



Railroad Yard Lighting Report

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Prepared by

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Contents

Contents 3

Legislative Request..... 4

Lighting Reports Summary..... 6

MnDOT Analysis..... 7

Progress Achieved 9

Recommendations 10

Appendix A: Railroad Yard Lighting Charts..... 11

Appendix B: All Responses from the Railroads and the UTU 16

Legislative Request

This report is issued to comply with [Minnesota Statutes 219.375, subs. 1-4.](#)

219.375 RAILROAD YARD LIGHTING.

Subdivision 1. Lighting status reports submitted by railroad common carriers.

By January 15 of each year, each Class I and Class II railroad common carrier that operates one or more railroad yards in this state where, between sunset and sunrise, cars or locomotives are frequently switched, repaired, or inspected, or where trains are assembled and disassembled, shall submit to the commissioner of transportation a plan that:

- (1) identifies all railroad yards operated by the railroad where the described work is frequently accomplished between sunset and sunrise;
- (2) describes the nature and placement of lighting equipment currently in use in the yard and the maintenance status and practices regarding this equipment;
- (3) states whether the lighting meets or exceeds guidelines for illumination established by the American Railway Engineering and Maintenance-of-Way Association;
- (4) describes whether existing lighting is installed and operated in a manner consistent with energy conservation, glare reduction, minimization of light pollution, and preservation of the natural night environment; and
- (5) identifies plans and timelines to bring into compliance railroad yards that do not utilize and maintain lighting equipment that meets or exceeds the standards and guidelines under clauses (3) and (4), or states any reason why the standards and guidelines should not apply.

Subd. 2. Maintenance of lighting equipment.

A railroad common carrier that is required to file a report under subdivision 1 shall maintain all railroad yard lighting equipment in good working order and shall repair or replace any malfunctioning equipment within 48 hours after the malfunction has been reported to the carrier. Repairs must be made in compliance with, or to exceed the standards in, the Minnesota Electrical Code and chapter 326B.

Subd. 3. Lighting status reports submitted by worker representative.

By January 15 of each year, the union representative of the workers at each railroad yard required to submit a report under subdivision 1 shall submit to the commissioner of transportation a report that:

- (1) describes the nature and placement of lighting equipment currently in use in the yard and maintenance status and practices regarding the equipment;
- (2) describes the level of maintenance of lighting equipment and the carrier's promptness in responding to reports of lighting malfunction;
- (3) states whether the available lighting is adequate to provide safe working conditions for crews working at night; and
- (4) describes changes in the lighting equipment and its adequacy that have occurred since the last previous worker representative report.

Subd. 4. Commissioner response.

The commissioner shall review the reports submitted under subdivisions 1 and 3. The commissioner shall investigate any discrepancies between lighting status reports submitted under subdivisions 1 and 3, and shall report findings to the affected yard's owner and worker representative. The commissioner shall annually advise the chairs and ranking minority members of the house of representatives and senate committees and divisions with jurisdiction over transportation budget and policy as to the content of the reports submitted, discrepancies investigated, the progress achieved by the railroad common carriers towards achieving the standards and guidelines under clauses (3) and (4), and any recommendations for legislation to achieve compliance with the standards and guidelines within a reasonable period of time.

The cost of preparing this report is under \$5,000.

Lighting Reports Summary

[Minnesota Statutes 219.375](#), subd. 1 and 3, direct Class I railroads, Class II railroads and the union representative for each railroad to submit reports to the commissioner of transportation. According to the statute, these reports should include specific information regarding lighting conditions in rail yards where train cars or locomotives are frequently switched, repaired, inspected, assembled or disassembled at night. After the railroad yard lighting reports are received, the commissioner is to advise the transportation committees about the content of reports, any discrepancies investigated, the railroads progress toward achieving the standards and guidelines identified in the statute, and any recommendations for legislation to achieve compliance.

BNSF Railway, Canadian Pacific Railway, Canadian National Railroad, Union Pacific Railroad, and United Transportation Union's SMART Transportation Division submitted initial reports to Minnesota Department of Transportation's Office of Freight and Commercial Vehicle Operations. Three of the four railroads stated in their cover letters that while they were submitting information in a spirit of cooperation, each believes that some or all of the requirements placed on the railroads in [Minn. Stat. 219.375](#) may be preempted by federal laws. No documentation or analysis was provided supporting the contention of preemption by federal laws.

The respondents provided most of the information required by the statute with some exceptions:

- BNSF, CN and CP did not initially provide information on the status or maintenance practices of yard lighting. Some of this information was received in a follow-up letter.
- UP did not provide information on maintenance status or practices either. Then, in a subsequent response, it was reported that lighting is being installed at the Roseport yard, but the response did not include a specific timeline or plan regarding the Roseport yard.
- Initially, UTU did not include descriptions of the nature and placement of lighting, lighting maintenance status or lighting related maintenance practices of individual yards. Information on the nature and placement of yard lighting was received in a follow-up response, but the UTU reported that only the railroads have access to maintenance records, therefore the maintenance information was not available from the UTU.

MnDOT Analysis

MnDOT evaluated the yard lighting information received and requested additional information from each railroad and the worker's representative. Based on the evaluations of all the information received, MnDOT sent an initial summary of conclusions and recommendations directed to each railroad and to the UTU. All respondents were given the opportunity to edit and comment on the conclusions and recommendations.

Summary of Results

The railroads and the UTU did not agree on whether existing lighting is required at 14 rail yards. There are two additional yards where the railroad and the UTU disagree that the lighting is The American Railway Engineering and Maintenance-of-Way Association compliant. In cases where the UTU did not have data, the lighting condition was reported as unknown. At 20 of these locations, the UTU follow-up response stated that it disagrees with the railroad's assertion that the lighting is AREMA compliant.

The discrepancies between the railroads and the UTU reports over the applicability of subd. 1 to a particular yard likely arises from one or more of the following:

- **Interpretation of “frequent operations.”** The statute lacks a specific definition of the term “frequent operations.” For example, a railroad may not consider seasonal operations as frequent, but the UTU may do so. The UTU defined frequent operation as occurring five days or nights per calendar week.
- **Lack of data to assess operations.** MnDOT is not aware of any data available from the railroads or the UTU to quantify operational activities by time of day. In addition, railroad operations are not constant, so any attempt to conduct spot audits will not resolve discrepancies. Determining conformance with the statute is difficult without a source of complete and objective data.
- **Interpretation of the statute.** [Subd. 5 of Minn. Stat. 219.375](#) imposes an obligation on the railroads to install lighting that meets the standards listed in the statute in certain rail yards by Dec. 31, 2015. The UTU and the railroads have different interpretations of which rail yards are subject to this requirement. The UTU interprets subd. 5 as having much broader applicability than the interpretation by the railroads. The UTU indicated that all the yards the UTU identified in its reports as “Applicable to Statute” would, under its interpretation, be subject to the standards imposed by subd. 5 of the statute.
- **Geographic and operational yard definitions.** There are instances of the UTU and the railroad using different terminology to identify a rail yard. For example, the UTU identified part of the CP yard in St. Paul as the “Dunn” yard, but the CP considers that area to be part of the “St. Paul” yard. The UTU asserts that the “Dunn” yard is within two miles of the refinery in St. Paul Park, but according to MnDOT's evaluation, it is more than two miles. This discrepancy could be the result of different definitions of the yard boundary.

The discrepancies within the reports from the railroads and the UTU over yard lighting compliance with the AREMA guidelines likely arises from one or more of the following:

- The statute does not require reporting entities to conduct lighting measurements or to provide measurement data to MnDOT. Even if data was provided, the locations and methods of measurement could result in different conclusions.
- CN is relying on the use of personal illumination devices to meet the AREMA guidelines. CN reported that light levels were inconsistent and frequently below the AREMA-recommended level of illumination when only measuring light levels from fixed lighting. MnDOT reviewed the CN reports, the AREMA guideline and referenced the Illuminating Engineering Society Handbook. Based on this review, MnDOT concludes that relying on personal illumination devices does not meet the intent of the AREMA guideline. CN should only report compliance/non-compliance based upon fixed lighting levels.

Lighting maintenance issues were also difficult to evaluate for each yard because of a lack of specific reporting by the railroads and the UTU. The railroads provided general procedure information. The UTU provided some specific complaints that could not be evaluated due to lack of railroad response time. The UTU reported that only the railroads keep maintenance records. Based upon railroad responses to follow-up questions on some of the complaints provided by the UTU, it appears the railroads responded to those lighting maintenance requests.

The information provided by the railroads and the UTU regarding energy conservation, glare reduction, minimization of light pollution and preservation of the natural night environment was not specific or detailed. The railroads generally identified the type of lighting. The UTU stated that the yards were in industrial areas and that they do not have access to information to fulfill this requirement.

Progress Achieved

Since this is the first report, the charts in Appendix A indicate the current lighting status at the yards. Any progress achieved will then be included in the 2016 report.

Recommendations

MnDOT recommends the following to improve compliance and reporting:

- Develop a definition of “frequent operations” that clearly defines the extent of operation needed to meet the statutory requirements, including seasonal operations.
- Clarify the intent of subd. 5 so that all parties understand which yards must meet the December 2015 lighting installation date. This can be accomplished by providing a specific list of yards subject to subd. 5 to all parties.
- In order to simplify reporting, comparison and analysis, MnDOT proposes to provide a standard form for all respondents to fill out. The form would be based on rail yards mutually agreed to by the railroads and UTU. The information provided would be the starting point for a MnDOT investigation.

Reporting fields on the form would be limited to the following:

- Yard Name
- Frequent nighttime switching occurs (Yes/No);
- If frequent nighttime switching occurs, provide the following information:
 - Lighting is/is not installed;
 - Type and location of lighting;
 - Installed lighting meets the AREMA guideline (Yes/No), and;
 - Lighting is maintained per subd. 2 (Yes/No)
- Define the role for the Minnesota Occupational Safety and Health Administration in inspecting and enforcing worker safety in rail yards. Under [Minn. Stat. 182.653](#), MNOSHA has the authority to inspect and enforce the Minnesota Occupational Safety and Health Act and federal standards, including minimum levels of illumination as described in [Minnesota Administrative Rules 5205.0120](#).

The employer is responsible to ensure the workplace’s illumination meets this rule. MNOSHA could determine if a rail yard’s illumination meets safety requirements and could also act on any immediate safety concerns in the rail yards, including lighting installation and maintenance. MNOSHA could report on investigated complaints and compliance to those standards as an objective party. MnDOT will work with MNOSHA to clarify roles and procedures on rail yard lighting and other yard safety issues, including any additional statutory changes necessary to better ensure railroad worker safety.

Appendix A: Railroad Yard Lighting Charts

BNSF Rail Yards Chart: Comparison of Yard Lighting Status

Yard	Does the yard fall under the operation requirements of subd. 1?		Is lighting installed and operational at the yard?		Is the lighting AREMA compliant?	
	BNSF	UTU	BNSF	UTU	BNSF	UTU
Dayton's Bluff	No ¹	Yes		No		No
Duluth Rice Point	No ²	Yes		Yes		Unknown
Minneapolis Union	No ³	Yes		No		No
Northtown	Yes	Yes Section	Yes	Yes	Yes	Unknown
Willmar	Yes	Yes Section 4 ⁴	Yes	Yes	Yes	Unknown
Dilworth	Yes	Yes Section 4 ⁴	Yes	Yes	Yes	Unknown
Midway	Yes	No	Yes	Yes	Yes	Yes
East Grand Forks	No ⁵	Yes Section 4 ⁴		Yes		Unknown
St. Cloud	No ⁶	unknown		Yes		Unknown
Staples	No	No		Yes		Unknown
Grand Rapids	No	No		Yes		Unknown
Little Falls	No	No		No		No
Florence	No	No		No		No
Minneapolis Grove	No	No		No		No

¹ BNSF reports that switching does not occur between sunset and sunrise. Infrequent assembly of trains occurs.

² BNSF reports that infrequent switching of rail cars between sunset and sunrise may occur on some afternoon shifts during months of shorter daylight hours. No evening switch job is at this location. Operations are subject to BNSF operational needs and may shift to other locations at BNSF's discretion.

³ BNSF reports that no switching of rail cars between sunset and sunrise occurs. Yard tracks are used as storage tracks and no switching occurs. Switching, car loading or unloading are done on the strip tracks which are lighted.

⁴ Section 4 of the UTU report incorrectly referred to subd. 5 of the statute.

⁵ BNSF reports that switching does not occur between sunset and sunrise.

⁶ BNSF reports that due to seasonal hours of daylight, some switching of rail cars may occur between the extended hours of sunset and sunrise during afternoon shifts. No evening switching jobs are at this location.

CN Rail Yards Chart: Comparison of Yard Lighting Status

Yard	Does the yard fall under the operation requirements of subd. 1?		Is lighting installed and operational at the yard?		Is the lighting AREMA compliant?	
	CN	UTU	CN	UTU	CN	UTU
Proctor	Yes	Yes	Yes	Yes	Yes ¹	No
Rainier	Yes	Yes	Yes	Yes	Yes ¹	Unknown
Keenan	Yes	Yes	Yes	Yes	Yes ¹	Unknown
Missabe	No	Yes		No		Unknown
Wilpen	No	Yes		No		No
Two Harbors	Yes		Yes	Yes	Yes ¹	Unknown
Biwabik	No	Yes ²		No		No
Virginia	Yes	Unknown	Yes	Yes	Yes ¹	Unknown
Steelton	No			Yes		Unknown
Allen Junction	No			No		No
Wales	No	Yes ³		No		No

¹ CN reports inconsistent lighting from fixed, overhead lighting, but that AREMA recommended levels are exceeded with the use of personal illumination.

² UTU describes as seasonal night operations, dependent on the Duluth port being open for approximately 10 months.

³ UTU describes as seasonal night operations.

CP Rail Yards Chart: Comparison of Yard Lighting Status

Yard	Does the yard fall under operation requirements of subd. 1?		Is lighting installed and operational at the yard?		Is the lighting AREMA compliant?		Is there a plan to meet the lighting requirement?
	CP	UTU	CP	UTU	CP	UTU	CP
St. Paul	Yes		Yes		Yes		Issue advanced to the Safety Advisory Board for evaluation.
Dunn ¹	NA	Yes		No		Unknown	
New Ulm	Yes	Yes	Yes	No	Unknown	Unknown	
Northfield		Yes		Yes		Unknown	
Hastings ²	No	Yes		No		Unknown	Issue advanced to the Safety Advisory Board for evaluation.
Thief River Falls	Yes		Yes	Yes	Yes	Unknown	
Humboldt	Yes		Yes	Yes	Yes	Unknown	
Shoreham	Yes		Yes	Yes	Yes	Unknown	
Glenwood	Yes	Yes	Yes	Yes	Yes	Unknown	
Glenwood East ³	NA			No		Unknown	
Waseca	Yes		Yes	Yes	Yes	Unknown	
River Junction	Yes	Yes	unknown	Yes	unknown	Unknown	
River Junction South ⁴	NA			No		Unknown	
Noyes ⁵	NA			Yes		Unknown	
Austin	Yes		Yes		Yes		
Wells	Yes		Yes		Yes		
Tracy	Yes		Yes		Yes		

¹ CP considers Dunn to be part of the St. Paul Yard.

² CP reports that night time operations occur on an irregular basis at Hastings. They do not consider this yard to meet the frequency requirement of subd. 1.

³ CP considers Glenwood East to be part of the Glenwood Yard.

⁴ CP considers River Junction South to be part of the River Junction Yard.

⁵ CP does not consider the operations at Noyes to meet any definition of yard operations.

UP Rail Yards Chart: Comparison of Yard Lighting Status

Yard	Does the yard fall under the operation requirements of subd. 1?		Is lighting installed and operational at the yard?		Is the lighting AREMA compliant?		Is there a plan to meet the lighting requirement?
	UP	UTU	UP	UTU	UP	UTU	UP
Roseport North	Yes ¹	Yes	being installed	No	No	No	States lighting being installed but not described
Roseport South				No		No	
Western Avenue	Yes	Yes	No	No	No	No	
Merriam	Yes	Yes	No	No	No	No	
St. Paul Hoffman	Yes	Yes	Yes	Yes	Yes	Unknown	
East Minneapolis	Yes	Yes	Yes	No	Blank	No	
Albert Lea	Yes	Yes	Yes	No	Yes	No	
So. St. Paul	Yes		Yes	Yes	Yes	Unknown	
Valley Park	Yes		Yes	Yes	Yes	Unknown	
Mankato	Yes ²		Yes	Yes	Yes	Unknown	
Mankato New Yard				Yes		Unknown	
Worthington	Yes		Yes	Yes	Yes	Unknown	
Winona	Yes		Yes	No	Yes	No	
Elk Creek	Yes		Yes	Yes	Yes	Unknown	
Hazel Park	Yes		No		No		

¹ UP report describes one yard as Roseport and does not distinguish between North and South areas

² UP report describes one yard as Mankato and does not distinguish between Mankato and Mankato new

Appendix B: All Responses from Railroads and the UTU