

This is a written response from the Utah Department of Transportation (UDOT) to the Office of Environmental Analysis (OEA) in response to Savage Tooele Railroad Company (STR) seeking authority from the Surface Transportation Board (Board) to construct and operate a new railroad line in Tooele County, Utah, which would in part encompass the reactivation of common carrier rail service over a segment of a previously abandoned rail line. This response is intended to be primarily an environmental response and does not constitute all comments that UDOT may have to the proposed project.

When the segment of rail line was abandoned, the rail crossing at SR-138 and the rail crossing at Erda Way were closed. Since these crossings were closed the reestablishment of the line will require two crossings that will be treated as new crossings. The request for new crossings will need to meet the requirements of UDOT Administrative Rule R930-5 (attached), specifically R930-5-7.6 addresses requirements for new crossings. Also, in order to add a crossing, the Administrative Rule would require a public hearing per R930-5-13.

SR-138 is a high-speed rural highway with a posted speed limit of 65 mph in the area. It has not yet been determined whether a rail crossing at this location will be at grade or grade separated. As part of the environmental analysis, we recommend that both scenarios be considered. Consideration should also be made for any maintenance access road that may be needed with access off the highway. A section of rail has been removed and the reestablishment of the rail may necessitate roadway reconstruction to meet rail requirements, the environmental clearance should include a full geometric design, compliant with UDOT Standards, of all such roadway work. The building of these crossings will also require permits and maintenance agreements with UDOT for the crossing at SR-138 and with the local government agencies for the crossing at Erda Way.

The Department will ask for a Traffic Impact Study. The Utah Department of Transportation Traffic Impact Study Requirements document is attached.

There is also a major UDOT project in the vicinity of the proposed project. The Midvalley Highway project is close to identifying a preferred alternative and the reestablishment of this rail line would need to be compatible with the selected alternative. Provided is a link to the Midvalley Highway project page for reference.

<https://www.udot.utah.gov/midvalley/#/>

If you have any questions on these comments or if any additional detail is needed, please feel free to contact me.

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Utah Department of Transportation

Traffic Impact Study Requirements

This memo and preceding information is prepared to assist an access permit applicant fulfilling the requirement of performing a traffic impact study when requesting access to a state highway. Each permit application is unique. The agreed requirements of traffic study and assessment may vary accordingly as agreed to by the Department and the applicant and/or their representative who will perform the traffic study.

Please refer to the Department document, *Accommodation of Utilities and the Control and Protection of State Highway Rights of Way: Section 7, State Highway Access* for full information concerning the grant of access application requirements. A downloadable copy of the document is available on the Department website at <http://www.udot.utah.gov>.

The following are taken from the Utah state rule 930-6, Accommodation of Utilities and the Control and protection of State Highway Rights of Way. Statements for this guideline are also added which do not appear in the Rule.

7.2.5 Preparing The Access Application

Pre-Application/Concept Meeting

Prior to submitting a permit application, contact the appropriate Department Region or District office for information about the application process and the type of information required. The applicant is advised to consult with the Region Permit Officer during a pre-application meeting to determine the appropriate access category, permit application level, and traffic impact study requirements, and scope for the project.

Permit Level

The level of application required is based upon the size and magnitude of the proposed project applying for a permit. Threshold criteria for different levels of projects have been developed to avoid placing an undue burden on applicants with small projects, while ensuring that large projects with significant impacts are thoroughly evaluated.

Four application levels have been developed based on site-generated traffic of AADT and or peak hour volumes. Each level defines specific threshold elements related to required applicant site plan elements, permitting process, permitting schedule, applicant fees, traffic study requirements, and other permit related issues. The information and level of detail required to review an application will vary according to the type and usage of the access connection requested and will be determined based on the thresholds outlines in, Table 7.2-2: Guidelines for Access Permit Levels. The Region Permit Officer, Traffic Engineer and/or designee will determine the Permit Application Level based on preliminary data supplied by the applicant.

A Traffic Impact Study (TIS) is required of all access permit applications. The purpose of the TIS is to identify system and immediate area impacts associated with the proposed connection(s). Identification of impacts and appropriate mitigation measures allows the Department to assess the existing and future system safety, performance, maintenance, and capacity needs.

Determination of the extent of the TIS study area is at the determination of the attending Region Traffic Engineer and /or other Department employees. The study area, depending on the size and

intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary. An acceptable traffic study boundary, based on travel time, may be identified as a ten or twenty minute travel time or even by market area influence.

The TIS shall, at a minimum, incorporate traffic engineering principles and the standards as presented in this Rule. Additional requirements and investigation may be imposed upon the applicant as necessary.

Likely information presented in the TIS may include, but is not limited to, site location and proposed access point(s), phased and/or full development trip generation, connection point design elements, adjacent and relevant development, existing and future traffic volumes, assessment of the system impacts, and mitigation measures as appropriate.

The applicant will be responsible for performance and delivery of an acceptable traffic impact study. The TIS should be performed by an individual or entity demonstrating capability to analyze and report mobility, traffic engineering elements, and design elements as necessary for the application study area and site design. The TIS should be prepared directly, or by direct supervision by a State of Utah Licensed Professional Engineer. The Region Traffic Engineer may waive the licensing requirement for Permit Level I and II, and may also waive the Utah Licensure requirement.

7.2.6 Application Review

For an access permit, submit one complete application with attachments to the Region Permits Officer at the appropriate Department Region Office. The Region Permits Officer is the primary contact for the applicant with the Department throughout the process. Direct inquiries regarding a permit application or review, are directed to the Region Permit Officer.

7.2.11 Traffic Impact Studies

Need for Traffic Impact Study

A traffic study is necessary to identify, review, and make recommendations for mitigation of the potential impacts a development may have on the roadway system. Physical characteristics and operational characteristics of the roadway are typically identified. The Region Permits Officer and/or Region Traffic Engineer determine the need for a traffic impact study.

An applicant may be required to submit a traffic study for any proposed access or connection within an area identified by the Department. Area definition may be defined by, but not limited to, an identified safety problem, accident review, congested locations, or as a result of a change in land use and/or access in accordance with an access permit application. The study area may also be defined by a travel time boundary, area of influence, physical boundaries, or political boundaries.

Purpose of the Traffic Impact Study

TIS are intended to:

- Document whether or not the access request can meet the standards and requirements of this Rule and other applicable regulations.
- Analyze appropriate location, spacing, and design of the access connection(s) necessary to mitigate the traffic.

- Analyze operational impacts on the highway and permissible under the highway's assigned access category and in accordance with applicable requirements and standards of this Rule.
- Recommend the need for any improvements to the adjacent and nearby roadway system to maintain a satisfactory level of service and safety and to protect the function of the highway system while providing appropriate and necessary access to the proposed development.
- Assure that the internal traffic circulation of the proposed development is designed to provide safe and efficient access to and from the adjacent and nearby roadway system consistent with the purpose of this Rule.
- Analyze and recommend the means for land uses to minimize their external transportation costs to the traveling public through traffic improvements necessitated by that development as well as making the fullest use of alternative travel modes.

Traffic Impact Study Requirements

When a Traffic Impact Study is required (See Table 7.2-2), prepare the study according to the Department Traffic Impact Study Requirements. The appropriate Region Traffic Engineer in consultation with the permit applicant will determine the traffic study area limits.

All existing and proposed access points, driveways and streets, shall be identified for each site, including access on the opposite side of the site and within the influence area of the proposed site access. The influence area will be defined by the Region Traffic Engineer and/or designee. Each access will be labeled for proposed accesses as P1, P2, P3... and existing accesses as E1, E2, E3,...

Accommodation of Utilities and the Control and Protection of State Highway Rights of Way
Table 7.2-2

Guidelines for Access Permit Levels

Permit Type App. Level	Thresholds	Typical Land Use Intensity Thresholds (ITE Trip Generation)	Traffic Impact Study Required
I	Projected site traffic < 100 ADT and No proposed modifications to traffic signals or elements of the roadway	Single Family < 10 units Apartment < 15 units Lodging < 11 occupied rooms General Office < 9,000 square feet Retail < 2,500 square feet	YES Conditions Apply
II	Projected site traffic between 100 and 3,000 ADT or Projected peak hour traffic < 500 and Minor modifications to traffic signals or elements of the roadway	Single Family 10 to 315 units Apartment 15 to 450 units Lodging 11 to 330 occupied rooms General Office 9,000 to 270,000 sq. ft. Retail 2,500 to 70,000 sq. ft. Gas Station 1 to 18 fueling positions Fast Food 1,000 to 6,000 sq. ft. Restaurant 1,000 to 26,000 sq. ft.	YES
III	Projected site traffic between 3,000 and 10,000 ADT or Projected peak hour traffic between 500 and 1,200 or Proposed installation or modification to traffic signals or elements of the roadway, regardless of project size	Single Family 315 to 1,000 units Apartment 450 to 1,500 units Lodging 330 to 1,100 occupied rooms General Office 270,000 to 900,000 sq. ft. Retail 70,000 to 230,000 sq. ft. Fast Food 6,000 to 20,000 sq. ft.	YES
IV	Projected site traffic > 10,000 ADT or Proposed installation /modification of two or more traffic signals, addition of travel lanes to State Highway or proposed modification of freeway interchange, regardless of project size	Single Family > 1,000 units Apartment > 1,500 units Lodging > 1,100 occupied rooms General Office > 900,000 square feet Retail > 230,000 square feet	YES

Permit Level / Traffic Study level I

Project ADT < 100 trips.

No proposed modifications to traffic signals or roadway elements or geometry.

The traffic study shall, at a minimum, incorporate traffic engineering principles and standards as presented in the State Highway Access Management Rule, Department standards, and national practices. Additional requirements and investigation may be imposed upon the applicant as necessary.

The Region Permits officer and/or the Region Traffic Engineer determine the need and requirements for a traffic impact study.

1. Study Area.
Defined by Region Permits Officer and/or Region Traffic Engineer.
The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary.

Study area may be limited to or include property frontage and include neighboring and adjacent parcels. Identify site, cross, and next adjacent up and down stream access points within access category distance of property boundaries.
2. Design year.
Opening day of project.
3. Analysis Conditions and Period
Identify site traffic volumes and characteristics.
Identify adjacent street(s) traffic volume and characteristics.
4. Identify right-of-way, geometric boundaries and physical conflicts.
Investigate existence of federal or state, no access or limited access control line.
5. Generate access point capacity analysis as necessary.
Analyze site and adjacent road traffic for the following time periods: weekday A.M. and P.M. peak hours including Saturday peak hours. Identify special event peak hour as necessary (per roadway peak and site peak).
6. Design and Mitigation.
Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Permit Level / Traffic Study Level II

The traffic study shall, at a minimum, incorporate traffic engineering principles and standards as presented in the State Highway Access Management Rule, Department standards, and national practices. Additional requirements and investigation may be imposed upon the applicant as necessary.

The Region Permits officer and/or the Region Traffic Engineer determine the need and requirements for a traffic impact study.

Project ADT 100 to 500 trips.

1. Study Area.
Defined by Region Permits Officer or Region Traffic Engineer.
The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary.

Intersection of site access drives with state highways and any signalized and unsignalized intersection within access category distance of property line. Include any identified queuing distance at site and study intersections
2. Design Year.
Opening day of project.
3. Analysis Period.
Identify site and adjacent road traffic for weekday A.M. and P.M. peak hours.
4. Data Collection
Identify site and adjacent street roadway and intersection geometries.
Identify adjacent street(s) traffic volume and characteristics.
5. Conflict / Capacity Analysis
Diagram flow of traffic at access point(s) for site and adjacent development.
Perform capacity analysis as determined by Region Traffic Engineer.
6. Right-of-Way Access
Identify right-of-way, geometric boundaries and physical conflicts. Investigate existence of federal or state, no access or limited access control line.
7. Design and Mitigation
Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Project ADT 500 to 3,000 trips or peak hour < 500 trips.

Any proposed modification to traffic signals or roadway elements or geometry.

1. Study Area.
Defined by Region Permits Officer or Region Traffic Engineer.
The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary. An acceptable traffic study boundary, based on travel time, may be identified as a ten or twenty minute travel time or even by market area influence.

Intersection of site access drives with state highways and any signalized and unsignalized intersection within access category distance of property line. Include any identified queuing distance at site and study intersections.

2. Design Year.
Opening day of project and five year after project completion. Document and include all phases of development (includes out pad parcels).
3. Analysis Period.
Analyze site and adjacent road traffic for weekday A.M. and P.M. peak hours including Saturday peak hours. Identify special event peak hour as necessary (adjacent roadway peak and site peak).
4. Data Collection
 - a. Daily and Turning Movement counts.
 - b. Identify site and adjacent street roadway and intersection geometries.
 - c. Traffic control devices including traffic signals and regulatory signs.
 - d. Traffic accident data
5. Trip Generation.
Use equations or rates available in latest edition of ITE Trip Generation. Where developed equations are unavailable for intended land use, perform trip rate study and estimation following ITE procedures or develop justified trip rate agreed to by the Department.
6. Trip Distribution and Assignment
Document distribution and assignment of existing, site, background, and future traffic volumes on surrounding network of study area.
7. Conflict / Capacity Analysis.
Diagram flow of traffic at access point(s) for site and adjacent development.
Perform capacity analysis for daily and peak hour volumes
8. Traffic Signal Impacts. For modified and proposed traffic signals:
 - a. Traffic Signal Warrants as identified.
 - b. Traffic Signal drawings as identified.
 - c. Queuing Analysis
9. Right-of-Way Access
Identify right-of-way, geometric boundaries and physical conflicts. Investigate existence of federal or state, no access or limited access control line.
10. Design and Mitigation.
Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Permit Level / Traffic Study Level III

Project ADT 3,000 to 10,000 trips or peak hour traffic 500 to 1,200 trips.

Proposed installation or modification to traffic signals or roadway elements or geometry, regardless of project size or trip generation.

The traffic study shall, at a minimum, incorporate traffic engineering principles and standards as presented in the State Highway Access Management Rule, Department standards, and national practices. Additional requirements and investigation may be imposed upon the applicant as necessary.

The Region Permits officer and/or the Region Traffic Engineer determine the need and requirements for a traffic impact study.

1. Study Area.

Defined by Region Permits Officer or Region Traffic Engineer

The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary. An acceptable traffic study boundary, based on travel time, may be identified as a ten or twenty minute travel time or even by market area influence.

Intersection of site access drives with state highways and any intersection within 1/2 mile of property line on each side of project site.

2. Design Year.

Opening day of project, five years and twenty years after opening. Document and include all phases of development (includes out pad parcels).

3. Analysis period.

For each design year analyze site and adjacent road traffic for weekday A.M. and P.M. peak hours including Saturday peak hours. Identify special event peak hour as necessary (adjacent roadway peak and site peak).

4. Data Collection.

- a. Daily and Turning movement counts.
- b. Identify site and adjacent street roadway and intersection geometries.
- c. Traffic control devices including traffic signals and regulatory signs.
- d. Automatic continuous traffic counts for at least 48 hours.
- e. Traffic accident data.

5. Trip Generation.

Use equations or rates available in latest edition of ITE Trip Generation. Where developed equations are unavailable for intended land use, perform trip rate study and estimation following ITE procedures or develop justified trip rate agreed to by the Department.

6. Trip Distributions and Assignment.

Document distribution and assignment of existing, site, background, and future traffic volumes on surrounding network of study area.

7. Capacity Analysis.

- a. Level of Service (LOS) for all intersections.
- b. LOS for existing conditions, design year without project, design year with project.

8. Traffic Signal Impacts. For proposed Traffic Signals:

- a. Traffic Signal Warrants as identified.
- b. Traffic Signal drawings as identified.

- c. Queuing Analysis.
 - d. Traffic Systems Analysis. Includes acceleration, deceleration and weaving.
 - e. Traffic Coordination Analysis
9. Right-of-Way Access
Identify right-of-way, geometric boundaries and physical conflicts. Investigate existence of federal or state, no access or limited access control line.
10. Accident and Traffic Safety Analysis. Existing vs. as proposed development.
11. Design and Mitigation.
Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

Permit Level / Traffic Study Level IV

Project ADT greater than 10,000 trips or peak hour traffic > 1,200 vehicles per hour.
Proposed installation or modification of two or more traffic signals, addition of traffic lanes or modification of freeway interchange.

The traffic study shall, at a minimum, incorporate traffic engineering principles and standards as presented in the State Highway Access Management Rule, Department standards, and national practices. Additional requirements and investigation may be imposed upon the applicant as necessary.

The Region Permits officer and/or the Region Traffic Engineer determine the need and requirements for a traffic impact study.

1. Study Area.
Defined by Region Permits Officer or Region Traffic Engineer
The study area, depending on the size and intensity of the development and surrounding development, may be identified by parcel boundary, area of immediate influence or reasonable travel time boundary. An acceptable traffic study boundary, based on travel time, may be identified as a ten or twenty minute travel time or even by market area influence.

Intersection of site access drives with state highways and any intersection within 1/2 mile of property line of each side of project site and any intersection or freeway interchange impacted by more than 500 peak hour trips.
2. Design Year.
Opening day of project, five years and twenty years after opening. Document and include all phases of development (includes out pad parcels).
3. Analysis period.
For each design year analyze site and adjacent road traffic for weekday A.M. and P.M. peak hours including Saturday peak hours. Identify special event peak hour as necessary (adjacent roadway peak and site peak).
4. Data Collection.
 - a. Daily and Turning movement counts.
 - b. Identify site and adjacent street roadway and intersection geometries.
 - c. Traffic control devices including traffic signals and regulatory signs.

- d. Automatic continuous traffic counts for at least 48 hours.
- e. Traffic accident data.
- 5. Trip Generation
Use equations or rates available in latest edition of ITE Trip Generation. Where developed equations are unavailable for intended land use, perform trip rate study and estimation following ITE procedures or develop justified trip rate agreed to by the Department.
- 6. Trip Distributions and Assignment.
Document distribution and assignment of existing, site, background, and future traffic volumes on surrounding network of study area.
- 7. Capacity Analysis.
 - a. Level of Service (LOS) for all intersections.
 - b. LOS for existing conditions, design year without project, design year with project.
- 8. Traffic Signal Impacts. For proposed traffic signals:
 - a. Traffic Signal Warrants as identified.
 - b. Traffic Signal drawings as identified.
 - c. Queuing Analysis.
 - d. Traffic Systems Analysis. Includes acceleration, deceleration and weaving.
 - e. Traffic Coordination Analysis.
- 9. Right-of-Way Access
Identify right-of-way, geometric boundaries and physical conflicts. Investigate existence of federal or state, no access or limited access control line.
- 10. Accident and Traffic Safety Analysis. Existing vs. as proposed develop.
- 11. Design and Mitigation.
Determine and document safe and efficient operational design needs based on site and study area data. Identify operational concerns and mitigation measures to ensure safe and efficient operation pursuant to appropriate state highway access category.

STUDY AND REPORT FORMAT

The Traffic impact study should follow the recommended format below. Traffic impact studies shall be presented by a firm or individual recognized by the Department of Transportation as capable of performing a traffic analysis and when necessary, include engineered drawings based on Department standards drawings and specifications.

(1) INTRODUCTION AND SUMMARY

(2) PROPOSED PROJECT

(3) STUDY AREA CONDITIONS

(4) ANALYSIS OF EXISTING CONDITIONS

(5) PROJECTED TRAFFIC

(6) TRAFFIC ANALYSIS

(7) CONCLUSIONS

(8) RECOMMENDATIONS

(9) APPENDICES

- a) Traffic Counts
- b) Traffic Capacity Analysis
- c) Accident Summary
- d) Request for change of access (if applicable)

(10) FIGURES AND TABLES

The following items shall be documented in the study:

- a) Site location – showing area roadways
- b) Site Plan
Identify geometric / physical concerns relating to area, site and specific access points. Include adjacent street and access points.
- c) Existing roadway and traffic control features (number of lanes, lane widths, alignment, location of traffic signals, signs) Include off-system features as related to site plan and access point(s).
- d) Existing daily volumes (directional if possible) and peak hour turning volumes. Discuss traffic characteristics (vehicle mix, % make-up and any special vehicle requirements).
- e) Collision diagram summary.
- f) Site generated trip summary. Discuss trip/vehicle make-up and any special vehicle requirements. Discuss trip reduction strategies if applicable.
- g) Directional distribution of site generated traffic.
- h) Assignment of Non-site related traffic (existing, background and future). Document both existing and committed development, and when appropriate other background planned development traffic. Assignment of total future non-site traffic for design year.
- i) Assignment of Site Traffic
- j) Traffic Capacity Analysis
Projected levels of service without the project – coincide with development phase years.
Projected levels of service with the project (by development phase years)
Recommended mitigation / improvement

(Scaled schematic drawings illustrating alignment, number of lanes, lane widths, signing, pavement markings. If traffic signal modifications are proposed, signal phasing, signal head locations, lane marking shall be shown.)

R930. Transportation, Preconstruction.

R930-5. Establishment and Regulation of At-Grade Railroad Crossings.

R930-5-1. Purpose and Authority.

(1) The Utah Department of Transportation (the "Department") oversees all Public Highway-Rail Grade Crossings ("Crossings") in the state of Utah. Railroads have jurisdiction over and are responsible for the safety of private crossings. The Department's goals are to improve the safety for all users of a Crossing and provide for the efficient operation of trains and vehicles and pedestrians access through those Crossings. As part of this effort, the Department promotes the elimination of Crossings and at regular intervals, the Department:

- (a) Reviews all existing Crossings in the state for safety deficiencies;
- (b) Evaluates and approves the location of a new Crossing;
- (c) Prescribes the type of improvements at a Crossing;
- (d) Defines maintenance responsibility for a Crossing; and
- (e) Determines funding apportionments for all Section 130 Crossing Projects.

(2) This rule describes procedures for evaluating and selecting a Crossing for improvement as well as for evaluating and selecting the type of improvements at a Crossing. Such improvements include, but are not limited to:

- (a) The evaluation and selection of the type of Passive and Active Warning Devices;
- (b) The process for evaluating and determining whether a Crossing should be grade separated; and
- (c) The process for evaluating Quiet Zones as outlined in 49 CFR 222.

(3) This Rule outlines the responsibilities of the various parties with respect to the design, maintenance and funding for Crossing improvements.

(4) This Rule is authorized by Section 54-4-15 "Establishment and Regulation of Grade Crossings," Section 54-4-14, Section 72-1-201, Section 41-6a-1205 and Title 63G, Chapter 3 "Utah Administrative Rulemaking Act."

R930-5-2. Incorporation by Reference.

The following federal law, state law, federal agency manuals, association standards and UDOT technical requirements are incorporated by reference:

- (1) 23 CFR 148 "Highway Safety Improvement Program" (2005);
- (2) 23 CFR 646 "Railroads" (2009);
- (3) 23 CFR 655 "Traffic Operations" (2009) "Manual of Uniform Traffic Control Devices (MUTCD)" (2003, with revisions 1 and 2 incorporated, dated 2007);
- (4) 23 CFR 924 "Highway Safety Improvement Program" (2009);
- (5) 49 CFR 209 "Accidents and Incidents" (2009);
- (6) 49 CFR 212 "State Safety Participation Regulations" (2009);
- (7) 49 CFR 222 "Use of Locomotive Horns at Public Highway-Rail Grade Crossing" (2009)
- (8) 49 CFR 659 "Rail Fixed Guideway Systems; State Safety Oversight" (2009);
- (9) "A Policy on Geometric Design of Highway and Streets",

American Association of State Highway and Transportation Officials (AASHTO) (2004);

(10) "Railroad-Highway Grade Crossing Handbook", Federal Highway Administration (FHWA) (August 2007);

(11) "Preemption of traffic signals near Railroad Crossings", Institute of Traffic Engineers (ITE) (2004);

(12) "Manual for Railway Engineering", Chapter 28, Clearances, American Railway Engineering and Maintenance-of-Way Association (AREMA), 2007; and

(13) "Standard Drawing ST-7 Pavement Marking and Signs at Railroad Crossings", Utah Department of Transportation (UDOT) (2008).

R930-5-3. Definitions.

(1) "Active Warning Device" means traffic control devices activated by the approach or presence of a train, such as flashing light signals, automatic gates and similar devices, as well as manually operated devices and Crossing watchmen, all of which display to motorists positive warning of the approach or presence of a train.

(2) "Company" means any local district or utility company.

(3) "Diagnostic Team" means an appointed group of knowledgeable representatives of the parties of interest in a Crossing or group of Crossings.

(4) "FHWA" means the Federal Highway Administration, an agency within the United States Department of Transportation.

(5) "FRA" means the Federal Railroad Administration, an agency within the United States Department of Transportation.

(6) "FTA" means the Federal Transit Administration, an agency within the United States Department of Transportation.

(7) "Highway" means any public road, street, alley, lane, court, place, viaduct, tunnel, bridge, or structure laid out or erected for public use, or dedicated or abandoned to the public, or made public in an action for the partition of real property, including the area within the right-of-way.

(8) "Highway-Rail Grade Crossing" ("Crossing") means the general area where a Highway and a Railroad cross at the same level within which are included the Railroad, Highway, and roadside facilities for public traffic traversing the area.

(9) "Highway Authority" means the Department or local governmental entity that owns or has jurisdiction over a Highway.

(10) "MUTCD" means the Manual of Uniform Traffic Control Devices as adopted in Section 41-6a-301.

(11) "Neutral Quadrant" means the quadrant that minimizes sight distance conflicts with immediate on-coming auto traffic. Generally, the neutral quadrant is on the far side of the tracks from the direction of vehicular travel.

(12) "Passive Warning Device" means those types of traffic control devices, including signs, markings and other devices located at or in advance of a Crossing to indicate the presence of a Crossing but which do not change aspect upon the approach or presence of a train.

(13) "Preliminary Engineering" means the work necessary to produce construction plans, specifications, and estimates to the degree of completeness required for undertaking construction, including locating, surveying, designing, and related work.

(14) "PSC" means the Public Service Commission of the State of Utah.

(15) "Quiet Zone" means a section of a rail line at least one half mile in length that contains one or more consecutive public Crossings at which locomotive horns are not routinely sounded, see 49 CFR 222.

(16) "Railroad" means all rail carriers, whether publicly or privately owned, and common carriers, including line haul freight and passenger railroads, public transit districts, switching and terminal railroads, passenger carrying railroads such as rapid transit, and commuter and street railroads.

(17) "Section 130 Crossing Project" means a project that eliminates hazards and improves the safe operation of trains, vehicles, and pedestrians through a crossing and is authorized and funded by United State Code, Title 23, Section 130 Program funds.

R930-5-4. Type and Selection of Crossing Projects.

(1) Section 130 Crossing Projects:

(a) Section 130 Crossing Project types include, but are not limited to:

(i) Elimination of a Crossing by combining multiple Crossings;
(ii) Elimination of a Crossing by the relocation of a Highway;
(iii) Elimination of a Crossing by the construction of a new grade separation;

(iv) New safety improvements;

(v) Reconstruction of a Crossing grade separation structure;
and

(vi) Repair of Crossing material, that would otherwise be the responsibility of the Railroad as prescribed in Subsection R930-5-8-(1)(b), if the repair of the Crossing material affects or is an integral part of the Crossing safety devices.

(b) The Department has established a process for the evaluation and selection of Section 130 projects that considers the potential reduction in the number and/or severity of collisions, the cost of the Crossing projects, and available resources. Specific methods for selecting and prioritizing Crossings for improvement include:

(i) The collection and maintenance of data utilizing the USDOT Grade Crossing Inventory to record Crossing data including, but not limited to the current physical condition, average daily traffic, and collision data associated with a Crossing.

(ii) An engineering study conducted on a Crossing at the request of a Highway Authority, Railroad, or company or using a priority list developed using the USDOT Accident Prediction Model. The purpose of the engineering study is to review the Crossing and its environment, identify the nature of any deficiencies and recommend alternative improvements. Specifically, an engineering study reviews Crossing characteristics, the existing traffic control system, and the Highway and Railroad characteristics. Based on the review of these conditions, an assessment of existing and potential hazards is made, deficiencies are identified and countermeasures are recommended.

(iii) System or corridor evaluations consider a Crossing as a component of a larger transportation system. The objective is to improve both safety and operations of the total system or segments of the system. In such cases, all Crossings within a corridor are

evaluated and can be programmed for improvements. The optimal outcome of a corridor study involves a combination of engineering improvements and closures such that both safety and operations are highly improved.

(2) Non-Section 130 Crossing Projects:

(a) Non-Section 130 Crossing Project types include, but are not limited to:

(i) Crossing projects that use Railroad properties or involve adjustments to Railroad facilities required by Highway construction, but do not involve the elimination of hazards at a Crossing; and

(ii) Construction of a new Crossing at or over a Railroad track where the new Highway is not a relocation of an existing Highway.

(b) Non-Section 130 Crossing Projects will be evaluated and selected as part of the Department's normal STIP evaluation and approval process.

R930-5-5. Diagnostic Team.

(1) The role of the Diagnostic Team is to make recommendations to the Department for needed safety improvements at a Crossing.

(2) The Diagnostic Team reviews and evaluates proposed improvements for all Section 130 Crossing Projects and Non-Section 130 Crossing Projects. The Diagnostic Team reviews a Crossing when requested by a Highway Authority, Railroad, or Company when changes in Highway traffic patterns are proposed, when proposed Railroad traffic is determined to increase significantly, when complaints are made about a Crossing, when safety concerns arise, or when the Department receives a closure request. The Department will consider all recommendations made by the Diagnostic Team and, if appropriate, input received from the public at large (in accordance with Section R930-5-13) before issuing orders for the improvement of Crossings.

(3) The Department may also make formal findings and rulings as part of its process for evaluating Crossing improvements or during routine inspection of Crossings, independent of the Diagnostic Team.

(4) The Diagnostic Team is usually composed of the following team members:

(a) Chief Railroad Engineer for the Department;

(b) Representative from the Railroad;

(c) Representative from the appropriate Company, if applicable;
and

(d) Representative from the Highway Authority (preferably from engineering or public works), and when available, and where appropriate public school district, law enforcement agency and invites with an interest in the Crossing.

(5) The role of the Diagnostic Team is to:

(a) Recommend the elimination of a Crossing;

(b) Recommend the type of safety improvements including, but not limited to Passive Warning Devices, Active Warning Devices, the type of Crossing material, improvements to Highway approaches, removal of foliage and brush, pedestrian facilities (including compliance with ADA requirements), and improvements to street lighting;

(c) Review all requests for a new Crossing;

(d) Review all requests to reclassify a Crossing from private to public;

(e) Recommend the Department conduct an engineering study to evaluate the need for a new overpass or other grade separation

structure(s); and

(f) Recommend any other safety related changes to improve vehicle and pedestrian safety.

(6) Duties of Diagnostic Team members generally include participating in Crossings reviews and providing input into the Diagnostic Team recommendations. Specific duties include, but are not limited to the following:

(a) The Chief Railroad Engineer will, when applicable:

(i) Select a Section 130 Crossing Project from a corridor study, or based on a Highway Authority, Railroad, or Company request;

(ii) Schedule and notify Diagnostic Team members, and the FHWA, of the date and time of an upcoming review;

(iii) Conduct Crossing review and issue related reports in a reasonable time after the review and send copies to all those attending the review;

(iv) Review and approve Crossing improvements recommended by the Diagnostic Team;

(v) Determine Section 130 apportionments for Crossing projects;

(vi) Initiate all Notices of Intended Action for Crossing projects, as appropriate;

(vii) Review and approve the contractual requirements for Crossing projects using Section 130 Program funding;

(viii) Review all necessary field data obtained for the Crossing, including but not limited to site plan maps and photographs of the existing Crossing conditions.

(b) The Railroad representative shall provide all relevant data related to the Crossing, including, but not limited to train volumes, accident data and any other pertinent data regarding the Crossing;

(c) The Highway Authority representative shall:

(i) Provide relevant data regarding the Crossing including, but not limited to Highway traffic volumes, planned road construction activities, and an approved master street plan for the Highway;

(ii) Invite local school district if appropriate and request that the local school district representative provide child access and bus routing plan information; and

(iii) Invite local law enforcement agency if appropriate and request that the law enforcement agency provide relevant data, including, but not limited to any safety concerns about the Crossing.

R930-5-6. Design of a Highway-Rail Grade Crossing.

(1) The Department shall approve or disapprove, as appropriate, the design of all Crossing improvements, including the addition of a new Crossing and treatments for a closed Crossing. All design plans shall include, if available:

(i) USDOT identification numbers;

(ii) Street addresses;

(iii) Highway milepost;

(iv) Railroad subdivision; and

(v) Railroad milepost for the Crossing.

(2) Design of Crossing related facilities that are the responsibility of the Railroad shall conform to the specifications and design standards of the Railroad.

(3) Design of Crossing related Highway approaches, those areas two feet outside of rail that are the responsibility of the Highway

Authority shall conform to the specifications and design standards of the Highway Authority, subject to approval by the Department. Where a Highway Authority does not have an approved standard, Department standard drawings for the design of the Crossing approaches apply.

(4) Traffic control devices installed as part of any Crossing improvements shall comply with the MUTCD. Required clearances for all devices shall conform to the MUTCD and any variances from MUTCD requirements must be approved by the Department.

(5) When it is determined that the railroad crossing material needs to be extended or replaced, the agency doing the design of the crossing shall determine the minimum length of the crossing material. The length shall be determined based on the proposed width of the new roadway or from the approved master plan roadway width. The crossing material length shall extend at least two feet from the outer edge of the roadway, beyond the roadway clear zone area, or to the back of the concrete curb and gutter or out past the sidewalks.

(6) The Railroad is responsible for the design of Railroad Active Warning Devices, including the location, activation circuitry, hardware, and software in accordance with MUTCD.

(a) When Active Warning Devices are within 200 feet of a traffic signal, the Highway Authority and the Railroad shall coordinate the design of the interconnect between the traffic signal and Automatic Warning Device to ensure sufficient preemption time to clear potential vehicle stacking across a Crossing.

(b) Signal houses for Active Warning Devices shall be located in the Neutral Quadrant unless approved by the Department.

(7) The Railroad is responsible for the design of all required Railroad Passive Warning Devices located within the Railroad road right-of-way in accordance with the MUTCD, specific Passive Warning Devices include:

- (a) Sign R15-1 (Crossbuck);
- (b) Sign R15-2 (Number of tracks);
- (c) Sign R1-1 (STOP);
- (d) Sign R1-2 (Yield);
- (e) Sign R15-3 (Exempt);
- (f) Sign R8-9 (Tracks out of Service).

(8) Design and installation of all other Passive Warning Devices, signs, and pavement markings is the responsibility of the Highway Authority. Design and location of the devices shall be in accordance with the MUTCD.

(9) For clearances, refer to the Manual for Railway Engineering, Chapter 28, Clearances, American Railway Engineering and Maintenance-of-Way Association (AREMA), 2007.

R930-5-7. Highway Authority and Railroad Responsibility to Request Approval and Arrange for the Installation of Crossing Improvements.

(1) When a Highway Authority widens or constructs a new Highway, the Highway Authority shall be responsible to request a Diagnostic Team review of the Crossing and arrange by agreement with the Railroad to design and install all required improvements concurrent with its request for approval from the Department:

(2) Prior to approving new residential, commercial, or industrial development within 1000 feet of a Crossing, the Highway Authority shall request a Diagnostic Team review to assess the

potential traffic impacts at the Crossing.

(3) Before a Highway Authority approves increased development that changes the conditions of a Crossing by significantly increasing traffic volumes, the Highway Authority plans shall be approved by the Department.

(a) No new access openings can be opened within 250' of a Crossing unless approved by the Department.

(b) The Highway Authority shall arrange by agreement with the Railroad for any required Railroad facility changes ordered by the Department.

(4) The Highway Authority is responsible for the installation of all Passive Warning Devices outside the Railroad right-of-way, excepting those signs listed in Section R930-5-6.6, or unless a separate agreement applies.

(5) Before a Railroad modifies any safety related devices or the physical layout of a Crossing, the Railroad shall request a Diagnostic Team review of the proposed changes and request Department approval of all Crossing related designs.

(6) A Highway Authority, Railroad, or Company making a request for a new Crossing or the reclassification of a Crossing from private to public shall provide the Department with an approved master street plan from the appropriate jurisdiction showing the elimination or combination of existing Crossings and/or other safety improvements that enhance the overall safety of the corridor before a new Crossing or reclassification of a Crossing from private to public will be approved.

(a) A Highway Authority, Railroad, or Company requesting a new Crossing or reclassification of a Crossing from private to public will mutually arrange by agreement for the proposed new Crossing or reclassification of a Crossing before seeking Department approval of the change.

R930-5-8. Maintenance.

(1) Responsibility for maintenance is as described in this section unless a separate agreement applies.

(a) The Railroad is responsible for the maintenance of all Railroad Passive Warning Devices and Active Warning Devices within the Railroad right-of-way.

(b) If the Railroad has a property interest in the right-of-way, the Railroad is responsible for the maintenance of Crossing material within the Railroad right-of-way and two feet beyond each outside rail for Crossings without concrete crossing panels or edge of concrete crossing panel.

(c) On a temporary Highway Detour Crossing, the Railroad shall be responsible for the maintenance of pavement, Active Warning Devices, and Passive Warning Devices within the Railroad right-of-way at expense of the Highway Authority.

(d) When the Railroad alters the railway due to track and ballast maintenance, the Railroad shall coordinate their work with the Highway Authority so the pavement approaches can be adjusted to provide a smooth and level Crossing surface.

(e) When the Highway Authority changes the Highway profile, through construction or maintenance activities, the Highway Authority shall coordinate their work with the Railroad so the tracks can be

adjusted to provide as smooth and level a Crossing surface as possible.

(f) Where a Highway structure overpasses a Railroad, the Highway Authority is responsible for the maintenance of the entire structure and its approaches.

(g) Where a Highway underpasses a Railroad and the Railroad owns the right-of-way in fee title, the Highway Authority is responsible for the maintenance of the Highway and the entire structure below and including the deck plate, girders, handrail, and parapets. The Railroad is responsible for the maintenance of the ballast, ties, rails and any portion of the supporting structure above the top of the ballast deck plate between parapets.

(i) If the Highway Authority owns the right-of-way in fee title, the Railroad is responsible for the maintenance of the entire structure unless a separate agreement applies.

(ii) Cost of repairing damages to a Highway or a Highway structure, occasioned by collision, equipment failure, or derailment of the Railroad's equipment shall be borne by the Railroad.

(h) Responsibility for maintenance of private industrial trackage not owned by a Railroad that crosses a Highway shall be as follows:

(i) When a facility, plant, or property owner receives goods and services from a Railroad over private industrial trackage that crosses a Highway, maintenance of the Crossing shall be the responsibility of the industry owning the trackage, or as agreed to by the parties.

(ii) When the Crossing becomes a safety hazard to vehicles and is not maintained, the Department and/or the Railroad shipping the goods and services shall notify the industry owning the trackage in writing to maintain or replace the Crossing material.

(iii) If the industry owning the trackage does not maintain or replace the Crossing material by a specified date, the Department shall order the Railroad to cease and desist operations across the Crossing.

(iv) If the industry owning the trackage does not respond to the order to maintain or replace the Crossing material the Department shall arrange to have the Crossing material replaced and bill the industry owning the trackage for the expenses to repair the trackage.

R930-5-9. Funding Authorization and Apportionment of Cost for Section 130 Crossing Projects.

(1) Funding Authorization.

(a) Section 130 Crossing Projects:

(i) Costs associated with a FHWA authorized and approved program are eligible for federal participation. Eligible costs incurred in an approved program prior to authorization by FHWA are not reimbursable, but may be included as part of the Railroad share of the project cost where such a share is required. Eligible costs include, but are not limited to cost associated with environmental clearance, Preliminary Engineering, and right-of-way acquisition.

(ii) Prior to FHWA issuing its authorization to advertise the construction of a Crossing project, the Crossing project must receive environmental clearance; the plans, specifications and estimates must be approved by FHWA; and any proposed agreement between the Railroad and the Department must be reviewed and approved by FHWA, as per FHWA's

stewardship agreement with the Department.

(b) Non-Section 130 Crossing Projects:

(i) The Department will consider requests for funding of non-Section 130 Crossing Projects as part of its regular STIP evaluation and approval process.

(2) Apportionment of Costs.

(a) Section 130 Crossing Projects:

(i) Apportionment of costs for installation, maintenance, and reconstruction of safety related improvements at a Crossing shall be in accordance with 23 CFR 646 and Section 54-4-15.

(ii) When a Highway Authority widens a Highway, the Highway Authority shall fund all improvements including, but not limited to Passive Warning Devices, Active Warning Devices, Crossing material, and other improvements as ordered by the Department in consultation with the Diagnostic Team.

(iii) The Department will evaluate each Crossing project to determine the extent to which, if any, the Crossing projects benefits the respective parties. If a Crossing project is determined not to benefit a party, the party will not be required to participate in the funding.

(b) Non-Section 130 Crossing Projects.

(i) The Department will consider requests for funding of non-Section 130 Crossing Projects as part of its regular STIP evaluation and approval process.

R930-5-10. Railroad and Highway Authority Agreements.

(1) Where construction of a Section 130 Crossing Project requires use of Railroad properties or adjustments to Railroad facilities, the Department will prepare an agreement with the Railroad.

(2) Master agreements between the Department and a Railroad on an area wide or statewide basis may be used. These agreements shall contain the specifications, regulations, and provisions required in conjunction with work performed on all Crossing projects.

(3) On a project-by-project basis, the written agreement between the Department and the Railroad shall include the following minimum requirements:

- (a) Reference to appropriate federal regulations;
- (b) Detailed statement of the work to be performed by each party;
- (c) The extent to which the Railroad is required to adjust its facilities;
- (d) The Railroad's share of the project cost;
- (e) An itemized estimate of the cost of the work to be performed by the Railroad;
- (f) Method to be used for performing the work, either by Railroad forces or by contract;
- (g) Maintenance responsibility;
- (h) Form, duration, and amounts of any needed insurance; and
- (i) Appropriate reference to or identification of plans and specifications.

(4) On matching fund agreements between the Department and a Highway Authority, the written agreement shall include the following minimum requirements:

- (a) Description of work and location, city, county, and state;

(b) Reference to federal regulations that matching funds will be provided by the Highway Authority;

(c) Detailed statement of work to be preformed by each party regarding design, agreements, inspection, and maintenance;

(d) Statement of finances of project and matching funds to be provided by Highway Authority, deposits, invoices, and cost overruns or under runs.

(5) Agreements for industry track Crossings are prepared between the Highway Authority and the industry.

(6) In order that a Crossing project shall not become unduly delayed, the Department shall consider a six-month period from issuance of the Railroad agreement to be adequate for completion of work by the Railroad involved. Should more than the specified period elapse, the Department shall require the Railroad to proceed with the work covered by the agreement under the authority contained in Section 54-4-15 and approval from the FHWA will be solicited in conformance with 23 CFR 646.

R930-5-11. Crash Reporting.

A Railroad is required to report crashes resulting in injury or death to an individual or damage to equipment, roadbed, or autos occurring at a Crossing to the Department's Chief Railroad Engineer within 2 hours of the incident. Initial notification must include the USDOT Crossing number, street address, municipality, time of incident, train identifier, and contact phone number for further information. Written crash reports shall be submitted to the Department within 30 days of the incident. Current Federal Railroad Administration (FRA) form F 6180.57 shall be used to report a crash.

R930-5-12. Exemption of Railroad Crossings.

Under Section 41-6a-1205, certain vehicles are required to stop at all Crossings unless a Crossing is signed as exempt. Recommendation to exempt a Crossing is made by a Diagnostic Team and the Department is responsible for issuing the exemption order. The following Crossings are not eligible for exemption under this Section:

- (1) Mainline Crossings with Passive Warning Devices only;
- (2) Crossings within approved Quiet Zones; and
- (3) Crossings where insufficient sight distance exists.

R930-5-13. Notice of Intended Action.

(1) Public notification of a public hearing opportunity is required, in conformance with Section R930-2, when the Department is considering a proposal to permanently close a Crossing, add a track at a Crossing, or construct a new Crossing. It is the responsibility of the Highway Authority, Railroad, or Company requesting the proposed action, in consultation with the Department, to carry out the requirements of this section unless otherwise agreed to by the Department.

(2) In instances where the action proposed by the Department does not substantially affect the public, the Department may waive the requirement to notice a public hearing opportunity, provided the affected Diagnostic Team members concur in writing.

KEY: railroad, crossing, transportation, safety

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