



OFFICE OF MANAGEMENT & BUDGET

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August 16, 2023

Mr. Peter Alviti
Director
Rhode Island Department of Transportation
2 Capitol Hill
Providence, RI 02908

Dear Director Alviti,

The Office of Internal Audit has completed its audit of the design engineering and construction contract change order management processes performed by the Rhode Island Department of Transportation (RIDOT). The audit was conducted in conformance with the Institute of Internal Auditors (IIA) International Standards for the Professional Practice of Internal Auditing and by the authority given to the unit as stated in accordance with the Rhode Island General Laws (RIGL) §35-7.1-1 – Establishment of office of internal audit. The recommendations included herein have been discussed with members of management, and we considered their comments in the preparation of this report.

RIGL §35-7.1-10 (d), entitled *Annual and interim reports*, states that, “Within twenty (20) calendar days following the date of issuance of the management response copy of the draft audit report, the head of the department, agency, public body or private entity audited shall respond in writing to each recommendation made in the audit report...” Accordingly, management submitted its response to the audit findings and recommendations on August 7, 2023, and such response is included in this report. Pursuant to this statute, the Office may follow up regarding recommendations included in this report within one year following the date of issuance.

We would like to express our sincere appreciation to the staff of RIDOT for the cooperation and courtesy extended to the members of our team during this audit.

Respectfully yours,

Michael Sprague, CIA
Chief

cc: Internal Audit Advisory Group
Representative Marvin Abney, Chairman, House Committee on Finance
Senator Louis P. DiPalma, Chairman, Senate Committee on Finance
Steve Whitney – Senate Fiscal Advisor
Sharon Reynolds Ferland, House Fiscal Advisor

AUDIT EXECUTIVE SUMMARY

Why the OIA Did This Review

The purpose of this engagement was to perform a detailed review of RIDOT's design engineering and construction contract change order management process to:

- 1) Determine if approved change orders were in accordance with applicable requirements.
- 2) Validate the change order amounts and verify that source documents were available.
- 3) Determine if RIDOT developed and implemented policies and procedures, which provide clear guidance on the change order process.
- 4) Analyze the number and types of design engineering and construction contract change orders.

Background Information

The Rhode Island Department of Transportation (RIDOT) has been granted delegated authority by the Rhode Island Department of Administration Purchasing Division to approve reports of change (ROC) and contract addenda (CA) on Federal Highway Administration-funded road, highway, and bridge related design and construction projects.

ROCs and CAs may be required on both design or construction contracts for several reasons including alterations to existing contract quantities, modifications to plans or specifications, modifications to scope of work, differing site conditions, time extension, adding or deleting an item, and/or any other extra or additional work.

To strengthen controls, RIDOT should:

- Update policies and procedures to provide sufficient guidance for responsibilities applicable to all RIDOT units involved in the change order process.
- Update policies to reflect when the change order review memo should be sent to persons other than the Manager of Project Management.
- Update the ROC form to include the extra field and require the additional project manager signature or update the policy to reflect the current ROC form and the signature approvals in practice.
- Review change orders to ensure that adequate supporting documentation required is included.
- Ensure there are different qualified RIDOT employees signing off for each position listed on the change order authorization forms before final change order approval.
- Reconcile information in the Financial Management System to other RIDOT systems periodically.
- Implement input controls in the databases.
- Implement uniform standards for attaching information to the construction change order records in the Project Management Portal.

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Objective and Scope

This engagement is a detailed review of RIDOT's design engineering and construction contract change order management processes. Objectives of this audit are to:

1. Determine if approved change orders were in accordance with applicable requirements.
2. Validate the change order amounts and verify that source documents were available.
3. Determine if RIDOT developed and implemented policies and procedures, which provide clear guidance on the change order process.
4. Analyze the number and types of design engineering and construction contract change orders.

The scope of this audit is design engineering and construction contract change orders processed for state fiscal years 2020 through 2022¹.

Methodology

As part of our audit work, we gained an understanding of the operations of the Project Management, Financial Management, Final Review, and Construction Divisions at RIDOT related to their responsibilities for change order management. To address our audit objective, we performed the following:

- Interviewed personnel, including financial and senior management
- Researched Federal laws and regulations, Rhode Island General Laws, departmental rules and regulations, and best practices
- Tested for compliance with applicable policies, laws, rules, and regulations
- Tested samples of design engineering and construction change orders to verify costs authorized
- Obtained an understanding of the information systems used to record and manage change orders

Background

RIDOT has been granted delegated authority by the Rhode Island Department of Administration Purchasing Division to approve change orders on the Federal Highway Administration-funded road, highway, or bridge related design and construction projects. A change order is a document used to authorize changes required to the original contract.

¹ The audit period is July 1st, 2019, through June 30th, 2022.

RIDOT change orders require two separate approval forms: a Report of Change (ROC) and a Contract Addendum (CA). The ROC provides the required documentation for the execution of a CA, which officially amends the contract to pay for the changes detailed in the ROC. The ROC and CA may be required on both design engineering and construction contracts for several reasons such as:

- Adding or deleting an item
- Alterations to existing contract quantities
- Differing site conditions
- Other extra or additional work²
- Emergency work
- Modifications to plans or specifications
- Modifications to scope of work
- Time extensions

Population of Change Orders

RIDOT processed 257 design engineering contract change orders totaling \$15,271,064 between July 1, 2019, through June 30, 2022, for 115 different contracts. These 115 contracts were originally awarded to 37 different RIDOT consultants totaling \$488,682,489. (See table below.)

State Fiscal Year	# of COs Processed	Sum of \$ Amount of COs	# of Contracts	Sum of Original Contract \$ Amounts	% Increase in Sum of Original Contract Costs	# of Consultants
2020	99	\$7,522,316	77	\$313,999,172	2.4%	32
2021	84	\$2,721,644	54	\$194,196,546	1.4%	25
2022	74	\$5,027,105	51	\$216,853,444	2.3%	24
Totals³	257	\$15,271,064	115	\$488,682,489	3.1%	37

RIDOT processed 1,521 construction contract change orders totaling \$54,457,069 between July 1, 2019, through June 30, 2022, for 240 different contracts. These 240 contracts were originally awarded to 39 different RIDOT contractors totaling \$1,860,064,196. (See table below.)

State Fiscal Year	# of COs Processed	Sum of \$ Amount of COs	# of Contracts	Sum of Original Contract \$ Amounts	% Increase in Sum of Original Contract Costs	# of Contractors
2020	648	\$40,888,783	166	\$1,247,420,816	3.3%	33
2021	523	\$9,139,343	155	\$1,491,211,393	0.6%	29
2022	350	\$4,428,943	113	\$1,337,952,726	0.3%	26
Totals³ above3	1521	\$54,457,069	240	\$1,860,064,196	2.9%	39

² Extra work is defined as work required because of a significant change in the scope, complexity, or character of the services to be performed. Additional work is defined as work within the original scope of the contract that had hours/time underestimated.

³ Totals on the tables for contracts, contracted amounts and consultants do not equal the sum of the three state fiscal years because there were instances where multiple change orders were processed on one contract in the same year, change orders were processed for the same contract over multiple years and the same consultants/contractors were processing change orders for multiple contracts over multiple years.

Change Orders Tested

The OIA selected random samples of both design engineering and construction contract change orders from the populations provided by RIDOT for the audit period. See details regarding 60 design engineering and 60 construction contract change orders sampled in the table that follows.

Contract Type	Sample Contracts Tested	Sum of Dollar \$ Amount of COs Tested	Sum of Original Contract \$ Amounts	Significant Increase in \$ Amount ⁴	Significant Increase in \$ Amount (%)	Significant Increase in Time ⁵	Significant Increase in Time (%)
Design	60	\$5,834,879	\$182,950,102	11	18%	27	45%
Construction	60	\$9,997,181	\$415,817,713	3	5%	2	3%
Totals	120	\$15,832,060	\$598,767,815	14	12%	29	24%

Recommendations and Management's Responses

Policies & Procedures for Change Order Management

The OIA reviewed the available RIDOT written policies and procedures for change orders to determine if the policies have sufficient detailed guidance to ensure each employee understands their roles, obligations, and expectations for effective management and processing of design engineering and construction contract change orders. Written policies and procedures are a cornerstone of organizational controls as they set an expectation for employee behavior, responsibilities, protocols, etc. They serve as a mechanism for driving management's vision by establishing rules and guidelines for employees to follow.

The OIA's review focused on the policies and procedures of the internal units listed in the *RIDOT Policy and Procedure for Change Orders* as being involved in the change order process. The *RIDOT Policy and Procedure for Change Orders*, last revised May 31, 2018, was created to provide guidance to all RIDOT staff so that design engineering and construction contract change orders⁶ would be processed accordingly. Although the individual RIDOT units involved in the change order process may have their own set of procedures, it is the main policy and guideline used to complete the change orders.

⁴ Change orders tested that resulted in a 10% increase from the original contract dollar amount authorized were considered significant.

⁵ Change orders tested that resulted in a greater than 6-month increase in the contract time from the original end date were considered significant.

⁶ Additionally, construction change orders are to be prepared in accordance with the RIDOT Procedures for Uniform Record Keeping (PURK), Subjects 8 and 9, and the applicable unit of the RIDOT Standards and Specifications for Road and Bridge Construction (Bluebook).

Insufficient Change Order Policies for Individual RIDOT Units

The *RIDOT Policy and Procedure for Change Orders* lists Construction, Project Management, Financial Management, Final Review⁷, and the Director's Office as a part of the change order process. However, the policies and procedures as written do not sufficiently detail the responsibilities of two units, Final Review, and the Director's Office. The two units do not have separate written procedures beyond the RIDOT policy specific to their role in the change order management process.

The lack of detailed change order procedures and sufficient guidance for staff responsibilities may result in inappropriately authorized change orders, receipt of noncompliant and substandard services, unnecessary project budget increases and additional time to complete projects.

Recommendation:

Update and periodically review policies and procedures to provide sufficient guidance for responsibilities applicable to all RIDOT units involved in the change order process.

Management's Response: RIDOT will review and revise the change order policies to provide guidance for all applicable responsibilities involved in the change order process.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

Inadequate Change Order Review Memo Policy

The *RIDOT Policy and Procedure for Change Orders* states in pertinent part:

“Once negotiation of the request is complete the PM will prepare a Memo to the Manager of Project Management, to document the review of services requested.”⁸

During the review of the design engineering contract change orders, it was determined that the review memos were not always addressed to the Manager of Project Management. Seventeen of 60 design change order memos reviewed were instead addressed to the Office of Transit, Chief Engineer/Infrastructure, State Traffic Safety Engineer, or the Division Planning Administrator. This is because the policy does not reflect what happens in practice.

If the policy does not reflect the different units that may need to be addressed in the review memo, it could result in change orders not being approved by the necessary RIDOT units

⁷ The Final Review Unit at RIDOT is primarily responsible for the quality compliance and review of construction projects at closeout.

⁸ The purpose of the project manager review memo is to document the review of services requested from the consultant and to provide justification for why the change is necessary.

responsible for the project. If the memo is not sent to the proper reviewers, it could result in improper change order authorizations and delays to the project.

Recommendation:

Update policies to reflect when the review memo should be sent to persons other than the Manager of Project Management.

Management's Response: RIDOT will review and update policy regarding the review memo and indicate if memo is needed for persons other than the Manager of Project Management.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

Change Order Review Memos Not Included with Backup

It was also noted that in three of the 60 change orders selected for testing, the ROC did not include a copy of the review memo to document the review of the report of change information prepared by the consultant. The Project Manager did not adhere to RIDOT policy and prepare a review memo in these instances. Failure to prepare a memo could result in communication delays with management and change orders being approved without complete information.

Recommendation:

Adhere to RIDOT policy by including a review memo to the Manager of Project Management for all change orders.

Management's Response: RIDOT will review and update policy regarding the review memo and indicate if memo is required as part of the change order backup.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

Conflicting Policies for Change Order Approval Thresholds

The *RIDOT Policy and Procedure for Change Orders* has conflicting guidelines with the RIDOT Purchasing Unit's ROC/CA Procedures regarding the process of signing and approving construction change orders.

The *RIDOT Policy and Procedure for Change Orders* states in pertinent parts:

“Level 1: Any change orders that have all individual items at zero or less are approved by the CM, CCE, and the PM1 or PM2.

Level 2: All change orders that have any individual items or total more than zero must be approved and signed by the CM, CCE, PM1 or PM2, the PM3, and the PMM.

Level 3: Any change orders that may have any line item or total value of \$100,000 or more must be approved by the PMA.”

The RIDOT Purchasing ROC/CA Procedure states in pertinent parts:

- “- Resident Engineer, with Chief Civil Engineer approval, has authority to approve < \$25,000.00*
- Deputy Chief Engineer approval, has authority to approve between \$25,000.00 and \$50,000.00*
- Chief Engineer approval, has authority to approve between \$50,000.00 and \$100,000.00*
- If the ROC is over \$100,000 it goes to the Director’s office after Management and Services Administrator signs it.”*

The dollar value thresholds and correlating authorized staff positions⁹ are not consistent across both written policies and procedures because the Purchasing ROC/CA Procedures for the construction contract change orders are outdated. It is imperative that each employee be knowledgeable and clear on their responsibility in the change order approval process to ensure proper oversight of projects.

Recommendation:

Revise the RIDOT Purchasing Unit’s ROC/CA Procedure and *RIDOT Policy and Procedure for Change Orders* with the current criteria for the change order approval thresholds and communicate changes to the appropriate individuals.

Management’s Response: RIDOT will review and update the RIDOT Purchasing Unit’s ROC/CA Procedure and RIDOT Policy and Procedure to Change Orders to ensure both procedures have the proper and consistent criteria.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

Approval Signature Conflict

The *RIDOT Policy and Procedure for Change Orders* states that all change orders that have any individual items or total more than zero must be approved and signed by the Construction Manager (CM), the Chief Civil Engineer (CCE), two Project Managers (PM1 or PM2, PM3) and the Project Management Manager (PMM).

Of 60 construction change orders selected for testing, 49 met the criteria for the five approval signatures required; however, there were only 4 approval signatures. In each of the instances only a single Project Manager signed the ROC and there was no second Project Manager

⁹ When comparing the policies, it appears that there are different staff positions approving the change orders; however, some position titles were changed by RIDOT. For example, Resident Engineer was changed to Construction Manager.

approval signature. It was also determined that the ROC form does not have a field for the additional Project Manager signature. This shows a discrepancy between what is written in the policy and what is done in practice. RIDOT is not following the authorization policies and procedures for Level 2 construction change orders. The discrepancies between policies and change order forms can result in inconsistent processes and cause confusion.

Recommendation:

Update the policy to reflect the current ROC form and the required signature approvals in practice.

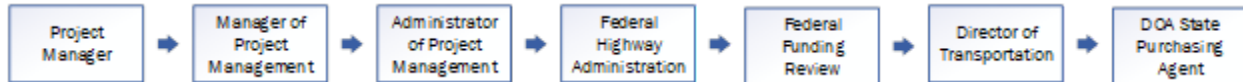
Management's Response: RIDOT will update the current ROC form for appropriate signatories as well as update the policy to reflect the signatures needed for approvals.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

Change Orders Missing Employee Approval Signatures

The *RIDOT Policy and Procedure for Change Orders* states that design engineering contract change order approval requires signatures from pertinent parties (if applicable) in the order that is depicted below:



Best practices for approvals would suggest that unique qualified individuals should be signing for each phase of the approval process.

Of the 60 change orders selected for testing, one was missing an approval signature and 16 had one RIDOT employee sign for two different approval positions/units.

- One was missing a signature from the Manager of Project Management.
- 12 were signed by the same individual for both the Manager of Project Management and Administrator of Project Management positions.
- Three were signed by the same individual for both the Project Manager and the Manager of Project Management positions.
- One was signed by the same individual for both the Federal Funding Review and Director of Transportation positions.

RIDOT did not adhere to best practices for approvals in these instances.

It is imperative that each employee be knowledgeable and clear on their responsibility involved in the change order process to ensure proper oversight of the contracts. When determining placement of responsibilities, the concept of segregation of duties should be

considered. Segregation of duties is a basic building block of internal controls and sustainable risk management. The principle is based upon sharing key process responsibilities and critical functions among more than one person or department. Without this separation, the risk of fraud or error is heightened. Ideally, the responsibilities of the individual approval signatures required should be separated.

Recommendation:

Ensure there are different qualified RIDOT employees signing off for each position listed on the change order authorization forms before final change order approval.

Management's Response: RIDOT will include in policies that different qualified RIDOT employees will sign off for each listed approval.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

Change Orders Lacked Supporting Documentation

Change orders must include supporting documentation sufficient to validate the authorized costs and explain why the change to the contract is necessary. The *RIDOT Policy and Procedure for Change Orders* states that the construction manager is required to attach backup to support the ROC and to explain why the change is necessary. Additionally, each change order is required to have a ROC checklist, which is signed by both the construction manager and area engineer to indicate that all required procedures and items are checked for completion and included as supporting documentation.

The OIA found that seven of the 60 change orders tested were lacking adequate supporting documentation.

- One was missing the change order justification by item.
- One was missing the consultant's explanation and copies of plans, drawings, and specifications, the breakout calculations, a cost analysis for new items, documentation for the negotiation, and support of a force account payment.¹⁰
- Two were missing the ROC check list.
- Three were missing a cost analysis for new items.

The construction managers assigned to the projects did not ensure that the required backup was included with the change order before submitting the change order for processing. Inadequate change order documentation may increase the risk of disputes between the contractor and RIDOT, leading to delays in the project and higher costs to the state.

¹⁰ Due to modifications to design plans, a new item of work not provided in the contract was required to be completed on a force account basis. Estimated interim funding was authorized in advance of the work using a "Bank Force Account" ROC.

Recommendation:

Review change orders to ensure that adequate supporting documentation required is included in accordance with the requirements of applicable RIDOT policy before change order approval.

Management's Response: RIDOT will review change order and ensure backup is attached for compliance to the RIDOT Policy and Procedure for Change Orders. If backup items are not required or necessary it will be indicated on the ROC checklist as to why it is not required or necessary.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

RIDOT Data Management Systems & Databases

RIDOT uses multiple management systems and databases, such as the Project Management Portal (PMP), Financial Management System (FMS), the Rhode Island Financial Accounting System, and databases created by individual units to document and track project information.

Operational and financial change order data is used by management both to make day-to-day decisions and to make long-term plans for the current and future projects. Data must be timely and reliably accessible by applicable personnel and be protected against improper maintenance, modification, or alteration. The information entered in RIDOT's data management systems and databases must be accurate to ensure proper project tracking and reporting.

Incorrect Data Entered in FMS

Two of the 60 design engineering contract change orders tested included data entry errors in FMS.

- One change order data field contained an error for an incorrect purchase order number recorded¹¹.
- One change order data field contained an error for an incorrect change order dollar authorization amount.¹²

RIDOT did not perform adequate reconciliations to ensure that FMS information is accurate. Incorrect recording of data can result in lost or misrepresented records that may cause management to rely upon and use inaccurate information or result in monetary costs to the State.

¹¹ The change order was for a time extension, so there was no financial impact.

¹² The CO dollar authorization amount recorded was zero, but per the change order was supposed to be \$265.00.

Recommendation:

Reconcile information in the Financial Management System to the change order database periodically to mitigate the risk of incorrectly recorded data fields.

Management's Response: RIDOT Purchasing will develop a process to periodically review information entered in the Financial Management System, to confirm that the information entered in the data field is accurate.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

Change Order Data Populations Did Not Reconcile

Change order information cannot be independently tracked and extracted from the state's financial management systems. As a result, RIDOT Financial Management and RIDOT Project Management both have independent databases that they use to track change orders.

When reconciling the construction contract change order population provided for the audit period by the Financial Management Unit against the one provided by the Project Management Unit, there were 11 change orders that did not reconcile. Financial Management's population was missing the change orders due to the database not detecting the change orders when extracting the report because of manual input errors. The errors occurred because the contract numbers were entered with dashes¹³. A negative impact to data integrity may influence critical operational activities and cause management to rely upon inaccurate information.

Recommendation:

Implement input controls in the Database to ensure information is not entered in error or eliminate the need for two separate databases by consolidating the Financial Management and Project Management databases into one.

Implement input controls in the Database to ensure information is not entered in error.

Management's Response: RIDOT Financial Management database will be reviewed to see if additional controls can be put in place so errors in the contract numbers cannot occur.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023

¹³ For example, 2020-CT-099 instead of 2020CT099.

Inconsistent Documentation Uploaded to the PMP

While completing the construction contract change order testing it was noted that the documentation attached to the construction contract change orders in the PMP was inconsistent across all projects. ROCs sampled had the following attachments within the system:

- 23 had the unsigned ROC, backup, and ROC checklist.
- 17 had no supporting files attached.
- 12 had the backup only attached.
- Three had the backup and ROC checklist attached.
- Two had the unsigned ROC and backup attached.
- One had only the unsigned ROC attached.
- One had only the ROC checklist attached.

Although the policies in place make note to uploading information to the PMP and the system has a place within the ROC files for the backup, there is no uniform practice for what CO backup is stored among the RIDOT construction managers, this increases the risk that information on change orders is not properly recorded to accurately analyze and report project details in the future.

Recommendation:

Implement uniform standards for attaching information to the construction change order records in the Project Management Portal.

Management's Response: RIDOT will review the need to implement uniform standards for attaching information to the construction change order records in PMP. If it is determined to implement a uniform standard the policy and procedures will be updated to reflect the change.

Responsible Party: Loren Doyle

Anticipated Completion Date: December 31, 2023