

Aspects of LRT Operations Safety



Toward Zero Deaths Conference

Nov 16-17, 2016

Michael Conlon, Director – Rail and Bus Safety

Metro Transit

SYSTEM SAFETY TASKS BY PROJECT PHASE

PROJECT DEVELOPMENT

AA/NEPA/PE

Preliminary
Engineering

Safety
Certification
Planning

Preliminary
Hazard Analysis

Threat &
Vulnerability
Assessment

Critical Items
Lists

ENGINEERING

Ongoing Final
Design Reviews

Empanel Safety
& Security
Review
Committee

Verify Design
Conformance to
CCIL and Design
Criteria For

- Fixed Facilities
- Systems
- Rolling Stock

Supplemental
Hazard Analyses

CONSTRUCTION

Verify
Construction
Conformance

- Fixed Facilities
- Systems
- Rolling Stock

Verify Integrated
Testing

Public Outreach

Rules,
Procedures,
Plans

ACTIVATION

Pre Revenue
Operations

Emergency
Preparedness
Exercises

Training

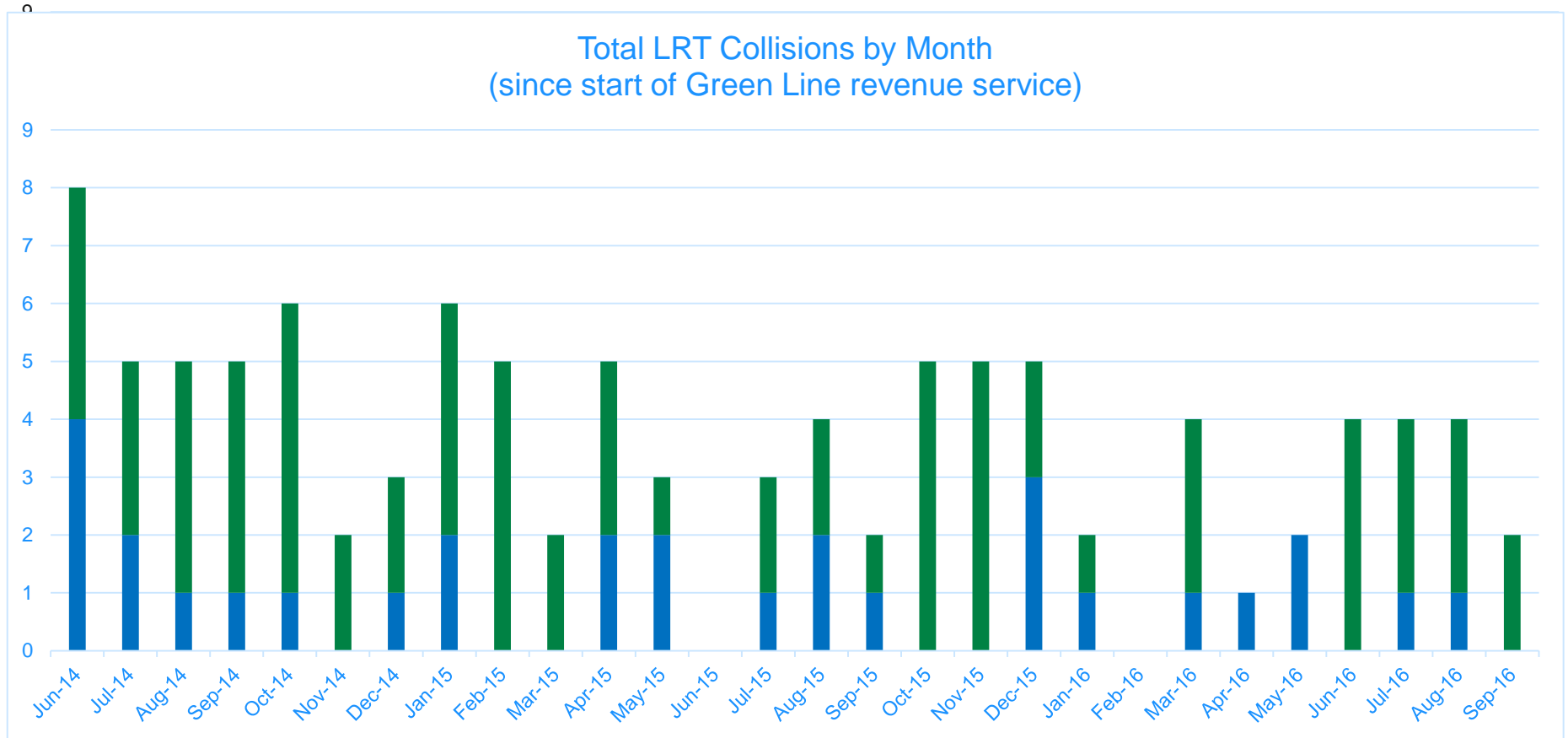
SSOA and FTA
Readiness
Reviews

Final Safety
Certification
Report

FINAL SAFETY CERTIFICATION REPORT

- Certificates of Compliance and of System Safety
- Executive Summary
- Design & Construction
- Passenger Vehicles
- Integrated Testing
- Contractor Provided Training & Manuals
- Rules, Procedures, Plans
- Emergency Preparedness
- Hazard & Threat Analysis

Total LRT Collisions by Month (since start of Green Line revenue service)



National Transit Database Peer Comparison

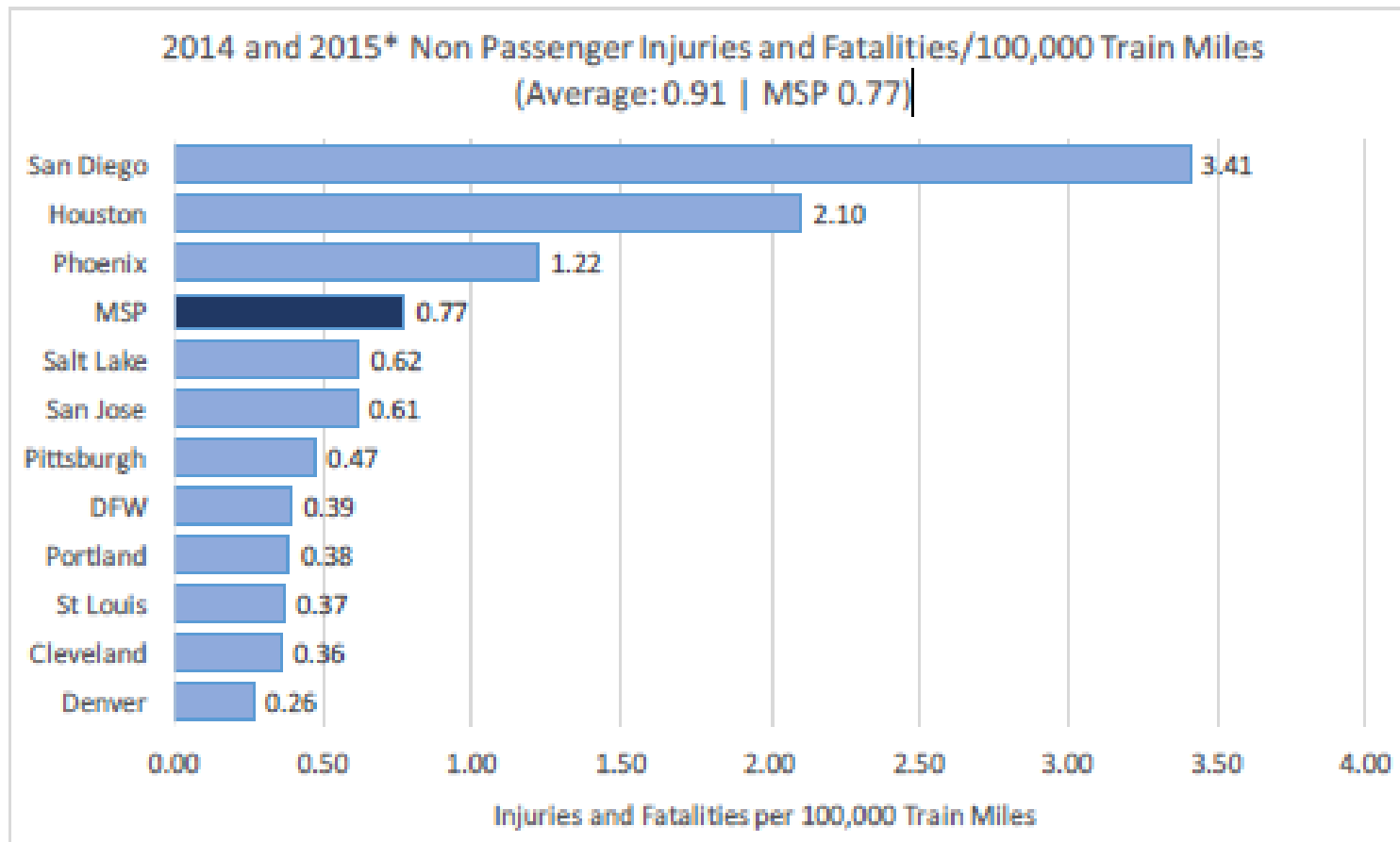
Our Peers

- Minneapolis/St. Paul
- San Diego
- Houston
- Salt Lake City
- Portland
- St. Louis
- Denver
- Cleveland
- Pittsburgh
- San Jose
- Dallas

Major Injuries Involving

- Bicyclist
- Pedestrian in crossing
- Pedestrian not in crossing
- Pedestrian crossing tracks
- Pedestrian walking along tracks
- Other vehicle occupant
- Other
- Trespasser
- Suicide

Ranking The Peers Relative To The NTD Data



Assessing Metro Transit Injuries & Fatalities



ENGINEERING MITIGATIONS

Wig Wag LRV Headlamps



Hi-viz LRV accents



Pedestrian crossings – train approaching light



Train Approaching Lights – FHWA Waiver



Flashing Cantilevered Blankout for Motorists

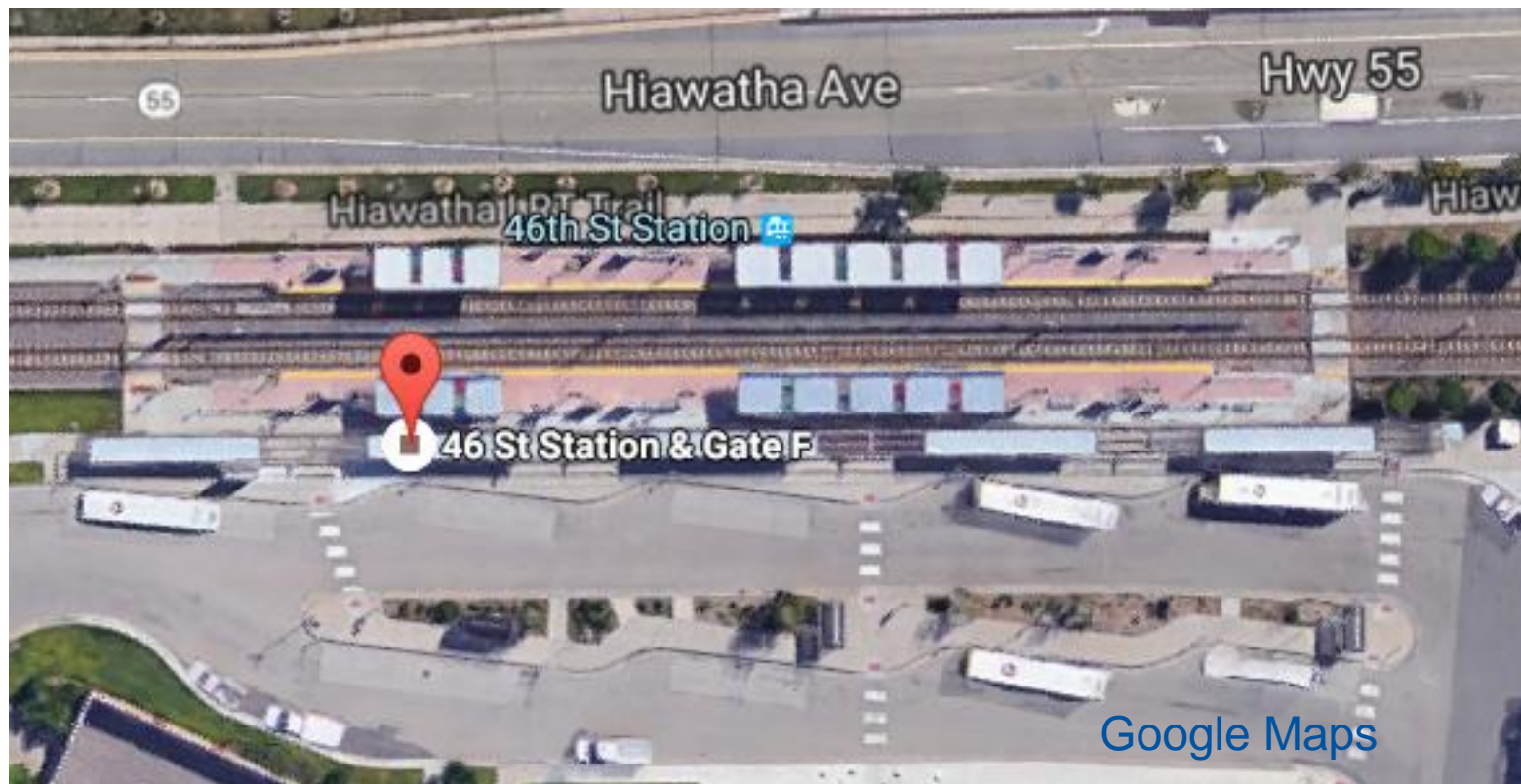




Hiawatha Grade Crossing Enhancements



46th St Blue Line LRT Station



Hiawatha Ave @ 46th St



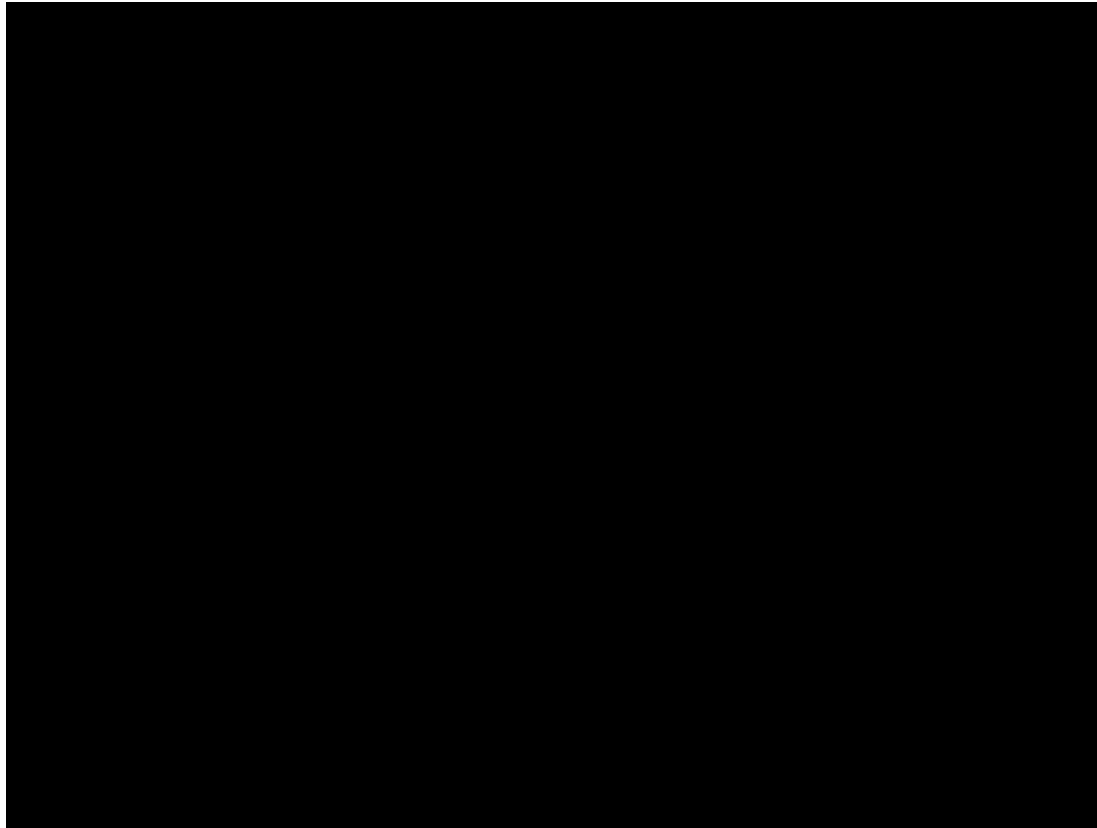
Platform Walkway Railing Extension Project



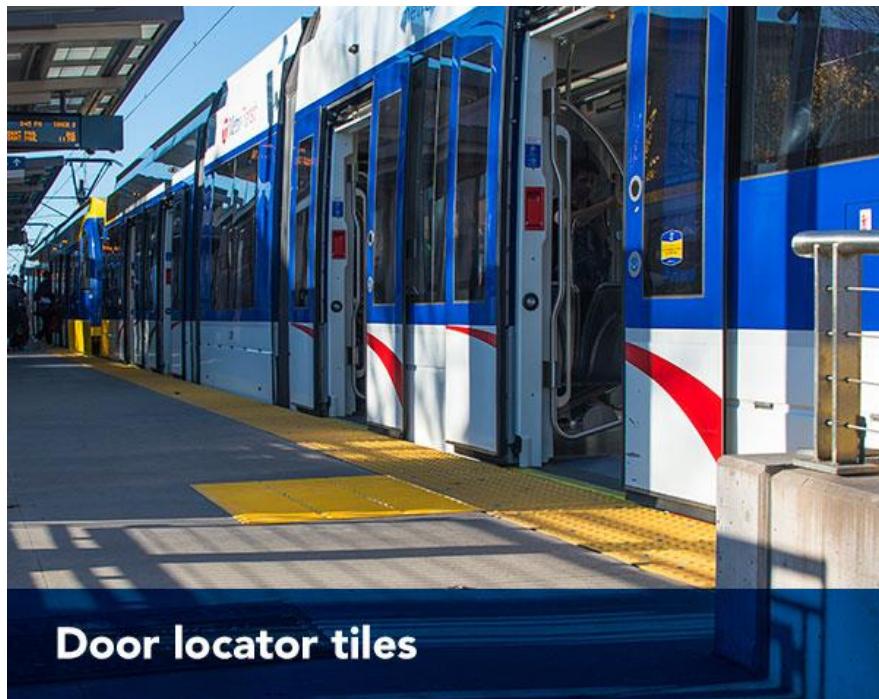
Pathway Crossing @ 46th St



46th St @ Hiawatha Ave. Crossing Warning Enhancements



Platform Wayfinding Pilot Project – GL Raymond Station



Comments and Questions



RELATED



Daily Attention toward Safe Operations

LRT Employee's Job Brief Monday Jan / 25 / 2016

Rule of the Day:

R1001: Safety is of the first importance in the discharge of your duties. The rules set forth here and the "authority rules" for track occupancy are all designed for the safety of everyone and must be obeyed. Metro Transit Light Rail service demands the safe, faithful, and courteous discharge of your duties. In the case of doubt or uncertainty, the safest course of action must be taken.

Tip of The Week:

1. Please put the cab heater control in the 'Heat' position before exiting the Operating Cab. This will help regulate the temperature while it is inactive.
2. Extra Board Call Operators – please call the RCC prior to leaving at the end of your shift.

Target Center Activities:

19:30 - Black Sabbath Concert

Target Field Activities:

NIL

Saint Paul Saints CHS Field:

NIL

Stadium Village Activities:

NIL

ROW Work (Open Permits/Planned Work/Other Activities):

00:45 - 03:00: Lindbergh Tunnel MT1 Section 3 - Track inspection and repairs

07:00 - 15:00: Target Field/Interchange Signal Comm House - contractor doing wiring and circuit breaker work

18:00 - 22:00: Lake Street Flyover - Track Department lubing joints and filling wayside lubricators.

Reminder:

- 1) The "Blue Button" message is being reprogrammed to the #2 spot in the LRV enunciators. Please be patient while the shop updates all the LRVs.

T Metro Transit Wed Jan/27/2016 To: _____
LRV Track Warrant

**1 Malfunctioning Grade Crossing procedures are in effect at the following locations:
 Operators must follow the appropriate malfunctioning grade crossing procedure**

ACTIVE VOID	FRL-North Ped	MOA	13th-St-Ped	Fairview-East Ped	Arundel-Ped Xing
	26th x-ing				

2 Temporary Speed Restrictions

X	X	2a	Do not exceed	20	mph between/a	West Bank	&	East Bank	on MT	BOTH
		2b	Do not exceed		mph between/a		&		on MT	
		2c	Do not exceed		mph between/a		&		on MT	

3 Track Out - of - Service

		3a	Between/at	MP HIA 8.0	&	MP HIA 10.0	on MT	2	EIC	Track
X		3b	Between/at	MP HIA 8.0	&	MP HIA 10.0	on MT	One	EIC	Track
		3c	Between/at		&		on MT		EIC	

4 Work Zone with Signs

		Limits of Work Zone		Tracks	Hand	Movement Coordinator	
		From	To				
X	X	4b	MLK Blvd	W. end Robert St Station	Both	No	Robert St MC
X	X	4c	MP HIA 7.1	MP HIA 7.5	Both	No	62 Flyover MC
		4d					
		4e					
		4f					
		4g					
		4h					

5 Temporary Restricted Zone

		5a	Between/at		&		on MT	Limits occupied by persons/equipment
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Rule Compliance Testing

 LRT Compliance Testing Reference Guide




Light Rail
Compliance
Testing
Reference
Guide

Revision - 6
06/8/2015

Metro Transit Rail Operations

Instructor Ride-A-Longs



Train Operator 30 Day Ride Check

Employee Name: _____ Number: _____

Instructor Name: _____ Number: _____

Reason: _____ 30 Day Ride Check _____

Date: _____

LRV Number: _____

Evaluation ratings:

1-Good 2-Fair 3-Poor

Braking: _____ Starting: _____ Speeds: _____ Safety _____

Horn and Bell Use: _____ Annunciator: _____ Schedule: _____

Door Operation: _____ Radio Communication: _____

Instructors' comments:



Employee Awareness and Training

2016

Train Operator Annual Rules



The Five Keys to
Safe Train Operation

