernization Project:

- Matt Farrar and Shanon Murgoitio, ITD Bridge Section, are the ITD Project Managers.

COST
- FY2020: Funding commitment met – no additional funding needed. We fulfilled our $740,000 commitment in FY2017.

AASHTO Bridge Rating Software Modernization Project

| Federal Aid | $0 | + | Match | $0 | = | $0 |

| Amendment Added: | YES | NO | Date Amended: |

| Comments: |
ITEM 6.2 – AASHTOWare Project Data Analytics Software

**IDENTIFICATION:**  
ITD KEY # 22164  
Title: AASHTOWare Project Data Analytics Software  
Research Agency: AASHTO  
Work Plan Approval: Approved

**OBJECTIVES**
This item will develop the Data Analytics module in the AASHTOWare Project software used by ITD and other state DOTs. The software module will be delivered as both web-based and Software-as-a-Service (SAAS) platforms, providing decision support and analysis functionality, including two construction dashboard components. The software development effort, which is scheduled to be completed over a 48-month period, involves developing features that will enable agencies to analyze AASHTOWare Project data to find patterns, draw conclusions, and make better data-driven decisions. The total estimated cost of the project is $10,929,825 and each participating state will contribute $750,000 over the life of the project. FHWA determined that the project was eligible for SPR Part B (Research) funding. ITD support of the project will allow the department to be part of the Technical Review Team that helps guide the project.

**PROPOSED ACTIVITY – FY2020**
Continue ITD involvement in multi-year project to develop Data Analytics module for AASHTOWare Project software.

- Mark Snyder and Ken Sereduk, ITD Highway Data Section, are the ITD Project Managers.

**COST**
- FY2020: $375,000 (100% Federal SPR) is being budgeted in FY2020. Funding for this project will come from using a portion of unspent prior year SPR funds. The initial $375,000 committed to the project was budgeted in FY2019. This will fulfill our commitment to the project.

**AASHTO Bridge Rating Software Modernization Project**

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**FY2020 CHANGES**

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54
ITEM 6.3 – NATIONAL AND REGIONAL POOLED FUND PROJECTS (2020)

This item contains descriptions of pooled fund projects that ITD is actively participating in for FY2020. A total of $270,039 is budgeted for pooled fund project contributions in FY2020. $263,580 is committed to specific projects outlined below and the remaining funds are available to address requests that are received during the year. In addition, four additional projects were added to the FY2020 work program with contributions to be made using $192,500 in unspent prior year SPR funds.

ITEM 6.3.1 – TPF-5(255)

IDENTIFICATION:
TPF-5(255)
Title: Highway Safety Manual Implementation
Research Agency: Federal Highway Administration
State Contact: Jerry Roche, jerry.roche@dot.gov
FHWA Contact: Jerry Roche, jerry.roche@dot.gov
Work Plan Approval: Approved
ITD Key Number: 13336

OBJECTIVE
- The objectives of the study are (1) to advance ongoing efforts by lead states to implement the Highway Safety Manual (HSM), and (2) to expand implementation to all states. This study will be coordinated with other ongoing and planned implementation activities sponsored by AASHTO, FHWA, and TRB. It will also be coordinated with projects that develop content for future editions of the Highway Safety Manual.

PROPOSED ACTIVITY – FY2020
During FY2020, TPF-5(255) will:
- Initiate new priority projects that a majority of TPF-5(255) States support from the following proposed projects:
  - HSM Case Studies (highlighting various analysis methods and tools)
  - Data dictionaries with definitions and crosswalks to MIRE-FDE and MMUCC for the HSM2
  - Recommendations to state DOTs and for NCHRP research projects to support management and archiving data used to develop predictive methods
  - Assess ways that state DOTs can deal with scientific discoveries in between HSM editions.

- John Tomlinson, Highway Safety Manager, is the ITD Project Manager.

COST
- FY2020: Funding commitment met – no additional funding needed. Our commitment of $80,000 was fulfilled in FY2014.
**FY2020 CHANGES**

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OBJECTIVE
The objectives of the study are:

- Explore the technical and operational feasibility of a multi-jurisdictional road usage charge system.
- Investigate public and key decision maker criteria for acceptance; share experience and lessons learned to foster positive outcomes.
- Develop standards and protocols for how road use charges could best be collected and remitted among the various jurisdictions.
- Develop preliminary operational concepts for how a multi-jurisdictional road usage charge system would be administered.
- Develop a model for regional cooperation and interoperability that can be used in the Western region and potentially across North America.
- Engage the automotive manufacturing and technology sector to encourage the ability for mileage reporting to occur in conjunction with other products and services the sector provides in the marketplace.
- Share knowledge to maximize the preparedness for and efficiency of policy and program development for road usage charging among the members.

PROPOSED ACTIVITY – FY2020
Work scheduled for FY2020 will include:

- Update RUC West Data: Update data used by RUC West such as fuel efficiency, cost inflation data, etc. used in calculation of statistics and data on website, folios, presentations, etc.
- Regional RUC Pilot: Phase 2 - Interoperability Demonstration. Demonstrate an interoperable RUC between California and Oregon.
- Evasion and potential enforcement policy options.
- AV/RUC Demonstration Project: The AV/RUC project will attempt to demonstrate a functional, combined AV and RUC implementation that serves to validate data sharing between onboard, AV telemetry and current RUC systems. The project, and resultant report, will address technological and administrative considerations and may be used to inform further system development and potentially policy.
- Elements of Administrative Costs - PHASE 1 of Administrative Costs: High administrative cost is a potential roadblock to implementation - phase 1 investigates elements of costs by examining a clearing house concept and how IFTA model works and could be applied to RUC work (prototypical concept).
- Matthew Moore, Transportation Legislation/Policy Specialist, is the ITD Project Manager.
COST

- FY2020: Funding commitment met – no additional funding needed. Our commitment of $80,000 was fulfilled in FY2019.

FY2020 CHANGES

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ITEM 6.3.3 – TPF-5(343)

IDENTIFICATION: TPF-5(343)
Title: Roadside Safety Research for MASH Implementation
Research Agency: Washington State DOT
Lead State Contact: Mustafa Mohamedali, mohamem@wsdot.wa.gov
FHWA Contact: Will Longstreet, will.longstreet@dot.gov
Work Plan Approval: Approved
ITD Key Number: 19802

OBJECTIVE
- 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.

PROPOSED ACTIVITY – FY2020
In FY2020, research will focus on testing of guardrail systems prioritized by pooled fund representatives. Some of the ongoing projects that are expected to continue in FFY20 include:
- Thrie/W-Beam/Tubular Barrier Gap Rail for MASH TL-3
- MASH TL-4 Investigation and Testing of the Critical Flare Rate for Cast-in-Place Single Slope 42" Concrete Barrier Flaring around a Fixed Object
- MASH TL-4 Testing and Evaluation of a Concrete Median Barrier with Fence Mounted on Top
- Review and Investigation of W-Beam Guardrail Terminals with Curbs
- Testing and Evaluation of Large Signs Slipbase Support on Slope at MASH TL-3 Impact Conditions
- MASH Testing of Keyed-In Single Slope and F-Shape Barriers with Drainage Scuppers

In addition, Pooled fund representatives will meet in the fall of 2019 to determine the next set of research priorities.
- Marc Danley, Technical Engineer 2, Design/Traffic is the ITD Project Manager.

COST
- FY2020: $25,000 (100% Federal SPR). ITD’s Research Advisory Council voted to commit an additional $50,000 ($25,000 annually) for FY2019 through FY2020. This will fulfill our commitment to this project.

FY2020 CHANGES

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ITEM 6.3.4 – TPF-5(349)

IDENTIFICATION: TPF-5(349)
Title: Western Alliance for Quality Transportation Construction (WAQTC)
Research Agency: Utah Department of Transportation
State Contact: David Stevens, davidstevens@utah.gov
FHWA Contact: Howe Crockett, Howe.Crockett@dot.gov
Work Plan Approval: Approved
ITD Key Number: 20305

OBJECTIVE:
WAQTC is focused in three main areas: Standardizing test methods (WAQTC, AASHTO, and ASTM), accreditation of the Transportation Technician Qualification Program (TTQP), and working together on national programs of significance including research, training, and technology deployment.

PROPOSED ACTIVITY – FY2020:
- Maintain and revise training and qualification materials to be compliant with the 37th edition of AASHTO’s Standard Specifications for Transportation Materials
- Distribute training materials, including training manuals, PowerPoint presentations, and written and practical exams, to member states.
- Develop and present proposed revisions and new standards to the AASHTO Subcommittee on Materials.
- Maintain the WAQTC website: www.waqtc.org.
- Mike Santi, Materials Engineer, serves as the ITD Project Manager.

COST:
- FY2020: $12,000 (100% Federal). ITD’s Advisory Council voted to commit a total of $60,000 to this pooled fund, $12,000 a year for five years, FY2017-FY2021.

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ITEM 6.3.5 – TPF-5(353)

IDENTIFICATION: TPF-5(353)
Title: Clear Roads Winter Highway Operations Pooled Fund, Phase II
Research Agency: Minnesota Department of Transportation
State Contact: Debra Fick, deb.fick@dot.state.mn.us
FHWA Contact: Gabriel Guevara, gabriel.guevara@dot.gov
Work Plan Approval: Approved
ITD Key Number: 20307 (the previous key # was 13338)

OBJECTIVE
• The Clear Roads pooled fund project will maintain its focus on advancing winter highway operations nationally but will include a more pronounced emphasis on state agency needs for technology transfer and implementation. Clear Roads will evaluate new tools and practices in both lab and field settings, develop industry standards and performance measures, provide technology transfer and cost benefit analysis, and support winter highway safety.

PROPOSED ACTIVITY – FY2020

Planned activities in FY2020 include:
• Complete or continue work on the following active projects including:
  o 16-05 Weather Event Reconstruction and Analysis Tool
  o 17-01 Integrating Advanced Technologies into Winter Operations Decisions
  o 17-02 Standard Specifications for Carbide Insert Blades
  o 17-03: Aftermarket Cameras in Winter Maintenance Vehicles
  o 18-01: Defensive Driving for Snowplow Operators
  o 18-02: High Performance Blade Evaluation
  o 18-05: Alternative Methods for Deicing
• Conduct research for new projects selected in April 2019 including:
  o Expanding Brine Recipes and Their Use
  o Comparison of Performance of Prewet Road Salt Distributed by Traditional Chain Conveyor Spreader Versus Auger-driven Slurry Spreader
  o Measuring the Efficiencies of Tow / Wing Plows
  o Specifications for Snowplow Route Optimization
  o Synthesis reports re:
    • Inventory and Use of Salt Spreading Systems
    • Benefits of Hiring a Meteorologist
    • Retention and Recruitment of Highway Maintenance Workers
• Conduct Annual Survey of Winter Maintenance Data
• Maintain Clear Roads website (http://clearroads.org/) and develop new subject-based web pages

• Steve Spoor, Maintenance Program Manager, is the ITD Project Manager.
COST:

- FY2020: $25,000 (100% Federal SPR). ITD’s Research Advisory Council voted to commit an additional $75,000 ($25,000 annually) for FY2019 through FY2021.

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ITEM 6.3.6– TPF-5(357)

IDENTIFICATION: TPF-5(357)
Title: Connecting the DOTs: Implementing ShakeCast Across Multiple State Departments of Transportation for Rapid Post-Earthquake Response
Research Agency: CalTrans
Lead Agency Contact: Yue Wang, yue.wang@dot.ca.gov
FHWA Contact: Sheila Duwadi, sheila.duwadi@fhwa.dot.gov
Work Plan Approval: Approved
ITD Key Number: 20308

OBJECTIVE
• The goal of the project is to bring participating DOTs into full ShakeCast operation for post-earthquake assessment of state and local bridge inventories. The project will provide a mechanism to actively engage representatives from state DOTs with the common interests in implementing and expanding the application of ShakeCast technologies to improve emergency response capabilities.

PROPOSED ACTIVITY – FY2020
Planned work in FY2020 will focus on:
  o Continue piloting use of the system for monitoring earthquake activity and potential bridge impacts.
  o Assess system performance and identify needed refinements to the system and established processes.
  o The partner states will meet to discuss system performance and next steps.

• Neal Murphy, Emergency Program Manager, is the ITD Project Manager.

COST
• FY2020: Funding commitment met – no additional funding needed. Our commitment of $45,000 was fulfilled in FY2019.

FY2020 CHANGES

Amendment Added: ☐ YES ☐ NO Date Amended:
Comments:
IDENTIFICATION: TPF-5(368)
Title: Performance Engineered Concrete Paving Mixtures
Research Agency: Iowa DOT
Lead Agency Contact: Khyle Clute, khyle.clute@iowadot.us
FHWA Contact: Ahmad Ardani, ahmad.ardani@dot.gov
Work Plan Approval: Approved
ITD Key Number: 20345

OBJECTIVE
• The objective of this study is to focus on the successful deployment of performance engineered mixtures. This will involve building off the foundational work that FHWA and the “PEM Champion States” have done, with emphasis on implementation, education and training, adjusting the specification values to relate accurately to good pavement performance in the field, and continued development of relating early age concrete properties to performance.

PROPOSED ACTIVITY – FY2020
Planned work in FY2020 will include:
• Gathering and evaluating testing data from PEM Shadow Test projects in ID, KS, WI, IL, MN, SC and CA.
• Reviewing SHA concrete paving specifications as they relate to the PEM initiative and share findings and suggestions with SHA’s to encourage advancement toward PEM implementation
• Develop revisions for AASHTO PP-84-21
• Conducting quarterly TAC meeting and an annual face-to-face two-day meeting to share lessons learned and provide implementation support.

• Craig Wielenga, Concrete/Structures Engineer, is the ITD Project Manager.

COST
• FY2020: $15,000 (100% Federal SPR). ITD’s Research Advisory Council voted to contribute a total of $75,000 to this pooled fund project at $15,000/yr. from FY2017-FY2021.

FY2020 CHANGES

Amendment Added: □ YES □ NO Date Amended:
Comments:
ITEM 6.3.8 – TPF-5(376)

IDENTIFICATION: TPF-5(376)
Title: Northwest Passage – Phase IVI
Research Agency: Minnesota Department of Transportation
State Contact: Cory Johnson, Cory.johnson@state.mn.us
FHWA Contact: Jack Jernigan, jack.jernigan@fhwa.dot.gov
Work Plan Approval: Approved
ITD Key Number: 20791

OBJECTIVE
- North/West Passage Corridor encompasses the states along I-90/I-94 from Wisconsin to Washington. The purpose of the pooled fund is to influence ongoing standards development and utilize effective methods for sharing, coordinating, and integrating traveler information across state borders. Improving coordination of traveler information is the initial focus, while coordinated maintenance, operations, planning, and programming are long-term visions.

PROPOSED ACTIVITY – FY2020
The activities approved for FY2020 include:
- Continue support for the Operations Task Force
- Apply Wyoming DOT Connected Vehicle Pilot Project Results to expand the use of the situational data warehouse developed through the pilot to other NWP members.
- Conduct peer exchange share and document NWP member states workforce practices as well as practices from other states.
- Conduct research to understand traveler information crowd sourcing on DOT traveler information websites.
- Perform research to document the similarities, differences, and usage of traveler information website features among the NWP states for consideration as modifications are made to their websites.
- Continue support of NWP Freight Task Force for another year.

COST
- FY2020: $25,000 (100% Federal) ITD’s Research Advisory Council (RAC) and FHWA previously approved committing a total of $50,000 ($25,000/yr. for two years) in FY2018 and FY2019. The RAC approved a request in the spring of 2018 to commit an additional $75,000 to the project at $25,000/yr. from FY2020-FY2022.

FY2020 CHANGES

Amendment Added: ☐ YES ☐ NO Date Amended:

Comments:
TEM 6.3.9– TPF-5(384)

IDENTIFICATION: TPF-5(384)
Title: Exploring Non-Traditional Methods to Obtain Vehicle Volume and Class Data
Research Agencies: Federal Highway Administration
FHWA Contact: Steven Jessberger, steven.jessberger@dot.gov
Work Plan Approval: Approved
ITD Key Number: 22139

OBJECTIVE
- The objective of this pooled fund project is to develop and deploy methods and approaches to obtain vehicle volume and classification data with passively collected data.

PROPOSED ACTIVITY – FY2020
- Validate the AADT from the newly developed non-traditional methods with FHWA’s Travel Monitoring Analysis System (TMAS) data, Highway Performance Monitoring System (HPMS) data, and other ground truth sources to determine data accuracy and precision. The non-traditional AADT methods will be compared to both the FHWA and AASHTO AADT methods for computing AADT from short-term counts as well as participating State agency current approaches. The validation effort should include different vehicle classes and roadway functional class categories.

- Margaret Pridmore, Roadway Data Section Manager, is the ITD Project Manager.

COST
- FY2020: Funding commitment met – no additional funding needed. Our commitment of $50,000 was fulfilled in FY2019.

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ITEM 6.3.10– TPF-5(385)

IDENTIFICATION: TPF-5(385)
Title: Pavement Structural Evaluation with Traffic Speed Deflection Devices
Research Agencies: Virginia Department of Transportation
State Contact: Bill Kelsh, Bill.Kelsh@VDOT.Virginia.gov
Work Plan Approval: Approved
ITD Key Number: 22143

OBJECTIVE
- Establish a research consortium focused on providing participating agencies guidelines on how to specify collection and use data collected with Traffic Speed Deflectometer Devices (TSDDs) for network- and project-level pavement management applications. Specific tasks within this multi-year program will be developed in cooperation with the consortium participants. In addition, the consortium will also provide participating agencies with a mechanism to conduct pilot demonstration testing in their respective networks.

PROPOSED ACTIVITY – FY2020
During FY2020, work tasks will include:
- Processing and analysis of the TSD data collected in FY2019.
- Collection of TSD data for additional highways in Idaho
- Defining specifications for QA, operational conditions, data processing, and structural index calculations.
- Begin developing protocols for incorporating TSD data into pavement management systems.
- Performing work to assess the value or return on investment (ROI) of the TSD data.
- The pooled fund is scheduled to be completed in September of 2021.
- James Poorbaugh, Asset Management Engineer, is the ITD Project Manager.

COST
- FY2020: Funding commitment met – no additional funding needed. Our commitment of $660,000 was fulfilled in FY2019.

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ITEM 6.3.11– TPF-5(388)

IDENTIFICATION: TPF-5(388)
Title: Developing Implementation Strategies for Risk Based Inspection (RBI)
Research Agencies: Missouri DOT
State Contact: Jennifer Harper, jennifer.harper@modot.mo.gov
FHWA Contact: Jack Jernigan, Jack.Jernigan@dot.gov
Work Plan Approval: Approved
ITD Key Number: 22140

OBJECTIVE
- The objectives of this pooled fund project are to study the implementation of RBI processes within State DOT programs and study the implementation of technologies to support RBI.

PROPOSED ACTIVITY – FY2020
- Work planned for FY2020 includes:
  - Developing the risk models necessary for implementation of RBI using the results of the Reliability Assessment Panel (RAP) meeting.
  - Verifying the risk models using back-casting which involves the application of the developed risk models to historical bridge inspection records to evaluate if the models would be effective if they had been applied in the past.
  - Initiating development of the handbook for RBI, which will include guidance and procedures for RBI planning, during this time period.
- Dan Gorley, Bridge Asset Manager Engineer, is the ITD Project Manager.

COST
- FY2020: Funding commitment met – no additional funding needed. Our commitment of $50,000 was fulfilled in FY2019.

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OBJECTIVE
The goals of the project include:

- Provide technology transfer to state, local, and international transportation agencies as well as vehicle Original Equipment Manufacturers (OEMs) in preparing for the deployment of connected vehicle infrastructure and to provide input to the AASHTO Connected and Automated Vehicle working group, USDOT Connected Vehicle Program, and other national initiatives.
- Establish a multi-phase program to facilitate research, field demonstration, evaluation, and technology transfer of connected vehicle infrastructure, vehicles, and applications.
- Aid transportation agencies and OEMs in justifying and promoting the large scale use of connected vehicle environment and applications through modeling, development, engineering, and planning activities.

PROPOSED ACTIVITY – FY2020

- Work planned for FY2020 includes:
  - Conducting a study of Vehicle to Infrastructure (V2I) Queue Advisory/Warning Applications including research of the concept and design requirements. Key project milestones in FY2020 will include:
    - Developing the concept of operations
    - Preparing a performance management technical memorandum
    - Developing requirements report
    - Preparing a high-level design report
    - Preparing the design verification technical memorandum

- Jeff Marker, ITD Emerging Technologies Lead, is the ITD Project Manager.

COST

- FY2020: $25,000 (100% Federal) ITD’s Research Advisory Council voted to commit $25,000 per year for two years to support this project. This fulfills our commitment to the project.

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ITEM 6.3.1– TPF-5(391)

IDENTIFICATION: TPF-5(391)
Title: Comprehensive Field Load Test and Geotechnical Investigation Program for Development of LRFD Recommendations of Driven Piles on Intermediate GeoMaterials
Research Agencies: Wyoming DOT
State Contact: Enid White, enid.white1@wyo.gov
Work Plan Approval: Approved
ITD Key Number: 22141

OBJECTIVE
- The objective of this pooled fund project is to
  - Determine representative engineering properties of soil and IGM;
  - Evaluate the variability of soil and IGM properties;
  - Recommend best geotechnical investigation practices for IGM;
  - Develop advanced static analysis methods for pile resistance estimation on IGM;
  - Validate and improve the accuracy of dynamic analysis methods;
  - Investigate pile setup and/or relaxation;
  - Develop LRFD resistance factors for piles on IGM; and
  - Recommend changes and improvements to current pile design and construction practices.

PROPOSED ACTIVITY – FY2020
- Complete collection of historic data and create database for this data and data that will be collected through field testing
- Finalize selection of project test sites
- Perform detailed geotechnical investigation and testing for selected field locations
- Begin data interpretation

- Dave Richards, ITD Geotechnical Engineer, is the ITD Project Manager.

COST
- FY2020: $15,000 (100% Federal) ITD’s Research Advisory Council voted to support the project at $15,000/yr. for three years from FY2019-2021

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ITEM 6.3.14 – TPF-5(394)

IDENTIFICATION: TPF-5(394)
Title: Western Maintenance Partnership - Phase 3
Research Agencies: Utah Department of Transportation
State Contact: David Stevens, davidstevens@utah.gov
Work Plan Approval: Approved
ITD Key Number: 22142

OBJECTIVE
- Provide a partnering forum for promoting effective maintenance strategies to meet the following objectives: provide funds for multi-day annual workshop; define, support, and share technology of mutual interest; provide funds for formal training presentations; and provide funds for special studies, investigations, research, and training.

PROPOSED ACTIVITY – FY2019
- Provide travel reimbursement funds for an annual meeting and a multi-day annual workshop/scan tour, for discussion and exchange of information and knowledge about each state’s maintenance program.
- Provide funds for formal training presentations during the annual workshop.
- Provide a forum to define, support and share technology of mutual interest.
- Implement task orders, as designated by the partnership members.
- Provide funds to manage the partnership’s operations and to maintain a web site that would display meeting reports, state guidelines and specifications.
- Provide funds for special studies, investigations, research and training.

- Steve Spoor, Maintenance Services Manager, is the ITD Project Manager.

COST
- FY2020: $5,000 (100% Federal) ITD’s Research Advisory Council voted to commit a total of $15,000 to this pooled fund, $5,000 a year for three years from FY2019-FY2021.

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OBJECTIVE

- This pooled-fund project will assist DOTs create enterprise GIS data management systems based on data governance best practices that support collaboration through shared business rules and standards with the goal of a single roadway dataset that meets the needs of multiple groups. The first phase of the project will develop guidance to be named, a document that will guide the Nation's DOT's to one geospatial transportation standard. Once the guidance is finalized, the Pooled Fund Study will provide assistance to the participating States to implement the guidance.

PROPOSED ACTIVITY – FY2020

The start of this project was delayed as FHWA sought commitments from State DOTs to partner on the project. As a result, the tasks listed in the FFY2019 work program will largely be performed in FFY2020 including:

- Perform self-assessment of existing data governance policies to determine if they support data quality and sharing.
- Identify common needs for state and local government transportation agencies responsible for roadway data collection, maintenance, and publication.
- Define the role of LRS in roadway data collection, maintenance, and publication operations.
- Establish core requirements for LRS, some of which can build on the work already completed for ARNOLD compliance.
- Identify the business rules that meet the core requirements for LRS and roadway data collection, maintenance, and publication.
- Establish guidelines for transportation mapping practices that meet the needs defined above.
- Begin assisting states in implementing the developed guidelines.

Margaret Pridmore, Roadway Data Manager, is the ITD Project Manager.

COST

- FY2020: Funding commitment met – no additional funding needed. Our commitment of $100,000 was fulfilled in FY2019.
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FY2020 CHANGES
ITEM 6.3.16– TPF-5(437)

IDENTIFICATION: TPF-5(437)
Title: Technology Transfer Concrete Consortium
Research Agency: Iowa Department of Transportation
State Contact: Khyle Clute, khyle.clute@iowadot.gov
FHWA Contact: Mike Praul, michaell.praul@dot.gov
Work Plan Approval: Approved
ITD Key Number: TBD

OBJECTIVE
The goal of the TTCC is to:
• Identify needed research projects
• Develop pooled fund initiatives
• Provide a forum for technology exchange between participants
• Develop and fund technology transfer materials
• Provide on-going communication of research needs faced by state agencies to the FHWA, industry and CP Tech Center
• Provide guidance as part of the Track Team for the CP Road Map Mix Design and Analysis Track
• Provide assistance as requested by the CP Road Map Executive Committee on other select tracks as needed

PROPOSED ACTIVITY – FY2020
• Two ITD staff will attend semi-annual meetings of the National Concrete Consortium. The meeting includes research presentations, field visits, and updates on state practices.
• Specialized training is also offered through the pooled fund.
• The pooled fund may support small synthesis projects approved by the Technical Advisory Committee for the pooled fund.
• The pooled fund is scheduled for completion in 2024.

• Craig Wielenga, Concrete/Structures Engineer, is the ITD Project Manager.

COST
• FY2020: $12,000 (100% Federal SPR). ITD participated in the first phase of this pooled fund (TPF-5(313), Key #19169). Iowa DOT has proposed a second phase of this effort. The Construction/Materials Section requested funding for five additional years. ITD’s Research Advisory Committee approved the project at $12,000 a year from FY2020-FY2024.

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<td>Added pooled fund # - TPF-5(437) (was solicitation 1492)</td>
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ITEM 6.3.17– TPF-5(439)

IDENTIFICATION: TPF-5(439)
Title: Technology Exchange on Managing Pavements
Research Agency: Iowa Department of Transportation
State Contact: Khyle Clute, khyle.clute@iowadot.gov
FHWA Contact: TBD
Work Plan Approval: Pending Approval
ITD Key Number: TBD

OBJECTIVE
The goal of the Technology Exchange on Managing Pavements is to:

- Provide communication and information sharing regarding pavement management practices and innovation among member states. Discuss research needs and provide research ideas to TRB.
- Provide a technology and knowledge exchange forum to enhance the practical knowledge of member states concerning pavement management implementation and how to support asset management activities.
- Enhance the working knowledge of the pavement management community.

PROPOSED ACTIVITY – FY2020
- Participating states will develop format and program for the 11th International Conference on Management Pavements.
- The conference will be held in Chicago, Illinois in August of 2020. ITD’s contribution to the project will cover costs for two staff to attend the conference.
- James Poorbaugh, Asset Management Engineer, is the ITD Project Manager.

COST
- FY2020: $12,500 (100% Federal SPR). This represents ITD’s full commitment to this project.

FY2020 CHANGES

Amendment Added: ☑ YES ☐ NO Date Amended: 8/23/2019

Comments: ITD’s Asset Management Engineer requests Research Program support for this project to allow ITD staff to participate in an exchange of pavement management best practices. ITD’s Research Advisory Committee approved the request in August 2019. Funding would come from unspent prior year federal SPR funds.
ITEM 6.3.18 – Sol. 1482

IDENTIFICATION: Sol. 1482
Title: Traffic Safety Culture – Phase 2
Research Agency: Montana Department of Transportation
State Contact: Susan Sillick ssillick@mt.gov
FHWA Contact: Chimai Ngo Chimai.Ngo@dot.gov
Work Plan Approval: Approved
ITD Key Number: TBD

OBJECTIVE
The main objectives include:
- Conduct research to identify solutions to specific culture-based traffic safety problems, taking advantage of the implementation opportunities to improve traffic safety.
- Develop resources to enhance understanding and application of traffic safety culture strategies.
- Provide technology transfer of best practices in traffic safety culture strategies.

PROPOSED ACTIVITY – FY2020
During FY2020, planned pooled fund activities will include:
- Completing research initiated in Phase 1 (TPF-5(309)) re:
  - Evaluation of traffic safety culture strategies tools
  - Development of guidance on messaging to avoid reactance and address moral disengagement
  - Development of traffic safety citizenship communication tools
- Identifying and selecting topic for the next round of research
- Initiating selected research projects
- John Tomlinson, Highway Safety Manager, is the ITD Project Manager.

COST
- FY2020: $12,000 (100% Federal SPR). ITD participated in the first phase of this pooled fund (TPF-5(309), Key #19156). Montana DOT has proposed a second phase. The Office of Highway Safety requested funding for three additional years. ITD’s Research Advisory Committee approved the project at $12,000 a year from FY2020-FY2024.

FY2020 CHANGES

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**ITEM 6.3.19 – Sol. 1501**

**IDENTIFICATION:** Sol. 1501
Title: Continuous Asphalt Mixture Compaction using Density Profiling System (DPS)
Research Agency: Minnesota Department of Transportation
State Contact: Shongtao Dai, shongtao.dai@state.mn.us
FHWA Contact: TBD
Work Plan Approval: Pending Approval
ITD Key Number: TBD

**OBJECTIVE**
The main objectives include:
- Advancing and improving the Density Profiling System based on experience and needs from participants so that the system can effectively and efficiently support their Quality Assurance Programs
- Supporting communication and information exchange
- Providing training and technical assistance that includes providing support for specification development and strategies for agency full implementation
- Conducting technology promotion and marketing for the system. Specific tasks within this multi-year program will be developed in cooperation with the consortium participants.

**PROPOSED ACTIVITY – FY2020**
During FY2020, planned pooled fund activities will include:
- Hold a project kick-off meeting
- Develop a detailed work plan for the project with input from pooled fund partners.
- It is envisioned that project activities will include:
  - Performing work to advance and improve the system
  - Developing an AASHTO standard for equipment and operator certifications
  - Conducting a round robin test among the agencies that have the system and develop equipment precision and bias statements and testing methods
  - Developing AASHTO specification on data collection protocols and analysis method
- Mark Wheeler, Pavement Engineer, is the ITD Project Manager.

**COST**
- FY2020: $75,000 (100% Federal SPR). This represents ITD’s full commitment to this three year project.
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**Comments:** ITD is in the process of acquiring Rolling Density Meter equipment, which was tested through the SHRP2 Program and is utilized as part of a Density Profiling System. In addition, the ITD Construction and Materials Section has received State Transportation Innovation Council (STIC) funding for some training support and development of initial guidance. The Construction/Materials Section requested ITD participate in this project so the department can be actively engaged in national efforts and development of AASHTO specifications and methods. ITD’s Research Advisory Committee approved the use of unspent prior year SPR funds for this project in August 2019. We plan to make our full contribution to this 3-year project in FY2020.
ITEM 6.3.20 – Sol. 1503

IDENTIFICATION: Sol. 1503
Title: Transportation Research and Connectivity
Research Agency: Oklahoma Department of Transportation
State Contact: Ron Curb, rcurb@odot.org
FHWA Contact: TBD
Work Plan Approval: Pending Approval
ITD Key Number: TBD

OBJECTIVE
The main objectives include:
• Supporting development of transportation libraries
• Providing technical assistance to state DOTs with limited library resources.

PROPOSED ACTIVITY – FY2020
During FY2020, planned pooled fund activities will include:
• Assisting states with digitization of older library materials
• Develop “libguides” identifying key resources in selected highway and transportation topic areas
• Providing assistance to DOTs with conducting literature searches/reviews
• Providing assistance to DOTs with accessing transportation-related publications and documents.
• Providing support to help ensure compliance of digital documents with Section 508 of the U.S. Rehabilitation Act of 1973
• Ned Parrish, Research Program Manager, is the ITD Project Manager.

COST
• FY2020: $75,000 (100% Federal SPR). This represents ITD’s full commitment to this three year project.

FY2020 CHANGES
Amendment Added: ☑ YES ☐ NO Date Amended: 8/23/2019

Comments: Project requested by ITD Contracting Services Engineer to support delivery of library and information services. ITD’s Research Advisory Committee voted to support the request in August 2019 using unspent prior year SPR funds for this project. We plan to make our full contribution to this 3-year project in FY2020.
ITEM 6.3.21 – Sol. 1504

IDENTIFICATION: Sol. 1504
Title: No Boundaries Transportation Maintenance Innovations
Research Agency: Colorado Department of Transportation
State Contact: David Reeves, david.reeves@state.co.us
FHWA Contact: Antonio Nieves, antonio.nieves@dot.gov
Work Plan Approval: Pending Approval
ITD Key Number: TBD

OBJECTIVE
The main objectives include:
- Technology transfer of promising non-snow and ice maintenance innovations and technologies.
- Providing a forum for State DOTs to share maintenance innovations

PROPOSED ACTIVITY – FY2020
During FY2020, planned pooled fund activities will include:
- Identify promising innovations and technologies ready to be deployed within Maintenance activities
- Develop marketing plans for selected ready to deploy innovations and technologies
- Continue developing searchable database where innovations and research projects developed across the country can be identified and accessed
- Creation of synthesis (practice or literature) like reports that will dig deeper into issues facing State DOTs in operations/maintenance areas of interest
- Scott Malone, Assistant District Engineer for Operations in District 4, is the ITD Project Manager.

COST
- FY2020: $30,000 (100% Federal SPR). This represents ITD’s full commitment to this three year project.

FY2020 CHANGES

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<td>Comments: Project requested by ITD Highways Construction and Operations Administrator to support sharing of innovations and best practices in the maintenance area. ITD’s Research Advisory Committee approved the request in August 2019 using of unspent prior year SPR funds for this project. We plan to make our full contribution to this 3-year project in FY2020.</td>
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ITEM 6.3.21– TPF-5(XXX)

IDENTIFICATION: TPF-5(XXX)
Title: Core Program Services for a Highway Research Development and Technology Program
Research Agency: Federal Highway Administration
FHWA Contact: Jean Landolt, Jean.Landolt@dot.gov
Work Plan Approval: Annual Agreement
ITD Key Number: 20790

OBJECTIVE
- To provide a mechanism for state transportation departments to support TRB core program services. This pooled fund study permits states to make their contributions to the TRB Core Programs through the pooled fund process instead of sending their contributions to TRB directly.

PROPOSED ACTIVITY – FY2020
- Continue annual support for TRB Core Services.
- Ned Parrish, Research Program Manager, is the ITD Project Manager.

COST
- FY2020: $92,580 (100% Federal SPR).

FY2019 CHANGES

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</table>
ITEM 6.4 – 2016 COOPERATIVE RESEARCH PROJECT (MONTANA STATE UNIVERSITY)

IDENTIFICATION: Research Project 259
Title: Cooperative Transportation Research Program
Research Agency: Montana State University
Work Plan Approval: Approved

This section describes a project with Montana State University, which was approved by ITD’s Research Advisory Council in February 2016.

ITEM 6.4.1 - Research Project 259

IDENTIFICATION: Research Project 259
Title: Using the Positive Culture Framework to Reduce Distracted Driving in Idaho
Research Agency: Montana State University
Work Plan Approval: Approved

OBJECTIVE
The objectives of the proposed research are:

- Develop a better understanding of the attitudes and beliefs associated with distracted driving in Idaho.
- Develop resources to change these attitudes and beliefs including media messages and workplace resources.
- The scheduled completion date for the project was extended to March 30, 2020. The total budget for the project is at $254,552.
- John Tomlinson, Highway Safety Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY2020 the researchers will:

- Conduct follow-up community and workplace surveys and interviews with selected workplace staff
- Complete analysis of survey data
- Develop recommendations for implementation
- Prepare and finalize the final report for the project.

COST
- $31,250 ($25,000 Federal SPR funds (80/20)) is budgeted for this project in FY2020.

FY2019 CHANGES

Amendment Added: □ YES □ NO Date Amended:
Comments:
ITEM 6.5 – 2017 COOPERATIVE RESEARCH PROJECT (BOISE STATE UNIVERSITY)

IDENTIFICATION: Research Project 269
Title: Cooperative Transportation Research Program
Research Agency: Private Consultant TBD
Work Plan Approval: Approved

This section describes a project with a Boise State University that was approved by ITD’s Research Advisory Council to begin in FY2017.

ITEM 6.5.1 - Research Project 269

IDENTIFICATION: Research Project 269
Title: Field Performance of Asphalt Pavements with High RAP Content
Research Agency: Boise State University
Work Plan Approval: Approved

OBJECTIVE
The objectives of the proposed research are:
• Determine whether asphalt mixes with high RAP content are more likely to have premature pavement deterioration than mixes with lower RAP content.
• Identify and recommend additional testing and material processing protocols that can be adopted to help ensure satisfactory performance of asphalt mixes with higher RAP content.
• The project is scheduled to be completed December 31, 2019. The total budget for the project is $160,000.
• Mike Santi, Materials and Pavement Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY2020 the researchers will:
• Complete preparation of draft final report
• Meet with ITD’s Technical Advisory Committee to study findings and recommendations
• Prepare and submit final report.

COST
• $16,000 ($12,800 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project were budgeted in FY2017 - FY2019.

FY2020 CHANGES

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ITEM 6.6 – 2018 COOPERATIVE RESEARCH PROJECTS (BOISE STATE UNIVERSITY)

IDENTIFICATION:  
Research Projects 271, 275 and 276  
Title:  
Cooperative Transportation Research Program  
Research Agency:  
Boise State University  
Work Plan Approval:  
Approved

This section describes three projects with Boise State University that were approved by ITD’s Research Advisory Council (RAC). Research Project RP 271 was requested and approved by the RAC in the Spring of 2017 and Research Projects RP 275 and RP 276 were requested and approved by the RAC in the Spring of 2018. A total of $72,000 is budgeted for these projects in FY2020.

ITEM 6.6.1 - Research Project 271

IDENTIFICATION:  
Research Project 271  
Title:  
Implementing AASHTO TP110 for Alkali-Silica Reaction (ASR) Potential Evaluation of Idaho Aggregates  
Research Agency:  
Boise State University (lead) with the University of Idaho  
Work Plan Approval:  
Approved

OBJECTIVE
The objective of the proposed research is to:

- Evaluate advantages associated with implementing AASHTO TP-110 within ITD specifications to quantify the ASR potential of aggregate sources in Idaho.
- Establish the baseline ASR susceptibility for Idaho aggregates.
- The expected duration of the project is 24 months. The total cost of the project is estimated at $130,000.
- Craig Wielenga, Structural Materials Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020 the researchers will:

- Complete preparing draft final report.
- Report review by ITD Technical Advisory Committee
- Finalize report.

COST

- $15,000 ($12,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funding needed for the project was budgeted in FY2018-FY2019.

FY2020 CHANGES

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IDENTIFICATION:
Research Project 275
Title: Statistical Analysis of Hot Mix Asphalt Production and Construction Data to Improve Quality Assurance and Acceptance Practices in Idaho
Research Agency: Boise State University
Work Plan Approval: Approved

OBJECTIVE
The objective of the proposed research is to identify sources of discrepancies/inconsistencies in HMA production and construction data through extensive statistical analysis. The data to be analyzed will include:

- Contractor-provided mix design data;
- Data from ITD's mix design verification efforts;
- Modifications made to the original mix design through the Contractor’s Job Mix Formula (CJMF);
- Data from QC testing at the HMA plant (contractor-produced); and
- QA data obtained during the pavement construction.

- The expected duration of the project is 24 months. The total cost of the project is estimated at $125,000.
- Mike Copeland, Construction and Materials Analyst, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020 the researchers will:

- Complete analysis of HMA production and construction data.
- Finalize standard statistical analysis procedures for use by ITD staff.
- Conduct a workshop with ITD staff to discuss effective statistical analysis approaches.
- Prepare draft final report
- Make needed revisions to the report following review by the Technical Advisory Committee
- Submit final report.

COST
- $40,000 ($32,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funding needed for the project was budgeted in FY2018 and FY2019.

FY2020 CHANGES

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**ITEM 6.6.3 - Research Project 276**

**IDENTIFICATION:**
- Research Project 276
- **Title:** Monitoring Snow Temperature Conditions Leading to Avalanches on Highway 21
- **Research Agency:** Boise State University
- **Work Plan Approval:** Approved

**OBJECTIVE**
The objective of the proposed research is to develop, install and test a real-time snow temperature monitoring system to help in determining when conditions are conducive for avalanches.

- The expected duration of the project is 24 months. The total cost of the project is estimated at $45,000.
- Bill Nicholson, ITD District 3 Avalanche Forecaster, is the ITD Project Manager.

**PROPOSED ACTIVITY – FY2020**
During FY 2020 the researchers will:
- Complete development of software for pre-processing and transmission of temperature profiles to ITD forecasting office in Lowman
- Continue collecting and transmitting data of snow temperature profiles.
- Develop visualization software
- Develop recommendations for operational use of the system
- Continue collecting and transmitting data of snow temperature profiles.
- Prepare draft final report
- Make needed revisions and finalize the project report.

**COST**
- $17,000 ($13,600 Federal SPR funds (80/20)) is budgeted for this project in FY2020. Other funding needed for the project was budgeted in FY2018 and FY2019.

**FY2020 CHANGES**

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ITEM 6.7 – 2018 COOPERATIVE RESEARCH PROJECT (UNIVERSITY OF IDAHO)

IDENTIFICATION: Research Project 274
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho
Work Plan Approval: Approved

This section describes a project with the University of Idaho that was approved by ITD’s Research Advisory Council (RAC) to begin in FY2018.

ITEM 6.7.1 - Research Project 274

IDENTIFICATION: Research Project 274
Title: Development of a Statewide School Safety Outreach Program
Research Agency: University of Idaho
Work Plan Approval: Approved

OBJECTIVE

The objectives of the proposed research are:
- Develop, test and evaluate effective education and outreach activities directed at:
  - High school students in Idaho with the primary goal of educating them on the dangers of unsafe driving practices including distracted driving
  - Elementary and middle school students with the goal of educating them on safely sharing the road as bicyclists and pedestrians and how they can be engaged as a bystander when they see others in a vehicle practicing unsafe behaviors
- The expected duration of the project is 18 months. The total cost of the project is estimated at $145,000.
- John Tomlinson, Highway Safety Program Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020

During FY 2020 the researchers will:
- Work with selected school districts to pilot curriculum and materials developed for use in educating and informing students about highway safety and safe driving practices – with emphasis on 1) reducing distracted driving among teenage and novice drivers, and 2) safe driving practices related to interactions between cars/trucks and bikes and pedestrians.
- Evaluate the use of proposed methods to educate/inform students of the dangers of distracted driving and the important of safe and engaged driving practices and safety in interactions between vehicles, bikes, and pedestrians.
- Revise curriculum materials and resources as needed based on the results of the evaluation.
- Prepare the draft final report.
- Revise the report based on feedback from review by the project Technical Advisory Committee.
- Submit the final report and other deliverables.
COST

- $41,000 ($32,800 Federal SPR funds (80/20)) is budgeted for this project in FY2020. Other funding needed for the project was budgeted in FY2018 and FY2019.

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ITEM 6.8 – 2018 COOPERATIVE RESEARCH PROJECT (IDAHO STATE UNIVERSITY)

IDENTIFICATION:
Research Project 273
Title: Cooperative Transportation Research Program
Research Agency: Idaho State University
Work Plan Approval: Approved

This section describes a project with Idaho State University that was approved by ITD’s Research Advisory Council in February 2018.

ITEM 6.11.1 - Research Project 273

IDENTIFICATION:
Research Project 273
Title: Field Performance of HES Class 50AF Concrete with Fibers as Field-Cast Connection between Deck Bulb-T Girders in ABC Applications
Research Agency: Idaho State University
Work Plan Approval: Approved

OBJECTIVE
The objectives of the proposed research project are:

- To assess the performance of ISU’s optimum closure pour mix for Accelerated Bridge Construction (ABC) applications in the field, and
- To refine the Finite Element (FE) model of the closure pour based on the observed field data.
- The expected duration of the project is 13 months. The total cost of the project is estimated at $73,525.
- Dan Gorley, Bridge Asset management Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020 the researchers will:

- Complete the draft final report.
- Make any needed revisions following review by the project Technical Advisory Committee
- Submit final deliverable.

COST
- No additional funding needed. Funding needed for the project was budgeted in FY2018 and FY2019.

FY2020 CHANGES

Amendment Added: ☐ YES ☐ NO Date Amended: 
Comments: 

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ITEM 6.9 – 2018 COOPERATIVE RESEARCH PROJECT (MONTANA STATE UNIVERSITY)

IDENTIFICATION: Research Project 277
Title: Cooperative Transportation Research Program
Research Agency: Montana State University
Work Plan Approval: Approved

This section describes a project with Montana State University that was approved by ITD’s Research Advisory Council in the Spring of 2018.

ITEM 6.9.1 - Research Project 277

IDENTIFICATION: Research Project 277
Title: Evaluating Erosion Control Blankets Made with Waste Wool in Southeastern Idaho
Research Agency: Montana State University
Work Plan Approval: Approved

OBJECTIVE
The objective of the proposed research project is to compare the performance of the traditional Erosion Control Blankets (ECBs) used by ITD for roadside slope revegetation made with a straw/coir (coconut fibers) with some newly developed ECB prototypes that utilize regionally-produced waste wool instead of coir in its fiber matrix over two growing seasons.

- The expected duration of the project is 27 months. The total cost of the project is estimated at $79,000.
- Alissa Salmore, ITD District 5 Environmental Planner, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020 the researchers will:
- Complete collection of data on vegetation and erosion at test sites
- Perform analysis of data collected from the field test and evaluate the performance of the erosion control blankets
- Present results of the research to the project Technical Advisory Committee and other applicable ITD staff
- Prepare draft of final report

COST
- $27,000 ($21,600 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. A portion of the funding needed for the project was budgeted in FY2018 and FY2019, and remaining funds will be budgeted in FY2021.
## FY2020 CHANGES

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ITEM 6.10 – 2019 COOPERATIVE RESEARCH PROJECT (UNIVERSITY OF IDAHO)

IDENTIFICATION: Research Projects 278, 279, 280, and 283
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho
Work Plan Approval: Approved

This section describes four projects with the University of Idaho that were approved by ITD’s Research Advisory Council in the Spring of 2018. A total of $144,114 is budgeted for these projects in FY2020.

ITEM 6.10.1 - Research Project 278

IDENTIFICATION: Research Project 278
Title: Statewide Assessment of Landslide Risks for Idaho Highways
Research Agency: University of Idaho
Work Plan Approval: Approved

OBJECTIVE
The objective of the proposed research project is to develop information regarding landslide risks along the state highway system in Idaho to improve ITD’s ability to plan and prioritize landslide mitigation efforts. Researchers from the Idaho Geological Survey (IGS) will develop robust criteria for ranking landslide hazards to define the basic geologic hazard, compile landslide data from a variety of sources, and develop and populate a digital landslide database for the state of Idaho. It is envisioned that the database will be published by IGS and will have the potential to be easily integrated into ITD’s IPLAN online mapping system, if desired.

- The expected duration of the project is 24 months. The total cost of the project is estimated at $90,114.
- Dave Richards, ITD Geotechnical Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020 the researchers will:
- Complete collection of landslide data from ITD records, IGS mapping, and other sources.
- Develop the online map interface.
- Field check selected landslide sites.
- Prepare draft final report.
- Revise report based on feedback from project Technical Advisory Committee.
- Submit final deliverables.

COST
- $44,114 ($35,291 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project were budgeted in FFY2019.
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ITEM 6.10.2 - Research Project 279

IDENTIFICATION:
Research Project 279
Title: Development of a Prediction Model for Pavement Temperature
Research Agency: University of Idaho
Work Plan Approval: Approved

OBJECTIVE
The objective of the proposed research project is to develop a utility that ITD staff can use to accurately estimate mid-depth pavement temperature using pavement surface temperature and daily air temperatures. It is expected that the use of the utility will expedite Falling Weight Deflectometer (FWD) testing by eliminating the need to drill holes for measuring the mid-depth pavement temperature the day before testing. This will reduce the time required to perform needed testing, enhance mobility, and improve safety for ITD workers and the traveling public:

- The expected duration of the project is 18 months. The total cost of the project is estimated at $50,000.
- Trek Pallister, ITD Transportation Tech Sr., is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020 the researchers will:

- Complete validation of existing mid-depth pavement temperature models and revise existing models or develop a new model for predicting mid-depth pavement temperatures.
- Develop Excel-based utility for use in estimating mid-depth pavement temperatures.
- Develop recommended guidance for pavement temperature estimation.
- Prepare draft final report.
- Revise report based on feedback received from project Technical Advisory Committee.
- Submit final deliverables.

COST
- $15,000 ($12,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project were budgeted in FFY2019.

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OBJECTIVE

The objective of this proposed research project is to develop a Gyratory Stability (GS) index for asphalt mixtures using the Pine compactor. Researchers will evaluate the use of GS index as a tool to check the variation of the RAP content in the mix. In addition, the researchers will evaluate the use of the GS index to evaluate the resistance of asphalt mixture to rutting.

- The expected duration of the project is 24 months. The total cost of the project is estimated at $160,000.
- Mike Santi, ITD Materials and Pavement Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020

During FY 2020 the researchers will:

- Complete evaluating the sensitivity of the GS index to RAP content, binder grade and content and mix design.
- Complete conducting laboratory rutting testing on the compacted asphalt mixtures specimens and correlate the rutting performance to the GS index.
- Develop/modify ITD software to calculate the GS Index
- Analyze laboratory test results and develop recommendations for the use of the GS Index
- Prepare draft of final report.

COST

- $70,000 ($56,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. A portion of the funding needed for the project was budgeted in FFY2019 and the remaining funds will be budgeted FFY2021.

FY2019 CHANGES

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## IDENTIFICATION:
- **Research Project 283**
  - **Title:** Assessment of Asbestos Containing Materials’ Assessment in Idaho Bridges
  - **Research Agency:** University of Idaho
  - **Work Plan Approval:** Pending Approval

## OBJECTIVE
The objectives of this project include:

- Develop an efficient approach is to sample a statistically valid set of bridges built from around 1918 to 1980 and review the construction and material specifications and bridge plans for those bridges and assess whether asbestos containing materials were specified in their construction.
- Investigate all potential locations within potential bridges that might have suspect ACMs such as:
  - Black bearing pads;
  - Grey sheet bond breaker in the Pier-deck joints;
  - Brown joint filler material between wing-walls and deck/approach slabs;
  - Black/grey slip sheet (bond breaker material) between top of abutment back-walls and deck slabs;
  - Light grey joint sealer caulk on deck joints through the parapets; and,
  - Black tar/mastic sealer on top-of-deck longitudinal joints.
- Create and analyze a database of all known asbestos testing of bridges in Idaho to date, (ITD will supply this information). The database will report the material location, quantity in square footage, condition, friability and recommendations to ITD personnel.
- The expected duration of the project is 12 months. The total cost of the project is estimated at $60,000.
- Shannon Murgoitio, Engineer Manager, is the ITD Project Manager.

## PROPOSED ACTIVITY – FY2020
During FY 2020, the researchers will:

- Complete review of the bridges record plans built from 1918 to 1980.
- Complete development of a database of all suspect asbestos locations within bridges in Idaho.
- Complete statistical analysis of the risk of bridges having ACM for future rehabilitations/demolition activities and provide information that can be incorporated into Idaho Bridge Asset Management system.
- Prepare draft final report.
- Revise report as needed in response to feedback received from project Technical Advisory Committee.

## COST
- $15,000 ($12,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project were budgeted in FY 2019.
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ITEM 6.11 – 2019 COOPERATIVE RESEARCH PROJECT (IDAHO STATE UNIVERSITY)

IDENTIFICATION: Research Project 281
Title: Cooperative Transportation Research Program
Research Agency: Idaho State University
Work Plan Approval: Approved

This section describes a project with Idaho State University that was approved by ITD’s Research Advisory Council in the Spring of 2018.

ITEM 6.11.1 - Research Project 281

IDENTIFICATION: Research Project 281
Title: A Precast Pier System for Accelerated Bridge Construction (ABC) in Idaho
Research Agency: Idaho State University
Work Plan Approval: Approved

OBJECTIVE
The objective of this project is to identify the most appropriate precast cap/pier system(s) for seismic regions in Idaho. More specifically, project objectives include:

- Evaluating precast pier systems performance through experimental testing in the lab and analytical modeling using the experimental results.
- Determining if precast pier systems are available that can be used in ABC applications in seismic areas within Idaho.
- The expected duration of the project is 24 months. The total cost of the project is estimated at $150,000.
- Dan Gorley, ITD Bridge Asset Management Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020, the researchers will:

- Complete experimental tests of a 1/3 scale piers under cyclic loading
- Develop design and detailing considerations and recommendations including:
  - Recommendations for structure design including design of proposed connections
  - Recommendations for precasting and construction on-site
  - Recommendations for incorporating study recommendations into ITD’s Bridge Manual
- Present study findings and recommendations to ITD staff
- Begin preparing draft final report.

COST
- $48,000 ($38,400 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. A portion of the funding needed for the project was budgeted in FFY2019 and the remaining funds needed will be budgeted in FFY2021.
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ITEM 6.1
2019 COOPERATIVE RESEARCH PROJECT (UNIVERSITY OF KENTUCKY)

IDENTIFICATION:                  Research Project 282
Title: Cooperative Transportation Research Program
Research Agency: University of Kentucky Research Foundation
Work Plan Approval: Approved

This section describes a project with University of Kentucky Research Foundation that was approved by ITD’s Research Advisory Council in the Spring of 2018.

ITEM 6.12.1 - Research Project 282

IDENTIFICATION:                  Research Project 282
Title: Division of Motor Vehicles (DMV) Customer Portal Research
Research Agency: TBD
Work Plan Approval: Approved

OBJECTIVE
The objectives of this project include:

- Determining business requirements around customer needs/How to increase online population and transactions,
- Researching Idaho statutes for impact on this development,
- Researching options to remove extra fees for online transactions,
- Investigating possible technology answers including using our current modernization software and technology to implement,
- Investigating benefits other States or government agencies have experienced from setting up customer portals, and
- Investigating ways that E-Signature can be used to allow legal customer signatures online.

The expected duration of the project is 12 months. The total cost of the project is estimated at $100,000.

- Brian Goeke, DMV Modernization Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020, the researchers will:

- Complete customer research (analyze current web feedback, additional surveys, focus groups)
- Complete research on online services offered in other states and best practices for DMV customer web portal.
- Complete legal requirements research.
- Develop recommendations for ITD to enhance its existing online DMV services or develop a new customer web portal and discuss with project Technical Advisory Committee.
- Prepare draft final report.
- Revise report as needed in response to feedback from project Technical Advisory Committee.
- Submit final deliverables.
COST

- $42,000 ($33,600 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project were budgeted in FFY2019.

FY2020 CHANGES

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This section describes two projects with the US Geological Survey that was approved by ITD’s Research Advisory Council in the Spring of 2018. A total of $110,000 is budgeted for these projects in FY2020.

**ITEM 6.13.1 - Research Project 284**

**IDENTIFICATION:** Research Project 284  
**Title:** Integration of Weed-Suppressive Bacteria with Herbicides and Seeding  
**Research Agency:** U.S. Geological Survey  
**Work Plan Approval:** Pending Approval

**OBJECTIVE**

The objectives of this project include:

- Building upon previous ITD research on the use of Weed-Suppressive Bacteria (WSB) (ITD Research Project RP 258) by:
  - Collecting additional data on the impact of the WSB on test plots included in the previous study to better assess the long-term performance of the WSB.
  - Establishing new experimental plots testing the effectiveness of WSB on target (i.e. exotic annual grasses) and non-target species with and without pre-mowing or co-application of herbicides or drill seeding.
- Developing best practice and an integrated vegetation management plan for future utilization of the bacterium.
- The expected duration of the project is 24 months. The total cost of the project is estimated at $50,000.
- Cathy Ford, Roadside Program Manager, is the ITD Project Manager.

**PROPOSED ACTIVITY – FY2020**

During FY 2020, the researchers will:

- Collect data on the vegetation present at the sites studied in research project RP 258 and analyze the data collected and report the results.
- Select new site locations, number and size of plots to test WSB with and without mowing, co-spraying of herbicide, and co-application of drill seeding of perennial grasses.
- Determine application and treatment methods and equipment needs.
- Grow WSB (ACK55) in the lab in sufficient quantities and apply in the field and the right time.
- Begin monitoring the survival of the WSB in the soil, plant (native and invasive) density and growth parameters.
COST

- $25,000 ($20,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project will be budgeted in FY2021.

FY2020 CHANGES

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## ITEM 6.13.2 - Research Project 285

**IDENTIFICATION:**
- Research Project 285
- Title: Real-time Bridge Scour Monitoring at Selected Sites in Idaho, Water Years 2020-2022
- Research Agency: U.S. Geological Survey (USGS)
- Work Plan Approval: Pending Approval

### OBJECTIVE

The objectives of this project include:

- Monitoring the streambed elevation at three selected scour critical bridge sites in Idaho with diverse hydraulic and geomorphic conditions.
- Using the data to assess scour conditions at these sites.
- Incorporating the data into the USGS’s national data to help improve the scour estimates for bridges in Idaho more generally.
- The project duration is estimated at 36 months and the cost to ITD will total $263,600. USGS will also contribute funding to support this project.
- Jake Legler, Technical Engineer 1 in the Bridge Asset Management Unit, is the ITD Project Manager.

### PROPOSED ACTIVITY – FY2020

During FY 2020, the researchers will:

- Select top three candidate sites from the initial list of six identified in the research request.
- Install equipment at sites.
- Operate sites and publish real-time scour data online.
- Begin work to verify the accuracy of fixed sonar data with acoustic Doppler current profiler (ADCP) surveys and collect hydraulic and geomorphic data to gain a better understanding of scour processes.
- Begin collecting approach and exit section velocity data during selected peak events using an ADCP. Additional velocity data will be collected near piers and abutments as needed (and conditions allow).

### COST

- $85,000 ($68,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project will be budgeted in FFY2021 and FFY2022.

### FY2020 CHANGES

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### ITEM 6.14 – 2020 COOPERATIVE RESEARCH PROJECTS (UNIVERSITY OF IDAHO)

**IDENTIFICATION:**  
Research Projects 286 - 287  

**Title:**  
Cooperative Transportation Research Program  

**Research Agency:**  
University of Idaho  

**Work Plan Approval:**  
Pending Approval

This section describes five new research projects that were approved by ITD’s Research Advisory Council in the Spring of 2019. A total of $115,918 is budgeted for these projects in FY2020.

### ITEM 6.14.1 - Research Project 286

**IDENTIFICATION:**  
Research Project 286  

**Title:**  
Correlation between CoreLok and AASHTO T-85 for Specific Gravity and Absorption Properties of Coarse Aggregates  

**Research Agency:**  
TBD  

**Work Plan Approval:**  
Pending Approval

**OBJECTIVE**  
The objectives of this project include:

- Evaluate and develop correlations between the CoreLok and AASHTO T-85 results for measuring specific gravity and absorption properties of typical coarse aggregates used in the construction of pavements in Idaho.
- Evaluate the use of CoreLok for measuring the specific gravity and absorption properties of combined aggregates (i.e., mixture of fine and coarse aggregates).
- The expected duration of the project is 24 months. The total cost of the project is estimated at $120,000.
- Mark Wheeler, Construction and Materials Engineer, is the ITD Project Manager.

**PROPOSED ACTIVITY – FY2020**  
During FY 2020, the researchers will:

- Conduct literature review.
- Identify aggregate sources and develop experimental program.
- Begin conducting AASHTO T-85 and CoreLok testing on selected coarse aggregates to measure their specific gravity and absorption properties.
- Begin conducting AASHTO T-85 and CoreLok testing on combined aggregate samples to measure their specific gravity and absorption properties.
- Begin monitoring the survival of the WSB in the soil, plant (native and invasive) density and growth parameters.

**COST**  
- $60,000 ($48,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project will be budgeted in FFY2021.
### FY2020 CHANGES

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</table>
IDENTIFICATION:
- Research Project 287
- Title: Development of CFRP Standard detail for Repair and Retrofitting of Damaged Pre-stressed Bridge Girders Due to Trucks Over-Height
- Research Agency: University of Idaho
- Work Plan Approval: Pending Approval

OBJECTIVE
The objectives of this project include:
- Evaluating the effectiveness of current ITD approach in anchoring CFRP when strengthening damaged bridge girders.
- Developing a cost-effective and easy to implement CFRP standard repair and special provision anchoring technique in ITD contracts.
- The expected duration of the project is 24 months. The total cost of the project is estimated at $150,000.
- Shanon Murgoitio, Bridge Design Group 2 Leader, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020, the researchers will:
- Conduct an extensive literature review on implemented approaches of anchoring CFRP in strengthening of damaged and deficient bridge girders, and summarize standard details and special provisions for these types of repairs from various details.
- Conduct pullout tests according to ASTM D7522 on CFRP strengthened specimens using current ITD repair techniques.
- Conduct Flexural tests on 1/4-scale girders strengthened with CFRP based on ITD repair technique and compare the results to the design capacity.
- Conduct a full-scale testing on simulated impact damaged pre-stressed girders.
- Develop a Finite Element (FE) Simulations using LS-DYNA software and develop parametric study to evaluate the effect of various factors affecting anchoring CFRP-strengthening.
- Investigate the performance of the developed anchor CFRP detail under truck impact loads.

COST
- $55,918 ($44,734 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. The remaining funds needed for the project will be budgeted in FFY2021 and FFY2022.

FY2020 CHANGES
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ITEM 6.15 – 2020 COOPERATIVE RESEARCH PROJECT (IDAHO STATE UNIVERSITY)

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This section describes a new research project with Idaho State University that was approved by ITD’s Research Advisory Council in the Spring of 2019.

ITEM 6.15.1 - Research Project 288

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<tr>
<td>Title:</td>
<td>Long-Term Performance of High Early Strength (HES) Concrete with Fibers for ABC applications in Idaho</td>
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<td>Work Plan Approval:</td>
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OBJECTIVE

- The primary objective of this project is to assess the long-term performance of an ITD-developed HES concrete mix with polypropylene fibers studied previously in ITD research project RP 265 and currently in RP 273.

- The expected duration of the project is 18 months. The total cost of the project is estimated at $35,000.

- Dan Gorley, Bridge Asset Management Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020

During FY 2020, the researchers will:

- Replacing the concrete strain gages and prepare them for long-term use.

- Testing the bridge under the Under the Bridge Inspection Truck (UBIT) every three months over an 18-month period.

- Continue collection of data on the performance of the closure pour under commercial truck traffic.

- Perform periodic inspections of the closure pour.

COST

- $25,000 ($20,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project will be budgeted in FFY2021.

FY2020 CHANGES

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This section describes two new research projects with private consultants that were approved by ITD’s Research Advisory Council in the spring of 2019. A total of $212,000 is budgeted for these projects in FY2020.

**ITEM 6.16 - Research Project 289**

**IDENTIFICATION:** Research Project 289  
**Title:** Local Calibration of “C-Values” for Common Idaho Soil Types for Use in ME Pavement Design  
**Research Agency:** TBD  
**Work Plan Approval:** Pending Approval

**OBJECTIVE**

The objectives of this project include:

- Develop a database of AASHTO T 307 laboratory resilient modulus ($M_r$) data and corresponding elastic layer moduli ($E_{FWD}$) from ASTM 4694 FWD testing conducted for ITD design projects such that the C-Value ratios can be developed for a variety of Idaho subgrade condition.
- Incorporate the information developed into ITD’s AASHTOWare Pavement ME Design software to allow for use of Level 2 C-Values, rather than Level 3 values, in pavement design.
- The expected duration of the project is 36 months. The total cost of the project is estimated at $36,000.
- Mike Santi, Pavement Materials Engineer, is the ITD Project Manager.

**PROPOSED ACTIVITY – FY2020**

During FY 2020, the researchers will:

- Develop a detailed testing plan, including instructions of for field and laboratory personnel.
- Prepare a database using Excel to record the testing data
- Coordinate collection of the testing data and incorporate the data into the database developed for the project.

**COST**

- $12,000 ($9,600 Federal SPR funds (80/20)) is budgeted for this project in FY2020. Other funds needed for the project will be budgeted in FY2021 and FY2022.
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ITEM 6.16.2 - Research Project 290

IDENTIFICATION: Research Project 290
Title: Development of a Web-Based Environmental Document Prep and Data Management System to Support Project Delivery
Research Agency: TBD
Work Plan Approval: Pending Approval

OBJECTIVE
The objectives of this project include:

- Developing an online Categorical Exclusion (CE) system (working name: ITD CE system or "ICE") that will streamline the environmental process to reduce project delivery risks associated with NEPA compliance and permitting.
- Tying the new system into other ITD applications, such as OTIS, PSS, and ProjectWise, in order to provide immediate project updates for PMs. For example, as soon as a task is complete and that box is checked, the PM is alerted that a milestone has been met. This should also involve a database component.
- The expected duration of the project is 12 months. The total cost of the project is estimated at $200,000.
- Aimee Hill, Senior Environmental Planner, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2020
During FY 2020, the researchers will:

- Develop an understanding of ITD processes and evaluate opportunities to eliminate inefficiencies.
- Perform research to compile information about CE systems used by other state DOTs and assess the feasibility of adopting a system in use at another state DOT.
- Modify an existing CE system from another OT or develop a new system to meet ITD’s needs and submit it for review by ITD Environmental and ETS staff.

COST
- $200,000 ($160,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020.

FY2020 CHANGES

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COST

SUMMARY
## PART 1: WORK PROGRAM PLANNING – KEY # 19931

### TOTAL PROGRAM FUNDING SUMMARY

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<tr>
<td>5.0</td>
<td>TI</td>
<td>Transportation Investment Programming</td>
<td>$516,830</td>
<td>$129,208</td>
<td>$646,038</td>
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<td></td>
<td><strong>Subtotal:</strong></td>
<td><strong>$516,830</strong></td>
<td><strong>$129,208</strong></td>
<td><strong>$646,038</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total SPR Planning:</strong></td>
<td><strong>$4,162,147</strong></td>
<td><strong>$1,040,537</strong></td>
<td><strong>$5,202,684</strong></td>
</tr>
<tr>
<td>Item #</td>
<td>Phase (FC)</td>
<td>Research Administration</td>
<td>SPR/FED</td>
<td>State Match</td>
<td>FY19 Work Program</td>
</tr>
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<td>-------------</td>
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<tr>
<td>6.1</td>
<td>RB</td>
<td>National Cooperative Highway Research Program</td>
<td>$344,334</td>
<td>$0</td>
<td>$344,334</td>
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<tr>
<td>6.2</td>
<td>RE</td>
<td>AASHTO Engineering Technical Service Programs Includes ITD support for selected AASHTO Technical Service Programs and AASHTOWare Data Analytics software project.</td>
<td>$495,000</td>
<td>$30,000</td>
<td>$525,000</td>
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<tr>
<td>6.3</td>
<td>RF</td>
<td>Pooled Fund Studies Includes funding for ITD participation in collaborative projects with other state DOTs and FHWA.</td>
<td>$462,539</td>
<td>$0</td>
<td>$462,539</td>
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<tr>
<td>6.4</td>
<td>RL</td>
<td>FY2016 Contract Research with MSU RP 259 is a multiyear project. Other funds budgeted previously.</td>
<td>$25,000</td>
<td>$6,250</td>
<td>$31,250</td>
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<tr>
<td>6.5</td>
<td>RL</td>
<td>FY2017 Contract Research with BSU RP 269 is a multiyear project. Other funding budgeted previously.</td>
<td>$12,800</td>
<td>$3,200</td>
<td>$16,000</td>
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<tr>
<td>6.6</td>
<td>RL</td>
<td>FY2018 Contract Research with BSU RP 271, RP 275 and RP 276 are multiyear projects. A portion of the funding for the projects was budgeted.</td>
<td>$57,600</td>
<td>$14,400</td>
<td>$72,000</td>
</tr>
<tr>
<td>6.7</td>
<td>RL</td>
<td>FY2018 Contract Research with UI RP 274 is a multiyear project. Other funding needed for the project was budgeted previously.</td>
<td>$32,800</td>
<td>$8,200</td>
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<tr>
<td>6.8</td>
<td>RL</td>
<td>FY2018 Contract Research with ISU RP 273 is multiyear project. All project funding budgeted previously.</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>6.9</td>
<td>RL</td>
<td>FY2018 Contract Research with MSU RP 277 is a multiyear project. Other funding needed for the project budgeted in FY2019 and in FY2021.</td>
<td>$21,600</td>
<td>$5,400</td>
<td>$27,000</td>
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<tr>
<td>6.10</td>
<td>RL</td>
<td>FY2019 Contract Research with UI Research Projects 278, 279, 280 and 283 are multiyear projects. Other funding needed for the projects budgeted in FY2019 and FY2021.</td>
<td>$115,291</td>
<td>$28,823</td>
<td>$144,114</td>
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<td>6.11</td>
<td>RL</td>
<td>FY2019 Contract Research with ISU RP 281 is a multiyear study. Other funding needed for the projects budgeted in FY2019 and FY2021.</td>
<td>$38,400</td>
<td>$9,600</td>
<td>$48,000</td>
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<td>6.12</td>
<td>RL</td>
<td>FY2019 Contract Research with UKRF RP 282 is a multiyear study. Other funding needed for the project budgeted in FY2019.</td>
<td>$33,600</td>
<td>$8,400</td>
<td>$42,000</td>
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<tr>
<td>6.13</td>
<td>RL</td>
<td>FY2020 Contract Research with USGS Research Projects 284 and 285 are multi-year studies. Other funding needed for the projects budgeted in FY2019 and FY2021.</td>
<td>$88,000</td>
<td>$22,000</td>
<td>$110,000</td>
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<tr>
<td>6.14</td>
<td>RL</td>
<td>FY2020 Contract Research with UI Research Projects 286 and 287 are multiyear studies. Other funding needed for the projects budgeted in FY2021.</td>
<td>$92,734</td>
<td>$23,184</td>
<td>$115,918</td>
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<tr>
<td>6.15</td>
<td>RL</td>
<td>FY2020 Contract Research with ISU RP 288 is a multiyear study. Other funding needed for the project will be budgeted in FY2021.</td>
<td>$20,000</td>
<td>$5,000</td>
<td>$25,000</td>
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<tr>
<td>6.16</td>
<td>RL</td>
<td>FY2020 Contract Research with Private Consultants Research Projects 289 and 290 are multiyear studies. Other funding needed for the projects will be budgeted in FY2021 and FY2022.</td>
<td>$169,600</td>
<td>$42,400</td>
<td>$212,000</td>
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<tr>
<td>6.17</td>
<td>RG</td>
<td>Research Administration NCHRP and Pooled Funds (Items 6.1 &amp; 6.3)</td>
<td>$806,873</td>
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<td>Program Budget (excluding items 6.1 &amp; 6.3)</td>
<td>$1,299,559</td>
<td>$231,140</td>
<td>$1,530,699</td>
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Total SPR Research: $2,106,432, $231,140, $2,337,572
### PART III: TOTAL PLANNING AND RESEARCH

#### PROGRAM FUNDING SUMMARY

<table>
<thead>
<tr>
<th>Work Program Task</th>
<th>Federal</th>
<th>State Match</th>
<th>FY20 Work Program</th>
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</thead>
<tbody>
<tr>
<td><strong>SPR Planning</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Part A</td>
<td></td>
<td></td>
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<tr>
<td>FY2020 Direct Program Cost</td>
<td>$4,162,147</td>
<td>$1,040,537</td>
<td>$5,202,684</td>
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<tr>
<td>Indirect Cost Estimate at 11.00%</td>
<td>$457,836</td>
<td>$114,459</td>
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<td><strong>SPR Research</strong></td>
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<tr>
<td>Part B</td>
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<tr>
<td>FY2020 Direct Program Cost</td>
<td>$1,538,932</td>
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<td>Indirect Cost Estimate at 11.00%</td>
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<td>$25,425</td>
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<td><strong>Total:</strong></td>
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<td>$256,565</td>
<td>$1,897,199</td>
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<tr>
<td>FY2018 SPR Funds Direct Cost</td>
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<td>$567,500</td>
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<tr>
<td>Indirect Cost Estimate at 11.00%</td>
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<td>$0</td>
<td>$41,250</td>
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<td><strong>Total:</strong></td>
<td>$608,750</td>
<td>$0</td>
<td>$608,750</td>
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<tr>
<td>Research Total Direct Program Cost</td>
<td>$2,106,432</td>
<td>$231,140</td>
<td>$2,337,572</td>
</tr>
<tr>
<td>Indirect Cost Estimate at 11.00%</td>
<td>$142,952</td>
<td>$25,425</td>
<td>$168,377</td>
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<td><strong>Total:</strong></td>
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<td>$256,565</td>
<td>$2,505,949</td>
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<tr>
<td><strong>SPR Total</strong></td>
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<tr>
<td>FY2019 SPR Total</td>
<td>$6,260,167</td>
<td>$1,411,561</td>
<td>$7,672,178</td>
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<td>Prior Year SPR Funds</td>
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<td><strong>TOTAL SPR WORK PROGRAM</strong></td>
<td>$6,869,367</td>
<td>$1,411,561</td>
<td>$8,280,928</td>
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