

INTERNAL AUDIT REPORT

2019

SIGNAL SHOP INVENTORY CONTROL

An Assessment of:

- Risks
- Control Design Adequacy
- Control Operating Effectiveness



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SOUTH CAROLINA OFFICE OF THE STATE AUDITOR

INTERNAL AUDIT
SERVICES

January 24, 2019

C CONTENTS

	<u>Page</u>
1 Foreword	1
2 Executive Summary	2
3 Internal Auditor's Report	5
4 Engagement Overview	
4.1 Background	6
4.2 Objectives	6
4.3 Scope	7
4.4 Methodology	7
4.5 Conclusion	8
4.6 Development of Management Action Plans	8
5 Observations	
5.1 TG-35 Accountability	9
5.2 Formal Standardized Access/Role Control	11
5.3 Periodic Review of User Access to TEAMS	12
5.4 TEAMS Record Adjustments	13
5.5 TEAMS Data Accuracy	15
6 Performance Opportunities	
6.1 Standardized Policy and Procedures	17
6.2 Standardized Transfer Form	18
Appendix A Process Descriptions	19
Appendix B Risk Scoring Matrix	22
Appendix C Risk Appetite	23

1 FOREWORD

AUTHORIZATION

The South Carolina Office of the State Auditor established the Internal Audit Services division (IAS) pursuant to SC Code Section 57-1-360 as revised by Act 275 of the 2016 legislative session. IAS is an independent, objective assurance and consulting function designed to add value and improve the operations of the South Carolina Department of Transportation (SCDOT). IAS helps SCDOT to achieve its objectives by bringing a systematic, disciplined approach to evaluating the effectiveness of risk management, internal control, and governance processes and by advising on best practices.

STATEMENT OF INDEPENDENCE

To ensure independence, IAS reports administratively and functionally to the State Auditor while working collaboratively with SCDOT leadership in developing an audit plan that appropriately aligns with SCDOT's mission and business objectives and reflects business risks and other priorities.

REPORT DISTRIBUTION

This report is intended for the information and use of the SCDOT Commission, SCDOT leadership, the Chairman of the Senate Transportation Committee, the Chairman of the Senate Finance Committee, the Chairman of the House of Representatives Education and Public Works Committee, and the Chairman of the House of Representatives Ways and Means Committee. However, this report is a matter of public record and its distribution is not limited.

PERFORMED BY

Beth Adkins, CIA, CFE
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Director of Internal Audit Services

ACKNOWLEDGEMENT

We wish to thank members of management and staff in the Traffic Engineering and District Signal Shop divisions for their cooperation in sharing their knowledge and experience and developing actions to improve internal control and enhance operating performance.

2 EXECUTIVE SUMMARY

SIGNAL SHOP INVENTORY CONTROL

WHAT YOU NEED TO KNOW:

- SCDOT tracks and controls signal inventory throughout each district using Traffic Engineering Asset Management Software (TEAMS) that was developed by an external vendor.
- On June 22, 2016 the State Grand Jury of South Carolina indicted two former SCDOT district signal shop employees for a fraud scheme in which the employees stole items and sold them to independent contractors for a cash discount.
- TEAMS did not have the ability to track warehoused items during this time period.
- In response to the indictments, the Agency purchased a warehouse module as an addition to TEAMS and issued Traffic Engineering Guideline (TG-35) section VII, Signal Shop Inventory Control to improve the controls for securing equipment that is maintained prior to installation.
- TG-35 was in various stages of implementation at the time of our engagement; thus, we focused our assessment on the design of controls and not on operating effectiveness.

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EXECUTIVE SUMMARY *continued*

OBSERVATIONS:

- 1. TG-35 Accountability:** TG-35 is a guideline rather than a directive and therefore lacks enforcement authority over the district signal shops. To ensure that TG-35 internal controls are implemented and consistently followed, we recommend that section VII of TG-35 be published as a directive to apply to all district signal shops. [\(Detailed in Observation 5.1 on page 9\)](#)
- 2. Formal Standardized Access/Role Control:** TG-35 section VII does not describe any controls, processes, or approvals for granting/terminating system access and ensuring such access is appropriate, necessary, and applied consistently across districts. We recommend that a formalized, documented process be developed for:
 - Adding and removing users from TEAMS,
 - Defining and controlling user roles, and
 - Performing periodic reviews to determine that users are active and authorized.

We also recommend the Agency identify an individual independent of TEAMS users who will be responsible for this process. [\(Detailed in Observation 5.2 on page 11\)](#)

- 3. Periodic Review of User Access to TEAMS:** Even with strong access/role controls, errors may still occur and go undetected, especially with regard to removing terminated or transferred users. We recommend that the Agency review user accounts at least annually and privileged user accounts at least semi-annually for compliance with account management requirements. [\(Detailed in Observation 5.3 on page 12\)](#)
- 4. TEAMS Record Adjustments:** TEAMS users lack system role capability to correct input entry errors; this has led to a work-around which creates the potential for concealing theft. We recommend that individuals within district signal shops who have no access to inventory items be given authority and system role capability to make inventory record adjustments. [\(Detailed in Observation 5.4 on page 13\)](#)
- 5. TEAMS Data Accuracy:** Inventory records contain errors from:
 - The work-around noted in observation 1
 - Entry of incorrect “status” for situations that don’t fit any status type
 - Inconsistent status assignments across districts because of a lack of standard definitions for each status type.

We recommend status types be defined and additional status types created as needed. Also, the Agency should scrub inventory records and make corrections as needed. [\(Detailed in Observation 5.5 on page 15\)](#)

PERFORMANCE OPPORTUNITIES:

1. **Standardized Policy and Procedures:** TG-35 spells out policies for districts to follow. However, there are no written procedures for how the districts are to implement and carry out the stated policies. We recommend that HQ TE in conjunction with each District Communication Manager develop and document desk procedures. (Detailed in Performance Opportunity 6.1 on page 17)
2. **Standardized Transfer Form:** TG-35 requires the appropriate transfer record be completed before removing or adding items from or to the secure area. There is not a standard transfer form for all districts to use which results in inconsistent treatment of transfers. We recommend the development and use of a consistent form. (Detailed in Performance Opportunity 6.2 on page 18)

MANAGEMENT ACTION PLANS are included with each observation and Performance Opportunity in sections 5 and 6 of the report.

OVERALL RISK EXPOSURE IF MITIGATING ACTIONS ARE NOT TAKEN ON OBSERVATIONS:



3 INTERNAL AUDITOR'S REPORT

January 24, 2019

Ms. Christy A. Hall, Secretary of Transportation
and
Members of the Commission
South Carolina Department of Transportation
Columbia, South Carolina

We have completed a risk and control assessment of the South Carolina Department of Transportation's (SCDOT's) Signal Shop Inventory Control activity. The objective of this assessment was to contribute to the improvement of risk management by evaluating SCDOT's exposure to risks and the controls designed by Management to manage those risks. Our engagement included two aspects:

- Facilitation of Management's assessment of risks associated with Signal Shop Inventory Control
- Independent assessment of the design of internal controls established by Traffic Engineering Guideline (TG-35) section VII, Signal Shop Inventory Control, approved June 30, 2017 to determine whether those controls, if operating effectively, are adequately designed to manage the identified risks to an acceptable level. (We did not assess the effectiveness of those internal controls because SCDOT management had not fully implemented them at the time of our engagement.)

We planned and performed the engagement with due professional care in order to obtain sufficient, appropriate evidence to provide a reasonable basis for our observations and conclusions. Observations noted from our assessment of control design are described in Section 5 beginning on page 9 of this report.

While our engagement was primarily focused on risk management, we have identified other matters that may represent opportunities for cost savings, revenue enhancement, process improvement, strengthened control environment, or more effective performance. These matters are detailed in the *Performance Management Opportunities* section on page 17.

A handwritten signature in blue ink that reads 'George L. Kennedy, III'.

George L. Kennedy, III, CPA
State Auditor

4 ENGAGEMENT OVERVIEW

4.1 BACKGROUND

Each SCDOT district has a signal shop responsible for the maintenance of SCDOT owned and maintained traffic signals and flashers within its jurisdiction. The shops procure and store signal and other equipment needed for maintenance and repair of traffic signals and flashers. In some instances, this is in conjunction with city or local municipalities. SCDOT tracks and controls signal inventory throughout each district using Traffic Engineering Asset Management Software (TEAMS) that was developed by an external vendor. This software provides an application to manage and track traffic signal inventory once it is installed on a street location.

On June 22, 2016 the State Grand Jury of South Carolina indicted two former SCDOT district signal shop employees for a fraud scheme conducted during 2012 through 2014. The individuals had custodial and oversight responsibilities for signal shop warehoused items. The scheme involved the theft of items and resale to independent contractors for a cash discount. TEAMS did not have the ability to track warehoused items during this time period. Without proper tracking of the warehoused items, the Agency's ability to prevent and/or detect warehouse inventory theft was limited.



In response to the indictments, the Agency purchased a warehouse module as an addition to TEAMS. This module tracks warehoused equipment that is available for use, reserved for a project, and/or undergoing repair prior to being deployed in the field. Furthermore, the Traffic Engineering Division at Headquarters (HQ TE) issued Traffic Engineering Guideline (TG-35) section VII, Signal Shop Inventory Control to improve the controls for securing equipment that is maintained prior to installation.

4.2 OBJECTIVES

Management's objective is to effectively mitigate risks through appropriate controls to prevent and/or detect missing or unaccounted-for equipment that is housed in district signal shops prior to installation at a permanent location. Our objective was to assess the design of the controls outlined in TG-35, Section VII – Signal Shop Inventory Control and, where necessary, make recommendations for improving controls to manage risks to an acceptable level.

4.3 SCOPE

We were engaged by Management to review its recent control improvements for preventing and/or detecting theft of warehoused inventory. TG-35, which introduced the control improvements, was originally approved on May 28, 2015. A revised TG-35 was approved on June 30, 2017. Section VII – Signal Shop Inventory Control was in various stages of implementation at each district when we began our engagement. Therefore, we focused our assessment on the design of controls rather than on operating effectiveness. We identified the following processes as significant to inventory control:

	Process	Responsible Division
1	User Access and Roles	HQ TE
2	Inventory Management	District Signal Shop
3	Inventory Reconciliation	District Signal Shop

4.4 METHODOLOGY

For the significant processes included in the engagement scope, we performed the following procedures:

1. We facilitated Management’s completion of a process outline that documented the steps in the process and the individuals responsible for those steps.
2. We facilitated Management’s completion of a risk and control matrix used to:
 - a. Identify risks which threaten process objectives;
 - b. Score the risks as to their consequence and likelihood of occurrence using the risk scoring matrix in Appendix B;
 - c. Determine if controls are adequately designed to manage the risks to within the Agency’s risk appetite; and
 - d. Propose design improvements to controls when risks are not managed to within the Agency’s risk appetite.

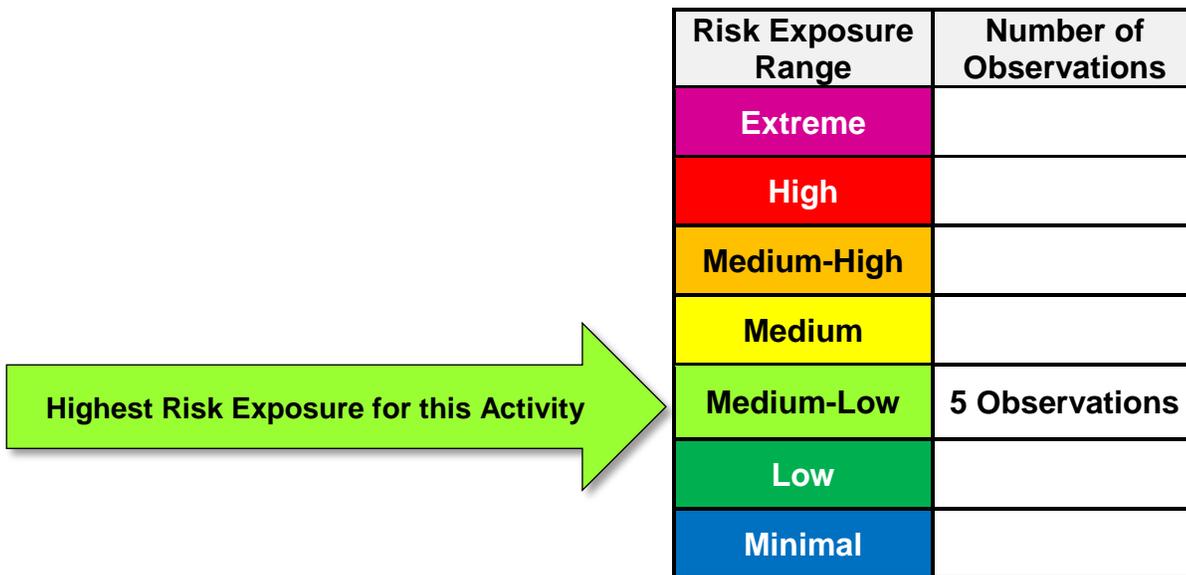
As shown on the Risk Scoring Matrix in Appendix B, risk significance is rated on a scale of 1 (lowest) to 25 (highest) and is the product of the risk consequence score (1 to 5) multiplied by the risk likelihood score (1 to 5). Risk appetite is the amount of risk exposure Management is willing to accept in pursuit of its objectives. Executive Management has set various risk appetites by risk type as shown in Appendix C. Risks scoring below Management’s risk appetite require no further risk management. Controls determined to be inadequate in design result in risk exposure to the Agency if risk scores exceed risk appetite.

3. We observed the discussion by key process owners and other subject matter experts performing the steps in procedure two above.
4. We assessed TG-35, Section VII – Signal Shop Inventory Control to determine whether its described controls managed the risks identified in procedure two above.

5. We developed observations for controls determined to be inadequate in design.
6. We identified opportunities to improve performance management.

4.5 CONCLUSION

In our opinion, based on our evaluation of TG-35, the design of internal controls is not adequate to effectively manage risks associated with the Signal Shop Inventory Control activity to within the Agency's risk appetite.



Risk Exposure Range	Number of Observations
Extreme	
High	
Medium-High	
Medium	
Medium-Low	5 Observations
Low	
Minimal	

4.6 DEVELOPMENT OF MANAGEMENT ACTION PLANS

We facilitated Management's development of action plans for each observation to improve control design with practical, cost-effective solutions. These improvements, if effectively implemented, are expected to reduce the overall risk exposure to an acceptable level (i.e. within the Agency's risk appetite).

We will follow up with Management on the implementation of the proposed actions on an ongoing basis and provide SCDOT leadership with periodic reports on the status of management action plans and whether those actions are effectively and timely implemented to reduce risk exposure to an acceptable level.

5 OBSERVATIONS

Observation 5.1 TG-35 Accountability	Risk Exposure Medium-Low
Division: Traffic Engineering	
Controls Assessed: Control 1 – Quarterly Inventory Count and Reconciliation Control 2 – Inventory count (reconciliation) is reviewed and approved by DES Control 3 – System generated banner reminder when reconciliation is due	
Control Descriptions: Control 1 – As part of inventory management, TG-35 states that the shop supervisor shall perform a cycle count of inventory on at least a quarterly basis. Discrepancies shall be noted, the cause identified and corrections shall be made to inventory storage or security and record keeping procedures. In addition, it also states that each signal shop must maintain a security plan developed by the DCM (District Communication Manager)/DTE (District Traffic Engineer) and approved by the DEA (District Engineer Administrator). This includes a diagram indicating where items are stored, how they are fenced/gated or locked up and who has authorization to access this storage area. Control 2 – TG-35 states that the DES (District Electric Supervisor) or a designee shall review, update and sign off on stockpile records at least quarterly for both accountable and non-accountable equipment. Control 3 – TEAMS displays a red banner 90 days from the last reconciliation indicating the number of days since the last reconciliation was performed. The number increases until the subsequent reconciliation is performed.	
Processes Affected: (See process descriptions in Appendix A on page referenced below) Process 2 – Inventory Management (page 19) Process 3 – Inventory Record and Count Reconciliation (page 20)	
Observation: TG-35 guidelines were developed and written by HQ TE which has no authority over the district signal shop employees because they are in a separate operating division. Without the ability to hold district employees accountable for the implementation of and compliance with internal controls established by TG-35, internal controls may not be consistently implemented across all districts and errors and/or fraud may occur and not be detected. TG-35 is a guideline rather than a directive. The main difference between guidelines and directives is the authority level. Guidelines are required to be approved by a division’s director and typically apply to that division. Directives, on the other hand, require approval from the Deputy Secretary for Engineering and establish statewide policy.	

To ensure that TG-35 internal controls are implemented and consistently followed, we recommend that section VII of TG-35 be published as a directive to apply to all district signal shops.

Management Action Plan (MAP) 5.1

Establish TG-35 as an Engineering Directive.

MAP Owner:	Chief Engineer for Operations
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Division:	HQ TE
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Scheduled Date:	February 2019
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Observation 5.2 Formal Standardized Access/Role Control		Risk Exposure
		Medium-Low
Division: Traffic Engineering		
Control Assessed: None – this observation addresses risks in which no associated controls were identified.		
Control Description: Not Applicable.		
Process Affected: (See process description in Appendix A on page referenced below) Process 1 – User Access and Roles (page 19)		
<p>Observation: While TEAMS has access/role control functionality, TG-35 section VII does not describe any controls, processes, or approvals for granting/terminating system access and ensuring such access is appropriate and necessary. Additionally, we noted that access/role control is practiced inconsistently across districts. Without a formal standardized process, users may have unnecessary access to the system which could create the opportunity for errors or fraud.</p> <p>We recommend that a formalized, documented process be developed for:</p> <ul style="list-style-type: none"> • Adding and removing users from TEAMS, • Defining and controlling user roles, and • Performing periodic reviews to determine that users are active and authorized. <p>We also recommend that HQ TE identify an individual independent of TEAMS users who will be responsible for this process in order to provide proper segregation of duties.</p>		
Management Action Plan (MAP) 5.2		
<p>TE will define the TEAM user roles and the corresponding job functions to ensure the appropriate roles are assigned and that they maintain consistency across the state.</p> <p>TE will investigate the feasibility of creating a form for new role requests and terminations. The form will include the appropriate supervisory approval for new access.</p>		
MAP Owner:	TEAMS Administrator	
Division:	HQ TE	
Scheduled Date:	Implemented in December 2018	

Observation 5.3 Periodic Review of User Access to TEAMS		Risk Exposure
		Medium-Low
Division: Traffic Engineering		
Control Assessed: None – this observation addresses risks in which no associated controls were identified.		
Control Description: Not Applicable.		
Process Affected: (See process description in Appendix A on page referenced below) Process 1 – User Access and Roles (page 19)		
<p>Observation: Even with strong access/role controls, errors may still occur and go undetected, especially with regard to removing terminated or transferred users. Accordingly, user accounts should be reviewed at least annually and privileged user accounts at least semi-annually for compliance with account management requirements. While the implementation of recommendations noted in Observation 5.1 should reduce the number of SCDOT inactive users that remain active in TEAMS, municipal employee users may remain active if municipalities fail to contact SCDOT when municipal employees are terminated or transferred to a different position. The review should include confirmation that the user is still an active employee employed in a position to support the need for TEAMS access. Since contact information is included as part of the information provided when setting up an account, the reviewer should use this information to contact municipal users to confirm user access is still appropriate.</p>		
Management Action Plan (MAP) 5.3		
The TEAMS administrator will conduct an annual review of all users, and remove users that no longer require access.		
MAP Owner:	TEAMS Administrator	
Division:	HQ TE	
Scheduled Date:	Implemented in December 2018	

Observation 5.4
TEAMS Record Adjustments

Risk Exposure

Medium-Low

Division: Traffic Engineering

Controls Assessed:

- Control 1 – Quarterly Inventory Count and Reconciliation
- Control 2 – Inventory count (reconciliation) is reviewed and approved by DES
- Control 3 – System generated banner reminder when reconciliation is due

Control Descriptions:

- Control 1 – As part of inventory management, TG-35 states that the shop supervisor shall perform a cycle count of inventory on at least a quarterly basis. Discrepancies shall be noted, the cause identified and corrections shall be made to inventory storage or security and record keeping procedures. In addition, it also states that each signal shop must maintain a security plan developed by the DCM/DTE and approved by the DEA. This includes a diagram indicating where items are stored, how they are fenced/gated or locked up and who has authorization to access this storage area.
- Control 2 – TG-35 states that the DES or a designee shall review, update and sign off on stockpile records at least quarterly for both accountable and non-accountable equipment.
- Control 3 – TEAMS displays a red banner 90 days from the last reconciliation indicating the number of days since the last reconciliation was performed. The number increases until the subsequent reconciliation is performed.

Processes Affected: (See process descriptions in Appendix A on page referenced below)

- Process 2 – Inventory Management (page 19)
- Process 3 – Inventory Record and Count Reconciliation (page 20)

Observation: TG-35 states that corrections shall be made to address record and count discrepancies that are found. However, it does not state who has the authority to make records adjustments in TEAMS or how the need for correction is to be communicated. Currently, the system roles only allow a TEAMS administrator to delete inventory items from the inventory record. If an item is entered incorrectly, the district TEAMS user, without the administrator role, can work around this limitation by assigning an inactive status (e.g. missing, surplus, salvage, etc.) to the item, noting in the comment field that the item was an input error, and creating a second record for the same item with the correct information. This effectively removes the erroneous item from the list of available equipment. However, this work-around can potentially be used to cover up theft by improperly assigning an inactive status and not recording the second record.

We recommend HQ TE identify individuals who will be given the authority level in TEAMS to make approved adjustments to system records. To ensure proper segregation of duties, the designated individual(s) should not also have access to the inventory items. Since each district signal shop is composed of different levels of management, HQ TE will need to determine the appropriate level of review and approval for adjustment requests. The review and approval process should be documented. We further recommend that TG-35 describe the method for communicating the need for record adjustments to the appropriate person(s).

Management Action Plan (MAP) 5.4

Identify a TEAMS Administrator at each district, with no inventory custody role, who will document and correct items that are entered incorrectly. The review and approval process will be documented.

MAP Owner:	Chief Engineer for Operations
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Division:	HQ TE
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Scheduled Date:	May 2019
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Observation 5.5
TEAMS Data Accuracy

Risk Exposure

Medium-Low

Division: Traffic Engineering

Controls Assessed:

- Control 1 – Quarterly Inventory Count and Reconciliation
- Control 2 – Inventory count (reconciliation) is reviewed and approved by DES
- Control 3 – System generated banner reminder when reconciliation is due

Control Descriptions:

- Control 1 – As part of inventory management, TG-35 states that the shop supervisor shall perform a cycle count of inventory on at least a quarterly basis. Discrepancies shall be noted, the cause identified and corrections shall be made to inventory storage or security and record keeping procedures. In addition, it also states that each signal shop must maintain a security plan developed by the DCM/DTE and approved by the DEA. This includes a diagram indicating where items are stored, how they are fenced/gated or locked up and who has authorization to access this storage area.
- Control 2 – TG-35 states that the DES or a designee shall review, update and sign off on stockpile records at least quarterly for both accountable and non-accountable equipment.
- Control 3 – TEAMS displays a red banner 90 days from the last reconciliation indicating the number of days since the last reconciliation was performed. The number increases until the subsequent reconciliation is performed.

Processes Affected: (See process description in Appendix A on page referenced below)

- Process 2 – Inventory Management (page 19)
- Process 3 – Inventory Record and Count Reconciliation (page 20)

Observation: We noted that TEAMS records include erroneous data which have occurred as a result of the following:

1. As noted in Observation 5.4, TEAMS input errors are often corrected by assigning a status (e.g. “missing”) to the erroneous data and recording a second entry with the correct information as a separate item.
2. Districts have not followed a standard or consistent process for documenting items that are removed from inventory but not issued for a project. For example, one district disposes of old equipment per the surplus property process while another district categorizes it in TEAMS as “missing” with a notation that the equipment has been discarded.
3. TG-35 states that items be accounted for by noting the status as "In Operation", "In Stock", "In Repair", "Surplus" or "Salvage." However, it does not define those terms nor does it cover all status types (e.g. items loaned to contractors and local governments).

Inconsistency in recording hinders effective accountability, comparisons among districts and accurate reporting.

We recommend that standard definitions be developed for all equipment statuses. Additional statuses should be included in TEAMS where needed (e.g. loaned equipment).

We further recommend that the current TEAMS data be reviewed and adjustments made to ensure that inventory records are accurate and provide consistent reporting among districts.

Management Action Plan (MAP) 5.5

Standard definitions and instances for using each category will be documented and communicated to TEAM users. Steps will be taken to purge erroneous or invalid information.

MAP Owner:	State Traffic Design Engineer
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Division:	HQ TE
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Scheduled Date:	August 2019
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6 PERFORMANCE OPPORTUNITIES

While our engagement was primarily focused on risk management, we have identified other matters that represent opportunities for cost savings, revenue enhancement, process improvement, strengthened control environment, or more effective performance.

Performance Opportunity 6.1 Standardized Policy and Procedures	
<p>Processes Affected: (See process descriptions in Appendix A on page referenced below)</p> <p>Process 1 – User Access and Roles (page 19)</p> <p>Process 2 – Inventory Management (page 19)</p> <p>Process 3 – Inventory Record and Count Reconciliation (page 20)</p>	
<p>TG-35 spells out policies for districts to follow. However, there are no written procedures for how the districts are to implement and carry out the stated policies. We recommend that HQ TE in conjunction with each District Communication Manager develop and document desk procedures for the following tasks:</p> <ol style="list-style-type: none"> 1. Obtaining new user access including: <ul style="list-style-type: none"> • Definition of roles • Method (electronic form with necessary information needed) • Level of approval necessary 2. Deleting or changing user access including: <ul style="list-style-type: none"> • Method (electronic form) • Level of approval necessary • Explanation of change request 3. Performing the quarterly reconciliation 4. Making necessary adjustments to TEAMS 5. Developing and maintaining a security plan including investigation of missing items. 	
Management Action Plan (MAP) 6.1	
<p>Desk procedures for tasks one and two above will be included as part of MAPs 5.1 and 5.2.</p> <p>HQ TE will document guidelines for performing inventory. At a minimum, the guidelines will include the following:</p> <ul style="list-style-type: none"> • Assignment of inventory responsibility • Guidance of performing inventory • Process documentation for notifying management of unaccounted items <p>Documenting the process for making adjustments in TEAMS will be included as part of MAP 5.3.</p>	
MAP Owner:	State Traffic Design Engineer/Chief Engineer for Operations
Division:	HQ TE
Scheduled Date:	August 2019

Performance Opportunity 6.2 Standardized Transfer Form

Processes Affected: (See process descriptions in Appendix A on page referenced below)

Process 2 – Inventory Management (page 19)

Process 3 – Inventory Record and Count Reconciliation (page 20)

TG-35 requires the appropriate transfer record be completed before removing or adding items from or to the secure area. There is not a standard transfer form for all districts to use which results in inconsistent treatment of transfers.

Management Action Plan (MAP) 6.2

A standard transfer form will be created for Districts' use. This form will include at a minimum the following:

- Requester name
- Authorizer name
- District/Municipality
- Pick up or delivery date
- Project file number, if applicable
- Equipment type
- Anticipated return date

MAP Owner:	Teams Administrator
Division:	HQ TE
Scheduled Date:	May 2019

APPENDIX A PROCESS DESCRIPTIONS AND RISK ASSESSMENT SUMMARIES

Process 1 User Access and Roles

User access and roles are managed by the system administrator of TEAMS. Currently, new user requests can be made via phone, email or in person. TEAMS provides functionality to control access to authorized users and to segregate user roles within the system to prevent fraud. Each permission is denoted by a letter. Permissions are:

- A – Add
- AU – Authorize
- E – Edit
- D – Delete
- M – Modify
- V – View

The administrator role has all of the above referenced permissions. The standard role, which is the role assigned to district employees, has “edit”, “modify” and “view” permissions. There is also a Headquarters (HQ) D8 role, which is for HQ TE individuals. Their permissions include “add” and “view”.

The objective of this process is to ensure that user access and roles are appropriate for job functions.

Process 2 Inventory Management

Inventory items are identified as the following:

- Accountable Equipment – any equipment item with a value of \$1000 or more to include signal cabinets, controllers, poles and video detection cameras with serial numbers as applicable.
- Non-Accountable (Stockpile) Equipment – any equipment item with a value of less than \$1000, not requiring serial number verification, to include conflict monitors, signal heads/modules, and pedestrian heads/modules, and pedestrian poles.

Expendable items shall not require inventory. Examples are signal cable, signal wire, nuts and bolts, etc. Signal Shop employees are required to manually enter items in TEAMS when received at the shop. Warehouse item locations are assigned (e.g. bin 1, shelf 3).

TG-35 states the following:

- Signal shop supervisor shall perform cycle counts of inventory on at least a quarterly basis. Discrepancies shall be noted and cause identified.

- Each signal shop must maintain a security plan developed by the DCM/DTE and approved by the DEA , including a diagram indicating where items are stored, how they are fenced/gated or locked up separately from maintenance yard/facility, who has authorized access to each location and how the storage area is secured and monitored by authorized signal shop personnel.
- The DES shall authorize employees that are allowed access to this storage area and will assign keys.
- The DES shall authorize employees that are allowed access to the accountable and non-accountable inventory storage area. These employees must ensure that the appropriate transfer record is completed before removing or adding items.

The objectives of this process are to ensure:

1. Timely and accurate recording of equipment received and warehoused prior to installation.
2. Timely and accurate recording of equipment transferred from one location to another.
3. Equipment is properly safeguarded against theft and accessible to authorized employees only.

Process 3 **Inventory Record and Count Reconciliation**

TG-35 includes the following guidelines for performing quarterly inventory counts and record reconciliations:

The inventory shall include the following information as a minimum:

- a. Accountable Equipment: Quantities shall be maintained in TEAMS. The DES or designee shall review, update and sign off on stockpile records at least quarterly. Items shall be accounted for referencing the following: serial number, date of delivery, status as defined as "In Operation", "In Stock", "In Repair", "Surplus" or "Salvage."
- b. Non-Accountable (Stockpile) Equipment: Quantities shall be maintained in TEAMS. The DES or designee shall review, update and sign off on stockpile records at least quarterly.

The signal shop supervisor shall perform cycle counts of inventory on at least a quarterly basis. Discrepancies shall be noted and the cause identified (i.e. physical count error, recording error, item identification error or physical control problem). Corrections shall be made to inventory storage or security and record keeping procedures to address any discrepancies found.

The process for carrying out the above guidelines is as follows. The reconciliation sheet (list of inventory and quantities) is printed from TEAMS. The sheet lists the accountable equipment with the serial number. For non-accountable equipment, the name of the equipment and the quantity per TEAMS is listed. The crew performs an inventory count, and compares the serial numbers for accountable equipment and the total quantity on hand for non-accountable equipment to the reconciliation sheet. Once the count is complete, any discrepancies are researched. Items listed on the reconciliation sheet that are not located are classified as "missing" in TEAMS.

The objectives of this process are to ensure:

1. Timely and accurate quarterly inventory counts and record reconciliations are being performed.
2. Inventory counts are reviewed and approved by each DES.

APPENDIX B

RISK SCORING MATRIX

Risk significance is rated on a scale of 1 (lowest) to 25 (highest) and is the product of the risk consequence score (1 to 5) multiplied by the risk likelihood score (1 to 5). The following matrix provides a color scale corresponding to risk significance scores.

Likelihood	Frequent or Almost Certain	3-4 Low	9-13 Medium	14-17 Med-High	18-21 High	22-25 Extreme
	Likely	3-4 Low	5-8 Med-Low	9-13 Medium	14-17 Med-High	18-21 High
	Possible	3-4 Low	5-8 Med-Low	5-8 Med-Low	9-13 Medium	14-17 Med-High
	Unlikely	1-2 Minimal	3-4 Low	5-8 Med-Low	5-8 Med-Low	9-13 Medium
	Rare	1-2 Minimal	1-2 Minimal	3-4 Low	3-4 Low	3-4 Low
		Incidental	Minor	Moderate	Major	Extreme
		Consequence				

APPENDIX C

RISK APPETITE

Risk appetite is defined as the amount of risk the Agency is willing to accept in the pursuit of its objectives. Management’s goal is to manage risks to within the appetite where mitigation is cost-beneficial and practical. Management has set the Agency’s risk appetite by risk type using scoring methodology consistent with the Risk Scoring Matrix shown in Appendix B. Risk appetites by risk type are as follows:

RISK TYPE	EXAMPLES	RISK APPETITE SCORE 1 = Minimal Risk 25 = Extreme Risk (See Scoring Matrix in Appendix B)
Safety	Employee and Public Well-Being	2
Ethical	Fraud, Abuse, Mismanagement, Conflict of Interest	2
Financial	Funding, Liquidity, Credit, Reporting	4
Strategic	Resources not Aligned, Unclear Objectives	4
Reputational	Unintentional Unwanted Headlines	4
Operational	Delays, Cost Overruns, Waste, Inefficiency	6
Regulatory	Non-Compliance	6
Legal	Lawsuits	10