



District Department of Transportation

State Planning & Research Part II Work Program

Research, Development, & Technology
Transfer Program

**Fiscal Year 2019
for the period March 18 – September 30, 2019**

**Revision 2
July 2019**

In Cooperation with the US Department of Transportation
and Federal Highway Administration

SPR Part II Work Program

Research, Development, & Technology Transfer Program

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Overview

Title 23 of the United States Code provides federal funding for state research programs by requiring that at least a minimum of ½ percent of certain federal funds apportioned to a state be used for research, development, and technology transfer (RD&T) programs. These activities involve research on new areas of knowledge, adapting findings to practical application by developing new technologies and the transfer of these technologies, including the process of dissemination, demonstration, training, and adoption of innovations by users.

The mission of the District Department of Transportation's (DDOT) Research, Development, & Technology Transfer Branch (Research Program) is to facilitate and promote innovative transportation research, implementation, outreach, and technology transfer activities in order to improve the efficiency and effectiveness of DDOT's service delivery. To do this, the Research Program convenes and guides a structured approach to research, provides research material, and manages research projects.

This work program identifies the work to be accomplished and cost estimates by activity for the use of State Planning & Research (SPR) funds for research purposes during 2019. These funds will be expended between the date of obligation (targeted for March 2019) and September 2019.

DDOT Statement of Compliance

I, Jim Sebastian, Associate Director of the Planning & Sustainability Division of the District Department of Transportation, do hereby certify that the District is in compliance with all requirements of 23 U.S.C. 505 and its implementing regulations with respect to the research, development, and technology transfer program, and contemplate no changes in statutes, regulations, or administrative procedures which would affect such compliance.

Jim Sebastian
Associate Director
Planning & Sustainability Division
District Department of Transportation

Proposed Funding

01 Research Program Administration

	Total Estimated Cost FY19	Federal Portion FY19
01 Research Program Administration	\$189,237	\$151,390

Funding Category Objectives

The Research Branch is responsible for encouraging, managing and implementing all Research Program activities. The branch is comprised of a program administrator, a program specialist, and a librarian. This work program covers 6 months of fully loaded staff salaries (March-September) for all three staff.

A key focus for the Research Program staff in FY2019 will be on preparing the program for a successful FY2020. Critical activities for this are:

- Completing and closing out projects from prior work programs
- Closing out earlier work program federal aid projects (FAPs) as projects complete
- Finalizing the revised Research Manual
- Preparing for a peer exchange as part of the FY2020 program
- Conducting the FY2020 call for research projects in summer 2019

Staff will continue to support core program activities funded through this budget, namely:

- Monitoring active research projects from prior work programs
- Administering the university support contract with Howard University
- Managing the research internship program
- Managing the DDOT Library and library services
- Coordinating the TRB relationship
- Supporting agency research and innovation efforts, through the State Transportation Innovation Council and Every Day Counts initiatives, market scans, and assisting with research funding applications as appropriate (e.g. the recent FHWA Notice of Funding Opportunity for automated driving system demonstration grants)
- Conducting internal research

Project 2019-01-a

Title: Research Program Administrator

The Research Program Administrator oversees the development, coordination, management, and administration of the federally funded SPR Part II transportation research program.

Project 2019-01-b

Title: Research Program Specialist

The Research Program Specialist assists in the development, coordination, management, and administration of the federally funded SPR Part II transportation research program.

Project 2019-01-c

Title: DDOT Librarian

The DDOT Librarian manages the DDOT Library and provides library services to the agency, including assisting with literature reviews and cataloging and making available DDOT's research (as well as national research).

Project 2019-01-idcr

Title: Indirect Cost Rate

Per the agency's agreement with FHWA, there is an 8.5% indirect cost rate (IDCR) applied to all project costs.

02 Other Direct Research Program Administration

	Total Estimated Cost FY19	Federal Portion FY19
02 Other Direct Research Program Administration	\$0	\$0

Funding Category Objectives

This funding category is used to support travel for research staff and projects, and to purchase any equipment or supplies needed for the program's overall activities.

No budget is allocated to this category in FY2019.

03 Academic and Administrative Program Support

		Total Estimated Cost FY19	Federal Portion FY19
03	Academic and Administrative Program Support	\$244,125	\$195,300

Funding Category Objectives

The Research Program utilizes the resources of area universities to expand the program’s capacity and to support transportation research at those universities. HUTRC leads a consortium of local universities to support the Research Program. The funding category covers compensation for the staff at HUTRC for their time to support DDOT and administer the consortium and the internship program.

Project 2019-03-a

Title: Transportation Research, Evaluation and Technology Development

University costs are assumed to include applicable overhead rates and fringe benefits for staff salaries. Typically, the program support staff salaries are paid from this budget area. Where university staff members paid from this budget are engaged as Principal Investigators on research projects, those projects will be conducted at a reduced cost.

Project 2019-03-b

Title: Transportation Research Internship Program

The internship program is administered by the university, with students paid by the university and hosted at DDOT. The university handles all recruitment and hiring associated with the internship program. The budget for the internship program is based on ten full time interns during the summer and three part-time interns during the semester.

Project 2019-03-idcr

Title: Indirect Cost Rate

Per the agency’s agreement with FHWA, there is an 8.5% indirect cost rate (IDCR) applied to all project costs.

04 Collaborative Research Efforts

	Total Estimated Cost FY19	Federal Portion FY19
04 Collaborative Research Efforts	\$66,670	\$66,336

Funding Category Objectives

The Research Program pays the costs for TRB dues and contributes to Pooled Fund projects. DDOT is currently committed to two pooled fund studies. These projects are not obligated as part of the obligation process at DDOT but instead are transferred to the lead state or FHWA and obligated by that agency. Both pooled funds are approved for 100% SPR funding, so no match is shown here.

Project 2019-04-a

Title: TRB Dues

In error TRB received two payments of \$70,688 for DDOTs annual dues in FY2018. TRB credited one of the payments toward the FY 2019 TRB Dues, which covered the period 7-1-19 – 6-30-19. The actual amount of the dues was \$72,227. They reduced the amount paid by DDOT by what was owed bringing the balance owed for FY 2019 to \$1,539. This covered the period 7-1-17 – 6-30-18.

At the request of the Associate Director, Jim Sebastian, TRB Dues for FY2019/FY2020 should be taken out of the FY2019 conditionally approved Research Work Plan. The period covered is July 1, 2019 – June 30, 2020.

TPF-5(315)

Title: National Accessibility Evaluation

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

TPF-5(370)

Title: Fostering Innovation in Pedestrian and Bicycle Transportation

Transportation agencies across the country are seeking ways to improve pedestrian and bicyclist safety and mobility. This TPF study will supplement existing research venues and fill an important missing gap by emphasizing short turnaround practical research on issues immediately relevant to practitioners. It will focus on bicycle and pedestrian network planning, safety, design issues, traffic control devices, and other relevant issues as designed by TPF participants.

Project 2019-04-idcr

Title: Indirect Cost Rate

Per the agency's agreement with FHWA, there is an 8.5% IDCR applied to all project costs. This does not apply to Pooled Fund studies.

05 Quick Response Projects and Literature Reviews

		Total Estimated Cost FY19	Federal Portion FY19
05	Quick Response Projects and Literature Reviews	\$27,125	\$21,700

Funding Category Objectives

The Research Program sets aside funds for quick response projects to respond to requests from upper management and literature review and market scan efforts that are too large to be conducted internally. The budget here is lower than in past years, but reflects that this budget only covers a partial year and the upcoming call for projects in FY2020 should allow for other project requests to be addressed relatively quickly.

Project 2019-05-a

Title: Quick Response Projects and Literature Reviews

These funds are not programmed in advance because quick response and literature review projects are by their nature uncertain at the time of work plan development. The use of these funds requires approval from DDOT leadership (PSD Associate Director, DDOT Chief of Staff, or DDOT Director).

Project 2019-05-idcr

Title: Indirect Cost Rate

Per the agency's agreement with FHWA, there is an 8.5% IDCRC applied to all project costs.

Project 2015-05-a

Title: Quick Response Project 1: Pedestrian Sign Evaluation

This is a quick response project that remains active from a prior year. This project will evaluate a deviation from the standard MUTCD signage for pedestrian crossings. The request for experimentation was approved by FHWA in September 2017 based on the proposal developed by Howard University.

Project 2017-05-c

Title: Quick Response Project 3: PUDO Zone Camera Data Evaluation

This is a quick response project that remains active from a prior year. This project is supporting an evaluation of the pick-up/drop-off (PUDO) zone pilot implemented on Connecticut Avenue starting in late 2017. The funds are being used to analyze camera data collected on the corridor for before and after analysis. The rest of the evaluation is being conducted internally by research and policy staff.

10 Research Projects

	Total Estimated Cost FY19	Federal Portion FY19
10 Research Projects	\$0	\$0

Funding Category Objectives

Research projects are selected through the process described in the Research Manual. A call for projects is typically issued annually and projects are ranked by the Research Advisory Committee (RAC), a group comprised of the agency's senior leadership.

In FY2019, no call for projects was issued as the Research Program focused on closing out older projects from prior years and revising program processes to prepare for future calls.

Projects that remain active from prior years are described below.

Project 2017-11

Title: Vision Zero Risk Analysis Model

The main objective of this proposal is to develop a comprehensive Vision Zero Risk Analysis Model which will measure risk using a multivariate statistical analysis superior to the Composite Crash Index model currently used in the Highway Safety Improvement Program. Such a model will work to effectively reduce crashes and fatalities for *all* roadway-users within the District, expanding beyond motor vehicle users to include cyclists and pedestrians by using a forward thinking methodology to more accurately predict and identify high risk areas that should be a priority for DDOT to address.

Currently, DDOT's policy, safety, and technology offices do not have staff dedicated to this task. The undertaking of such a task as a Research Project will build from existing expertise at DDOT, including the existing Crash Composite Index and Highway Safety Improvement Program, and the work of the Highway Safety Office to produce a predictive model. An end-product will include utilizing a multivariate analysis, geo-spatial analysis (GIS), and predicative modeling in combination with transportation safety knowledge. Fortunately, DDOT has already collected an expansive amount of applicable data, thus the Vision Zero Risk Analysis model would focus more on the analysis portion.

Project 2017-15

Title: Development of Applications for Safe Intersection Crossing Assistance

Intersection crossing is increasingly a challenge for distracted pedestrians, seniors, and individuals with disabilities (e.g., low vision or mobility issues). DC's Vision Zero Initiative seeks to reach zero fatalities and serious injuries to travelers of DC's transportation system, through more effective use of data, education, enforcement, and engineering. Part of both Vision Zero and DDOT's long-range transportation plan, MoveDC, is a commitment to increase pedestrian and cyclist safety at intersections.

SPR Part II Work Program

As the Nation’s Capital, DDOT receives numerous vendor pitches for emerging technology solutions. However, because of the nascent nature of these solutions, their potential benefit to the agency is often difficult to assess and, if deemed suitable, often difficult to champion toward implementation.

Toward a more strategic approach for testing applications of innovative solutions for Vision Zero, DDOT intends to implement a sandbox for one or more pilot or demonstration projects that use emerging technology solutions to improve pedestrian and/or cyclist safety in intersections. The sandbox will encompass a single intersection or corridor within the District.

This project will implement the sandbox with several emerging solutions and evaluate the outcomes. It is expected that many of the solutions will still be in research and development phases and that this project can help to shape those products while also providing valuable lessons learned for DDOT staff.

Summary

The table below summarizes the funding for the Research Program, as provided by the SPR program for FY2019. Appendix A provides a breakdown of funding by project for each funding category.

ID	Funding Category	Total Estimated Cost FY19	Federal Portion FY19
01	Research Program Administration	\$189,237	\$151,390
02	Other Direct Research Program Administration	\$0	\$0
03	Academic and Administrative Program Support	\$244,125	\$195,300
04	Collaborative Research Efforts	\$140,568	\$125,454
05	Quick Response Projects and Literature Reviews	\$27,125	\$21,700
10	Research Projects	\$0	\$0
Total		\$601,055	\$493,844

1.0 Appendix A. Research Funding Summary Index

		Total Estimated Cost FY19	Federal Portion FY19	Total Prior Contribution	Payments Remaining
01	Research Program Administration	\$189,237	\$151,390		
2019-01-a	Research Program Administrator, CS-14 100%	\$68,267	\$54,613	Annual	Annual
2019-01-b	Research Program Specialist, CS-13 100%	\$59,502	\$47,601	Annual	Annual
2019-01-c	DDOT Librarian, CS-11 100%	\$46,644	\$37,315	Annual	Annual
2019-01-idcr	Indirect Cost Ratio	\$14,825	\$11,860	Annual	Annual
02	Other Direct Research Program Administration	\$0	\$0		
2019-02-a	Supplies and Equipment	\$0	\$0	Annual	Annual
2019-02-b	Travel & Training RDT branch	\$0	\$0	Annual	Annual
2019-02-idcr	Indirect Cost Ratio	\$0	\$0	Annual	Annual
03	Academic and Administrative Program Support	\$244,125	\$195,300		
2019-03-a	Transportation Research Administrative Support	\$125,000	\$100,000	Annual	Annual
2019-03-b	Research Internship Program	\$100,000	\$80,000	Annual	Annual
2019-03-idcr	Indirect Cost Ratio	\$19,125	\$15,300	Annual	Annual
04	Collaborative Research Efforts	\$140,568	\$125,454		
2019-04-a	TRB Dues	\$75,437	\$60,349	Annual	Annual
TPF-5(315)	National Accessibility Evaluation	\$40,000	\$40,000	Annual	Annual
TPF-5(370)	Fostering Innovation in Pedestrian and Bicycle Transportation	\$25,000	\$25,000	Annual	Annual
2019-04-idcr	Indirect Cost Ratio	\$131	\$105	Annual	Annual
05	Quick Response Projects and Literature Reviews	\$27,125	\$21,700	\$115,126	
2019-05-a	Quick Response Projects and Literature Reviews	\$25,000	\$20,000	Annual	Annual
2019-05-idcr	Indirect Cost Ratio	\$2,125	\$1,700	Annual	Annual
2015-05-a	Pedestrian Sign Evaluation	\$0	\$0	\$110,135	8
2017-05-b	PUDO Zone Camera Data Evaluation	\$0	\$0	\$4,991	3
10	Research Projects	\$0	\$0	\$338,250	
2017-11	Vision Zero Risk Analysis Model	\$0	\$0	\$175,500	13
2017-15	Development of Applications for Safe Intersection Crossing Assistance	\$0	\$0	\$162,750	18

Appendix B. Regulatory Compliance Checklist

REGULATION REQUIREMENT	23 CFR 420 Section	DDOT Compliance
The Program must be implemented in compliance with its approved work program.	117, 205	x
Annual approval of State DOT Research and Development Work Program.	111, 115, 209	Pending
Documentation that describes the State DOT's management process and the procedures for selecting and implementing RD&T activities must be developed by the State DOT and submitted to the FHWA Division office for approval. Significant changes in the management process must be submitted by the State DOT to the FHWA for approval.	115, 209	Updated and in review
Periodic reviews of the State DOT's Management Process of the RD&T.	209	x
The State DOT's RD&T work program must, as a minimum, consist of a description of RD&T activities to be accomplished during the program period, estimated costs for each eligible activity, and a description of any cooperative activities including the State DOT's participation in any transportation pooled fund studies and the NCHRP. The State DOT's work program should include a list of the major items with a cost estimate for each item. The work program should also include any study funded under a previous work program until final report has been completed for the study.	207	x
The State DOT's RD&T work program must include financial summaries showing the funding levels and share (Federal, State, and other sources) for RD&T activities for the program year.	207	x
The State must use an interactive process for identification and prioritization of RD&T activities for inclusion in an RD&T work program.	209 (a)(1)	x
The State must use all FHWA planning and research funds set aside for RD&T activities to the maximum extent possible.	209 (a)(2)	x
The State must have procedures for tracking program activities, schedule, accomplishments, and fiscal commitments	209 (a)(3)	x
The State must use support and use of the TRIS database for program development, reporting, and input of the final report information.	209 (a)(4)	x
The State must have procedures to determine the effectiveness of the State DOT's management process in implementing the RD&T program, to determine the utilization of the State DOT's RD&T outputs, and to facilitate peer exchanges of its RD&T Program on a periodic basis	209 (a)(5)	x
The State must have procedures for documenting RD&T activities through the preparation of final reports. As a minimum the documentation must include the data collected, analyses performed, conclusions, and recommendation. The State DOT must actively implement appropriate research findings and should document benefits.	209 (a)(6)	x
The State must participate in peer exchanges of its RD&T management process and other State DOTs' programs on a periodic basis. Note: FHWA has guidance defining "period" as at least once every 5 years for a minimum of 2-3 days.	209 (a)(7)	Coming in 2020

REGULATION REQUIREMENT	23 CFR 420 Section	DDOT Compliance
The State DOT must include a certification that it is in full compliance with the requirements of this subpart in each RD&T work program. Note: the language to be used for this certification is specified in the regulation.	209	x
Suitable reports that document the results of activities performed with FHWA planning and research funds must be prepared by the State DOT or subrecipient and submitted for approval by the FHWA Division Administrator prior to publication. The FHWA Division Administrator may waive this requirement for prior approval.	117 (e)	x
The FHWA's approval of reports constitutes acceptance of such reports as evidence of work performed but does not imply endorsement of a report's findings or recommendations. Reports prepared for FHWA-funded work must include appropriate credit references and disclaimer statements.	117 (e)	x
The State DOT must administer the RD&T program consistent with their overall efforts to implement section 1001(b) of The Transportation Equity Act for the 21st Century and 49 CFR part 26 regarding disadvantaged business enterprises.	121 (c)	x
The nondiscrimination provisions of 23 CFR 200 etc. with respect to Title VI of the Civil Rights Act of 1964 and the Civil Rights Restoration Act of 1987 apply to all programs and activities of recipients, subrecipients, and contractors receiving FHWA research funds, whether or not those programs or activities are federally funded.	121 (h)	x
Procedures for the procurement of property and services with FHWA research funds must be in accordance with 49 CFR and/or other applicable regulations.	121 (j)	x
(A) Costs are eligible for FHWA participation provided that the costs: 1) are for work performed for activities eligible under the Section of title 23 applicable to the class of funds, 2) are verifiable from the State DOT's or the subrecipient's records, 3) are necessary and reasonable for the proper and efficient to accomplish of project objectives and meet the other criteria for allowable costs in the applicable cost principles, 4) are included in the approved budget or amendments thereto, 5) were not incurred prior to FHWA authorization, and (B) indirect costs are allowable if supported by a cost allocation plan and indirect cost proposal prepared, submitted, and approved as required	113	x
The State DOT must submit performance and expenditure reports, including a report from each subrecipient that contain as a minimum: (i) Comparison of actual performance with established goals; (ii) Progress in meeting schedules; (iii) Status of expenditures in a format compatible with the work program, including a comparison of budgeted (approved) amounts and actual costs incurred; (iv) cost overruns or underfunds; (v) approved work program revisions; and (vi) other pertinent supporting data.	117 (b)	x