



Board Report

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SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE JANUARY 19, 2017

SUBJECT: OFFICE OF THE INSPECTOR GENERAL REPORT ON REVIEW OF METRO SAFETY CULTURE AND RAIL OPERATIONAL SAFETY

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE report on **Review of Metro Safety Culture and Rail Operational Safety**.

ISSUE

On February 26, 2015, MTA Board directed the Inspector General to:

- I. Conduct research into an appropriate zero-tolerance policy for Red Light violations for our Rail and Bus system and return to the Board in March with such a policy for consideration; and
- II. Retain an independent consultant with expertise in safety culture and rail operational safety to conduct a review of MTA rail operations and management, including a root-cause analysis of the Red Light violations committed over the past two years.

DISCUSSION

- I. Zero-tolerance policy for red light violations
 - i. Metro's Office of the Inspector General (OIG), pursuant to the Board's directive and the OIG mission, conducted research on a zero-tolerance policy for red light violations and reported to Metro Board on March 2015. We found that:
 1. Metro does not have a policy called "zero-tolerance" for red light violations. However, Metro has safety related policies and procedures to guide Metro management, rail operators, and bus operators for their operations of Metro rail and bus systems.
 2. Under our agreements with the Unions representing operators, red light violations are now designated as "major" violations. They were previously designated as "minor" infractions.
 3. Metro has a progressive discipline policy for red light or signal violations in writing for bus and as a practice for rail.

ii. We made recommendations to the Board:

1. Operations should provide to the Board, at least quarterly, a report on major rule violations, dispositions, recidivism, claims for property and personal injury categorized by type of violation, historical and current, so that trends can be identified to determine if the new Union contract discipline policy is having a positive effect and reducing injuries to the public.
2. The Safety Committee receive periodic technology and maintenance reports to better address monitoring of technology as it relates to safety operations.

II. Review of Metro Safety Culture and Rail Operational Safety

The OIG, pursuant to the Board's directive and the OIG mission, conducted a study of Metro Rail red light violations including root causes of any violations in the last two years, and an analysis of Metro's safety culture and rail operational safety including infrastructure issues, operator training, use of efficiency testing, and effectiveness of discipline. The purpose of the study is to self-police and promote safety to avoid incidents similar to those at other transit properties and address concerns in the industry across the nation about the quality of safety programs, transit agencies' cultures and its effect on transit agencies' performance, as well as the proliferation of red signal violations. The OIG has a role in monitoring safety in general and making recommendations for improvements where indicated.

The OIG prepared a comprehensive statement of work (SOW) for a Request for Proposal (RFP) and hired The Wathen Group (TWG), which formed a team of experts who have experience in both rail transportation and safety, to perform this review.

i. Report Summary

TWG conducted an extensive data and document review including red signal violations that occurred between July 1, 2013 and June 30, 2015. Based on OIG direction, TWG:

1. Conducted interviews with various levels of management at Metro and Los Angeles Department of Transportation (LADOT);
2. Facilitated nineteen Metro Rail employee focus groups;
3. Surveyed Metro Rail employees;
4. Conducted an extensive document review;
5. Conducted field observations between February and May 2016 to assess Metro Rail's safety culture; and reviewed the red signal violations that occurred over a two-year period;
6. Made recommendations that address the issues found in this review.

The consultant team completed the review and prepared a comprehensive report on Metro's safety culture and rail operational safety. TWG grouped the review results into six

sections:

- Section A. Safety Culture
- Section B. Red Signal Violations
- Section C. Safety Assessment of Infrastructure Elements
- Section D. Technology
- Section E. Operations and Maintenance
- Section F. Human Resources

Section A: Safety Culture Assessment

The review found that Metro Rail has made positive changes towards creating an informed culture comparing performance and perceptions over a four-year period. Compared to the 2012 survey, there have been significant improvements in all rail safety areas. However, as the rail system continues to expand and add new employees at all levels, it will be limited in its ability to improve without an additional systematic analysis of performance, trends and investigation of incidents and accidents, as well as clarify roles and responsibilities, identify, and enforce key accountabilities with performance metrics that measure field employees, management, and department performance in Operations. Some key findings include:

1. Metro does not have a central or consistent employee information data base regarding service related information, discipline/grievance records and absenteeism, making it difficult to link employee based information to operating and safety performance to identify patterns that may contribute to unsafe practices and/or facilitate positive performance.
2. Metro Rail Management proactively focuses on the red signal violations, but TWG found investigations information lacks documentation and analysis of conclusions.
3. There are mixed results on whether employees are regularly reporting consistent near misses. Better reporting of near misses is a best practice that will enable the agency to identify hazards proactively to further lower the risk of an incident or accident.
4. Metro should improve the perception of consistent treatment and discipline of employees.
5. Metro is moving in positive directions about the quality of the safety training programs. 75.9% of employee surveys said it was either "Excellent" or "Good", up from 69.9% in 2012.

Section B: The Red Signal Violations

A major focus of the study was to review the red signal violations that occurred between July 1, 2013 and June 30, 2015 and determine trends and root causes. The key findings in this area are:

1. Metro Rail has no central employee discipline data base.
2. Investigative reports for red signal violations are not prepared in compliance with the

Agency's guidelines. Generally, the root cause is listed as "operator inattention" with no contributing factors listed. Three main categories of factors that may have contributed to the red signal violations:

- 1) Current operating practices
- 2) Existing signal configurations and/or infrastructure
- 3) Operating rules and procedures

Section C: Safety Assessment of Infrastructure Elements

TWG reviewed the rail system to identify the locations where the highest number of violations occurred. TWG also reviewed grade crossing and traffic signal equipment at ten rail/vehicle intersections where there is a higher likelihood of accidents. The key findings in this area are:

1. Some signals were not installed at the left side of the track in accordance with standards.
2. Some locations have poor visibility of signal, signage, and limit lines.
3. Lack of coordination between interlocking signals and bar signals at intersections.
4. Lack of consistency in the configuration of signage, street markings, pedestrian barriers, traffic control devices, and traffic enforcement devices at locations.

Section D: Technology

This section provides a summary of TWG's investigation of various systems and industry practices for the purpose of identifying technologies, procedures and processes that can be implemented to mitigate red signal violations and enhance safety of operation. TWG's general approach is based on the premise that it is necessary to combine technical innovation with compatible operating practices in order to achieve effective results. Proven technologies, when combined with modified operating practices, can reduce red signal violations and enhance safety of operations. In this area, Metro should:

1. Establish an operating plan to implement the new SCADA/CTC system with automatic route setting and modify operating rules and procedures.
2. Consider the installation of dispatch indicators at terminal stations to facilitate the implementation of an Automatic Dispatching System (ADS).

Section E: Operations and Maintenance

TWG reviewed and assessed various elements of rail operations, operating rules and procedures, signal maintenance and Metro's efficiency testing program. TWG's main objective was to identify issues that have an effect on the safety and reliability of train service. The key findings in this area are:

1. Metro does not have an effective process to manage LADOT bar/traffic signal and

- reduce operator violations.
2. The dispatching procedure put pressure on Train Operators to leave the station on schedule and other distractions may cause the operators to fail to establish a route, and falsely expect the leaving signal to clear.
 3. The operating rules and procedures do not define "Limit Lines", but rather define a "Fouling Point Marker" that is similar in shape to limit lines.
 4. The impact of signal failures on train operations is not clearly and consistently reflected in the Main Line Incident Status Log Reports.
 5. Metro Rail's current Efficiency Testing Program does not effectively support operator rule compliance nor is it aligned with industry best practices.

Section F: Human Resources

A well performing organization has a commitment to have effective human resources policies and practices. TWG reviewed Metro's selection criteria for Rail Operators, the quality of safety training and current discipline policies as potential deterrents for red signal violations. TWG also reviewed the discipline policies/practices at thirteen other transit agencies as a comparison and benchmark. The key findings in this area are:

1. Some employees were concerned about the negative impact on the new accelerated operator classes needed to meet the tight timetables for initiating start-up services. Metro has added more on-the-job training.
2. Some employees expressed that more train vehicle training would be helpful to better support new operators on the rules and procedures.
3. Metro offers a robust series of training programs for rail transportation employees and supervisors with a strong focus on safety and operations.

ii. Recommendations

This report contains 117 recommendations to improve Metro's rail safety culture and minimize red signal violations. The report also makes 55 site specific recommendations to improve infrastructure and safety at specific locations. TWG's recommendations are cited throughout the report and are summarized in Appendix 1 - Schedule of Recommendations. The following are key recommendations:

1. Create a centralized computerized employee data base of all employee records, absenteeism, discipline, etc. Assign responsibility and accountability for managing and monitoring individual employee performance.
2. Conduct a root cause training program for all supervisors and managers.
3. Develop and implement a communications program directed at management, supervision and employees to ensure more consistency with policies and procedures.
4. Discuss red light violations at monthly management team meetings and quarterly review patterns of violations by work units to look for trends.
5. Issue more comprehensive red signal violation reports that include the underlying facts,

- data and circumstances associated with the violation and all contributing factors.
6. Develop an Accident/Incident Investigation Guide that defines the organizational roles and responsibilities for accident and incident investigations.
 7. Undertake a program to enhance the visibility of signal aspects, including relocating signals and/or the installation of repeater signals where required.
 8. Establish an operating plan to implement the new SCADA/CTC system. The operating plan should be based on a consistent approach to automatic route setting and include any required modifications to operating rules and procedures.
 9. Hold discussions with LADOT regarding the root causes for the poor reliability of bar signals, and develop an action plan to address bar/traffic signal failures.
 10. Survey signal locations and repaint Blue, Expo and Gold Lines "Limit Lines" as needed. Describe the "Limit Line" and associated rule in the Operating Rules & Procedures/SOPs.
 11. Capture train delays and other service impacts caused by signal failures. The data should be used in on-time performance analysis and to establish metrics for signal maintenance.
 12. Re instruct controllers to document infrastructure failures like signals on the incident status log reports.
 13. Continue to update Metro's Rail Efficiency Testing program consistent Federal Railroad Administration (FRA) rules.
 14. Consider focusing new operator training on the rules and characteristics specific to their assigned line instead of general training.
 15. Conduct improved root cause-based investigations and comprehensively identify contributing factors. Signal violation training should be updated to reflect these factors.
 16. Blue/Expo Line - Metro should consider the installation of approach signals on a case by case basis in the approach to home signals in street running territory.
 17. Consider modifying interlocking signals at intersections on the Blue/Expo Line with automatic route settings as already implemented on the Gold Line.
 18. Consider implementing an Automatic Train Dispatching System (ATD).
 19. Provide training modules to train operators that focus on site specific situations where interlocking signal and bar signal could conflict.
 20. Instruct controllers to inform train operators when switching modes of operation of an interlocking from "Automatic" to "Central".

iii. Management Response to Report

In late September 2016, we provided Metro Operations and Corporate Safety management with a draft report. On October 12, 2016, TWG and OIG met with Operations and Corporate Safety management to discuss the report. Management generally agreed with the report and stated that they will develop an implementation plan for many of the recommendations in the next 60 days.

NEXT STEPS

Metro management should:

- Assign an individual responsible for championing the Agency review and analysis of the findings and recommendations in the report and taking appropriate actions;
- Complete the Schedule for Tracking Metro's Proposed Actions in response to the recommendations provided in Appendix 1 of the Report as it makes determinations about the recommendations;
- Periodically report to the Metro Board during the coming year on the progress of reviewing, analyzing, and making a determination on each recommendation; and
- Periodically report to the Metro Board on the implementation of any actions Metro determined to take on the recommendations.

ATTACHMENTS

Attachment A - Report on Review of Metro Safety Culture and Signal Violations

Attachment B - Response from Operations Department

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