

FINAL REPORT
PATCO Transit System
12/10/2020

Triennial Safety Audit
Review Conducted
September 23-29, 2020

Prepared by:



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State Safety Oversight Agency

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1.0 Executive Summary

A Triennial Safety Audit of PATCO was performed on September 23-29, 2020. The Audit Team was composed of five independent contractors and two employees from the New Jersey Department of Transportation (NJDOT), all representing the NJDOT Office of Fixed Guideway, State Safety Oversight Agency (SSOA). The audit was designed to provide an independent assessment of PATCO safety programs. It was performed in compliance with State and Federal regulatory requirements (49 CFR Part 659) to evaluate the extent these programs are being implemented in accordance with their documented programs, policies and procedures. Procedures and Processes documents and records were reviewed and interviews were conducted with managers and employees. The Audit Team's goal was to verify that the required elements of the System Safety Program Plan (SSPP) were developed, implemented, and being regularly reviewed. We also considered observations made by SSOA since the last Triennial Audit was performed in 2017. The Audit Team also recognized that PATCO is transitioning to the Public Transportation Agency Safety Plan (PTASP) under 49 CFR Part 673.

The Audit Team found that many of the essential elements of the PATCO safety programs are well developed and being properly implemented. Through implementation of Covid-19 protection measures, PATCO/DRPA has taken actions to ensure the health and safety of passengers, employees and contractors. Completion of the railcar overhaul program and its safety certification was a significant multi-year achievement. PATCO continues to implement Power DMS (cloud-based software to manage policies, procedures, training, etc.) which is encouraged by the Audit Team. Also, the shop tour performed by the Audit Team revealed improvements since the 2017 Triennial Audit. PATCO is also commended on merging PATCO and DRPA Safety Services Departments. PATCO should continue to focus on these accomplishments and other improvements.

There are also some areas where more work is needed. The Roadway Worker Protection Program has a few issues that require resolution. 30-Day Accident Investigation Reports need to be accurately prepared and promptly delivered to NJDOT SSOA. The Audit Team identified some areas that need to be considered as the Way & Power group is re-organized into two separate organizations.

Six (6) Non-Compliances and ten (10) Compliances with Recommendations were identified through this audit (see Section 8.0). One Non-Compliance (EM-1) was determined to be Closed. This report presents these sixteen (16) items along with the discoveries of the audit relative to the stated audit objectives. PATCO is provided an opportunity to review the Draft Report and provide comment or develop a corrective action plan (see Draft Corrective Action Plan Table after Section 6.0) to address the findings.

The Audit Team would like to thank all PATCO personnel interviewed during the audit for their cooperation and candor. They have demonstrated through their respective responsibilities their commitment to the safety of the riding public and employees.

An out-brief was held on September 29, 2020, to review the findings of the Audit Team. The Presentation from this meeting is in **Appendix A**.

2.0 Introduction

PATCO (Port Authority Transit Corporation) is a Fixed Guideway high speed rail system that is owned and operated by the Delaware River Port Authority (DRPA). In accordance with Federal Regulation 49 CFR Part 659, the State of New Jersey Department of Transportation (NJDOT), as the designated State Safety Oversight Agency (SSOA) for the PATCO rail system, is required to conduct an on-site safety audit of its system safety programs every three years. Due to the ongoing Covid-19 Pandemic, the 2020 audit was conducted remotely, except for one in-person tour/inspection of the PATCO shop/maintenance facility. This safety program review is designed to assess the level of the PATCO transit system's compliance to its approved System Safety Program Plan (SSPP) with consideration for the transition to the Public Transit Agency Safety Plan (PTASP) by Dec. 31, 2020, in accordance with FTA 49 CFR 673.

The 2020 Triennial Safety Audit focused on the elements of the PATCO rail system safety program. The Audit was conducted on Sept. 23-29, 2020, and evaluated the scope and system-wide application of the PATCO System Safety Program Plan (SSPP) and compliance with FTA 49 CFR 659 and NJDOT State Safety Oversight Program Standards and Procedures. The Safety Audit Checklist that was used as the basis for the audit, can be referenced in **Appendix B**. In addition, this audit focused on:

- Organizational Structure and Responsibilities
- Covid-19 Protection
- Procedures and Processes
- Accident Investigation
- Roadway Worker Protection
- Maintenance Inspections
- Shop Hazards and General Housekeeping

The audit was conducted by reviewing processes, documents and records, and interviewing managers and employees in each department to verify that all elements of the System Safety Program Plan (SSPP) were developed, implemented, and reviewed on an ongoing basis. During the triennial review, the NJDOT Safety Audit Team met with representatives from departments within the PATCO rail system having a role or responsibility for supporting the implementation of the SSPP.

Additional documentation was requested and provided by the various departments to verify the provisions within the scope of their plan. Due to the virtual format of the interviews, Sign-in Sheets were not used, instead the Audit Team recorded personnel who attended each interview and a Meeting Attendee Matrix summarizing all meeting participants is in **Appendix C**. A Listing of Documents that were reviewed is in **Appendix D**. The PATCO Organization Chart is in **Appendix E**.

3.0 Background

The objectives of this audit included:

- A determination of the PATCO transit system level of safety program compliance with SSO Program Standards and Procedures and FTA 49 CFR Part 659.
- A review of the recently approved PATCO Public Transit Agency Safety Plan (PTASP) which will be used to implement the transition to FTA 49 CFR Part 673.
- Compliance with the PATCO transit system internal procedures and processes.
- An evaluation of all safety program elements as defined within the PATCO SSPP, including:
 - Programming of operations, maintenance, training, inspections, and employee testing
 - Internal audit program
 - Identifying, tracking and implementing corrective actions
- Considerations of ongoing SSOA oversight since the 2017 PATCO Triennial Audit.

This report includes the following criteria consistent with FTA audit protocols to identify those instances when an element of the PATCO safety oversight program is determined to be either in "Non-Compliance" or in "Compliance with Recommendation", as per the following definitions:

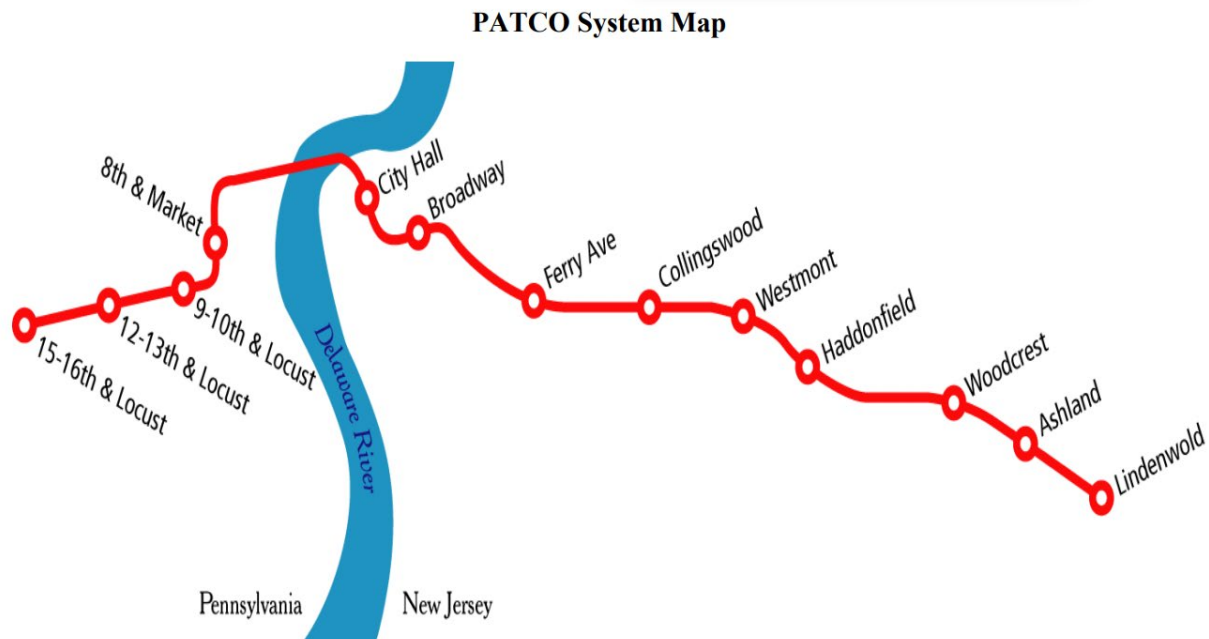
- **Non-Compliance:** The Audit Team determines that a required component of the PATCO safety program **did not meet** the NJ SSO Program Standards and Procedures and/or was not in compliance with the PATCO SSPP or other regulation.
- **Compliance with Recommendation:** The Audit Team determines that a component of PATCO safety programs technically meets the requirements, but **can be improved to meet the intent of the regulation** or support more effective implementation.

The Audit Checklist in the SSO Program Standards and Procedures (see **Appendix B**) was used to determine compliance to the SSPP. It provides references (to the Draft Corrective Action Table Items) of detailed assessments of the Non-Compliances for which the Audit Team recommended corrective action to comply with State and Federal requirements. Recommended corrective action is also provided for Compliances with Recommendation. PATCO is required to develop corrective actions to address all recommendations.

4.0 System Description

The PATCO rail transit line was built by the DRPA between Lindenwold, New Jersey and Center City Philadelphia, Pennsylvania, 14.5 miles. The line uses 120 railcars that recently completed a multi-year refurbishment project.

PATCO provides fast, frequent, auto-competitive electric interurban rail rapid transit service, exclusively, 24 hours a day, 7 days a week, and 365 days a year. Service was reduced as a result of the Covid-19 pandemic. Primary access to PATCO suburban New Jersey stations is by automobile. Large parking lots are provided at seven stations and is free or low-cost. Secondary modes of transit access include New Jersey Transit buses, New Jersey Transit Atlantic City Rail Line and New Jersey Transit River Line.



The double-tracked transit line operated by PATCO includes 2.3 miles in downtown subway, with seven stations, including Franklin Square, which is currently closed, but is being rehabilitated and is anticipated to be re-opened in the next few years, and 12.2 miles above ground, with seven stations (one of which, Haddonfield, is in a deep open cut). Thirteen active stations are spread over the 14.5 mile line. Supporting the two main tracks are fourteen interlockings, turnback tracks at three locations, tail or storage tracks at four locations, nine electrical substations for providing traction power, one electrical switching station, and a central control facility. The substations supply direct current propulsion power at a nominal potential of 750 Volts direct current from rectifier/transformer units. Alternating current power to these substations is obtained from three feeder lines from Public Service Energy Group (in New Jersey) at 26,400 volts. Two are identified as primary-use lines and the third as an emergency back-up. Additionally, two 13,200 volt alternating current lines of Philadelphia Electric Company provide additional back-up.

5.0 Organizational Structure

PATCO is a wholly owned subsidiary of the Delaware River Port Authority (DRPA) of Pennsylvania and New Jersey. The PATCO and DRPA Organization Charts are available in **Appendix E**.

The General Manager (GM) reports to the DRPA Chief Executive Officer/President of PATCO. The GM, who has overall authority and responsibility for safe operation of the transit system. The GM has direct authority and control of all Train Operations, Equipment Maintenance, Way & Power, and Safety resources for PATCO and works closely with the DRPA using shared resources for other functional areas such as Human Resources, Information Systems, Engineering, Procurement, Finance and Transit Police. The GM is also designated as the Accountable Executive (AE) under the PTASP.

The Director of Safety Services is directly responsible for safety oversight activities and the internal audit program. This position also reports to the PATCO GM and has the authority to administer the SSPP, including incident/accident tracking and investigation, inspections and approval of new chemicals. The Director of Safety Services leads monthly SaCC (Safety Coordinating Committee) meetings, whose members are PATCO Directors. The Director of Safety Services is also designated as the Chief Safety Officer (CSO) IAW 49 CFR Part 673. Within PATCO, the Director is the SMS Executive under the PTASP and has a direct reporting relationship with the DRPA Chief Executive Officer/President of PATCO.

The Director, Equipment Maintenance reports to the GM and is responsible for all day-to-day maintenance activity of the railcars. This included oversight and integration of the railcar refurbishment program that was implemented by Alstom. The Director is also responsible for ensuring that the equipment used to perform these functions is suitable and that personnel are properly trained to perform their duties.

During the first two years after the 2017 Triennial Audit there was a Director, Way & Power (W&P) who reported to the GM. Then a decision was made to re-organize W&P into two separate departments: Power & Signals (P&S) and Track & Facilities (T&F).

The Director, P&S reports to the GM and is responsible for the inspection, maintenance and repair of electric power and signals. This includes ensuring that the equipment used to perform these functions is inspected & maintained, and that personnel are properly trained to perform their duties.

The Director, T&F reports to the GM and is responsible for the inspection, maintenance and repair of track, stations and bridges. This includes ensuring that the equipment used to perform these functions is inspected & maintained, and that personnel are properly trained to perform their duties.

The Director, Transit Services reports to the GM and is responsible for all day-to-day railcar operational activity such as train operations, Center Tower operations and engaging the public. This includes ensuring that the system is in compliance with the operating rules & procedures and issuing bulletins to revise them when necessary. The Director is also responsible for ensuring that personnel are properly trained to perform their duties.

6.0 Summary of Observations

This section presents an overview of the findings and observations from the safety review of PATCO. This review process had four principal objectives:

- Review of PATCO Procedures and Processes
- Consider SSOA observations since the 2017 Triennial Audit
- Review of Maintenance Inspections and Tests
- Evaluation of Covid-19 protection

The review team concludes that PATCO is proactively executing the plans and procedures in the PATCO SSPP and is taking actions to transition to the PATCO PTASP.

- 1) PATCO uses **Power DMS** software to manage documents that describe Procedures and Processes, training documentation and training records. The Audit Team determined that the functions of this system provide each department with the capability to efficiently meet the document management requirements in the SSPP and PTASP. PATCO should continue to leverage Power DMS as they systematically maintain and update these important documents.
- 2) PATCO has had several challenges in the area of **Roadway Worker Protection** over the past two years. NJDOT SSOA has been overseeing efforts by PATCO to address several issues. The Audit Team recognizes these efforts and identified areas that require additional sustained attention by PATCO.
- 3) One of the responsibilities of NJDOT SSOA is to review **30-Day Accident Investigation Reports** prepared by PATCO after significant safety related events occur. The Audit Team recognizes that additional efforts are required by PATCO to deliver these reports on-time and meet the technical requirements of PATCO Accident Investigation Procedures and NJDOT State Safety Oversight Program Standards and Procedures.
- 4) The Audit Team determined that PATCO's initial and continuing **responses to the Covid-19 pandemic** effectively mitigate the health & safety risks to employees and customers. Cleaning protocols, personal protective measures and communication were identified as critical measures to reduce the spread of the virus.
- 5) The **division of Way & Power into two separate departments** is a major re-organization of PATCO personnel, assets and procedures. The Audit Team identified aspects of this re-organization that should be considered as this effort continues.

A Corrective Action Plan identifying the Audit Team's findings is in the following Table.

NOTE: PATCO to provide entries for "Timeline" and "PATCO Response" for each item.

Corrective Action Plan, Table 1

NOTE: Numbers in brackets {#} refer to **Appendix B**, Checklist Item Numbers or other requirement.

Reference	Finding	Corrective Action	Timeframe	Status	PATCO Response
General (Section 8.1)					
Gen-1 8.1.2 {67} Non-Compliance	The Audit Team identified several Roadway Worker Protection (RWP) program issues that need to be addressed . RWP affects all PATCO Departments and a concerted effort to systematically examine and address these issues is critical.	See list of 8 issues in Item (1) of Section 8.1.2 , which should be addressed, including the following: <ul style="list-style-type: none"> • In the Right of Way (ROW) Safety Plan, the GM Statement is unsigned. • PATCO needs to Audit and review implementation of the overall program. • Review and revise the ROW Safety Plan. • Training must accurately reflect the ROW Safety Plan 			
Gen-2 8.1.2 {6} Non-Compliance	PATCO needs to develop a method to confirm that personnel are reviewing the SSPP/PTASP . The Audit Team did not see evidence that the SSPP (or PTASP) is being reviewed and an interview revealed that a manager was not aware of the SSPP.	There are good examples of this by other departments. This can be accomplished through Power DMS (see “CSA General Instruction” A-9) or by getting employees to sign a statement that they reviewed it (see “Document Creation Guidance” 100-001).			
Gen-3 7.0 Compliance with Recommendation	PATCO should continue to use Power DMS to manage information . The Audit Team’s extensive review of Procedures and	In addition to the items in Section 7.0 , the following should be considered for implementation:			

Reference	Finding	Corrective Action	Timeframe	Status	PATCO Response
	Processes in Power DMS, resulted in several recommendations that are provided in Table 2, Section 7.0. of this report.	<ul style="list-style-type: none"> • Develop a PATCO-wide procedure to manage document control similar to Equipment Division’s “Document Creation Guidance” (Administration 100-001). • Use Power DMS to track On-the-Job Training (OJT). • All Departments should follow the Power DMS article on creating training courses. 			
Gen-4 8.1.2 Compliance with Recommendation	Carefully manage split of Way & Power (W&P) Department into Track & Facilities (T&F) and Power & Signal (P&S).	<p>Recommend the following:</p> <ul style="list-style-type: none"> • Revise documents, including SOPs, Plans & Inspection/maintenance forms, etc. to reflect the re-organization. • Be aware of where the work split occurs and ensure that this does not result in inadvertent omissions. For example, T&F is responsible for standpipe inspections and P&S for fire suppression. These two systems need to function together. • Maintain communication and some commonality between the two new organizations to prevent the silo-effect. 			

Reference	Finding	Corrective Action	Timeframe	Status	PATCO Response
		<ul style="list-style-type: none"> Use the same RWP plan and training. 			
Gen-5 8.1.2 Compliance with Recommendation	The Audit Team recognized that since the W&P Department split is being currently implemented, it would be a good opportunity to re-evaluate/update W&P Inspection forms to ensure that they include sufficient information and are consistent.	See list of 8 issues in Item (5) of Section 8.1.2 , which should be addressed, including the following: <ul style="list-style-type: none"> Inspection report forms need to be updated to reflect W&P Department split. Signature lines are inconsistent and completed reports do not always include signatures of Maintainer or Foreman. Forms have 3 places for Foreman’s name and none for the Maintainer. 			
Safety Services (Section 8.2)					
SS-1 8.2.2 {49} Non-Compliance	PATCO needs to submit prompt and accurate 30-day Accident Investigation Reports. PATCO is required to provide a progress update of each investigation, 30 days after an accident occurs. This is in accordance with the PATCO Accident/ Incident Investigation Manual and the NJDOT State Safety Oversight Program Standards and Procedures. This report is important because it provides an indication to NJ SSOA of the progress being made by PATCO towards investigating the accident, identifying causal factors, establishing	<ul style="list-style-type: none"> Timely submittal of 30-day Accident Investigation Reports. They can be designated as “Interim” or “Final”. The Final Accident Investigation Report is required to include referenced data, photos, lab reports, police reports and all other supporting information. More root-cause investigation of human error causal factors and recommended corrective actions. 			

Reference	Finding	Corrective Action	Timeframe	Status	PATCO Response
	corrective action plans and communicating this information to employees who may unknowingly be continuing with hazardous behaviors. The Audit Team reviewed several of these reports and discovered that they are not meeting this submittal deadline in EAR.	For example, for the yard derailments at switches in the Lindenwold Yard, PATCO should evaluate Train Operator training, vehicle wheel profiling, existing operating procedures pertaining to switches and switch preventive maintenance.			
SS-2 8.2.2 Compliance with Recommendation	Each department may have primary responsibility for accident investigation, depending on the circumstances of the accident. The Audit Team recommends that select personnel from each department receive Accident Investigation training either through the FTA’s Transportation Safety Institute (TSI) or internally by the PATCO Safety Services Department.	Internal (by PATCO Safety Services Dept.) or external (FTA training through TSI) accident investigation training for select personnel in each department. The Audit Team believes that this will also help PATCO address SS-1 above.			
SS-3 8.2.2 Compliance with Recommendation	As PATCO transitions to implementation of SMS under the PTASP, the Safety Coordinating Committee (SaCC) meeting should evolve to improve how some safety issues are addressed.	See Section 8.2.2 for recommendations regarding: <ul style="list-style-type: none"> • Safety Certification • Hazard Management 			
Equipment Maintenance (Section 8.3)					
EM-1 8.3.2 {NJ Executive Order 165} Non-Compliance	The Audit Team did not identify evidence of an SOP for Covid-19 cleaning of rail cars . This is an important procedure that needs to be developed to ensure a standardized process is established and available to personnel.	The SOP developed by Track & Facilities, “Covid-19: Cleaning and Disinfecting a Facility”, is an effective example of a Covid-19 cleaning document and it may be possible for rail car cleaning to be integrated into it.		CLOSED	

Reference	Finding	Corrective Action	Timeframe	Status	PATCO Response
EM-2 8.3.2 Compliance with Recommendation	The Audit Team did not identify a formal Crane training program or any pre-use inspection checklist/form . This is recommended so that personnel know how to check inspection records before use (including ropes, chains, slings, etc.), perform a documented pre-check and operate equipment safely.	Recommend institution of a formal training program with personnel certification to give management the ability to easily confirm an employee’s qualifications to perform these tasks.			
EM-3 8.3.2 Compliance with Recommendation	The Audit Team did not identify a SOP for re-railing railcars after derailment . Derailments are identified as accidents by the FTA. Major and minor derailments may occur with varying degrees of damage and effort required to return the derailed trains to the rails. These factors may make it difficult to pre-determine exactly how to accomplish this.	Guidance should be provided to employees on how to identify the severity of the derailment, equipment needed for re-railing and safety guidance for personnel. The Audit Team suggests expansion of an existing Equipment Department document, “Disabled Equipment on Mainline” (PEMI-01909), to include re-railing.			
Power & Signal (Section 8.4)					
P&S-1 8.4.2 {60} Non-Compliance	The Audit Team was unable to identify evidence that the P&S Department has adequate documentation to define their procedures and processes or is using Power DMS to manage documents and training .	P&S needs to: <ul style="list-style-type: none"> • Create specific P&S documents, describing procedures and processes. • Use Power DMS for document control including review and revision. • Use Power DMS for training course development and training management 			

Reference	Finding	Corrective Action	Timeframe	Status	PATCO Response
See Gen-1 through Gen-5 above and T&F-1,2.	The P&S Department should contribute to the resolution of all items identified in General category, Section 8.1.2 and in T&F, Section 8.5.2.				
Track & Facilities (Section 8.5)					
T&F-1 8.5.2 Compliance with Recommendation	The PTASP states that each department is to develop data driven safety performance indicators.	The Audit Team recommends that the Department consider instituting the following towards meeting this requirement: <ul style="list-style-type: none"> • Establish a track defect rate. • Establish priority-based repair Estimated Completion Dates (ECD) for issues identified through regular inspections. 			
T&F-2 8.5.2 Compliance with Recommendation	The Audit Team was informed that Foremen sometimes use Purchase Cards (P-Cards) to buy tools from local retail stores to meet immediate work requirements. We recommend that safety considerations and a preferred tool list are added to the P-Card procedure to provide safety guidance for these purchases.	Suggest working with Procurement and Safety Depts. to develop safety guidance.			

Reference	Finding	Corrective Action	Timeframe	Status	PATCO Response
See Gen-1 through Gen-5 above.	The T&F Department should contribute to the resolution of all items identified in General category, Section 8.1.2.				
Transit Services (Section 8.6)					
TS-1 8.6.2 Compliance with Recommendation	The Audit Team recognized that the minimum train maintenance interval established by the Equipment Department is 30-days. This means that the Operators have primary responsibility for identifying issues within this interval through pre-trip inspections, including cab signal testing and other components with safety impact.	We recommend that the Department evaluate the time provided to Train Operators tasked with performing pre-trip inspections on equipment to ensure that they are afforded adequate time to thoroughly complete this critical duty.			
Shop Tour (Section 8.7)					
ST-1 8.7.2 Non-Compliances	The Audit Team identified several issues during the Shop Tour that need to be addressed.	See list of six (6) issues identified in Section 8.7.2 of this report.			
Chief Safety Officer (Section 8.8)					
See Gen-1 through Gen-5 above.	The CSO should continue to provide leadership to resolve items identified in General category, Section 8.1.2.				
Accountable Executive (Section 8.9)					
See Gen-1 through Gen-5 above.	The AE should continue to provide leadership to resolve items identified in General category, Section 8.1.2.				

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7.0 Procedures and Processes Document Review

The Audit Team was briefed by the **Director of Safety Services** on the use of POWER DMS and spent an appreciable amount of time reviewing documents stored there. These documents are an important PATCO resource because they establish policies, determine how work is performed, maintain task/process consistency and act as a bridge for the evolving/future workforce. **As a result of this review the Audit Team developed a Compliance with Recommendation (Gen-3) that affects all PATCO organizations.** PATCO Safety Plans state that the organization should establish a periodic internal documentation review and update process.

The SSPP directs PATCO to do the following:

Develop a process for the review and, if needed, update of all PATCO SOPs [Standard Operating Procedures], Policies, and Plans on an annual basis to ensure that they reflect the current operating environment.

The PTASP defines “Document Revision and Control” as:

A description of the regular annual process used to review and update the plan including a timeline for implementation of the process.

The Audit Team believes that PATCO is working towards these goals. Through this document review, the Team identified the following best practices, Sections 7.1-7.3. Table 2, Section 7.4, contains recommendations on how to improve document management.

7.1 Info Panel

Consistent use of the POWER DMS Info Panel to identify important information about the document is a valuable tool to provide consistent document management. Categories should be standardized so that there is common understanding of terms like “Published” and “New” dates. Especially when compared to “Date Issued” which is sometimes on the document itself. All departments need to use the same definitions for these terms.

Status Published (5/12/2020) New (5/30/2017)
Document Name 200-201 Maintenance Plan Rev 2
Description (None)
Folder Maintenance Plans
Tagged With Not Tagged
Related Standards (Not Set)

7.2 Headers

The use of common headers in Equipment Division documents should be considered by all PATCO departments. It provides important information on every page to show what the document is and when it was issued. This information remains with the document even when individual pages are printed and used.

PATCO	EQUIPMENT DIVISION	SERIES	POLICY 200-001
SUBJECT: MAINTENANCE PLAN			
DATE ISSUED 5/24/2017	DOCUMENT TYPE REVISED	REVISION NUMBER 2	INDIVIDUAL COPIES AND SIGNATURE NO
REPLACES January 2016		SOURCE DOCUMENT(S) Alstom Running and Heavy Maintenance Manuals & PATCO System Safety Plan	

7.3 Footers

An important aspect of this footer is the statement: “Printed Copies are Uncontrolled. Confirm Validity Before Use.” The presence of this statement at the bottom of every page, reduces the risk of personnel using outdated versions of documents. When coupled with the Header information, all the necessary information about the document is always readily available to the reader.

EQUIPMENT DIVISION SERIES 200- 001	MAINTENANCE PLAN	Page 1 of 7
Printed Copies are Uncontrolled. Confirm Validity Before Use.		

7.4 Document Management

Table 2 is a list of recommendations by the Audit Team to improve PATCO document management.

TABLE 2, Procedures and Processes Document Review Recommendations

	Recommendation	Example
1	All documents should be reviewed and updated periodically to reflect changes in methods, system configuration, inspection, defect recording, etc. Some documents may require more frequent review than others.	<p>“Removal of Lindenwold Yard Tracks from Service” W&P SOP #17-001 is labeled (DRAFT) and has not been reviewed since completion of Lindenwold Yard refurbishment.</p> <p>“Equipment Maintenance Plan” appears to have not been updated since Car Overhaul program was completed. It still includes info on the Legacy Fleet.</p>

	Recommendation	Example
2	Documents need to reflect organizational changes.	W&P Master Maintenance Plan needs to be split into two docs to reflect separate T&F and P&S Departments.
3	Need consistency between information on documents and in Power DMS info panel.	Dates on some documents, conflict with dates in Power DMS info panel.
4	Documents need to be updated when regulations change.	Drug and Alcohol random testing was recently increased from 25% to 50% of the workforce, by FTA.
5	Some important high-level documents are un-numbered	W&P Master Maintenance Plan has no document number
6	Document references need to be revised to reflect title changes.	The “System Safety Program Plan” (SSPP) is being changed to the “Agency Safety Plan” (ASP) due to the transition to 49 CFR Part 673.
7	The Organization chart has been changed over time but new charts have not been included in documents. Organizational descriptions should be revised as well, to reflect org chart.	New Way & Power Organization Chart is not included in “Way & Power Master Maintenance Plan”
8	The titles and responsibility descriptions of personnel have changed over time. Ensure that documents are revised to capture these changes.	The following titles have been recently created: <ul style="list-style-type: none"> • Director, Track & Facilities • Director, Power & Signal • Chief Safety Officer • Accountable Executive • DRPA Safety Services Director
9	Create more definitive references to other documents	Consistent document titles and reference numbers
10	Potentially conflicting requirements in different procedures. If something changes in one document, the same requirement in other documents also needs to be revised in order to maintain consistency.	“Final DRPA- Safety Administrative Manual” and “PATCO PTASP Contractor Rules”
11	Regularly update and align personnel contact information. Accident/incident notification info such as contact person and cellphone number can change so it should be periodically reviewed.	Dispatcher Procedure G-4 “Fire Alarm Walter Rand”, states that in an emergency contact the Operation Manager and states his name and phone number. Dispatchers Emergency Procedures A-3 “Emergency Personnel Call List”, contains

	Recommendation	Example
		contacts and their phone numbers. May want to consider addition of NJ DOT SSOA.
12	Every document should have a unique document number.	74-001 is used for “Field Guide for Track Mechanics” V.15 (161 pp.) and “Standard for Track Inspection and Maintenance” V4 (214 pp.)
13	Working papers used in processes should be referenced or included in documents.	Current versions of formal inspection checklists.
14	Documents must be updated to reflect approval of process changes due to Practical Drift.	Maintenance may be performed for efficiency, in a manner that is not in the documented procedure.
15	Suggest using a checklist & folder/file to help maintain consistency across all document reviews.	Folder/file may include items such as: <ul style="list-style-type: none"> • Change reference from “SSPP” to “ASP” • Latest Org Chart

7.5 Public Transit Agency Safety Plan (PTASP)

The Audit Team reviewed the PTASP and has no recommendations for revisions at the next update.

8.0 Departmental Interviews

The Audit Team reviewed documentation and interviewed Directors and Managers from each PATCO department. Program Accomplishments and Areas for Improvement were then identified within those departments.

8.1 General

This section identifies Program Accomplishments and Areas for Improvement identified by the Audit Team, that cross departmental boundaries or that are PATCO-wide.

8.1.1 Program Accomplishments

- 1) The Audit Team extensively examined PATCO's **implementation of Power DMS for document management, training delivery, testing & record-keeping** and determined that it is a very useful tool. It provides all departments with centralized document storage that is available to any authorized person, including NJ SSOA Representatives. The Audit Team found that PATCO is using the capabilities of Power DMS to effectively maintain these important aspects of their operation.
- 2) Over the past two years, PATCO has had challenges in the area of **Roadway Worker Protection** that have been monitored closely by the NJ SSOA. The Audit Team recognizes some improvements during this time that were noteworthy:
 - a. PATCO surveyed and identified "hotspots" which are areas along the Right-of-Way where visibility of oncoming trains may be difficult and/or clearances areas are limited. The Third Rail Coverboards were brightly painted in hotspots so that roadway workers and train operators can easily identify these areas.
 - b. After RWP "near-miss" incidents occurred, the Accountable Executive met with employees to communicate management's concern and immediate actions that needed to be taken.
- 3) The Audit Team examined PATCO's **responses to the Covid-19 pandemic** and discovered the following actions that addressed the safety of employees:
 - a. Personal Protective Equipment (PPE) is made available to all PATCO personnel.
 - b. Implemented Daily Self-Screening procedures for Union and non-represented employees.
 - c. Clear plastic barriers erected in shops and offices to provide supplemental protection for employees.
 - d. Guidelines for how IT Department would provide deskside support to employees.
- 4) The Audit Team was informed that the Disciplinary Process has been modified to include **disciplinary meetings with all Directors**, to ensure that disciplinary actions are consistent across all departments and commensurate with the program.
- 5) The Audit Team was informed that **DRPA has completed digitization of engineering records/drawings**. This is considered an improvement since the 2017 Triennial Audit, when lack of standardization of facility, station and bridge drawings was identified as a concern. Additionally, the Records Management Procedures Manual was revised/updated in May 2018.
- 6) PATCO provided evidence that a **closed-loop safety suggestion system** is available for input by all employees. Suggestions are considered by management, logged, evaluated, dispositioned and

employees are apprised of the final outcome. The Audit Team considers this a critical aspect of a positive safety culture.

- 7) PATCO has an agency-wide Hours of Service Policy which closely aligns with industry best practices, including APTAs guidance.
- 8) PATCO **contracts out all Elevator & Escalator Preventive Maintenance to SEPTA**. As a result, availability has remained at an all-time high. Additionally, Elevator & Escalator Status information is posted online. The Audit Team recognizes this as a significant customer safety enhancement.

8.1.2 Areas for Improvement

- 1) (Gen-1) The Audit Team identified the following Roadway Worker Protection (RWP) program issues that need to be addressed.
 - a. In the Right of Way (ROW) Safety Plan, the GM Statement is un-signed and the document is not dated; but it was recorded as new/published 3/13/19, in the Power DMS info panel.
 - b. PATCO needs to Audit and review implementation of the overall program.
 - c. Review and revise the ROW Safety Plan. RWP is an ongoing issue that has experienced several changes since the plan was published on 3/13/19, including:
 - i. Incorporation of the information in the Bulletins, Notices and Procedure Notices generated by Transit Operations after August 2020, to address Yard Operations.
 - ii. Identification and painting of hotspots along the Right-of-Way.
 - iii. Appendices and their explanation are missing from the document such as the Clearance Card. Dispatcher Procedure C-11, PATCO Clearance Card, was issued on 8/14/20. It explains how the Clearance Card is to be issued.
 - iv. Recommend adding L-37 Yard Diagram showing walkway and railcar positions.
 - d. Training must accurately reflect the ROW Safety Plan and other RWP related documentation. This includes emphasis of the role/responsibilities of EIC (Employee-In-Charge), yard activities, Pre-Job Safety Briefings, etc.
 - e. Standardize the Job Safety Briefing form. The Audit Team identified three different Job Safety Briefing forms. This conflicts directly with the ROW Safety Plan which states that there is a single Job Safety Briefing Form. The “Track Entry Safety Briefing Record” best meets the requirements stipulated in ROW Safety Plan Section 10.1 items (a)-(j). The “Pre-Job Assignment Briefing form” is totally inadequate because it does not meet many of these requirements or provide specific information that is required by the P&S organization. The use of common hazard prompts to aid the Employee In Charge (EIC) in identifying common hazards is a safety form best practice and should be incorporated. If PATCO insists on using different forms they must all meet all ROW Safety Plan requirements. Final form selection should be determined by Audit in (b) above.
 - f. Designate the minimum distance from a stopped train, that personnel can foul the tracks. Designating a minimum distance provides some reaction time should the train begin to suddenly move, such as during an uncoupling operation.
 - g. Dispatcher Procedure C-24 “Protection for Employees” stipulates that “The practice of self-protection has been discontinued”. The Rules, Safety Rules, procedures and training materials

- a. Inspection report forms need to be updated to reflect W&P Department split.
- b. Signature lines are inconsistent and completed reports do not always include signatures of Maintainer or Foreman.
- c. Forms have 3 places for Foreman's name and none for the Maintainer.
- d. Many completed reports did not include the name or signature of the Maintainer.
- e. Inspection forms are handwritten by Maintainers and then transposed to an electronic format by a second employee, a Foreman. This provides an opportunity for errors when transposing from handwritten field inspection reports to an electronic record.
- f. Electronic records are not in a standardized format, they appear to be in two different formats, PDF and MS Word.
- g. Some electronic records are stamped "ORIGINAL". Unsure of what this means since the original was handwritten.
- h. Paper records and electronic copies are reportedly filed separately with independent signatures on each form, making it difficult to determine which personnel performed the inspection for audit purposes.

8.2 Safety Services

The Safety Services Department is under the responsibility of the Director of Safety Services, who reports to the General Manager. The Director of Safety Services also serves as the PATCO SMS Executive and fulfills the role of Chief Safety Officer (CSO). The department is responsible for System Safety through the administration of the SSPP (transitioning to the PTASP). This includes monitoring of PATCO operations to identify hazardous conditions and working with other departments to implement mitigation.

The PATCO Safety Dept. was integrated with DRPA Safety to form the Safety Services Department. Personnel are being cross-trained to support both PATCO and DRPA.

8.2.1 Program Accomplishments

- 1) The Audit Team reviewed the capabilities of the Safety Services Department, which has been combined with the DRPA Safety Department. The NJDOT SSOA has worked closely with them since the 2017 Triennial Audit. The Audit Team found that the **Safety Services Department is adequately staffed**. Personnel have a proper mix of safety training, formal education and relevant experience to perform their appointed duties.
- 2) The Safety Services Department has developed a plan to effectively move PATCO towards **Safety Management System (SMS) implementation** and provide safety training, as part of the transition to the PTASP, this includes:
 - a. Specific SMS Implementation Actions (PTASP, Appendix B) including a timeline for transition to PTASP.
 - b. Specialized SMS Training Courses
 - i. SMS001- Risk Safety Management for Supervisors
 - ii. SMS101- PATCO PTASP: SMS Basics and Employee Responsibilities

- c. A Safety Training Matrix (PTASP, Appendix D) that delineates training requirements for all PATCO employee classifications.
- 3) The Audit Team recognizes the **contributions of the Director of Safety Services to ensure the safety of PATCO customers and employees from Covid-19 exposure**. He meets regularly with the DRPA CEO to discuss protective measures and their implementation. After the Triennial Audit, the **Director of Safety Services** gave a presentation on PATCO Covid-19 protective measures at the annual FTA RTA/SSOA Workshop. The Audit Team recognizes the importance of sharing knowledge throughout the industry on this critical subject.
- 4) The Safety Services Department is responsible for implementing the Internal Audit process. The **Director of Safety Services** recognized that sometimes this involved auditing subjects that they were not fully independent of and **enlisted the participation of the DRPA Inspector General in some audits**, in order to provide more objectivity and necessary oversight.
- 5) The Safety Services Department/**Director of Safety Services** has **promoted the agency-wide use of Power DMS**. The Audit Team recognizes these efforts to institutionalize this tool and the significant contribution this makes to enhancing safety through standardization and employee access to documentation and training.
- 6) The 2017 Triennial Audit identified several instances of inconsistent labeling of containers that was non-compliant with the Hazard Communication Standard. This prompted **training of employees throughout PATCO on proper container labeling**. The Audit Team recognizes this as a significant enhancement to safety.

8.2.2 Areas for Improvement

- 1) (SS-1) PATCO needs to **submit prompt and accurate 30-day Accident Investigation Reports**. PATCO is required to provide a progress update of each investigation, 30 days after an accident occurs. This is in accordance with the PATCO Accident/Incident Investigation Manual and the NJDOT State Safety Oversight Program Standards and Procedures. This report is important because it provides an indication to NJ SSOA of the progress being made by PATCO towards investigating the accident, identifying causal factors, establishing corrective action plans and communicating this information to employees who may unknowingly be continuing with hazardous behaviors. The Audit Team reviewed several of these reports and discovered that they are not meeting this submittal deadline in EAR and should include the following:
 - a. The PATCO Accident/Incident Investigation Manual section 5.2.8 requires submittal of supporting or clarifying data. The Final Accident Investigation Report is required to include referenced data, photos, lab reports, interviews, police reports, and all other supporting information.
 - b. More root-cause investigation of human error causal factors and recommended corrective actions. For example, for the yard derailments at switches in the Lindenwold Yard, PATCO should evaluate Train Operator training, vehicle wheel profiling, existing operating procedures pertaining to switches and switch preventive maintenance.
- 2) (SS-2) Each department may have primary responsibility for accident investigation, depending on the circumstances of the accident. The Audit Team recommends that select personnel from **each department receive Accident Investigation training** either through the FTA's Transportation Safety Institute (TSI) or internally by the PATCO Safety Services Department. The Audit Team believes that this will also help PATCO address SS-1 above.

- 3) (SS-3) As PATCO transitions to implementation of SMS under the PTASP, the Safety Coordinating Committee (**SaCC**) **meeting should evolve** to improve how some safety issues are addressed.
 - a. The SaCC is where **Safety Certification** is supposed to be discussed and the SaCC minutes need to document Safety Certification decisions, substantiation and documentation. New equipment and system modifications such as the Franklin Square station re-opening, Tracked Utility Vehicle (TUV), In-Floor Hoist device, Wheel Truing Machine, System Interlockings and SCADA System upgrade should be evaluated for Safety Certification, dispositioned and tracked in the SaCC.
 - b. The SaCC is where cross-department **Hazard Management** discussions occur and are documented in the SaCC minutes. These discussions currently cover safety events (accidents and incidents) that have already occurred. Leading indicators (potentially hazardous conditions that have not yet manifested as damage or injury), also need to be identified, evaluated, mitigated and tracked as part of an effective Hazard Management process.

8.3 Equipment Maintenance

The Equipment Maintenance Department is responsible for railcar maintenance and repair. The Electricians, Machinists and Mechanics responsible for railcar maintenance, repair, test and inspection report to the Director of Equipment through Foremen. This department is also responsible for maintaining technical knowledge and expertise of the railcars through documentation and training.

8.3.1 Program Accomplishments

- 1) Over the course of several months in 2019, NJ DOT SSOA performed an extensive review of the **Railcar Fleet Overhaul Certification Program** performed for PATCO by Alstom with engineering assistance from LTK Engineering Services. This included examining documentation, logbooks and safety analyses. There were also interviews with personnel from PATCO and LTK. The overall conclusions were that the process performed over several years, achieved an acceptable level of Safety Certification, with some specific areas that still needed to be addressed. The Audit Team believes that the work performed by PATCO and its contractors, significantly enhances the safety of the railcars.
- 2) PATCO continues to have **Monthly Railcar Reliability Review Meetings** which were started during the railcar overhaul program. The Audit Team sees this as an important way to collect, analyze and disseminate data to identify trends and support management decisions. This is a cornerstone of Safety Management Systems (SMS) under PTASP. The Audit Team suggests that the Equipment Department involve the Safety Services Department in this process.
- 3) The Audit Team reviewed actions taken by the department to establish **Covid-19 safety protocols and processes**. The Equipment Maintenance Department has taken the following significant steps to ensure the safety of the riding public as well as Train Operators and department personnel:
 - a. Performed a gap analysis to determine if PATCO procedures met American Public Transportation Association (APTA) guidance for Covid-19 cleaning. The gap analysis revealed that they were exceeding APTA's guidance.
 - b. Testing was performed, to determine the effectiveness of cleaning performed by personnel.
 - c. Increased car cleaning frequency.
 - d. Trains marked to promote social distancing.

- e. Developed physical barriers to protect Train Operators.
 - f. Pre-recorded announcements and digital screen messages on trains.
- 4) PATCO has **invested in new shop equipment and upgraded existing equipment** that will benefit the Equipment Maintenance Department. The Audit Team recognizes the enhancements to safety, efficiency and quality achieved through the implementation of the following inspection and maintenance equipment:
- a. In-Floor Hoist (to be installed)
 - b. Magnetic Particle Inspection Machine
 - c. Media Blasting Cabinet upgraded vacuum system (with larger HEPA filter)
 - d. Upgraded PLC units (programmable controllers) for machinery
 - e. Airbrake Valve Room (to assist with 4-year overhaul)
- 5) PATCO has a total fleet of 120 rail vehicles, and requires a ready line of 78 rail vehicles for passenger service, resulting in **compliance in meeting passenger service requirements and 100% of scheduled maintenance inspections.**
- 6) The department has direct communication with contractors and ensuring that **proper documentation and training is provided to the Department.** Training materials developed by the contractors for new equipment and/or upgrades/modifications to existing equipment undergo a review/approval process.

8.3.2 Areas for Improvement

- 1) (EM-1) The Audit Team did not identify evidence of an **SOP for Covid-19 cleaning of rail cars.** This is an important procedure that needs to be developed to ensure a standardized process is established and available to personnel. The SOP developed by T&F, “Covid-19: Cleaning and Disinfecting a Facility”, is an effective example of a Covid-19 cleaning document and it may be possible for rail car cleaning to be integrated into it. This is mandated by NJ Executive Order No. 165. **CLOSED**
- 2) (EM-2) The Audit Team did not identify a **formal Crane training program or any pre-use inspection checklist/form.** This is recommended so that personnel know how to check inspection records before use (including ropes, chains, slings, etc.), perform a documented pre-check and operate equipment safely. This should also include hand signal training, understanding load rating charts, etc. for operators and signalers. Formal certification also gives management the ability to easily confirm an employee’s qualifications to perform these tasks.
- 3) (EM-3) The Audit Team did not identify a **SOP for re-railing railcars after derailment.** Derailments (mainline or yard) are identified as Accidents by the FTA. Major and minor derailments may occur with varying degrees of damage and effort required to return the derailed trains to the rails. These factors may make it difficult to pre-determine exactly how to accomplish this. Guidance should be provided to employees on how to identify the severity of the derailment, equipment needed for re-railing and safety guidance for personnel. The Audit Team suggests expansion of an existing Equipment Department document, “Disabled Equipment on Mainline” (PEMI-01909), to include re-railing.

8.4 Power & Signal (P&S)

The P&S Department is responsible for inspection, maintenance and repair of traction power, trackside signals and switches. The Technicians, Electricians and Mechanics responsible for these duties report to the Director of P&S through Foremen and Managers. This department is also responsible for maintaining technical knowledge and expertise of PATCO assets and the support equipment used to perform their duties through documentation and training. The Director of P&S is a member of the Safety Coordinating Committee (SaCC).

8.4.1 Program Accomplishments

- 1) **The SCADA software for the Control Tower was upgraded.** The Audit Team recognizes this as a safety enhancement to the operation of the overall PATCO system.
- 2) **New Interlockings were installed** (@MP8 and City Hall), which included an asbestos survey and removal. The Audit Team recognizes the safety benefits of capital improvements to the operating systems including the identification and elimination of hazardous materials.
- 3) After a recent safety-related event resulting in injury to an employee, the Department revised an existing Safety Rule, **requiring a reflective safety vest** while working within 10 feet of a parking lot or street, to increase visibility. The Audit Team recognizes this as a safety enhancement.

8.4.2 Areas for Improvement

- 1) (P&S-1) The Audit Team was unable to identify evidence that the P&S Department has adequate documentation to define their procedures and processes or is using Power DMS to manage documents and training. P&S needs to:
 - a. Create specific P&S documents describing procedures and processes.
 - b. Use Power DMS for document control including review and revision.
 - c. Use Power DMS for training course development and management of training records.
- 2) The P&S Department should contribute to the resolution of all items identified in General, Section 8.1.2 and in T&F, Section 8.5.2.

8.5 Track & Facilities (T&F)

The T&F Department is responsible for inspection, maintenance and repair of tracks, facilities, stations, bridges and associated equipment in the PATCO system. The Technicians, Electricians, Machinists and Mechanics responsible for these duties report to the Director of T&F through Foremen and Supervisors. This department is also responsible for maintaining technical knowledge and expertise of PATCO assets and the support equipment used to perform their duties through documentation and training. The Director of T&F is a member of the Safety Coordinating Committee.

8.5.1 Program Accomplishments

- 1) The Audit Team reviewed the **SOP for Covid-19: Cleaning and Disinfecting a Facility** document and found it to be a thorough, informative, well referenced procedure for standardizing the cleaning process and keeping employees and customers safe.

- 2) The Audit Team reviewed the “**Field Guide for Track Mechanics**” (74-001) and found it to be an extremely thorough SOP for personnel. It provides detailed instructions on inspection of all aspects of Track, including definitions of terminology, detailed photographs and specific inspection criteria.
- 3) The Audit Team was informed that the Department **integrates Toolbox Talks and Safety Observation topics with trending issues**. The Audit Team recognizes this as a constructive way to influence employee behavior and improve safety culture of the organization.
- 4) The Audit Team was informed that the Department has **developed a database of track defects discovered through inspections**. The Team recognizes this as an important source of relevant safety data. Under SMS each department is responsible for collecting and analyzing safety data to identify trends and potential safety issues. This information should then be disseminated through the SaCC to support decisions made by management.
- 5) Development and distribution of a **Pocket Guide (small reference book) for Track Inspectors** performing inspections. The Audit Team recognizes this as a safety enhancement designed to supplement general knowledge for Track Inspectors.

8.5.2 Areas for Improvement

- 1) (T&F-1) The PTASP states that each department is to **develop data driven safety performance indicators**. The Audit Team recommends that the Department consider instituting the following towards meeting this requirement:
 - a. Establish a track defect rate.
 - b. Establish priority-based repair Estimated Completion Dates (ECD) for issues identified through inspections.
- 2) (T&F-2) The Audit Team was informed that Foremen sometimes use Purchase Cards (P-Cards) to buy tools from local retail stores to meet immediate work requirements. We recommend that **safety considerations and a preferred tool list are added to the P-Card procedure** to provide safety guidance for these purchases.
- 3) The T&F Department should contribute to the resolution of all items identified in General category, Section 8.1.2

8.6 Transit Services

The Transit Services Department is responsible for railcar operations and dispatch. Train Operators, Dispatchers and Customer Service Agents report to the Director of Transit Services through Supervisors. This department is responsible for train operation documentation. This includes the development and implementation of operating rules, bulletins, notices and procedure notices. Transit Services is responsible for ensuring that personnel are trained and proficient in departmental procedures and holds them responsible for their duties. The Director of Transit Services is a member of the Safety Coordinating Committee.

8.6.1 Program Accomplishments

- 1) Transit Services has implemented a **thorough certification and refresher training program**. This covers Standard & Emergency Operating Procedures, the Operating Rulebook and incorporation of an extensive spate of test questionnaires proctored through Power DMS. The Audit Team recognizes this as a major contribution to safety through continued training.

- 2) The Department **regularly updates the Operating Section of the Rulebook**; including integration of Bulletins. The Audit Team recognizes the importance of keeping this safety related document up-to-date.
- 3) After a recent safety related event in the Lindenwold yard, the Department promptly instituted Bulletins to establish procedures that will be incorporated into the Rulebook, to immediately address safety. This included operational changes requiring trains to be spotted in a manner that they do not block the walkway in the yard, no shortcuts while traveling in the yard and continuous communication between personnel working in the yard and the Yard Tower anytime personnel need to walk between train couplers. The Audit Team recognizes the timely actions of the Department to improve employee safety commensurate with the identified risk.
- 4) The Audit Team reviewed evidence that the Department reviewed a large number of CSA, Dispatcher and Emergency Procedures as they were initially published in Power DMS. This **concerted effort to update several procedures** is a robust example of systematic, department-wide document re-examination and Power DMS utilization that serves as an example for other departments.
- 5) **Several Covid-19 related Bulletins and Notices were released** by the Department throughout 2020. The Audit Team reviewed them and suggests that relevant information be incorporated into Covid-related SOPs prepared by other departments.
- 6) Transit Services has developed procedures for Customer Services Agents (CSA General Instruction A-9) and Dispatchers (Dispatcher General Instruction A-14) to **access Power DMS to read and sign-off** on all CSA Procedure, E-Notice, Procedure Notice or Bulletin. The Audit Team believes that this is a best-practice that should be used as an example by other departments.

8.6.2 Areas for Improvement

(TS-1) The Audit Team recognized that the minimum train maintenance interval established by the Equipment Department is 30-days. This means that the Train Operators have primary responsibility for identifying issues within this interval through pre-trip inspections, including cab signal testing and other components with safety impact. We recommend that the Department **evaluate the time provided to Train Operators tasked with performing pre-trip inspections on equipment** to ensure that they are afforded adequate time to thoroughly complete this critical duty.

8.7 Shop Tour

The Audit Team toured PATCO facilities and interviewed employees to better understand how safety is integrated into day-to-day operations and determine if they were in compliance with safety regulations and procedures. This included walking through the Lindenwold Yard, several buildings and maintenance shops.

8.7.1 Program Accomplishments

- 1) The Audit Team observed significant **improvements to the yard**; that upgrades an important asset, enhances employee safety and provides perimeter security.
 - a. Improved lighting with taller posts and LEDs to disperse light more effectively.
 - b. A concrete walkway designated for employees to cross the tracks safely.
 - c. Improved housekeeping.

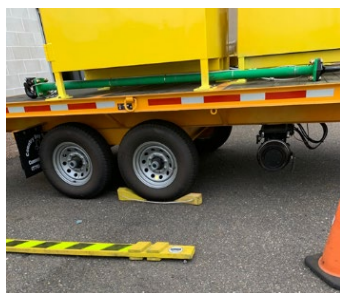


Improved Lighting



Concrete Walkway

- 2) The Audit Team noted **proactive safety items** which enhance safety such as chocking of stationary vehicles, locks on roof access ladders and ladders on signal apparatus.



Chocked Vehicle



Locked Roof Access Ladder

- 3) **Covid-19 protective partitions and signage** were observed in the facility to provide barriers for separation in locations with potential for close contact and to promote employee protection from the threats posed by the coronavirus.



Lunchroom Partitions

- 4) The Audit Team observed the installation of **shop equipment that significantly enhances employee safety**. A flame detector, which is an improvement over smoke detection devices and a decibel meter with an integrated display to alert employees when ambient noise levels are high enough to require hearing protection.



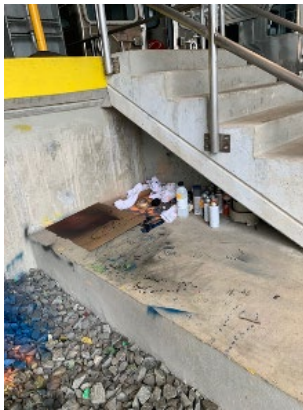
Flame Detector



Decibel Meter

8.7.2 Areas for Improvement (ST-1)

- 1) Two instances of **incorrect storage of flammables** were identified: aerosol paint cans beneath a staircase and a pallet of flammable chemicals stored on a combustible wood pallet in racking. Flammables are required to be stored in designated flammables cabinets. Empty receptacles should be disposed of appropriately.



Incorrectly stored Flammables

- 2) Two instances of **machine tool non-compliance** were identified. A grinding wheel with incorrect clearance and a drill press without required machine guarding.

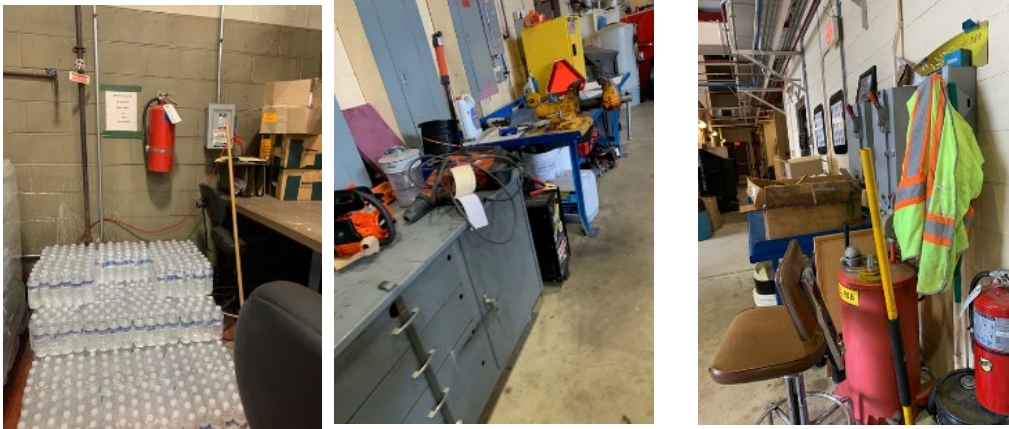


Grinding Wheel Clearance



Drill Press Guarding

- 3) During the tour of the boiler room, the Audit Team observed that the **boiler operator license posted on the wall was expired**. Certifications like these should be integrated into training programs to ensure that personnel are re-certified before the expiration date or alternate training programs need to be documented.
- 4) Outside of the vehicle shop, **improperly secured gas cylinders** were observed.
- 5) Two of ten portable fire extinguishers had overdue monthly inspections. One of them missed 4 inspections in the past year. Expired eye wash bottles were also found.
- 6) **Obstructed fire extinguishers and electrical panels** were identified in three locations. These conditions should be identified during regular facilities inspections.



Obstructed Equipment

8.8 Chief Safety Officer (CSO)

The CSO position is an emerging requirement that will be fully implemented with the completion of the transition to the PTASP. The Audit Team interviewed the CSO as part of the 2020 Triennial Audit as a precursor to full PTASP implementation. The Director of Safety Services is providing the leadership necessary to fulfill the CSO role.

- 1) The Audit Team determined that the CSO has the requisite **training and experience** to be able to understand the responsibilities of the position and knows how to react to emerging safety concerns in a variety of disciplines.
- 2) The CSO has a current position within PATCO/DRPA that gives him **sufficient authority** to be able to address safety issues when needed.
- 3) The CSO continues to **meet daily with the DRPA CEO and his staff to address Covid-19 issues**. This leadership position enables him to develop and implement Covid-19 passenger and employee protection policies at PATCO. His continued involvement will allow him to respond to changes in the needs of PATCO, dictated by emerging knowledge of the virus and protective practices.
- 4) The CSO has direct lines of communication with both the PATCO GM/AE and the DRPA CEO/PATCO President.

The CSO should continue to provide leadership to resolve items identified in General category, Section 8.1.2.

8.9 Accountable Executive (AE)

Like the CSO position, the Accountable Executive is an emerging requirement that will be fully implemented with the completion of the transition to the PTASP. The Audit Team interviewed the AE as part of the 2020 Triennial Audit as a precursor to full PTASP implementation. The General Manager is providing the leadership necessary to fulfill the AE role.

- 1) The AE is an experienced PATCO employee and manager; with **formal TSI FTA safety training**.
- 2) The AE has a direct line of communication with the DRPA CEO/PATCO President.
- 3) The Audit Team observed evidence of the AE's **direct involvement with the closed loop safety suggestion system**. This is an important contributor to a positive safety culture at PATCO.

The AE should continue to provide leadership to resolve items identified in General category, Section 8.1.2.

9.0 Summary

The Audit Team found that most of the essential elements of the PATCO safety programs are fully developed and well implemented. The Audit Team encourages all departments to continue their efforts toward maintaining and further developing the elements of the PATCO System Safety Program Plan (SSPP).

The Audit Team examined the following areas to identify efforts to sustain safety and reduce risk which were stated initially as focus areas of this audit:

- Hazard Identification/Resolution Process
- Training and Certification
- Roadway Worker Protection
- Maintenance, Inspections and Tests

Six (6) Non-Compliances and **ten (10) Compliances with Recommendations** were identified through this review. One Non-Compliance (EM-1) was determined to be Closed. This is a significant improvement since the previous triennial safety audit that was performed in 2017. The 2020 findings relate to several departments within PATCO (see the Draft Corrective Action Plan, Table 1, after section 6.0).

PATCO is commended on continuing efforts to improve safety through the merging of the PATCO and DRPA Safety Services Departments, implementation of Power DMS and transitioning to PTASP among other efforts.

The NJ DOT Audit Team would like to thank all PATCO personnel interviewed during the audit for their cooperation during this review.