Transportation Planning and Research:  
ANNUAL WORK PROGRAM  
AND COST ESTIMATE

Your Safety • Your Mobility  
Your Economic Opportunity

Project – SPR Planning    A020(460)  
Project – SPR Research    A020(522)

Fiscal Year 2022  
October 1, 2021– September 30, 2022

Idaho Transportation Department  
2/7/2022
ANNUAL TRANSPORTATION RESEARCH
WORK PROGRAM AND COST ESTIMATE

FISCAL YEAR 2022
October 1, 2021 – September 30, 2022

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

In cooperation with the
US Department of Transportation

David B. Kuisti, P.E.
APPROVED BY
FOR: Blake Rindlisbacher
Chief Engineer

Digitally signed by David B. Kuisti, P.E.
Date: 2022.02.07 13:57:52 -07'00'
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Part A: SPR Planning

Key #20460
ITEM 1.0 – PLANNING SERVICES (F22901A)

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

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

Our mission is accomplished by:

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

ITEMS IN THIS SECTION
There are seven sub-items in this section:
- Item 1.1 – Planning Administration and Coordination
- Item 1.2 – Statewide Transportation Planning
- Item 1.3 – Highway Classifications and System Adjustments
- Item 1.4 – Transportation Alternatives Program
- Item 1.5 – ADA Curb Ramp Program
- Item 1.6 – Metropolitan Planning Program
- Item 1.7 – Freight Program

TOTAL FY22 HIGHWAY PLANNING BUDGET

$460,000 Operating
$490,127 6.0 FTE – Personnel

Federal Aid $760,102
Match $190,025 = $950,127
# Personnel & Budget Summary

## Planning Service FY2022 Work Program Summary

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

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

OBJECTIVES:

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

METHODOLOGY:

1.1.1 Planning Administration and Coordination
($70,000 Routine Operating + $80,000 operating + .80 FTE – Personnel, Item 1.0)

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

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

FY2022 PRODUCTS:

- Develop Annual Report of SPR Work Program accomplishments for FY22.
- Develop and monitor FY22 SPR Work Program Items.
• Attend annual AASHTO Subcommittee on Planning (SCOP) meeting.

PLANNING ADMINISTRATION AND COORDINATION FY22 BUDGET

Budget for Item 1.1 includes section personnel budget of $ and $ for routine operating costs.

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= $640,127
ITEM 1.2 – STATEWIDE TRANSPORTATION PLANNING (FF-P801)

ITD CONTACT:  Ken Kanownik  
Planning Services Section  
Division of Highways Development  
(208) 332-7823

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  
($20,000 Operating + 0.65 FTE - Personnel, Item 1.0)  
ITD Contact:  Ken Kanownik

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

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

1.2.2 State Bicycle and Pedestrian Study Update  
($40,000 Operating + 0.45 FTE - Personnel, Item 1.0)  
ITD Contact:  Margaret Havey
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 given “due consideration” per Title 23 U.S.C. § 217 and § 135 and are consistent with the Long Range Transportation Plan;
- Encourage Districts to engage with and participate in local and regional bicycle and pedestrian planning efforts; and
- Facilitate the collection of all local and regional Bicycle/Pedestrian plans and documents making them available online along with other Idaho statewide and local planning documents.

1.2.3 State Highway System Plan
($150,000 Operating 0.40 FTE - Personnel, Item 1.0)
*ITD Contact: Rob Beachler*

Phase 1 (Scope of Work and Departmental Readiness) was completed in FY20. FY21 Work focused on Phase 2 Highway Evaluation and performance measures. This will combined current highway performance measures and develop measures for congestion/mobility and other areas as identified in the scope of work. Phase 3 (FY22 work) will develop performance based planning analytical tools to evaluate the State Highway System.

1.2.4 Strategic Freight Plan Update
($0 operating + 0.4 FTE - Personnel, Item 1.0)
*ITD Contact: Scott Luekenga*

Work on the Freight Plan Update began in FY21. The project will be completed in FY 22.

1.2.5 Air Quality Conformity Activities
($0 Operating + 0.05 FTE - Personnel, Item 1.0)
*ITD Contact: Margaret Havey*

- 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.

1.2.6 Program Delivery Conference
($30,000 Operating + 0.1 FTE - Personnel, Item 1.0)
*ITD Contact: Ken Kanownik*

Planning Services will serve as the “host” for the department’s annual Program Delivery Conference. This training and development conference provides the technical training to ITD staff that bridges the department’s activities from planning through construction.

1.2.7 Bicycle and Pedestrian Committee Support
($10,000 Operating + .05 FTE – Personnel, Item 1.0)
*ITD Contact: Margaret Havey*

Provide funding for travel stipends and off-site meeting support for the department’s Bicycle and Pedestrian Administrative Committee.

1.2.8 Highway Modernization Performance Measure
($0 Operating + 0.15 FTE - Personnel, Item 1.0)
*ITD Contact: Ken Kanownik*

*Develop a performance measure that tracks progress towards modernizing the State Highway System.*

1.2.9 Broadband and Small Cell Planning
($25,000 Operating + 0.35 FTE - Personnel, Item 1.0)
*ITD Contact: Rob Beachler*

Activities include:
• Participating in Broadband Task Force
• Updating Guide to Utility Management
• Coordinating with broadband providers statewide
• Assisting district staff in permitting of Broadband and Small Cell encroachments

1.2.10 Stakeholder/Public Outreach & Planning Support
($0 Operating + 0.65 FTE - Personnel, Item 1.0)
*ITD Contact: Margaret Havey*

Activities Include:
• Engaging stakeholders statewide
• Performing comment resolution for various public involvement campaigns
• Providing support for district level public involvement
• Providing training and professional opportunities
FY2022 PRODUCTS:
- Annual Planning Summit of ITD Staff and other planning stakeholders
- Phase 3 – Highway Evaluation of State Highway System Plan
- Development of a Modernization Performance Measure
- Strategic Freight Plan Update
- Program Delivery Conference
- Statewide Planning Outreach

STATEWIDE HIGHWAY PLANNING FY22 BUDGET

| Federal Aid | $220,000 | Match | $55,000 | = | $275,000 |

FY2022 CHANGES

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OBJECTIVES:

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

METHODOLOGY:

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

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

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

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

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

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

1.3.3 Statewide Boundary Adjustments

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

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

FY2022 PRODUCTS:

- Publish a revised statewide local roads functional classification map, if needed.
- Develop a workflow diagram for the State Highway System Adjustment Process; include in the State Highway System Adjustment Procedure document.
- Review, update and support geometry for the Urban Boundaries.

HIGHWAY CLASSIFICATIONS AND SYSTEMS FY22 BUDGET

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Comments:
ITEM 1.4 – TRANSPORTATION ALTERNATIVES PROGRAM (TAP) (FT-P802)

ITD CONTACT: Ken Kanownik
Planning Services
Division of Highways Development
(208) 332-7823

OBJECTIVES:

Coordinate, program and administer the Transportation Alternatives Program to maximize the amount of walking and biking infrastructure built with these federal funds.

METHODOLOGY:

1.4.1 TAP Activities
($0 Operating + 0.35 FTE – Personnel, Item 1.0)

Administer program by soliciting for projects from local sponsors, oversee selection committee and perform administrative duties as needed to balance program and address individual project delivery issues.

FY2022 PRODUCTS:
• Annual TAP Summary
• FY22 Application Cycle

Transportation Alternatives Program FY22 BUDGET

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

FY2022 CHANGES

Amendment Added: ☐ YES  ☒ NO  Date Amended:  
Comments:
ITEM 1.5 – ADA CURB RAMP PROGRAM (FL-P280)

ITD CONTACT: Margaret Havey
Planning Services
Division of Highways Development
(208) 334-8716

OBJECTIVES

• Deliver ADA Curb Ramp Program
• Coordinate Accelerated Curb Ramp Upgrades Throughout Idaho
• Call for Projects with Local Agencies

METHODOLOGY

1.5.1 ADA Curb Ramp Activities
($0 Operating + 0.4 FTE – Personnel, Item 1.0)

Administer program by soliciting for projects from local sponsors, oversee selection committee and perform administrative duties as needed to balance program and address individual project delivery issues.

FY2022 PRODUCTS

• FY23 Project Selections
• FY22 Funding Distribution (unspent/savings in FY22)

ADA Curb Ramp Program FY22 BUDGET

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

FY2022 CHANGES

Amendment Added: □ YES ☒ NO Date Amended: 

Comments:
ITEM 1.6 – METROPOLITAN PLANNING PROGRAM (FO-P801)

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

OBJECTIVES:

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

METHODOLOGY:

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

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

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

Consistency in communication and coordination is best served in the form of a comprehensive manual that provides guidance related to the planning processes and administrative requirements when facilitating transportation planning activities. Document shall clarify roles and responsibilities, improve efficiency among organizations and reduce questions and potential conflicts. Tasks to include but not limited to:
- Document review by District Planners and MPOs.
- Publish and post guidance document to ITD’s website.
1.6.3 New MPO Coordination/Discussions
($0 Operating + 0.15 FTE - Personnel, Item 1.0)

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

**FY2022 PRODUCTS:**
- Monitor Consolidated Planning Grant agreements.
- Host the MPO – ITD Partnership Meeting; create “ITD/MPO Improving Relations” document
- Publish and post an ITD/MPO Guidelines and Procedures.
- Continued discussions with District 4 staff and the City of Twin Falls for the development of a new MPO in the Magic Valley Area.
- Create MPO Story-Map.

**METROPOLITAN PLANNING PROGRAM FY22 BUDGET**

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**FY2022 CHANGES**

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ITEM 1.7 – FREIGHT PROGRAM (FR-P802)

ITD CONTACT: Scott Luekenga
Planning Services
Division of Highways Development
(208) 334-8057

OBJECTIVES:

- Provide freight SME services to the department
- Network with freight industry
- Partner with external agencies with a nexus in freight
- Support 129k Route applications

METHODOLOGY:

1.7.1 Freight Advisory Committee
($0 Operating + 0.1FTE - Personnel, Item 1.0)

Lead department liaison with Freight Advisory Committee. Refine program integrating Freight Advisory Committee recommendations into the Department’s long term infrastructure investment plan using FAST Act criteria, statewide freight strategic plan recommendations, performance measures and freight formula fund allocations.

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

1.7.2 Freight Program Project Solicitation
(0 Operating + 0.05 FTE - Personnel, Item 1.0)

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.

1.7.3 Commercial Motor Vehicle Planning
($25,000 Operating + 0.1 FTE - Personnel, Item 1.0)

Provide vehicle route capacity planning (excess length & weight), public involvement and education..

1.7.4 Freight Advisory Committee Support
($10,000 Operating + 0.05 FTE - Personnel, Item 1.0)
Provide funding for travel stipends and off-site meeting support for the department’s Freight Advisory Committee

1.7.3 129k lbs. Trucking Routes
($0 Operating + 0.1 FTE - Personnel, Item 1.0)

Coordinate 129k Application Process, working with DMV, Applicants, Chief Engineer and the Idaho Transportation Board by serving as the staff person dedicated to administering the process and providing public involvement support.

FY2022 PRODUCTS:

- FY 24-25 Project Solicitation
- Implementing Freight Performance Measures
- Develop Freight Project Identification in the STIP process
- Execute outreach program with the private sector to drive economic growth
- Refine critical rural and urban freight corridors meeting FAST Act and FHWA requirements
- Develop emerging transportation technology opportunities to include implementing Autonomous and Connected Vehicle Testing and Deployment Committee recommendations

STATEWIDE PLANNING EVENTS PROGRAM FY22 BUDGET

| Federal Aid | $28,000 | Match | $7,000 | = $35,000 |

FY2022 CHANGES

Amendment Added: [ ] YES [x] NO  Date Amended:

Comments:
ITEM 2.0 – GEOGRAPHIC INFORMATION SYSTEMS (F22901G, CG-P230)

ITD CONTACT: Wendy Bates
Geographic Information Systems Manager
Enterprise Technology Services
Division of Administration
(208) 332-7889

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

Our mission is accomplished by:
• Partnering with internal and external customers to develop GIS data, tools, workflows and applications to support their business needs;
• Maintaining an enterprise Linear Referencing System;
• Maintaining All-Roads Linear Referenced Data (ARNOLD) data to meet MAP-21/Fast Act 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;

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

($532,009 personnel + $814,856 routine operating + $230,000 for project related contract services = $1,176,865 total budget for FY2022)

2.1 GIS Service

Collaborating with and providing expertise to ITD business units and external partners leveraging GIS. Includes service for:

- Project tracking and reporting
- Maps and data visualizations
- Defining and documenting business processes
- Remote sensing and imagery
- Training and outreach
- GIS data requests
- Guidance for procurement and acquisition efforts
- Governance and standards for new GIS technology
- Creating and administering geospatial data
- GIS system administration
- Conducting geospatial analysis
- Creating spatial information products

2.2 Linear Referencing System

ITD’s Agile Assets Network Manager has been migrated to ESRI’s Road & Highways linear referencing system, on an enterprise environment for easier maintenance and access by the many systems currently being used or developed within the department that utilize a location reference. The production deployment was complete in the first quarter of 2018, with continued system support and work to integrate additional ITD business systems that began in FY2019 and continued through FY2021. ITD’s GIS team provided key support in the upgrade to the transportation asset management system TAMS, and winter operations system WARS last year. Efforts to continue integration and publishing information products with additional ITD business systems will continue in FY2022.

2.3 Local Highway Program

Classification of roads and determination of improved road mileage 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. The Local Highway Program is a large contributor of the LRS for ARNOLD and MIRE programs, which supports data driven safety analysis and reporting.

2.4 GIS Program Development

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.

FY2022 PRODUCTS
• Support implementation of ESRI Road & Highways LRS and systems integrated with the LRS
• Support All-Roads Linear Referencing (ARNOLD)
• A prototype activity of an upgrade to Roads & Highways on the new ArcGIS Pro software will be conducted in FY2022 to assess the viability of a future upgrade
• Continued support of infrastructure for the Transportation Data Model in our GIS architecture
• Participate in AEGIST pooled fund study, improve data and data models for intersections and more
• Process geospatial data, analysis and information product requests
• Continuation of assistance with annual HPMS submittal
• Submit the Annual Highway Road Mileage Report
• Prepare data and maps for public distribution to local highway authorities
• Work with local highway authorities to update the local roads database and maps
• Work to adjust the measurements to agree with the actual distance shown on the GIS data
• Provide progress reports to LHTAC
• Conduct summer field checks for newly-reported or recently improved local improved roads
• Conduct random sample of a portion of local improved road miles
• Complete greater integration of Local Highway Program with GIS-enabled LRS
• Advancements and development of applications and tools for redlining, for better support of related local highway program and LRS data development
• Coordinate GIS software and data development training needs department-wide
• Staff and manage the GIS office in support of the department’s needs
• Work with ITD Districts to provide GIS support and further implement GIS at the District level
• Continue to support and expand the GIS governance model
• Maintain enterprise GIS infrastructure for access to accurate data that enable geospatial analysis
• Maintain and leverage a GIS Data Warehouse that will support and enable users to use and conduct better analysis with authoritative data
• Continuing assistance for ad-hoc mapping and data requests for district and headquarters users
• Continue maintaining and building new GIS services, web tools and applications to mature ITD’s web GIS portfolio
• Work with ITD business units to provide data and expertise for ongoing GIS-related projects
• Further develop IPLAN using ESRI’s ArcGIS Online platform
• Provide technical and software support to ITD’s developing drone / UAS program, develop a path for future integration with asset management operations
• Update the suite of apps used to display and gather public input on proposed and active construction projects
GIS FY22 BUDGET

Federal Aid $1,261,492  Match $315,373  =  $1,576,865

FY2022 CHANGES

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Comments: Increasing the amount budgeted by $400,000 to cover the increased cost of ITD’s annual Enterprise License Agreement with ESRI. The department has negotiated a new 3-year agreement with ESRI and the cost for GIS software is increasing by $400,000 over the FFY2021 cost due to a significant increase in the number of staff utilizing the ESRI and the increasing integration of the software into department management systems. Funding for this change would come from 1) shifting $45,000 from Item 3.1 and 2) utilizing $284,000 in unspent prior year federal SPR dollars and the associated match totaling $71,000.
ITEM 3.0 – HIGHWAY DATA (F229011)

ITD CONTACT:  Mark P. Snyder
Data Analytics Engineer
Highway Data
Division of Construction and Operations
(208) 334-8253

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

Our mission is accomplished by providing accurate and timely information to internal customers, other government agencies, and the public by:
• Managing transportation-related databases;
• Data Analytics;
• Using professional engineering and planning judgment; and
• Implementing the division’s vision of transportation planning principles.

ITEMS IN THIS SECTION
There are 5 items in this section:
• Item 3.1 – Assess Pavement Condition of the State Highway System
• Item 3.2 – Vehicle Volumes, Classification, Weight, and Characteristics
• Item 3.3 – Data Analytics

TOTAL HIGHWAY DATA FY22 BUDGET

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ITEM 3.1 – ASSESS PAVEMENT CONDITION OF THE STATE HIGHWAY SYSTEM (FH-P111, P760)

ITD CONTACT: Mark Snyder
Highway Data Engineer
Highway Data
Division of Construction and Operations
(208) 334-8268

OBJECTIVES

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

METHODOLOGY

3.1.1 Annual Pavement Condition Survey
($120,168 Personnel) + ($169,000 Routine Operating)

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

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

3.1.2 Administer Highway Performance Monitoring System ($145,000 Personnel)

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

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

3.1.3 TAMS support & refinement of the ITD pavement performance curves. ($47,166 Personnel)

These funds will be used to conduct validation of the current pavement performance curves utilized for predicting network pavement performance. Based on the validation process, existing curves may be modified and refined. Pavement performance curves may also be developed to better reflect both the diverse geological and climatic conditions. This work will enable ITD to have more confidence in the pavement performance it forecasts as well and enable ITD to more effectively plan future projects to drive alignment with Pavement Lifecycle Planning. Additionally, this effort will continue to support and augment ITD staff in the preparation of financial forecasts and performance predictions, ensuring compliance with the TAMP.
3.1.4 Travel Speed Deflectometer (TSD) support.  
($10,160 Personnel)

This effort supports and augments ITD staff for the TSD data collection. Specifically this work will be assisting with TSD route Planning and coordination and working toward incorporating TSD data into TAMS and associated database modifications.

3.1.5 Develop Risk & Resiliency Plan in Compliance with 23 CFR 667.  
($20,320 Personnel) + (80,000 Operating)

This work is required as part of our compliance with the federal regulations and the TAMP development process. This effort will help ITD ensure demonstration to our commitment to FHWA that ITD would incorporate risk and resiliency into our TAMP prior to our required recertification. Specifically becoming compliant with CFR 23 section 667. The SOW for this project would be to perform a Gap Analysis of ITD’s process of risk and resiliency planning and then to propose strategies for closing the GAP. Also, the development of a process by which ITD will perform risk/resiliency evaluations of facilities as State DOTs are required to consider the results of the evaluations when developing Federal-aid highway projects (23 CFR 667.9(a)). These evaluations should consider highway design, safety, and security elements to make future Federal-aid highway projects in high-risk areas more resilient against various types of emergency events (e.g., floods, earthquakes, wildfires, landslides). Specific advantages for ITD incorporating Risk & Resiliency Planning into the overall approach to Asset Management are:

- Provides consistent approach to economic analysis of highway betterments post disaster.
- Provides quantitative financial estimates of annual risk between existing designs and potential highway betterments.
- Supports benefit-cost analyses of potential highway betterments.
- Aligns decisions made in Emergency Relief Programs to Risk Based Asset Management Programs
- Documents decisions made regarding investments in betterments between highway agencies and FHWA
- Typical FHWA ER Events can be modeled and analyzed including fire, debris flow, earthquake, rockfall/rockslide, flooding, bridge strikes, hurricanes, winter storms, etc.

3.1.6 Developing 2022 Transportation Asset Management Plan  
($40,000 Personnel)

This project is focused reworking and updating the ITD TAMP in preparation for the 2022 recertification.

3.1.7 Developing Enhanced Performance Curves for ITD Asphalt Pavements  
($10,160 Personnel)

This effort is focused on using artificial neural networks (ANN) to better model pavement performance. ANN is a “self-learning” tool proven effective in deriving quantitative cause and effect relationships.
• Validate current ITD pavement performance curves and shape the scope of subsequent tasks (e.g. identify additional criteria needed for the performance curves
• Perform statistical analyses to identify significant input factors and their significance interactions for pavement condition.
• ANN model will be developed to predict future pavement performance
• Develop ANN based performance curves and incorporate into ITD Pavement Managements System – TAMS.

3.1.8 Develop Simplified Analysis Methods of TSD and FWD Data for Effective Pavement Preservation Program ($10,160 Personnel)

This effort is to support ITD Research Project 294 which seeks to leverage the deflection data measured from FWD so that it can be further utilized to provide valuable information about the structural capacity and RSI of pavements. In addition, ITD plans to continue its investment in collecting deflection data using TSD. There is a need to develop, validate, and calibrate the performance indices used to analyze the TSD data based on the pavement conditions in Idaho. The results can be used to establish performance-decay curves that can be used by the department to set priorities for preservation treatments or new construction.

FY2022 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 consultatnts authoring studies for the department.
• Prepare and release pavement management reports.
• Continue updating the division’s internet/intranet site with the most recent information.
• Accurately answer inquiries from the Legislature, executive managers, and the public.
• Provide a more consistent system by which to rate pavement cracking.
• Provide an improvement in the pavement data collected, and thus the accuracy of the pavement reporting, by applying software that can analyze images collected by the Profiler van.
• Transportation Asset Management Plan.
• Refined Pavement Performance Curves.
• Movement toward total HPMS data item coverage of the Federal Aid System
• Automated HPMS submittal reporting tools nested in GIS software
• Improve the HPMS data collection and management processes to increase the accuracy and reliability of the data
• Continue to refine the method of gathering HPMS data from local jurisdictions to make it more effective.
• Work with FHWA to handle MAP-21 and FAST Act requirements affecting HPMS
• Provide maps and supporting pavement condition reports after each HPMS submittal.
• 667 Compliant Risk Analysis Process
### ASSESS PAVEMENT CONDITION OF THE STATE HIGHWAY SYSTEM FY22 BUDGET

| Federal Aid | $521,707 | Match       | $130,427 | = | $652,134 |

### FY2022 CHANGES

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

ITD CONTACT:   Margaret Pridmore
Roadway Data Manager
Highway Data
Division of Construction and Operations
(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 over 225 permanently installed Automatic Traffic Recorders (ATRs) on state and non-state routes. 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 and permanent 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.
- Support the Highway Safety Improvement Program (HSIP) data collection and integration efforts.
- Support the efforts to establish standards for data used in HSIP data modeling.

METHODOLOGY

($660,465 Personnel) + ($628,200 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.

FY2022 PRODUCTS
- Generate reports and data sets from traffic counts including one-third of the HPMS and Principle Arterial System/National Highway System (PAS/NHS) sample sections.
- Review and collate classification data on selected HPMS sample sections for 24-hour and 48-hour periods.
- Analyze data and generate reports related to equipment verification or in conjunction with other studies.
- Participate in pooled fund studies.
- Compile statistics and data sets to be used with FHWA submissions as part of ITD’s annual program.
- Assist in equipment and data collection systems review to assess annual performance for accuracy.
- Install permanent WIM/ATR systems as replacements or to add new sites.
- Perform several major repairs and sensor installations on existing SHRP/LTPP WIM systems.
- Continue the upgrading of the Roadway Data Section of ITD’s website.
- Complete the federally mandated data submittal to the SHRP/LTPP regional office and the FHWA in Washington, D.C.
- Assist in various WIM data-related studies involving permanent system data and reports in conjunction with FHWA, private contractors and several research institutions.
- Participate in field system equipment reviews and meet with vendors to review new data collection systems and evaluate performance, data accuracy, and software.
- Contribute to MEPDG pavement design models as requested with traffic load related data inputs.
- Improve communication with ATRs by replacing the existing land lines with cellular modems and solar panels when possible.
- Document the data collection, quality assurance, and submittal processes.
- Calculate state-wide VMT and provide statistics for HPMS submittal.
- Work with outside agencies to enhance the collection, analysis, and reporting efforts.
- Work towards developing AADT estimation on low volume roadways for Safety analysis purposes.
- The budget reflects a single year increase of $12,000 for an agency-wide meeting to discuss data ownership, standards, and governance.

VEHICLE VOLUMES, CLASSIFICATION, WEIGHT, AND CHARACTERISTICS FY22 BUDGET

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ITEM 3.3 – DATA ANALYTICS (FL-P280)

ITD CONTACT:    David Coladner  
Data Analytics Program Manager  
Highway Data  
Division of Construction and Operations  
(208) 334-8233

OBJECTIVES

• Use principles of Data Science to discover patterns and relationships across ITD data sets as well as third party data sets
• Use existing models (such as the Statewide Travel Demand Model) to assess the impact of proposed capacity-improving projects, discover patterns of highway use
• Create models to predict outcomes from changing a variety of input variables (with previously unknown relationships)
• Put data analytics capabilities in the hands of as many ITD staff as possible by fostering a “Core Analytics Team” for Data Analytics.
• Manage and make available travel time/speed probe data. Both the National Performance Management Research Data Set (NPMRDS) and “Inrix” datasets.
• Statewide Travel Demand travel network data refresh to 2018/2019 values (to be in sync with land-use updates started in FY21).
• Work with Planning Services staff to apply statewide congestion measure(s) reviewed in validated in FY21.
• Support Safety & Capacity Program project prioritization (TREDIS) efforts by supplying travel data as input as well as Significant Projects (major projects ITD wishes to be positioned for in case of revenue availability)
• Travel to Travel Demand Modeling conferences, AASHTO Committee on Data Management and Analytics, Connected/Autonomous Vehicle Working Group

METHODOLOGY

Item 3.4.1 Data Analytics
($174,582 personnel + $7,000 routine operating + $60,000 project operating)

We desire to roll out Data Analytics to ITD staff. The plan is as follows:

• Use 2 interns to advance several data analytics-related projects ($50,000)
• Continue building the Core Analytics Team (CAT) (formerly called the Data Analytics community of practice) through training on standard reporting and analysis tools focusing on Python, ESRI ArcGIS, and SAP Business Objects. While much of the training resources are already available to ITD under existing contracts with ESRI and on staff resources, $10,000 is estimated to secure Data Camp training for Python and SQL plus any additional ESRI training.
• Work with other work units throughout ITD to deliver actionable information using ITD tools
• Participation in AASHTO : Data Analytics : Connected/Autonomous Vehicle committee meeting in FY2022 (part of $6,000 OOST)
Item 3.4.2 System Modeling
($12,000 routine operating + $85,000 project operating)

- Perform model analyses of various types (such as Statewide Travel Demand to study the effects of changes in the highway system or in population characteristics). This involves keeping 2 licenses of Bentley Cube software up-to-date, and attending an annual conference sponsored by TRB for travel modeling current and best practice.
- Obtain professional services for assistance in updating/restructuring the travel network to be aligned with land-use zones (re-visited in FFY 2021) in the Travel Demand Model to bring it up to date with 2020/2021 data ($25,000)
- Purchase Travel Speed Data (from INRIX) for 2021. Its full cost is $120,000. But due to cash flow concerns, we paid $60K at the end of FFY 2021 and are budgeting the remaining $60K for FFY 2022. The agreement with Inrix enables us to have full state coverage and to be able to share the data with our partners such as MPOs and Highway Districts.

FY2022 PRODUCTS
- A Data Analytics work group that continues to deliver Data Analytics/Dashboards/Tools to users throughout ITD using industry best-practices
- Updated Travel Demand Model Network that corresponds to Land-Use data updates from FY21
- Useful modeled travel characteristics data inputs to the TREDIS model (ongoing for each year, used for Safety & Capacity Program and Significant Projects mobility benefits estimation)
- Travel Speed Data available to ITD staff for the majority of well-traveled roads in Idaho

SYSTEM MODELING FY2022 BUDGET

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Comment:
ITEM 4.0 – FINANCIAL PLANNING AND PROGRAMMING (F22901K, TI-P301)

ITD CONTACT: Justin Collins
Financial Planning & Analysis Manager
Division of Administration
(208) 334-8126

BACKGROUND

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

The approach to complete the annual update of the STIP has the following FP&A planning components and cost estimates for the 2022-2023 SPR planning year:

1. **STIP Pre-planning** ($12,687 Personnel + $476 Operating Expenses = $13,163)
   - Develop planning task list, schedule and calendar for the FY2023 STIP/ITIP Program Update process. Identify and reflect involvements from all parties and jurisdictions involved in the process: ITD senior management, ITD’s FP&A and Planning Services sections, ITD asset and program managers, ITD District personnel, local jurisdictions including the Local Highway Technical Assistance Council (LHTAC), the five Metropolitan Planning Organizations (MPO’s), and the Federal Highway Administration and Federal Transit Administration, as applicable.

2. **Develop Highway Funding Plan, STIP Investment Levels, and Funding Targets** ($18,745 Personnel + $3,612 Operating Expenses = $22,357)
   - 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** ($14,696 Personnel + $2,831 Operating Expenses = $17,527)
   - The FY2023 Program Update Manual will be developed, published and distributed in both hard copy and electronic form. The Program Update Manual contains all funding, program eligibility and timeline guidance for the planning process to create the FY2023-2029 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** ($3,600 Personnel + $693 Operating Expenses = $4,293)
   - 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** ($25,119 Personnel + $4,840 Operating Expenses = $29,959)
As part of the project selection process within the Program Update process, FP&A evaluates new projects to determine how well the project addresses the key Departmental goal of improving the state’s economic condition. A Benefit Cost Analysis (BCA) is conducted which includes as outputs a Benefit Cost Ratio (BCR). Comparison of these outputs for a portfolio of new projects helps in prioritizing the candidate projects and making a final selection of projects to include in the program.

6. **Develop Initial Draft of STIP** ($29,002 Personnel + $5,588 Operating Expenses = $34,590)
   ITD planners representing the department’s six districts along with program-specific ITD planners and planners from the COMPASS MPO electronically submit their selection of projects for the seven-year ITIP/STIP planning horizon. ITD public transit and aeronautics staffs electronically submit their programs. These are merged with local program project submittals from the five Idaho metropolitan planning organizations and the Local Highway Technical Assistance Council.

7. **Preliminary Analysis of Draft Program** ($17,028 Personnel + $3,281 Operating Expenses = $20,309)
   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** ($10,647 Personnel + $2,051 Operating Expenses = $12,698)
   FP&A reviews the process with which the Draft program was developed and presents analytical exhibits to the Board and responds to questions using system-developed reports and other materials; the Board directs proceeding to the public involvement step in the STIP Development process.

   ITD uses innovative means for improving its public involvement process regarding the draft program. This includes: use of an expanded project description field as a public scope statement providing a more detailed description of each project in ‘plain English’; and a GIS map-based public comment collector tool called the ‘Idaho Transportation Project Map’ which provides the public a geographic view of projects in their part of the state. For the FY2022 Program Update, the automated processes to create the public scope statements and geographic representations of project locations will continue to be optimized and streamlined. The public will be directed to the electronic draft program documents on ITD’s website and to the GIS map-based ‘Idaho Transportation Project Map’ described above. In addition to these tools and features, FP&A will also focus on developing various ‘views’ of the draft FY2022-2028 program as both hard copy documents and as electronic files on the “Draft ITIP” tab of this website [http://itd.idaho.gov/funding/](http://itd.idaho.gov/funding/).

10. **Prepare Recommended Program with Approval by IT Board** ($18,386 Personnel + $3,542 Operating Expenses = $21,928)
    FP&A shares the final version of the draft program along with a listing of comments received during the public involvement review period with the IT Board for their approval.
11. **Make Programming Adjustments to the Prior Version of the STIP** ($8,428 Personnel + $1,624 Operating Expenses = $10,052)
   FP&A amends or administratively modifies the previous version of the approved STIP to allow new fiscal year projects to obligate funds without depending on approval of the updated new STIP. FP&A and the Planning Services sections use a set of guidelines and process document for STIP amendments and administrative modifications.

12. **Submit updated STIP for federal approval** ($18,745 Personnel + $3,612 Operating Expenses = $22,357)
   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 $193,669 with total operating expenses of $35,346 for an overall total budget of $229,015.

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** ($56,566 Personnel + $2,122 Operating Expenses = $58,688)
   As additional new projects are identified and brought forward during the program year, they are evaluated for their economic impact by performing the same type of Benefit Cost Analysis included within Step 5 of the Program Update Process. Outputs from this analysis help guide the planning decision to include these new projects in the program. This task area also includes development of Benefit Cost Analysis as needed to meet submittal requirements for discretionary funding opportunities such as through the INFRA and BUILD programs.

14. **Perform Financial Projections/Evaluation/Analysis in Support of Planning Efforts** ($51,288 Personnel + $1,924 Operating Expenses = $53,212)
   FP&A develops revenue forecasts and financial projections and utilizes financial analysis and evaluation techniques as a key component within its project and program planning toolkit. Financial analysis methods such as break-even analysis along with Net Present Value and Internal Rate of Return analysis of project costs and benefits helps in sorting through project options and making better decisions regarding project and program directions. This task area includes development of financial plans to meet US DOT/FHWA requirements such as for the Transportation Asset Management Plan (TAMP).

15. **Implement and Manage STIP** ($195,337 Personnel + $19,898 Operating Expenses = $215,235)
   FP&A manages the FHWA/FTA approved STIP throughout the year including processing of changes to the approved program, processing obligation requesting and showing the status of these in the STIP project and program records, continuously maintaining fiscal constraint, providing reports on the status of projects in the STIP to program managers and project sponsors, generating STIP publications throughout the year for various audiences, and providing STIP performance information to all interested parties. FP&A uses a software application, the OTIS (Office of Transportation Investments System) to process transactions, record data, and report information used to implement and manage the STIP. Annual maintenance costs for the OTIS system are included within Operating Expenses allocated to this and other task areas.
FP&A also is responsible to develop and implement administrative and IT Board policies which address the STIP planning processes throughout the year.

16. **Integrate STIP/ITIP Process with other Planning Systems** ($17,696 Personnel + $3,410 Operating Expenses = $21,106)
   
   FP&A partners with other ITD section such as Planning Services to integrate its OTIS system into the workflow of other planning systems such as Project Online along with other financial systems such as AMS and FMIS.

17. **Archive STIP Transactions and Documentation** ($10,632 Personnel + $400 Operating Expenses = $11,032)

   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 $331,519 with total operating expenses of $27,754 for a total budget of $359,273.

Overall, the total personnel costs for all 17 STIP Planning areas is $525,188; the Total Operating Costs are $63,100. Total SPR personnel and operating costs for the 2022-2023 Program Year are $588,288.

**STAFFING**

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

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<tr>
<th>STIP Planning Lifecycle Stages</th>
<th>FP&amp;A Staff Involvement</th>
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<tbody>
<tr>
<td>1 STIP Pre-planning</td>
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<tr>
<td>2 Develop HFP, STIP Investment Levels and Funding Targets</td>
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<td>4 Develop &amp; Deliver STIP Update Training</td>
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<td>5 Perform Economic Analysis (BCA) of Projects in Draft Program</td>
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<td>6 Develop Initial Draft of STIP</td>
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<td>7 Preliminary Financial Analysis of Draft Program</td>
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<td>8 Prepare and Review Draft Program with Idaho Transportation Board.</td>
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<td>9 Conduct Public Involvement Process - Review of Draft Program</td>
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<tr>
<td>10 Prepare Recommended Program with Approval by IT Board</td>
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</tr>
<tr>
<td>11 Make Programming Adjustments to Prior STIP</td>
<td>3 Mgrs. plus 4 staff</td>
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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 FY2022

Besides completing the update of the FY2022-2028 STIP/ITIP, and beginning the development of the FY2023-2029 STIP/ITIP as defined in the first twelve task areas defined above, FP&A will focus on the following overarching objectives for the year:

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

METHODOLOGY

- FP&A will complete the planning process for the annual update of the multi-modal STIP/ITIP for public review and FHWA/FTA approval.
- FP&A will explore, research, and evaluate opportunities to integrate project and program planning/management tools managed by FP&A such as OTIS, with project and program planning and management tools developed elsewhere within the department.
- Through continuing improvements to its OTIS system, FP&A will improve the department’s capability to provide timely and accurate project planning, budgeting, funding, and financial performance information statewide to department project managers, and other transportation stakeholders, both inside and outside the department.
- FP&A will improve ITD’s public involvement process for the draft STIP/ITIP by leveraging existing methods and developing new ways to deliver project and program information using different media and communications channels.
- FP&A will collaborate with other ITD GIS planning sections and resources to explore and implement additional ways to utilize on-line mapping resources to display information for projects managed in OTIS for the draft STIP to interested stakeholders and constituents.
• FP&A will provide analysis and technical support along with content development in the creation and updating of ITD planning policies.
• FP&A will respond and adjust to changes in transportation funding programs from the federal FAST highway reauthorization bill along with analyzing and implementing transportation funding programs developed and promulgated through any subsequent highway reauthorization bill.
• FP&A will continue to support the development and implementation of the FAST Act (or new federal transportation 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.
FY2022 PRODUCTS

- FP&A will finalize the approval of the FY2022-2028 STIP/ITIP that is currently in development.
- FP&A will develop highway-funding plans for the FY2022-2028 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 FY2023-2029 draft program.
- FP&A will develop and implement an updated multi-modal Idaho Transportation Investment Plan (ITIP) that meets the needs of stakeholders and statewide constituents and ensures optimal transportation program performance.
- FP&A will enhance the ability to generate meaningful public scope statements as a starting point for further refinement by planners and other staff involved in the Program Update process.
- FP&A will develop and make available a variety of planning documents for use in reviewing and assessing the FY2023-2029 Draft Program:
  1. Idaho Transportation Investment Program Update Packet (December);
  2. Idaho Transportation Investment Program Board Presentation analytical exhibits (June) and program sheets for the draft program;
  3. Draft ITIP published for public review and comment (July);
  4. Final Recommended & Board Approved ITIP (in September/October) along with updates as needed;
  5. Recommended STIP submittal in federal format for FHWA and FTA review and approval (late October);
  6. Approved ITIP publication in federal format (Year of Expenditure dollars);
  7. Supplemental approved program listings as dictated by changes in funding, investment policies, etc.
  8. Transportation program system user manuals and other system documentation.
- FP&A will develop and promulgate financial analysis templates and other tools to assist planning entities with incorporating financial analysis as part of their project selection and planning processes.
- FP&A will develop Benefit Cost Analyses to accompany applications for discretionary funding applications such as INFRA and BUILD.
- FP&A will develop and maintain a financial plan component to be incorporated within the federally-mandated Transportation Asset Management Plan (TAMP).
- FP&A will enhance the OTIS project and program planning system to support the equitable distribution of resources such as obligation authority between the state and local highways systems.
- FP&A systems such as OTIS will be used by staff to provide access to information in support of the transportation planning function.
- FP&A will deliver training and workshops in transportation planning, use of planning support systems such as OTIS.
## FINANCIAL PLANNING & ANALYSIS FY22 SPR BUDGET

| Federal Aid   | $470,630 | +  | Match       | $117,658 | =  | $588,288 |

### 2022 CHANGES

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Comments:
ITEM 5.0 – CONTRACTING SERVICES (F22901L)

ITD CONTACT: Monica Crider
Contracting Services Engineer
Contracting Services Section
Division of Highways Construction and Operations
(208) 334-8502

ITEM 5.1 – STATEWIDE PLANNING EVENTS & GRANT ADMINISTRATION (AA-P801)

ITD CONTACT: Sonna Lynn Fernandez
Project Manager
Division of Highways Construction and Operations
(208) 334-8209

OBJECTIVES:

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

Grant Oversight and Administration
- Research federal grant funding opportunities; provide administrative oversight to the grant application process; assist in proposal development and coordination; furnish technical support and guidance to department personnel; and ensure that all state/federal grant proposal requirements are met; and
- Collaborate with internal and external partners to identify and apply for federal grant opportunities (i.e. MPOs, LHTAC, transportation agencies and Idaho Association of Highway Districts) that will enhance the state’s transportation system.

METHODOLOGY:

5.1.1 Event Oversight and Administration
($23,250 Operating + $69,450 - Personnel)

The department is dedicated to providing a variety of educational, training and informational opportunities with the goal of value-added planning processes, improved program delivery,
better overall project development, improved financial management and continuous operations of Idaho’s highways. Providing opportunities to train and educate staff allows the department to provide staff ways to fortify training, offer certification to develop specialized skills and continually build department-wide knowledge base. As a result, it was identified that offering a wide variety of educational opportunities would be best for the department. Contracting Services has been identified as the section that works with all aspects of the department from pre-project planning to delivering a constructed roadway. Thus, Contracting Services has been tasked with event oversight to educate and train department staff. Tasks include, but not limited, include:

- Administer event planning details/budget to maximize costs and staff opportunities.
- Manage all highway training/conference events to boost staff engagement and participation.
- Set up, promote, conduct and follow-up on all events.
- Manage development of training plans and allocation of credits.
- Assess successes/identify changes to better offer future events.

5.1.2 Grant Oversight and Administration
($0 Operating + $23,166 Personnel)

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

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

FY2022 PRODUCTS:
- Develop an ITD “Earning Credit Manual” to help staff know how/when they can get professional development credits, reporting credits to the appropriate agency and managing their PDU information.
- Maintain the “Event Website” for staff to access presentations and other information upon completion of events.
- Maintain the ITD Federal Grant Application Guidebook and Standard Operating Procedures (SOP).
- Provide assistance to prospective applicants upon request.
- Apply for federal grants through Grants.gov as they are offered.

STATEWIDE PLANNING EVENTS PROGRAM FY22 BUDGET

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YOUR Safety ••• YOUR Mobility ••• YOUR Economic Opportunity
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ITEM 6.0 – ENVIRONMENTAL SERVICES (F22901M, FF-D307)

ITD CONTACT: Wendy Terlizzi  
Environmental Manager  
Environmental Services Section  
Division of Highways Development  
(208) 334-8529

OBJECTIVES
- Support the goals of the Idaho Transportation Department’s Strategic Plan  
- Expand and/or maintain the existing partnership with Idaho Department of Fish and Game

METHODOLOGY
IDFG Conservation Planning Tool—provide funding to IDFG to support continuing operation of the IDFG Conservation Planning Tool. The Conservation Planning tool was jointly developed by ITD and IDFG with support from SHRP2 Implementation funding. The tool applies FHWA’s Eco-Logical approach to help coordinate transportation planning efforts with wildlife management. ITD staff can use the tool to view real-time IDFG data that includes geospatial data layers identified in the IDFG’s State Wildlife Action Plan (SWAP). This information can help create a roadmap for applying the ecosystem approach to transportation planning and facilitate coordination with IDFG in a systematic way for the purpose of identifying and employing potential conservation strategies.

FY2022 PRODUCTS

Data Management and Support:

1. Support data management staff so they can continue to compile partner datasets into the Species Diversity Database. The data is the foundation in which everything is built upon. $22,000 per year and would include:  
   - Incorporation of at-risk species data from current ITD projects.  
   - Sharing of at-risk GIS data to ITD consultants.  
   - Data feeds into the backend of the Conservation Planner.

2. Assessment of data available from past ITD projects back to 2010. Incorporate data from most recent back to 2010 as money allows. (data assessment, data mining, and data incorporation within the Species Diversity Database, $8,000)

Conservation Planner:

3. Maintenance and upkeep of the existing Conservation Planner. If ITD can contribute roughly 25% of the maintenance costs, that would come out to be $5,000. To date, ITD and IDFG are the two agencies utilizing the Conservation Planner.
### IDAHO STATEWIDE ENVIRONMENTAL PROGRAM FY22 BUDGET

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**Comments:**
Part B: SPR RESEARCH

Key #20522
ITEM 7.0 – RESEARCH (F22901R)

ITD CONTACT:  Ned Parrish  
Research Program Manager  
Contracting Services  
Division of Highways Construction and Operations  
(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 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
• Item 7.1 – National Cooperative Highway Research Program (NCHRP)
• Item 7.2 – AASHTO Programs, Partnerships and Groups
• Item 7.3 – National and Regional Pooled Fund Projects
• Item 7.4 – 2018 Cooperative Research Project (Montana State University)
• Item 7.5 – 2020 Cooperative Research Project (Boise State University)
• Item 7.6 – 2020 Cooperative Research Project (U.S. Geological Survey)
• Item 7.7 – 2020 Cooperative Research Projects (University of Idaho)
• Item 7.8 – 2020 Cooperative Research Project (Idaho State University)
• Item 7.9 – 2020 Cooperative Research Projects (Private consultant)
• Item 7.10 – 2020 Cooperative Research Project (Montana State University)
• Item 7.11 – 2020 Cooperative Research Project (TriDurLE Univ. Transportation Center)
• Item 7.12 – 2021 Cooperative Research Projects (Idaho State University)
• Item 7.13 – 2021 Cooperative Research Projects (Boise State University)
• Item 7.14 – 2021 Cooperative Research Project (Private consultant)
• Item 7.15 – 2022 Cooperative Research Project (Researchers to be determined)

RESEARCH BUDGET

| Federal Aid | $1,454,280 | + | Match | $210,966 | = | $1,665,246 |
ITEM 7.1 – NCHRP PROGRAM (2022)

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

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

PROPOSED ACTIVITY – FY2022
- 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
- FY2022: $340,378 (100% Federal SPR)

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)

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ITEM 7.2 – AASHTO PROGRAMS, PARTNERSHIPS, AND GROUPS (ONGOING)

This item contains descriptions of AASHTO Programs that ITD is participating in for FY2022. It includes annual contributions for selected Technical Service Programs and ITD Involvement in two AASHTOWare software projects. The total budgeted in FY2021 is $150,000.

ITEM 7.2.1 – AASHTO Technical Service Programs

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

OBJECTIVES
This item provides financial support for several AASHTO technical service programs, including:

- National Transportation Product Evaluation Program (NTPEP).
- Design Publication Maintenance (DPM)
- AASHTO Innovation Initiative (AII).
- Equipment Management Technical Services Program (EMTSP).
- Transportation System Preservation Technical Service Program (TSP²).
- Load and Resistance Factor Design (LRFD) Bridges and Structures Specification Maintenance.
- Development of AASHTO Materials Standards (DAMS).
- Environmental Technical Assistance Program (ETAP)
- Census Transportation Planning Products (CTTP) Technical Service Program
- Snow and Ice Cooperative Program (SICOP)
- Transportation Curriculum Coordination Council (TCCC) Technical Service Program
- Transportation Performance Management (TPM) Technical Service Program

PROPOSED ACTIVITY – FY2022
Provide ITD continued support for programs listed above. Key ITD staff include:

- Tom Furrer, Design/Traffic Business Analyst, is the ITD Project Manager for NTPEP.
- Kevin Sablan, Design/Traffic Engineer, is the ITD Project Manager for DPM.
- Ned Parrish, Research Manager, is the ITD Project Manager for AII.
- Steve Spoor, Maintenance Program Manager, is the ITD Project Manager for EMTSP.
- Matt Farrar, State Bridge Engineer, is the ITD Project Manager for TSP² and LRFD.
- Chad Clawson, Central Labs Manager, is the ITD Project Manager for TSP² and DAMS.
- Wendy Terlizzi, Environmental Manager, is the ITD Project Manager for ETAP.
- Sonna Lynn Fernandez, Planning Services Project Manager, is the ITD Project Manager for CTPP.
- TJ McNeill, Mobility Services, is the ITD Project Managers for SICOP.
- Amanda Regnier, Training Program Supervisor, is the ITD Project Manager for TCCC.
- Ken Kanownik, Planning Services Engineer, is the ITD Project Manager for TPM.

COST
- FY2022: The budget for Technical Service Programs is $150,000 ($120,000 Federal SPR (80/20)).
AASHTO ENGINEERING TECHNICAL SERVICE PROGRAMS

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FY2022 CHANGES

Amendment Added: ☑ YES ☐ NO Date Amended: 1/6/2022

Comments  John Bilderback is leaving ITD and Chad Clawson, Central Labs Manager, is being assigned as ITD’s representative for the TSP2 (Pavement Preservation) and DAMS Technical Service Programs. TJ McNeff will be ITD’s representative for SICOP, replacing Steve Spoor and Nestor Fernandez.
ITEM 7.2.2 – AASHTOWare Project Data Analytics Software

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

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

PROPOSED ACTIVITY – FY2022
Continue ITD involvement in multi-year project to develop Data Analytics module for AASHTOWare Project software.

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

COST
- FY2022: Funding commitment met – no additional funding needed. We fulfilled our $750,000 commitment to the project in FY2020.

AASHTO Project Data Analytics Software Project

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

FY2022 CHANGES

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

57
ITEM 7.3 – NATIONAL AND REGIONAL POOLED FUND PROJECTS (2022)

This item contains descriptions of pooled fund projects that ITD is actively participating in for FY2022. A total $335,500 is committed to projects listed in this section of the work program. Funding for the costs includes $270,039 in FFY2022 federal SPR funds and $65,461 in unspent prior year federal SPR funds that is being brought forward.

ITEM 7.3.1 – TPF-5(343)

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

OBJECTIVE
• To provide a cooperative approach to conducting research on roadside safety hardware. Emphasis will be placed on assisting State DOTs with their implementation of MASH and addressing other roadside safety needs of common interest.

PROPOSED ACTIVITY – FY2022
Pooled Fund research will continue through FY2022. The current project end date is December 31, 2023. In FY2022, the focus will be on completing active research projects and any new projects selected at the Fall 2021 Roadside Safety Pooled Fund Meeting.

• Marc Danley, Technical Engineer 2, Design/Traffic is the ITD Project Manager.

COST
• FY2022: $50,000 (100% Federal). We fulfilled our initial commitment to the project of $100,000 in FY2020. Traffic and Design Services requested that an additional $50,000 be allocated to this pooled fund in FFY2021 and again in FFY2022, increasing our total commitment to the project to $200,000.

FY2022 CHANGES

Amendment Added: ☐ YES  □ NO  Date Amended: 1/24/2022
Comments: Traffic and Design Services requested that an additional $50,000 be committed to this project to support additional testing of safety hardware. The request was approved by ITD’s Research Advisory Council in January of 2022. Funding for the transfer would come from the using a portion of the unallocated funding budgeted for pooled fund projects and using unspent prior year SPR funds.
**ITEM 7.3.2– TPF-5(357)**

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

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

**PROPOSED ACTIVITY – FY2022**
Planned work in FY2022 will focus on:
- Completing identified features development
- Completing State specific system functionality improvements
- Matt Farrar, State Bridge Engineer, is the ITD Project Manager.

**COST**
- FY2022: $30,000 (100% Federal). Originally committed $45,000 to the project and that commitment was fulfilled in FY2019. An additional $30,000 in funding was committed to the project in FY2022.

**FY2022 CHANGES**

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<td>Comments: Neal Murphy, the Emergency Program Manager, left the department and Matt Farrar was designated as ITD’s primary contact for the ShakeCast Pooled Fund.</td>
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<td>Comments: The Bridge Section requested that an additional $30,000 be committed to the project to cover costs over the next two years. The request was approved by ITD’s Research Advisory Council in January of 2022. We will transfer the full amount in FFY2022 using unspent prior year SPR funds.</td>
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59
ITEM 7.3.3 – TPF-5(368)

IDENTIFICATION: TPF-5(368)
Title: Performance Engineered Concrete Paving Mixtures
Research Agency: Iowa DOT
Lead Agency Contact: Khyle Clute, khyle.clute@iowadot.us
FHWA Contact: Ahmad Ardani, ahmad.ardani@dot.gov
Work Plan Approval: Approved
ITD Key Number: 20345

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

PROPOSED ACTIVITY – FY2022
Planned work in FY2022 will include:
• Continue working with AASHTO to finalize PP 84-21, Standard Practice for Developing Performance Engineered Concrete Pavement Mixtures.
• Researchers will continue to advance tests and test refinements. They will also work with AASHTO to move tests forward to full standards.
• Working with the “Advancing Concrete Pavement Technology Solutions” FHWA program to develop a QC Tool for PEM and Precision and Bias Tests for testing methods that may be considered as acceptance tools.
• Complete annual calls to SHAs, assessing and documenting PEM progress and plans for 2021-2022.

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

COST
• FY2022: Funding commitment met. ITD’s Research Advisory Council voted to contribute a total of $75,000 to this pooled fund project at $15,000/yr. from FY2017-FY2021.

FY2022 CHANGES

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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 – FY2022

The activities approved for FY2022 include:

- Continue support of the Operations Task Force for another year
- Continue support of the Freight Task Force for another year
- A study focusing on winter performance measures
- An assessment of truck parking information management
- An assessment of oversize/overweight truck movement

- Saran Becker, Program Systems Specialist, is the ITD Project Manager.

COST

- FY2022: $25,000 (100% Federal) ITD’s Research Advisory Council (RAC) and FHWA previously approved committing a total of $50,000 ($25,000/yr. for two years) in FY2018 and FY2019. The RAC approved a request in the spring of 2018 to commit an additional $75,000 to the project at $25,000/yr. from FY2020-FY2022.
IDENTIFICATION: TPF-5(384)
Title: Exploring Non-Traditional Methods to Obtain Vehicle Volume and Class Data
Research Agencies: Federal Highway Administration
FHWA Contact: Steven Jessberger, steven.jessberger@dot.gov
Work Plan Approval: Approved
ITD Key Number: 22139

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

PROPOSED ACTIVITY – FY2022
• Wrap-up work on three active projects and complete a new project that is to be initiated in the summer of 2021
• Review project results and identify actions needed to support implementation of research findings.
• The pooled fund is being extended into FY2022, but no end date has been set.
• Margaret Pridmore, Roadway Data Section Manager, is the ITD Project Manager.

COST
• FY2022: Funding commitment met – no additional funding needed. Our commitment of $50,000 was fulfilled in FY2019.

FY2022 CHANGES

Amendment Added: ☑ YES ☒ NO Date Amended:

Comments:
ITEM 7.3.6– TPF-5(385)

**IDENTIFICATION:**
TPF-5(385)

**Title:**
Pavement Structural Evaluation with Traffic Speed Deflection Devices

**Research Agencies:**
Virginia Department of Transportation

**State Contact:**
Bill Kelsh, Bill.Kelsh@VDOT.Virginia.gov

**FHWA Contact:**
Nadarajah Sivaneswaran, Nadarajah.Sivaneswaran@dot.gov

**Work Plan Approval:**
Approved

**ITD Key Number:**
22143

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

**PROPOSED ACTIVITY – FY2022**
During FY2022, work tasks will include:
- Processing and corridor-level analysis of the TSD data collected in FY2021.
- Collect TSD for additional routes.
- Continue development specifications for QA, operational conditions, data processing, and structural index calculations.
- Continue efforts to develop protocols for incorporating TSD data into pavement management systems.
- Share information on the TSD data analysis and how to incorporate into project selections with ITD managers and staff.
- John Arambarri, Technical Engineer 2 in the Construction and Materials Section, is the ITD Project Manager.

**COST**
- FY2022: Funding commitment met. ITD’s Research Advisory Council voted to contribute a total of $990,000 to the project to support collection of structural condition data, analysis of the data, and training for staff in the use of the data. Our final transfer to the project was made in FY2021.

**FY2022 CHANGES**

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**Comments:** Updated the ITD Project Manager from James Poorbaugh to John Arambarri, Technical Engineer 2 in the HQ Construction and Materials Section.
ITEM 7.3.7– TPF-5(388)

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

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

PROPOSED ACTIVITY – FY2022
Work planned for FY2022 includes:
• Resolve data quality issues and complete data analysis
• Complete back-casting plans for selecting bridge in each state
• Update data and complete interim report for project
• The project has experienced data quality issues and delays related to the pandemic. MO DOT is working to extend the project, which was scheduled to be completed in December of 2021.
• Dan Gorley, Bridge Asset Manager Engineer, is the ITD Project Manager.

COST
• FY2022: Funding commitment met – no additional funding needed. Our commitment of $50,000 was fulfilled in FY2019.

FY2022 CHANGES

Amendment Added:   YES   NO   Date Amended:
Comments:
ITEM 7.3.8– TPF-5(391)

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

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

PROPOSED ACTIVITY – FY2022
• Complete report detailing the results of Phase 1 of the project.
• Perform geotechnical and pile data interpretation
• Estimate pile resistance
• Perform variability analysis
• The project is scheduled to be completed in December of 2023.

Anthony Beauchamp, ITD Geotechnical Engineer, is the ITD Project Manager.

COST
• FY2022: Funding commitment met. ITD’s Research Advisory Council voted to support the project at $15,000/yr. for three years from FY2019-2021

FY2022 CHANGES
Amendment Added: ☑ YES ☐ NO Date Amended: 12/1/2021
Comments: Replacing Dave Richards, who is retiring, with Anthony Beauchamp as the ITD technical contact for the project.
ITEM 7.3.9– TPF-5(394)

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

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

PROPOSED ACTIVITY – FY2022
- A meeting of western states maintenance managers is being planned for October of 2021. Travel reimbursement will be available for staff in participating states. The meeting is expected to include workshops and a scan tour. The goal of the pooled fund is to facilitate discussion and exchange of information and knowledge about each state’s maintenance program.
- Provide funds for formal training presentations during the annual workshop.
- Provide a forum to define, support and share technology of mutual interest.
- Implement task orders, as designated by the partnership members.
- Provide funds to manage the partnership’s operations and to maintain a web site that would display meeting reports, state guidelines and specifications.
- Provide funds for special studies, investigations, research and training.

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

COST
- FY2022: Funding commitment met. ITD’s Research Advisory Council voted to commit a total of $15,000 to this pooled fund, $5,000 a year for three years from FY2019-FY2021.

FY2022 CHANGES

Amendment Added:  ☒ YES  ☐ NO  Date Amended:  
Comments:
ITEM 7.3.10– TPF-5(431)

IDENTIFICATION: TPF-5(431)
Title: Applications of Enterprise GIS for Transportation, Guidance for a National Transportation Framework (AEGIST)
Research Agencies: Federal Highway Administration
FHWA Contact: Joseph Hausman, joseph.hausman@dot.gov
Work Plan Approval: Approved
ITD Key Number: 22138

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

PROPOSED ACTIVITY – FY2022
• Work with FHWA and the pooled fund contractor to continue efforts to define data gaps and need
• Work to expand the rough outline that has been created through the project to establish a more robust data governance framework. More specifically:
  o Complete data governance portfolios for safety data, pavement data, and traffic data
  o Create a data governance road map for ITD like those created for other states
• Build automated data quality control tools for the data sets mentioned above

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

COST
• FY2022: Funding commitment met. ITD’s Research Advisory Council voted to contribute a total of $200,000 to the project and we fulfilled our commitment in FY2021.

FY2022 CHANGES

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ITEM 7.3.11– TPF-5(437)

IDENTIFICATION: TPF-5(437)
Title: Technology Transfer Concrete Consortium
Research Agency: Iowa Department of Transportation
State Contact: Khyle Clute, khyle.clute@iowadot.gov
FHWA Contact: Mike Praul, michaell.praul@dot.gov
Work Plan Approval: Approved
ITD Key Number: 22545

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 – FY2022
• Two ITD staff will attend semi-annual meetings of the National Concrete Consortium. The meeting includes research presentations, field visits, and updates on state practices.
• Specialized training is also offered through the pooled fund.
• The pooled fund may support small synthesis projects approved by the Technical Advisory Committee for the pooled fund.
• The pooled fund is scheduled for completion in 2024.

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

COST
• FY2022: $12,000 (100% Federal SPR). ITD participated in the first phase of this pooled fund (TPF-5(313), Key #19169). Iowa DOT initiated a second phase of this effort. The Construction/Materials Section requested funding for five additional years. ITD’s Research Advisory Committee approved the project at $12,000 a year from FY2020-FY2024.

FY2022 CHANGES

| Amendment Added: | □ YES | ✗ NO | Date Amended: |
| Comments: | | | |
ITEM 7.3.12– TPF-5(439)

IDENTIFICATION: TPF-5(439)
Title: Technology Exchange on Managing Pavements
Research Agency: Iowa Department of Transportation
State Contact: Khyle Clute, khyle.clute@iowadot.gov
FHWA Contact: TBD
Work Plan Approval: Approved
ITD Key Number: 22546

OBJECTIVE
The goal of the Technology Exchange on Managing Pavements is to:
• Provide communication and information sharing regarding pavement management practices and innovation among member states. Discuss research needs and provide research ideas to TRB.
• Provide a technology and knowledge exchange forum to enhance the practical knowledge of member states concerning pavement management implementation and how to support asset management activities.
• Enhance the working knowledge of the pavement management community.

PROPOSED ACTIVITY – FY2022
• Participating states will develop format and program for the 11th International Conference on Management Pavements.
• The conference was originally planned for August of 2020, but was rescheduled to the summer of 2022 due to the COVID-19 pandemic. ITD’s contribution to the project will cover costs for two staff to attend the conference.
• The project is scheduled to be completed in April 2023.

• Mark Snyder, Highway Data Engineer, is the ITD Project Manager.

COST
• FY2022: Funding commitment met – no additional funding needed. Our commitment of $12,500 was fulfilled in FY2020.

FY2022 CHANGES

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Comments: James Poorbaugh left ITD and Mark Snyder will be the primary contact for this pooled fund effort until a new Asset Management Engineer is selected.
ITEM 7.3.13 – TPF-5(441)

IDENTIFICATION: TPF-5(441)
Title: No Boundaries Transportation Maintenance Innovations
Research Agency: Colorado Department of Transportation
State Contact: David Reeves, david.reeves@state.co.us
FHWA Contact: Antonio Nieves, antonio.nieves@dot.gov
Work Plan Approval: Approved
ITD Key Number: 22547

OBJECTIVE
The main objectives include:

- Technology transfer of promising non-snow and ice maintenance innovations and technologies.
- Providing a forum for State DOTs to share maintenance innovations

PROPOSED ACTIVITY – FY2022
During FY2022, planned pooled fund activities will include:

- Identify promising innovations and technologies ready to be deployed within Maintenance activities
- Develop marketing plans for selected ready to deploy innovations and technologies
- Continue developing searchable database where innovations and research projects developed across the country can be identified and accessed
- Creation of synthesis (practice or literature) like reports that will dig deeper into issues facing State DOTs in operations/maintenance areas of interest
- The project is scheduled to be completed in December 2025.
- Scott Helms, Operations Engineer in District 4, is the ITD Project Manager.

COST
- FY2022: Funding commitment met – no additional funding needed. Our commitment of $30,000 was fulfilled in FY2020.

FY2022 CHANGES

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ITEM 7.3.14 – TPF-5(442)

IDENTIFICATION: TPF-5(442)
Title: Transportation Research and Connectivity
Research Agency: Oklahoma Department of Transportation
State Contact: Ron Curb, rcurb@odot.org
FHWA Contact: TBD
Work Plan Approval: Approved
ITD Key Number: 22548

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

PROPOSED ACTIVITY – FY2022
During FY2022, planned pooled fund activities will include:
- Develop “libguides” identifying key resources in selected highway and transportation topic areas
- Develop information and resources for staff at state DOTs with library and information
- Providing assistance to DOTs with accessing transportation-related publications and documents.
- Providing support to help ensure compliance of digital documents with Section 508 of the U.S. Rehabilitation Act of 1973
- Ned Parrish, Research Program Manager, is the ITD Project Manager.

COST
- FY2022: Funding commitment met – no additional funding needed. Our commitment of $75,000 was fulfilled in FY2020.

FY2022 CHANGES

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ITEM 7.3.15– TPF-5(443)

IDENTIFICATION: TPF-5(443)
Title: Continuous Asphalt Mixture Compaction using Density Profiling System (DPS)
Research Agency: Minnesota Department of Transportation
State Contact: Shongtao Dai, shongtao.dai@state.mn.us
FHWA Contact: TBD
Work Plan Approval: Approved
ITD Key Number: 22550

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

PROPOSED ACTIVITY – FY2022
During FY2022, planned pooled fund activities will include:
- Conduct field data collection by the participating states and other agencies who are interested in the technology following the developed puck calibration and data collection protocols.
- Hold virtual or face-to-face meetings to discuss data analysis.
- Craig Wielenga, Concrete/Structures Engineer, is the ITD Project Manager.

COST
- FY2022: Funding commitment met – no additional funding needed. Our commitment of $75,000 was fulfilled in FY2020.

FY2022 CHANGES

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ITEM 7.3.16 – TPF-5(444)

IDENTIFICATION: TPF-5(444)
Title: Traffic Safety Culture – Phase 2
Research Agency: Montana Department of Transportation
State Contact: Susan Sillick ssillick@mt.gov
FHWA Contact: Chimai Ngo Chimai.Ngo@dot.gov
Work Plan Approval: Approved
ITD Key Number: 22549

OBJECTIVE
The main objectives include:

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

PROPOSED ACTIVITY – FY2022
During FY2022, planned pooled fund activities will include:

• Performing work on several research projects selected by participating states including:
  o Review of methods to change beliefs
  o Development of resources and tools to reduce multi-risk driving behaviors
• Continue monitoring NCHRP project requested by pooled fund members to develop a research roadmap in the traffic safety culture area.
• The project is scheduled to be completed in September 2024.
• John Tomlinson, Highway Safety Manager, is the ITD Project Manager.

COST
• FY2022: $12,000 (100% Federal SPR). ITD’s Research Advisory Committee approved the project at $12,000 a year from FY2020-FY2022.

FY2022 CHANGES

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73
ITEM 7.3.17– TPF-5(448)

IDENTIFICATION: TPF-5(448)
Title: Integrating Construction Practices and Weather into Freeze Thaw Specifications
Research Agency: Oklahoma Department of Transportation
State Contact: Ron Curb, rcurb@odot.org
FHWA Contact: Ahmad Ardani, Ahmad.Ardani@dot.gov
Work Plan Approval: Approved
ITD Key Number: 23065

OBJECTIVE
• The goal this work is to build on previous research efforts to produce improved specifications and advance existing test methods; while, improve the underlying understanding of freeze thaw damage.

PROPOSED ACTIVITY – FY2022
In FFY2022, pooled fund activities will include:
• Develop freeze thaw specifications based on concrete quality, air void system, and local weather conditions.
• Determine how construction methods such as pumping, mixing time, paving vibration, and hand held vibrators impact the air void spacing within concrete.
• The project is scheduled for completion in August of 2023.

• Craig Wielenga, Technical Engineer, is the ITD Project Manager.

COST
• FY2022: Funding commitment met – no additional funding needed. Our commitment of $60,000 was fulfilled in FY2020.

FY2022 CHANGES

Amendment Added: □ YES ☑ NO Date Amended:
Comments:
ITEM 7.3.18– TPF-5(451)

IDENTIFICATION: TPF-5(451)
Title: Road Usage Charge West
Research Agency: Oregon Department of Transportation
State Contact: Randal Thomas, Randal.B.Thomas@odot.state.or.us
Work Plan Approval: Approved
ITD Key Number: 23066

OBJECTIVE
• To explore the technical and operational feasibility of a multi-jurisdictional road usage charge system.
• To develop standards and protocols for how road use charges could best be collected and remitted among the various jurisdictions.
• To develop preliminary operational concepts for how a multi-jurisdictional road usage charge system could be administered.
• To share knowledge to maximize the preparedness for and efficiency of policy and program development for road usage charging among the members.

PROPOSED ACTIVITY – FY2022
• Continue research on topics selected by pooled fund partners regarding the technical and operational feasibility of road usage charge revenue collection mechanisms.
• Conduct a grant supported project to investigate how a road usage charge system would work in an environment with connected and automated vehicles.
• The project is scheduled to be completed in September 2022.

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

COST
• FY2022: Funding commitment met – no additional funding needed. Our commitment of $175,000 was fulfilled in FY2020.

FY2022 CHANGES

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ITEM 7.3.19– TPF-5(452)

IDENTIFICATION: TPF-5(452)
Title: International Conference on Ecology & Transportation (ICOET) 2021 Pooled Fund
Research Agency: Washington State DOT
State Contact: Jon Peterson, peterjn@wsdot.wa.gov
Work Plan Approval: Approved
ITD Key Number: 23067

OBJECTIVE
Plan and organize 2021 International Conference on Ecology & Transportation for communication, technology transfer and information sharing among transportation professionals on ecology issues and transportation. The conference will:

- Bring experts around the world to exchange knowledge & best practices on the interrelationship of ecology & transportation;
- Encourage the sharing of ideas through presentations, panel discussion, breaks, lunches, receptions and field trips;
- Expand the shared knowledge about the cutting edge of science on the topic of ecology and transportation.

PROPOSED ACTIVITY – FY2022
- The conference is being held virtually due to the pandemic. The conference will be in late September 2021. Costs are expected to be some less due to the virtual format. Conference registration fees for three ITD staff to participate in the conference will be covered by our pooled fund contribution.
- The project is scheduled to wrap-up in December 2021.
- Wendy Terlizzi, Environmental Section Manager, is the ITD Project Manager.

COST
- FY2022: Funding commitment met – no additional funding needed. Our commitment of $5,000 was fulfilled in FY2020.

FY2022 CHANGES

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Comments:
ITEM 7.3.20– TPF-5(454)

IDENTIFICATION: TPF-5(454)
Title: Updating U.S. Precipitation Frequency Estimates for the Northwest
Research Agency: National Oceanic and Atmospheric Administration
FHWA Contact: Cynthia Nurmi, Cynthia.Nurmi@dot.gov
Work Plan Approval: Approved
ITD Key Number: 23070

OBJECTIVE
The purpose of this study is to determine precipitation frequency estimates for Idaho and Montana for durations of 5-minute through 60-day at average recurrence intervals (ARIs) of 1-year through 1,000-year. The study results will be published as volumes of NOAA Atlas 14, a wholly web based publication available at www.nws.noaa.gov/ohd/hsdc. The publication will include the artifacts provided in previous NOAA Atlas 14 Volumes, including access through the Precipitation Frequency Data Server, base grids in standard formats together with error estimates, electronic copies of maps, charts of seasonal distributions and probabilistic temporal distributions of heavy precipitation, and detailed documentation.

PROPOSED ACTIVITY – FY2022
• Continue work to compile precipitation frequency data and assess data quality and completeness
• Add data to database of observations and extracted annual maximum series (AMS) data for durations from 15-min to 60-day, as available, for use in data analyses.
• Begin efforts to calculate regional statistics
• Work to estimate precipitation frequency values.
• The project is scheduled to be completed in December 2023.

• Carrie Ann Hewitt, District 1 Staff Engineer, is the ITD Project Manager.

COST
• FY2022: Funding commitment met – no additional funding needed. Our commitment of $240,335 was fulfilled in FY2020.

FY2021 CHANGES

Amendment Added: ☑ YES ☒ NO

Comments:

YOUR Safety ⚙️ ⚙️ ⚙️ YOUR Mobility ⚙️ ⚙️ ⚙️ YOUR Economic Opportunity
OBJECTIVE
The goals of this project is to assess the damage to and repair of bridge girders due to the over-height truck impacts (OHTI) using comprehensive experimental testing and analytical models. In particular, this project aims to determine:

* The remaining carrying capacity of bridge girders damaged due to over-height truck impact which will allow stakeholders (e.g., DOT engineers) to prioritize girders needing repairs.
* Determine the carrying capacity of the damaged girders after being repaired using different repair measures.
* Develop guidance on appropriate repair methods for state DOTs.

PROPOSED ACTIVITY – FY2022
* Perform impact testing on bridge girders.
* Calculate the residual capacity of the beams
* Begin work on repair methods for beams damaged by OHTIs.
* The project is scheduled to be completed by December 2023.

Shanon Murgoitio, Bridge Design Group 2 Leader, is the ITD Project Manager.

COST
* FY2022: $45,000 (100% Federal SPR). A total of $135,000 was committed to the project at $45,000 per year from FY2020 and FY2022.

FY2022 CHANGES

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**ITEM 7.3.22– TPF-5(465)**

**IDENTIFICATION:**
TPF-5(465)

Title: Consortium for Asphalt Pavement Research and Implementation (CAPRI)

Research Agency: Alabama DOT

State Contact: Virgil Clifton cliftonv@dot.state.al.us

FHWA Contact: David Mensching david.mensching@dot.gov

Work Plan Approval: Approved

ITD Key Number: 23097

**OBJECTIVE**

The goals of the project include:

- Providing technical guidance on current and evolving specifications for asphalt materials.
- Developing asphalt pavement research needs.
- Conducting small-scale studies to address knowledge gaps or explore new topics.
- Fostering the implementation of practical research findings to help improve the performance, sustainability, value, and safety of asphalt pavements

**PROPOSED ACTIVITY – FY2022**

- Hold semi-annual meetings rotated among participating organizations to facilitate knowledge sharing among participants.
- Identify issues with current asphalt-related standards and share potential solutions to help move standards forward to ultimately improve pavement performance.
- Identify short-term and long-term research needs and strategically prioritize the needs so the most urgent and impactful opportunities are addressed first.
- Develop research need statements (RNSs) and identify the appropriate source(s) of funding for each project. Organized RNS into the National Asphalt Research Roadmap and publish it on the website.
- Select and prioritize small-scale, exploratory, kick-off studies that can be funded directly by CAPRI to address gaps in the path to implementation, gather additional information to assess the magnitude of perceived problems, and/or explore new technologies.
- Assist in the deployment of research findings by selecting and prioritizing activities such as conducting workshops, refining and shepherding of standards, demonstration project assistance, which can be funded through CAPRI or from other sources.
- Publish progress reports that document the results of the entire project

Mike Copeland, Business Analyst, is the ITD Project Manager.

**COST**

- FY2022: Funding commitment met – no additional funding needed. Our $50,000 commitment to the project was fulfilled in FY2021.
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IDENTIFICATION: TPF-5(476)
Title: Western Alliance for Quality Transportation Construction (WAQTC) 2021-2025
Research Agency: Utah DOT
State Contact: David Stevens davidstevens@utah.gov
Work Plan Approval: Approved
ITD Key Number: 23208

OBJECTIVE
The goals of the project include:

- Standardizing test methods (WAQTC, AASHTO, and ASTM),
- Maintaining accreditation of the Transportation Technician Qualification Program (TTQP),
- Working collaboratively on national programs of significance including research, training, and technology deployment.

PROPOSED ACTIVITY – FY2022
- 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.

- Chad Clawson, Central Labs Manager, is the ITD Project Manager.

COST
- FY2022: $12,000 (100% Federal SPR). A total of $60,000 is being committed to the project from FY2021 and FY2025.

FY2022 CHANGES
Amendment Added: ☑ YES ☐ NO  Date Amended: 1/10/2022

Comments: Updated ITD Project Manager from John Bilderback to Chad Clawson, ITD Central Labs Manager.
OBJECTIVE
The goal of the project is to support and showcase the implementation of innovative pavement technologies, products, and processes by State DOTs by leveraging of Federal investments with State DOT partnerships

PROPOSED ACTIVITY – FY2022
- Begin working with the project Technical Advisory Committee, comprised for representatives from participating state DOTs, to define the parameters of each of their state’s demonstration project. Topics for consideration include:
  - Development of Balanced Mix Design (BMD) for asphalt and performance engineered mixture (PEM) for concrete program
  - Implementation of strategic pavement preservation programs
  - Integration of sustainability and resiliency into decision-making process, technical frameworks, education efforts, and stakeholder engagement

- John Arambarri, Technical Engineer 2, is the ITD Project Manager.

COST
- FY2022: Funding commitment met – no additional funding needed. Our $50,000 commitment to the project was fulfilled in FY2021.

FY2022 CHANGES

Amendment Added: ☑ YES ☐ NO Date Amended: 1/24/2022

Comments: Added Key #.
ITEM 7.3.25– TPF-5(479)

IDENTIFICATION: TPF-5(479)
Title: Clear Roads Winter Highway Operations Pooled Fund, Phase III
Research Agency: Minnesota Department of Transportation
State Contact: Debbie Sinclair, debbie.sinclair@state.mn.us
FHWA Contact:
Work Plan Approval: Approved
ITD Key Number: 23514

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 – FY2022

Planned activities in FY2022 include:
• Complete active projects initiated in Phase II
• Initiate new projects selected by pooled fund partners
• Winter Maintenance Product Proficiency Sample Program
• Maintain Clear Roads website (http://clearroads.org/) and develop new subject-based web pages

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

COST:

• FY2022: $25,000 (100% Federal SPR). ITD’s Research Advisory Council voted to commit at total of $125,000 ($25,000 annually) to this phase of the pooled fund in FY2022 through FY2026.

FY2022 CHANGES

Amendment Added: ☒ YES ☐ NO Date Amended: 1/24/2022
Comments: Marked as approved and added key # created in OTIS.
ITEM 7.3.26– TBD

IDENTIFICATION: TBD
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: TBD

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 – FY2022
• Continue annual support for TRB Core Services.
• Ned Parrish, Research Program Manager, is the ITD Project Manager.

COST
• FY2022: $92,500 (100% Federal SPR).

FY2022 CHANGES

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ITEM 7.3.27–Sol. 1561

IDENTIFICATION:
Solicitation 1561
Title: 2023 Technology Exchange on Low Volume Road Design, Construction and Maintenance
Research Agency: Iowa Department of Transportation
State DOT Contact: Khyle Clute, khyle.clute@iowadot.us
Work Plan Approval: Pending Approval
ITD Key Number: TBD

OBJECTIVE
• To provide opportunities for participating states to share information and best practices related to the design, construction, maintenance, and safety on low volume roads. The project will also provide a forum to discuss research, development, and technology transfer needs in these areas. Staff from ITD and LHTAC will participate in the project.

PROPOSED ACTIVITY – FY2022
Planned activities in FY2022 include:
• Initiate pooled fund
• Begin planning for the information exchange and low-volume roads conference

• Bob Schumacher, Engineer Manager, District 2, is the ITD Project Manager.

COST
• FY2022: $12,000 (100% Federal SPR). In January of 2022 ITD’s Research Advisory Council approved a request to support the pooled fund. The request was for $12,000, which is the Department’s full commitment to the project

FY2022 CHANGES
Amendment Added: ☒ YES ☐ NO Date Amended: 1/24/2022
Comments: The Highways Construction and Operations Division Administrator requested that the Research Program commit a total of $12,000 to this project. It is envisioned that staff from both ITD and LHTAC will participate and share information regarding best practices. The request was approved by ITD’s Research Advisory Council in January 2022. The contribution would be made using unspent prior year SPR funds.
ITEM 7.3.28– Sol. 1566

IDENTIFICATION: Solicitation 1566
Title: VKelly Slipform Paving Vibration Test
Research Agency: Iowa Department of Transportation
State DOT Contact: Khyle Clute, khyle.clute@iowadot.us
Work Plan Approval: Pending Approval
ITD Key Number: TBD

OBJECTIVE

- Increased complexity of mixtures including the use of supplementary cementitious materials and chemical admixtures has reduced the usefulness of the information provided by the slump test. The VKelly test was developed to provide agencies and contractors a tool that reports how a slipform paving mixture responds to vibration. Initial evaluation by agencies has shown that the VKelly provides useful, numerical and repeatable data on how a mixture will perform in a paving machine and that it could distinguish between workability of mixtures with similar slumps. The objectives of this project are to:
  - Make the test more user friendly and portable
  - Understand the science behind the method to guide mixture proportioning and field operations based on test results
  - Broaden the applicability to include structural and pumping mixtures

PROPOSED ACTIVITY – FY2022

- Initiate the pooled fund project

- Craig Wielenga, Technical Engineer and Concrete SME, is the ITD Project Manager.

COST

- FY2022: $20,000 (100% Federal SPR).

FY2022 CHANGES

Amendment Added: YES  NO  Date Amended: 1/24/2022

Comments: Construction and Materials requested that the Research Program commit a total of $20,000 to this project covering costs from FFY2022-FFY2024. The request was approved by ITD’s Research Advisory Council in January 2022. The contribution would be made using unspent prior year SPR funds.
ITEM 7.4– 2018 COOPERATIVE RESEARCH PROJECT (MONTANA STATE UNIVERSITY)

IDENTIFICATION:  
Research Project 277

Title:  
Cooperative Transportation Research Program

Research Agency:  
Montana State University

Work Plan Approval:  
Approved

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

ITEM 7.4.1 - Research Project 277

IDENTIFICATION:  
Research Project 277

Title:  
Evaluating Erosion Control Blankets Made with Waste Wool in Southeastern Idaho

Research Agency:  
Montana State University

Work Plan Approval:  
Approved

OBJECTIVE

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

• The project was extended to December 31, 2021 to allow additional time for monitoring the field performance of the products. 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 – FY2022

During FY 2022, work will focus on:

• Preparation of the draft final report
• ITD review of the draft final report
• The researchers making needed revision and preparing the final report for publication.

COST

• Funding commitment met – no additional funding needed. Other funding needed for the project was budgeted in FY2018 through FY2021.

FY2022 CHANGES

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ITEM 7.5 – 2020 COOPERATIVE RESEARCH PROJECT (BOISE STATE UNIVERSITY)

IDENTIFICATION: Research Projects 284
Title: Cooperative Transportation Research Program
Research Agency: Boise State University
Work Plan Approval: Approved

This section describes a project with Boise State University that was approved by ITD’s Research Advisory Council in the spring of 2019.

ITEM 7.5.1 - Research Project 284

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

OBJECTIVE
The objectives of this project include:

- Building upon previous ITD research on the use of Weed-Suppressive Bacteria (WSB) (ITD Research Project RP 258) by:
  - Collecting additional data on the impact of the WSB on test plots included in the previous study to better assess the long-term performance of the WSB.
  - Establishing new experimental plots testing the effectiveness of WSB on target (i.e. exotic annual grasses) and non-target species with and without pre-mowing or co-application of herbicides or drill seeding.
- Developing best practice and an integrated vegetation management plan for future utilization of the bacterium.
- The completion date for the project was extended to March 1, 2023 to provide additional time to monitor test plots to assess the performance of the WSB and other practices. The total cost of the project is estimated at $74,923.
- Cathy Ford, Roadside Program Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:

- Continue monitoring the survival of the WSB in the soil, plant (native and invasive) density and growth parameters
- Evaluate research study sites and bacteria establishment, the effect of the weed-suppressive bacteria and herbicide on cheatgrass populations, established perennial plant populations and vegetation management activities over the 2 year study period.
- Prepare the draft final report and submit it for ITD review and comment.
COST

- $14,000 (80/20 Federal SPR funds) is budgeted for this project in FY 2022. A portion of the funds needed for the project were budgeted in FY 2020 and FY 2021, and the funds needed will be budgeted FY2023.

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ITEM 7.6 – 2020 COOPERATIVE RESEARCH PROJECT (U.S. GEOLOGICAL SURVEY)

IDENTIFICATION: Research Projects 285
Title: Cooperative Transportation Research Program
Research Agency: United States Geological Survey
Work Plan Approval: Approved

This section describes a project with the United States Geological Survey that was approved by ITD’s Research Advisory Council in the spring of 2019.

ITEM 7.6.1 - Research Project 285

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

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

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:
- Continue operating sites and publish real-time data online
- Uninstall equipment at each site
- Develop quality assurance and quality control guidelines for operating real-time scour monitoring stations in Idaho.
- Summarize the study methods and data in final report.

COST
- $101,600 ($81,280 Federal SPR funds (80/20)) is budgeted for this project in FY 2022. Other funds needed for the project were budgeted in FY2020 and FY2021.
**FY2022 CHANGES**

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ITEM 7.7 – 2020 COOPERATIVE RESEARCH PROJECTS (UNIVERSITY OF IDAHO)

IDENTIFICATION: Research Projects 286, 287, 292, and 294
Title: Cooperative Transportation Research Program
Research Agency: University of Idaho
Work Plan Approval: Approved

This section describes four new research projects with the University of Idaho that was approved by ITD’s Research Advisory Council. A total of $178,600 is budgeted for the projects in FFY2022.

ITEM 7.7.1 - Research Project 286

IDENTIFICATION: Research Project 286
Title: Correlation between CoreLok and AASHTO T-85 for Specific Gravity and Absorption Properties of Coarse Aggregates
Research Agency: University of Idaho
Work Plan Approval: Approved

OBJECTIVE
The objectives of this project include:

- Evaluate and develop correlations between the CoreLok and AASHTO T-85 results for measuring specific gravity and absorption properties of typical coarse aggregates used in the construction of pavements in Idaho.
- Evaluate the use of CoreLok for measuring the specific gravity and absorption properties of combined aggregates (i.e., mixture of fine and coarse aggregates).
- The expected duration of the project is 24 months. The total cost of the project is estimated at $123,600.
- John Arambarri, Technical Engineer 2 in Construction and Materials, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:

- Complete laboratory test data analysis and develop correlations.
- Meet with ITD Technical Advisory Committee to discuss study findings and recommendations.
- Prepare final report.

COST

- $33,600 ($26,880 Federal SPR funds (80/20)) is budgeted for this project in FY 2022. Other funds needed for the project were budgeted in FY2020 and FY2021.

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**ITEM 7.7.2 - Research Project 287**

**IDENTIFICATION:**  
Research Project 287

**Title:**  
Highway Safety Improvement Program (HSIP) Project Performance Evaluation

**Research Agency:**  
University of Idaho

**Work Plan Approval:**  
Approved

**OBJECTIVE**

The objectives of this project include:

- Developing a methodology, process, and set of tools to evaluate individual HSIP projects as well as a series of projects across a corridor.
- Developing a well-documented methodology that can be scripted to look at the effectiveness of Crash Modification Factors used over a period of time.
- The expected duration of the project is 27 months. The total cost of the project is estimated at $120,000.
- Margaret Pridmore, Roadway Data Manager, is the ITD Project Manager.

**PROPOSED ACTIVITY – FY2022**

During FY 2022, the researchers will:

- Continuing compiling and analyzing crash data
- Continue developing reports and tools for use by ITD staff in evaluating HSIP project performance.
- Train ITD and LHTAC staff.
- Prepare final report.

**COST**

- Funding commitment met – no additional funding needed. Other funding needed for the project was budgeted in FY2020 and FY2021.

**FY2022 CHANGES**

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93
ITEM 7.7.3 - Research Project 292

IDENTIFICATION: Research Project 292
Title: Implementation of Balanced Mix Design of Asphalt Mixtures Prepared with Reclaimed Asphalt Pavements and Rejuvenators for Enhanced Performance
Research Agency: University of Idaho
Work Plan Approval: Approved

OBJECTIVE
The objectives of this project include:

• Evaluating and validating the performance thresholds developed in RP 261 for additional asphalt mixtures currently produced in the state.
• Evaluating the effect of rejuvenators on improving the performance of asphalt mixtures containing different percentages of RAP and reducing the need for softer binders which are costly to obtain.
• Applying the balanced (engineered) mix design concept and performance thresholds, developed in RP 261, to optimize the mix design (e.g., binder content and gradation) of HMA prepared with RAP and rejuvenators for improved performance.
• Studying the economic savings of using rejuvenators and RAP in asphalt mixtures.
• Developing recommendations and guidelines on revising performance thresholds developed in RP 261 (if needed) and incorporating rejuvenators and RAP into asphalt mixtures that provide comparable or superior performance to control mixtures.

• The University of Idaho will collaborate with Boise State University on this project. The expected duration of the project is 24 months. The total cost of the project is estimated at $170,000.
• Mike Copeland, Business Analyst, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:

• Complete preparation of asphalt mixture test specimens
• Complete laboratory testing and analyze testing results.
• Conduct cost analysis to assess economic savings
• Develop recommendations and guidelines
• Prepare final report

COST

• $75,000 ($60,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2022. Other funds needed for the project were budgeted in FY2020 and FY2021.

FY2022 CHANGES

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OBJECTIVE
The objectives of this project include:

- Comparing Traffic Speed Deflectometer (TSD) results to those of the Falling Weight Deflectometer (FWD).
- Evaluating, validating, and calibrating various techniques and models used to analyze the TSD and FWD data to determine the structural capacity and RSI.
- Developing an Excel-based utility that can utilize the TSD and FWD deflection data and other information (e.g., traffic, layer thickness) and calculate the structural capacity and RSI.
- The expected duration of the project is 24 months. The total cost of the project is estimated at $160,000.
- John Arambarri, Technical Engineer 2, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:

- Calculate and evaluate various FWD and TSD deflection parameters.
- Analyze the collected data.
- Study performance decay curves.
- Develop Excel-based utility.
- Prepare the final report.

COST

- $70,000 ($56,000 Federal SPR funds (80/20)) is budgeted for this project in FY 2020. Other funds needed for the project were budgeted in FY2020 and FY2021.

FY2022 CHANGES

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ITEM 7.8 – 2020 COOPERATIVE RESEARCH PROJECT (IDAHO STATE UNIVERSITY)

IDENTIFICATION: Research Project 288
Title: Cooperative Transportation Research Program
Research Agency: Idaho State University
Work Plan Approval: Pending Approval

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

ITEM 7.8.1 - Research Project 288

IDENTIFICATION: Research Project 288
Title: Long-Term Performance of High Early Strength (HES) Concrete with Fibers for ABC applications in Idaho
Research Agency: Idaho State University
Work Plan Approval: Approved

OBJECTIVE

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

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

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

PROPOSED ACTIVITY – FY2022

During FY 2022, the researchers will:

• Complete testing the bridge under the Under the Bridge Inspection Truck (UBIT) every three months.
• Complete collection of data on the performance of the closure pour under commercial truck traffic.
• Complete inspections of the closure pour.
• Perform data analysis
• Meet with project Technical Advisory Committee to discuss study findings and recommendations.
• Prepare final report.

COST

• Funding commitment met – no additional funding needed. Other funding needed for the project was budgeted in FY2020 and FY2021.
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This section describes a research project with American Geotechnics that was approved by ITD’s Research Advisory Council in the spring of 2019. A total of $12,000 is budgeted for this project in FY2022.

**ITEM 7.9.1 - Research Project 289**

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

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

**PROPOSED ACTIVITY – FY2022**  
During FY 2022, the researchers will:  
- Continue compiling resilient modulus test results and recording of C-value ratios, soil classification data, Resilient Modulus, and EFWD values on a project by project basis.  
- Compile test date in a database and transmit updated database to ITD twice per year.  
- Analyze the data and provide recommendations for using findings in pavement design.  
- Prepare final report.

**COST**  
- $12,000 ($9,600 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project were budgeted in FY2020 and FY2021.
ITEM 7.10 – 2020 COOPERATIVE RESEARCH PROJECT (MONTANA STATE UNIVERSITY)

IDENTIFICATION: Research Projects 291
Title: Cooperative Transportation Research Program
Research Agency: Western Transportation Institute, Montana State University
Work Plan Approval: Approved

This section describes a new research project with the Western Transportation Institute at Montana State University that was selected for funding in April 2020 by ITD’s Research Advisory Council.

ITEM 7.10.1 - Research Project 291

IDENTIFICATION: Research Project 291
Title: Roadside Monarch and Pollinator Habitat Inventory
Research Agency: Western Transportation Institute, Montana State University
Work Plan Approval: Pending Approval

OBJECTIVE
The goal of this project is to build upon the data already collected by IDFG on monarch butterfly occurrences and milkweed populations in or near ROWs in Idaho and geospatial data of ITD highway systems to determine sample points across southern Idaho. Project objectives include:

- Expanding on preliminary information collected in Monarch habitat in Idaho and specifically focus on ITD Right-of-Ways (ROWs).
- Identifying the relative amount of monarch butterflies and milkweed plants, as well as nectar plants using a field-based approach.
- Assessing pollinator plant abundance including milkweed species and important nectar plant species.
- Assessing best management practices to support Monarchs and pollinators in ITD ROWs.

It is expected that the research will focus on the Henrys Fork of the Snake River and the Snake River Valley, since it is known to provide some of the most crucial habitat for the western population of monarch butterflies. In addition, IDFG is expected to play a role in the research.

- The project is scheduled to be completed in 30 months. The total cost of the project is estimated at $144,208.
- Cathy Ford, Roadside Program Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:

- Complete second year of data collection in ITD rights-of-way during the summer of 2022
- Perform data analysis and mapping.
- Develop recommendations for ROW management.

COST
- $45,000 ($36,000 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project were budgeted in FY2020 and FY2021 and will be budgeted in FY2023.
### FY2022 CHANGES

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**Comments:**
ITEM 7.11– 2020 COOPERATIVE RESEARCH PROJECT (TRIDURLE UTC)

IDENTIFICATION: Research Projects 293
Title: Cooperative Transportation Research Program
Research Agency: National Center for Transportation Infrastructure Durability & Life-Extension University Transportation Center (UTC)
Work Plan Approval: Approved

This section describes a new research project with the new National Center for Transportation Infrastructure Durability & Life-Extension (TrIDurLE) University Transportation Center (UTC) that was selected for funding in April 2020 by ITD’s Research Advisory Council.

ITEM 7.11.1 - Research Project 293

IDENTIFICATION: Research Project 293
Title: Developing Enhanced Performance Curves of ITD Asphalt Pavements by Mining the Historical Data
Research Agency: National Center for Transportation Infrastructure Durability & Life-Extension (TrIDurLE) University Transportation Center (UTC)
Work Plan Approval: Approved

OBJECTIVE
The goal of this project is to develop reliable and realistic and enhanced performance curves for ITD asphalt pavements by mining the historical data. Project objectives include:

- Identifying the appropriate parameters and additional criteria to use in the enhanced asphalt performance curves.
- Developing and calibrating distress-specific models for forecasting future pavement conditions, for both new and rehabilitated asphalt pavements.
- Validating existing and enhanced curves using historical performance data.
- The expected duration of the project is 25 months. The total cost of the project is estimated at $252,240, with ITD contributing $126,120 and TrIDurLE matching with $126,120.
- Riley Bender, District 2 Materials Engineer, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:

- Perform data processing and data mining for enhanced performance curves.
- Validating enhanced curves using historical performance data.
- Prepare final report.

COST

- $55,182 ($44,146 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project were budgeted in FY2020 and FY2021.
FY2022 CHANGES

Amendment Added: □ YES    □ NO    Date Amended: 10/1/2021

Comments: Updated ITD Project manager from James Poorbaugh to Riley Bender, District 2 Materials Engineer.
ITEM 7.12– 2021 COOPERATIVE RESEARCH PROJECT (ISU)

IDENTIFICATION: Research Projects 295
Title: Cooperative Transportation Research Program
Research Agency: Idaho State University
Work Plan Approval: Approved

This section describes a research project Idaho State University that was selected for funding in October 2020 by ITD’s Research Advisory Council.

ITEM 7.12.1 - Research Project 295

IDENTIFICATION: Research Project 295
Title: Achieving Multi-Purpose Roadside Vegetation: Reducing Weed Invasion and Fire Risk while Enhancing Pollinator Habitat
Research Agency: Idaho State University
Work Plan Approval: Approved

OBJECTIVE
The goals of this project include:

• Assessing roadside vegetation management practices.
• Identifying revegetation methods that can be implemented by ITD crews to maximize efficiency and achieve multiple management goals including reducing weed invasion and fire hazards, and enhancing pollinator habitat and abundances.
• Evaluating potential best practices in field trials is several common Idaho ecoregions.
• Developing recommendations on adjusting and combining ITD Operational best practices for vegetation management.
• The expected duration of the project is 34 months. The total cost of the project is estimated at $105,105.
• Alissa Salmore, District 5 Environmental Planner, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the researchers will:

• Complete experimental design and installation at selected sites.
• Provide first annual report on work performed and available data
• Perform data collection during the first growing season.

COST

• $31,000 ($24,800 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project were budgeted in FY2021 and will be budgeted in FY2023 and FY 2024.
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**FY2022 CHANGES**
This section describes a research project that was selected for funding in April 2020 by ITD’s Research Advisory Council. Funding needed for the project was budgeted in FY2021.

**ITEM 7.13.1 - Research Project 296**

**IDENTIFICATION:** Research Project 296  
**Title:** DMV Operating Model Study  
**Research Agency:** TBD  
**Work Plan Approval:** Approved

**OBJECTIVE**

The goals of this project include:
- Identifying the best delivery model for DMV services in Idaho
- Provide recommendations on best practices from other states to improve service delivery and remedy current challenges in Idaho.
- The expected duration of the project is 8 months. The total cost of the project is estimated at $62,661.
- Lisa McClellan, DMV Operations Manager, is the ITD Project Manager.

**PROPOSED ACTIVITY – FY2022**

During FY 2022, the researchers will:
- Identify and describe possible recommendations for current model improvements.
- Review and compare statutes and regulations of DMV service delivery in Idaho and other states.
- Review information collected from other states, assess best practices, and develop recommendations.
- Meet with ITD Technical Advisory Committee to discuss study findings and recommendations.
- Prepare final report.

**COST**

- Funding commitment for the project met. Funds needed for the project were budgeted in FY2021.

**FY2022 CHANGES**

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ITEM 7.14– 2021 COOPERATIVE RESEARCH PROJECTS (Private Consultant)

IDENTIFICATION: Research Projects 297
Title: Cooperative Transportation Research Program
Research Agency: Simplar Sourcing
Work Plan Approval: Approved

This section describes a research project that was selected for funding in April 2020 by ITD’s Research Advisory Council. No funds are budgeted for the project in FFY2022.

ITEM 7.14.1 - Research Project 297

IDENTIFICATION: Research Project 297
Title: Qualified Products List (QPL) System Needs Study
Research Agency: TBD
Work Plan Approval: Approved

OBJECTIVE
The goals of this project include:

• Reviewing ITD’s current system to understand its capabilities and limitations
• Evaluating options to improve or replace the system that support
• The project is scheduled to be completed in 10 months. The total cost of the project is $49,849.
• Tom Furrer, Business Analyst, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the following project-related activities will be completed:

• Identifying and examining options to improve or replace ITD’s existing QPL system
• Developing recommendations to enhance or replace the software program used for the QPL.
• Prepare final report detailing research findings and recommendations.

COST
• Funding commitment for the project met. Funds needed for the project were budgeted in FY2021.

FY2022 CHANGES

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ITEM 7.15—2022 COOPERATIVE RESEARCH PROJECTS

IDENTIFICATION: Research Projects 298-304
Title: Cooperative Transportation Research Program
Research Agency: TBD
Work Plan Approval: Pending Approval

This section describes seven new research projects that were selected for funding in FY 2022. A total of $341,156 is budgeted for these projects in FY2022.

ITEM 7.15.1 - Research Project 298

IDENTIFICATION: Research Project 298
Title: Review of Options to Upgrade or Replace ITD’s Office of Transportation Investments System (OTIS)
Research Agency: High Street Consulting
Work Plan Approval: Pending Approval

OBJECTIVE
The goals of this project include:

- To identify suitable long-term solutions to the ongoing issues with the current version of OTIS
- Develop recommendations for system upgrade or replacement
- The project is scheduled to be completed in 12 months. The project cost was originally estimated at between $128,000 and $200,000, but the final contract amount was $99,787.
- Chris Bray, Financial Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the following project-related activities will be completed:

- ITD will develop a scope of work for the project and issue an RFQ/RFP.
- ITD will review proposals, select a contractor, and finalize a contract for the study.
- Contract researcher will research existing OTIS program and determine the overall framework
- The researcher will identify system processes that can be improved and what features can be removed
- The researcher will examine current off-the-shelf software that would fit ITD purpose

COST
- $99,787 ($79,830 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project will be budgeted for the project in FY2023.

FY2022 CHANGES

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Comments: Increased the amount budgeted for the project in FFY2022 from $80,000 to $99,787, the final contract amount for the study, which was initiated in January of 2022. Note: that the actual cost of the project is less than the original estimate for the project.
**ITEM 7.15.2 - Research Project 299**

**IDENTIFICATION:** Research Project 299  
**Title:** Traffic Incident Management (TIM) Program Development Study  
**Research Agency:** TBD  
**Work Plan Approval:** Pending Approval

## OBJECTIVE
The goals of this project include:

- Evaluating the effectiveness of Idaho’s training efforts to date
- Developing recommendations to improve the ongoing management and operation of the TIM training program
- Developing tools to support the TIM training program
- Evaluating initial delivery of the TIM training during the pilot phase and providing recommendations to further strengthen ongoing program operations
- The project is scheduled to be completed in 24 months. The total cost of the project is estimated at $120,000.
- TBD, Emergency Program Manager, is the ITD Project Manager.

### PROPOSED ACTIVITY – FY2022
During FY 2022, the following project-related activities will be completed:

- ITD will develop a scope of work for the project and issue an RFQ/RFP.
- ITD will review proposals, select a contractor, and finalize a contract for the study.
- Researcher will review Idaho classes given the last 2 years and receive feedback from trainees
- Recommend a management structure for statewide oversight and delivery of TIM training
- Update and or develop material for TIM training in Idaho:

### COST
- $25,000 ($20,000 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project will be budgeted for the project in FY2023 and FY2024.

### FY2022 CHANGES

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Comments: Reduced the amount budgeted for this project in FY2022 by $20,000 because of vacancy in the Emergency Program Manager Position. Funding shifted to RP 298, the study of OTIS replacement options, which begin in January of 2022.
ITEM 7.15.3 - Research Project 300

IDENTIFICATION: Research Project 300
Title: Idaho Truck Parking Availability, Use, and Need Study
Research Agency: TBD
Work Plan Approval: Pending Approval

OBJECTIVE
The goals of this project include:
- Identifying locations where additional truck parking is needed.
- Examining options for offering “urbanized” truck parking to provide temporary parking prior to pick up or delivery of freight to distribution centers and processing and/or manufacturing facilities.
- The project is scheduled to be completed in 24 months. The total cost of the project is estimated at $150,000 and $200,000.
- Scott Luekenga, Freight Program Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the following project-related activities will be completed:
- ITD will develop a scope of work for the project and issue an RFQ/RFP.
- ITD will review proposals, select a contractor, and finalize a contract for the study.
- Develop methodology for surveying the freight providers and representatives of manufacturing and distribution facilities about truck issues and needs
- Conduct industry surveys to understand truck parking issues and demand

COST
- $60,000 ($48,000 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project will be budgeted for the project in FY2023 and FY2024.

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ITEM 7.15.4 - Research Project 301

**IDENTIFICATION:** Research Project 301  
Title: Analysis of Bicycle and Pedestrian Crashes and Their Contributing Factors in Idaho  
Research Agency: TBD  
Work Plan Approval: Pending Approval

**OBJECTIVE**
- The goal of this project is to collect, organize and analyze bike and pedestrian crash data, to aid in identifying crash factors.
- The project is scheduled to be completed in 9-12 months. The total cost of the project is estimated at $30,000.
- Margaret Havey, Sr. Transportation Planner, is the ITD Project Manager.

**PROPOSED ACTIVITY – FY2022**
During FY 2022, the following project-related activities will be completed:
- ITD will develop a scope of work for the project and issue an RFQ/RFP.
- ITD will review proposals, select a contractor, and finalize a contract for the study.
- Researcher will review applicable literature and tools of bicycle and pedestrian crash typing an analysis
- Researcher will compile 10 years of crash reports, for all public roadways in Idaho to document roadway characteristic, demographics of those involved, environmental characteristics, and other factors that contributed to the crash.

**COST**
- $30,000 ($24,000 Federal SPR funds (80/20)) is budgeted for this project in FY2022.

**FY2022 CHANGES**

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ITEM 7.15.5 - Research Project 302

IDENTIFICATION: Research Project 302
Title: Experimental Validation of Repair Methods for Earthquake-Damaged Bridges Incorporating ITD’s Precast Pier System
Research Agency: Idaho State University
Work Plan Approval: Pending Approval

OBJECTIVE
- The goal of this project is to experimentally validate some of the proposed repair methods for the ITD precast pier connection.
- The expected duration of the project is 14 months. The total cost of the project is estimated at $60,000.
- Michael Johnson, P.E., Bridge Design Group Leader, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the following project-related activities will be completed:
- ITD will develop a scope of work for the project and issue an RFQ/RFP.
- ITD will review proposals, select a contractor, and finalize a contract for the study.
- Review literature on repair methods for CFSTs and other relevant precast connections.
- Implement 2-3 retrofitting methods in the damaged precast pier specimens and re-testing them under quasi-static cyclic loads.

COST
- $40,000 ($32,000 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project will be budgeted for the project in FY2023.

FY2022 CHANGES
Amendment Added: YES  NO  Date Amended: 2/4/2022
Comments: The State's Division of Purchasing granted an exemption from the competitive bidding requirements allowing ITD to contract with the ISU researchers who performed the RP 281 study evaluating the precast pier system. The researchers fabricated large-scale specimens of the precast piers that can be used in this new project, saving time and money.
ITEM 7.15.6 - Research Project 303

IDENTIFICATION: Research Project 303
Title: Development of Local AADT Estimates for Paved Roads in Idaho
Research Agency: TBD
Work Plan Approval: Pending Approval

OBJECTIVE
The goals of this project include:
- Propose and develop a sampling method, recommend locations, and provide a means of calculating AADT estimates on local roads.
- Establish a method for maintaining these values.
- The project is scheduled to be completed in 12 months. The total cost of the project is $75,000-$100,000.
- Margaret Pridmore, Roadway Data Manager, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the following project-related activities will be completed:
- ITD will develop a scope of work for the project and issue an RFQ/RFP.
- ITD will review proposals, select a contractor, and finalize a contract for the study.
- Researcher will review the literature related to establishing AADT estimates on rural minor collector and local roads.
- Develop a sampling methodology for paved local roads and rural minor collectors, unpaved local roads and rural minor collectors, and all local roads and rural minor collectors regardless of surface.
- Develop a methodology for establishing a baseline, including any algorithms and processes.

COST
- $45,000 ($36,000 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project will be budgeted for the project in FY2023.

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ITEM 7.15.7 - Research Project 304

IDENTIFICATION: Research Project 304
Title: Unmanned Aircraft Systems (UAS) Technology, Airspace Design, Privacy and Safety in Idaho
Research Agency: TBD
Work Plan Approval: Pending Approval

OBJECTIVE
- The goal of this project is to define Idaho’s non-navigable airspace in relation to control, privacy, leasing and enforcement in relation to UAS, Unmanned Aerial Vehicles (UAV) and manned aircraft to promote new, innovative way of performing tasks, especially in places where safety can be enhanced by using UAS technologies.
- The project is scheduled to be completed in 12 months. The total cost of the project is estimated at $80,000 - $100,000.
- Ben Elkins, UAS Coordinator, is the ITD Project Manager.

PROPOSED ACTIVITY – FY2022
During FY 2022, the following project-related activities will be completed:
- ITD will develop a scope of work for the project and issue an RFQ/RFP.
- ITD will review proposals, select a contractor, and finalize a contract for the study.
- Initiate research.

COST
- $41,156 ($32,925 Federal SPR funds (80/20)) is budgeted for this project in FY2022. Other funds needed for the project will be budgeted for the project in FY2023.

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COST SUMMARY
## PART 1: WORK PROGRAM PLANNING – KEY # 20460
### TOTAL PROGRAM FUNDING SUMMARY

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<th>Work Program Task</th>
<th>SPR/FED</th>
<th>State Match</th>
<th>FY22 Work Program</th>
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<td>$1,116,401</td>
<td>$5,582,007</td>
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<td>Item #</td>
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<td>Research Administration</td>
<td>SPR/FED</td>
<td>State Match</td>
<td>FY22 Work Program</td>
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</table>
| 7.1    | RB         | National Cooperative Highway Research Program  
ITD’s contribution to support the NCHRP Program. | $340,378 | $0 | $340,378 | Ned Parrish |
| 7.2    | RE         | AASHTO Engineering Technical Service Programs  
Includes ITD support for selected AASHTO Technical Service Programs and AASHTOware Data Analytics software project. | $120,000 | $30,000 | $150,000 | Varies – See Section 6.2 |
| 7.3    | RF         | Pooled Fund Studies  
Funding for ITD participation in projects with other DOTs and FHWA. | $335,500 | $0 | $335,500 | Varies – See Section 6.3 |
| 7.4    | RL         | FY2018 Contract Research with MSU  
RP 277 is a multi-year project. All funding for the project was budgeted in prior years. | $0 | $0 | $0 | Alissa Salmore |
| 7.5    | RL         | FY2020 Contract Research with BSU  
Research Project 284 is a multi-year study. Other funding needed for the project will be budgeted in FY2019 and FY2020. | $11,200 | $2,800 | $14,000 | Cathy Ford |
| 7.6    | RL         | FY2020 Contract Research with USGS  
Research Project 285 is a multi-year project. Other funds needed for the project are budgeted in FY20 and FY22. | $81,280 | $20,320 | $101,600 | Jake Legler |
| 7.7    | RL         | FY2020 Contract Research with UI  
Research Project 286, 287, 292, & 294. Other funds needed for the projects were budgeted in FY2020 and will be budgeted in FY2022. | $142,880 | $35,720 | $178,600 | John Arambarri  
Margaret Pridmore  
Mike Copeland |
| 7.8    | RL         | FY2020 Contract Research with ISU  
RP 288 is a multi-year study. Funds were also budgeted in FY2020. All funding for the project was budgeted in prior years. | $0 | $0 | $0 | Dan Gorley |
| 7.9    | RL         | FY2020 Contract Research with Private Consultant  
Research Project 289 is a multiyear study. Other funds needed for the projects were budgeted in prior years. | $9,600 | $2,400 | $12,000 | Tyler Coy |
| 7.10   | RL         | FY2020 Contract Research with MSU  
RP 291 is a multi-year study. Other funds needed for the project were budgeted in FY2020 and FY2021. | $36,000 | $9,000 | $45,000 | Cathy Ford |
| 7.11   | RL         | FY2020 Contract Research with TrIDurLE Univ. Transportation Ctr.  
RP 293 is a multiyear study. Other funds needed for the project were budgeted in FY2020 and will be budgeted in FY2022. | $44,146 | $11,036 | $55,182 | Riley Bender |
| 7.12   | RL         | FY2021 Contract Research with ISU  
Research Project 295. Some funds needed for the project were budgeted in FY2021 and other funds will be budgeted in FY2023. | $24,800 | $6,200 | $31,000 | Alissa Salmore |
| 7.13   | RL         | FY2021 Contract Research with BSU  
Research Project 297. Funding needed for the project was budgeted in FY2021. | $0 | $0 | $0 | Tom Furrer |
| 7.14   | RL         | FY2021 Contract Research with Private Consultant  
Projects 296. Additional funds, if needed, will be budgeted in FY2022. Funding needed for the project was budgeted in FY2021. | $0 | $0 | $0 | Lisa McClellan |
| 7.15   | RL         | FY2022 Contract Projects  
Projects 298 & 304 are new projects. A portion of the funding is being budgeted in FY2022 and additional funds will be budgeted in future years. | $272,754 | $68,189 | $340,943 | Varies – See Section 7.15 |
| 7.16   | RG         | Research Administration  
NCHRP and Pooled Funds (Items 6.1 & 6.3) | $101,203 | $25,301 | $126,504 | Ned Parrish |

**TOTAL SPR RESEARCH**  
$1,519,741 | $210,966 | $1,730,707 |
## PART III: TOTAL PLANNING AND RESEARCH

### PROGRAM FUNDING SUMMARY

<table>
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<tr>
<th>Work Program Task</th>
<th>Federal</th>
<th>State Match</th>
<th>FY22 Work Program</th>
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<td><strong>SPR Planning</strong></td>
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<tr>
<td><strong>Part A</strong></td>
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<td><strong>Indirect</strong></td>
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