2018

Transportation Planning and Research:

ANNUAL WORK PROGRAM AND COST ESTIMATE

Your Safety • Your Mobility
Your Economic Opportunity

Project – SPR Planning A014(064)
Project – SPR Research A014(065)

Fiscal Year 2018
October 1, 2017– September 30, 2018

Idaho Transportation Department

5/17/2018

ANNUAL TRANSPORTATION RESEARCH WORK PROGRAM AND COST ESTIMATE

FISCAL YEAR 2018

October 1, 2017 – September 30, 2018

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
Administrator, Division of Engineering Services

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Part A: SPR Planning

Key #14064

ITEM 1.0 – PLANNING SERVICES (F18901A)

ITD CONTACT: **Randy Gill**
Planning Services Manager
Division of Engineering Services
(208) 334-8591

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 – Travel Demand Model Data Inventory and Analysis
- Item 1.6 – Metropolitan Planning Program

TOTAL FY18 HIGHWAY PLANNING BUDGET

Federal Aid	$499,558	**Match**	$124,889	=	**$ 624,447**

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

ITD CONTACT: **Randy Gill**
Planning Services Manager
Division of Engineering Services
(208) 334-8591

OBJECTIVES:

- Administer the overall statewide transportation planning process in an open and collaborate 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
($303,287 Personnel [3.75 FTE] + $72,160 Routine Operating)

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.

FY2018 PRODUCTS:

- Develop Annual Report of SPR Work Program accomplishments for FY18.
- Develop and monitor FY19 SPR Work Program Items.
- Attend annual AASHTO Subcommittee on Planning (SCOP) meeting.

PLANNING ADMINISTRATION AND COORDINATION FY18 BUDGET

Federal Aid	$300,358	**Match**	$75,089	=	**$375,447**

FY2018 CHANGES

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

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
($0 Operating + 0.15 FTE - Personnel, Item 1.1)
ITD Contact: Sonna Lynn Fernandez

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 Corridor Planning Guidebook Update
($13,000 Operating + 0.25 FTE - Personnel, Item 1.1)
ITD Contact: Ken Kanownik

The ITD Corridor Planning Guidebook was developed and last updated in 2006. Since that time, changes in technology along with an emphasis of consistency in documentation reinforces the need to revisit this document and bring archaic planning philosophies into the 21st century. Planning Services will conduct a review of all existing corridor studies/plans to determine what is available and what is needed. The result will be a corridor assessment catalogue that will be used to determine future corridor studies/plans need to be updated or constructed.
During the Planner's Summit in FY2017, it was determined that the corridor planning process would best serve staff and citizens if it were accessible and easily managed through the use of ESRI Story Map and included in IPLAN. During this fiscal year, Planning Services and the Districts will work towards the following tasks that will include but are not limited to:

- Assess the use of IPLAN and how it is being used;
- Planning Services will work with the Districts to update the corridor planning process using ESRI Story Map as a basis to develop a new Corridor Planning Guidebook;
- Review and buyoff of Guidebook content by the District planners;
- Provide ERSI Story Map training to GIS and Planning staff by November 2017;
- Shortly after Story Map training, have at least one Corridor study/plan ready to be uploaded to IPLAN for use;
- Determine if what additional older Corridor Studies/Plans can or will be updated into Story Map; and
- Develop a schedule of when Corridor Studies/Plans will be produced/updated for the next 20 years.

1.2.3 Public Involvement and Communication Portal
($2,000 Operating + 0.35 FTE - Personnel, Item 1.1)
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 FY18 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 FY19 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.

1.2.4 – Long Range Transportation Plan
($80,000 Operating + 0.65 FTE - Personnel, Item 1.1)
ITD Contact: Ken Kanownik

The existing Long-Range Transportation Plan (LRTP) is a policy document and was adopted in December 2010. ITD's goal for the next iteration of the plan is to rethink its role in transportation development and management processes. The intent is of the LRTP is to:

1. Ensure consistency with the FAST Act mandates to create a streamlined and performance-based surface transportation program; and
2. Provide guidance to ITD staff on how to navigate a changing transportation environment over the long-term to sustain ITD's system performance goals.

Tasks include but are not limited to:

- Work with modal planners to determine how their plans will be incorporated within the Long Range Transportation Plan;
- Internal ITD discussion of applicability and boundaries between a Statewide LRTP and a Statewide Asset Management Plan;
- Create and implement a statewide LRTP education plan to increase organizational knowledge on requirements;
- Form technical, advisory and steering committees to develop a scope of work that is consistent with the FAST Act planning and programming requirements; and
- Inventory and analyze Idaho's transportation system for 20 year forecasts:
  - Run the statewide travel demand model to project future travel demand in rural areas and coordinate with MPO's for urban area projections; and
  - Identify broad needs and available funding option.

There will be several outcomes that will be a result of the LRTP process including but not limited to:

- LRTP Public Outreach Plan that includes how and when the public/stakeholders will be included during the planning process;
- Integration of modal plans into the LRTP;
- Transportation, demographic and economic data;
- A variety of LRTP "Factsheets" on different plan components/information;
- The development of an LRTP website;
- Draft and Final LRTP document;
- LRTP Story Map; and
- Idaho plan database.

1.2.5 Bicycle/Pedestrian Planning
($0 Operating + 0.3 FTE - Personnel, Item 1.1)
ITD Contact: Brian Shea

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.

1.2.6 – Planning and Project Management Training
($10,000 Operating + 0.5 FTE - Personnel, Item 1.1)
ITD Contact: Sonna Lynn Fernandez

ITD has developed a Project Management Academy curriculum that outlines more than 10 planning and project management training courses. Planning Services will continue to work on developing online training, guidebooks, and manuals to be used to educate ITD staff. The result is to continue streamlining the department's project development process. In the January 2009, FHWA authored the Project Management Plan Guidance to encourage state DOTs to establish processes and procedures that will "…effectively manage the scope, costs schedules; and quality of…the project." 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 the department's Project Management Academy.
- Continue to implement Project Charters and project management planning including but not limited to upgrading the Project Scheduling System, developing guidebooks and increased project management training.
- Assist in the annual update of the Idaho Transportation Improvement Program (ITIP).

In addition to general project management, Planning Services will be responsible for the management and processing of federal and state grants for the department (outside of public transportation and aviation grants). Tasks include but not limited to:

- Manage and process the federal and state grant process.
- Assist the department, districts and MPOs with applying for grants.
- Develop a grant proposal process and guidebook.

FY2018 PRODUCTS:

- A catalog of best available data for corridor studies.
- Updated "Corridor Planning Guidebook based on the use of ESRI Story Map.
- The "Communication Portal" will be ready and used for the FY19 ITIP comment period.
- Develop a "Communication Portal User's Manual."
- Development of the "Long Range Transportation Plan."
- Create an "LRTP Website" for staff and citizens to access the plan upon completion.
- Development of an "Idaho Planning Database" in conjunction with the LRTP.
- Outline of a proposed process to create a statewide "Bicycle/Pedestrian Plan" component in the LRTP.
- Host the annual District Planners Summit.
- Develop and implement a grant process for the department.

STATEWIDE HIGHWAY PLANNING FY18 BUDGET

Federal Aid	$84,000	**Match**	$21,000	=	**$105,000**

FY2018 CHANGES

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

ITEM 1.3 – HIGHWAY CLASSIFICATION AND SYSTEM ADJUSTMENTS (FB-P261)

ITD CONTACT: **Maranda OBray**
Planning Services
Division of Engineering Services
(208) 334-8483

OBJECTIVES:

- Review and submit to FHWA proposed updates, if any, to the functional classification systems 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 update 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 + 0.15 FTE - Personnel, Item 1.1)

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 1.1)

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:

- Generating evaluation reports on specified roadways as requested by the Board subcommittee.

FY2018 PRODUCTS:

- Publish a revised statewide local roads functional classification map, if needed.
- Development of a standard operating procedure to define the process for proposing changes to the NHS that is not either an error or discrepancy.

HIGHWAY CLASSIFICATIONS AND SYSTEMS FY18 BUDGET

Federal Aid	$0	Match	$0	=	$0

FY2018 CHANGES

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

ITEM 1.4 – AIR QUALITY (FT-P802)

ITD CONTACT: **Brian Shea**
Planning Services
Division of Engineering Services
(208) 334-8828

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 + 0.45 FTE - Personnel, Item 1.1)

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:

- Create a statewide air quality conformity education plan with objectives to increase organizational knowledge on requirements and to clarify roles and responsibilities.

FY2018 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 FY18 BUDGET

Federal Aid	$83,200	**Match**	$20,800	=	**$104,000**

FY2018 CHANGES

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

ITEM 1.5 – TRAVEL DEMAND MODEL DATA INVENTORY AND ANALYSIS (FL-P280)

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

OBJECTIVES

- Determine the data that is currently available for the Travel Demand Model and assess what .
- Provide technical data for to assess expansion and congestion projects as directed by Board policy.
- Provide technical analysis using the department's travel demand model for candidate expansion and congestion projects.

METHODOLOGY

1.5.1 Travel Demand Modeling Inventory & Analysis
($30,000 Operating + 0.1 FTE - Personnel)

ITD's Travel Demand Model was design for forecasting a statewide network that would be incorporated into TREDIS to evaluate projects for the department Strategic Initiatives and Expansion Programs. The intent of this inventory is to potentially expand the use and output of TDM data specifically for analyzing and selecting expansion and congestion projects based on congestion mitigation or travel time reduction. Tasks include but are not limited to:

- Work closely with the Transportation Systems Section that operates ITD's Travel Demand Model to list and assess current travel demand modeling data;
- Identify and document data needs to allow the Travel Demand Model to consider expansion and congestion projects;
- Document available techniques to analyze and evaluate potential candidate projects;
- Document available techniques to identify candidate projects; and
- Provide technical analysis as directed by Board policy.

FY2018 PRODUCTS

- List of available data available to assess expansion and congestion projects.
- List of data needs to assess expansion and congestion for future projects.

TRAVEL DEMAND EXPANSION & CONGESTION PROJECTIONS FY18 BUDGET

Federal Aid	$24,000	**+**	**Match**	$6,000	**=**	**$30,000**

FY2018 CHANGES

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

ITEM 1.6 – METROPOLITAN PLANNING PROGRAM (FO-P801)

ITD CONTACT: Maranda OBray
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
($1,000 Operating + 0.40 FTE - Personnel, Item 1.1)

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 Manual
($2,000 Operating + 0.20 FTE - Personnel, Item 1.1)

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:

- Create content based on detailing requirements/processing within the ITD/MPO MOU.
- Document review by District Planners and MPOs.
- Publish and post guidance document to ITD's website.

1.6.3 New MPO Coordination/Discussions
($7,000 Operating + 0.10 FTE - Personnel, Item 1.1)

The 2020 Census is fast approaching and with that, potential population changes and shifts could occur. Currently, the Twin Falls area has been just outside the threshold of becoming a metropolitan planning area. According to the City of Twin Falls, the "latest population statistics shows the City of Twin Falls at more than 47,400 people and Twin Falls County at more than 82,300 people. With a more than 8 percent increase from 2010 to 2015. We are growing quickly." With that said, ITD feels that it is highly likely that this area will be designated as a metropolitan planning area in the 2020 Census.

Planning Services will facilitate discussions with ITD District 4, the City of Twin Falls and the Twin Falls County to educate them about the potential MPO designation as well the MPO planning process and what that could mean for their area. Because District 4 has never had an MPO, Planning Services will work closely with staff to help them understand their role in the statewide planning process. Lastly, Planning Services will consider the fiscal impact an additional MPO would have on the state and the Idaho Transportation Improvement Program.

FY2018 PRODUCTS:

- Monitor Consolidated Planning Grant agreements.
- Host the MPO – ITD Partnership Meeting.
- Publish and post an ITD/MPO Guidelines and Procedures Manual.
- Develop "What is an MPO?" guidance for District 4 staff and the City of Twin Falls. Begin negotiations for the development of a new MPO in the Magic Valley Area.

METROPOLITAN PLANNING PROGRAM FY18 BUDGET

Federal Aid	$8,000	**Match**	$2,000	=	**$10,000**

FY2018 CHANGES

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

ITEM 2.0 – GEOGRAPHIC INFORMATION SYSTEMS (F18901G)

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 s (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.

ITEMS IN THIS SECTION

There are four sub-items in this section:

- Item 2.1 – Digital Mapping and GIS
- Item 2.2 – Linear Referencing System
- Item 2.3 – Local Highway Program
- Item 2.4 – GIS Program Development

TOTAL GEOGRAPHIC INFORMATION SYSTEMS FY18 BUDGET

Federal Aid	$910,185	**Match**	$227,546	=	**$1,137,731**

ITEM 2.1 – DIGITAL MAPPING AND GIS (CF-P233)

ITD CONTACT: **Michael Miller**
Senior GIS Analyst
(208) 334-7841

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 projects

METHODOLOGY

($216,792 personnel + $183,029 operating = $399,821 total budget for FY2018)

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

FY2018 PRODUCTS

- Support implementation of GIS-enabled LRS.
- Support All-Roads Linear Referencing (ARNOLD).
- Utilize GIS to aid in development of and communications for the ITD construction program.
- Continued support of infrastructure for the Transportation Data Model in our GIS architecture, including several revisions that will result from the LRS software replacement project.
- Process special requests.
- Coordinate GIS software and data development training needs department-wide.
- 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.
- Continue maintaining and building new GIS services, web tools and applications to mature ITD's web GIS portfolio.

DIGITAL MAPPING AND GIS FY18 BUDGET

Federal Aid	$319,857	+	**Match**	$79,964	=	**$399,821**

FY2018 CHANGES

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

ITEM 2.2 – LINEAR REFERENCING SYSTEM (BE-P274)

ITD CONTACT: **Nicole Hanson**
Senior GIS Analyst
(208) 334-8224

OBJECTIVES

- 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 maintain linear referencing data that support HPMS, the FAST Act, and other requirements
- 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

METHODOLOGY

($191,587 personnel + $193,724 operating = $385,311 total budget for FY2018)

ITD's tabular linear referencing system (MACS) has been migrated to the Agile Assets Network Manager 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. This system is the ITD standard for transportation feature location. This software is now obsolete. It will be replaced with a GIS-enabled linear referencing system. FY16 and FY17 funding were used to begin this system replacement project. The production deployment will be complete in the first quarter of 2018, with continued system support and work to integrate additional ITD business systems beginning in FY2018.

FY2018 PRODUCTS

- Support road geometry for the State Highway System, Federal Aid and Functionally-classed roads.
- Update the linear referencing system with new state highway system and federal-aid system projects.
- Continue to support the FHWA mandate of mapping All Public Roads in Idaho and supporting such data in an LRS. ITD is closely monitoring the current requirements of the mandate and possible future additions to the mandate.
- Support HPMS requirements for ARNOLD and FAST Act.
- Enhance ITD business function by increasing the software integration with the GIS-enabled LRS.
- Provide systems including WARS, Asset Management and construction program with LRS support.

LINEAR REFERENCING SYSTEM FY18 BUDGET

Federal Aid	$308,249	**Match**	$ 77,062	=	**$ 385,311**

2018 CHANGES

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

ITEM 2.3 – LOCAL HIGHWAY PROGRAM (BA-P221)

ITD CONTACT: **TBD**
Local Road Inventory Program Information Coordinator
(208) 334-

OBJECTIVES

- 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 and ARNOLD
- To ensure successful apportionment of funds for local improved road mileage to local county and road and bridge departments in Idaho

METHODOLOGY

($73,884 personnel + $62,500 operating = $136,384 total budget for FY2018)

Classification of roads and determination of mileage is 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.

FY2018 PRODUCTS

- 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.

LOCAL ROAD PROGRAM FY18 BUDGET

Federal Aid	$109,107	**Match**	$27,277	=	**$136,384**

FY2018 CHANGES

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

ITEM 2.4 – GIS PROGRAM DEVELOPMENT (CG-P230)

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

OBJECTIVES

- 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

METHODOLOGY

($81,268 personnel + $134,947 operating = $216,215 total budget for FY2018)

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.

FY2018 PRODUCTS

- Staff and manage the GIS office in support of the department's needs.
- Work to evolve the Transportation Data Model and associated GIS databases.
- Continue the implementation and support of LRS to meet the ARNOLD and FAST Act requirements.
- Work with ITD business units to provide data and expertise for ongoing GIS-related projects
- Further develop IPLAN using ESRI's ArcGIS Online platform.
- Conduct outreach to ITD districts and divisions to assure department needs are identified, coordinated, and met over the mid-term horizon.

GIS PROGRAM DEVELOPMENT FY18 BUDGET

Federal Aid	$172,972	**Match**	$43,243	=	**$216,215**

FY2018 CHANGES

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

ITEM 3.0 –TRANSPORTATION SYSTEMS (F18901I)

ITD CONTACT: **Caleb Lakey**
Transportation Systems 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;
- Integrating computer-assisted analysis with technical support;
- 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 – Highway System Monitoring & Reporting
- Item 3.4 – System Modeling

TOTAL TRANSPORTATION SYSTEMS FY17 BUDGET

Federal Aid	$1,697,918	**Match**	$424,479	=	**$2,122,397**

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 pavement condition of the State Highway System and other select roadways.
- 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 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..
- Develop a Transportation Asset Management Plan (TAMP)
- Conduct Ground Penetrating Radar (GPR) scan of state system

METHODOLOGY

Item 3.1.1- Annual Pavement Condition Survey
($325,326 Personnel) + ($165,600 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.

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.

Item 3.1.2-Assessment of the Business Requirements, Needs, and Recommendations for Asset Management System.($75,000.00 Operating)
These funds will be used to conduct an assessment of, and map the business needs required to be met by new Transportation Asset Management Software. Our current TAMS does not currently interface with GIS or out Linear Referencing System (LRS). ITD is seeking to replace the current TAMS FY19. This task will enable us to ensure that the statement of work for the new TAMS software is complete and will enable us to ensure that the software will be adequate for our business needs.

Item 3.1.3-Refine Asset Management Decision Trees
($25,000Project Operating)

These project funds will be used to refine the PMS Decision protocal (i.e. Decision Trees). This will improve the project identification and selection process and more full consider all distress parameters when recommending treatments.

FY2018 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.
- Modified Asset Management Decision Trees.

ASSESS PAVEMENT CONDITION OF THE STATE HIGHWAY SYSTEM FY17 BUDGET

Federal Aid	$472,741	**Match**	$118,185	=	**$590,926**

FY2017 CHANGES

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

ITEM 3.2 – VEHICLE VOLUMES, CLASSIFICATION, WEIGHT, AND CHARACTERISTICS (DA-P241, DA-P243)

ITD CONTACT: **Margaret Pridmore**
Roadway Data Manager
(208) 334-8221

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

($671,569 Personnel) + ($696,500 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 monthly and annual reports. In order to support freight modeling and federal submittal process, data models are employed to extrapolate traffic information.

FY2018 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 48-hour periods.
- Analysis and reports related to equipment verification or in conjunction with other 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 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 portion 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.
- 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 $75,000 requested to enhance the classification of vehicles on Idaho's roadways.

VEHICLE VOLUMES, CLASSIFICATION, WEIGHT, AND CHARACTERISTICS FY18 BUDGET

Federal Aid	$1,094,445	**Match**	$273,614	=	**$1,368,069**

FY2017 CHANGES

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

ITEM 3.3 – HIGHWAY PERFORMANCE MONITORING SYSTEM(EB-P111)

ITD CONTACT: **Chapman Munn**
Transportation Systems Manager
(208) 334-8217

OBJECTIVES

- Inventory a statistical sampling of Idaho's roadways.
- Process roadway data using HPMS 8.0 online software.
- Improve data availability by implementing analysis and reporting tools.
- Submit an annual HPMS report to FHWA's Office of Highway Policy Information (OHPI).Plan and implement required changes to HPMS data items.
- Review data submittal annually and analyze gaps and improvements.
- Change current processes to improve data quality and quantity.
- Understand all FHWA and MAP-21 rulemakings that impact HPMS.
- Plan implementation of any FHWA rulemakings that will impact HPMS.
- Participate in the HPMS Reassessment.
- Provide post-submittal performance measure support.

METHODOLOGY

($60,532 Personnel) + ($5,000 Operating)

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.

FY2018 PRODUCTS

- Inventory a sampling of the state's roadways.
- Partially automate HPMS submittal and certification of public road mileage.
- Improve the HPMS data collection and management processes to increase the accuracy and reliability of the data.
- Maintain and make needed modifications to the data collection software used for field collection.
- Continue to refine the method of gathering HPMS data from local jurisdictions to make it more effective.
- Supply data to and furnish quality control for data in the TAMS system.
- Answer inquiries from the Legislature, executive managers, and the public.
- Work with FHWA to handle MAP-21 and FAST Act requirements affecting HPMS.
- Configure ESRI Roads and Highways to store HPMS submittal data and work towards transactional maintenance.
- Work with FHWA during the reassessment of HPMS to identify and mitigate difficult data collection efforts.
- Provide maps and supporting pavement condition reports after each submittal.

HIGHWAY PERFORMANCE MONITORING SYSTEM FY18 BUDGET

Federal Aid	$52,426	Match	$13,106	=	$65,532

FY2017 CHANGES

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

ITEM 3.4 – SYSTEM MODELING (FL-P280)

ITD CONTACT: **David Coladner**
Transportation Systems Modeler
(208) 334-8233

OBJECTIVES

- Developing business processes to use and maintain the Statewide Travel Demand Model (STDM)
- Manage and make available National Performance Management Research Data Set (NPMRDS) and compare with travel time collected through on-the-road technologies such as the "Blue Toad" travel time data.
- Use these travel time data sources to tune the travel demand model for car and truck traffic
- Anticipate average travel times and areas of high traffic congestion
- Develop goals for peak flow travel for network level performance management
- Cooperation with MPOs to coordinate internal/external volumes
- Cooperation with MPOs to coordinate travel time data collection and use
- Model the shipment of long and short haul freight within and through Idaho
- Possibly work with DEQ to provide inputs to Air Quality Model to evaluate federally funded construction project's conformity to AQ standards.
- Continue to support economic impact modeling (TREDIS) efforts by supplying travel data as input
- Build a new base year and future model land-use datasets. (From 2010 to 2015 in the base year, and 2040 to 2045 in the future year.) This will involve coordination with MPOs and modeling land-use based on Census and related data products.

METHODOLOGY

($65,371 personnel + $32,500 operating)

To maintain the model, it is necessary to keep aware of current sources of population and employment and freight movement data for the present and future. It is also necessary to keep the travel network up-to-date. These will require ongoing partnership with agencies such as the Census Bureau and FHWA as well as local adjustments made by the MPOs in their respective areas.

Focus will continue on travel time datasets that are made available and how these can satisfy Performance Management PM3 requirements as well as inform ITDs congestion modeling goals.

FY2018 PRODUCTS

- STDM-Based congestion levels and goals at the network level
- Measured travel time and travel time reliability data store developed for certain corridors throughout the state
- Runs of the freight model to be used by the freight planning office
- Useful modeled travel characteristics data inputs to the TREDIS model
- Updated land-use and synthetic population data for new "base" and "future" years (2015 and 2045)

SYSTEM MODELING FY16 BUDGET

Federal Aid	$78,297	**Match**	$19,574	=	**$97,871**

ITEM 4.0 –MOBILITY SERVICES (F18901J, FR-P802)

ITD CONTACT: **Jeff Marker**
Freight Program Manager
(208) 334-8462

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
- Create 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

METHODOLOGY

4.1 Freight Program Development
($56,540 Personnel) + ($4,248 Travel + Operating)
Further develop 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
($8,308 Personnel) + ($7,080 Travel + Operating)
Lead department liaison with Freight Advisory Committee. Develop program to integrate 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
($8,308 Personnel)
Development of 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
($4,154 Personnel)

Develop, 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.

4.5 Statewide Rail Plan Update
($8,308 Personnel) + ($50,000 Operating)
Develop an update to the 2013 Idaho Rail Plan through the contracting of services with an outside consultant. The Rail Plan will contain an updated description of Idaho's rail network, trends and forecasts in freight and passenger rail growth and demand and potential rail improvements and investments.

4.6 Freight Summit
($12,462 Personnel) + ($17,832 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.

FY2018 PRODUCTS

- Development of Program Structure for ITD's Freight Program, includes Freight Advisory Committee Deliverables, Legislative Engagement, and STIP Project Engagement
- Creation of first ever Freight Performance Measures
- Creation of Freight Project Identification in the STIP process
- Creation of a coordinated and structured outreach program with the private sector to drive economic growth
- Development of critical rural and urban freight corridors meeting FAST Act and FHWA requirements

IDAHO STATEWIDE FREIGHT PROGRAM FY18 BUDGET

Federal Aid	$141,792		**Match**	$35,448	= **$177,240**

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended:	9/20/2017

Comments: Increased amount budgeted for freight program development by $15,000 to better match expected costs. The dollars for this change were taken from the contingency funds, which were originally budgeted at $35,569. With this change the contingency was reduced to $20, 359.

ITEM 5.0 – TRANSPORTATION INVESTMENT PROGRAMMING (F18901K, 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 a 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 2017-2018 SPR planning year:

1. **STIP Pre-planning** ($11,507 Personnel + $492 Operating Expenses = $11,999)
   Develop planning task list, schedule and calendar for the FY2019 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 jurisdiction s 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** ($16,923 Personnel + $724 Operating Expenses = $17,647)
   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** ($13,115 Personnel + $561 Operating Expenses = $13,676)
   The FY2019 Program Update Manual is 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 FY2019-2025 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** ($3,385 Personnel + $145 Operating Expenses = $3,530)
   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** ($23,269 Personnel + $995 Operating Expenses = $24,264)
   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, the effect on the state's Gross Domestic Project, and an assessment of jobs creation. 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** ($26,569 Personnel + $1,137 Operating Expenses = $27,706)
   ITD planners representing the six highway 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** ($15,484 Personnel + $662 Operating Expenses = $16,146)
   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** ($9,308 Personnel + $398 Operating Expenses = $9,706)
   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.

9. **Conduct Public Involvement Process – Review of Draft Program** ($14,892 Personnel + $637 Operating Expenses = $15,529)
   ITD has been exploring innovative means for improving its public involvement process regarding the draft program. Two new concepts have evolved: 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 FY2019 Program Update, the automated processes to create the public scope statements and geographic representations of project locations will continue to be optimized and streamlined resulting in higher quality data. 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 FY2019-2025 program as both hard copy documents and as electronic files on the "Draft ITIP" tab of this website **http://itd.idaho.gov/funding/**.

10. **Prepare Recommended Program with Approval by IT Board** ($16,584 Personnel + $710 Operating Expenses = $17,294)
    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** ($7,784 Personnel + $333 Operating Expenses = $8,117)
    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 are currently in the process of finalizing a set of guidelines and process document for STIP amendments and administrative modifications.

12. **Submit updated STIP for federal approval** ($16,923 Personnel + $724 Operating Expenses = $17,647)
    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 $175,743 with total operating expenses of $7,518 for an overall total budget of $183,261.

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** ($51,784 Personnel + $2,215 Operating Expenses = $53,999)
    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 TIGER and FASTLANE programs.

14. **Perform Financial Evaluation/Analysis in Support of Planning Efforts** ($43,999 Personnel + $1,882 Operating Expenses = $45,881)
    FP&A 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 also 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** ($189,789 Personnel + $8,119 Operating Expenses = $197,908)
    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 reporting representing 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 also is responsible to develop and implement administrative and IT Board policies which address the STIP planning processes throughout the year.

16. **Integrate STIP/ITIP Process with other Planning Systems** ($15,230 Personnel + $652 Operating Expenses = $15,882)
    FP&A partners with other ITD section such at Planning Services to integrate its OTIS system into the workflow of other planning systems such as PSS along with other financial systems such as AMS and FMIS.

17. **Archive STIP Transactions and Documentation** ($9,646 Personnel + $414 Operating Expenses = $10,060)
    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 $310,448 with total operating expenses of $13,282 for a total budget of $323,730.

Overall the Total Personnel Costs for all 17 STIP Planning areas is $486,191; the Total Operating Costs are $20,800. Total SPR Personnel and Operating Costs for the FY2017-2018 Program Year (exclusive of non-routine project costs) are $506,991.

STAFFING

FP&A has a lead manager with responsibilities for the entire section including primary oversight responsibilities for the annual development and management of the ITIP and STIP. Additionally, there is a separate manager leading 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/implementation tasks throughout the year. Personnel involvement for all seventeen STIP/ITIP planning areas is as follows:

STIP Planning Lifecycle Stages		**FP&A Staff Involvement**
1	STIP Pre-planning	2 Mgrs. plus 4 staff
2	Develop HFP, STIP Investment Levels and Funding Targets	2 Mgrs. plus 4 staff
3	Develop Program Update Manual with STIP Update Guidance	1 Mgr. plus 4 staff
4	Develop & Deliver STIP Update Training	2 staff
5	Perform Economic Analysis (BCA) of Projects in Draft Program	2 Mgrs. plus 2 staff
6	Develop Initial Draft of STIP	2 Mgrs. plus 5 staff
7	Preliminary Financial Analysis of Draft Program	2 Mgrs. plus 3 staff
8	Prepare and Review Draft Program with Idaho Transportation Board.	2 Mgrs. plus 3 staff
9	Conduct Public Involvement Process - Review of Draft Program	2 Mgrs. plus 3 staff
10	Prepare Recommended Program with Approval by IT Board	2 Mgrs. plus 3 staff
11	Make Programming Adjustments to Prior STIP	2 Mgrs. plus 4 staff
12	Submit Updated STIP for federal approval	2 Mgrs. plus 3 staff
13	Perform Economic Analysis (BCA) of Additional Projects	2 Mgrs. plus 1 staff
14	Perform Financial Evaluation/Analysis in Support of Planning Efforts	2 Mgrs. plus 2 staff
15	Implement and Manage STIP	2 Mgrs. plus 5 staff
16	Integrate STIP/ITIP Process with other Planning Systems	2 Mgrs. plus 5 staff
17	Archive STIP Transactions and Documentation	1 Mgr. plus 2 staff

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 FY2017-2018

Besides completing the update of the FY2018-2022 STIP, and beginning the development of the FY2019-2023 STIP 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 system 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 invented and managed by FP&A such as OTIS, with project and program planning and management tools developed elsewhere within the department such as Project Scheduling Server.
- 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 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 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 nimbly 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.

FY2017-2018 PRODUCTS

- FP&A will finalize the approval of the FY2018-2024 STIP/ITIP that is currently in development.
- FP&A will develop highway-funding plans for the FY2019-2025 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 FY2019-2025 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 within its OTIS software to automatically 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 FY2019-2025 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 complete the integration between the Department's OTIS project and program planning system and the FHWA's upgraded Financial Management Information System (FMIS).
- 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 one or more Benefit Cost Analysis to accompany applications for discretionary funding applications such as TIGER and FASTLANE.
- 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.

NON-ROUTINE PROJECTS: OTIS ENHANCEMENTS

Three non-routine projects related to OTIS are included in the FY2018 SPR program. These projects total $227,500. They enhance accuracy, reporting and analysis; provide periodic upgrade of core functionality; and reconfigure connections and data structures needed for dual carriageway GIS-enabled LRS in the OTIS information management system relied on to support the ITIP/STIP planning process.

$87,500 funds enhancements aimed at improving accuracy of entered information and improving ease for planners at the Department, metropolitan planning organizations and other local entities. The improvements are needed to strengthen analysis, reporting functions, and integration with other planning functions. Work on these enhancements will continue throughout the 2018-2019 SPR program year. Costs are for external consultant services to develop software enhancements. This exhibit breaks out the $87,500 enhancement project into specific task areas in the STIP planning process.

STIP Annual Update		
Task #	Description	**Project Costs**
2	Develop HFP, STIP Investment Levels and Funding Targets	$4,010
3	Develop Program Update Manual with STIP Update Guidance	$3,108
4	Develop & Deliver STIP Update Training	$802
5	Perform Economic Analysis (BCA) of Projects in Draft Program	$5,514
6	Develop Initial Draft of STIP	$6,296
7	Preliminary Financial Analysis of Draft Program	$3,669
8	Prepare and Review Draft Program with Idaho Transportation Board	$2,206
9	Conduct Public Involvement Process - Review of Draft Program	$3,529
10	Prepare Recommended Program with Approval by IT Board	$3,930
11	Make Programming Adjustments to Prior STIP	$1,845
12	Submit Updated STIP for federal approval	$4,010
On-Going Planning Support		
15	Implement and Manage STIP	$44,972
16	Integrate STIP/ITIP Process with other Planning Systems	$3,609
	Totals	**$87,500**

$85,000 funds the scheduled upgrade of the OTIS application. Periodic upgrades are necessary every three to five years for large systems. OTIS is three years old, with an expected remaining useful life of seven to ten years. This will be the first periodic upgrade made to OTIS, to ensure integrity of records through all workflow stages, optimize the scenario-merge process, improve response time for users, and reduce consultant costs and staff time required to address bugs and conduct testing each time fixes are deployed. Upgrade costs supported by SPR funds during FY2018 are for external consultant services.

$55,000 funds the necessary connection and table reconfiguration changes in OTIS to provide for dual carriageway, time-based GIS-enabled LRS. Currently, OTIS stores and reports single carriageway SegmentCode-Milepost data. This project funds reconfiguration of OTIS to store and report time-based, dual carriageway Route Identification-Mile Measure GIS-enabled LRS. Costs for this project provisioned from SPR funds during FY2018 are for external consultant costs related to business analyst and programming services.

FINANCIAL PLANNING & ANALYSIS FY18 SPR BUDGET

Federal Aid	$587,593	+	**Match**	$146,898	=	**$734,491**

2017 CHANGES

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

Part B:
SPR
RESEARCH

Key #14065

ITEM 6.0 – RESEARCH (F18901R)

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 – 2014 Cooperative Research Project (University of Idaho)
- Item 6.5 – 2015 Cooperative Research Project (University of Idaho)
- Item 6.6 – 2016 Cooperative Research Projects (University of Idaho)
- Item 6.7 – 2016 Cooperative Research Project (Montana State University)
- Item 6.8 – 2017 Cooperative Research Projects (University of Idaho)
- Item 6.9 – 2017 Cooperative Research Projects (Boise State University)
- Item 6.10 – 2017 Cooperative Research Project (Idaho State University)
- Item 6.11 – 2018 Cooperative Research Project (Private Consultant)
- Item 6.12 – 2018 Cooperative Research Project (University of Idaho)
- Item 6.13 – 2018 Cooperative Research Project (Boise State University)
- Item 6.14 – 2018 Cooperative Research Project (Washington State University)
- Item 6.15 – 2018 Cooperative Research Project (Idaho State University)
- Item 6.15 – 2018 Cooperative Research Project (Idaho State University)
- Item 6.16 – 2018 Cooperative Research Project (Montana State University)

RESEARCH BUDGET

Federal Aid	$1,608,798	+	**Match**	$252,478	=	**$1,861,276**

ITEM 6.1 – NCHRP PROGRAM (2018)

IDENTIFICATION:	**TPF-5(418)**
Title:	National Cooperative Highway Research Program (NCHRP)
Research Agency:	Various, coordinated by the Transportation Research Board
Work Plan Approval:	Annual Agreement
ITD Key #:	20787

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 – FY2018

- 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

- FY2018: $327,249 (100% Federal SPR)

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)

Federal Aid	$327,249	**+**	**Match**	0	**=**	**$327,249**

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended: 5/15/2018

Comments: Reduced budgeted amount by $1,597 to match actual cost. Remaining budget moved to pooled fund budget. Also, added Key #.

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

This item contains descriptions of AASHTO Programs that ITD is participating in for FY2018. It includes annual contributions for selected Technical Service Programs and ITD Involvement in a project to modernize the AASHTOWare Bridge Rating software.

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 (TSP^2).
- 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 – FY2018

Provide ITD continued support for programs listed above. Key ITD staff include:

- Kevin Sablan, Design/Traffic Engineer, is the ITD Project Manager for NTPEP and 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 TSP^2 and LRFD.
- Mike Santi, Materials Engineer, is the ITD Project Manager for TSP^2 and DAMS.
- Sue Sullivan, Environmental Manager, is the ITD Project Manager for ETAP.
- Sonna Lynn Fernandez, Planning Services Project Manager, is the ITD Project Manager for CTPP.
- Dennis Jensen, Winter Maintenance Specialist, is the ITD Project Manager for SICOP.
- Justin Schoolcraft, District 4 Training Specialist, is the ITD Project Manager for TCCC.

COST

- FY2018: The budget for Technical Service Programs is $125,000 ($100,000 Federal SPR (80/20)).

AASHTO ENGINEERING TECHNICAL SERVICE PROGRAMS

Federal Aid	$100,000	+	**Match**	$25,000	=	**$125,000**

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended:	5/15/2018
Comments: Increased amount budgeted by $5,000 to match expected costs in FFY18.				

ITEM 6.2.2 – AASHTOWare Bridge Design Rating (BRDR)

IDENTIFICATION:

Title:	AASHTOWare Bridge Design Rating (BRDR)
Research Agency:	AASHTO
Work Plan Approval:	Previously 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 – FY2018

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

- FY2018: 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

FY2018 CHANGES

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

ITEM 6.3 – NATIONAL AND REGIONAL POOLED FUND PROJECTS (2018)

This item contains descriptions of pooled fund projects that ITD is actively participating in for FY2018. A total of $271,636 is budgeted for pooled funds costs, with $270,251 committed to specific projects outlined in the sections below.

ITEM 6.3.1 – TPF-5(035)

IDENTIFICATION:	**TPF-5(035)**
Title:	Pacific Northwest Snowfighters (PNS)
Research Agency:	Washington State Department of Transportation
State Contact:	Kim Willoughby, willouk@wsdot.wa.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	08786

OBJECTIVE

- Develop specifications for chemicals related to snow and ice control. Support winter maintenance professionals with information on current technologies, supplier contacts, and networking opportunities. Conduct research on maintenance chemicals and activities.

PROPOSED ACTIVITY – FY2018

- The PNS is now being funded through Clear Roads, TPF-5(218). The planned activities are that the PNS will do the testing for the Qualified Products List (QPL) for deicer chemicals, and update the QPL and website. The Qualified Products List (QPL) and deicer specifications can be viewed at http://pnsassociation.org/

- Ron Wright, Central Labs Program Manager, is the ITD Project Manager.

COST

- FY2018: Funding commitment met – no additional funding needed.

FY2017 CHANGES

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

ITEM 6.3.2 – TPF-5(255)

IDENTIFICATION:	TPF-5(255)
Title:	Highway Safety Manual Implementation
Research Agency:	Federal Highway Administration
State Contact:	Ray Krammes, ray.krammes@dot.gov
FHWA Contact:	Ray Krammes, ray.krammes@dot.gov
Work Plan Approval:	Previously 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 – 2018

During FFY18, TPF-5(255) will:

- Complete a Network Screening Noteworthy Practices document
- Complete a Life-Cycle Benefit-Cost Analysis Guide and Spreadsheet Tool
- Complete a Safety Performance for Intersection Control Evaluation Screening Tool and Guide
- Initiate a Safety Analysis Needs Assessment for Performance-Based Practical Design and Transportation Systems Management & Operations
- Support Pooled-Fund State Representatives Travel to a Highway Safety Manual Peer Exchange
- Initiate new priority projects that a majority of TPF-5(255) States support

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

COST

- FY2018: Funding commitment met – no additional funding needed. Our commitment of $80,000 was fulfilled in FY2014.

FY2018 CHANGES

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

ITEM 6.3.3 – TPF-5(276)

IDENTIFICATION:	TPF-5(276)
Title:	Full-Scale Shake Table Testing to Evaluate Seismic Performance of Reinforced Soil Walls
Research Agency:	Washington State Department of Transportation
State Contact:	Lu Saechao, saechal@wsdot.wa.gov
FHWA Contact:	Not available
Work Plan Approval:	Previously Approved
ITD Key Number:	13815

OBJECTIVE

- Perform a unique experimental investigation of the dynamic response and performance of two full-scale (10 m) reinforced soil retaining walls constructed using realistic materials and methods. A key focus of the proposed research will be on the influence of wall height on overall system response (i.e., external stability/deformation response) and distribution of dynamic tensile forces (i.e., seismic demand) in soil reinforcement. Other focus areas will be dynamic earth pressure on facing elements, effects of dynamic loading on soil-reinforcement load transfer mechanisms and permanent deformations after dynamic loading.

PROPOSED ACTIVITY – FY2018

- Complete 3D numerical simulations to support and validate the experimental results from the seven shaking tests
- Conduct a full-scale MSE abutment test to alleviate scaling effects from the reduced scale tests.
- Prepare final report for the study
- The project is expected to be completed in June, 2018

- John Ingram, Geotechnical Engineer, is the ITD Project Manager.

COST

- FY2018: Funding commitment met – no additional funding needed. We fulfilled our $20,000 commitment in FY2014

.

FY2018 CHANGES

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

TEM 6.3.4 – TPF-5(288)

IDENTIFICATION:	TPF-5(288)
Title:	Western Road Usage Charging Consortium (WRUCC)
Research Agency:	Oregon Department of Transportation
State Contact:	Randal Thomas, Randal.B.THOMAS@odot.state.or.us
FHWA Contact:	Not Available
Work Plan Approval:	Previously Approved
ITD Key Number:	18669

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 – FY2018

Work scheduled for FY2018 will include:

- Completing project regarding protection of privacy in a Road User Charge (RUC) system
- Completing project on effects of RUC on rural residents
- Completing study addressing handling out-of-state drivers in a RUC system (phase 2 of 2)
- Initiating study of parameters for RUC rates
- Initiating regional RUC pilot pre-development (Phase 1a – system definition and Phase 1b – project planning)
- Initiating project on technology for RUC communications (inventory of devices)
- Initiating study of RUC evasion and potential enforcement policy options

- Matthew Moore, Transportation Legislation/Policy Specialist, is the ITD Project Manager.

COST

- FY2018: $25,000 (100% Federal SPR). ITD's Research Advisory Council voted to commit a total of $150,000, ($25,000 annually) for FY2014 through FY2019.

FY2018 CHANGES

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

ITEM 6.3.5– TPF-5(296)

IDENTIFICATION:	TPF-5(296)
Title:	Simplified SPT Performance-Based Assessment of Liquefaction and Effects
Research Agency:	Utah Department of Transportation
State Contact:	David Stevens, davidstevens@utah.gov
FHWA Contact:	Justice Maswoswe Justice.Maswoswe@dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	14355

OBJECTIVE

The objectives of this project include:

- Developing a simplified performance-based procedures for the SPT modeled after recently published methods (Mayfield et al. 2010) to closely approximate the performance-based analysis results for liquefaction triggering, lateral spread displacement, post-liquefaction free-field settlement, and seismic slope displacement at select return periods (475, 1033, and 2475 years).
- Developing the tools and analysis necessary to validate and perform the new simplified liquefaction evaluation procedures in each of the participating states

PROPOSED ACTIVITY – FY2018

Most of the work for the project has been completed. The project end date is set for December 2017. Work in FFY2018 will include:

- Completion of updated seismic maps for Idaho.
- Completion of the final report for the project
- The project end date is set for December 2017.

- John Ingram, Geotechnical Engineer, is the ITD Project Manager.

COST

- FY2018: Funding commitment met – no additional funding needed. We fulfilled our $28,000 commitment in FY2017

FY2018 CHANGES

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

ITEM 6.3.6 – TPF-5(297)

IDENTIFICATION:	TPF-5(297)
Title:	Improving Specifications to Resist Frost Damage in Modern Concrete Mixtures
Research Agency:	Oklahoma Department of Transportation
State Contact:	Ron Curb, rcurb@odot.org
FHWA Contact:	Richard Meininger, Richard.meininger@dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	14356

OBJECTIVE

The goal of the research is to produce improved specifications, and test methods; while, improving the understanding of the underlying mechanisms of frost damage. Specifically, this work will seek to develop new test procedures that may be faster and/or more reliable than the existing methods. The objectives of this project are:

- Determine the necessary properties of the air-void system to provide satisfactory frost durability in laboratory testing of laboratory and field concretes with different combinations of admixtures, cements, and mixing temperatures in salt environments
- Determine the accuracy of a simple field test method that measures air voids system quality with field and laboratory concrete
- Determine the critical combinations of absorption and the critical degree of saturation on the frost durability in accelerated laboratory testing in the presence of deicer salts
- Establish new test methods and specifications for fresh and hardened concrete to determine frost durability and field performance

PROPOSED ACTIVITY – FY2018

The participating states agreed to extend the project completion date to February 2019 and provide additional funding to support additional research. The Phase 2 research to be conducted in FFY2018 and FFY19 will include

- Continued development of Super Air Meter (SAM).
- Investigation of field practices/construction methods and support for state SAM implementation.
- Standardization of new rapid freeze-thaw (FT) test and development of AASHTO language.
- Modeling FT exposure conditions and validating models.

- Clint Hoops, Concrete/Structures Engineer, is the ITD Project Manager.

COST

- FY2018: $14,100 (100% Federal SPR). ITD's Research Advisory Council approved a request to commit an additional $35,000 to the project, bring our total commitment to the project to $87,500. We will have one final payment of $12,600 in FY2019.

FY2018 CHANGES

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

ITEM 6.3.7 – TPF-5(302)

IDENTIFICATION:	TPF-5(302)
Title:	Modified Binder (PG+) Specifications and Quality Control Criteria
Research Agency:	Wisconsin Department of Transportation
State Contact:	Lynn Hanus, lynnm.hanus@dot.wi.gov
FHWA Contact:	Matt Corrigan Corrigan.Matt@dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	14380

OBJECTIVE

The main objectives include:

- Performing detailed assessment of current PG+ and modified binder quality control procedures in partnering states in terms of reliability, applicability, and relevance to performance and quality of modified asphalt binders.
- Using a range of modified binders to develop unified test procedures and specification criteria based on products placed in the field.
- Improving product quality and reliability through conduct of ruggedness studies and development of precision and bias statements for selected tests.
- Introducing consistency to current products supplied by elimination or reduction of differences in modified binder acceptance tests and criteria throughout member states.
- Validating and establishing relevance of suggested PG+ and quality control procedures in terms of mixture performance.

PROPOSED ACTIVITY – FY2018

During FY2018, the remaining work on the project will be completed including:

- Completing evaluation of the effects of RAP/RAS on PG+ and developmental test blending charts
- Analyzing the effects of low temperature modification technologies in PG+ and developmental test methods
- Preparing the final report for the project.
- The project end date is scheduled for March 31, 2018

- Mike Santi, Materials Engineer, is the ITD Project Manager.

COST

- Funding commitment met - no additional funding needed. Our $75,000 commitment was fulfilled in FY 2016.

FY2018 CHANGES

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

ITEM 6.3.8 – TPF-5(309)

IDENTIFICATION:	TPF-5(309)
Title:	Partnership for the Transformation of Traffic Safety Culture
Research Agency:	Montana Department of Transportation
State Contact:	Susan Sillick ssillick@mt.gov
FHWA Contact:	Chimai Ngo Chimai.Ngo@dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	19156

OBJECTIVE

The main objectives include:

- Conduct research to solve specific culture-based traffic safety problems.
- Create training and education materials to enhance workforce understanding and application of traffic safety culture methods.
- Provide technology transfer of best practices in traffic safety culture methods to all stakeholders.

PROPOSED ACTIVITY – FY2018

During 2018, planned pooled fund activities will include:

- Conducting research to better understand attitudes and beliefs of law enforcement regarding traffic safety. The study will focus on two urban and two rural states. Idaho is one of the rural states selected for the study. The researchers will survey staff in a sample of law enforcement agencies in the state. This project is expected to be completed in FY2019.
- Completing a project to examine traffic safety culture in the U.S. and other countries. The goal of the project is to identify factors that can be changed comparatively easy under given cultural conditions in order to contribute to road safety work in practice.
- Initiating new projects identified at the pooled fund meeting, which is scheduled for August 2017.
- The pooled fund project is currently scheduled to end September 30, 2019

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

COST

- FY2018: $10,000 (100% Federal SPR) - ITD's Research Advisory Council voted to commit funding to the project in FY2015 through FY2018. The total funding commitment to the project is $60,000 ($10,000 per year in FY2015, FY2016, and FY2018 and $30,000 in FY17).

FY2018 CHANGES

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

ITEM 6.3.9– TPF-5(312)

IDENTIFICATION:	TPF-5(312)
Title:	Western Maintenance Partnership
Research Agencies:	Utah Department of Transportation
State Contact:	David Stevens, davidstevens@utah.gov
FHWA Contact:	Arlene Kocher Arlene.Kocher@dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	19168

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 – FY2018

- 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.
- The pooled fund is scheduled for completion June 30, 2019.

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

COST

- FY2018: Funding commitment met – no additional funding needed. Our $15,000 commitment was fulfilled in FY2016.

FY2018 CHANGES

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

ITEM 6.3.10 – TPF-5(313)

IDENTIFICATION:	TPF-5(313)
Title:	Technology Transfer Concrete Consortium
Research Agency:	Iowa Department of Transportation
State Contact:	Todd Hanson todd.hanson@dot.iowas.gov
FHWA Contact:	Gina Ahlstrom gina.ahlstrom@fhwa.dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	19169

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 – FY2018

- 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 August 31, 2020

- Clint Hoops, Concrete/Structures Engineer, is the ITD Project Manager.

COST

- FY2018: $12,000 (100% Federal SPR). This pooled fund was approved by ITD's Research Advisory Committee for another 4 years at $12,000 a year from FY2016-FY2019.

FY2018 CHANGES

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

ITEM 6.3.11 – TPF-5(340)

IDENTIFICATION:	TPF-5(340)
Title:	Axle and Length Classification Factor Analysis and Effects on Annual Average Daily Traffic (AADT)
Research Agency:	Wisconsin Department of Transportation
State Contact:	Lynn Hanus, lynnm.hanus@dot.wi.gov
FHWA Contact:	Steven Jessberger, Steven.Jessberger@dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	19778

OBJECTIVE

Study objective include:

- Assemble State DOTs and industry experts to conduct research and statistical analysis on millions of traffic data records in order to provide guidance and understanding on the variability of how axle and length classification data affect AADT, specifically with regard to the creation of axle factors.
- Gain a quantitative understanding on how length classification traffic data affects the calculation of AADT. Length classification sites are more cost effective than axle classification sites from installation to maintenance. This objective will allow State DOTs to fully understand the statistical significance and soundness when using this cost-effective data collection option.
- Gain a quantitative understanding of how axle and length classification traffic data interact and affect the calculation of AADT. State DOTs that have both these types of continuous classification traffic site installations or State DOTs who are considering including the lesser expensive length classification sites to their continuous program will understand advantages and distinctions of utilizing these combined data sources.

PROPOSED ACTIVITY – FY2018

The duration of this project is expected to be 14 months. During FFY18, planned activities will include:

- Implementation plan from SRF Consulting Group will be modified based on discussion with pooled fund members.
- Outline method to collect data and considerations.
- Select states that provide traffic data for statistical analysis
- Initiate data collection efforts
- Conduct statistical analysis and compile draft findings.
- Produce quarterly and Final Reports.

- Raelene Viste, Research Analyst Principal, is the ITD Project Manager.

COST

- $12,500 (100% Federal SPR). In July 2017, ITD management approved a request increase our commitment to the project by $12,500, bringing our total commitment to 25,000. The additional funding will be used to support implementation of methods developed as part of the study.

FY2018 CHANGES

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

ITEM 6.3.12 – TPF-5(343)

IDENTIFICATION:	TPF-5(343)
Title:	Roadside Safety Research for MASH Implementation
Research Agency:	Washington State DOT
FHWA Contact:	Andrew Beagle, beaglea@wsdot.wa.gov
Work Plan Approval:	Previously 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 – FY2018

In FY2018, research will focus on testing of guardrail systems prioritized by pooled fund representatives. Ongoing projects include:

- Testing the 31-inch tall W-beam guardrail system in concrete mow strip. Both steel and wood post options will be tested using MASH Test Level 3 criteria.
- MASH full-scale crash testing of a 31-inch buried-in-backslope terminal compatible with an MGS Guardrail System.
- MASH full-scale crash testing of a W-Beam Rail System with raised blockouts.
- Performing research to identify an acceptable method for installing standard strong-post W-beam [Modified G4(1S)] with the face of the rail aligned with the break point of a 1J:1V slope.
- Conducting a feasibility study for addressing extreme site constraints at bridge ends.
- Pooled fund representatives will meet in November, 2017 to determine the next set of research priorities.

- Gary Sanderson, Technical Engineer in the Design/Traffic Section, is the ITD Project Manager.

COST

- FY2018: $16,200 (100% Federal SPR). ITD's Research Advisory Council approved contributing a total of $50,000 to this pooled fund. We will contribute $8,800 in FY16, $25,000 in FY17, and $16,200 in FY18.

FY2018 CHANGES

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

ITEM 6.3.13 – 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:	Previously 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 – FY2018:

- 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:

- FY2018: $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, 2017-2021.

FY2018 CHANGES

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

ITEM 6.3.14 – 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:	Not Available
Work Plan Approval:	Previously 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 – FY2018

Planned activities in FY2018 include:

- Complete or continue work on the following active projects including:
  - Development of an emergency operations methodology for extreme winter storm events
  - Preparation of case studies re: utilization of AVL/GPS technology
  - Develop weather event reconstruction & analysis tool
  - Development of standards/guidance for using mobile sensor technology to assess winter road conditions
  - Development of a training video for the implementation of liquid-only plow routes
  - Synthesis of material application methodologies for winter operations
- Initiate new projects including:
  - A Comprehensive Guide to Pre-wet
  - Winter Preparedness Website
  - Integrating Advanced Technologies into Winter Operations Decisions
  - Standard Specifications for Carbide Insert Blades
  - Aftermarket Cameras in Winter Maintenance Vehicles - Quantity and Location
- Conduct research synthesis projects including:
  - Accuracy of Salt Application Equipment
  - Use of Solid Materials for Anti-icing/Pre-treatment
  - Effective Snow and Ice Personnel and Equipment Storm Activation
  - Website Function/Website Re-Organization
  - Annual Survey of State Winter Maintenance Data
- Provide financial support for the Pacific Northwest Snowfighters (PNS) pooled fund efforts to keep the specifications and the Qualified Product List (QPL) viable as a standard for state DOTs
  - Maintain and update website: clearroads.org

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

COST:

- FY2018: $25,000 (100% Federal SPR). ITD's Research Advisory Council voted to commit a total of $175,000 ($25,000 annually) for FY2012 through FY2018.

FY2018 CHANGES

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

ITEM 6.3.15– 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:	Loren Turner, Loren_turner@dot.ca.gov
FHWA Contact:	Wen-huei (Phil) Yen, Wen-huei.Yen@fhwa.dot.gov
Work Plan Approval:	Previously Approved
ITD Key Number:	20308

OBJECTIVE

- This collaborative effort will 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 – FY2018

Planned work in FY2018 will focus on establishing operational ShakeCast systems for the state participating DOTs. As part of this:

- The USGS team will coordinate with each state DOT representative to arrange web-based or in-person meeting(s) to capture details of requirements for the DOT-specific deployments
- ShakeCast v3 will be set up on the USGS cloud for each DOT
- State and local bridge inventories will be loaded into the system using default HAZUS-based fragilities or fragilities provided by the DOTs

- Mel Coulter, Emergency Program Manager, is the ITD Project Manager.

COST

- FY2018: $15,000 (100% Federal SPR). ITD's Research Advisory Council voted to contribute $15,000/yr. to this project from FY17-FY19.

FY2018 CHANGES

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

ITEM 6.3.16– TPF-5(368)

IDENTIFICATION: TPF-5(368)
Title: Performance Engineered Concrete Paving Mixtures
Research Agency: Iowa DOT
Lead Agency Contact: Brian Worrel, brian.worrel@iowadot.us
FHWA Contact: Ahmad Ardani, ahmad.ardani@dot.gov
Work Plan Approval: Pending Approval
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 – FY2018

Planned work in FY2018 likely will include:

- Providing education and technical training regarding implementation of performance engineered paving mixtures as prioritized by the project TAC. Products could include: web-based training, online videos, state-based workshops open to agencies and industry, technical materials to assist field personnel and contractors, and project case examples
- Project level support including on-call technical assistance to agencies regarding PEM guidance and questions.
- Quarterly TAC meeting and an annual face-to-face two-day meeting to share lessons learned and provide implementation support
- Development of a database for use throughout the project to track tests, materials and properties, and field performance data.
- Developing a process for uniform data collection over the 5-year study period.
- Review the available information within the existing Long-Term Pavement Performance (LTPP) data to determine what conclusions and insights can be drawn that will help with the verifying PEM test value limits to field performance
- Clint Hoops, Concrete/Structures Engineer, is the ITD Project Manager.

COST

- FY2018: $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 FY17-FY21.

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended: 5/15/2018
Comments: Added Key #			

ITEM 6.3.17 – TPF-5(376)

IDENTIFICATION:	TPF-5(376)
Title:	Northwest Passage – Phase IVI
Research Agency:	Minnesota Department of Transportation
State Contact:	Cory Johnson, Coryi.Johnson@state.mn.us
FHWA Contact:	Raj Ghaman, Raj.Ghaman@fhwa.dot.gov
Work Plan Approval:	Previously 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 – FY2018

The activities approved for FY 2018 include:

- Continued support for the Operations Task Force and a Freight Task Force
- Support for North/West Passage Corridor Large Scale Deployment Development
- An Evaluation of Rural 511 Phone Service
- Work related to Truck Platooning Regulations
- Additional support for Multistate Assessment of Interstate Speed Limit Impacts
- Work related to Asset Management Practices for ITS Infrastructure
- Plow Camera and Location Sharing Practices
- TSMO Practices Peer Exchange.

- Robert Koeberlein, Mobility Services Engineer, is the ITD Project Manager.

COST

- FY2018: $25,000 (100% Federal) ITD's Research Advisory Council voted to commit an additional total of $50,000 to this pooled fund, $25,000 a year for two years from FY2018-FY2019.

FY2018 CHANGES

Amendment Added:	XYES	☐ NO	Date Amended:	5/15/2018

Comments: Updated Pooled Fund # and Key #. Old project closed out and new phase initiated.

ITEM 6.3.18 – TPF-5(378)

IDENTIFICATION:	TPF-5(378)
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 – FY2018

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

COST

- FY2018: $88,451 (100% Federal SPR).

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended: 5/15/2018

Comments: Budgeted amount increased by $221 to match actual payment amount. Also, added Pooled fund # and Key #.

ITEM 6.4 – 2014 COOPERATIVE RESEARCH PROJECT (UNIVERSITY OF IDAHO)

IDENTIFICATION: Research Projects 235
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

This section describes a research project with the University of Idaho that was approved by ITD's Research Advisory Council in May 2013.

ITEM 6.4.1 - Research Project 235

IDENTIFICATION: Research Project 235
Title: Calibration of the MEPDG Performance Models for Flexible Pavements in Idaho
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

OBJECTIVE

- The main objective of this research project is to develop local calibration (adjustment) factors for the MEPDG predictive models for flexible pavement design in Idaho. The local calibration factors will be incorporated into the AASHTOWare Pavement ME Design software currently being implemented at ITD.
- The project s scheduled for completion on April 30, 2018. The total budget for the project is $338,037.
- Mike Santi, State Materials Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Complete development of Idaho local calibration factors for flexible pavements
- Incorporate the calibration factors into the AASHTOWare Pavement ME design software/ITD database
- Prepare and conduct training workshop for ITD HQ and district staff and contractor staff
- Prepare and complete the final report for the project

COST

- $110,325 ($88,260 Federal SPR funds (80/20)) is budgeted for this project in FY 2018.

FY2018 CHANGES

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

ITEM 6.5 – 2015 COOPERATIVE RESEARCH PROJECT (UNIVERSITY OFIDAHO)

IDENTIFICATION: Research Project 244
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho (NIATT and SSRU)
Work Plan Approval: Previously Approved

This section describes a research project with University of Idaho that was approved by ITD's Research Advisory Council in June 2014.

ITEM 6.5.1 - Research Project 244

IDENTIFICATION: Research Project 244
Title: Safety Impacts of Using Wider Pavement Marking in Two-Lane Rural Highways in Idaho
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Implement wider pavement marking in selected sites that represent the diverse geometric and operational characteristics throughout the state.
- Analyze and assess the safety impacts of implementing wider pavement markings on rural two-lane highways in Idaho.
- The completion date for the project is scheduled for December 31, 2017. The total cost of the project is estimated at $174,000.
- Jared Hopkins, D2 Traffic Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018, the researchers will:

- Complete before and after crash analysis
- Prepare and submit a final report.

COST

- $15,515 ($12,412 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. A portion of the funding needed for the project was previously encumbered in FY2015. The final $17532 needed for the project will be budgeted in FY18

FY2018 CHANGES

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

ITEM 6.6 – 2016 COOPERATIVE RESEARCH PROJECTs (UNIVERSITY OF IDAHO)

IDENTIFICATION: Research Projects 252 and 254
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

This section describes two projects with University of Idaho that were approved by ITD's Research Advisory Council in May 2015. $29,068 is budgeted for RP 252 in FY2018.

ITEM 6.6.1 - Research Project 252

IDENTIFICATION: Research Project 252
Title: Evaluation, Comparison, and Correlation between the Idaho IT-44 and AASHTO T-84 Methods for Determining the Specific Gravity and Absorption Properties of Fine Aggregate
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Determine the specific gravity and absorption properties of typical aggregate used in Idaho pavements according to the CoreLok and AASHTO testing procedures.
- Develop a correlation between the CoreLok and AASHTO testing methods.
- Improve accuracy and consistency of reported results because of the correlation between the two tests.
- Provide a best fit statistical model for use in determining Gsb and absorption using the CoreLok method so ITD can reduce the subjectivity, time and cost of testing.
- The project is scheduled for completion August 31, 2018. The total budget for the project is $113,675.
- Mark Wheeler, Pavement Operations Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY2018, the researchers will:

- Complete aggregate testing.
- Analyze data and develop correlations.
- Prepare procedures for inclusion in ITD's Materials Manual.
- Prepare and submit final research report.

COST

- $38,646 ($30,917 Federal SPR funds (80/20)) is budgeted for this project in FY 2018.

FY2018 CHANGES

Amendment Added: ☒ YES ☐ NO	Date Amended: 5/15/2018
Comments: After review of the test results accumulated so far, the ITD Project Manager and UI Principal Investigator determined that further testing by ALLWEST was needed for data verification. This additional testing will require a time extension from May 31 to August 31, 2018 and a budget increase of $9,578 for ALLWEST to complete this additional testing and for the UI team to complete the data analysis and develop the proposed correlations. Funds for the increase will come from moving the remaining contingency funds of $9,069 to the project and shifting $509 from research project RP 272 (Item 6.14.1).	

ITEM 6.6.2 - Research Project 254

IDENTIFICATION: Research Project 254
Title: Safety Analysis of School Zones along Two-Way, Two-Lane Highways
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Perform a comprehensive safety analysis of school zones and the safety implications throughout Idaho along its two-way, two-lane highways.
- Examine practices relating to speed zone implementation, signage, crosswalk installation, enforcement, and the use of technology to enhance the school zone environment.
- Analyze statewide accident information within these school zones.
- Identify opportunities for improvements in safety for all road users and report on potential road safety issues.
- The scheduled completion date for the project is October 31, 2017. The total cost of the project is estimated at $54,695.
- John Tomlinson, Highway Safety Program Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY2018 the researchers will:

- Complete Literature Review
- Identify school locations
- Develop, administer and analyze a survey for Principals.
- Conduct site visits and collect field data.
- Develop outreach materials to showcase best practices and lessons learned.
- Prepare and submit final research report.

COST

- Funding needed to complete the project was budgeted in prior years.

FY2018 CHANGES

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

ITEM 6.7 – 2016 COOPERATIVE RESEARCH PROJECT (MONTANA STATE UNIVERSITY)

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

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

ITEM 6.7.1 - 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: Previously 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 is September 30, 2018. The total budget for the project is at $254,552.
- John Tomlinson, Highway Safety Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Conduct follow-up community and workplace surveys and interviews with selected workplace staff
- Gather and review the results of the teens and distracted driving research project (RP251)
- Analyze results of research tasks
- Develop recommendations for implementation
- Prepare and finalize the final report for the project.

COST

- $67,846 ($54,277 Federal SPR funds (80/20)) is budgeted for this project in FY 2018.

FY2018 CHANGES

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

ITEM 6.8 – 2017 COOPERATIVE RESEARCH PROJECT (UNIVERSITY OF IDAHO)

IDENTIFICATION: Research Projects 261, 262, 266, and 268
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

This section describes four projects with University of Idaho that were approved by ITD's Research Advisory Council to begin in FY2017. These projects have a combined budget of $303,500 in FFY18.

ITEM 6.8.1 - Research Project 261

IDENTIFICATION: Research Project 261
Title: Development and Evaluation of Performance Measures to Augment Asphalt Mix Design in Idaho
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Evaluate and adopt performance tests to evaluate fatigue cracking (fatigue and thermal), rutting and moisture damage.
- Develop specification limits for these tests to be included in the asphalt mix design in Idaho.
- Implementation of performance threshold limits leading to consistently high-performance asphalt pavement.
- The completion date for the project is scheduled for January 31, 2019. The total budget for the project is estimated at $170,000.
- Mike Santi, Materials & Pavements Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Finish collecting field samples from the pavement sites for lab tests and collect virgin materials (binders and aggregates).
- Continue lab performance tests on the field cores and laboratory prepared samples.
- Analyze lab and field performance data
- Develop performance test specifications
- Begin preparing final report.

COST

- $80,000 ($64,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.8.2 - Research Project 262

IDENTIFICATION: Research Project 262
Title: Concrete Performance in Aggressive Salt Environments
Research Agency: University of Idaho/Washington State University
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Determine if changes to concrete mix designs, curing methods, admixtures, or salt application can reduce potential damage to concrete in barrier rail, parapets, barriers, and bridge decks.
- Recommend specification changes and revisions or additions to test methods to better measure the concrete and assess it durability.
- The University of Idaho is the lead on this project with Washington State University being a subcontractor. The project is scheduled for completion on December 31, 2018. The total cost of the project is estimated at $150,000.
- Clint Hoops, Structural Materials, Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Complete testing of specimens.
- Complete testing of alternative mixes and develop possible recommendations
- Begin preparing final report..

COST

- $73,500 ($58,800 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.8.3 - Research Project 266

IDENTIFICATION: Research Project 266
Title: Evaluation of the Skid Resistance of Pavements at Different Speeds
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

OBJECTIVE

The primary objectives of the proposed research are:

- Collect and analyze skid numbers collected at different speeds and compare results
- Develop correlations between skid numbers collected at different speeds to enable ITD to utilize skid numbers collected at speeds ranging from 20-60 mph.
- This project is scheduled to be completed June 30, 2019. The total budget of the project is estimated at $120,000.
- Jack Long, Sr. Transportation Tech, Transportation Systems Section, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Complete selection of concrete and asphalt pavement test sections with varying skid numbers for inclusion in the study.
- Continue measuring skid numbers on selected test sections at varying speeds using ITD friction testing trailer, and measuring surface friction characteristics of the test sections using the University of Idaho's dynamic friction tester and sand patch test.
- Begin analysis of data collected and efforts to establish correlation of skid numbers collected at different speeds.

COST

- $49,000 ($39,200 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.8.4 - Research Project 268

IDENTIFICATION: Research Project 268
Title: Calibration of the MEPDG Performance Models for Rigid Pavements in Idaho
Research Agency: University of Idaho
Work Plan Approval: Previously Approved

OBJECTIVE

The primary objective of this research is to:

- Develop local calibration (adjustment) factors for the performance models in the AASHTOWare Pavement ME Design Software for Portland Cement Concrete (PCC) rigid pavements.
- The project is expected to be completed February 28, 2019. The total cost of the project is estimated at $170,000.
- Mike Santi, Materials and Pavement Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2017 the researchers will:

- Complete review the distress prediction models for rigid pavements in the ME software
- Complete evaluating the inputs required for the design of new rigid pavement systems.
- Complete identification of PCC pavement sections and LTPP rigid pavement sites in Idaho and adjacent states to be used in performance calibration.
- Develop a performance database required for ME calibration for the identified rigid pavement sections.
- Run the ME software (using the nationally calibrated models) with the assembled database.
- Begin developing Idaho calibration factors for use in calibrating performance prediction models for rigid pavements.

COST

- $101,000 ($80,800 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.9 – 2017 COOPERATIVE RESEARCH PROJECT (BOISE STATE UNIVERSITY)

IDENTIFICATION: Research Projects 263, 264, and 269
Title: Cooperative Transportation Research Program
Research Agency: Boise State University
Work Plan Approval: Previously Approved

This section describes projects with Boise State University that were approved by ITD's Research Advisory Council in March 2016 and March 2017. These projects have a combined budget of $176,990 in FY 2018.

ITEM 6.9.1 - Research Project 263

IDENTIFICATION: Research Project 263
Title: Unbound Material Characterization for Pavement ME Implementation in Idaho
Research Agency: University of Idaho/Boise State University
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Develop a database with appropriate unbound material (aggregate and soil) properties for direct input during mechanistic-empirical (ME) design of pavements in Idaho.
- Develop correlations between resilient modulus and index properties to check the accuracy of correlations currently used during Level 2 and Level 3 design efforts of ME.
- Boise State University is the lead on this project with the University of Idaho being a subcontractor. The project is scheduled to be completed January 31, 2019. The total budget for the project is $180,000.
- Mike Santi, Materials & Pavement Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Perform load triaxial testing of unbound materials to determine the Resilient Modulus values.
- Determine the shear strength parameters of the selected materials.
- Develop a database containing all relevant properties of the materials tested.
- Refine correlation between Resilient Modulus (M-R) and R-Value.

COST

- $90,500 ($72,400 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. A portion of the funding for the project was budgeted in FY2017 and the remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.9.2 - Research Project 264

IDENTIFICATION: Research Project 264
Title: Evaluation of Software Apps for Pavement Smoothness Measurement
Research Agency: Boise State University
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Conduct a literature review regarding the performance of mobile apps developed to measure pavement smoothness and to identify best practices for implementation and use.
- Assess the field performance of commercially available apps for pavement smoothness measure measurement under varying conditions.
- Develop recommendations regarding implementation and use based on research findings.
- The project is scheduled for completion on April 30, 2018. The total budget for the project is $29,490.
- Doug Yearsley, District 5 Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018:

During FY 2018 the researchers will:

- Collect roadway smoothness data using the application and mobile device using various vehicle configurations.
- Compare data on the same sections of roadway collected by a typical roadway profiler used on construction projects.
- Compare data on the same sections of roadway collected by ITD's profiler van and lightweight profiler equipment.
- Test applicability for bridge smoothness.
- Prepare and submit final research report.

COST

- $14,490 ($11,592 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. Other funding needed for the project was budgeted in FY2017.

FY2018 CHANGES

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

ITEM 6.9.3 - 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: Previously 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 – FY2018

During FY 2018 the researchers will:

- Complete structural and functional evaluation of selected pavement sections.
- Perform laboratory testing of field-obtained cores to establish trends
- Monitor pavement aging of selected pavement sections using Portable Infrared Spectroscopy (PIRS)

COST

- $72,000 ($57,600 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. A portion of the funding for the project was budgeted in FY2017 and the remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

Amendment Added: ☐ YES ☐ NO	Date Amended:
Comments	

ITEM 6.10 – 2017 COOPERATIVE RESEARCH PROJECT (IDAHO STATE UNIVERSITY)

IDENTIFICATION: Research Project 265
Title: Cooperative Transportation Research Program
Research Agency: Idaho State University
Work Plan Approval: Previously Approved

This section describes a project with Idaho State University that was approved by ITD's Research Advisory Council in March 2016.

ITEM 6.10.1 - Research Project 265

IDENTIFICATION: Research Project 265
Title: Effectiveness of High Early Strength Concrete Class 50A with Polypropylene Fibers as a Cost-Effective Alternative for Field-Cast Connections of Precast Elements in Accelerated Bridge Construction
Research Agency: Idaho State University
Work Plan Approval: Previously Approved

OBJECTIVE

The objectives of the proposed research are:

- Obtain data on the behavior of high early strength concrete Class 50AF with polypropylene fibers for possible use as a closure pour material between Deck Bulb-T Girders
- Use the experimental results to create a computer model of the proposed closure pour detail that is capable of assessing the connection strength under one-time truck load and assessing the fatigue performance under repeated loading..
- The project is scheduled to be completed July 31, 2018. The total budget for the project is $63,780.
- Dan Gorley, Bridge Asset Management Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Complete research to determine the headed bar pull-out strength and material interface bond strength and submit tech memo summarizing the results.
- Complete strength tests of beams with closure pour and submit tech memo summarizing the results.
- Develop finite element models.
- Prepare and give presentation of study findings to project Technical Advisory Committee and Bridge Section staff.
- Prepare and submit final report for the project.

COST

- $28,780 ($23,024 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. Other funding needed for the project was budgeted in FY2017.

FY2018 CHANGES

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

ITEM 6.11 – 2018 COOPERATIVE RESEARCH PROJECT (PRIVATE CONSULTANT)

IDENTIFICATION: Research Project 267
Title: Cooperative Transportation Research Program
Research Agency: Private Consultant TBD
Work Plan Approval: Approved

This section describes a project with a private consultant that was approved by ITD's Research Advisory Council in March 2017.

ITEM 6.11.1 - Research Project 267

IDENTIFICATION: Research Project 267
Title: Idaho Statewide Historic Highway Context Study
Research Agency: Private Consultant TBD
Work Plan Approval: Approved

OBJECTIVE

The objectives of the proposed research are:

- To complete a comprehensive history of the state's transportation networks that will assist in meeting the requirements of NHPA Section 106 compliance.
- To resolve errors and omissions in existing documentation utilized by ITD and Idaho SHPO regarding Idaho's historic roads and highways.
- To create a resource that enables efficient completion of NHPA Section 106 consultation for FHWA, LHTAC, and ITD projects, thus reducing the costs and time required for successful environmental clearance and project delivery.
- To provide an easily-accessible central reference that serves both ITD regulatory compliance needs and offers a valuable resource to citizens of Idaho.
- The expected duration of the project is 21 months. The total cost of the project is estimated at $160,000.
- Tracy Schwartz, Sr. Environmental Planner, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Select the researchers for the project
- Hold project kick-off meeting
- Conduct historical research regarding the historical context of Idaho highways statewide
- Gathering specific information on each state and U.S. highways in Idaho to support and document research performed.
- Meet on a quarterly basis with ITD's Project Manager and project Technical Advisory Committee to provide updates on how the research is progressing.

COST

- $77,180 ($61,744 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.12 – 2018 COOPERATIVE RESEARCH PROJECT (UNIVERSITY OF IDAHO)

IDENTIFICATION: Research Projects 270 and 274
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho
Work Plan Approval: Pending Approval

This section describes two projects with the University of Idaho that were approved by ITD's Research Advisory Council (RAC). Research Project RP 270 was requested and approved by the RAC in the spring of 2017 and Research Project RP 274 was requested and approved by the RAC in the spring of 2018.

ITEM 6.12.1 - Research Project 270

IDENTIFICATION: Research Project 270
Title: Development of an Inventory and Inspection Database Framework for Asset Management of MSE Walls
Research Agency: University of Idaho (lead) with Boise State University and Idaho State University
Work Plan Approval: Approved

OBJECTIVE

The objectives of the proposed research are:

- Develop a database framework for inventorying ITD Mechanically-Stabilized Earth (MSE) walls and provide recommendations for how best to track information about these structures.
- Develop procedures for inspecting and rating the condition of each wall in the inventory.
- Create an initial inventory of ITD MSE walls used the selected database framework.
- Conduct inspections of a small number of MSE walls to field test the inspection protocol and the database
- The expected duration of the project is 12 months. The total cost of the project is estimated at $60,000.
- John Ingram, State Geotechnical Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Perform a comprehensive literature review
- Gather information about ITD existing systems including TAMS, IPLAN, and AASHTO's Bridge Management software to assess whether the systems would be appropriate tools for collecting inventory and inspection data for MSE walls and develop recommendations for ITD consideration.
- Develop database with inventory of ITD-managed MSE walls
- Develop inspection procedures for MSE walls and gather condition information for a small sample of MSE Walls

COST

- $43,000 ($34,400 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.12.2 - Research Project 274

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

OBJECTIVE

The objectives of the proposed research are:

- Develop, test and, 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 – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Begin performing literature review.

COST

- $6,000 ($4,800 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019 and FY2020.

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended: 5/15/2018
Comments: This project was requested as part of our normal research project selection process in the Spring of 2018. We would like to begin the project at the start of the Fall semester in August and so are requesting to add the project to the FY2018 Work Program and budget a small portion of the funding needed for the project in FY2018 to cover initial costs.			

ITEM 6.13 – 2018 COOPERATIVE RESEARCH PROJECT (BOISE STATE UNIVERSITY)

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

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.

ITEM 6.13.1 - 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 ITO 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.
- Clint Hoops, Structural Materials Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Identify different aggregate sources across Idaho with varied potential for ASR from the database and preserved aggregates from RP 212.
- Begin evaluating the ASR potential of selected aggregates using the AASHTO TP-110 test method and the 14-day ASTM C1260 (AASHTO T 303) method.
-

COST

- $45,900 ($36,720 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

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

ITEM 6.13.2 - Research Project 275

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: Pending Approval

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 – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Perform literature review.
- Work with ITD staff and contractors to obtain needed HMA production and construction data.
- Begin statistical analysis of collected data.

COST

- $15,000 ($12,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019 and FY2020.

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended: 5/15/2018
Comments: This project was requested as part of our normal research project selection process in the Spring of 2018. We would like to begin the project at the beginning of July and so are requesting to add the project to the FY2018 Work Program and budget a portion of the funding needed for the project in FY2018 to cover initial costs.			

ITEM 6.13.3 - 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: Pending Approval

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 – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Begin Fabrication of the snow temperature logging system.

COST

- $5,000 ($4,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019 and FY2020.

FY2018 CHANGES

Amendment Added: ☒ YES ☐ NO	Date Amended: 5/15/2018
Comments: This project was requested as part of our normal research project selection process in the Spring of 2018. We would like to begin the project at the start of the Fall semester in August and so are requesting to add the project to the FY2018 Work Program and budget a small portion of the funding needed for the project in FY2018 to cover initial costs.	

ITEM 6.14 – 2018 COOPERATIVE RESEARCH PROJECT (WASHINGTON STATE UNIVERSITY)

IDENTIFICATION: Research Project 272
Title: Cooperative Transportation Research Program
Research Agency: Washington State University
Work Plan Approval: Previously Approved

This section describes a project with Washington State University that was approved by ITD's Research Advisory Council in March 2017.

ITEM 6.14.1 - Research Project 272

IDENTIFICATION: Research Project 272
Title: Idaho Statewide Freight Data and Commodity Supply Chain Analysis
Research Agency: Washington State University (lead) with Oregon State University
Work Plan Approval: Pending Approval

OBJECTIVE

The objectives of the proposed research are:

- Collect information on freight and commodity flows through the State of Idaho.
- Provide detailed analysis for those major supply-chains supporting the state's freight economy.
- The expected duration of the project is 18 months. The total cost of the project is estimated at $186,000.
- Jeff Marker, Freight Program Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Develop survey methodology (combination of roadside and establishment). And identify additional data sources for potential use.
- Develop survey instruments (questionnaires).
- Implement surveys.
- Collect/compile survey responses and input into geographic database.
- Analyze and evaluate commodity flows on key corridors.

COST

- $41,585 ($33,268 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FY2019.

FY2018 CHANGES

Amendment Added: ☒ YES ☐ NO	Date Amended: 2/28/2018
Comments: The amount budgeted for this project in FFY18 was reduced by $24,400 to better reflect expected costs for this project during the year. The funds were shifted to Item 6.15, a new project with Idaho State University that was approved for funding by ITD"s Research Advisory Council in February 2018.	

Amendment Added: ☒ YES ☐ NO	Date Amended: 5/15/2018
Comments: The amount budgeted for this project in FFY18 was reduced by an additional $35,015 to better reflect expected costs for this project during the year. The funds are being shifted to existing Items 6.2.1 and 6.6.1 and to support 4 projects begin added to the FFY18 Work Program (Items 6.12.1, 6.13.2, 6.13.3, and 6.16.1)	

ITEM 6.15 – 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 6.15.1 - 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 – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Obtain strain gauges and supplies needed for the project.
- Install instrumentation to measure the strains on the closure pours for the selected bridge.
- Verify that the data acquisition set-up operates properly
- Begin collecting strain data for vehicles with known loads.

COST

- $35,900 ($28,720 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FFY2019.

FY2018 CHANGES

Amendment Added: ☒ YES ☐ NO	Date Amended: 2/28/2018
Comments: This project is being added to the FFY18 Work Program. The project was requested by ITD Bridge Section staff and approved by ITD's RAC in February 2018. The project will build on a current project (RP 265, Item 6.10), which has been examining the performance of a High Early Strength concrete mix as a cost-effective alternative to Ultra High Performance Concrete. The Bridge staff requested this project to field test the mix because it has performed well in lab testing. The project was requested off-cycle so that they could instrument a bridge with strain gauges this Spring where the HES concrete mix will be used. Funding for project costs in FFY18 will come from funding shifted from Item 6.14 ($24,400) and from contingency funds ($11,500).	

ITEM 6.16 – 2018 COOPERATIVE RESEARCH PROJECT (MONTANA STATE UNIVERSITY)

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

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

ITEM 6.16.1 - 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: Pending Approval

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 24 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 – FY2018

During FY 2018 the researchers will:

- Conduct the project kick-off meeting.
- Identify sites for product testing
- Begin preparing the sites for testing the products
- Begin procuring the materials needed for the evaluation.

COST

- $5,000 ($4,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2018. The remaining funds needed for the project will be budgeted in FFY2019 and FFY2020.

FY2018 CHANGES

Amendment Added:	☒ YES	☐ NO	Date Amended: 5/15/2018
Comments: This project was requested as part of our normal research project selection process in the Spring of 2018. We would like to begin the project at the start of the Fall semester in August and so are requesting to add the project to the FY2018 Work Program and budget a small portion of the funding needed for the project in FY2018 to cover initial costs.			

COST SUMMARY

PART 1: WORK PROGRAM PLANNING - Key # 14064
TOTAL PROGRAM FUNDING SUMMARY

Item #	(FC)	Work Program Task	SPR/FED	State Match	FY18 Work Program
1.0		**Planning Services (F18901A) Unit 3871**			
1.1	FP	Planning Administration and Coordination	$300,358	$75,089	$375,447
1.2	FF	Statewide Transportation Planning	$84,000	$21,000	$105,000
1.3	FB	Highway Classification & System Adjustments	$0	$0	$0
1.4	FT	Air Quality	$83,200	$20,800	$104,000
1.5	FL	Travel Demand Model Data Inventory and Analysis	$24,000	$6,000	$30,000
1.6	FO	Metropolitan Planning Program	$8,000	$2,000	$10,000
		Subtotal:	**$499,558**	**$124,889**	**$624,447**
2.0		**Geographic Information Systems (F18901G) Unit 3872**			
2.1	CF	Digital Mapping and GIS	$319,857	$79,964	$399,821
2.2	BE	Linear Referencing System	$308,249	$77,062	$385,311
2.3	BA	Local Highway Program	$109,107	$27,277	$136,384
2.4	CG	GIS Program Development	$172,972	$43,243	$216,215
		Subtotal:	**$910,185**	**$227,546**	**$1,137,731**
3.0		**Transportation Systems (F18901I)--Unit 3861 AM--Unit 3862 RD--Unit 3863**			
3.1	FH	Assess Pavement Condition of the State Highway System	$472,741	$118,185	$590,926
3.2	DA	Vehicle Volumes, Classification, Weight and Characteristics	$1,094,455	$273,614	$1,368,069
3.3	EB	Highway Performance Monitoring System	$52,426	$13,106	$65,532
3.4	FL	System Modeling	$78,297	$19,574	$97,871
		Subtotal:	**$1,697,918**	**$424,480**	**$2,122,398**
4.0		**Mobility Services (F18901J) Unit 3918**			
4.1	FR	Statewide Freight Planning	$141,792	$35,448	$177,240
		Subtotal:	**$141,792**	**$35,448**	**$177,240**
5.0		**Transportation Investment Programming (F18901K) Unit 1805**			
5.1	TI	Transportation Investment Programming	$587,593	$146,898	$734,491
		Subtotal:	**$587,593**	**$146,898**	**$734,491**
		Total SPR Planning:	**$3,837,046**	**$959,261**	**$4,796,307**

PART II: WORK PROGRAM RESEARCH - (F18901R) KEY # 14065
TOTAL PROGRAM FUNDING SUMMARY

Item #	Phase (PC)	Research Administration	SPR/FED	State Match	FY18 Work Program	Technical Contact
6.1	RB	**National Cooperative Highway Research Program** *ITD's contribution to support the NCHRP Program. Qualifies for 100% federal dollars.*	$327,249	$0	**$327,249**	Ned Parrish
6.2	RE	**AASHTO Engineering Technical Service Programs** *Programs supported include: NTPEP, AII, EMTSP, TSP2, LRFD, DAMS, ETAP, CTPP, SICOP & TCCC.*	$100,000	$25,000	**$125,000**	Varies - See Section 6.2
6.3	RF	**Pooled Fund Studies** *ITD's contributions to various cooperative studies with other states & FHWA. Payments qualify for 100% federal dollars.*	$271,636	$0	**$271,636**	Varies - See Section 6.3
6.4	RL	**FY14 Contract Research with UI** *RP 235 is a multiyear project. Other funding needed for the project was budgeted previously.*	$88,260	$22,065	**$110,325**	Mike Santi
6.5	RL	**FY15 Contract Research with UI** *RP 244 is a multiyear project with $26,145 budgeted for FY17. Other funding was budgeted previously.*	$12,412	$3,103	**$15,515**	Jared Hopkins
6.6	RL	**FY16 Contract Research with UI** *RP 252 and RP 254 are multiyear projects. Other funding needed for the projects was budgeted previously.*	$30,917	$7,729	**$38,646**	Mark Wheeler John Tomlinson
6.7	RL	**FY16 Contract Research with MSU** *RP 259 is a multiyear project. Other funding needed for the project was budgeted previously.*	$54,277	$13,569	**$67,846**	John Tomlinson
6.8	RL	**FY 17 Contract Research with UI** *Research Projects 261, 262, 266, and 268 are multiyear projects. Some funds for the projects were budgeted in FY17 and additional funds will be budgeted in FY19.*	$242,800	$60,700	**$303,500**	Mike Santi Clint Hoops Jack Long
6.9	RL	**FY 17 Contract Research with BSU** *Research Projects 263, 264, and 269 are multi-year projects. Some funding for the projects was budgeted in FY17 and other needed funds will be budgeted in FY19.*	$141,592	$35,398	**$176,990**	Mike Santi Doug Yearsley
6.10	RL	**FY 17 Contract Research with ISU** *Research Project 265 is multiyear study. Other funding needed for the project was budgeted previously.*	$23,024	$5,756	**$28,780**	Dan Gorley
6.11	RL	**FY 18 Contract Research with Private Consultant** *Research Project 267*	$61,744	$15,436	**$77,180**	Tracy Schwartz
6.12	RL	**FY 18 Contract Research with UI** *Research Projects 270 and 274.*	$39,200	$9,800	**$49,000**	John Ingram John Tomlinson
6.13	RL	**FY 18 Contract Research BSU** *Research Projects 271, 275, and 276*	$52,720	$13,180	**$65,900**	Clint Hoops Mike Copeland Bill Nicholson
6.14	RL	**FY 18 Contract Research WSU** *Research Project 272*	$33,268	$8,317	**$41,585**	Jeff Marker
6.15	RL	**FY18 Contract Research with ISU** *Research Project 273*	$28,720	$7,180	**$35,900**	Dan Gorley
6.16	RL	**FY18 Contract Research with MSU Research Project 277**	$4,000	$1,000	**$5,000**	Alissa Salmore
6.17	RG	**Research Administration**	$96,979	$24,245	**$121,224**	Ned Parrish
		NCHRP and Pooled Funds (Items 6.1 & 6.3)	$598,885	$0	**$598,885**	
		Program Budget (excluding items 6.1 & 6.3)	$1,009,913	$252,478	**$1,262,391**	
		TOTAL SPR RESEARCH	**$1,608,798**	**$252,478**	**$1,861,276**	

PART III: TOTAL PLANNING AND RESEARCH PROGRAM FUNDING SUMMARY

	Work Program Task	Federal	State Match	FY17 Work Program
Part A	**SPR Planning**			
	Direct Program Cost	$3,837,046	$959,261	$4,796,307
	Indirect Cost Estimate at 11.00%	$422,075	$105,519	$527,594
	Total:	**$4,259,121**	**$1,064,780**	**$5,323,901**
Part B	**SPR Research**			
	Direct Program Cost	$1,608,798	$252,478	$1,861,276
	Indirect Cost Estimate at 11.00%	$111,090	$27,773	$138,863
	Total:	**$1,719,888**	**$280,251**	**$2,000,139**
	TOTAL SPR WORK PROGRAM (13621/13623)	$5,979,009	$1,345,031	$7,324,040