Utah Transit Authority

Partnering with Operation Lifesaver

15 May 2014

Dave Goeres, PE
Chief Safety Officer
dgoeres@rideuta.com
Why Partner?

• Teaming with like-minded partners to promote safety
• Increase safe behaviors around rail, trains and buses
• Expands educational outreach
• Helps in audits with FRA and FTA
• How is Partnering not a good thing?
UTA System & Recent Projects
UTA System

FrontRunner (Commuter Rail)

TRAX (Light Rail)

Bus (Diesel, CNG, BRT)

S-Line (Streetcar)
Service Area
6 Counties
85 Municipalities
2.25 mil population
4,158 sq mi
6,500 Bus Stops
140 Rail Miles
157 at grade Xings
2,200 employees
UTA Rail Openings
140 Miles in 14 years

- TRAX (Light Rail) North South 15 mi Dec 1999
- TRAX University Line 2 mi Jan 2002
- TRAX Med Extension 2 mi Aug 2003
- FrontRunner (CRT) North 45 mi Apr 2008
- TRAX Hub Extension 2 mi Aug 2008
- TRAX Mid Jordan 11 mi Aug 2011
- TRAX West Valley 6 mi Aug 2011
- FrontRunner South 45 mi Dec 2012
- TRAX Airport 6 mi Apr 2013
- TRAX Draper 4 mi Aug 2013
- S-Line Streetcar 2 mi Dec 2013
Rail Lines

Rail System Map

Legend:
- Red Line
- Blue Line
- FrontRunner
- Dry Creek
- Transfer between
- Stations with no parking
- Stations with parking available
- Stations with transfers in other lines
- Stations with limited parking up to 24 hours
- Stations with transfers in other system
- Hospital
Operation Lifesaver Partnership
Purpose

“We are gratified with the continued improvement in highway-rail grade crossing collisions, but educating a distracted public in order to reduce trespassing injuries and fatalities continues to be a challenge.”

Operation Lifesaver
President and CEO Joyce Rose.
Safety Focus at UTA

• Safety Culture
  Safety First Moment at all meetings
  Safety Ambassadors
  Safety Committees / Hazard form
  Weekly Safety message / Monthly Poster

• 4+ E’s
  Eliminate, Educate, Engineer, Enforce + Encourage

• Safety Management System (OSHAS 18001) certified
Partnering Opportunities

- Rail Openings
- Outreach to Schools and Communities
- Outreach to Businesses and Organizations (Trucking)
- UTA Safety School – UTA Police
- UTA staff as Operation Lifesaver presenters
- Conferences / Fairs / Seminars
Partnering Opportunities

- Sponsoring “Bees” Train
- Area leadership train rides
- Correcting Photographers and Commercials
- State and National Leadership opportunities
- Updating Utah Drivers Training Manual
The Utah Way

UTA, UDOT, WFRC, MAG

• Collaboration
• Integration
• Cooperation
• Alliance
• Partnership
• Joint projects
• Team against the project
BE SURE TO STOP …
OR MEET A COP

Police are now monitoring the new S-Line streetcar crossings and will be ticketing violators.

- S-Line streetcar testing begins Thursday, 10.17.13.
- For your safety, stop completely at railroad crossings. Always expect to see a train when approaching a railroad crossing.
- S-Line trains travel frequently. You can expect to see an S-Line train approximately every 10 minutes.
- Be aware that trains do not stop at crossings. Never try to cross a tracks.
- Look twice. Another train could be coming from the other direction.
- For more safety tips, visit www.rideuta.com.

THE S-LINE OPENS 12.8.13
UTA Bicycle Pedestrian Transit Safety Symposium

March 2014

FTA Region 8 Dep. Administrator
Charmaine Knighton

Operation Lifesaver
Utah State Coordinator
Vern Keesler
Educate

Darin Francom, UTA and Walt Webster, OLI at Utah Drivers Training and Education Conference 28 April 2014
Cooperate

Big Boy No. 4014
Salt Lake City
5 May 2014

Big Boy No. 4014 was delivered to Union Pacific in December 1941. The locomotive was retired in December 1961, having traveled 1,031,205 miles in its 20 years in service.
Take Aways

• Partnering with Operation Lifesaver expands your outreach
• Rail Safety is the focus for both entities
• Partnering provides benefits in multiple, surprising ways
• Messages need multiple means of delivery
• Educate, Educate, Educate
145th Anniversary of Driving the Golden Spike
May 10, 2014

Utah celebrates the historic meeting of the rails, but today many residents and businesses are also celebrating the installation of FrontRunner commuter rail.

Questions
UTA Recent Projects
Rail Activation “Hold Point” Process

Approval & Sign off > Recommends Approval >

Phase / Hold Point

Contract Manager ➔ Project Manager
Safety Administrator ➔ SA – Construction
Control of Corridor ➔ Contractor

Phase 1
Design, Construction & Stand Alone Testing

Hold Point #1
SIRR

Chief Safety Officer Rail Activation Comm

Phase 2
System Integration Testing (SIT)

Hold Point #2
PRRR

PM / Sys Integration Mgr
SA – Construction
Contractor

CSO / Rail GM Rail Activation Comm

Phase 3
Pre-Revenue Operations (PRO)

Hold Point #3
RRR

PM / Rail Svc Inftr Mgr
SA – Operations
Rail Services

General Manager
CSO / Rail GM Rail Activation Committee

Phase 4
Revenue Operations (RO)

Rail System GM
SA – Operations
Rail Services

System Safety Program Plan (SSPP)

Preliminary Hazard Analysis

Certifiable Items Lists (CIL)

System Security Plan (SPP)

Educational Outreach

Emergency Preparedness Plan (EPP)

Certifiable Items Lists (CIL)

Grade Crossing Surveillance Letters (UDOT)

Federal Transit Administration (FTA) Review

Standard Operating Procedures

Federal Railroad Admin. (FRA) Coord

Hiring (Oper, Line & Signal, MOW, Mech)

Emergency Response Plan / Exercises

Stakeholder Collaboration

State Safety Oversight (SSO)

Control of Corridor

Hazard Log

System Security Plan (SPP)

Operational Hazard Analysis

Federal Railroad Administration (FRA) Coord

System Security Plan (SPP)

State Safety Oversight (SSO)

Emergency Preparedness Plan (EPP)

Educational Outreach

Grade Crossing Surveillance Letters (UDOT)

Certifiable Items Lists (CIL)

Standard Operating Procedures

Emergency Response Plan / Exercises

Hiring (Oper, Line & Signal, MOW, Mech)
Airport TRAX

Opened April 2013
Airport TRAX Successes

- Alliance agreement
- Solar panels on stations
- North Temple Viaduct
- Grand Boulevard
- 2014 AGC National Award
Draper TRAX Extension

Opened August 2013
Draper Historic Rail Car Plaza
S-Line Streetcar
Opened December 2013
S-Line Partnering Successes
4 E’s +
4 E’s +
Eliminate
Engineer
Educate
Enforce +
Encourage
Eliminate

- Grade Separation (11400 South, 2100 North)
- Station Crossings (5300 South)
- Farmington, Lehi Pedestrian Crossings
- 200 South American Fork
- Route changes – far side at platforms
- Bingham Junction (at 7500 South)
Engineer

• TCRP Study national review
• Pedestrian Sidewalk Crossing (SC) treatments
• Eliminating “straight-thru” access
• Refreshing Platform Yellow lines
• “Look Both Ways” signs
• Additional Gates
• Cameras on Trains, Platforms
• Bell height and decibel level
• Bike crossings and signs
• Blinking Blankout signs
• Design Safety Reviews / SSWG
• Construction Safety Walks
• Construction Safety
• UDOT Grade Crossing Manual
Educate

- Safety Ambassador Blitzes
- “Train for Safety” Media Program
  - Train Wraps, TV, Billboard, Radio, Social media
- SL Tribune / Salt Lake Magazine Safety Articles
- Schools, Scouts, City Councils, COG Presentations
- Driver License Manual Update
- Operation Lifesaver Coordination
- Safety Management System (SMS)
Educate

- Monthly Posters
- Weekly Messages
- Tip Lines

See Something? Say Something!
801-287-EYES (3937)

If you are aware of it, take care of it.
Enforce + Encourage

- UTA Ordinances and State Statutes
- Joint enforcement with local police
- Safety Ambassador Blitzes
- Police in Hi-Visibility Uniforms
- Plain Clothes duty
- Public Safety (OLI) Class – UTA Police
- TSA Gold Standard Award
Safety Organization
Safety

As of: March 2014

Safety Department
(Safety / EM / Public Safety / Cameras)

Internal Auditors

UTA General Manager
Michael A. Allegra

Office of General Manager

Chief Capital Dev Officer
Steve Meyer

Chief Planning Off
Matt Sibul

Chief Safety Officer
Dave Goeres

Chief Techn Officer
Clair Fiet

Chief Comm Officer
Andrea Packer

Chief Financial Officer
Bob Biles

Chief Operating Off
Jerry Benson

Chief Operating Off

Transit Communication
Grantley Martelly
Michelle Smith

Training

General Counsel
Bruce Jones

Chief Capital Dev Officer
Steve Meyer

Chief Planning Off
Matt Sibul

Chief Safety Officer
Dave Goeres

Chief Techn Officer
Clair Fiet

Chief Comm Officer
Andrea Packer

Chief Financial Officer
Bob Biles

Chief Operating Off
Jerry Benson

Office of General Manager

Safety Department

Public Safety (6000)
Chief Ross Larsen

Video Surveillance Admin
LaMount Worthy

Emergency Management
Amy Cornell-Titcomb

Public Safety Department

Safety Manager

Design / Training
Safety
Hanna

Construction Safety
Max Hanna

Occupational / Facility Safety
Buchanan

Bus / Paratransit Safety
Tim Rhoades (N)
Martin Cocker (S)

TRAX (LRT)/ Streetcar Safety
Ed Buchanan (E)
Darin Francome (W)

FrontRunner (CRT)
Safety
Sheldon Shaw

Bus Business Units

Ogden
Eddy Cumsins
Salt Lake
Lorin Simpson
SL Planning
Grantley Martelly
Timpanogos
Hugh Johnson
Special Svcs
Cheryl Beveridge

TRAX (LRT)
Todd Provost
Darin Francome
Wendy Wise

FrontRunner (CRT)
Bruce Cardon
Robin Braziel
Zac Thomas

MOW
Ron Benson
Scott Neeley
Richard Castleberry

Risk Management
Dave Pitcher
Mike Benvegnu

Legal Council
Rob Hughes
Jennifer Rigby
Michelle Larsen

Office Coordinator
Black

Snr Prog Mgr, Project Dev
Grey Turner

Snr Prog Mgr, Construction
Paul Edwards

Snr Prog Mgr, Project Dev
Grey Turner

Snr Prog Mgr, Construction
Paul Edwards

Office Coordinator
Black
Areas of Responsibility
Safety Focus

Safety Can’t be Silent
Find, Fix and Follow Up
Red Lights Control the Grade Crossing
Stand Behind the Yellow
Look Twice
Questions
Eliminate
First Identify
## UTA Safety & Security Committees Structure

As of 1 October 2013

### General Manager
- **UTA Police & Security Mgr**
- **Safety & Security Review Comm (SSRC)**
- **Management of Change (MOC) Teams***
- **UTA General Manager Safety & Security Comm (GMSSC)**
- **General Manager**
- **Safety & Security Review Comm (SSRC)**
- **Rail Services**
- **Business Units**
- **Training**
- **Accident Review Comm - Bus (ARC-B)**
- **Accident Review Comm - Rail (ARC-R)**
- **Chief Operating Officer**
- **Chief Communications Officer**
- **Chief Financial Officer**
- **General Counsel**
- **Claims & Risk**
- **Chief Technology Officer**

### UTA Safety Committee Members

<table>
<thead>
<tr>
<th>Committee</th>
<th>GMSSC</th>
<th>SSRC</th>
<th>CSC</th>
<th>FLSSC</th>
<th>BSC x5</th>
<th>RSC x3</th>
<th>FSC x4</th>
<th>RAC</th>
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<tr>
<td>Chair</td>
<td>General Manager</td>
<td>Chief Safety Officer</td>
<td>Security Mgr</td>
<td>SA-Construction</td>
<td>SA-FR</td>
<td>BU RGM/Snr Mgr</td>
<td>Snr Mgr Facilities Rep Dept Mgrs/Rep</td>
<td>Rail Actv Mgr</td>
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<td>Alt Chair</td>
<td>Chief Safety Officer</td>
<td>Security Mgr</td>
<td>Safety Manger</td>
<td>SA-LR</td>
<td>BU Maint Mgr</td>
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<td>RS F R Mgr</td>
<td>BU RGM</td>
<td>BU Maint Mgr</td>
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<td>Cap Dev Constr</td>
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<td>Legal</td>
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<td>SA-Bus</td>
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* Formed based on type of action / review required

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### UTA Safety & Security Committees

- **Configuration Control Comm (CCC)**
- **Emergency Management**
- **UTA Police & Security Mgr**
- **Safety & Security Review Comm (SSRC)**
- **Management of Change (MOC) Teams***
- **UTA General Manager Safety & Security Comm (GMSSC)**
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- **General Counsel**
- **Claims & Risk**
- **Chief Technology Officer**

### UTA Safety & Security Working Group (SSWG)

- **Safety and Security Working Group (SSWG)**
- **Facility Safety Comm (FSC)**
- **Fire Life Safety & Security Comm (FLSSC)**
- **Construction Safety Comm (CSC)**
- **Configuration Control Comm (CCC)**
- **Design & Construction Mtg (DCM)**
- **Rail Activation Comm (RAC)**

### UTA Police & Security Mgr

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Safety Coordination

- UDOT SSO
  - Monthly Mtgs
  - All Activation Mtgs
- Safety Drive (S:\)
- Standard forms
  - Hazard Logs
  - Hazard / Suggestion
  - Corrective Action Plans
  - Investigation Report
### Leading / Influencing Indicators

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<thead>
<tr>
<th>Safety Measures</th>
<th>Admin</th>
<th>Bus</th>
<th>TRAX</th>
<th>FR</th>
<th>Total</th>
<th>Goal</th>
<th>%</th>
<th>YTD 2013</th>
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<tr>
<td>Safety Committee Mtsgs</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>11</td>
<td>9</td>
<td>122%</td>
<td>91</td>
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<tr>
<td>Education Outreach</td>
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<td>1</td>
<td>9</td>
<td>8</td>
<td>28</td>
<td>8</td>
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<td>105</td>
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<td># interviews</td>
<td>-50</td>
<td>45</td>
<td>22</td>
<td></td>
<td>117</td>
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<tr>
<td>Avg days on Hazard Log</td>
<td>na</td>
<td>250</td>
<td>203</td>
<td>300</td>
<td>251</td>
<td>180</td>
<td>139%</td>
<td>na</td>
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<td>Hazards Closed (YTD)</td>
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<td>8</td>
<td>65</td>
<td>35</td>
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<td>Emergency Braking</td>
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<td>31</td>
<td>1</td>
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<td>32</td>
<td>10</td>
<td>67%</td>
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<td></td>
<td></td>
<td>6</td>
<td>7</td>
<td></td>
<td>13</td>
<td>8</td>
<td>38%</td>
<td>103</td>
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### Lagging

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<tr>
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<td>1</td>
<td>11</td>
<td>1</td>
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<td>91</td>
<td>82</td>
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<td>71</td>
<td>NA</td>
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<td>Summary Injuries</td>
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<td>36</td>
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<td></td>
<td></td>
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<td>na/s</td>
<td></td>
<td>na</td>
<td></td>
<td>na</td>
<td>91</td>
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### Emergency Mgmt

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<th>Total</th>
<th>Goal</th>
<th>%</th>
<th>YTD 2013</th>
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<td>Emergency Mgmt Mtsgs</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>12</td>
<td>10</td>
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<td>Facility Fire Drills</td>
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<td>59</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
</tbody>
</table>

### Audit Findings

| FTSA Audit Jun 11                    | 17    | 17  | 100%| 10| 94%   |
| UDOT SCD Triennial Jan 12            | 25    | 25  | 100%| 25| 100%  |
| APTA FromRunner Apr 12               | 5     | 5   | 100%| 5 | 100%  |
| FTA Follow Up Aug 12                  | 0     | 0   | 0%  | na| na    |
| FTA DR SSR Apr 13                     | 0     | 0   | 0%  | na| na    |
| UDOT AP PRSR Feb 13                   | 0     | 0   | 0%  | na| na    |
| UDOT Hrs of Svcs Feb 13               | 0     | 0   | 0%  | na| na    |
| NSF Safety Mgmt Sys May 13            | 0     | 0   | 0%  | na| na    |
| FTA SH SSR Apr 13                     | 0     | 0   | 0%  | na| na    |
| UDOT PRSR Jun 13                      | 0     | 0   | 0%  | na| na    |
| Total                                | 47    | 47  | 100%| 45| 96%   |

### Other

| Safety Admin TSI Courses              | 32    | 32  | 100%|    |
| Safety Admins TSSP Certified          | 8     | 8   | 100%|    |

### Graphs and Diagrams

- **Improving / Good**
- **Stable / Acceptable**
- **Declining / Poor**

- **IF YOU WANT MORE SHEET, MORE**
- **MORE**
- **Safety is not an act, it is a habit. Is yours a good one?**
SAFETY Dashboard

Total Accidents (by month)

Accident Rate (by month/100,000 mi)

Accident Rate (12-mo rolling average)

- Total Accidents (by month):
  - 2010: 151
  - 2011: 103
  - 2012: 73
  - 2013: 17
  - Avoidable: 130

- Accident Rate (by month/100,000 mi):
  - Jun-13: 6.60
  - Jan-00: 6.50

- Accident Rate (12-mo rolling average):
  - Rolling average: 3.24

- 12 Months Rolling Average for TRAX Collisions per 100,000 Miles
  - Data: NA

- Traffic Injuries:
  - Jun-13: 0.73
  - Jan-00: 0.66
Hazard Mitigation Process

- Safety Committees
- Transit Experiences
- Incident data
- Audits
- System Modifications
- Inspections, Rules Compliance Reviews
- Customer Concerns
- Accident Investigations

Hazard Identification
Hazard Mitigation Process
New Projects

Project Delivery / Rail Activation Process

Phase 1    Design, Construction & Testing

Phase 2    Systems Integration

Phase 3    Pre-Revenue Opns

Phase 4    Revenue Opns

Hold Point 1

Hold Point 2

Hold Point 3

Preliminary Hazard Analysis (PHA)

Operational Hazard Analysis (OHA)

Threat and Vulnerability Assessment (TVA)

Safety & Security Working Group

Rail Activation Committee

Safety Admin – Construction

Safety Admin – TRAX/FR

On-Going Evaluations

Hazard Log  (by mode)

Rail Safety Committees
Safety Administrator – TRAX/FR

Unresolved / Recurring Hazards

SSI Hazards

Security Hazard Log (SSI)
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Hazard Description</th>
<th>Potential Cause</th>
<th>Effect on Subsystem/System</th>
<th>Severity-Probability</th>
<th>Action Taken (Use Key Above)</th>
<th>Action Taken Date</th>
<th>Final Risk</th>
<th>Field Date</th>
<th>Field Verified by</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC - 1</td>
<td>Streetcar collision with maintenance person or vehicle</td>
<td>Streetcar operator error; excessive speed through work zone.</td>
<td>Streetcar operator error; excessive speed through work zone.</td>
<td>High</td>
<td>a) Develop operations rules to clarify the definition of work zones and the responsibilities of all involved.</td>
<td>5/4/2012</td>
<td>Medium</td>
<td>9/10/13</td>
<td>FM</td>
</tr>
<tr>
<td>RC - 2</td>
<td>Fire</td>
<td>Dry brush vulnerable to sparks or other fire starters. Ice buildup on OCS prevents proper movement but allows heat buildup in power generation mechanism.</td>
<td>Overgrowth of vegetation adjacent to the rails. Loss of service. Significant damage to the streetcar and nearby facilities.</td>
<td>Medium</td>
<td>a) Remove vegetation within the corridor area. b) Provide temporary physical barriers that can be removed once the vegetation growth is controlled. c) Irrigate vegetation to reduce fire hazards. d) Run trains through a weather system to remove ice from the OCS; e) Run a SD at a second pantograph to serve an ice cutter. f) Equip 50 NM with heated carbon strip to provide ice cutting capability.</td>
<td>5/4/2012</td>
<td>Medium</td>
<td>9/10/13</td>
<td>FM</td>
</tr>
<tr>
<td>RC - 3</td>
<td>Signal violation by streetcar operator</td>
<td>Loss of visibility, misinterpretation, aspect, fatigue, etc. Streetcar operator error; ignores a restrictive signal aspect or dark signal. Obstructing of signal warning sign and signals due to snow or foul weather.</td>
<td>Potential for streetcar collision and derailment. Loss of life or severe injuries to passengers and employees as a result of collision and/or derailment. Track property damage. Service interruption.</td>
<td>High</td>
<td>a) Develop operator rules and provide training to clarify the definition of permissible movement based on signal aspect. b) Provide warning signs with warnings to enable clear distinction of their aspects at both close and long ranges. c) Minimize interpretation confusion by using signal aspects which are in compliance with FRA regulations. d) Minimize operator fatigue by establishing operator schedules which provide adequate recovery.</td>
<td>5/4/2012</td>
<td>Medium</td>
<td>9/10/13</td>
<td>FM</td>
</tr>
<tr>
<td>Source</td>
<td>Date</td>
<td>Time</td>
<td>Seg / Line / BU / Fac</td>
<td>Issue / Location</td>
<td>Emp. #</td>
<td>Veh. #</td>
<td>Brief Description of Hazard / Incident</td>
<td>Prob. Cause</td>
<td>Total Damage</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
<td>------</td>
<td>------------------------</td>
<td>------------------</td>
<td>--------</td>
<td>--------</td>
<td>----------------------------------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>UDOT</td>
<td>8-Dec-11</td>
<td>N/A</td>
<td>JRSC</td>
<td>Mirrors on T14,15</td>
<td>N/A</td>
<td>N/A</td>
<td>Install mirrors on south side of tracks 14 &amp; 15.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>UDOT</td>
<td>18-Jan-12</td>
<td>N/A</td>
<td>NS Central Ave</td>
<td>Grade Crossing upgrade evaluations at Central Ave (4115 S) to improve signals and add gates.</td>
<td>N/A</td>
<td>N/A</td>
<td>Grade Crossing upgrade evaluations at Central Ave (4115 S) to improve signals and add gates.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Incident</td>
<td>30-May-12</td>
<td>N/A</td>
<td>6100 S</td>
<td>In the event N.B. trains are delayed at the platform of Fashion Place West the gates are held in the down position for the duration encouraging vehicle traffic to go around gates.</td>
<td>N/A</td>
<td>N/A</td>
<td>In the event N.B. trains are delayed at the platform of Fashion Place West the gates are held in the down position for the duration encouraging vehicle traffic to go around gates.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>UDOT</td>
<td>20-Jan-12</td>
<td>N/A</td>
<td>Hub Ex Daybreak Platform</td>
<td>Daybreak Platform</td>
<td>N/A</td>
<td>N/A</td>
<td>Daybreak Pkwy, N &amp; So. End of platform, Duckhorn Dr. No Ped call buttons on station, peds must cross street to reach ped call buttons on E</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>UDOT</td>
<td>8-Mar-12</td>
<td>N/A</td>
<td>LRV S70</td>
<td>Windsheild wipers not adjusted to provide good visibility</td>
<td>N/A</td>
<td>N/A</td>
<td>Windsheild wipers not adjusted to provide good visibility</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>UDOT</td>
<td>27-Mar-12</td>
<td>N/A</td>
<td>City Ctr. platform Jaywalkers at City Center Platform</td>
<td>Pedestrians entering using crosswalk.</td>
<td>N/A</td>
<td>N/A</td>
<td>Pedestrians entering using crosswalk.</td>
<td>Facilities / Rob Haider</td>
<td>517</td>
</tr>
<tr>
<td>UDOT</td>
<td>14-May-12</td>
<td>N/A</td>
<td>Library Platform 400 south 200 east</td>
<td>J-walk cut across the cross the tracks in also TRAX passes across 400 south</td>
<td>N/A</td>
<td>N/A</td>
<td>J-walk cut across the cross the tracks in also TRAX passes across 400 south</td>
<td>T Baxter</td>
<td>476</td>
</tr>
<tr>
<td>Employee</td>
<td>14-May-12</td>
<td>N/A</td>
<td>U Mario Capecchi and South Wasatch drive</td>
<td>Autos routinely found this is an area where applications to avoid C. Action would involve system changes to call gates as NB train departs FPX. No action taken as of 9/19/12.</td>
<td>N/A</td>
<td>N/A</td>
<td>Autos routinely found this is an area where applications to avoid C. Action would involve system changes to call gates as NB train departs FPX. No action taken as of 9/19/12.</td>
<td>343</td>
<td>N/A</td>
</tr>
<tr>
<td>UDOT</td>
<td>8-May-13</td>
<td>N/A</td>
<td>UTA Police</td>
<td>UTA police to conduct a site evaluation to include education and enforcement. Proposed completion date 9/6/2013.</td>
<td>N/A</td>
<td>N/A</td>
<td>UTA police to conduct a site evaluation to include education and enforcement. Proposed completion date 9/6/2013.</td>
<td>Police / Boddy</td>
<td>359</td>
</tr>
</tbody>
</table>

### Open Hazards

- **UDOT 8-Dec-11** N/A JRSC Mirros on T14,15
  - N/A
  - N/A
  - Install mirrors on south side of tracks 14 & 15.
  - N/A
  - N/A
  - N/A
  - N/A
  - 4D

- **UDOT 18-Jan-12** N/A NS Central Ave
  - N/A
  - N/A
  - Grade Crossing upgrade evaluations at Central Ave (4115 S) to improve signals and add gates.
  - N/A
  - N/A
  - N/A
  - N/A
  - 2B

- **Incident 30-May-12** N/A NS 6100 S
  - N/A
  - N/A
  - In the event N.B. trains are delayed at the platform of Fashion Place West the gates are held in the down position for the duration encouraging vehicle traffic to go around gates.
  - N/A
  - N/A
  - N/A
  - N/A
  - 3D

- **UDOT 20-Jan-12** N/A Hub Ex Daybreak Platform
  - N/A
  - N/A
  - Daybreak Pkwy, N & So. End of platform, Duckhorn Dr. No Ped call buttons on station, peds must cross street to reach ped call buttons on E
  - N/A
  - N/A
  - N/A
  - N/A
  - M

- **UDOT 8-Mar-12** N/A LRV S70
  - N/A
  - N/A
  - Windsheild wipers not adjusted to provide good visibility
  - N/A
  - N/A
  - N/A
  - N/A
  - 3B

- **UDOT 27-Mar-12** N/A City Ctr. platform
  - N/A
  - N/A
  - Jaywalkers at City Center Platform
  - N/A
  - N/A
  - Facilities / Rob Haider
  - 517
  - 12-017

- **UDOT 14-May-12** N/A University Library Platform 400 south 200 east
  - N/A
  - N/A
  - J-walk cut across the cross the tracks in also TRAX passes across 400 south
  - T Baxter
  - 476
  - 12-022

- **Employee 14-May-12** N/A U Mario Capecchi and South Wasatch drive
  - N/A
  - N/A
  - Autos routinely found this is an area where applications to avoid C. Action would involve system changes to call gates as NB train departs FPX. No action taken as of 9/19/12.
  - N/A
  - N/A
  - N/A
  - N/A
  - 12-023

- **UTA Police**
  - N/A
  - N/A
  - UTA police to conduct a site evaluation to include education and enforcement. Proposed completion date 9/6/2013.
  - Police / Boddy
  - 359
  - 12-018

- **Install a gate at the intersection of Mario Capecchi Drive and South Wasatch Drive.**
  - N/A
  - N/A
  - Cap D / Baxter
  - 359
  - 12-019

- **3-15-11** UTA is examining options to install Z crossing at grade crossing.
Investigation Checklist

**Documentation:**
- Police report
- Medical examiners report
- UTA police report
- Supervisor report
- Operator report
- Witness statements
- Photos/diagrams
- Measurements
- Rail/bus dispatch recordings
- UTA Police dispatch recordings
- Video recordings, train/platform
- Event recorder download
- Crossing download
- Damage estimate
- Drug/alcohol testing
- Employee history
- Bulletins/orders in effect
- Maintenance inspection reports, post incident and hours of service/fatigue management
- Operator licensing
- Controller log
- Track-switch inspections

**Factors:**
- Operator training/licensing
- Fatigue management/hours of service
- Operational rules/policies
- Communication
- Work environment
- Traffic laws
- Train/vehicle speed
- Horn/bell use
- Drug/alcohol use
- Site lines and lighting
- Grade crossing operation
- Warning signs/tactile strips/channeling
- Train functionality
- Weather conditions
- Incident location history

**Root Cause Analysis:**
- Root cause
- Contributing causes
- Recommendations

---

**UDOT Accident Follow-up Checklist**

1. **Accident Date & Time:**
2. **Description:**
3. **Reportable to UDOT?**
   - [ ] A fatality at the scene, or where an individual is confirmed dead within thirty (30) days of a rail transit related incident;
   - [ ] Injuries requiring immediate medical attention away from the scene for two or more individuals;
   - [ ] Property damage to rail transit vehicle, non-rail transit vehicle, other rail transit property or fixture and non-rail property that equals or exceeds $25,000;
   - [ ] An evacuation due to a fire emergency;
   - [ ] A collision at a grade crossing;
   - [ ] A derailment;
   - [ ] A collision with an individual on a rail right of way;
   - [ ] A collision between a rail transit vehicle and any other vehicle.
4. **Notification method:**
   - [ ] Text message
   - [ ] Email
   - [ ] Phone call
5. **Notified in person or by phone within two (2) hours?**
   - [ ] Yes
   - [ ] No
6. **Received Preliminary Report as soon as possible but not more than three (3) business days?**
   - [ ] Yes
   - [ ] No
7. **Was an interim status report requested by UDOT and provided by UTA (not required)?**
   - [ ] Yes
   - [ ] No
8. **Was a Final Accident Report provided within 30 days of the accident?**
   - [ ] Yes
   - [ ] No
   a. **If not an extension requested?**
      - [ ] Yes
      - [ ] No
train. She never exhibits situational awareness of the warnings or approaching danger.

Conclusion:

Root Cause: The primary cause of this accident was the victim's inattention to her surroundings. She never paid heed to the multiple warnings provided.

Contributing Factor: The crosswalk at south end of Meadowbrook Station lacks channeling which would prevent a slower speed.

Contributing Factor: Platform approach speeds. Operators and pedestrians would have more time to react to emergency situations at platforms and accidents would be less severe if approach speeds were lowered.

Recommendations (identify any items that require Hazard Management resolution):

Recommend that UTA evaluate the benefits and costs associated with adopting a lower approach speed into platforms. (Possible CAP assigned to Dave Goeres)

Recommend that UTA evaluate its accident response procedure to clearly define roles and responsibilities of UTA employees who report to the scene and also to ensure incident command and crime scene considerations are addressed with first responders. (Possible CAP assigned to Michele Larsen)

Recommend that UTA evaluate the active auditory and visual warning at Meadowbrook platform to possibly include visual and additional signs that enhance the sound effects and duration of warning. (CAP 11-001 assigned to Jeff Lamore)

Corrective Action Plans:

CAP 11-001 Test visual/audible pedestrian warning device (3C)
CAP 12-048 TRAX Straight through platforms (3C)
CAP 12-052 TRAX Platform channeling (3C)
CAP 12-051 Platform approach speed (17)
CAP 12-059 Post incident response procedures (1D)

Review Committee Members: Held 06/28/2012 at Jordan River Rail Service Center:

UDOT: Richard Clarke
FRA: Cheech Smialek
UTA: Bryson Sawyer Troy Nelson Krissi Patterson Scott Nettlei Ralph McKinley Ed Buchanan Darin Francom Mike Bennegui Todd Provost

Report compiled by: Sheldon Shaw 06-28-2012

Conclusions/Findings (Including Causal / Contributing Factors):

Factors:

1) Operator: 3982 is a fully licensed at TRAX and is in good standing.
2) Fatigue management: Operator 3982 worked 42 hours in the previous 7 days and was 7 hours into 10 hour shift at the time of the incident.
3) Operation: Train 34 approached 3900 S well below the posted speed limit of 55 MPH and maintained a platform approach speed below the 28 to 30 MPH established in the TRAX training program.
4) Warning: According to witnesses and the download T34's horn was activated prior to going into emergency braking and well prior to contact with the victim.
5) Drug/Alcohol: Results were negative for Operator 3982.
6) Visibility: Both train and pedestrians have good visibility at the intersection.
7) Grade crossing: Both on scene witnesses and the crossing download establish 3900 S activated and gave warning as required.
8) Platform warning: Meadowbrook Station has an active visual and audible warning of approaching trains that was functional at the time of the incident.
9) Signage: There is a "Look Both Ways" sign and yellow tactile strips that the victim passed as she crossed the crosswalk.
10) Train Functionality: Post accident inspection revealed no significant defect findings.
11) Weather: Daylight, clear, dry, and approximately 65-70 degrees.
12) Video: Train video clearly shows the victim walk across the crosswalk and into the path of the oncoming