Guidelines for Preparation of Research Project Reports

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Office of Performance-based Management and Research
GEORGIA DOT | 15 KENNEDY DRIVE, FOREST PARK, GA 30297

Contents

Guidelines for Preparation of Research Project Reports

Part I – General Information

These guidelines are for the preparation of research project reports prepared by or for the Georgia Department of Transportation (GDOT). The information contained herein is provided to uniformity in research reports and to ensure that applicable GDOT and Federal Highway Administration (FHWA) regulations are followed. This guide will help to promote a more efficient procedure in administering research project reports. This guide is mostly pertinent to the Principal Investigator (PI), the GDOT Project Manager, and the GDOT Technical/Implementation (T/I) Manager, who work closely together throughout the project. Any interested persons and subject-matter experts (SME) may be involved.

The guide consists of two parts. The first part contains general information on reports required for all GDOT research projects, and the second part contains detailed instructions for preparing final reports. Any questions on reports should be directed to the Office of Performance-based Management and Research (OPMR).

All research projects require the preparation, submittal, review, and approval of appropriate written reports to document (1) the project's objectives, activities, findings, conclusions, and recommendations and (2) allow other appropriate persons to understand, evaluate, and duplicate the research. The reporting requirements vary from one research project to another. The type of reports to be prepared for each project, along with the due dates, are outlined and discussed in the research proposals and task orders. Please refer to the GTI website (http://gti.gatech.edu/content/working-gdot) for research proposal guidelines.

- *Interim or Phase-based reports* may be required for a long-term project to report on various work phases as they are completed, thus allowing prompt dissemination and implementation of project results. Interim reports should follow the formatting as outlined for the final reports (excluding front matter). However, as interim or phase-based reports may be unique to a project, alternate formatting may be allowed with prior approval by GDOT

- *Quarterly Progress Reports* are mandatory for all research projects. They provide updates on the research work during the reporting quarter, as well as a tentative plan for the next reporting quarter. They are intended to keep all stakeholders (e.g. Principal Investigators, Project Manager, Technical/Implementation Manager) abreast of the work status so that the project can be completed in a timely manner through their proactive coordination. In general, each report should include identification information for the research project (e.g. project number, title, author, sponsor, reporting period), progress, achievements, issues, and recommendations/solutions for these issues in the next reporting period, if applicable. Please refer to Part II of this document for more details on preparation of Quarterly Progress Reports.

- *Final reports* are mandatory for all research projects. They contain comprehensive information, such as research need, methodology, activities, findings, conclusion, and recommendations. throughout the entire period. Please refer to Part III of this document for more details on preparation of final reports.

  The final report is usually one of the key deliverables of a research project. Therefore, these guidelines aim to provide instructions on preparing a well-written final report that is compliant with GDOT and FHWA regulations.

Part II – Quarterly Progress Reports

GDOT requires that a Quarterly Progress Report (QPR) be submitted for each ongoing project within two weeks following the end of a calendar quarter. Requirements for the submittal of a QPR are summarized below, along with the administrative actions that will be taken by OPMR in response to late delivery or non-delivery of the quarterly reports.

Progress Report Quarters, Submittal Deadlines, and Naming Protocol

REPORT QUARTER	SUBMITTAL DEADLINE	NAMING PROTOCOL
January 1 – March 31	April 15	RP ##-##_20YY_Q1
April 1 – June 30	July 15	RP ##-##_20YY_Q2
July 1 – September 30	October 15	RP ##-##_20YY_Q3
October 1 – December 31	January 15	RP ##-##_20YY_Q4

Quarterly Progress Report Submittal

Reports must be electronically submitted to the GDOT Project Manager and Technical/Implementation Manager by the submittal deadline. Hardcopies via U.S. mail are acceptable in addition to the electronic copy. Regardless of delivery method, a brief explanatory message should accompany the report, which should be provided as an attachment in PDF format. Reports should follow the guidelines shown in Exhibit A, which includes a sample report.

Late- or Non-Delivery of Progress Reports

As detailed above, Quarterly Progress Reports are expected to be submitted no later than two weeks after the end of the quarter. If a late submittal is necessary, it must be justified in an email from the Principal Investigator (PI) to the GDOT Project Manager (PM) and approved by OPMR management one week before the deadline. If a progress report is not submitted by the deadline, the PM will contact the PI. If the requested report is not received within one week thereafter, all invoices will be held until the report is received. The following instructions explain how to complete the standard Research Project Progress Report form. Detailed instructions for each part of the report are provided herein, and an example of a properly completed report is included after the instructions.

BLOCK	INSTRUCTION
Report No.	Number reports consecutively.
Date	Date progress report is prepared.
Report Period	If the project begins within a reporting period, the first progress report will cover the time from the beginning of the project through the end of that particular period. The dates for the reporting period should be given in this block.
Project Number	The Georgia DOT research project number.
Project Title	Project title as contained in the research project proposal.
Research Agency	List performing research agency or agencies.
Principal Investigator(s)	List Principal Investigator(s).
Starting Date	Date project officially began. Obtain this date from the date of contract or notice to proceed, which must match the date of contract.
Completion Date	Date project to be completed.
Total Months	Total project duration in months.

Total Time Expended	Based on the total project duration, the total months and percent of time that has elapsed from the beginning of the project through the end of the reporting period. The total project time includes any approved time extensions.
Funding Source	Indicate if funding source is State Planning & Research (SP&R), 100% Federal, or otherwise. SP&R is applicable to the majority of projects and should be used as the default source unless GDOT specifies otherwise. The term "SP&R" should be entered in this part of the report to indicate that funding source.
Total Funds Authorized	Total funds authorized for the research project. Obtain from research project contract including any amendments providing additional funds. If funds are used from two or more sources, indicate by using agency abbreviations in front of the amounts authorized for each agency.
Funds Expended in Report Period	Funds expended during the report period. The Principal Investigator(s) should obtain the correct dollar amount from the invoices submitted by their organization.
Funds Expended Total	Total project funds expended from the beginning of the project through the reporting period.
Objectives	A brief description of the project objectives, usually taken from the proposal. It should give enough information so that a person not familiar with the project can understand the work.
Status	A brief summary of the progress made on the project from the beginning of the project to the beginning of the reporting period. The progress of each task, as well as the project itself, should be approximated in percentage of completion.
Progress in Report Period	This item is one of the most important in the report and should contain sufficient detail on project work completed during the period. Each research task or phase as given in the research project proposal should be listed, along with a description of the work completed on each. Include sufficient information so that a reviewer need not refer to the project proposal to understand the work statement. If no work was done on a particular task or phase, list the item and state "No Activity." A work plan schedule may be added to the report on a separate page for complex projects having several research tasks.
Work Planned for Next Report Period	Describe proposed activity for each task or phase, as appropriate, for the next period, using additional sheets as necessary.
Findings	Describe any significant technical information, findings, or implementation resulting from work conducted during the period or to date.
Anticipated Problems/Course of Action	Describe any administrative or technical problems in the conduct of the project. Explain the need for any anticipated or imminent changes in project scope, time, or cost.

At the end of the report include the name and title of the person preparing the report.
Example: See Exhibit A

Part III – Final Reports

This section provides guidance relating to the report format and various elements of the report. It is mostly referenced from the FHWA[1] Research Publication Development Tools website and "*Chapter 5: Preparing a Research Report*" of the Turner-Fairbank Highway Research Center (TFHRC) Communication Reference Guide (CRG). Any items not covered herein are left to the discretion of the writer. OPMR can be contacted for further guidance.

A. Contents and format

The table below details the main contents of a research report:

SECTION	CONTENTS

Covers	Front Cover (see Exhibit B: Optional Cover Page Template). The authors can design their own front cover for the final report, as long as they include essential information, such as project number, title, publication date, sponsoring agencies (e.g. GDOT, FHWA).
	
	 Technical Report Documentation Page (Form DOT F 1700.7 (8-72). See Exhibit C.
	     Template with Instructions
	     Example
	     Guidelines

Front Matter	Title page (See Exhibit D) Preface* Metric Conversion Chart (Exhibit E) Table of Contents List of Figures (required for reports containing figures) List of Tables (required for reports containing tables) List of Abbreviations and Symbols*
Body of Report	Introduction Main text separated into chapters Conclusion Recommendations*
Back Matter	Appendices* Glossary* Acknowledgements* References Bibliography* Index*
Back Covers	Blank or with optional design.

*Optional

Please refer to CRG (Chapter 5) for more details, including formatting, such as type arrangement and typeface, References and Bibliography, pagination, Table of Contents (required for most reports of more than 10 pages and all reports of 30 or more pages), headings, figures and tables, equations and formulas, lists, footnotes, and caption.

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[1] The Federal Highway Administration, U.S. Department of Transportation

B. Report submittal, review, approval, printing, and distribution

Submittal	A draft version of the final report is submitted three (3) months before the project end date to OPMR, other relevant GDOT offices, and subject matter experts (SMEs) for their review. The draft final report must be edited by a professional text editor to ensure its compliance with these guidelines before submittal. The project Principal Investigator (PI) will be required to demonstrate that this editing has been performed.

Submittal of drafts must be electronic (via email or a filesharing service/device), although reviewers might request hardcopies for review. Final reports must be submitted both electronically and in hardcopies identical to the electronic version; hence, they must be printed in color with high quality resolution and contrast. |
| **Review** | The review process normally takes three months. The Project Manager and the T/I Manager are the primary reviewers of the report. Optional reviewers are any interested person or subject-matter experts (SME) who could offer further insight into the report quality.

It is recommended that the draft report be first reviewed by the T/I Manager or an SME from the end-using GDOT office for which the research project was conducted. This ensures that the report addresses all of the technical requirements laid out in the contract. Their feedback will be discussed with the PI's in written format (e.g. via email, comments on the electronic and/or hardcopy of the draft).

The Project Manager will continue the review process after the feedback from the end-using office has been addressed. Discussion and revision will continue until all parties agree that the report is now complete and no further revision is necessary. |
Approval	The approval of the report and acceptance for its publication are given in an email or letter transmitting review comments to the researcher(s).
Printing	The project contract indicates the printing responsibilities, procedures, format, and number of hardcopies of the approved final report. Also, the PI(s) will submit the electronic version of the approved/finalized report in Pdf format via email or a file-sharing service/device.
Archiving and Distribution	The archiving and distribution of the reports follows GDOT protocols.

Part IV - Exhibits

Exhibit A: Example of Quarterly Progress Report

	Report No. 3	**Date**: 4/15/19
GDOT Georgia Department of Transportation **RESEARCH PROGRESS REPORT**	**Report Period**: Q1, 2019 From: 1/1/19 To: 3/31/19	

Project No. RP 18-29	**Project Title:** Transportation Performance Management for Systems Operations [Phase I]		
Research Agency (s): Georgia Tech Research Corporation	**Principal Investigator(s):** Adjo Amekudzi-Kennedy, Georgia Institute of Technology		
Starting Date: July 23, 2018	**Completion Date:** June 1, 2019	**Total Months:** 10.25	**Time Expended** Months = 8.25 Percent =80%
Funding Source (s): SP&R	**Funds Authorized:** $80,000		**Funds Expended** *Report Period* *Total* $47,345.86 $62,094.35

Objectives/Tasks:
This research will enhance TSMO capabilities at GDOT to: (1) respond to the MAP-21/FAST Act requirements for target setting and performance reporting (short term, 6 months), and (2) engage in enhanced systematic improvement of transportation system performance (long term, 1 year plus).

Status:
Task 1 Deliverable: Map of current GDOT TSMO decision-making/support process: 100% complete
Task 2 Deliverable: Report on best/effective TSMO practices: 100% complete
Task 3 Deliverable: Report on improvements for next-level TSMO: 100% complete
Task 4 Deliverable: Alpha version of TSMO tools: 45% complete

Progress this Reporting Period:
Task 1 Deliverable: Completed report on current GDOT decision-making/support process for TSMO.
Task 2 Deliverable: N/A
Task 3 Deliverable: Completed report on improvements for next-level TSMO at GDOT.
Task 4 Deliverable: (1) Continued study of available data sources and development of algorithms for calculating PM3 measures. Alpha version of tools will use fixed speed limits, which may be expanded to variable speed limits for subsequent versions of tools. (2) Identified notable gaps in December 2018 NPMRDS data.

Work Planned for Next Reporting Period:
Task 1 Deliverable: None
Task 2 Deliverable: None
Task 3 Deliverable: None
Task 4 Deliverable: (1) Review gaps in data with NPMRDS Support Team. (2) Continue to develop algorithms for calculating PM3 measures. (3) Begin to package tools and document workflow.

Findings:
(1) TSM&O best practices reflect importance of approaching TSM&O from tactical, programmatic and strategic levels through agency business processes and formal documents. (2) Tools must be configured to draw from several datasets.

Anticipated Problems/Course of Action:
None to report.

Progress Report Completed by:
Adjo Amekudzi-Kennedy, Ph.D. (PI)

GLOSSARY OF TERMS
MAP-21: Moving Ahead for Progress in the 21st Century
FAST Act: Fixing America's Surface Transportation Act
ITS: Intelligent Transportation Systems
NPMRDS: National Performance Management Research Data Set
TIM: Technical Implementation Manager
TSMO: Transportation Systems Management & Operations

Exhibit B: Optional Cover Page Template

GEORGIA DOT RESEARCH PROJECT #XX-YY
Final Report

PROJECT TITLE
Author(s)

Office of Performance-based Management and Research

15 Kennedy Drive | Forest Park, GA 30297

Month Year

Exhibit C: Technical Report Documentation Page

<div align="center">

TECHNICAL REPORT DOCUMENTATION PAGE

</div>

General instructions: To add text, click inside the form field below (will appear as a blue highlighted or outlined box) and begin typing (10 pt Times New Roman). The instructions will be replaced by the new text. If no text needs to be added, remove the form field and its instructions by clicking inside the field, then pressing the Delete key twice. **One page is the recommended length for this Page**. **Please remove these instructions before completing form***.*

1. Report No. FHWA-GA-Last two digits of calendar year-Four digits of project number.	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A
4. Title and Subtitle Enter title and subtitle (use mixed case with initial caps for first word in title and subtitle) with volume and part numbers, if applicable.		5. Report Date Enter same date as is on the report cover. Enter full publication date, including month and date, if available, and full year. Example: June 5, 2014 or June 2014 or 2014
		6. Performing Organization Code N/A
7. Author(s) Enter name(s) of person(s) responsible for writing the report, performing the research, or credited with the content of the report. Form of entry is first name, middle initial (if applicable), last name, and any additional qualifiers. Primary author is listed first. After each author name, enter ORCID (https://orcid.org/) URL, when available. Example: Josiah Carberry, Ph.D. https://orcid.org/0000-0002-1825-0097		8. Performing Organization Report No. Enter any/all unique alphanumeric report numbers assigned by the performing organization, if applicable.
9. Performing Organization Name and Address Enter the name and address of the organization(s) performing the research.		10. Work Unit No. N/A
		11. Contract or Grant No. Enter the number of the contract, grant, and/or project number under which the report was prepared. Specify whether the number is a contract, grant, or project number. Example: PI# 001234
12. Sponsoring Agency Name and Address Enter name and address of the organization(s) financially responsible for the work. After each agency name, enter funding type (e.g. SPR). Example: Missouri Department of Transportation (SPR)		13. Type of Report and Period Covered Enter the type of report (e.g. final, draft final, interim, quarterly, special, etc.) followed by the dates during which the work was performed. Example: Final Report (June 2012-June 2014)
		14. Sponsoring Agency Code N/A

15. Supplementary Notes

Conducted in cooperation with the U.S. Department of Transportation, Federal Highway Administration.

Enter information not included elsewhere, such as translation of (or by), report supersedes, old edition number, alternate title (e.g. project name), hypertext links to documents or related information in the form of URLs, PURLs (preferred over URLs - https://archive.org/services/purl/help), DOIs (https://www.doi.org/), insertion of QR codes, copyright or disclaimer statements, etc. Edit boilerplate FHWA statement above if needed.

16. Abstract

Enter a brief factual summary (200-350 words) of the most significant information, including the purpose, methods, results, and conclusions of the work. When appropriate, the abstract should include advice on how the results of the research can be used. For guidance, please see ANSI/NISO Z39.14-1997 (R2015) Guidelines for Abstracts (https://www.niso.org/publications/ansiniso-z3914-1997-r2015-guidelines-abstracts).

17. Key Words	**18. Distribution Statement**
Enter words, terms, or phrases that identify important topics in the report. When possible, terms should be selected from the Transportation Research Thesaurus (TRT) (http://trt.trb.org) in addition to terms not found in the TRT.	No restrictions. This document is available through the National Technical Information Service, Springfield, VA 22161. Enter any other agency mandated distribution statements. Remove NTIS statement if it does not apply.

19. Security Classif. (of this report) Unclassified	**20. Security Classif. (of this page)** Unclassified	**21. No. of Pages** Enter the total number of pages in the report, including both sides of all pages and the front and back covers.	**22. Price** Free

Form DOT F 1700.7 (8-72)   Reproduction of completed page authorized

Exhibit D: Example Title Page for Contractors

GDOT Research Project XX-YY

Title of Project (only if different from Title of Report)

Final (or Interim) Report

TITLE OF REPORT IN CAPITALS

By
Name
Title
Name of Contractor

Contract with
Georgia Department of Transportation

In cooperation with
U.S. Department of Transportation Federal Highway Administration

Month Year

The contents of this report reflect the views of the author(s) who is (are) responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Georgia Department of Transportation or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Exhibit E: Metric Conversion Chart

SI* (MODERN METRIC) CONVERSION FACTORS				
APPROXIMATE CONVERSIONS TO SI UNITS				
Symbol	**When You Know**	**Multiply By**	**To Find**	**Symbol**
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
		NOTE: volumes greater than 1000 L shall be shown in m^3		
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
		TEMPERATURE (exact degrees)		
^oF	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	^oC
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m^2	cd/m^2
		FORCE and PRESSURE or STRESS		
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa
APPROXIMATE CONVERSIONS FROM SI UNITS				
Symbol	**When You Know**	**Multiply By**	**To Find**	**Symbol**
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
		AREA		
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
		VOLUME		
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.314	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
		MASS		
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
		TEMPERATURE (exact degrees)		
^oC	Celsius	1.8C+32	Fahrenheit	^oF
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/m^2	candela/m^2	0.2919	foot-Lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2