Utah Transit Authority

Creating a Model Transit Safety Organization

Global Level Crossing Safety and Trespasser Prevention Symposium

August 2014

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Topics

- UTA System
- Safety Focus
- Organization
- “Hold Point” activation process
- Pedestrian Grade Crossing Design
- Coordination
- Hazard Identification / Tracking / Mitigation
- Take Aways
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

140 Rail Miles
157 at grade Xings
6,500 Bus Stops
2,300 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
Recent Projects
UTA Rail System

TRAX (Light Rail)  48 mi
- Red  (Daybreak-UofU)
- Blue  (North – South)
- Green  (WV- AP)

FrontRunner (Commuter)
Ogden – Provo  90 mi

S Line (Streetcar)  2 mi
Airport TRAX Successes

- 2014 AGC National Award
- Alliance agreement
- Solar panels on stations
- North Temple Viaduct
- Grand Boulevard
S-Line Partnering Successes

- $1 Billion in area development
- Greenway and Parley’s trail
Safety Goals

• Organize
• Emphasize
• Better Coordinate
• Reduce incidents
• Activate new lines safely
• Find, Fix, Follow Up
Safety Focus

• Safety Culture
  Safety Ambassadors
  Safety First Moment at all meetings
  Safety Committees
  Track and Mitigate Hazards
  Weekly Safety message / Monthly Poster

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

• Safety Management System (SMS) certified

• Security - UTA Police Department (60 Officers)
  • Customer Service, Law and Fare Enforcement
  • TSA Gold Standard Award (2013)
Safety Methods

• Track on Local or Corporate Hazard Logs
  – Mitigate Hazards within 180 Days
  – No High or Serious Hazards on the system
• Assign / Assume responsibilities
• Monthly BU Safety Committee Meetings
• SSWG on each project
• Report Progress (Corporate Staff, GMSSC)
• Develop pedestrian safety treatments
• Implement Activation Process
• Continual encouragement / reminders
Safety Organization
UTA Safety & Security Committees Structure

UTA Safety Committee Members

* Formed based on type of action / review required
**TRAX/SRT Hazard Tracking Log**

**TRAX Hazard Log 2013**

<table>
<thead>
<tr>
<th>Source</th>
<th>Date</th>
<th>Time</th>
<th>Seg / Line / BU / Fac</th>
<th>Issue / Location</th>
<th>Emp. #</th>
<th>Veh. #</th>
<th>Brief Description of Hazard / Incident</th>
<th>Prob Cause</th>
<th>Total Damage</th>
<th>Hrs Dsrpt Srvc</th>
<th># Injury trnspt</th>
<th># Fatality</th>
<th>IHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDOT</td>
<td>8-Dec-11</td>
<td>N/A</td>
<td>JRSC</td>
<td>Mirros 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>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>4D</td>
</tr>
<tr>
<td>UDOT</td>
<td>18-Jan-12</td>
<td>N/A</td>
<td>NS</td>
<td>Central Ave</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>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>2B</td>
</tr>
<tr>
<td>Incident</td>
<td>30-May-12</td>
<td>N/A</td>
<td>6100 S</td>
<td>N/A</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>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>3D</td>
</tr>
<tr>
<td>UDOT</td>
<td>20-Jan-12</td>
<td>N/A</td>
<td>Hub Ex</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&amp;W side of Station.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</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</td>
<td>S70</td>
<td>N/A</td>
<td>N/A</td>
<td>Windshield wipers have a gap and leave streaks (poor visibility)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**CAPS**

<table>
<thead>
<tr>
<th>Source</th>
<th>Date</th>
<th>Time</th>
<th>Seg / Line / BU / Fac</th>
<th>Issue / Location</th>
<th>Emp. #</th>
<th>Veh. #</th>
<th>Brief Description of Hazard / Incident</th>
<th>Prob Cause</th>
<th>Total Damage</th>
<th>Hrs Dsrpt Srvc</th>
<th># Injury trnspt</th>
<th># Fatality</th>
<th>IHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDOT</td>
<td>27-Mar-12</td>
<td>N/A</td>
<td>City Ctr. platform</td>
<td>Jaywalkers at City Center Platform</td>
<td>N/A</td>
<td>N/A</td>
<td>Pedestrians entering using crosswalk. Temporary mirrors installed. Updated by Tal Brooks on 7/17 they are reassessing for better solution. Issue discussed in Safety Committee mtg. on 4/10. Tal and Paul O'Brien are discussed possible solutions. Will determine a solution by next safety meeting.</td>
<td>Facilities / Rob Hadler</td>
<td>517</td>
<td>12-017</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>UDOT</td>
<td>14-May-12</td>
<td>N/A</td>
<td>University</td>
<td>Library Platform 400 south 200 east</td>
<td>N/A</td>
<td>N/A</td>
<td>J-walk cut across the tracks in also TRAX passing across 400 south. This location has been assigned to the SSRC group for action. Addition of an additional gate on NW quadrant. Exit gate for the location has been approved pending funding. Discussed with Ron Benson on 4/17/2013. Funding was approved on 4/16/13.</td>
<td>T Baxter</td>
<td>476</td>
<td>12-022</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Employee**

<table>
<thead>
<tr>
<th>Source</th>
<th>Date</th>
<th>Time</th>
<th>Seg / Line / BU / Fac</th>
<th>Issue / Location</th>
<th>Emp. #</th>
<th>Veh. #</th>
<th>Brief Description of Hazard / Incident</th>
<th>Prob Cause</th>
<th>Total Damage</th>
<th>Hrs Dsrpt Srvc</th>
<th># Injury trnspt</th>
<th># Fatality</th>
<th>IHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee</td>
<td>14-May-12</td>
<td>N/A</td>
<td>U</td>
<td>Mario Capochechi and South Wasatch drive</td>
<td>N/A</td>
<td>N/A</td>
<td>Autos routinely fou this is an area where applications to avoid</td>
<td>C. Action would involve system changes to call gates as NB train departs FPW. No action taken as of 9/19/12.</td>
<td>MOW / Systems Eng Benson / Baxter</td>
<td>343</td>
<td>12-023</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Discussion / Corrective Action**

- **Days Open**: 517, 476, 343, 474, 426, 407, 359, 359
- **Closed Date**: 12-022
- **FHR**: N/A
- **NTD**: N/A
- **FRA**: N/A
- **UDOT T**: UDOT
- **CAP ID**: UDOT
- **Comments**: Open Items 37

**Open Items**

- 3-15-11 UTA is examining options to install Z crossing at grade crossing.
## Safety Dashboard

### Leading / Influencing Indicators

<table>
<thead>
<tr>
<th>Safety Measures</th>
<th>Admin</th>
<th>Bus</th>
<th>TRAX</th>
<th>FR</th>
<th>Goal</th>
<th>%</th>
<th>YTD 2013</th>
<th>YTD 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Committee Mtgs</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>9</td>
<td>119%</td>
<td>118%</td>
</tr>
<tr>
<td>Education Outreach</td>
<td></td>
<td>-</td>
<td>19</td>
<td>5</td>
<td>24</td>
<td>8</td>
<td>80%</td>
<td>153%</td>
</tr>
<tr>
<td># Interviews</td>
<td>na</td>
<td>45</td>
<td>163</td>
<td>68</td>
<td>276</td>
<td>80</td>
<td>345%</td>
<td>1777%</td>
</tr>
<tr>
<td># rides / observations</td>
<td>na</td>
<td>15</td>
<td>71</td>
<td>28</td>
<td>114</td>
<td>24</td>
<td>475%</td>
<td>201%</td>
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<tr>
<td>Avg days on Hazard Log</td>
<td>na</td>
<td>343</td>
<td>229</td>
<td>42</td>
<td>341</td>
<td>180</td>
<td>190%</td>
<td>na</td>
</tr>
<tr>
<td># &quot;High&quot; open hazards</td>
<td>na</td>
<td>2</td>
<td>8</td>
<td>-</td>
<td>10</td>
<td>0</td>
<td>0%</td>
<td>na</td>
</tr>
<tr>
<td>Hazards Closed (YTD)</td>
<td>11</td>
<td>79</td>
<td>41</td>
<td>131</td>
<td>131</td>
<td>77</td>
<td>77%</td>
<td>131%</td>
</tr>
<tr>
<td>Broken Gates</td>
<td>na</td>
<td>9</td>
<td>3</td>
<td>12</td>
<td>10</td>
<td>1</td>
<td>10%</td>
<td>254%</td>
</tr>
<tr>
<td>Emergency Braking</td>
<td>na</td>
<td>26</td>
<td>8</td>
<td>29</td>
<td>26</td>
<td>8</td>
<td>29%</td>
<td>155%</td>
</tr>
</tbody>
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### Emergency Mgmt

<table>
<thead>
<tr>
<th>Event</th>
<th>Admin</th>
<th>Bus</th>
<th>TRAX</th>
<th>FR</th>
<th>YTD 2013</th>
<th>Goal</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Mgmt Mtgs</td>
<td></td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>30</td>
<td>32</td>
<td>94%</td>
</tr>
<tr>
<td>Facility Fire Drills</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>25</td>
<td>26</td>
<td>96%</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>6</td>
<td>167%</td>
</tr>
<tr>
<td>EM Log Items</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>105</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>EM Log Items Closed</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>89</td>
<td>na</td>
<td>na</td>
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### Audit Findings

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Submitted</th>
<th>%</th>
<th>Closed</th>
<th>%</th>
<th>% Approved</th>
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<tbody>
<tr>
<td>FTA Audit Jun11</td>
<td>17</td>
<td>17</td>
<td>100%</td>
<td>17</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>UDOT SSO Tren Mall Jan12</td>
<td>25</td>
<td>25</td>
<td>100%</td>
<td>25</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>APTA FrontRunner Apr12</td>
<td>5</td>
<td>5</td>
<td>100%</td>
<td>5</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>FTA SH SSRR Nov21</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
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<tr>
<td>UDOT SH PRSR Oct29</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
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<tr>
<td>FTA Follow Up Aug12</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
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<tr>
<td>FTA DR SSRR Jan13</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
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<tr>
<td>UDOT AP PRSR Feb13</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>UDOT Hrs of Svcs Feb13</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>NSF Safety Mgt Sys May13</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>FTA SH SSRR May13</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>UDOT DR PRSR Jun13</td>
<td>0</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>47</td>
<td>100%</td>
<td>47</td>
<td>100%</td>
<td></td>
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### Other

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Admin TSI Courses</td>
<td>32</td>
<td>100%</td>
</tr>
<tr>
<td>Safety Admin TSSP Certified</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Safety & Emergency Mgmt Dashboard

#### December 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>Monthly</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAX -</td>
<td>Mo</td>
<td>YTD</td>
</tr>
<tr>
<td>NTD Major Accidents</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>NTD Major Injuries</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Summary Injuries</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Fatalities</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>NA/Suicide, Bike</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FrontRunner +</td>
<td>Mo</td>
<td>YTD</td>
</tr>
<tr>
<td>FRA Major Accidents</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Injuries</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Fatalities</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>NA/Bike (secondary), Suicide, MV</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Lagging Indicators

#### Reactive -> Proactive -> Predictive

- Fix -> Follow Up

### Construction

- % Comp Let Time: 92%
- % Rendabl: 0%
- % First Aid: 0%

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**Be Safe Holiday Tips**

1. **A Safe Holiday is a Happy Holiday**
2. **Celebrate the Season**

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UTA Rail Activation
“Hold Point” Process
Hazard Mitigation Process
New Projects

Project Delivery / Rail Activation Process

- **Phase 1**: Design, Construction & Testing
- **Hold Point 1**
- **Phase 2**: Systems Integration
- **Hold Point 2**
- **Phase 3**: Pre-Revenue Opns
- **Hold Point 3**
- **Phase 4**: Revenue Opns (RO)

**RO + 90 days**

**Preliminary Hazard Analysis (PHA)**

**Operational Hazard Analysis (OHA)**

**Safety & Security Working Group (SSWG)** → **Rail Activation Committee**

**Safety Admin – Construction** → **Safety Admin – TRAX/FR**

**Unresolved / Recurring Hazards**

**On-Going Evaluations**

**Hazard Log (by mode)**

**Rail Safety Committees**

**Safety Administrator – TRAX/FR**

**SSI Hazards**

**Security Hazard Log**
4 E’s +
Eliminate
Engineer
Educate
Enforce +
Encourage
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)
Safety Messages

Red Lights Control the Grade Crossing
Stand Back, Behind the Yellow
Look Twice
See Something, Say Something

DO NOT ENTER RAILROAD CROSSING WHILE RED LIGHTS ARE FLASHING
UTAH CODE 41-6A-1203
**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
Design Safety Focus

- Eliminate Straight Through Crossings
- Focus on the customer
- Hierarchy of protection
- Provide appropriate warnings
- Design Criteria / Guidebook
Design Treatment Hierarchy

- **19.5.1 Passive Safety Treatments**
  - 19.5.1.1 “Cross Only at Crosswalks”
  - 19.5.1.2 “Stop For Trains” markings
  - 19.5.1.3 Tactile Warning
  - 19.5.1.4 “Look Both Ways” signage
  - 19.5.1.5 Channeling
  - 19.5.1.6 Pedestrian Barriers & signage
  - 19.5.1.7 Swing Gates

- **19.5.2 Active Safety Treatments**
  - 19.5.2.1 Ped Flashing Lights & Audible Warning
  - 19.5.2.2 Gates crossing Sidewalk
  - 19.5.2.3 LRV Activated Visual / Audio Warning
UTA Pedestrian Grade Crossing Design

NOTES

1. "STOP HERE WHEN FLASHING" SIGN TO BE INSTALLED ADJACENT TO DETECTABLE WARNING SURFACE (DWS). SIGN TO BE AFFIXED TO PRIMARY FENCING OR POST-MOUNTED WHEN FENCING NOT USED.

2. "STOP" PAYMENT MESSAGE TO BE INSTALLED ADJACENT TO, AND ON THE TRUCK SIDE OF DETECTABLE WARNING SURFACE.

3. FENCING SHALL BE 4'-0" BLACK VINYL-COATED CHAIN LINK FENCE. 3'-0" BAR. INSTALL 3' REFLECTIVE STRIPING ON EACH SIDE OF ALL FENCE POSTS INSTALL NEXT TO, OR WITHIN, THE SIDEWALK.

4. THE SPECIFICATION TO BE APPLIED TO CROSSINGS WHERE SIGNALLY IS CONTINUOUS THROUGH GRADE CROSSING ONLY TRACKS. APPLY ONE OF THE FOUR GRAYSCALE APPLICATIONS SHOWN IN FIGURE. APPLICATION TO BE CHOSEN BASED ON COMMUNICATION OF APPROACHING DEFEASIBILITY, WITH OR WITHOUT PICKUP, SIDEWALK, AND ADJACENT ROW FENCING, IN WHICH THERE IS CONTINUOUS SIDEWALK ON ONE SIDE OF THE ROADWAY. THE SPACE BETWEEN THE TIE SHALL BE INSTALLED ON THE NON-SIDEWALK SIDE TO PROVIDE PEDESTRIAN CROSSING. ALSO SEE NOTE 10.

5. YELLOW STRIPE AND "LOOK" PAYMENT MESSAGE (YELLOW LETTERING ON WHITE BACKGROUND) TO BE INSTALLED IN ANY QUADRANT BASED ON ENGINEERING JUDGMENT WHEN ADDITIONAL AWARENESS IS NEEDED DUE TO TRACK SHOE, LIMITED VISION DISTANCE, OR WHERE OTHER LOCATION-SPECIFIC CONDITION EXISTS.

6. FOR SIDEWALK/FENCING INSTALLED TO ROADWAY, PROVIDE 3'-0" MINIMUM CLEARANCE BETWEEN FACE OF CURB AND EDGE OF SIDEWALK.

7. INSTALL POST-MOUNTED SIGNS WITH MINIMUM 2'-0" HORIZONTAL CLEARANCE AND 3'-0" VERTICAL CLEARANCE. INSTALL FENCE-MOUNTED SIGNS WITH TOP OF SIGN AT TOP OF FENCE.

8. DISTANCE OF DWS FROM TRAIN TRACK CENTERLINE TO BE BASED ON ENGINEERING JUDGMENT AND TO PROVIDE MAXIMUM PRACTICABLE SIGHT DISTANCE OF CROSSING TRAINS.

9. PRIMARY PEDESTRIAN WARNING MARKING SHALL BE INSTALLED FOR DESIGNATED SCHOOL ROUTES AND WHERE SIGNALLY IS CONTINUOUS THROUGH GRADE CROSSING ONLY TRACKS. LOCATION OF ACTIVE PEDESTRIAN WARNING TO BE LOCATED BASED ON VEHICLE SPECIFIC CONDITIONS TO MAXIMIZE VISIBILITY. "LOOK BOTH WAYS" DO NOT MAY BE MOUNTED ON DOWNSLOW.


11. VERIFY THAT THE SIDEWALK IS 6'-0" IN WIDTH. ADJUST 1'-0" DIMENSION ACCORDINGLY TO PROVIDE 6" CLEARANCE WHEN SIDEWALK IS IN A DOWN POSITION.

GENERAL GUIDELINES FOR AT-GRADE PEDESTRIAN SIDEWALK CROSSING SAFETY TREATMENTS (LIGHT RAIL)
JULY 17, 2012
REV. 1.0
This flow chart is a companion to the UDOT Pedestrian Grade Crossing Manual. It is intended as a tool to guide designers in the selection of appropriate control devices at pedestrian grade crossings. Final treatment selection should be determined through an engineering study.

Legend:
- **Diamond**: Decision Point
- **Circle**: Required treatment
- **Square**: Recommended treatment
- **Triangle**: Suggested treatment

Notes:
1. If crossing skew is >30 degrees from perpendicular consider a 90 degree crossing design or add a skewed crossing sign (W10-12) to alert non-motorized crossing users, especially bicyclists, of the potential hazard.
2. Any crossing greater than 80' should provide additional warning time beyond the standard 20 seconds. The additional warning time should be calculated based on a 4 fps walking rate.
3. If the pedestrian crossing is <25 from a highway/rail grade crossing the vehicle control treatments may provide some of the required pedestrian treatments.

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Sidewalk Crossing Treatments

- Fencing, Tactile
- Markings, Signs
- LBW Flashing
Design Safety - Bicycles

Airport TRAX - 600 West / North Temple
Results

- 131 corporate hazards and 184 local hazards identified and closed in 2013.
- Safety Comm mtgs up 4 x
- Accidents in all modes reduced
- Accident rates in all modes down 24-74%
- Fatalities down 78% over 3 years
- FTA “best practices” for Hold Point process and Emergency Exercises
- 15 safety audits with no findings
- 4 rail activations in 1 year
- Standard Safety Treatments
- Better integrated and effective safety
Results

Light Rail Accident Rate

TRAX Accident Rate / 100,000 miles 12 month Rolling Average

Fatalities

Audits & Findings

Findings
Audits
Total Open Findings
Total Audits

2011 2012 2013 2014
Take Aways

• Establish, Organize and Elevate Safety
• Encourage, reaffirm, energize
• Track and mitigate hazards
• Assign responsibility and accountability
• Establish, implement and review standard safety treatments
• Establish, implement and follow process for activation
• Start with the end in mind (Covey)
Train Day in Utah - May 10, 2014
145th Anniversary of the Driving of the Golden Spike

Salt Lake City
21-25 June 2015
APTA Rail Conference

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