R930. Transportation, Preconstruction.
R930-5. Establishment and Regulation of At-Grade Railroad Crossings.
R930-5-1. Policy.

(1) At regular intervals, the Department: (a) reviews for safety all existing public at-grade highway/railway crossings in the state in accordance with the Manual on Uniform Traffic Control Devices; (b) evaluates and approves the location of new crossings; (c), prescribes the types of at-grade crossing railroad warning devices; and (d) determines maintenance and funding apportionments for all highway/railway projects.

(2) Highway/railway projects that use federal railroad safety funds shall be carried out in accordance with 23 CFR Part 646 Subpart B.

R930-5-2. Authority.

This rule is authorized by Utah Code Ann. Section 54-4-15. Additional sections in the Utah Code and Federal rules supporting this rule are found in sections 10-8-34, 10-8-82, 41-6-19, 72-1-102, 72-2-112; 23 CFR 924 and 23 CFR 646.

R930-5-3. Purpose.

(1) Department oversees all at-grade public highway/railway crossings in the state of Utah and provide for the safe, efficient operation of vehicles and pedestrians through highway/railway intersections. Department also promotes elimination of at-grade highway/railway crossings when possible, elimination of hazards to improve at-grade crossings, and recommends the construction of grade separation structures to replace at-grade crossings pursuant to this rule.

(2) This rule describes procedures for the selection of highway/railway crossings for improvement, the selection of passive and active railroad warning devices, design, maintenance operations and the funding sources for the improvement of crossings.

R930-5-4. Incorporation by Reference.

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

(1) 23 CFR 646 "Railroads" (2005);

(2) 23 CFR 924 "Highway Safety Improvement Program" (2005);

(3) "A Policy on Geometric Design of Highway and Streets", American Association of State Highway and Transportation Officials (AASHTO) (2004);

(4) Preemption of traffic signals near railroad crossings, Institute of Traffic Engineers (ITE) (2004); and

(5) Guidance for traffic control devices at Highway/Railroad Grade Crossings, FHWA (2000).

R930-5-5. Definitions.

(1) "Active warning devices" means those types of 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) "At-Grade Crossing" means the crossing of a highway and railway at approximately the same elevation;

(3) "Clear zone" means an area along the road that is clear of obstructions and required by the Department in order to make the roadway safer for errant vehicles;Department

(4) "Company" means any railroad, special transit district, or utility company including any wholly owned or controlled subsidiary thereof;

(5) "Diagnostic/Surveillance team" means an appointed group of knowledgeable representatives of the parties of interest in a highway/railway crossing or group of crossings;

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

(7) "Local Agency" means a local governmental entity that owns a highway;

(8) "Main line railroad track" means a track of a principal line of a railroad, including extensions through yards, upon which trains are operated by timetable, train order or both, or the use of which is governed by block signals or by centralized traffic control;

(9) "MUTCD" means the Manual of Uniform Traffic Control Devices as adopted in Utah Code Ann. Section 41-6a-301;

(10) "Passive warning devices" means those types of traffic control device, including signs, markings and other devices located at or in advance of grade crossings to indicate the presence of a crossing but which do not change aspect upon the approach or presence of a train;

(11) "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;

(12) "PSC" means the Public Service Commission of the State of Utah;

(13) "Roadway" means that portion of the highway, including shoulders, intended for vehicular use;

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

R930-5-6. Types of Projects.

(1) Projects for the elimination of hazards for both vehicles and pedestrians at highway/railway crossings may include the following:

(a) Elimination of at-grade highway/railway crossings by combining multiple crossings;

(b) Elimination of at-grade highway/railway crossings by the relocation of a highway;

(c) Elimination of an at-grade crossing by the construction of a new grade separation where full access control is required

regardless of the volume of train or highway vehicles;

(d) Improvements to existing at-grade highway/railway crossings;

(e) Reconstruction of an existing highway/railway grade separation structure;

(f) Construction of raised median curb islands or other channelizing devices;

(g) Installation of lighting to improve visibility of crossings or safety devices;

(2) Other projects that require Department approval prior to construction include, but are not limited to the following projects:

(a) Highway/railway projects that use railroad properties or involve adjustments to railroad facilities required by highway construction, but do not involve the elimination of hazards of railway/highway crossings;

(b) Construction of new highway crossings over a railroad track where a new street or highway is proposed that is not essentially a relocation of an existing street;

(c) Construction of a new railroad crossing of an existing highway or street.

R930-5-7. Diagnostic/Surveillance Review Team.

(1) The Department shall have a program for the identification of highway/railway crossings for improvement. Crossings may be identified for improvement upon recommendation from the diagnostic/surveillance review team, or by formal finding of the Department. The role of the Diagnostic/Surveillance Review Team is to make recommendations to the Department for changes needed at railroad crossings. The team serves as a venue where different agencies and railroads may come together and discuss options and alternatives for safety improvement. The Department shall consider all recommendations made by the team members, and input received from the public at large (in accordance with section R930-5-14) before issuing final orders for the improvement of grade crossings. Suggested improvements at all highway/railway intersection crossings are evaluated by a Diagnostic/Surveillance Review Team. The team reviews railroad crossings when requested by local agencies, when significant changes in highway traffic patterns are proposed, or when railroad traffic is proposed to significantly increase. The Department may also make formal findings and rulings as part of its routine inspection of railroad crossings, independent of the Diagnostic/Surveillance Review Team.

(2) The Diagnostic/Surveillance Team is composed of the following team members:

(a) Chief Railroad Engineer for the , Department;

(b) Representatives from the railroad company;

(c) Representatives from the local government agency (preferably from engineering or public works), and when available the local law enforcement groups where the highway/railway crossing is located and

(d) Representatives from the local school district, if the crossing is located on an approved school walking route.

(3) The Diagnostic/Surveillance Team shall, when

appropriate:

(a) Recommend the elimination of at-grade highway/railway crossings;

(b) Recommend that passive railroad warning devices be installed at crossings in accordance with the MUTCD;

(c) Recommend installation of active railroad warning devices at highway/railway crossings. Active warning devices include flashing lights, flashing lights with gates, flashing lights with gates and overhead cantilever lights, three- or four-quadrant gates with gate management system, or other active warning device as defined in the MUTCD;

(d) Recommend the type of railroad crossing materials to be installed at highway/railway crossings;

(e) Recommend the improvement of the highway approach grades to the tracks to improve sight distance;

(f) Recommend removal of trees, brush and foliage from the highway and railroad rights-of-way and private properties to provide better sight distance for motor vehicles;

(g) Recommend changes needed to improve pedestrian safety, and to comply to the extent possible with the Americans with Disabilities Act;

(h) Review all requests for new at-grade crossings of existing railroads. The highway agency making the request for a new crossing shall provide a master street plan showing the agency's plan to eliminate or combine existing railroad crossings before new crossings will be approved;

(i) Review change of use of highway/railway crossings. The local agency shall verify the permitted use, public or private, of any highway/railway crossing in writing from the authorized owner of the track prior to approval of new development or change in land use or ownership;

(j) Recommend new overpass or other grade separation structures;

(k) Recommend the installation of street lighting to improve visibility;

(l) Recommend any other safety mitigation requirements in order to improve vehicle and pedestrian safety.

(4) Duties of individual Diagnostic/Surveillance Team members include:

(a) The Chief Railroad Engineer shall:

(i) notify team members who are to attend the review;

(ii) conduct the reviews and issue team reports within two weeks after the review and send copies to all those attending the review;

(iii) establish requirements for horizontal and vertical alignments of the roadway;

(iv) determine passive and active railroad warning device locations on the roadway;

(v) determine funding apportionments on federal railroad safety projects;

(vi) initiate all Notices of Intended Action for railroad projects;

(vii) review the plans and contractual agreement requirements on projects demanding federal funds from local

agencies;

(viii) obtain all necessary field data for plan site maps and take photographs of the existing conditions of all quadrants of the intersection.;

(b) The Railroad Company Representative shall provide train volumes, accident data, and any other pertinent data regarding the railroad crossing;

(c) The Local Agency Representative shall provide highway traffic volumes, proposed road construction activities on the highway, or an approved master plan for the highway, in addition to any other pertinent data regarding the crossing;

(d) The Local School District Representative shall provide school-age pedestrian traffic counts and school routing plan information.

(5) Where a new railroad crosses an existing highway, the Department will consider the new crossing in conformance with Section 54-4-15. Public notice will be made in conformance with R930-5-14, Notice of Intended Action. If approved, the required separation or railroad warning devices, and any pavement work at the crossing shall not be considered to be of benefit to the road user and 100 percent railroad participation shall be required. The determination as to separation of type of warning devices shall be according to classification and traffic volume of the highway crossed and the predicted traffic hazard and as recommended by the Surveillance Team.

R930-5-8. Design of At-Grade Highway/Railway Crossings.

(1) The Department shall oversees and approves the design of all highway/railway at-grade crossings. Facilities that are the responsibility of the railroad for maintenance and operation shall conform to the specifications and design standards used by the railroad in its normal practice. At-Grade crossings that are the responsibility of the local agency for maintenance and operation shall conform to the specifications and design standards and guides used by the highway agency in its normal practice subject to approval by the Department. Where a local agency does not have an approved standard, Department standard drawings for the design of railroad crossings apply. Traffic control devices at all grade crossing improvements shall comply with the MUTCD. Required clearances for all devices shall conform to the MUTCD, or as approved by the Department. All design plans shall include USDOT identification numbers, street addresses, railroad subdivision and railroad milepost for at-grade crossings.

(2) Railroad crossing surface materials shall be designed as follows:

(a) 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;

(b) The approach grades of the roadway to the railroad crossing material shall conform to standard drawings published by the Department, to the extent practical;

(c) When the existing railroad crossing material is to be extended but the existing material is too old and cannot be connected to the new material, complete replacement of the railroad crossing material is required;

(d) New railroad crossing materials shall use insulated concrete panels. Other materials may be used, if approved by the Department.

(3) Active railroad warning devices shall be designed as follows:

(a) The railroad company is responsible for the design of the railroad activation circuitry, hardware, and software necessary to comply with requirements of the Department. Clearances for active warning devices shall comply with requirements of the MUTCD, unless otherwise specifically authorized by the Department;

(b) Three- and four-quadrant gate systems: Designs for these systems shall be in conformance with the MUTCD. Exit gates for these systems shall be designed to fail in the upright position. Time-delayed exit gates shall not be used in these systems, except for locations with a single track that is nearly perpendicular to the highway. In these cases, where practical, the exit gate shall be placed at a distance from the track to allow for a single design vehicle to exit the crossing area safely. The Diagnostic/Surveillance Review Team shall recommend delay times to be used in these applications. For all other installations (single track skewed crossings, multi-track crossings, etc.) a dynamic exit gate system shall be used. The exit gate system shall employ a method (as approved by the Department) of detecting vehicles stalled on the tracks and shall raise exit gates to allow for vehicles to exit the crossing area. When the active warning devices are placed within the roadway clear zone, appropriate attenuation devices shall be installed;

(c) When an existing roadway is to be widened, the new location of the active railroad warning devices shall be determined by the railroad and highway agency. The railroad company shall relocate the devices;

(d) When active warning devices are within 200 feet of a traffic signal, the local authority shall provide the type and amount of preemption time needed to the Diagnostic Review Team. The railroad company shall design the crossing per the specification of the local authority. The local authority shall provide an interconnect to the traffic signal controller. The local authority is responsible for programming traffic signal controller;

(e) Design plans shall show the location of active devices by both highway station and railroad milepost.

(4) The following passive warning devices shall be designed, installed, and maintained by the railroad company in accordance with the MUTCD:\

(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)

(5) Design, installation, and maintenance of all other passive railroad warning devices, signs, and pavement markings is the responsibility of the highway agency that crosses the railroad tracks. Design and location of the devices shall be in accordance with the MUTCD and as engineering studies indicate necessary, or as required by the Diagnostic Review Team.

R930-5-9. Responsibility to Arrange for the Installation of Railroad Materials and Devices.

(1) Responsibility for installation of railroad crossing material is as follows:

(a) When a roadway is widened by a local agency, the local agency shall be responsible to arrange by agreement with the railroad company to install the railroad crossing extension.

(b) When local agencies reconstruct a roadway and new railroad crossing material is required, the local agency shall arrange by agreement with the railroad company for the complete replacement of the railroad crossing material when material cannot be extended.

(2) Responsibility for installation of active warning devices is as follows:

(a) When a local agency widens a roadway which changes the existing conditions of the highway/railway crossing and it requires active warning devices, the local agency shall be responsible to arrange by agreement with the railroad company for the installation of the active railroad warning devices after their plans are approved by the Department.

(b) When a local agency widens a roadway that has existing active railroad warning devices, the local agency shall have their plans approved by the Department and arrange by agreement with the railroad company for the relocation of the devices.

(c) Prior to approving new residential, commercial or industrial development within 1000 feet of a railroad crossing, the local agency shall request a Diagnostic/Surveillance Review of the proposed development to assess the potential traffic impacts at the railroad crossing. When a local agency approves increased development that changes the conditions of a highway/railway at-grade crossing by increasing traffic volumes and/or by adding new access openings onto a highway within 250 feet, the agency plans shall be approved by the Department. The local agency shall arrange by agreement with the railroad company for any required railroad changes.

(d) When a highway/railway at-grade crossing is listed in the Department's Annual High Accident Prediction List and active warning devices are required, the Department shall arrange by agreement with the railroad company for the installation of the active railroad warning devices.

(e) When a local agency requests a surveillance review of a highway/railway intersection or a corridor of intersections and the Diagnostic/Surveillance Team recommends that a crossing or

crossings can be eliminated and other crossings can be upgraded, the Department shall determine if Federal Railroad Safety Funds (also know as "Section 130 funds") may be used for any or all of the improvements. If Federal funding is available, the Department shall also arrange by agreement with the railroad company for the installation of the active railroad warning devices.

(3) The Local Agency is responsible for the installation of all passive railroad warning devices.

R930-5-10. Maintenance.

(1) Responsibility for maintenance is as described in this section unless a separate agreement has been executed between the railroad and the owner of the road.

(2) The maintenance of automatic signal devices and the pavement area from end of tie to end of tie, including space between multiple tracks if the railroad company owns the easement rights between the multiple tracks, and two feet beyond each outside rails is the responsibility of the railroad company.

(3) Signals and pavement between end of ties on temporary highway detours shall in all cases become the responsibility of the railroad company at the expense of the highway agency owning the roadway.

(4) Maintenance of the crossing approaches up to end of tie is the responsibility of the agency owning the roadway. When the railway is raised due to track and ballast maintenance, the railroad company shall coordinate their work with the agency owning the roadway so the pavement on the approaches can be adjusted to provide a smooth ride for motorists. When the agency owning the roadway changes the road profile (through construction or maintenance activities) the approaches to the tracks must be adjusted to provide a smooth and level crossing surface.

(5) Responsibility for maintenance of a grade separation structure is as follows:

(a) Where a separation facility overpasses a railroad, maintenance responsibility for the entire structure and approaches is assumed by the agency owning the structure and roadway.

(b) When a grade separation structure underpasses a railroad and the railroad owns the right of way fee title, maintenance of the roadway and the entire structure below and including the deck plate, girders, handrail, and parapets, is the responsibility of the owner of the roadway. Maintenance of the waterproofing, ballast, ties, rails and any portion of the supporting structure above the top of the ballast deck plate between parapets is the responsibility of the railroad company. If the owner of the roadway owns the right of way fee title, the railroad is responsible for the maintenance of the entire structure.

(c) 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 company.

(6) Responsibility for maintenance of private industrial trackage not owned by a railroad company that crosses public highways shall be as follows:

(a) When a facility, plant or property owner receives goods

and services from a railroad company train over private industrial trackage that crosses a public highway, maintenance of the crossing shall be the responsibility of those companies receiving the goods and services.

(b) When the highway/railway crossing becomes a safety hazard to vehicles and is not maintained, the Department and the railroad company shipping the goods and services shall notify the facility, plant or property owners in writing to maintain or replace the railroad crossing material.

(c) If the owner of the private trackage does not maintain or replace the crossing material by a specified date, the Department shall order the railroad company to cease and desist operations across the highway/railway crossing.

(d) If the owner still does not respond to the order to maintain or replace the railroad crossing material the following action shall be taken by the highway agency owning the roadway. The highway agency shall arrange to have the crossing replaced, and bill the facility owner of the trackage for the expenses to repair the trackage.

R930-5-11. FHWA Authorizations.

(1) The costs of preliminary engineering, right-of-way acquisition, and construction incurred after the date each phase of the work is included in an approved program and authorized by FHWA are eligible for federal participation. Preliminary engineering and right-of-way acquisition costs which are otherwise eligible, but incurred by the railroad prior to authorization by FHWA, although not reimbursable, may be included as part of the railroad share of the project cost where such share is required.

(2) Prior to issuance of authorization by FHWA either to advertise the physical construction for bids, to proceed with force account construction for railroad work or for other construction affected by railroad work the following must be accomplished:

(a) Plans and specifications and estimates must be approved by FHWA.

(b) A proposed agreement between the state and the railroad company must be found satisfactory by FHWA. Before Federal funds may be used to reimburse the state for railroad costs the executed agreement must be approved by FHWA.

R930-5-12. Railroad Agreements.

(1) Where construction of a federal aid project requires use of railroad properties or adjustments to railroad facilities, the Department shall prepare an agreement between it and the railroad company.

(2) Master agreements between the Department and a railroad company 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 projects.

(3) On a project-by-project basis, the written agreement between the Department and the railroad company shall, as a minimum, include the following, where applicable:

(a) Reference to appropriate federal regulations;
(b) detailed statement of the work to be performed by each party;
(c) Method of payment shall be actual cost;
(d) For projects which are not for elimination of hazards of highway/railway crossings, the extent to which the railroad is obligated to move or adjust facilities at the expense of the agency owning the roadway;
(e) The railroad's share of the project cost;
(f) An itemized estimate of the cost of the work to be preformed by the railroad;
(g) Method to be used for performing the work, either by railroad forces or by contract;
(h) Maintenance responsibility;
(i) Form, duration, and amounts of any needed insurance;
(j) Appropriate reference to or identification of plans and specifications.

(4) On matching fund agreements between the Department and the Local Agency, on a project-by-project basis the written agreement shall include the following:
(a) Description of work and location, city, county, state;
(b) Reference to federal regulations that matching funds will be provided by the agency having jurisdiction over the street or highway right-of-way where improvements are desired;
(c) Detailed statement of work to be preformed by each party regarding design engineering, agreements, inspection and maintenance;
(d) Statement of finances of project and matching funds to be provided by local agency, deposits, invoices and cost overruns or underruns.

(5) Agreements prepared for local government and industrial trackage crossing are prepared between the agency owning the street or highway right-of-way and the industry on forms furnished by the railroad companies.

(6) In order that a highway/railway project shall not become unduly delayed, the Department shall consider a six-month period of time from issuance of the railroad agreement to be adequate for completion of execution by the railroad company involved. Should more than the specified period of time 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.

R930-5-13. Apportionment of Costs.

(1) Paragraphs 2-7 of this section apply when highway projects are constructed in whole or in part with Federal funds.

(2) Apportionment of costs for installation, maintenance, and reconstruction of active and passive railroad warning devices at highway/railway intersections shall be in accordance with 23 CFR 646.

(3) When a roadway is widened by the state or local governmental agency, that agency shall fund all passive and active warning devices as recommended by the Diagnostic/Surveillance Team

and as determined necessary by the Department.

(4) When a roadway is widened by a local agency, and the existing railroad crossing material is old and cannot be attached to the new material, the local agency shall fund the replacement of all new existing crossing material.

(5) When a highway/railway at-grade crossing is listed on the Department's Annual High Accident Prediction List, and it is determined by the Department that the crossing shall be upgraded, it shall be funded by federal railroad safety funds and local highway agency matching funds.

(6) If approved construction of a separation structure or the installation of a signal device at such crossing is not considered a benefit to the railroad, railroad participation shall not be required.

(7) A project to reconstruct an existing overpass or underpass shall include the entire structure and railway and the highest approaches thereto. Since there is no railway liability for such projects, it is considered that there shall be no benefit to the railroad and railroad participation shall not be required.

(8) This paragraph applies when no federal funds are used on a project to reconstruct an existing overpass or underpass. The project shall include the entire structure and railway and the highest approaches thereto. If the railroad owns the fee title right of way, no railroad participation is required. If the railroad does not own the fee title right of way, all costs will be the responsibility of the railroad.

R930-5-14. Notice of Intended Action Process.

(1) Public notification is required when the Department is considering proposals to close public streets at crossings, removal of tracks from crossings, addition of tracks at crossings, or construction of new public at-grade crossings. The Department shall advertise a notice of its intended action in a newspaper of general circulation, and if available, a newspaper of local circulation in the area affected, at least twice with a provision that written protests may be filed with the Department 15 days from the date of the last publication of the notice. The local public authority shall provide written notice to all property owners within one-half mile of the crossing area. The notice shall identify the project, briefly describe the changes proposed, who to contact for information, where to file complaints or comments, and contain general information relating to the proposed action.

(2) Construction of a new highway crossing of a railroad track where a new street or highway is proposed which is not essentially a relocation of an existing street, the the Department will consider the new crossing in conformance with Section 54-4-15. Public notice will be made in conformance with this rule.

(3) All requests for a public meeting shall be in writing and shall detail how a proposed action will adversely affect a group of people, firm or corporation, and if it appears that the adverse affect cannot be alleviated by the Department. Such a hearing will be conducted informally by the Department. Any party aggravated by any determination made by the Department shall have their statutory right under Section 54-4-15, as amended, to

petition the PSC for a hearing to be governed by the procedures of the PSC.

(4) In instances where the action proposed by the Department does not substantially affect the general public, The Department may waive the requirement to public notice, provided all parties affected concur in writing with the action proposed. For the purposes of this section, parties affected shall mean railroads or other common parties, state, county, city or other environmental agencies, boards or commissions, having jurisdiction over any property rights of facilities, and private persons or directly affected.

R930-5-15. Clearances.

(1) Unless otherwise noted, all clearances apply to tracks carrying freight or passengers.

(a) Overhead clearances. Overhead clearance is measured as the minimum clearance from the top of rail to the lowest point on a structure.

(i) For tracks carrying freight cars, 23'6";

(ii) For tracks carrying only passenger cars, 14';

(b) Side Clearances. Side clearance is measured from the centerline of tangent standard gauge tracks. Increase clearances on all structures adjacent to curved track by 12 inches.

(i) Posts, pipes, warning signs, other small obstructions, 10';

(ii) Freight platforms, 8 inches or less above top of rail, 4'8";

(iii) Freight platforms, between 8 inches and 21 inches above top of rail, 5'8";

(iv) Freight platforms, between 21 inches and 48 inches above top of rail, 7'3";

(v) Refrigerated freight platforms, between 48 inches and 54 inches above top of rail, 8'0";

(vi) All other structures, near freight tracks, 8'6";

(vii) Poles supporting electrical conductors for use in supplying motive power to tracks, 7'6";

(viii) All other poles supporting cables or wires, 8'6";

(ix) Through bridges and tunnels supporting track affected, 8'0";

(x) Switch boxes, operating mechanisms, and appurtenances necessary for the operation of switches, turnouts, or interlocking devices, less than 4 inches above top of rail, 3'0";

(xi) Block signals and switch stands, three feet or less above top of rail and located between tracks, 6'0";

(xii) Block signals and switch stands, used in operation of Light Rail Transit, 7'6";

(xiii) All other block signals and switch stands, 8'6";

(xiv) Water and oil columns, 8'0";

(xv) Hand rails on bridges or trestles, less than four feet above top of rail, 7'6";

(xvi) Fences of cattle guards, 6'9";

(xvii) Doors and entrances to repair shops or maintenance buildings, 7'6";

(xix) All other objects and articles, 8'6.(c) Overhead and

side clearances. Minimum overhead and side clearances may be decreased to the extent defined by the radius of a circle with the appropriate side clearance, with the center-point of the circle set at the appropriate minimum clearance height. Overhead and side clearances do not apply to shops and buildings in which rail equipment is moved for repairs

(d) Clearances for parallel tracks. Clearance is measured from centerline of tracks.

(i) Tracks used for freight transportation, mainline or siding tracks, 15';

(ii) Tracks used for passenger transportation, mainline or siding tracks, 15';

(iii) Tracks used as team or freight house tracks may be reduced to 11'6" provided that all other side clearances are maintained;

(iv) Between adjacent ladder or yard tracks, 20'. Between ladder or yard tracks and other (mainline or siding) tracks, 17.

(e) Minimum clearances for public roads, highways, and streets.

(i) Where railroads cross overhead, 17';

(ii) Where railroads cross overhead, side clearances are based on the width of the road and the number of lanes crossing under the structure. Minimum widths are determined by the Department of Transportation on a case-by-case basis;

(iii) Where roads cross overhead, use the minimum clearances as provided in this rule.

R930-5-16. Accident Reporting.

Railroad companies are required to report all accidents occurring at highway-rail grade crossings 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 accident 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 accidents.

R930-5-17. Exemption of Railroad Crossings.

Under Section 41-6a-1205, Utah Code, certain vehicles are required to stop at all railroad crossings, unless a crossing is signed as exempt from this requirement. Recommendation to exempt a crossing is made by the Diagnostic/Surveillance team to the Department. Certain crossings are not eligible for exemption from Section 41-6a-1205:

(1) Mainline crossings with passive protective devices only;

(2) Crossings within approved quiet zones;

(3) Crossings where insufficient sight distance exists;

(4) Notification under section R930-5-14 shall be performed prior to authorization of exempting crossings.

KEY: railroads, transportation, safety
June 10, 2008 **10-8-34**
Notice of Continuation November 29, 2006 **10-8-82**

41-6-19
54-4-15
72-1-102
72-2-112

C

Effective:[See Text Amendments]

Code of Federal Regulations Currentness
Title 23. Highways
Chapter I. Federal Highway Administration, Department of Transportation
Subchapter E. Planning and Research
Part 460. Public Road Mileage for Apportionment of Highway Safety Funds (Refs & Annos)

➞ § 460.2 Definitions.

As used in this part:

(a) Public road means any road under the jurisdiction of and maintained by a public authority and open to public travel.

(b) Public authority means a Federal, State, county, town, or township, Indian tribe, municipal or other local government or instrumentality thereof, with authority to finance, build, operate or maintain toll or toll-free highway facilities.

(c) Open to public travel means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration. Toll plazas of public toll roads are not considered restrictive gates.

(d) Maintenance means the preservation of the entire highway, including surfaces, shoulders, roadsides, structures, and such traffic control devices as are necessary for its safe and efficient utilization.

(e) State means any one of the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and American Samoa. For the purpose of the application of 23 U.S.C. 402 on Indian reservations, State and Governor of a State include the Secretary of the Interior.

SOURCE: 40 FR 44322, Sept. 26, 1975, unless otherwise noted.

AUTHORITY: 23 U.S.C. 315, 402(c); 49 CFR 1.48.

23 C. F. R. § 460.2, 23 CFR § 460.2

Current through March 27, 2009; 74 FR 13993

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HIGHWAY-RAIL CROSSING INVENTORY

INSTRUCTIONS AND PROCEDURES MANUAL

for the

Federal Railroad Administration
Highway-Rail Crossing Inventory
Data Maintenance Program

December 1996

prepared for:

U.S. Department of Transportation
Federal Railroad Administration
Office of Safety
Highway-Rail Crossing and Trespasser Programs Division
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1.0 INTRODUCTION

1.1 Purpose

The purpose of this manual is to set forth the instructions and procedures to provide a useful, up-to-date and accurate data base for the National Highway-Rail Crossing Inventory Data File maintained by the Federal Railroad Administration (FRA) for use by States and railroads.

The procedures for updating the National Highway-Rail Crossing Inventory Data File in this manual are applicable upon completion of the basic inventory, they are to be used for providing data to the FRA and they may be used by States and railroads for maintaining separate files.

This manual is a combination of all previous procedures and update manuals published since 1974 and other instructions periodically prepared.

1.2 Goal

The major goal of the National Highway-Rail Crossing Inventory Program is to provide information to Federal, State, and local governments as well as the railroad industry for the improvement of safety at highway-rail crossings. Good management practices necessitate maintaining the data base on a current basis. The data will continue to be useful only if maintained and updated as inventory changes occur.

The Federal-Aid Highway Act of 1973 (Section 203) required that each State highway agency maintain an inventory of all crossings. According to the implementing instructions contained in the Federal-Aid Policy Guide (FAPG), maintaining the National Inventory will satisfy the legislative requirement for a State inventory (23 CFR Part 924 (a) (1)). A primary purpose of the National Inventory is to provide for the existence of a uniform inventory data base which can be merged with accident files and used to analyze information for planning and implementation of crossing improvement programs by public and private agencies responsible for highway-rail crossing safety.

1.3 Project History

In August, 1972, the U.S. Department of Transportation submitted a report to Congress entitled: *Railroad-Highway Safety Part II: Recommendations For Resolving The Problem.* The primary goal of this report was to provide recommendations for alternative courses of action which would lead to a significant reduction in accidents, fatalities, personal injuries and property damage at highway-rail crossings.

The report recommended the development of an adequate information system. Although various local, State, and Federal agencies had collected and maintained information about highway-rail crossings, most crossing information systems were fragmented and incomplete.

Certain site-specific information was necessary to provide for a systematic approach to the planning and evaluation of programs for the improvement of highway-rail crossing safety at both the State and Federal level.

The report further recommended that :

a. The Federal Railroad Administration issue requirements for the railroads to assign and display identification numbers at all highway-rail crossings based upon a uniform national standard to be prescribed by the Department of Transportation. Further, it required FRA to contract with all railroads to provide site-specific inventory data for all crossings on their respective lines, and to annually provide information updating this inventory following inventory standards established jointly by the Federal Highway Administration and the Federal Railroad Administration and working with appropriate railroad and State representatives.

b. The Federal Railroad Administration expand the current highway-rail crossing accident reporting by the railroads to include all train-involved public and private crossing incidents.

NOTE:	The terms "accident" and "incident" are used interchangeably in this manual. The current preferred term for "accidents" is often "collisions" or "crashes."

c. The National Highway Traffic Safety Administration (NHTSA) give early attention and emphasis to implementation of a plan to have all highway-rail crossing accidents reported through a central State agency. Also, NHTSA should require the inclusion of the crossing identification number on the accident report form used by police officers when reporting highway-rail crossing accidents to permit correlation of railroad and police reports with the crossing inventory.

Following the submission of the report, the Federal Railroad Administration assumed principal responsibility for the development of the National Highway-Rail Crossing Information System.

The Federal Railroad Administration entered into a contract with the Association of American Railroads to develop a "Comprehensive National Highway-Rail Crossing

Information and Numbering System." The project was established as a cooperative effort between all the nation's railroads and the U.S. Department of Transportation with the cost of the project to be funded equally by the railroads and the U.S. Department of Transportation.

The railroad companies, with direction and guidance from the Association of American Railroads and the American Short Line Railroad Association, were assigned the responsibility for making a site-specific inventory of each highway-rail crossing and for installing a unique identifying number at each location. The railroads were also identified as being responsible for periodic update of certain inventory information and maintenance of the crossing number.

The State highway departments assisted in the project by providing site-specific highway location and use data. State public utility commissions and other State and local governmental agencies also participated in the project. The responsibility for the updating of certain highway information data items was determined to be through the efforts of these agencies.

1.4 Data Files

There are two types of data files maintained by the FRA. These two data files are the Inventory Data File and the Accident Data File.

The Inventory Data File is a record of grade crossing location, physical, and operational characteristics to provide information for the administration and statistical analysis of crossings. This information is reported to the FRA on the U.S. DOT-AAR Crossing Inventory Form (see Figure 1-1). Each State and railroad is responsible for maintaining its respective inventory file. In order for the files to serve as an effective data base, the States and railroads maintaining their own file should immediately update them. States can maintain the National Data File in lieu of their own file.

The Accident Data File is a record of all train-involved crossing accidents or incidents. The Federal Railroad Administration now requires the reporting of all train-involved crossing accidents and incidents which includes the DOT-AAR Crossing Identification Number. The form used to report all train-involved crossing accidents or incidents is the Highway Grade Crossing Incident Report (see Figure 1-2). Effective 1/1/97, there will be a new version of this form.

Routinely, the highway-rail crossing accident data is integrated with inventory data and the information from the combination is used for the development of Federal programs, funding alternatives for crossing improvement, studies related to railroad safety programs, effectiveness of warning devices, high-speed railroad corridors, accident costs, public awareness and driver training, and other safety program development and research opportunities.

The Federal Railroad Administration's Office of Safety, Highway-Rail Crossing and Trespasser Programs Division, serves as the National Highway-Rail Crossing Information Center. The address is:

Federal Railroad Administration
Office of Safety
Highway-Rail Crossing and Trespasser Programs Division
400 7th Street, S.W., (RRS-23)
Washington, D.C. 20590

1.5 Definitions of Highway-Rail Intersections

For the National Crossing Inventory purposes, the following definitions apply for all public, private and pedestrian crossings, with or without crossing signs or active warning devices.

A highway-rail crossing is the intersection (at grade or grade separated) of a roadway (including associated sidewalks and pathways) and one or more railroad tracks. A crossing at a dual or multi-lane roadway is reported as a single crossing. Also, a crossing is reported as a "single crossing" even where there are multiple tracks within the limits of a single set of crossing signs or warning devices and even if the individual tracks belong to more than one railroad company or track owner. (For further discussion of this latter point, see Section 2.3 of this manual.) As a minimum, all at-grade crossings of public and private roads and streets with railroad tracks across are assigned an inventory number if any railroad operations are conducted.

As a general rule, and if no other agreement exists, a crossing that is located (usually equally) on a State, county and/or city boundary line should be considered to be geographically located in the jurisdiction that is South or East of the crossing.

NOTE:

49 CFR Part 234.5(a) provides the following definition:

> "*Highway-rail grade crossing* means a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade."

For the purposes of the Inventory only, the following definitions apply:

A. Public Crossing.

A *public crossing* is the location where railroad tracks intersect a roadway which is part of the general system of public streets and highways, and is under the jurisdiction of and maintained by a public authority and open to the general traveling public.

Public crossings can be at-grade or grade separated. If they are at-grade, usually both highway approaches are maintained by a public authority, or the public authority accepts the responsibility for the roadway maintenance. (Highway is a word used here to include highways, streets and roads into a single word.)

NOTE:

23 CFR Part 460.2 provides the following definitions:

> "*Public road* means any road under the jurisdiction of and maintained by a public authority and open to public travel."
>
> "*Public authority* means a Federal, State, county, town or township, Indian tribe, municipal or other local government or instrumentality thereof, with authority to finance, build, operate or maintain toll or toll-free highway facilities."
>
> "*Open to public travel* means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration. Toll plazas of public toll roads are not considered restrictive gates."
>
> "*Maintenance* means the preservation of the entire highway, including surfaces, shoulders, roadsides, structures, and such traffic control devices as are necessary for its safe and efficient utilization."

1. Discussion.

A crossing shall be classified as public if, and only if, the roadway is deemed a *public road* in accordance with 23 CFR Part 460.2. In

general, a roadway across railroad track for which both approaches are maintained by a public authority and which is open to the public is considered a "public" crossing. These are roadways that are part of the general system of public streets and highways. Some jurisdictions accept a crossing as "public" when only one approach is publicly maintained. If a public authority accepts a crossing as "public," it is a public crossing. All others are considered "private."

Therefore, public crossings are those on roadways which meet the following three conditions:

a. The roadway is part of the general system of public streets and highways, and

b. Under the jurisdiction of and maintained by a public authority, and

c. Open to the general traveling public.

2. Access to Public Facilities.

If the primary function of the road is to provide public access to a publicly owned facility for the principal purpose of on-site use by the public, then the facility may be deemed a logical terminus of a public roadway.

Thus, crossings which exist for the primary purpose of providing public access to publicly owned and operated facilities such as fairgrounds, parks, schools, libraries, hospitals, clinics, airports, bus terminals, beaches, piers, boat launching ramps, recreational facilities, etc., which permit access to or invite use by the general traveling public would satisfy the definition "open to public travel," even if the entrance thereto is equipped with gates to effect seasonal or periodic closures (such as overnight), or limit access, or require an entry fee for use.

3. Determined by Empowerment.

In situations where a State has empowered a public agency (such as the State DOT, State Highway Department, Public Utility Commission, State Commerce Commission, etc.) to make determinations as to whether crossings are public or private, such determinations will govern for inventory purposes.

B. Private Crossing.

1. Definition.

A private crossing is a highway-rail crossing which is not a public crossing. (A public crossing is defined as the location where railroad tracks intersect a roadway which is under the jurisdiction of and maintained by a public authority and open to public travel. See Par. 1.5.A.)

2. Discussion.

A private crossing is one that is on a private roadway which may connect to part of the general system of public streets and highways but is not maintained by a public authority. Usually, it is a crossing where the property on both sides or at least one side of the railroad tracks is private property. It may also be on a roadway that is publicly owned but which is either restricted or not intended for use by the general public. Private crossings are generally intended for the exclusive use of the adjoining property owner and the property owner's family, employees, agents, patrons and invitees. Crossings are classified as private where the normal need or use is for residential, farm, recreation/cultural, industrial or commercial activities.

Most private crossings exist by virtue of railroad charter provisions, deed covenants, State statute or other prescriptive rights. If none of these apply, the railroad may require an agreement with the private property owner whereby the railroad may install and maintain the crossing proper and any necessary signs or signals at the property owner's expense, and the property owner will assume liability for the crossing and provide coverage via a liability insurance policy.

In some instances, changes in land use have resulted in an expansion of crossing use to the extent that a previously private crossing has some attributes of a public crossing, whether or not any public agency has accepted responsibility for maintenance or control of the use of the roadway over the crossing. The railroad company and highway agency should make every effort to mutually resolve and agree on the appropriate classification (either public or private) of such a questionable crossing.

3. Private Crossings with Public Access.

A private crossing may exist with permitted or limited public access for the primary purpose of providing public access to facilities (either public or privately owned) such as shopping centers, fairgrounds,

parks, golf courses, zoos, museums, schools, libraries, hospitals, clinics, airports, bus terminals, beaches, piers, boat ramps, recreational facilities, etc. Such crossings permit access or invite use by the general public, but usually restrict or discourage general public use by requiring permits, or charging admission or other fees to gain entry or use of the facility.

For such crossings, the primary roadway use is to gain entry to the facility. The entrance may even be equipped with gates to effect seasonal or periodic closures. These crossings generally do not qualify as being "open to the general traveling public" and should not be deemed as a public crossing.

Crossings which exist primarily to provide access to publicly owned facilities for "authorized personnel only", such as military bases, ports, equipment yards, maintenance/storage facilities, water or sewerage treatment plants, landfills, levees, service and/or maintenance only entrances, or other facilities, are not normally intended for on-site use by the general public and should be deemed as a private crossing.

4. Private Crossing with No Public Access.

A private crossing with no public access would include, for instance, the crossing within a secured industrial complex or between farm fields where public access to the complex or fields is precluded.

5. Responsibilities.

The railroad should ensure that each crossing is listed in the National Inventory.

C. Pedestrian Crossing.

A pedestrian crossing is a separate designated intersection where pedestrians, but not vehicles, cross a track. Sidewalk crossings contiguous with, or separate but adjacent to, public road crossings, and in the public road right-of-way, are presumed to be part of the public roadway crossing and are not assigned a separate crossing number.

An area where pedestrians trespass is not considered a crossing. The designation of a crossing may be made by a sign, device, or filled materials between the rails.

Pedestrian crossings may also be classified as public pedestrian crossings or private pedestrian crossings, similar to vehicle crossings. The determination is based on whether or not a public agency has jurisdiction over and maintains the sidewalk (or walkway) on either side of the track and whether the crossing is intended for use by the general public. The distinction may be shown on the Inventory Form by inserting "PUB" for public or "PVT" for private in the field for Item 10. - Street or Road Name.

D. Special Situations.

An area where vehicles or pedestrians trespass is not considered a crossing. Vehicles or persons that cross railroad tracks without railroad permission at other than defined crossings are considered trespassers.

Crossings used only by railroads (such as in a railroad yard or terminal) do not need to be reported, but it is best to assign at least one crossing number to the entire location so that a crossing accident, if it occurs, can be properly identified to that location. Also, where multiple private industrial crossings exist within the same restricted-access industrial plant or facility, the railroad should report all such crossings but may report them under a single crossing number. Any accidents, if they occur, would be reported under that single crossing number.

Crossings created to serve specific temporary (six months or less) activities, such as construction sites, do not need to be assigned a crossing number and reported.

E. Open Crossing.

An active or open crossing is one where railroad operations and highway traffic occur or could occur on a regular or irregular basis.

F. Closed Crossing.

A closed crossing is one where the crossing has been physically removed or where railroad operations or highway traffic are not possible.

Examples are where the crossing has been barricaded and highway crossing surface material removed, or where the railroad tracks have been cut or barricaded, physically removed, or a connecting turnout has been removed, or where rail operations are not possible because the railroad tracks are paved over, etc. Crossings along such inactive railroad lines should be reported as closed. (Crossing records reported as closed remain in the National Inventory File for at least five years.)

G. Crossings on Abandoned Track.

Crossings along railroad lines that have been placed in a railroad "abandoned" category, are seasonal in usage, or might be considered temporarily out-of-service (no railroad operations occur) should remain in an open status as long as track remains in place and there is a reasonable possibility that the line will be used again. This condition may exist even if the particular line is physically separated from the balance of the railroad operating system. For example, if a railroad abandons a line which may very possibly be turned into a commuter line as soon as the appropriate political and financial conditions are resolved, the crossings along the line do not need to be reported as closed in the Inventory. While these crossings remain active and open in the Inventory, the railroad traffic numbers should be reduced to zero in the Inventory until the line becomes active again. The ownership will also probably change to the new property owner. If progress toward reactivating the line does not proceed within a reasonable period of time (about 2 years), then the crossings should be reported as closed and re-opened at a later date using the same crossing numbers. "Rail-banked" crossings, those which may be on-hold by a State or other governmental body for possible future use, would be is this category.

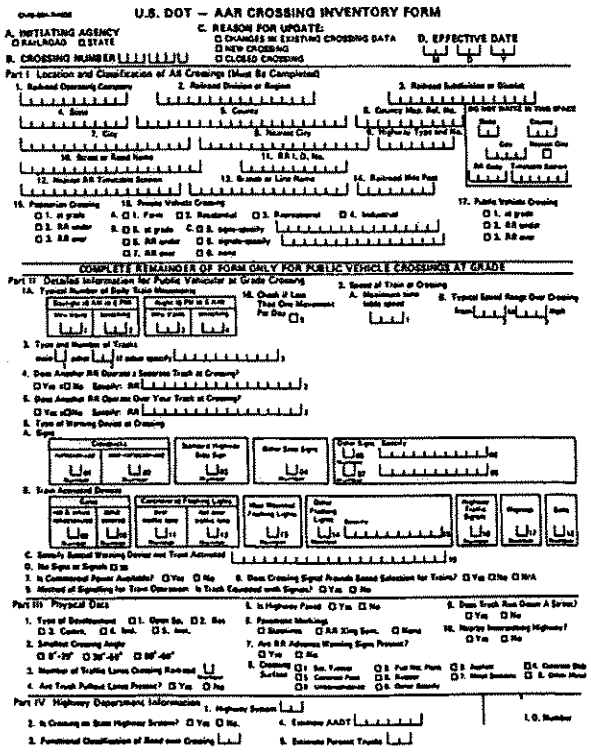
H. Standards and Regulations.

The current Federal regulation that applies to highway-rail crossings is the Code of Federal Regulations, Title 49 CFR Part 234, *Grade Crossing Signal System Safety*, effective January 1, 1995. This regulation imposes minimum maintenance, inspection and testing standards for highway-rail grade crossing warning systems. This Regulation (Part) also prescribes standards for the reporting of failures of such systems and prescribes minimum actions that railroads must take when such warning systems malfunction. This Part does not restrict a railroad from adopting and enforcing additional or more stringent requirements not inconsistent with this Part. Effective August 19, 1996, FRA amended 49 CFR Part 234 to clarified the Rule as originally published on September 30, 1994.

Additionally, there are Regulations (FHWA) to prescribe policies and procedures for advancing Federal-aid projects involving railroad facilities including projects for elimination of hazards, adjustments required by highway construction, and other financial reimbursement and audit procedures. These are contained in Title 23 CFR Part 646.2, *Subpart B - Railroad-Highway Projects*. Specifically, Part 646.214 *Design* refers to the conditions where installations are to include automatic gates with flashing light signals.

Sign and warning device standards are delineated in the *Manual on Uniform Traffic Control Devices* (MUTCD) published by the Federal Highway Administration. Part VIII of the MUTCD deals with highway-rail crossings.

Also, the *Railroad-Highway Grade Crossing Handbook* provides general information on the physical and operational conditions of crossings for safe and efficient use by both highway and rail traffic.



U.S. DOT – AAR CROSSING INVENTORY FORM

A. INITIATING AGENCY ☐ RAILROAD ☐ STATE
C. REASON FOR UPDATE: ☐ CHANGES IN EXISTING CROSSING DATA ☐ NEW CROSSING ☐ CLOSED CROSSING
D. EFFECTIVE DATE
B. CROSSING NUMBER

Part I Location and Classification of All Crossings (Must Be Completed)

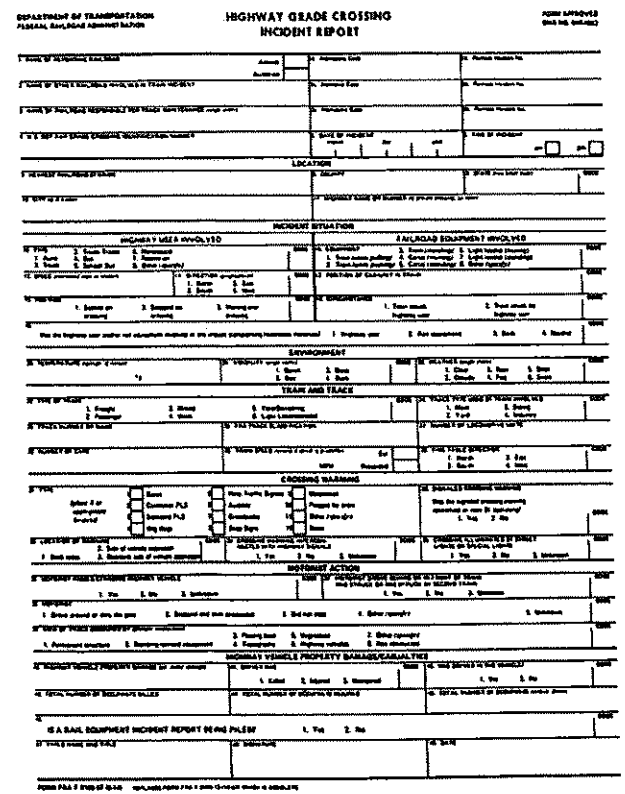
COMPLETE REMAINDER OF FORM ONLY FOR PUBLIC VEHICLE CROSSINGS AT GRADE

Part II Detailed Information for Public Vehicular at Grade Crossing

Part III Physical Data

Part IV Highway Department Information

Figure 1-1. U.S. DOT-AAR Crossing Inventory Form



DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

HIGHWAY GRADE CROSSING INCIDENT REPORT

FORM APPROVED
OMB NO. 2130-0500

LOCATION

INCIDENT SITUATION

ENGINEER(S) INVOLVED

RAILROAD EQUIPMENT INVOLVED

ENVIRONMENT

TRAIN AND TRACK

CROSSING WARNING

HIGHWAY ACTION

HIGHWAY VEHICLE PROPERTY DAMAGE/CASUALTIES

Figure 1-2. Highway Grade Crossing Incident Report

2.0 HIGHWAY-RAIL CROSSING INVENTORY NUMBER

2.1 Background

In 1974, an effort was undertaken to inventory and assign a unique number to all public and private highway-railroad intersections and pedestrian crossings in the United States. As a part of the original inventory, data were collected for all public, private, and pedestrian crossings, both at grade and grade separated, including location, operational, physical and classification information.

A National Advisory Committee having representation from all involved parties was appointed to provide technical guidelines for the implementation of the inventory. The Advisory Committee determined the type and extent of the data to be collected. In general, the data elements to be included in the inventory were selected on the basis of their significance to the computation of a priority index for grade crossing improvements.

The railroad industry and each of the States participated in the initial inventory. Following an agreed procedure, the States and railroads continue to submit new and updated crossing information to the Federal Railroad Administration. The FRA, through its contractor, updates and maintains the National Data File. This information is available for public use and may be obtained through the FRA Office of Safety.

In addition to these data, some States and some railroads maintain additional crossing information in their data files. However, these data are not generally available to the public and may be obtained only through the State or railroad maintaining the supplemental information.

In many ways the National Highway-Rail Crossing Inventory number, placed at all public, private, and pedestrian crossings, is similar to a credit card or bank account number. Important information is assigned to the number by State agencies and railroads. Police, accident investigators, project engineers, utilities, States and railroads are but a few of those who refer to these numbers and the connecting data regularly.

The need for accurate information assigned to the appropriate crossing is important in any decision to upgrade existing warning devices. The number of accidents, motor vehicles and trains using the crossing, and the type of warning device are but a few of the data elements that are critical in the computation of a 'hazard index' for individual grade crossings. Not only is it important that these data be kept current, but it is also critical that the information be assigned to the proper crossing via the identification number.

In addition to the assignment of data regarding the physical and operational characteristics of a crossing, the inventory number is used on all FRA grade crossing accident reports and warning device malfunction reports. Many States and local jurisdictions use the crossing

number on reports of accidents at or near crossings even when not involving a rail vehicle. All railroads and States use the inventory number on crossing improvement project documents, and railroad crews report near misses and other information regarding a crossing by the inventory number. Some utility companies even use the number to locate rail crossings. All of these factors require the need for displaying the number at the crossing to insure that the information is being assigned to the correct location.

2.2 Uniqueness and Calculation

The crossing inventory numbering system was designed to reduce the possibility of error by insuring that crossing data is recorded for the correct location. The crossing identification number, which consists of a maximum of six numeric digits with a single alpha check character, is placed at crossings on number boards along with the "U.S. DOT-AAR" designation. The number assigned to each highway-rail intersection is unique. It is important for proper identification to have the crossing number permanently displayed and mounted on a number board (Figure 2.1) and it is strongly recommended that it be displayed on both sides of the track at each and every crossing. By referencing this number, all inventory and accident data on file, including data collected by State and local agencies and railroad companies, will have a common link. The identification number serves as a communication reference between railroad companies and public agencies, as well as between individual railroad companies regarding specific crossings.

A simple numeric system requiring the use of a maximum of six digits was adopted by the National Advisory Committee. Some exceptions were made in the numbering system. For example, numbers having the same digit repeated consecutively three or more times were eliminated (e.g., 7777). Also, numbers having three digits or less were not used, and some may have leading zeros. The crossing identification number, with its six numeric digits, has a single alpha check character at the end of the number sequence.

This alpha check character is another feature of the National Inventory number that makes it similar to a credit card. When the inventory numbers are generated, they are accompanied by the check character. Therefore, every time a number is used, it can be validated by the check character. The check is performed as follows:

a. Add the six individual numbers which result from the products of each of the first six digits times the digit's position in the number stream, with position one being the left-most digit (see Step 1 below).

b. Subtract multiples of 22 from this total until the remainder is less than 22 (see Step 2 below).

c. The remainder is then compared against Table 2-1 to find or verify the alpha code.

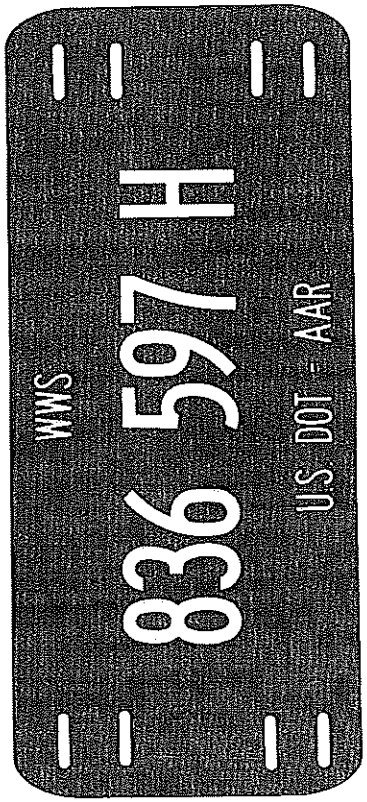


Figure 2-1. National Highway-Rail Crossing Inventory Number and Number Board

EXAMPLE #1

The procedure can be illustrated by validating the inventory number from Figure 2-1 (836 597 H). The validation is done as follows:

Step 1. Compute Numeric Code.

= [(8x1) + (3x2) + (6x3) + (5x4) + (9x5) + (7x6)]
= (8 + 6 + 18 + 20 + 45 + 42)
= 139

Step 2. Determine Remainder for Alpha Code.

= 139 - (subtract multiples of 22 until you get a number that is less than 22)
= 139 - (22 x 6)
= 139 - 132
= 7

Step 3. Verify the Alpha Code

The alpha character represented by the number 7 is the letter H (from Table 2-1).

Therefore, the inventory number (836 597 H) has been validated.

EXAMPLE # 2

A second example is shown below:

Crossing Number:	0	7	6	5	2	1	C	
Multiplication:	x 1	2	3	4	5	6		
Sum:	0	+14	+18	+20	+10	+6	=	68

Remainder: 68/22 = 3 and remainder of 2

(NOTE: Use long division or subtract multiples of 22.)

Alpha Code: 2 = C from Table 2-1

Number	Alpha Code	Number	Alpha Code	Number	Alpha Code	Number	Alpha Code
0	A	6	O	12	N	18	V
1	B	7	H	13	P	19	W
2	C	8	J	14	R	20	X
3	D	9	K	15	S	21	Y
4	E	10	L	16	T		
5	F	11	M	17	U		

Table 2-1. Remainder vs. Alpha Code

2.3 Assignment of Numbers

Every crossing in the United States, including public, private and pedestrian, both at grade and grade separated shall have a crossing inventory number assigned and recorded in the National File. The only exceptions are crossings (1) created to serve specific temporary (six months or less) activities such as construction, and (2) those used only by railroad employees within a railroad yard on railroad property and not available to the general public. In a plant complex or for yard-type locations where there are numerous crossings that are not always distinguishable (e.g., a port or dock area), one number can be assigned to include all crossing areas within the property limits. Such number should be clearly posted at the railroad point of entry.

NOTE:

There should only be one crossing number assigned to a single crossing (defined as the tracks between a pair of warning devices), no matter how many railroads own track that traverses the crossing. There may be cases where two mainline tracks, owned and maintained by two different railroads, traverse a crossing, with each of these railroads having assigned a separate crossing number for the crossing. If this situation exists, one of the numbers should be deleted (closed) and one of the railroads involved should claim the crossing and list the other railroad as "operating across the same crossing."

To identify the owning railroad for a crossing, use the following procedure:

- identify the operating railroad or the railroad that owns the property, or
- identify the railroad that performs maintenance on the crossing, or
- have the railroads jointly decide who will carry the crossing on its inventory.

Any remaining original number "tags" from the 1973-1975 National Inventory Project which have not been assigned to a crossing may be assigned to and installed at new crossings. When this supply is exhausted, the FRA National Highway-Rail Information Center will furnish, upon request, a series of unique numbers to be assigned to newly opened crossings or to crossings that are identified without a number. A railroad or State should request enough numbers to meet their estimated yearly need, including any increase in new crossings. (Tags or number boards are not provided by FRA.)

Railroads and States may address their requests for crossing inventory numbers to:

Federal Railroad Administration
Office of Safety
Highway-Rail Crossing and Trespasser Programs Division
400 7th Street, S.W., (RRS-23)
Washington, D.C. 20590

New numbers are to be used for any new crossings or for any crossings that have been identified as not having an assigned number (a careful and detailed check should be made before assignment of a new number to insure that a prior number was not already assigned). While FRA provides valid usable crossing numbers, it is the railroad or State that actually assigns the number. The actual assignment of a number to a crossing occurs when the number is placed on a completed four-part Inventory Form and the Form returned to FRA for processing into the National File (which takes about three months). It is important that this occur as quickly as possible for any existing crossing that does not have a number. Preparation and submittal of a four-part U.S. DOT-AAR Crossing Inventory Form for such crossings should be expedited.

For a public at-grade crossing, the railroad needs to complete Parts I, II & III. For private crossings, grade-separated crossings (including public) and all pedestrian crossings, only Part I information is required. The railroad retains the fourth sheet (orange) and sends the top three sheets to the appropriate "State Crossing Inventory Contact" (see Appendix A) for completion of Part IV (if the crossing is public at-grade). We suggest that the railroad copy the FRA on the transmittal correspondence. The State will complete Part IV, retain the yellow copy, return the pink copy to the railroad, and forward the green copy to FRA for processing into the National Inventory File. New public at-grade crossing records cannot be entered into the National Inventory File unless all items in Parts I-IV are completely filled in.

A crossing that is moved may or may not retain the same crossing inventory number. The crossing number is unique to a specific crossing and location. If the physical crossing is moved a short distance (usually within several hundred feet) and the operational characteristics do not materially change, the same number may be used at the new location. If this is not the case, the old number should be closed and a new number assigned to the new location.

If a crossing is closed, the closure must be reported to the FRA. Although the crossing will no longer be in use, the number assigned will be permanently associated with the closed crossing in the National Inventory File. It is imperative that the number not be re-assigned to another new crossing. However, if the crossing is re-opened at a later date, the same number would be re-activated and used.

All crossings (public, private, and pedestrian, including grade-separated) must be inventoried and the inventory records should be updated at least once every five years to verify that the crossing still exists.

When there is no record of a crossing number in the U.S. DOT-AAR National Highway-Rail Crossing Inventory, the usual cause is that the crossing was never inventoried or that the original inventory record was never submitted to FRA for input into the National File. It is also possible that the crossing was recorded as closed at some time in the past. Whatever the reason, it is very important that the situation be corrected as rapidly as possible by preparation and submission of a four-part U.S. DOT-AAR Crossing Inventory Form.

When a crossing is located on a county or State line, it is suggested that the crossing be inventoried by and in the county or State that is south or east geographically.

If you have any questions about this process, contact FRA at (202) 632-3312.

2.4 Number Boards

The National Crossing Inventory Number, which consists of six numeric digits and an alpha check character, shall be permanently displayed at all crossings, recommended on both sides of the railroad right-of-way, on number boards in accordance with specifications outlined herein. The FRA does not provide tags or number boards. These may be purchased from suppliers or manufactured by the railroad. In some cases, States have supplied number boards as part of an overall program.

2.4.1 Specifications

The specifications for permanent number boards for the DOT-AAR Highway-Railroad Crossing Inventory System were adopted in 1978 by the National Advisory Committee.

The number board shall be of light-gauge (.032") aluminum, 4" x 9" in size, with eight slots for mounting, and left unpainted so as not to be attractive to vandals. The crossing number shall be embossed in the center with 1-1/2" numeric-alpha characters. The railroad code shall be embossed above the crossing number with 1/2" characters and the Inventory System designation "U.S. DOT-AAR" shall be embossed with 1/2" characters below the crossing number. (See Figure 2-1 for an example.) This type of sign can be considered as an unpainted "license plate" and blanks used for motorcycle tags could be used.

The method of manufacture or procurement of the permanent number board is left to the discretion of the railroads. However, the resulting sign or number board must comply with the general specifications (see Table 2-2). The railroad may fabricate or purchase signs of metal, plastic, or other suitable materials, or may emboss, stencil, paint, or otherwise inscribe the number in the proper location.

- 4 inches high by 9 inches wide
- Made of .032 inch thick aluminum, unpainted
- Pierced with eight slots, four on each side
- 1/2 inch embossed across the top: the railroad code (example: BN)
- 1-1/2 inch embossed across the center: the crossing number (example: 836 597 H)
- 1/2 inch embossed across the bottom: U.S. DOT-AAR
- 2 plates for each crossing are recommended, plus any desired spares

Table 2-2. Number Board Specifications

Crossing number boards can be purchased from manufacturers and fabricators of signs and railroad materials. However, as of January 1994, only one manufacturer was known to supply such number boards as part of their offered products. This manufacturer is identified below for the convenience of short line railroads and others who may not have fabricating facilities, or for those who do not wish to fabricate their own plates. This is not an endorsement of this manufacturer in any way by the FRA.

Keyes-Davis Company
Box 1557, 74 Fourteenth Street
Battle Creek, Michigan 49016
Telephone: (616) 962-7505
Facsimile: (616) 962-4411

Approximate price quotes, as of 10/18/95, for individually numbered plates conforming to the specifications described above are contained in the following table (Table 2-3).

In Quantities of	Price per Board
1-9	$22.00
10-24	16.50
25-49	12.25
50-99	7.25
100-249	5.75
250-499	4.25
500-999	3.35
1000-2499	2.50
2500-up	1.60

Table 2-3. Number Board Price Quote

2.4.2 Installation and Display

At least one sign shall be located on a signal mast or crossbuck post for crossing and must be clearly visible from the roadway. Ideally, it should also be visible from the rail right-of-way, if possible. While only one sign is required, two signs are recommended, one for each side of the crossing. If a mast or post is not present, the number should be mounted to any type of fixture or structure present, even a wall or the ties. In lieu of a sign, the number could be clearly painted (stenciled) on the masts or posts. As a temporary or alternate measure, spray painting or stenciling can be used on signal cabinets or any other suitable location. The key point to remember, DISPLAY THE NUMBER AT BOTH SIDES OF THE CROSSING FOR EACH AND EVERY CROSSING.

There are three important considerations when installing number boards,

a. The attachment of the number board should not interfere with the operation of the crossing warning device;

b. The number board should be placed (where possible) above the reach of possible vandals; and,

c. When attached to posts or poles, the number board should be mounted, whenever possible, so that it is facing the roadway.

There is only one number for a crossing, but it is recommended that two number boards be installed, one on each side of the crossing. Some examples of installation are shown in Figure 2-2.

When number boards are to be mounted on metal poles, a banding tool and metal strap are required. To provide a secure attachment, care must be taken in threading the strapping material through fastening slots in the number board.

Where number boards are to be mounted on wooden poles, galvanized nails or heavy duty staples are required. The minimum number of nails or staples should be four.

The number boards can be mounted on the different fixtures in the following manner:

a. Crossbucks. The number board should be installed just above eye level using either nails or long staples, or strapping for metal poles.

b. Mast Mounted or Cantilevered Flashing Lights and/or Gates. The number board should be installed just above eye level using strapping material.

c. Stop Sign or Other Sign. Where crossbucks or other signals are not present, mount the number board on a metal or wood pole supporting the sign. The number board should be installed above eye level or just below the stop sign.

d. Post Mount where there are no Signs. Mount the number board on a post at least 5 feet above the ground. Installation on a post is recommended at locations where signs or signals are not installed, such as at private crossings and grade separations. When the sign cannot be installed on a post, the railroad should spray paint or stencil the number on a suitable location and store the number board for later installation, or the number board may be mounted on the nearest railroad-owned signal or communication pole.

2.4.3 Maintenance

To insure identification and verification of a crossing, the display of number boards must be maintained by the railroads at all crossings, especially at public-at-grade crossings. Display and maintenance of signs at private, pedestrian, and grade-separated crossings is also important for identification purposes and should be maintained in the same manner. Number boards should be replaced if the originals deteriorate or are vandalized.

Care must be taken that number boards are not transported to an incorrect location via posts and poles which may be classified as surplus and then re-used at a different location. When posts or poles are taken down, the number boards should be removed and re-installed or destroyed if the crossing is closed. When surplussed (re-used) poles or posts are installed,

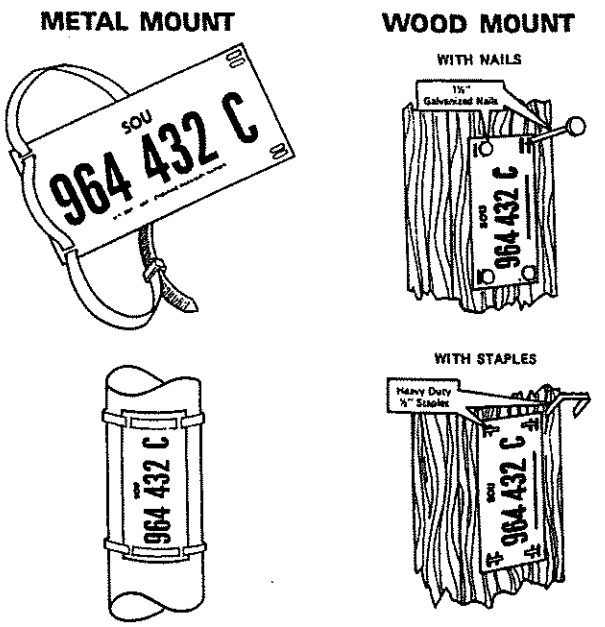


Figure 2-2. Number Board Mountings

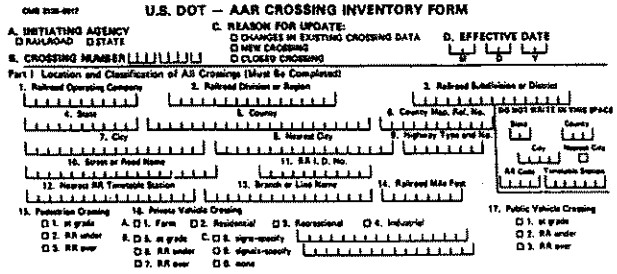
the installation crew should insure that these do not contain number boards from other locations.

3.0 U.S. DOT-AAR CROSSING INVENTORY FORM RECORDING INSTRUCTIONS

3.1 Recording Instructions

The following section explains the process of filling out the U.S. DOT-AAR Crossing Inventory Form. Each section is preceded by a pictorial representation of the section of the form being detailed. Each letter (e.g., A.) or item number (e.g., Item 1.) in the explanation refers to the same lettered or numbered item on the form. Alphanumeric items are to be entered left-justified, while numeric items will be entered right-justified.

The four-part U.S. DOT-AAR Crossing Inventory form may be used to submit crossing inventory changes. Railroads should check submittals to insure that changes have been circled, that an effective date is shown, and that all information is correct. If the changes are simple or minor (numbers, closings, ownership changes, etc.), corrections can be made in red pen directly on the "one-page-per crossing printout" sheets and returned to FRA through the State for processing.


U.S. DOT – AAR CROSSING INVENTORY FORM

A. INITIATING AGENCY
☐ RAILROAD ☐ STATE

C. REASON FOR UPDATE:
☐ CHANGES IN EXISTING CROSSING DATA
☐ NEW CROSSING
☐ CLOSED CROSSING

D. EFFECTIVE DATE

B. CROSSING NUMBER

Part I Location and Classification of All Crossings (Must Be Completed)

1. Railroad Operating Company
2. Railroad Division or Region
3. Railroad Subdivision or District
4. State
5. County
6. County Map, Ref., No.
DO NOT WRITE IN THIS SPACE
7. City
8. Nearest City
9. Highway Type and No.
10. Street or Road Name
11. RR I. D. No.
12. Nearest RR Timetable Station
13. Branch or Line Name
14. Railroad Mile Post
15. Pedestrian Crossing
☐ 1. at grade
☐ 2. RR under
☐ 3. RR over
16. Private Vehicle Crossing
A. ☐ 1. Farm ☐ 2. Residential ☐ 3. Recreational ☐ 4. Industrial
B. ☐ 5. at grade C. ☐ 5. signs-passively
☐ 6. RR under ☐ 6. signals-passively
☐ 7. RR over ☐ 8. none
17. Public Vehicle Crossing
☐ 1. at grade
☐ 2. RR under
☐ 3. RR over

3.2 U.S. DOT-AAR Crossing Inventory Form Heading

A. Initiating Agency.

Enter a check mark in the appropriate box (for either railroad or State) to indicate who is initiating the update form.

B. Crossing Number.

Enter the crossing inventory number here and under "I. D. Number" at the bottom of the form.

C. Reason for Update.

Enter a check mark in the appropriate box to indicate that the reason for the form is a change in existing data, a new crossing, or a closing is being reported.

D. Effective Date.

Enter the date the change was completed or put into effect. Ideally, all public, private and pedestrian crossings, including grade-separated, should be updated to at least verify that the crossings still exist. A current effective date should be indicated. If it is verified that there are no changes in the data and the crossing still exists, and the most recent record is over 5 years old, an effective date of January 1 of the current year (e.g., 01/01/96) should be indicated in red pen on the inventory report and the old date crossed out.

3.3 Part I Location and Classification of All Crossings

Item 1. Railroad Operating Company.

Enter the U.S. DOT-AAR railroad code (reference Appendix E) of the "operating" railroad company, i.e., the railroad that operates train movements over the crossing. The operating railroad will normally also be the reporting company but may or may not own and maintain the roadbed, tracks, and signal system controlling the crossing. If the operating company is not the owner of the track, and the track owner would generally be considered as a "non-railroad," it is suggested to enter the owner's name in Item 13, Branch or Line Name.

NOTE:	Crossings are to be assigned to the operating railroad, that is, the identity of the railroad company that operates over the trackage where the crossing is located and not necessarily to the owner of the track or property itself, unless it is an operating railroad. Thus, designations such as "XYZ Corporation" should be changed to the name of the railroad that is actually operating on the specific line since they are the operating railroad.

Item 2. Railroad Division or Region.

Enter the name of the division, region, or major district, if the railroad system is divided into such groups.

Item 3. Railroad Subdivision or District.

Enter the name of the sub-division or other classification, if the railroad system is divided into such groups.

Item 4. State.

Enter the name of the State where the crossing is located. If the crossing is located on a State boundary so that parts of the crossing lie in two or more States, agreement must be made between the two States as to which shall "claim" it for inventory record purposes.

Item 5. County.

Enter the name of the county where the crossing is located. If the crossing is on a county line so that parts of the crossing lie in two or more counties, a decision must be made to place it in one county only.

Item 6. County Map. Ref. No.

Enter the county map identification or other reference number provided by the highway agency to specifically identify the crossing on the street and road system. If it is not available, leave this entry blank.

Item 7. City.

Enter the name of the incorporated city where the crossing is located. If the crossing is on a city line so that parts of the crossing lie in two or more cities, identify only one city. If not within a city, omit this item and complete item 8.

Item 8. Nearest City.

If the crossing is not within an incorporated city, town, or village, enter the name of the unincorporated city, town, or village or the nearest city, town, or village, whether or not on the railroad lines.

Item 9. Highway Type and No.

Enter the type of highway such as Interstate (I), U.S. numbered (US), State (ST), county (C), local (L), etc., and number of the highway. Please abbreviate, as I-95, US-1, ST-234, C-2096, etc. The number of the highway should be posted on the highway or found on State or county maps. If there is more than one number, enter the most important route or all the numbers.

Item 10. Street or Road Name.

Enter the name of the highway or street, if the highway or street has a name. If it is a private roadway and it has a name, enter the name of the road or the owner's name, otherwise just enter "private."

Item 11. RR I.D. No.

If a crossing has an identification number other than the DOT-AAR number, such as a State agency number (e.g., a Public Utility Commission (PUC) assigned number) or a railroad number and it is posted at or assigned to the crossing, enter that number.

Item 12. Nearest RR Timetable Station.

Enter the name of the nearest timetable station of the operating company.

Item 13. Branch or Line Name.

Enter the name of the line or branch as used by the railroad to describe this segment of track. If the track is an industry lead, industry spur, yard lead, wye, etc., enter the name of the track or industry.

Item 14. Railroad Mile Post.

Enter the railroad milepost number in miles and hundredths of miles. (53 feet is approximately 1/100 mile.) Enter the number with the decimal point.

NOTE:	Because of data-retrieval anomalies, alphabetical letters in the milepost field should be avoided.

Item 15. Pedestrian Crossing (Position).

Enter a check for the appropriate position of the railroad relative to the pedestrian crossing.

Item 16A. Private Vehicle Crossing (Type).

Enter a check in the box which best describes the usage of a private crossing based on the following categories:

1. Farm. A farm crossing is any crossing used for the movement of farm motor vehicles, farm machinery or livestock in connection with agricultural pursuits, forestry, or other land-productive purposes.

2. Residential. A residential crossing is any crossing used to provide vehicular access for occupants and their invitees to a private residence or residences.

3. Recreational. A recreational crossing is any crossing used to provide access to otherwise isolated recreational areas.

4. Industrial. An industrial crossing is any crossing used to provide access between industrial plant facilities or to an industrial or other commercial area.

Item 16B. Private Vehicle Crossing (Position).

Enter a check in the appropriate box describing where the railroad crosses the highway.

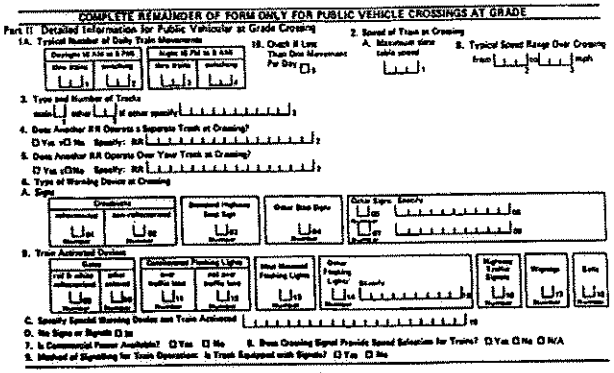
Item 16C. Private Vehicle Crossing (Warning Device).

Enter a check in the appropriate box for the type of crossing warning device. If signs and/or signals exist, enter a brief description in the spaces provided.

Item 17. Public Vehicle Crossing (Position).

Enter a check in the appropriate box for the position of the railroad relative to the public crossing and complete the remainder of the form for all public at-grade vehicular crossings.

NOTE:	For private, pedestrian, and grade-separated crossings, no further information needs to be provided. Such forms are complete and should be forwarded to the State and FRA for processing.



3.4 Part II Detailed Information for Public Vehicular at Grade Crossing

Item 1A1 - 1A4.

Enter the number of the train movements through the crossing and the number of switching movements at the crossing for both daylight and night time hours. Typical number of daily train movements means the normal or average daily train movements. Through trains are trains whose primary responsibility is to move cars over the road, and there may be a limited number of pickups and setouts along the route. Classify all others, (i.e., locals, industrial runs, switch engine) as switching movements. Include the total number of the train movements both for the reporting "operating" company and for any other railroad operating over the crossing.

Item 1B. Check if Less Than One Movement Per Day.

Enter a check if train frequency is less than one train per day.

Item 2A. Speed of Train at Crossing, Maximum Time Table Speed.

Enter the maximum timetable speed.

Item 2B. Speed of Train at Crossing, Typical Speed Range Over Crossing.

Enter the typical minimum speed and maximum speed over the crossing.

Item 3. Type and Number of Tracks.

Enter the number of main line tracks and specify the number and type of any "other" tracks. A track is considered main if through trains operate on the track.

Item 4. Does Another RR Operate a Separate Track at Crossing?.

Enter the U.S. DOT-AAR railroad codes of all railroads that operate a separate track within the warning devices at the crossing. Up to four railroad codes, in blocks of four characters each, may be entered in this field. Enter each railroad code, flush left, and the appropriate blank spaces if the code is not four characters.

Item 5. Does Another RR Operate Over Your Track at Crossing.

Enter the U.S. DOT-AAR railroad codes of all railroads that operate trains over your track at the crossing. Up to four railroad codes, in blocks of four characters each, may be entered in this field. Enter each railroad code, flush left, and the appropriate blank spaces if the code is not four characters.

> NOTE: For Items 6A through 6D, that follow, if more than one type of warning device is present, fill in all applicable types of warning device(s). Enter a "9" where the number is 9 or greater. Provide short descriptions of "other" devices in the appropriate spaces.

Item 6A. Type of Warning Device at Crossing, Signs.

Enter the number of masts with crossbucks, not a count of all crossbuck signs. Two or more crossbucks mounted on a single mast are counted as one crossbuck. If the crossing has a train activated device, do not count the crossbucks mounted on that device.

A standard highway stop sign is red with white letters and has eight sides. Classify all other stop signs as "other stop signs."

Also indicate number and type of any other passive signs at crossing.

Item 6B. Type of Warning Device at Crossing, Train Activated Devices.

9./10. Gates: Enter the count of gates with red and white reflectorized arms separately from the count of other colored gates.

11./12. Cantilevered Flashing Lights: Separate cantilevered flashers from those over traffic lanes and those not reaching the roadway or over only parking lanes, turnout lanes, or shoulders. Count individual cantilever units; do not count the flasher head pairs mounted on the units.

13. Mast Mounted Flashing Lights: Count all flashers on a single mast as one flasher. Do not count flasher heads or a pair of flashing lights separately.

14./15. Other Flashing Lights: Flashing lights not in accordance with the latest Manual on Uniform Traffic Control Devices (MUTCD) should be reported as "other flashing lights."

16. Highway Traffic Signals: Highway signals refer only to train activated red-amber-green signals that control street traffic over the crossing. Do not count highway signals controlling a nearby intersection even if they are interconnected with the crossing devices.

17. Wigwags: Count all wigwags.

18. Bells: Count all bells if present, either alone or in conjunction with other protection.

Item 6C. Type of Warning Device at Crossing, Specify Special Warning Device not Train Activated.

Enter the type of special warning device which is not train activated. Examples of special warning devices not train activated are:

a. Manually operated signals and/or gates
b. Train crew flagging the crossing
c. Watchmen
d. Floodlights.

For watchmen and for manually operated gates, the number of hours daily in effect should also be indicated. For floodlighting, the number of masts with lights should be reported. Only floodlighting which is distinctive from other ordinary street

lighting in the immediate area by its intensity, light distribution, focus or color is to be reported.

Item 6D. Type of Warning Device at Crossing, No Signs or Signals.

Enter a check if no signs or signals are present.

Item 7. Is Commercial Power Available?

Enter a check in the appropriate box if there is commercial electric power available within 500 feet of the crossing.

Item 8. Does Crossing Signal Provide Speed Selection for Trains?

Enter a check in the appropriate box if the signal is equipped with a device to provide a constant warning time for train operation at the speed range listed in Item 2B. Enter a check in the N/A box (Not Applicable) if there are no automatic signals at the crossing.

NOTE: The four-part inventory form (often referred to as the "green form") asks, "Does crossing signal provide speed selection for trains?".

This question will only apply to crossings with automatic active warning devices. All other types of crossings (especially those with passive warning devices) should have the response "N/A" indicated. Crossings using only block or island type circuitry to activate the active warning devices should have the response "NO" indicated. For active warning device crossings, the response "YES" should be indicated if the track circuitry uses circuitry and electronic hardware which is termed as a "constant warning time (CWT) sensor," "predictor (Grade Crossing Predictor (GCP)," etc.

Item 9. Method of Signalling for Train Operation: Is Track Equipped with Signals?

Enter a check in the appropriate box for whether the track has some type of automatic signals or interlocking to control train operations.

Part III Physical Data

1. Type of Development ☐ 1. Open Sp. ☐ 2. Res. ☐ 3. Comm. ☐ 4. Ind. ☐ 5. Inst.
2. Smallest Crossing Angle ☐ 0°-29° ☐ 30°-59° ☐ 60°-90°
3. Number of Traffic Lanes Crossing Railroad ___
4. Are Truck Pullout Lanes Present? ☐ Yes ☐ No
5. Is Highway Paved ☐ Yes ☐ No
6. Pavement Markings ☐ Stoplines ☐ RR Xing Sym. ☐ None
7. Are RR Advance Warning Signs Present? ☐ Yes ☐ No
8. Crossing Surface ☐ 1. Sec. Timber ☐ 2. Full Wd. Plank ☐ 3. Asphalt ☐ 4. Concrete Slab ☐ 5. Concrete Pave. ☐ 6. Rubber ☐ 7. [illegible] ☐ 8. Other Metal ☐ 9. Unconsolidated ☐ 0. Other Specify
9. Does Track Run Down A Street? ☐ Yes ☐ No
10. Nearby Intersecting Highway? ☐ Yes ☐ No

3.5 Part III Physical Data

Item 1. Type of Development.

Enter a check in the appropriate box which best describes the predominant type of development in the vicinity (up to 1000 feet) of the crossing based on the following categories.

1. Open Space. Undeveloped or sparsely developed, very lightly populated, agricultural.

2. Residential. Built-up residential area.

3. Commercial. Retail stores and businesses, offices, personal services.

4. Industrial. Manufacturing, construction, heavy products, factories, and warehouses.

5. Institutional. Schools, churches, hospitals, parks, and other community facilities.

Item 2. Smallest Crossing Angle.

Enter a check in the appropriate box which most closely describes the smallest angle between the highway and the track. (The angle may be estimated by eye or with a simple device, such as a protractor.)

Item 3. Number of Traffic Lanes Crossing Railroad.

Enter the number of through traffic lanes crossing the track. Do not include shoulders or lanes that are typically used for parking.

Item 4. Are Truck Pullout Lanes Present?

Enter a check in the appropriate box for whether special added lanes are provided to accommodate vehicles required to stop at crossings.

Item 5. Is Highway Paved.

Enter a check in the "Yes" box if the highway is paved with material on which pavement markings can be effectively maintained. Enter a check in the "No" box if the highway surface is gravel, dirt, or has a surface treatment on which markings cannot be maintained.

Item 6. Pavement Markings.

Enter a check in the appropriate box for each type of pavement marking present that conforms to the highway traffic manual (MUTCD). If both stop lines and RR crossing symbols are present, check both boxes. If neither stop lines nor RR crossing symbols are present, check "None."

Item 7. Are RR Advance Warning Signs Present?

Enter a check in the appropriate box for whether there are advance warning signs present on any of the highway approaches.

Item 8. Crossing Surface.

Enter a check in the appropriate box which most closely fits one of the following descriptions:

1. Sectional Treated Timber. Prefabricated units approximately 8 feet in length of treated timber individually installed and removable for maintenance and replacement purposes.

2. Full Wood Plank. Full wood plank surface, other than section treated timber, covering the entire crossing area above the crossties, made out of ties, boards, bridge ties, etc.

3. Asphalt. Asphalt surface over the entire crossing area or in the area between planks or other material forming flangeway openings, with or without single planks, or rubber on outside of running rails.

4. Concrete Slab. Precast concrete sections, installed and removable, individually, for maintenance and replacement purposes.

5. Concrete Pavement. Concrete surface which is continuous over the track area and is not removable except by destruction of the surface.

6. Rubber. Preformed rubber sections, installed and removable, individually, for maintenance and replacement purposes.

7. Metal Sections. Preformed sections of steel or other metal, installed and removable, individually, for maintenance and replacement purposes.

8. Other Metal. Complete coverage of the crossing area with railroad rails or other metal materials not removable in limited sectional units.

9. Unconsolidated. Ballast or other unconsolidated material placed above the tops of crossties, with or without planks on one or both sides of the running rails.

0. Other Specify. Surfaces other than the previous surfaces (1 - 9): structural foam, plastic, "high-tech" etc.

If there are multiple tracks and the tracks have different types of surfaces, choose lower grade surface material to indicate on the form. (It doesn't increase the overall rideability of the crossing to have one surface better than the adjacent.) A suggested order might be: concrete, rubber, wood, asphalt, unconsolidated, other.

Item 9. Does Track Run Down A Street?

Enter a check in the appropriate box for whether the crossing involves the track running parallel to and within a street or highway.

Item 10. Nearby Intersecting Highway?

Enter a check in the appropriate box for whether the street or highway at this crossing is intersected by another street or highway within 75 feet of this crossing.

Part IV Highway Department Information 1. Highway System [ ]
2. Is Crossing on State Highway System? ☐ Yes ☐ No. 4. Estimate AADT [ ]
3. Functional Classification of Road over Crossing [ ] 5. Estimate Percent Trucks [ ]
I. D. Number
Form FRA F 6180.71 (8-94)

3.6 Part IV Highway Department Information

Item 1. Highway System.

Enter the correct highway system code from the following Table 3-1.

The Highway System Codes for the National Highway-Rail Crossing Inventory File were revised as a result of the 1991 Intermodal Surface Transportation Efficiency Act, (ISTEA) Section 1006. ISTEA requireD the redefinition of the National Highway System (NHS) which Congress officially approved. The NHS includes approximately 160,000 miles while the total Federal-Aid Highway (FAH) is

approximately 953,000 miles (which includes the 160,000 mile NHS). There are now three classifications for highway systems which are:

		RXI Code
a.	National Highway System	1 & 2
b.	Other Federal-Aid Highway	3
c.	Non-Federal-Aid	8

The National Crossing Inventory File uses this classification, but subdivides the National Highway System into "Interstate" and "Other." On January 1, 1996, the old codes in the National Inventory File were automatically converted to the new Highway System Codes using the following process.

OLD CODES		NEW CODES
1 Interstate	-->	Interstate
2 Fed-Aid	-->	Other NHS
3 Fed-Aid Urban	-\	
4 Fed-Aid Secondary	->	Other Fed-Aid Non NHS
8 Non Fed-Aid	-->	Non Fed-Aid

While this procedure converted most of the records to the new categories, many will need to be checked and verified by the States, especially where the status of a highway has changed. There is no change in the Functional Classification Codes.

The Highway System Codes are listed in the following table.

Code	Definition	Included
1	Interstate National Highway System	Interstate, rural, and urban
2	Other National Highway System	Other urban and rural principal arterial, non interstate (Congressional Approval, Sept. 30, 1995)
3	Other Federal-Aid Highway-Not NHS	Rural major collector and higher category, or urban collector and higher category, not part of NHS
8	Non-Federal-Aid	Local rural roads, rural minor collectors, and local urban city streets or any other non-Federal-Aid roadway

Table 3-1. Highway System Codes

Item 2. Is Crossing on State Highway System.

Enter a check in the appropriate box for whether the crossing is on a State highway system.

Item 3. Functional Classification of Road over Crossing.

Enter the appropriate code for the functional classification of the crossing highway that the State has determined in accordance with the Federal-Aid Highway Program Definitions. The current functional classification codes are listed in Table 3-2.

Category	Code	Functional Classification
Rural	01	Interstate
	02	Other principal arterial
	06	Minor arterial
	07	Major collector
	08	Minor collector
	09	Local
Urban	11	Interstate
	12	Other freeway and expressway
	14	Other principal arterial
	16	Minor arterial
	17	Collector
	19	Local

Table 3-2. Functional Classification Codes

NOTE: The tens digit for the rural codes must be "0" and for urban must be "1".

Item 4. Estimate AADT.

Enter the estimated present average daily traffic (total both directions) based on available traffic information. A reasonable estimate of the AADT will be acceptable if actual traffic counts are not readily available.

Item 5. Estimate Percent Trucks.

Enter the estimated percentage of trucks in the traffic stream.

4.0 INVENTORY UPDATE PROCEDURES

4.1 General

The procedures for updating the National Inventory File are applicable to public, private and pedestrian crossings, whether at grade or grade separated. These procedures are designed to insure availability and use of an up-to-date highway-rail crossing data base with uniform and consistent data collection criteria and a uniformity in the procedures used by States and railroads.

The procedures are based on the concept that the State transportation agency should be the party who forwards all data item changes for any and all crossings to the FRA. This is consistent with the sequence of steps followed during the initial inventory. The steps are railroad to State to FRA. Or in situations where the State agency (rather than a railroad) initiates crossing changes, the sequence is State to railroad to State to FRA.

The process requires a continuing, cooperative effort between the States and railroads because only one may have changes to report, yet both need to review and update their respective crossing records. Channels of communication need to be established whereby such information is provided to the appropriate individuals in the railroad companies and the State transportation agencies.

There are five types of update formats which may be submitted. These are:

a. U.S. DOT-AAR Crossing Inventory Form
b. Mass Update Form
c. Inventory Computer Printout
d. Magnetic Tape
e. GX Computer Program

Examples of the different types of forms upon which changes and corrections may be submitted are shown in Figure 4-1. At the top is the "Inventory Computer Printout," on the right in the middle of the page is the "U.S. DOT-AAR Crossing Inventory Form," and the fill-in-the-blanks Mass Update Form is at the bottom. Section 5.0 of this manual addresses the use of the Mass Update Forms. Use of the Inventory Computer Printout for mark-up is discussed and illustrated at the end of this section. Section 6.0 of this manual explains how updates may be submitted on magnetic tape.

Changes may also be submitted on floppy disk using the GX computer program. If the changes are submitted on the GX disks by a railroad, the railroad should send a copy of the transmittal letter to the State (contact person) and the FRA to notify them that a change has been submitted via GX disk. This notifies the State that in 2 or 3 months they can receive a

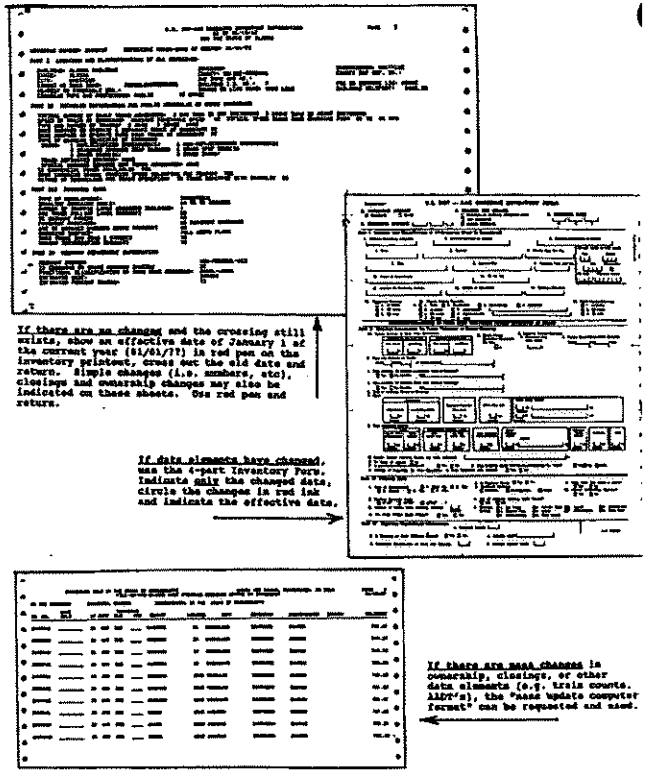


Figure 4-1. The Procedures/Forms Used for Reporting Changes

GX update of this material after it has been added to the National File. The same applies to a State that submits changes. The State should notify the railroads involved and the FRA by sending a copy of the transmittal letter. Section 7.0 of this manual describes the use of the GX Programs.

This section, Section 4 of this manual, emphasizes the procedures involved for submitting updates via the U.S. DOT-AAR Crossing Inventory Form.

4.2 Inventory Form

The U.S. DOT-AAR Crossing Inventory Form FRA F6180.71 (OMB-004-R4039) (see Figure 1-1) is used for providing data to initiate new crossings or changes to the Highway-Rail Crossing Inventory. The inventory forms are four-part forms with a self-carbon feature. This form is used for reporting all types of changes, including the establishment of a new crossing, closing of an existing crossing, or changes in the characteristics of a crossing. Detailed instructions for completing the form are given in Section 3.0. The form does not provide space for comments. Should comments or explanation regarding a crossing be considered necessary or useful, a separate sheet should be used and attached to the form.

While changes and corrections may be submitted using other formats, new crossings must always be submitted on the Inventory Form. When Parts I, II and III have been completed by the railroad, the top three copies must be forwarded to the State for completion of Part IV. It is suggested that FRA be sent a copy of the transmittal correspondence.

Railroads and State highway agencies may obtain needed forms from the FRA. The address is:

Federal Railroad Administration
Office of Safety
Highway-Rail Crossing and Trespasser Programs Division
400 7th Street, S.W. (RRS-23)
Washington, D.C. 20590

4.3 Data Items

Each data element contained on the inventory form is considered to be one of three categories: administrative, physical, or operational. The following tables contain the data elements comprising the three categories. The tables also indicate the agency that is expected to be most aware of any changes to those data elements and which would normally initiate the update process.

Table 4-1 lists the administrative data elements, which pertain to the management and jurisdiction of the crossing. Changes in administrative data elements (such as division, subdivision names, etc.) usually occur because of an administrative action by a railroad. A State agency may also make decisions that would result in changes in certain administrative elements. Thus, the appropriate agency should initiate the update process when changes occur.

Item No.	Element Name	Agency
I-4	State	State Highway or Railroad
I-5	County	State Highway or Railroad
I-6	County Map Reference	State Highway or Railroad
I-7	City	State Highway or Railroad
I-8	Nearest City	State Highway or Railroad
I-9	Highway Number	State Highway or Railroad
I-10	Street or Road Name	State Highway or Railroad
IV-1	Highway System	State Highway
IV-2	Crossing on State System	State Highway
IV-3	Functional Class	State Highway
I-1	Railroad Company	Railroad
I-2	Railroad Division	Railroad
I-3	Railroad Subdivision	Railroad
I-11	Railroad I.D. Number	Railroad
I-12	Timetable Station	Railroad
I-13	Branch or Line Name	Railroad
I-14	Railroad Milepost	Railroad
II-5	Another Railroad?	Railroad
I-15	Pedestrian Crossing	State Highway or Railroad
I-16	Private Vehicle Crossing	State Highway or Railroad
I-17	Public Vehicle Crossing	State Highway or Railroad

Table 4-1. Administrative Data Elements

The physical items describe the crossing configuration. Changes to physical characteristics generally occur as a result of construction activity by a railroad or State. The authority for the work usually is in the form of a contract, work order, etc. An update must be submitted by the proper agency when any of these data elements change. Table 4-2 lists the physical data elements.

Item No.	Element Name	Agency
II-3	Type, Number Tracks	Railroad
II-4	Separate Track/Other Railroad	Railroad
II-6	Type of Warning Device	Railroad or State Highway
II-7	Commercial Power?	Railroad or State Highway
II-8	Speed Selection Provided	Railroad
II-9	Signals for Train Control	Railroad
III-8	Crossing Surface	Railroad or State Highway
III-1	Development	State Highway
III-2	Crossing Angle	State Highway or Railroad
III-3	Number Traffic Lanes	State Highway or Railroad
III-4	Truck Pullout Lanes	State Highway
III-5	Is Highway Paved?	State Highway or Railroad
III-6	Pavement Markings	State Highway or Railroad
III-7	Advance Warning Signs	State Highway

Table 4-2. Physical Data Elements

The operational items pertain to the use of the crossing by railroads. It is recognized that the values of the operational data elements (e.g., number of trains, speeds, etc.) may change over a period of time. Whenever the changes are made or become known, the data elements should be updated. Table 4-3 lists the operational data elements.

Item No.	Element Name	Agency
II-1	Daily Train Movements	Railroad
II-2	Maximum Train Speed/Crossing	Railroad
IV-4	Estimated AADT	State Highway
IV-5	Estimated Percent Trucks	State Highway

Table 4-3. Operational Data Elements

4.4 Railroad and State Agency Update Submission Procedures

There are three situations which require the reporting of changes by a railroad or State highway agency. These situations are as follows:

a. When one or more of the physical, operational, or administrative characteristics of an existing crossing change,

b. When a new crossing is opened, and

c. When an existing crossing is closed.

IMPORTANT NOTE: In all cases when an update form is prepared, the items in Table 4-4 must be provided in addition to the items being updated.

Section	Item No.	Item
Heading	A	Initiating agency
Heading	B	Crossing number
Heading	C	Type of update
Heading	D	Effective date
Part I	1	Railroad operating company
Part I	4	State
Part I	5	County

Table 4-4. Required Update Items

Only the data items being updated, i.e., those items for which a value is being changed from the existing records, are to be entered in the appropriate place on the form. These items should then be circled.

The steps necessary to process an update are shown in Figures 4-2 and 4-3. The primary responsibility for submitting the data changes to the FRA lies with the State agencies; however, the railroad has responsibility for submitting updates to the State. The sequence for submitting updates is shown in Figures 4-2 and 4-3, depending upon whether the update is initiated by the railroad or the State agency.

RAILROAD INITIATED

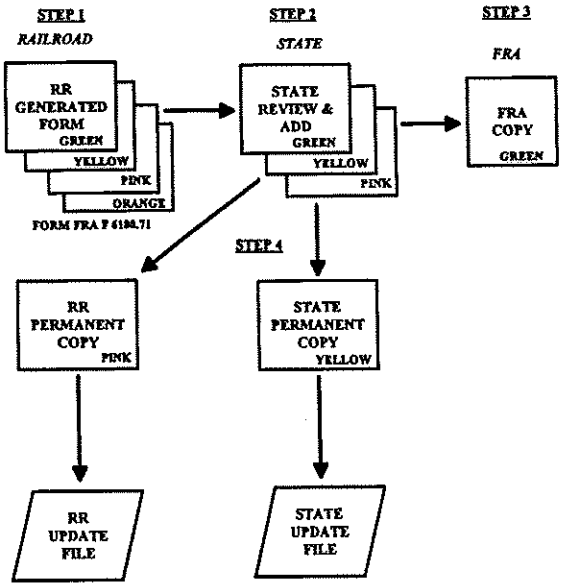


Figure 4-2. Railroad Initiated Update

STATE INITIATED

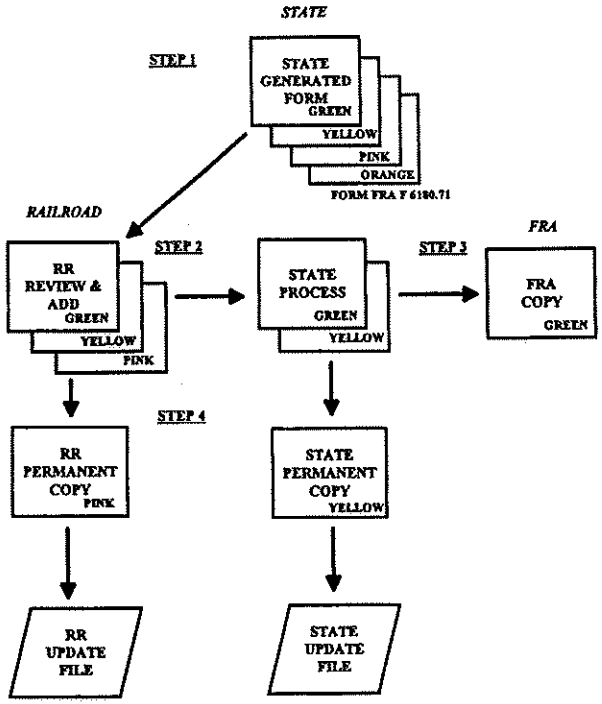


Figure 4-3. State Agency Initiated Update

Depending upon the data element(s) involved (see Tables 4-1, 4-2, and 4-3), either a State or a railroad should initiate the update form. Unless otherwise mutually agreed by the State and the railroad, the party initiating an update should be in accordance with these tables.

As has previously been explained, an update form should be initiated when one or more of the physical, operational, or administrative characteristics change (see Tables 4-1, 4-2, and 4-3). Physical characteristic changes generally occur as a result of a construction activity. Changes in administrative data elements usually occur because of an administrative action on the part of the State highway agency or a local jurisdiction. Operational data elements may change significantly annually or over a period of time (e.g., traffic counts, percent trucks, pavement markings, etc.). The procedures of the State should be such that these items are updated at least every 3 years. However, whenever the changes become known, the data elements should be immediately updated.

When a new crossing is opened, Form FRA F 6180.71 must always be used to report the inventory information. The process is the same as for the process just described for reporting changes. The railroad/State needs to complete an update form for the new crossing and assign a valid crossing number. Crossing numbers can be obtained from the FRA (see Section 2.0). The railroad/State must also install the crossing identification number at the crossing and it is strongly recommended that it be installed on both sides of the crossing. If the crossing is public, the form must be completely filled out. If the crossing is private or grade separated, only Part I of the form must be completed. The railroad/State should initiate the update by completing a form and routing it according to Figure 4-2 or 4-3, whichever applies.

The sequence of steps to be followed when a crossing is reported closed is the same as for the submissions for changes and additions.

When a railroad initiates an update submission, the flow process is as pictured in Figure 4-2. The railroad will complete a four-part form, retaining the bottom (orange) copy, and forwarding the top three copies to the appropriate State agency (Step 1). The State agency will review the form, adding any changes necessary, and return a copy (pink) to the railroad for use in updating its records (Step 4). The top copy (green) will be forwarded by the State agency to FRA for processing into the National File.

The State agency should carefully review the forms to insure that the location information is correct and that the State concurs in the railroad's classification of the crossing as public or private. The State agency and the railroad must reach agreement regarding the crossing classification, prior to forwarding the inventory form to the FRA.

The State highway agency should review other parts of the completed form for a new public crossing to insure that the data shown agrees with its records.

After the railroad has received the final copy (pink) of the completed four-part form set from the State highway agency, for all types of submissions (i.e., add, change, or delete), the railroad should update its records. This may consist of placing the pink update form in its proper place in a file cabinet, and/or entering the information into a computerized data base.

When the State is responsible for initiating the update submission, the flow will be as shown in Figure 4-3. The State will send three copies of the form to the railroad. Whenever a form set (three copies) for a crossing is received by the railroad from a State agency, existing data elements for the crossing should be reviewed, particularly the railroad operational items, although other items also should be checked. If it is known that the values for these items have changed, efforts should be made to determine the current values and they should be entered on the form. Two copies (green and yellow) of the form will then be returned to the State agency, with one copy (pink) being retained for the railroad's permanent records.

This process provides the opportunity to update all data elements of a crossing that may have changed. The items involved in these situations probably will be the operational items, but could include other administrative or physical items. If there is any doubt about whether a change has been reported previously, it should be included at this time.

Routing of the four-part forms will be the same as just described for adds, changes, and deletions.

NOTE: The State agency has the primary responsibility for submittal of forms to FRA, including the top (green) copy of the four-part form.

The top (green) copy of the four-part form should be sent to:

Federal Railroad Administration
Office of Safety
Highway-Rail Crossing and Trespasser Programs Division
400 7th Street, S.W. (RRS-23)
Washington, D.C. 20590

4.5 Summary of Completed Inventory Form Handling Procedures

Forms submitted by railroads and States need to have the changes circled in accordance with the instructions (reference Section 4.4 of this manual). Please double check submittals to insure that any and all changed items are circled.

When the forms are completed and reviewed, including resolution of any discrepancies between railroad and State agency information, they are to be handled in the following manner:

a. Initially, for railroad completed inventory forms, the railroad shall mail the top three copies to the State contact (see Appendix A). If possible, include county maps with the crossing identified by location and number. The railroad should keep the fourth (orange) copy for its interim records.

b. Initially, when the State agency has completed the inventory form, they will mail the top three copies to the railroad.

c. The final distribution of the color copies of the inventory form is as follows:

   1. Green Copy. This copy is to be forwarded by the State agency to the FRA.

   2. Yellow Copy. This copy is to be retained by the State DOT.

   3. Pink Copy. This copy is to be retained by the railroad.

   4. Orange Copy. This copy is to be retained temporarily by the railroad or State agency, whichever is initiating the update form, and destroyed when the permanent pink or yellow copy is received.

It is suggested that a cover letter accompany each group of update forms shipped. This letter should include the total number of forms included in the mailing and broken down according to private, pedestrian, grade separation, and public at-grade crossings, and the crossing numbers submitted.

Completed inventory forms for transmittal to the FRA (green copies only) should be sent to the following address:

Federal Railroad Administration
Office of Safety
Highway-Rail Crossing and Trespasser Programs Division
400 7th Street, S.W. (RRS-23)
Washington, D.C. 20590

4.6 One-party Submissions

If a State or railroad initiates update forms and the other party does not review the forms and provide its update information within a reasonable time, the initiating party may make a one-party submission to the FRA. Instead of sending the green, yellow, and pink copies of the

update form to the other party, the green copy can be sent directly to the FRA and the yellow or pink copy, as appropriate, would be sent to the other party. The letter of transmittal to the FRA should explain that it is a one-party submission and that the other party has been sent the appropriate copy of the update form. However, this procedure should only be used if, after repeated attempts, the other party does not review and return forms within a reasonable time (usually 3 months maximum).

4.7 Inventory Computer Printout Mark-up

When there are a few simple corrections that need to be made, such corrections can be indicated directly on the Computer Inventory Printout, circled in red pen (or high-lighted), effective date indicated, and returned to the FRA for processing. A copy needs to be sent to the appropriate State or railroad.

This procedure should only be used for direct numerical or word replacements and when only a few updates are involved. An example of this process and the procedure is shown in Figure 4-3.

Figure 4-4 is a sample of what one State uses as a checklist of guidelines for their inspectors to use when marking up the computer printouts or completing the Inventory Forms.

4.8 Overview of Update Processing at FRA

All Inventory File update submissions are received by FRA, where a cursory review of the submissions is performed. After the review is accomplished, FRA forwards the submissions by courier to the contractor for processing. A flow chart showing an overview of the current GCIS processing is contained in Figure 4.5. The major steps comprising the update processes are as follows:

- Updates to the Inventory are received either on hard copy format (inventory forms or fill-in-the-blanks) or magnetic media (9-track tape or GX format on diskettes).
- Hard copy updates are sorted and batched manually. Updates on magnetic media are sorted and assigned batches programmatically.
- A rapid scan of the hard copy documents is performed to identify records which are ineligible for updating because of missing or invalid mandatory source data.
- Updates on inventory forms and printouts are key entered into the system.
- All source data is fully edited and validated and exceptions are "Suspensed" for resolution.


```
                    U.S. DOT-AAR CROSSING INVENTORY INFORMATION            PAGE   6
                              AS OF 12/09/93
                       FOR THE STATE OF SOUTH CAROLINA

CROSSING NUMBER: 716556X    EFFECTIVE BEGIN-DATE OF RECORD: 09/30/93   [3/1/94]

PART I  LOCATION AND CLASSIFICATION OF ALL CROSSINGS

  RAILROAD: NORTH SUBURBAN MASS TRANSIT     DIVISION: [NORTH]          SUBDIVISION: SPTBG TO COLA
  STATE:    SOUTH CAROLINA                  COUNTY: UNION              COUNTY MAP REF. NO.: 44
  NEAREST CITY: JONESVILLE                  HWY TYPE AND NO.:   544
  STREET OR ROAD NAME:       PINE NEEDLE ST RAILROAD I.D. NO.:         FRA RR NETWORK LIC: 30011
  NEAREST RR TIMETABLE STN.: JONESVILLE     BRANCH OR LINE NAME: H     RAILROAD MILEPOST:   84.70
  CROSSING TYPE AND PROTECTION: PUBLIC      AT GRADE

PART II  DETAILED INFORMATION FOR PUBLIC VEHICULAR AT GRADE CROSSINGS

  TYPICAL NUMBER OF DAILY TRAIN MOVEMENTS:  2 DAY THRU  0 DAY SWITCHING  2 NIGHT THRU  0 NIGHT SWITCHING
  SPEED OF TRAIN AT CROSSING:  MAXIMUM TIMETABLE SPEED  45  TYPICAL SPEED RANGE OVER CROSSING FROM 00 10 [6] MPH   [160]
  TYPE AND NUMBER OF TRACKS:  1 MAIN   0 OTHER
  DOES ANOTHER RR OPERATE A SEPARATE TRACK AT CROSSING? NO
  DOES ANOTHER RR OPERATE OVER YOUR TRACK AT CROSSING?  NO
  TYPE OF WARNING DEVICE(S) AT CROSSING
   SIGNS:   2 REFLECTORIZED CROSSBUCK(S)       0 NON-REFLECTORIZED CROSSBUCK(S)
            0 STANDARD HIGHWAY STOP SIGN(S)    0 OTHER STOP SIGN(S)
            0 OTHER SIGN(S):                   0 OTHER SIGNS:
   TRAIN ACTIVATED DEVICES: NONE
   SPECIAL WARNING DEVICES NOT TRAIN ACTIVATED: NONE
  IS COMMERCIAL POWER AVAILABLE?  YES
  DOES CROSSING SIGNAL PROVIDE SPEED SELECTION FOR TRAINS?  N/A
  METHOD OF SIGNALLING FOR TRAIN OPERATION:  IS TRACK EQUIPPED WITH SIGNALS?  NO

PART III  PHYSICAL DATA

  TYPE OF DEVELOPMENT:                          RESIDENTIAL
  SMALLEST CROSSING ANGLE:                      60 TO 90 DEGREES
  NUMBER OF TRAFFIC LANES CROSSING RAILROAD:    1
  ARE TRUCK PULLOUT LANES PRESENT?              NO
  IS HIGHWAY PAVED?                             YES
  PAVEMENT MARKINGS:                            NO PAVEMENT MARKINGS
  ARE RR ADVANCE WARNING SIGNS PRESENT?         YES
  CROSSING SURFACE:                             ASPHALT
  DOES TRACK RUN DOWN A STREET?                 NO   [YES]
  NEARBY INTERSECTING HIGHWAY?                  YES

PART IV  HIGHWAY DEPARTMENT INFORMATION

  HIGHWAY SYSTEM:                                    NON-FEDERAL-AID
  IS CROSSING ON STATE HIGHWAY SYSTEM?               NO
  FUNCTIONAL CLASSIFICATION OF ROAD OVER CROSSING:   RURAL:LOCAL
  ESTIMATED AADT:                                    ------   [6300]
  ESTIMATED PERCENT TRUCKS:                          02
```

Figure 4-3. Inventory Computer Printout Mark-Up Procedure

FIELD INSPECTORS GUIDELINES AND CHECKLIST

PART I

____ INITIAL THE UPPER LEFT CORNER OF THE FORM
____ WRITE "TAGGED" OR "NO TAG" IN UPPER RIGHT CORNER (referring to the crossing number tag)
____ IF CLOSED, WRITE "CLOSED" IN THE UPPER RIGHT CORNER
[A "CLOSED" crossing is one that a train or a motorized vehicle is unable to access]

____ CROSSING NUMBER (Verify against tag is one is posted.)
____ EFFECTIVE BEGIN-DATE OF RECORD Use today's date unless one of the following occurs:
[No changes made - 1/1/94] - this shows verification of the crossing information.
[Gates and lights installed - date of service]

____ COUNTY
____ CITY
____ NEAREST CITY [When crossing is not in a city you must note the nearest city.]
____ HWY TYPE AND NUMBER [ie: SR, CR, TR, US]
____ STREET OR ROAD NAME [Verify with street sign]
____ CROSSING TYPE AND PROTECTION

PEDESTRAIN - CHOOSE ONE --->[At Grade, RR Under, RR Over]

PRIVATE - CHOOSE ONE --->[Farm, Residential, Recreational, Industrial]
- CHOOSE ONE --->[At Grade, RR Under, RR Over]
- CHOOSE ONE --->[Signs (SPECIFY), Signals (SPECIFY), None]

PUBLIC - CHOOSE ONE --->[At Grade, RR Under, RR Over]

PART II

____ NUMBER OF TRACKS
____ TYPE OF WARNING DEVICES AT CROSSING

CROSSBUCKS - Count the number of masts with crossbucks, not a count of all crossbuck signs. Two or more crossbucks mounted on a single mast are counted as one crossbuck. Also count crossbucks on cantilevers.

CANTILEVERED FLASHING LIGHTS - Seperate cantilevered flashers from those over traffic lanes and those not reaching the roadway or over only parking lanes, turnout lanes, or shoulders.

MAST MOUNTED FLASHING LIGHTS - Count all flashers on a single mast as one flasher. Do not count flasher heads or a pair of flashing lights separately, EXCEPT WHEN FLASHER HEADS, ALTHOUGH A PAIR, ARE POINTING IN DIFFERENT DIRECTIONS. (IE: ONE FLS.HEAD DOWN MAIN ST., ANOTHER DOWN SIDE ST.)

OTHER FLASHING LIGHTS - Lights that are not in accordance with the MUTCD.

****
* SPECIFY IF THER ARE *
* NO SIGNS OR SIGNALS *
****

____ IS COMMERCIAL POWER AVAILABLE?

PART III

____ TYPE OF DEVELOPMENT - CHOOSE ONE --->[Open Space, Residential, Commercial, Industrial, Institutional]
____ SMALLEST CROSSING ANGLE - CHOOSE ONE --->[0-29, 30-59, 60-90 degrees]
____ NUMBER OF TRAFFIC LANES CROSSING RAILROAD
____ ARE TRUCK PULLOUT LANES PRESENT? [Not commonly seen]
____ IS HIGHWAY PAVED?
____ PAVEMENT MARKINGS - CHOOSE ALL THAT APPLY --->[Stoplines, RR Xing Sym., None]
____ ARE RR ADVANCE WARNING SIGNS PRESENT? [If there is at least one sign - YES, zero - NO]
____ CROSSING SURFACE - [Sec. Timber, Full Wd. Plank, Asphalt, Concrete Slab, Concrete Pave., Rubber, Metal Sections, Other Metal, Unconsolidated, Other Specify]
____ DOES TRACK RUN DOWN A STREET?
____ NEARBY INTERSECTING PUBLIC ROAD WITHIN 75 FT.? [Does not include residential or commercial enterences]

Figure 4-4. Sample Guidelines and Checklist for Field Inspectors

- All manually input data is subjected to 100% sight verification to insure accuracy.
- Master data is uploaded to NIH for further processing.
- The data is submitted to the edit job stream. Valid updates are posted to the Inventory and error records are "Suspensed" for resolution.

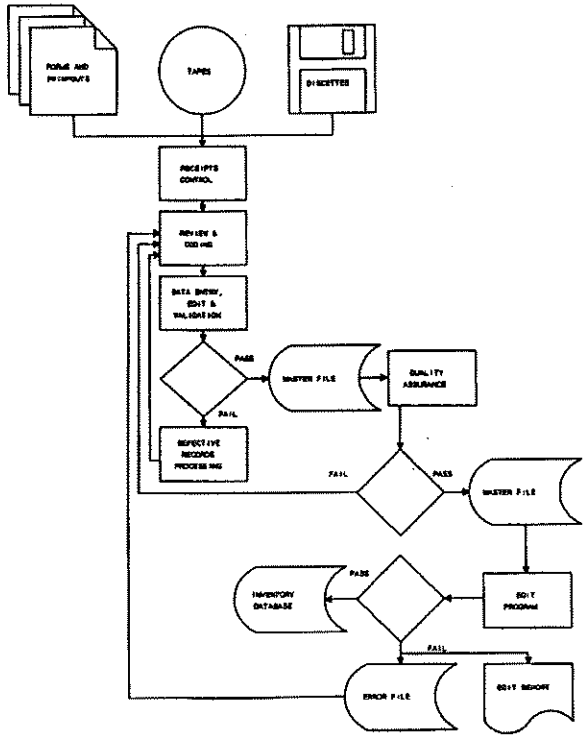


Figure 4-5. Overview of Current GCIS Processing

5.0 MASS UPDATING

This section explains the process for submitting crossing changes via fill-in-the-blank computer printouts.

When a large number of crossings have undergone changes affecting the same few data elements for each crossing, computer generated mass update forms will be easier for supplying the information. Examples of these are:

a. Changes in railroad operating company or railroad identification names
b. Updates resulting from a statewide signing and marking program
c. Changes in highway traffic counts
d. Changes in train movements
e. Changes in train speeds
f. Crossing closures.

Examples of the types of printouts and data displays of highway-rail crossing data which are available to States, railroads, and others are located in Appendix B. Included in the examples are several fill-in-the-blanks lists for a variety of data elements.

While there are many ways in which the data can be presented, this document provides certain standard formats which can be readily identified and requested by users. Such requests can be expeditiously fulfilled because computer software programs exist to simplify the process. Appendix B shows samples of the format displays with an identifying program name which can be used for making requests. By requesting the program name, the users can be assured that they will receive the data in a form most useful to their needs. The requestor should call the FRA to discuss various options before requesting data.

5.1 Fill-in-the-Blanks Computer Printout

A State or railroad desiring to use this method should contact or write the FRA to provide a fill-in-the-blanks printout containing the data elements which the State or railroad desires to update. The printout shows the data currently contained in the National File for specific elements and has space to fill in data that have changed. Another type of printout, the index, can be provided which will include identification elements such as the street name, county, etc. Instructions for using the fill-in-the-blanks printout will also be provided. The fill-in-the-blanks printout may be selected on and sorted in any manner desired. An abbreviation key for most fill-in-the-blanks computer printouts is listed in Table 5-1.

Table 5-1. Fill-in-the-Blanks Abbreviation Key

Abbreviation	Explanation
CROSSING or ID NO.	U.S. DOT-AAR crossing number
EFFECTIVE DATE	Enter date when the crossing status changed
STATE or ST	State abbreviation
ST CD	FIPS State code
CNTY	FIPS county code
RR	Railroad operating company
HWY#	Highway type and number
STATUS	Crossing status (open or closed)
XBR	Number of crossbucks, reflectorized
XBNR	Number of crossbucks, nonreflectorized
FL OVR	Number of cantilevered flashing lights over traffic lanes
FL NOV	Number of cantilevered flashing lights not over traffic lanes
FL MST	Number of mast mounted flashing lights
GT RW	Number of gates, red and white reflectorized
GT OTH	Number of gates, other colored
STP STD	Number of standard highway stop signs
DAY-THRU	Typical number of daily daylight (6 a.m. to 6 p.m.) thru train movements
DAY-SWT	Typical number of daily daylight (6 a.m. to 6 p.m.) switching train movements
NGT-THRU	Typical number of daily night (6 p.m. to 6 a.m.) thru train movements
NGT-SWT	Typical number of daily night (6 p.m. to 6 a.m.) switching train movements
LT-1-MOV	Less than one train movement per day (Yes or No)
MX-TT-SPD	Maximum timetable speed
MIN-SPD	Minimum typical train speed
MAX-SPD	Maximum typical train speed
SPD-SEL	Crossing signal speed selection provided (Yes, No, or N/A)

Abbreviation	Explanation
TYPE or TYP-POS	Crossing type and position 1st number: 1-pedestrian, 2-private, or 3-public 2nd number: 1-at-grade, 2-RR under, 3-RR over The following is the key for the crossing types: 11 - Pedestrian at grade 12 - Pedestrian RR under 13 - Pedestrian RR over 21 - Private at grade 22 - Private RR under 23 - Private RR over 31 - Public at grade 32 - Public RR under 33 - Public RR over
WDCODE	Highway warning device class at crossing (Highest type is to be indicated) 8 - Gates 7 - Flashing lights 6 - Highway signals, wigwags, or bells 5 - Special protection 4 - Crossbucks 3 - Stop signs 2 - Other signs or signals 1 - None of the above
******* under MILEPOST	Milepost has an alphabetical character and will not print out

Table 5-1. Fill-in-the-Blanks Abbreviation Key (Continued)

Examples of the "Fill-in-the-Blanks" printout, the index, and their instructions for updating crossbucks, pavement markings, advance warning signs, and the highway information are located in Sections 5.1.1, 5.1.2 and 5.1.3. Any data element may be requested to be included or selected for the fill-in-the-blanks printout.

After completion, a photocopy of the printout should be provided to the other party, be it a State or a railroad, so that they will be informed of the updates made to their crossings. It should also be indicated in the letter of transmittal to the FRA that the other party has been furnished with a copy. After the updates are processed into the National File, a new updated list may be requested from the FRA to verify the corrections after three months from the date of the transmittal letter.

5.1.1 Train Counts and Train Speeds Updating

This example shows the process for updating the Train Counts and Train Speeds using the fill-in-the-blanks format. The instructions for filling out the fill-in-the-blank form are listed in Table 5-2. A copy of the Train Counts and Train Speeds update format is located in Figures 5-1 and 5-2.

Column Heading	Information
CROSSING	Enter the DOT-AAR crossing identification number.
EFFECTIVE DATE	Enter the effective date of the changed information.
CNTY	Enter the county code.
ST	Enter the State code.
DAY THRU	Enter the number of day thru trains if this has changed. The data currently in the inventory is shown in the column "DT".
DAY SWT	Enter the number of day switching trains if this has changed. The data currently in the inventory is shown in the column "DS".
NGT THRU	Enter the number of night thru trains if this has changed. The data currently in the inventory is shown in the column "NT".
NGT SWT	Enter the number of night switching trains if this has changed. The data currently in the inventory is shown in the column "NS".
LT1	This column is to be used in two circumstances. If there has been an increase from less than one train movement per day to one or more movements per day enter a "0". If there has been a decrease from one or more train movements per day to less than one movement per day enter a "1". The data currently in the inventory is shown in "LT1".
MAX TT	Enter the maximum timetable speed if there has been a change. The data currently in the inventory is shown in the column "MAX TT".
TYP MIN	Enter the typical minimum train speed if there has been a change. The data currently in the inventory is shown in the column "TYP MIN".
TYP MAX	Enter the typical maximum train speed if there has been a change. The data currently in the inventory is shown in the column "TYP MAX".

Table 5-2. Train Counts and Train Speeds Updating Form Instructions

DULUTH MISSABE AND IRON RANGE RAILWAY COMPANY
FILL-IN-THE-BLANKS LIST
FOR RAILROAD, CROSSING STATUS, WARNING DEVICES, TRAIN COUNTS, AND SPEEDS

PAGE 1
12/22/93

CROSSING COUNTY ROAD	EFFECTIVE DATE	STATE BRANCH HWY #	CNTY	RR	MILEPOST	XBR	XR WR	FL OVR	FL NOV	FL NST	GT SW	GT OTH	STP STD	DAY THRU	DAY SWT	NGT THRU	NGT SWT	LT1 PER DAY	MAX TT SPD	MIN SPD	MAX SPD
OK Duluth, Missabe & Iron Range Railway Com																					
252245L LAKE	______	MN LOOP	075	DMIR	000495	2	0	0	0	0	0	0	0	2	0	2	0	NO	22	10	22
252247A LAKE	______	MN LOOP CO 33	075	DMIR	000547	2	0	0	0	0	0	0	2	3	0	3	0	NO	22	10	22
252248D LAKE	______	MN MAIN UT 33	075	DMIR	002905	2	0	0	0	0	0	0	2	3	0	3	0	NO	35	5	35
252249N LAKE	______	MN MAIN CO 122	075	DMIR	002960	0	0	0	0	2	2	0	0	3	0	3	0	NO	35	5	35
252250X LAKE	______	MN MAIN CO 12	075	DMIR	003078	2	0	0	0	0	0	0	2	6	0	6	0	NO	35	20	35
252251P LAKE	______	MN MAIN CO 13	075	DMIR	003221	2	0	0	0	0	0	0	2	6	0	6	0	NO	35	20	35
252252W LAKE	______	MN MAIN CO 38	075	DMIR	003304	2	0	0	0	0	0	0	2	6	0	6	0	NO	35	20	35

Figure 5-1. Train Counts and Train Speeds, Plus Warning Device and Crossing Status Format (Sample)

DULUTH MISSABE AND IRON RANGE RAILWAY COMPANY
FILL-IN-THE-BLANKS LIST
FOR TRAIN MOVEMENTS AND SPEEDS THRU PUBLIC-AT-GRADE CROSSINGS

PAGE 1
01/07/94

CROSSING	EFFECTIVE DATE	STATE	CNTY	RR	DIVISION SUBDIVISION BRANCH	MICODE MILEPOST	DAY-THRU / MX-TT-SP	DAY-SWT / MIN-SPD	NGT-THRU / MAX-SPD	NGT-SWT / SPD-SEL	LT-1-MOV	NOTES AND COMMENTS
252239N	______	27 MN	075	DMIR	IRON RANGE LOOP	7 2.40	3 ___ / 20 ___	0 ___ / 10 ___	3 ___ / 20 ___	0 ___ / NO ___	NO ___	
252241J	______	27 MN	075	DMIR	IRON RANGE LOOP	7 3.14	3 ___ / 20 ___	0 ___ / 10 ___	3 ___ / 20 ___	0 ___ / NO ___	NO ___	
252242R	______	27 MN	075	DMIR	IRON RANGE LOOP	4 4.19	3 ___ / 22 ___	0 ___ / 10 ___	3 ___ / 22 ___	0 ___ / N/A ___	NO ___	
252245L	______	27 MN	075	DMIR	IRON RANGE LOOP	4 4.95	2 ___ / 22 ___	0 ___ / 10 ___	2 ___ / 22 ___	0 ___ / N/A ___	NO ___	
252247A	______	27 MN	075	DMIR	IRON RANGE LOOP	4 5.47	3 ___ / 22 ___	0 ___ / 10 ___	3 ___ / 22 ___	0 ___ / N/A ___	NO ___	
252234T	______	27 MN	075	DMIR	IRON RANGE MAIN	4 ********	0 ___ / 5 ___	0 ___ / 1 ___	0 ___ / 5 ___	0 ___ / N/A ___	YES ___	
252236M	______	27 MN	075	DMIR	IRON RANGE MAIN	4 ********	0 ___ / 5 ___	0 ___ / 1 ___	0 ___ / 5 ___	0 ___ / N/A ___	YES ___	

Figure 5-2. Train Counts and Train Speeds Format (Sample)

5.1.2 Signs, Markings, and Part IV State Highway Information

This example shows the process for updating Highway Signs, Markings, and other Highway Department Information using the fill-in-the-blanks form. The instructions for filling out the fill-in-the-blanks form are listed in Table 5-3. A sample of the "Fill-in-the-Blanks List for Updating Highway Information" is located in Figure 5-3.

Column Heading	Information
CROSSING	The DOT-AAR crossing identification number.
EFFECTIVE DATE	Enter the effective date of the changed information.
ST	The State code.
CNTY	The county code.
RAILROAD OLD	The railroad code as it existed in the Inventory File when the report was run.
RAILROAD NEW/ OR CLOSED	Enter the railroad code if it has changed, or enter "Closed" if the crossing no longer exists.
TYPE	The type of crossing based on Table 5-1.
COUNTY CITY STREET	The values for County, City, and Street as reflected in the Inventory File.
WD	Enter the appropriate highway warning device class, in accordance with Table 5-1, if there has been a change. The code currently in the Inventory File is shown in this column.
TRAF LANE	Enter the number of through traffic lanes crossing the track, if there has been a change. The number currently contained in the Inventory File is shown in this column.
HWY PAVED	Enter whether or not the highway is paved, according to Section 3 of this manual, if there has been a change. The value of this item currently in the Inventory is shown in this column.
PAVE MARK	Enter the appropriate code for pavement markings, from the codes on the bottom of the report, if there has been a change. The number currently in the Inventory is shown in the this column.
ADV WARN	Enter the appropriate code, or "YES"/"NO" for advance warning signs if there has been a change. The number or decode most currently in the Inventory is shown in this column. The codes are as follows: 1 - Advance warning signs present on either highway approach, and 2 - No advance warning signs present.
XING SURF	Enter the appropriate code for the highway crossing surface, if there has been a change. The code currently contained for this data element in the Inventory is shown in this column.
HWY SYS	Enter the appropriate highway system code, in accordance with Section 3 of this manual, if there has been a change. The number currently in the Inventory is shown in this column.
ON ST HWY	Enter the appropriate State highway indicator code if there has been a change. The number currently in the Inventory is shown in this column.
HWY CLASS	Enter the suitable highway functional classification code, according to Section 3 of this manual, if there has been a change. The number currently in the Inventory is shown in this column.
AADT	Enter the traffic count if there has been a change. The value currently in the Inventory is shown in the column "AADT".
PCT TRUK	Enter the estimated percentage of trucks in the traffic stream, if there has been a change. The value currently in the Inventory is shown in this column.

Table 5-3. Instructions for Updating Highway Information

STATE OF ALASKA
FILL-IN-THE-BLANKS LIST FOR UPDATING HIGHWAY INFORMATION

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01/07/94

ON THE Alaska Railroad Corporation

CROSSING	EFFECTIVE DATE	ST	CNTY	RAILROAD OLD	RAILROAD NEW/OR CLOSED	TYPE	COUNTY CITY STREET	WD	TRAF LANE	HWY PAVED	PAVE MARK	ADV WARN	XING SURF	HWY SYS	ON ST HWY	HWY CLASS	AADT	PCT TRUK
868224K	______	AK	122	ARR	______	31	KENAI PENINSULA IN SEWARD DOCK RD	4	2	YES	3	YES	4	04	YES	07	1415	20
								___	___	___	___	___	___	___	___	___	___	___
868225E	______	AK	122	ARR	______	31	KENAI PENINSULA IN SEWARD DOCK RD	4	2	YES	3	YES	4	04	YES	07	1415	20
								___	___	___	___	___	___	___	___	___	___	___
868226L	______	AK	122	ARR	______	31	KENAI PENINSULA IN SEWARD SKILL CENTER NONE	4	2	NO	3	YES	2	08	NO	09	200	20
								___	___	___	___	___	___	___	___	___	___	___
868228A	______	AK	122	ARR	______	31	KENAI PENINSULA NEAR SEWARD AIRPORT ROAD	4	2	NO	3	YES	2	08	YES	08	200	2
								___	___	___	___	___	___	___	___	___	___	___
868229G	______	AK	122	ARR	______	31	KENAI PENINSULA NEAR SEWARD NASH RD	7	2	YES	2	YES	6	04	YES	07	1800	2
								___	___	___	___	___	___	___	___	___	___	___
868231H	______	AK	122	ARR	______	31	KENAI PENINSULA NEAR SEWARD LAKE DRIVE	4	2	NO	3	NO	2	08	NO	09	100	2
								___	___	___	___	___	___	___	___	___	___	___

* THIS DATA WAS PRODUCED BY THE FEDERAL RAILROAD ADMINISTRATION WITH INFORMATION SUPPLIED BY FEBRUARY 28, 1992
* KEY FOR PAVE-MARK: (1) STOPLINES, (2) RR XING SYM, (3) NONE, (4) BOTH
* KEY FOR WD (WARNING DEVICE) AND XING-SURF; REFER TO MANUAL OR FORM

Figure 5-3. Signs, Markings, and Part IV State Update Form

5.1.3 Other Examples

On the "Fill-in-the-Blanks List for Indicating Sold Crossings," (see example in Appendix B) the railroad needs to insert the acquisition date under the column "DATE SOLD" and the abbreviation for the railroad under the column "RAILROAD NEW" for each crossing that has changed ownership. Return the copy to FRA and send a copy to the State and the former or new railroad. Make additional changes or updates by using the standard four-part U.S. DOT-AAR Crossing Inventory forms. A copy of the detailed inventory information for each crossing may be requested if assistance is needed to identify specific crossings.

The "Fill-in-the-Blanks List for Indicating Closed Crossings" (see example in Appendix B) should be used to show the closure of a crossing by entering the effective date under the column "DATE CLOSED." The objective is to identify the status (closed or open) of any such crossings belonging to the reporting railroad. Crossings along a specific line should be together since the data is organized by railroad, division, subdivision, branch, and milepost. If there are any names that are incorrect or not listed consistently the same, correct them on the line below the name.

5.2 Mass Update Requirements

The following Steps are requirements if a State or railroad prepares their own Mass Update form.

a. Skip one line between each line of printed data.

b. The first five left-hand columns in order must be as follows:

   1. DOT-AAR crossing number
   2. Effective date
   3. State code (FIPS)
   4. County code (FIPS)
   5. Railroad code.

NOTE:	If all data submitted is for the same State, railroad, or date, then that particular column of data can be omitted by indicating it at the top of the page.

c. The remainder of the old and new data should be evenly distributed in columns across the page.

d. The "effective date" of the changed information is imperative. This date can refer to either the date that the change became effective or the date that the

change was first reported. It is undesirable to use the same effective date for submittals for crossing changes and data which may have been accumulated over several months or even a year. It is the date when the data changed for the crossing, i.e., if flashing lights were installed at the crossing on December 1, 1995, the effective date of the change is 12/1/95 and written 120195. The date must be in month-day-year (MMDDYY) format, e.g., 030895 for March 3, 1995. Enter the effective date in the blank under the column "Effective Date."

e. Fields are limited to those fields with write-in changes provided for each crossing being updated using a particular mass update printout. Changes to fields other than those on a mass update printout must be submitted in another manner, i.e., on a four-part form, another mass update printout with provisions for those fields needing updating, magnetic tape, letter, etc.

f. When sorting and listing crossings on a mass update printout, crossings should be arranged at least by State and railroad.

g. If the crossing is not on the railroad which is indicated, enter the name or code of the correct railroad on the blank under the column heading "NEW RR," if provided. Otherwise, submit a four-part form.

h. Fill in the remainder of the blanks with the new data and cross out the old data (preferably with red pencil) only where changes are required. If the present data is correct, there is no need to indicate this information.

i. If the inventory data on the report varies from what exists in the field, please provide the correct information for updating the National Inventory File. Mass update computer printouts may be requested for the categories and formats contained in "A Sample of Computer Printout Formats Available." Changes may also be submitted on the U.S. DOT-AAR Crossing Inventory forms (often referred to as the "green forms"). All such submittals should be checked to insure that changes have been circled and that all other information is correct.

j. New crossings must always be submitted on the four-part Inventory forms. When Parts I, II and III have been completed by the railroad, the top three copies must be forwarded to the State for completion of Part IV. The FRA should be sent a copy of the transmittal correspondence.

k. After the list is completed and reviewed, a copy of the sheets containing changes needs to be sent to the State or railroad, and a copy to the Federal Railroad Administration for processing the changes into the National Inventory File. Be sure to retain a copy for your records.

5.3 Special Procedures for Certain Items

A list containing the crossing number, effective date, railroad, State, county and the changed data will be sufficient to update certain data elements, as specified in the following:

a. Railroads with changes for a large number of crossings involving any or all of the following:

1. Railroad operating company
2. Railroad division
3. Railroad subdivision
4. Railroad ID number
5. Branch or line name
6. Railroad mile post.

b. States with changes for a large number of crossings, involving any or all of the following data items:

1. County map reference number
2. Street or road name
3. Highway type and number
4. AADT.

A State or railroad making such a submission needs to also provide the other party, State or railroad, with a list of the changes.

5.4 Feedback of Updated Records from the National File

Once the updates have been applied to the National File, the State or railroad may request the updated records from the FRA. The updated records can be provided approximately 3 months after transmittal in one of the following four ways:

a. Computer-Generated Form. Upon request, the FRA can make information available on a one-page (white) computer-generated update form which is identical to the standard update form.

b. One Page Per Crossing Printout. This printout (Figure 5-4) is used to provide the complete detailed inventory information about a crossing from the National File.

c. Computer Tape. A reel-to-reel magnetic tape can be provided of all desired crossings.

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                         U.S. DOT-AAR CROSSING INVENTORY INFORMATION                 PAGE   6
                                       AS OF 12/04/93
                                  FOR THE STATE OF SOUTH CAROLINA

CROSSING NUMBER: 716556X      EFFECTIVE BEGIN-DATE OF RECORD: 06/30/93

PART I  LOCATION AND CLASSIFICATION OF ALL CROSSINGS

  RAILROAD: NORTH SUBURBAN MASS TRANSIT        DIVISION: PIEDMONT              SUBDIVISION: SPTBG TO COLA
  STATE:    SOUTH CAROLINA                     COUNTY: UNION                   COUNTY MAP REF. NO.: 44
  NEAREST CITY: JONESVILLE                     HWY TYPE AND NO.:    S44
  STREET OR ROAD NAME:       PINE NEEDLE ST    RAILROAD I.D. NO.:              FRA RR NETWORK LIC: 30311
  NEAREST RR TIMETABLE STN.: JONESVILLE        BRANCH OR LINE NAME: N          RAILROAD MILEPOST:     84.70
  CROSSING TYPE AND PROTECTION: PUBLIC        AT GRADE

PART II  DETAILED INFORMATION FOR PUBLIC VEHICULAR AT GRADE CROSSINGS

  TYPICAL NUMBER OF DAILY TRAIN MOVEMENTS:  2 DAY THRU  0 DAY SWITCHING  2 NIGHT THRU  0 NIGHT SWITCHING
  SPEED OF TRAIN AT CROSSING:  MAXIMUM TIMETABLE SPEED   45  TYPICAL SPEED RANGE OVER CROSSING FROM  00 TO  45 MPH
  TYPE AND NUMBER OF TRACKS:  1 MAIN   0 OTHER
  DOES ANOTHER RR OPERATE A SEPARATE TRACK AT CROSSING? NO
  DOES ANOTHER RR OPERATE OVER YOUR TRACK AT CROSSING?  NO
  TYPE OF WARNING DEVICE(S) AT CROSSING
   SIGNS:    2 REFLECTORIZED CROSSBUCK(S)      0 NON-REFLECTORIZED CROSSBUCK(S)
             0 STANDARD HIGHWAY STOP SIGN(S)   0 OTHER STOP SIGN(S)
             0 OTHER SIGN(S):                  0 OTHER SIGNS:
   TRAIN ACTIVATED DEVICES: NONE
   SPECIAL WARNING DEVICES NOT TRAIN ACTIVATED: NONE
  IS COMMERCIAL POWER AVAILABLE?  YES
  DOES CROSSING SIGNAL PROVIDE SPEED SELECTION FOR TRAINS?  N/A
  METHOD OF SIGNALLING FOR TRAIN OPERATION:  IS TRACK EQUIPPED WITH SIGNALS?  NO

PART III  PHYSICAL DATA

  TYPE OF DEVELOPMENT:                          RESIDENTIAL
  SMALLEST CROSSING ANGLE:                      60 TO 90 DEGREES
  NUMBER OF TRAFFIC LANES CROSSING RAILROAD:    1
  ARE TRUCK PULLOUT LANES PRESENT?              NO
  IS HIGHWAY PAVED?                             YES
  PAVEMENT MARKINGS:                            NO PAVEMENT MARKINGS
  ARE RR ADVANCE WARNING SIGNS PRESENT?         YES
  CROSSING SURFACE:                             ASPHALT
  DOES TRACK RUN DOWN A STREET?                 NO
  NEARBY INTERSECTING HIGHWAY?                  YES

PART IV  HIGHWAY DEPARTMENT INFORMATION

  HIGHWAY SYSTEM:                                       NON-FEDERAL-AID
  IS CROSSING ON STATE HIGHWAY SYSTEM?                  NO
  FUNCTIONAL CLASSIFICATION OF ROAD OVER CROSSING:      RURAL:LOCAL
  ESTIMATED AADT:                                       000025
  ESTIMATED PERCENT TRUCKS:                             02
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Figure 5-4. Inventory Crossing Printout (Sample) ("One-page-per-crossing")

d. GX. GX is a self-contained database package which allows the user to retrieve and display records, update them, print both comprehensive and summary reports and produce magnetic updates for submission to the FRA.

5.5 Continuous Feed Update Forms

The FRA can make available upon request a continuous feed single copy (white) or four-copy update form for those States and railroads desiring such. This form is similar to the standard four-part update form and consists of either a single sheet white copy or the usual four colored copies (green, yellow, pink, and orange) in order to allow for standard processing.

5.6 Common Errors in Updating

The following paragraphs describe the most common types of errors in updating the inventory which result in processing delays.

a. Problem: Incomplete "NEW CROSSING" forms. This is a very common problem with "new" Public-at-Grade crossings and changes from private or grade separated crossings to Public-at-Grade. Often a railroad will submit the inventory form with only Parts I through III completed. Sometimes a State will forward a "new crossing" without Part IV information. These situations often result in the crossing record being held in "suspense" until the information is received.

   Resolution. "New" Public-at-Grade crossings or re-classifications to Public-at-Grade must always be handled as two-party transactions where both the States and railroads provide the information each is responsible for. An exception would be if the party completing the form has all of the information required. **Part IV information MUST be completed before the new crossing can be entered into the National File.**

b. Problem: Incomplete information for changes or closings. This problem occurs when the updating agency does not provide sufficient administrative data regarding the crossing to either close or update it.

   Resolution. Regardless of whether the update is for changing crossing characteristics or for closing a particular crossing, the update must have, at a minimum, the following in order for FRA to process the information:

   1. Initiating agency
   2. Crossing number
   3. Reason for update
   4. Effective date

5. State
6. County
7. Railroad.

To insure data integrity, these elements are compared against the current inventory record for the crossing.

When changing State, Railroad, or County information, be sure to circle the data in these fields. Indicate the "old" data for these fields outside the circle.

c. Problem: More than one type of crossing identified. Sometimes the submitting agency will check more than one type of crossing (Public, Private, Pedestrian).

Resolution. There can only be one type of crossing. Refer to Section 1.5 of this manual for the correct definitions.

d. Problem: Invalid Crossing I.D. number reported. The check character in the Crossing I.D. does not correspond to the numeric portion of the I.D.

Resolution. There is only one valid alphabetic check character for each sequence of numbers for the crossing I.D. Refer to Section 2.2 of this manual for the algorithm to compute the valid check character.

e. Problem: Data fails validation and edit checks. To insure data integrity, certain information in the update records are validated against established tables. These include:

1. **State, County, City** - The information provided for these fields is validated against the Federal Information Processing Standard (FIPS) for Worldwide Geographic Location Codes. Refer to Section 10.2 of this manual for information on obtaining this reference data.

2. **Nearest Timetable Station** - The data for this field is validated against the DOT-AAR Standard Point Location Code inventory of railroad timetable stations.

3. **Railroad Operating Company, Other Railroads Operating Separate Track and Other Railroads Operating Over Same Track** - The codes provided for these fields are validated against the U.S. DOT-AAR table of railroad codes.

Aside from above validations, FRA performs data-to-data logic checks within each record. These include:

1. If the Sum of all Daily Train Movements is greater than 1, it is invalid for the Less than One Movement Per Day field to be checked.

2. If Signs and Train Activated Devices are identified in Part II-6A through 6B, it is invalid for the No Signs or Signals field to be checked.

3. The Typical Minimum Speed can not exceed the Typical Maximum Speed over the crossing. The Typical Maximum Speed over the crossing can not exceed the Maximum Timetable Speed.

4. Train Activated Devices must be identified in Part II-6B in order for crossing to provide Speed Selection for Trains in Part II-8.

5. The total number of Tracks must be greater than zero.

6. The total number of Traffic Lanes must be greater than zero.

7. For Pavement Markings (Railroad Crossing Symbols and/or Stoplines) to be valid, Is Highway Paved? must be "Yes".

5.7 Handling of Errors on Updates

In cases where the update fails the edit and the data reported is either inconsistent or incomplete, the form will be returned to the State for correction. If the correction involves railroad initiated data, it is requested that the State contact the railroad for the correction. This will insure that the updating process remains within the bounds which the FRA and its contractor can effectively administer.

If requested corrections have not been received within 30 days, telephone contact will be made. If corrections still have not been received in 30 more days, the update will be placed in a permanent hold status. Both the State and the railroad will be notified of this action. If the corrections are then received, the update will be reactivated and processed.

6.0 MAGNETIC TAPE

A State or railroad with computer facilities may elect to provide updates on reel-to-reel magnetic tape if they develop a computer program to format these updates in the FRA prescribed format. This format is presented and explained in Appendix C of this document. Before starting, the State or railroad should contact the FRA to make the necessary arrangements. A State or railroad which is preparing its own tape and submitting updates to the FRA in the prescribed format should also provide a printout of the updated records to the other party, either State or railroad.

The following is a list of guidelines for submission of updates to the National Highway-Rail Grade Crossing Inventory on reel-to-reel magnetic tape:

a. Submit the updates on a nine-track tape. Densities of 1600 BPI and 3200 BPI are recommended although a 6250 BPI tape may also be submitted. The data format may be ASCII or EBCDIC, and the tapes may be labelled or unlabelled.

b. Enclose a cover letter describing the tape's characteristics, including the number of 80-character records it contains and the number of crossings to be updated. If possible, include a printed dump of the first block of data on the tape.

c. Use as much of each 80-character record as possible. The format of DATA ELEMENT NUMBER, COMMA, DATA, SLASH allows several data fields to be strung together within the same record. If it is necessary to use multiple lines for a crossing, duplicate the identification data (columns 1 through 25) into the next line and continue with the data beginning in column 26.

d. There can be only one update per grade crossing per submission. As many fields as possible may be changed within a given update for a crossing but the system only allows for a crossing to be updated once in a given run. For example, two updates for the same crossing: one dated 1/1/95 and the other dated 1/1/96, should not be submitted simultaneously even if they are updating different fields. The Effective Date is part of the identification data.

e. Contact AMB Associates, Inc. at (301) 587-9439, extension 222 regarding any questions related to this process, or FRA if the telephone number is no longer in operation.

The field specifications for each data element within the inventory record are contained in Appendix C. The tables in Appendix C describe the length of each field as well as the valid range of values for the data. Sample update records are also provided in Appendix C.

7.0 GX DATA MANAGEMENT SYSTEM

GX (which stands for Grade crossing or Xing) is FRA's highway-rail crossing data maintenance system. It is intended for use by States and railroads to maintain their crossing inventory as well as to send updates to the FRA. Use of this program makes updating very simple and reduces the need for large quantities of paper updates.

GX is a self-contained database package which allows the user to retrieve and display records, update them, print both comprehensive and summary reports, produce updates on magnetic diskette for submission to the FRA and perform administrative functions such as backups of the data. GX is written and compiled in Clipper and does not require a run-time database package (like dBASE III+) to execute. In simple terms, all that is needed is a PC running DOS 3.3 or higher in order to run GX.

GX was developed to enhance reporting and updating of crossing information for the National Inventory File. FRA is making GX available at no cost only to interested railroads and State agencies. GX can be used to update or close existing crossings or re-open closed crossings. However, new crossing records must always be submitted on the standard DOT-AAR four-part form. If a railroad is updating more than 30 crossing records, it will probably be more efficient to use this program. If less than 30 crossing records are to be updated, using the four-part (green) forms is probably easier, although the railroad may still obtain the program for reference.

Each GX package includes a custom database containing only the requesting agency's crossings, reference files (cities, counties, railroads, etc.), the necessary programs to run the system, and GX documentation. The database structure is listed in Appendix D. GX users can make updates to their databases as often as they desire. Periodically (at least once every quarter), the user should extract all changes for submission to the FRA to update the National Inventory. In addition to the extensive edit and validation checks which are incorporated into GX, the incoming updates will also be edited against the National Inventory to insure its accuracy. Updates which do not pass the edits will be returned to the submitting agency for review and reprocessing.

Also, GX will only accept changes in railroad ownership where the current railroad alpha code is in the package reference files. Some newly created railroads may not have their code in the reference file, and therefore GX will not accept a change in ownership. These changes must then be submitted manually or the user will need to wait until a new package can be obtained with the newly created railroad's code contained therein. GX users who wish to add new codes which are not presently in their Railroad file should contact AMB Associates to request a replacement file.

To install and run GX on a PC, the following is needed:

a. An IBM PC or compatible computer, preferably with an 80286 or higher processor

b. A color card/monitor (CGA, EGA, VGA, or SVGA)

c. A minimum of 4 Mb of free hard disk space (storage requirements vary with the size of the user's files)

d. 640 Kb RAM minimum

e. A high density diskette drive (either 3.5 inch, 1.44 Mb or 5.25 inch, 1.2 Mb)

f. MS-DOS version 3.3 or later.

Although GX has been installed and tested on an IBM XT with a monochrome monitor, it is strongly recommended that the user have at least an AT-class computer with a color card/monitor to gain full use of the program's capabilities.

If interested in obtaining a custom GX package, please contact the GX Program Manager, at (301) 587-9439, extension 222; Fax telephone (301) 587-9442; or write (requests must be on letterhead stationery) to:

AMB Associates, Inc.
FRA Project/GX Program
818 Roeder Road, Suite 500
Silver Spring, Maryland 20910

NOTE:	While GX is provided to interested States and railroads free of charge, use of this product is purely voluntary. No warranties relating to the use of this product are expressed or implied. Neither the Government nor AMB Associates, Inc. is responsible for any damage to data or hardware which may arise from the use of this product.

The following sections explain some of the functions of the GX program.

7.1 Installation Program

GX provides an easy-to-use installation routine which will automatically update the computer's config.sys and autoexec.bat files to include the necessary environment variables to run the program. The GX programs and data files are shipped in compressed format and are expanded during the installation process. As many as 10,000 crossings can be provided to the user on a single high density diskette.

7.2 Browse Facility

GX incorporates a convenient Browse facility which allows the user to view groups of crossings in tabular form. This feature is useful in identifying crossings by other characteristics such as Street Name when the Crossing ID is not known. GX also includes a versatile interface to this facility which lets the user preselect the criteria for the crossings to be displayed. The user can view all crossings or just a subset (public-at-grade only, active crossings only, etc., or various combinations) and can dictate the order in which the records will be displayed (in crossing order, in railroad order, or in State/county order). The Browse facility also provides "Hot-Key" functions which allow the user to print reports and to perform searches by simply positioning the cursor to the appropriate field and pressing a combination of two keys.

7.3 Update Facility

GX provides a means for the user to view, update, or close a full crossing record at a time. A total of four screens display the complete, most recent inventory record for the requested crossing. GX incorporates the same extensive edit and validation checks used in processing the hard copy documents. Table look-ups are performed to validate Railroad Codes (see Appendix E for a complete list of railroad codes), City and County Names, and Timetable Station Names. In addition, the program executes several logic checks in comparing two or more fields within each record.

The latest version of GX provides a mass update facility which allows the user to make global changes to a group of selected crossings.

7.4 Report Facility

GX allows the user to select from several report formats. A detailed full crossing profile, which can also be generated from both the Browse and Update facilities, is available. Summary report formats providing counts of crossings by type or by railroad can also be generated by the user.

7.5 Data Extraction Facility

GX provides an automated routine which allows the users to extract all updates performed on their database and store them on diskette for submission to the FRA.

A future capability of the GX package will be the generation of read-only copies of the database by any combination and sort sequence of State, county, city, railroad, or any subset of the database for distribution to the recipient.

7.6 Backup and Restore Facility

GX provides administrative programs which let the user backup all changes made to the database and, in the event of a catastrophic loss of data, restore the database to its state at the time of the last backup.

7.7 Documentation

A User's Manual is included with the GX package when it is distributed for use.

8.0 SYSTEM OUTPUTS

Appendix B contains examples of the types of printouts and data displays of highway-rail crossing data which are available to States, railroads, and others. Included in the samples are the following:

a. Outputs from the Accident Prediction Programs.

b. Outputs from the Resource Allocation Programs.

c. Several examples from programs which count the number of crossings for various purposes. These outputs may be produced for a State, railroad, or county and sorted as required.

d. Listings of Inventory data. These reports may be generated for a State or a railroad and sorted as desired. Specific selection criteria may vary and include such as "all crossings with no warning devices," "all crossings with gates," "all private crossings," "all crossings with no pavement markings," etc.

e. An Accident/Incident Report.

f. A number of examples of fill-in-the-blanks lists for mass updates.

g. Special information reports.

NOTE:	In addition to the examples presented in this document, other specially tailored reports may be obtained by direct request from FRA.

9.0 DOT HIGHWAY-RAIL CROSSING ACCIDENT PREDICTION AND RESOURCE ALLOCATION PROCEDURE

The DOT Highway-Rail Crossing accident prediction formula is an accident and severity prediction calculation which computes the expected number of accidents at a crossing, based on information from the U.S. DOT-AAR National Highway-Rail Crossing Inventory and the Railroad Accident Reporting System (RAIRS) data files.

The DOT Highway-Rail Crossing resource allocation procedure is a computer model designed to nominate crossings for improvement consideration on a cost-effective basis and to suggest the type of warning device to be installed, given the cost of crossing improvements and an available budget level.

A number of crossing hazard formulas have been developed and used extensively in dealing with solutions to highway-rail crossing safety problems. The DOT accident prediction formula is based on the extensive data in the DOT Crossing Inventory and Accident data files, and is an improvement over other hazard formulas.

9.1 Background

The Highway Safety Acts of 1973 and 1976, the Surface Transportation Assistance Acts of 1978 and 1982, the Surface Transportation and Uniform Relocation Assistance Act of 1987, and the Intermodal Surface Transportation Efficiency Act of 1991 provide funding authorizations to individual States to improve safety at public highway-rail crossings. The installation of active motorist warning devices, such as flashing lights or flashing lights with gates, is an important part of crossing safety improvements. The U.S. Department of Transportation (DOT) assists States and railroads in determining effective allocations of Federal funds for highway-rail crossing safety improvements by use of the resource allocation procedure developed to assist in the allocation of funds among crossings to achieve maximum crossing safety benefits for a given level of funding.

The procedure consists of two parts. The first is an accident and severity prediction formula which computes the expected number of accidents at each crossing, based on information from the U.S. DOT-AAR National Highway-Rail Crossing Inventory and the Railroad Accident/Incident Reporting System (RAIRS). The second part is a resource allocation model designed to nominate crossings for improvement consideration on a cost-effective basis and to suggest the type of warning device to be installed.

The DOT Highway-Rail Crossing accident prediction formula and resource allocation model were developed at the Transportation Systems Center (TSC) under the sponsorship of the Federal Railroad Administration (FRA) Office of Safety Analysis and the Federal Highway Administration (FHWA) Office of Research. When used together, these procedures provide a systematic means of assisting in making a preliminary, optimum allocation of funds among

individual crossings, considering available improvement options. These procedures provide a ranked listing of crossings which can then be used as a guide for selecting crossings for on-site visits by diagnostic teams.

The formula and procedures were reviewed and slightly revised in 1986 and 1987. While some improvements were implemented, the basic formulas remain the same as those originally developed in 1976. A subsequent review is planned for the 1996-1997 period.

9.2 DOT Accident Prediction Formula

The availability of both inventory and accident data for crossings influenced the development of the DOT accident prediction formula. This formula calculates the expected annual number of accidents at a crossing on the basis of physical and operational characteristics of the crossing as described in the Inventory and the most recent five year accident experience at that crossing as contained in the FRA Railroad Accident/Incident data file.

Three formulas are used to calculate predicted accidents: a basic formula which contains factors from the Crossing Inventory, a second formula which incorporates accident history as an explicit factor, and a third formula which involves a normalizing constant. The three formulas, given in a general form, are shown in equations [1], [2], and [3], respectively. The output of equation [1] is an input to equation [2]. The output of equation [2] is the input to equation [3]. The output of equation [3] is the predicted accidents per year for the crossing of interest.

$$a = K \times EI \times DT \times MS \times MT \times HP \times HL \qquad [1]$$

$$B = \frac{T_e}{T_e + T}(a) + \frac{T}{T_e + T}\left[\frac{N}{T}\right], \; T_e = \frac{1}{0.05 + a} \qquad [2]$$

$$A = \begin{cases} K1 \times B \text{ (for passive devices)} \\ K2 \times B \text{ (for flashing lights)} \\ K3 \times B \text{ (for gates)} \end{cases} \qquad [3]$$

The DOT formula is of the absolute type, since it estimates the number of accidents, as opposed to providing a "relative" index (often referred to as a hazard rating index). The formula combines two independent calculations of the number of accidents for a crossing to produce the final absolute accident prediction. The two independent calculations are obtained from the first two formulas described in the next paragraphs.

1. A "basic" formula provides an initial prediction of the accidents on the basis of the physical and operational characteristics of the crossing as described in the Inventory. This formula predicts crossing accidents through a calculation similar to that used in other common formulae, such as the Peabody-Dimmick and New Hampshire, and can be considered as a "hazard rating index."

The basic formula is as follows:

$$a = K \times EI \times DT \times MS \times MT \times HP \times HL \qquad [1]$$

where

a = initial accident prediction index, (accidents per year at the crossing),

K = constant for initialization of factor values at 1.00,

EI = factor for exposure index based on product of highway and train traffic,

DT = factor for number of thru trains per day during daylight,

MS = factor for maximum timetable speed,

MT = factor for number of main tracks,

HP = factor for highway paved (yes or no), and

HL = factor for number of highway lanes.

The basic formula was developed by applying nonlinear multiple regression techniques to crossing characteristics stored in the 1976 Inventory and Accident data files. Half of the file was used to determine the formula coefficients by regression and iteration, and the other half for testing the formula. The data sets were disjoint, of equal size, and comprised of a random sample of records from the inventory, including all records for which accident data existed. Each data set was categorized into two groups of accident and non-accident crossings. The result can be expressed as a series of factors which, when multiplied together, yield the initial predicted accidents per year at a crossing.

The basic formula consists of a number of multiplicative factors, with each factor representing a characteristic of the crossing described in the DOT Crossing Inventory. The numerical value of each factor is related to the statistical influence which the

specific crossing characteristic has on the predicted number of accidents. The values of (a) calculated from equation [1] could be considered an accident prediction, but (a) has not been normalized properly. Three sets of equations are used to determine the values of each factor, corresponding to the following categories of warning devices: passive warning devices, flashing lights, and flashing lights with automatic gates. Specific equations for the crossing characteristic factors by the three warning device categories are contained in the publications listed in Section 9.3. Each set of factor equations should only be used for crossings with the warning device category for which it was designed. To calculate the value of (a) at a crossing with crossbucks, only the passive set of equations should be used. The same applies for crossings with flashing lights and crossings with gates.

2. The predictive capacity of the basic formula is limited because certain important crossing characteristics, such as sight distance at the crossing, are not included in the DOT Crossing Inventory. Inclusion of actual accident history at a crossing is done in equation [2], which dramatically improves the predictive capabilities of the formula. Equation [2] calculates a value (B) which is a weighted average of two separately derived predictions. The value of (B) is determined by combining the value (a) with the crossing's accident history, using equation [2] or a table by extrapolation as contained in other publications referenced in this Section.

The intermediate prediction (B) thus includes the observed accident history (over a five year period) at a crossing. It assumes that future accidents per year will be the same as the average historical accident rate. It is referred to as the accident history of the crossing, and is equal to the total observed accidents divided by the number of years over which the observations were made. (Note: The formula allows any number of years of accident history data to be used. However, a five year period is more commonly recognized and used.)

The DOT accident prediction formula is then expressed as

$$B = \frac{T_e}{T_e + T}(a) + \frac{T}{T_e + T}\left[\frac{N}{T}\right], \qquad [2]$$

where

B = intermediate accident prediction, accidents per year at the crossing,

T_e = formula for weighting factor $= \frac{1}{0.05 + a}$,

a = initial accident prediction index (accidents per year) from formula [1], and

$\frac{N}{T}$ = accident history prediction, accidents per year, where N is the number of observed accidents in T years at the crossing.

The DOT formula calculates a weighted average of the predicted accidents at a crossing from the basic formula "a" and accident history "N/T". The two formula weights, $\frac{T_e}{T_e + T}$ and $\frac{T}{T_e + T}$, add to the value of 1.

The intermediate prediction (B) is the value (a) from equation [1], which provides an initial prediction on the basis of a crossing's characteristics (as described in the DOT Crossing Inventory), and the actual accident history at a crossing where $\frac{N}{T}$ is equal to the number of previous accidents (N) divided by the number of years of data (T). The value of (T) is usually taken to be five. The most recent five years of accident history data should be used to insure good performance from the formula. Accident history information older than five years may be misleading because of changes in crossing characteristics.

3. To get the final predicted accidents (A), (B) is multiplied by one of three constants as indicated by equation [3].

$$A = \begin{cases} K1 \times B \text{ (for passive devices)} \\ K2 \times B \text{ (for flashing lights)} \\ K3 \times B \text{ (for gates)} \end{cases} \qquad [3]$$

The particular constants, K1, K2, and K3, depend on whether the crossing has passive devices (e.g., crossbucks), flashing lights, or gates. These constants adjust the predictions to reflect more recent levels of accident experience. They are recalculated periodically and published annually in FRA's *Highway-Rail Crossing Accident/Incident and Inventory Bulletin*.

A flow diagram of the DOT accident and severity prediction formulas, showing the data bases employed, is shown in Figure 9-1. The abbreviations used for the Accident Prediction lists produced by FRA are contained in Appendix B.

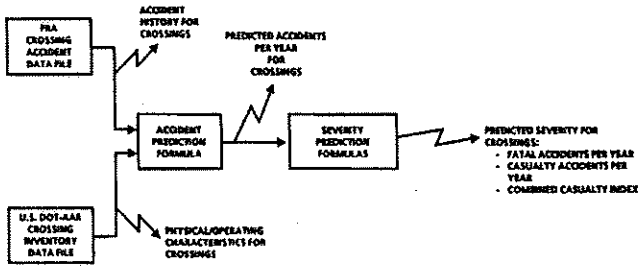

Figure 9-1. DOT Highway-Rail Crossing Accident and Severity Prediction Formulas

9.3 Resource Allocation Model

The availability of the U.S. DOT-AAR National Highway-Rail Crossing Inventory and Accident data permitted the development of a resource allocation model. Development of accident prediction formulas was a necessary intermediate step. The U.S. DOT Highway-Rail Crossing accident prediction formulas were created utilizing nonlinear, multiple regression techniques applied to the crossing characteristics in the National Inventory and the Accident databases compiled by FRA. The model calculates the expected annual accident rate at a crossing.

It is important to note that the U.S. DOT's accident prediction formulas produce an absolute prediction which is different from a hazard index (e.g., the New Hampshire formula). The hazard index only produces a relative index for each crossing based on available physical characteristic data and does not include any accident history information. A hazard index has value only in relatively comparing one crossing with another with very similar characteristics. The U.S. DOT accident prediction formulas provide an absolute prediction process which can compare all crossings and one that is needed for the resource allocation model.

The U.S. DOT resource allocation model determines which crossings should have motorist warning devices installed so as to achieve the maximum crossing safety benefit for a given level of funding. The net result is a list of the most cost-effective improvement decisions.

Possible grade crossing improvements include: (1) passive devices to flashing lights, (2) passive devices to gates, and (3) flashing lights to gates.

Inputs to the resource allocation model include the predicted accident rate of the crossing, costs and effectiveness of the different improvement options, and the budget level available. Cost data required are the installation costs for each of the possible upgrade options. Effectiveness is defined as the percentage by which accidents are reduced after installation of a warning device at a crossing.

The resource allocation model provides a ranked list based on benefit/cost ratios. Benefit is expressed as predicted accidents prevented per year and cost is the life-cycle cost of the equipment. The algorithm considers the benefit/cost ratios beginning with the largest ratio and continuing in decreasing order. The process continues until the monies spent (costs of recommended warning devices) equal or exceed the available budget. Thus, an optimal list of recommended improvements is obtained.

The primary function of the resource allocation procedure is to assist States and railroads in preparing Statewide grade crossing improvement programs. Because of the magnitude of the Inventory and Accident data bases, use of the model has required a mainframe computer. Data and computer printout list are available by directing a request to FRA.

Information on the formulas and procedures may be found in the *"Rail-Highway Crossing Resource Allocation Procedure, User's Guide, Third Edition,"* U.S. Department of Transportation, Federal Railroad Administration, August 1987, Transportation Systems Center, Cambridge, MA, 02142, Report Numbers DOT/FRA/OS-87/10 and DOT-TSC-FRA-87-1 (both for the same report). This document is available to the public through the National Technical Information Service, Springfield, Virginia, 22161.

Further information on the formulas and procedures is contained in *"Summary of the DOT Rail-Highway Crossing Resource Allocation Procedure - Revised,"* U.S. Department of Transportation, Federal Railroad Administration, June 1987, Transportation Systems Center, Cambridge, MA, 02142, Report Numbers DOT/FRA/OS-87/05 and DOT-TSC-FRA-86-2 (both for the same report). This summary contains the formulas which calculate a severity prediction, extended warning device effectiveness data, and inclusion of the stop sign option in the resource allocation model. This document also is available to the public through the National Technical Information Service, Springfield, Virginia, 22161.

The theory underlying the formulas is contained in P. Mengert, *"Rail-Highway Crossing Hazard Prediction Research Results,"* U.S. Department of Transportation, Transportation Systems Center, Washington, DC, March 1980, FRA-RRS-80-02, which is available as a reference only.

9.4 Data Provided to States and Railroads

The U.S. DOT accident prediction computer printouts list public highway-rail crossings ranked by predicted accidents per year. The printouts show the ordered ranking in a State, county, city, railroad or any combination thereof and include the accident history along with other crossing data. They also list the crossings in ascending order, by crossing number, and provide location information.

The U.S. DOT resource allocation procedure consists of three computer printouts listing public highway-rail crossings. One printout lists crossings according to the number of accidents predicted annually. The highest prediction is listed first. The second printout shows proposed crossing projects in a benefit-cost sequence determined by simultaneous consideration of accident predictions, alternative costs and benefits and budget levels. The proposed project with the highest benefit-cost ratio is listed first. A third printout indexes all the crossings considered in this process, by crossing number, accident prediction, and rank.

The Department of Transportation accident prediction formula combines two independent calculations: (1) a basic formula that predicts accidents based on the inventory's physical and operating characteristics, and (2) the initial prediction combined with another prediction derived from the reported accident history at the crossing.

The values and data are derived from the Federal Railroad Administration's Inventory and Accident files and are subject to the processing contractor's keypunch errors and input data submission errors from both railroads and States. Efforts have been made to find and correct errors, but there remains a possibility that some errors still exist. For this reason, States and/or railroads should verify the data by conducting on-site inspections of those crossings whose prediction ranking indicates a relatively high value. Erroneous data may significantly alter accident prediction and resource allocation values. It must also be recognized that this is only one model and that other models may give different results. As with all models, there are certain characteristics that are not or cannot be included in arriving at a prediction value. These characteristics include the sight distance at the crossing, highway congestion, and the volume of hazardous materials traffic.

These data are produced by using accident prediction formulas developed to aid in planning highway-rail crossing safety programs. The resource allocation procedure uses these accident prediction formulas together with cost evaluation data to produce a ranking of those crossings that can achieve maximum improvement benefits given a specific level of funding. This model is designed to nominate crossings for improvements on a cost-effective basis and suggests the type of warning device to be installed. The cost-effective data used for producing the enclosed material appear at the beginning of the printout.

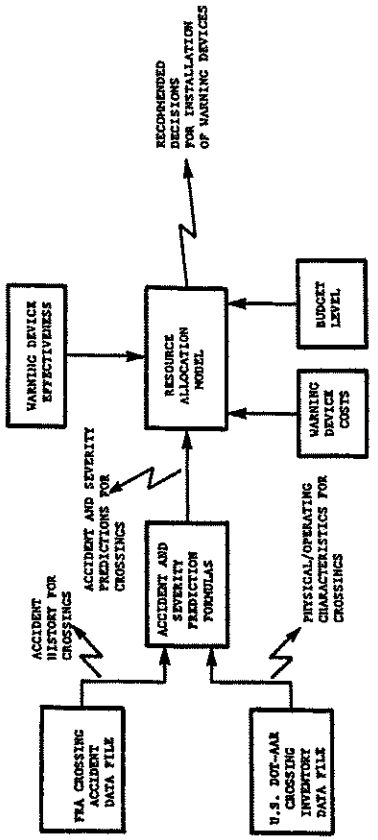

Figure 9-2. Highway-Rail Crossing Resource Allocation Procedure

When requesting a resource allocation printout, four data elements are required:

(1) The average cost of warning device upgrade from passive devices (crossbucks) to flashing lights.

(2) The average cost of warning device upgrade from passive devices (crossbucks) to gates (with flashing lights).

(3) The average cost of warning device upgrade from flashing lights to gates (with flashing lights).

(4) The total budget level of available funds, or a higher value for planning purposes.

States and/or railroads desiring to install the formula and models on their own computer should contact FRA. The current computer programs used by FRA can be provided on a customer supplied reel-to-reel magnetic tape for use on a mainframe computer. Because of the size of the supporting data bases, use of the model has required a mainframe computer. However, for smaller data bases, an individual State or railroad may avail themselves of programs developed by non-government sponsored researches that will operate on a personal computer (PC) or microcomputer.

9.5 Performance Compared to Other Models

In a report prepared for the 1986 annual meeting of the Transportation Research Board (TRB), researchers at the University of Virginia revealed that the U.S. DOT accident prediction formula is a better procedure for establishing priorities for grade crossing safety improvement projects than other models tested. A total of five formulas were evaluated using the State of Virginia Department of Highways and Transportation grade crossing inventory. In addition to the U.S. DOT formula, the other formulas were: Peabody-Dimmick; NCHRP No. 50; Coleman-Stewart; and the New Hampshire. According to the researchers, the DOT formula outperformed the other models in both the evaluative and comparative analyses.

The authors of the Virginia study caution the reader that although the U.S. DOT accident prediction formula outperformed the other four nationally recognized models, the following facts remain:

"The DOT accident prediction formula takes into account the most important variables that are statistically significant in predicting accidents at rail-highway crossings. However, it must be noted that there is no general consensus as to which of the site characteristics are the most important ones. As a result, the priority list that is produced by using this formula must serve as only one of the criteria for improving conditions at any crossing. This

information must be supplemented by regular site inspections and other qualitative issues that can not be feasibly incorporated into a mathematical formula."

To determine the availability of this report, contact:

Rail Transportation Division
Virginia Department of Highways
and Transportation
1221 East Broad Street
Richmond, Virginia 23219

To obtain a copy of the TRB paper presented at the 1986 annual meeting, contact:

Department of Civil Engineering
University of Virginia
Thornton Hall
Charlottesville, VA 22901

During development and review of the accident prediction formula, comparisons were made with other highway-rail crossing accident prediction models. Statistical tests which compared these models indicated that the accuracy of DOT's formula is superior for ranking crossings by predicted accident levels. Since the DOT formula is based on the DOT Crossing Inventory, a common data base of crossing characteristics is available to formula users. As the DOT Crossing Inventory is updated, the DOT accident prediction formula will reflect the latest information.

10.0 ADDITIONAL INFORMATION AND REFERENCES

10.1 Highway-Rail Grade Crossing Handbook

The *"Railroad-Highway Grade Crossing Handbook - Second Edition," 1986* provides general information on highway-rail crossings, including characteristics of the crossing environment and users, and the physical and operational improvement for safe and efficient use for both highway and rail traffic. The handbook will be of interest to Federal, State, and local highway agency personnel, railroad officials, consulting engineers and educators involved with highway-rail grade crossing installation, safety and operation.

A standard distribution of the handbook was made to the Federal Highway Administration (FHWA) Region and Division offices and the State highway agencies in 1986. Copies of the handbook were also provided to the Federal Railroad Administration and the Association of American Railroads. A limited number of copies are available to States and railroads from the Federal-Aid Program Branch of the Federal Highway Administration. The handbooks can be ordered from the following addresses:

Federal Highway Administration
Federal-Aid Program Branch
400 7th Street S.W., HNG-12
Washington D.C. 20590
Telephone: (202) 366-4656

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia, 22161
(703) 487-4700 or (703) 487-4650
For "Rush Handling," call (800) 553-6847

10.2 Worldwide Geographic Location Codes

The *"Worldwide Geographic Location Codes," U.S. General Services Administration, Office of Finance, 1987* lists the standard numeric (number) and alpha (letter) codes that some Federal agencies use in designating geographic locations in automatic data processing programs. These FIPS codes are those used for processing crossing inventory data. Use of standard codes facilitates the interchange of machine-sensible data from agency to agency within the Federal community and to State and local groups who request or contribute to Federal programs.

Three sections of codes are given in the publication. Part 1 indexes numeric codes for counties and cities within the 50 States of the United States. Part 2 catalogs alpha and

numeric codes for U.S. possessions and areas administered by the United States. Part 3 lists similar combinations for foreign countries.

The codes for the States, counties, and cities listed in Part 1 are based on two Federal Information Processing Standards Publications (FIPS 5-1 and FIPS 6-1) issued by the National Bureau of Standards in accordance with the provisions of Public Law 89-306 (commonly known as the Brooks Act) and the Office of Management and Budget, Circular A-86.

Government departments or agencies using the codes within this publication may request the assignment of additional codes for populated areas having recognized boundaries. Such requests should be submitted in writing to the Public Building Service (PGG), General Services Administration, Washington, D.C., 20405. Telephone requests may be made by dialing (202) 501-1426. The criteria for assigning additional codes, except for military installations, are established by the above named office. Additional codes for military installations are assigned or verified through the Department of Defense.

Copies of this publication are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. The codes are also available on diskette or magnetic tape for $50.00 from the General Services Administration (PGG), Washington, D.C., 20405, telephone: (202) 501-1426.

10.3 Federal-Aid Policy Guide

The Federal-Aid Policy Guide (FAPG) 23 CFR, Part 646 Railroads, Subpart B, Railroad-Highway Projects, contains the regulations which prescribe policies and procedures for advancing Federal-Aid projects involving railroad facilities.

This directive contains the following:

a. Information which applies to Federal-Aid projects involving railroad facilities, including projects for the elimination of hazards of highway-rail crossings, and other projects which use railroad properties or which involve adjustments required by highway construction to either railroad facilities or facilities that are jointly owned or used by railroad and utility companies.

b. Additional instructions for projects involving the elimination of hazards of highway-rail grade crossings pursuant to 23 U.S.C. 130 are set forth in 23 CFR Part 924 of the FAPG.

c. Procedures on reimbursement for projects undertaken pursuant to this directive are set forth in 23 CFR Part 140, Subpart I of the FAPG.

d. Procedures on insurance required of contractors working on or about railroad right-of-way are set forth in 23 CFR Part 646, Subpart A of the FAPG.

Copies of the regulations are available from the FHWA State Division office located in the capital city of each State or by contacting the Federal Highway Administration at the following address:

Federal Highway Administration
Federal-Aid Program Branch
400 7th Street S.W., HNG-12
Washington D.C. 20590
Telephone: (202) 366-4656

APPENDIX A

STATE CONTACTS

STATE CONTACTS
as of December, 1996

US DOT/AAR HIGHWAY-RAIL CROSSING INVENTORY PROGRAM

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Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01
68

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Private Highway-Rail Grade Crossing Safety Research and Inquiry

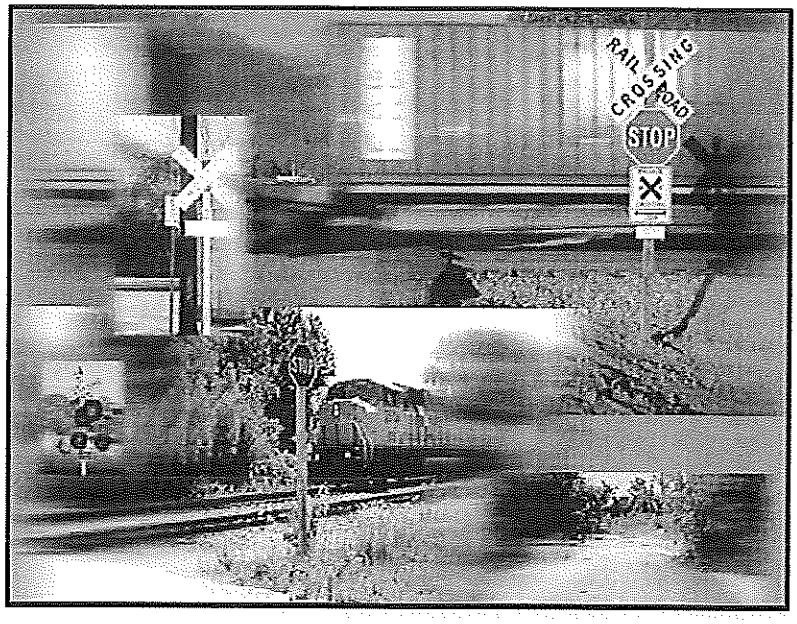
U.S. Department
of Transportation

Federal Railroad
Administration

Office of Research
and Development

Office of Safety

Washington, DC 20590



DOT/FRA/ORD-xxxx

Final Report
May 2008

always expect a train

1 Introduction

The FHWA Manual on Uniform Traffic Control Devices (MUTCD) defines a public highway-rail grade crossing as any intersection between a public roadway and railroad. The roadway on either side of the crossing must be a public roadway, i.e., under the jurisdiction of, and maintained by, a public authority and open to public travel. If either approach to a crossing does not qualify as a public roadway, then the crossing is typically classified as a private crossing.

In 2006, over 94,400 private highway-rail grade crossings in the United States were in existence, at which over 400 incidents occurred, resulting in over 30 fatalities.

Currently, accurate estimations of the physical conditions, operations, maintenance procedures, and estimated risks at private highway-rail grade crossings in the United States are unavailable, in large part because private crossing data are limited, incomplete, and in some instances inaccurate. Further, the nature of private ownership and the contractual rights between private property owners and railroads have complicated Federal, State, and local governmental authority over these types of crossings.

From July 2006 through July 2007, FRA, with support from USDOT/RITA/Volpe National Transportation Systems Center (Volpe Center), conducted a safety inquiry to solicit comments from private crossing owners, railroads, and other interested parties on safety issues at private highway-rail grade crossings.

This report documents the information gathered during the safety inquiry. The document will include the process employed by FRA and the Volpe Center, written and oral commentary, and a summary of regional and local regulations, standards, and practices specific to private crossings.

On motion of Commission Johnson, seconded by Commissioner Clark, and passed, the following Resolution pertaining to roads within the Geneva Works area was passed:

R E S O L U T I O N and
O R D E R

It appearing to the Board of County Commissioners of Utah County, Utah, that Defense Plant Corporation, a corporation created by Reconstruction Finance Corporation pursuant to Section 5d of the Reconstruction Finance Corporation Act, as amended, has acquired near Vineyard and within the limits of Utah County, Utah, the conveyance to it of an area containing approximately fifteen hundred (1500) acres of land and certain reliction lands adjacent thereto for the purpose of erecting blast furnaces, coke ovens, open hearth furnaces, and other facilities for the production of pig iron and steel, which tracts are commonly called the Geneva Plant Site, Plancor 301; and

It further appearing that there are clouds upon the title to said lands resulting from improper redemption certificates or the nonpayment of taxes or conveyances to Utah County for road purposes, and for other reasons; and

It further appearing that certain county roads traverse said plant site, which roads are no longer needed for use by the general public or freeholders living within the vicinity of said plant site, and that it is advisable that such county roads be vacated and abolished, and that Utah County quitclaim said plant site to said Defense Plant Corporation;

NOW, on application of Defense Plant Corporation, good cause appearing therefor, and in consideration of the aid that has been extended by said Defense Plant Corporation in the construction of that certain road beginning at the southerly corner of said plant site and extending northwesterly along the west side of right of way of the Denver & Rio Grande Western Railroad to the southern boundary of Section 8, Township 6 South, Range 2 East, Salt Lake Meridian, it is hereby ordered:

1. That all county highways (except the county road bordering the lake and hereinafter referred to) and easements located within the lands hereinafter described be and the same are hereby declared to be abolished, and any order, ordinance or other action designating any such roads or easements as county highways be and the same is hereby vacated and repealed, and the County Clerk of Utah County is hereby authorized and directed to record a certified copy of this resolution and order in the office of the County Recorder of Utah County, Utah.

2. That Utah County, a body corporate and politic of the State of Utah, quitclaim to said Defense Plant Corporation all of the right, title and interest of Utah County in and to the lands hereinafter described, whether such interest was acquired for road purposes, by reason of nonpayment of taxes, or otherwise, reserving, however, to Utah County its lien upon said lands for general taxes for the year 1942, and the County Clerk of Utah County, Utah, is hereby authorized and directed to execute and deliver, on behalf of Utah County, Utah, such quitclaim deed to said Defense Plant Corporation.

The lands hereinabove referred to are located in Utah County, Utah, and are particularly described as follows, to-wit:

Beginning at a point on the West right of way line of the Union Pacific Railroad, said point being also on the East-West center section line of Section 5, and from which point the quarter corner between Sections 4 and 5, Township 6 South, Range 2 East, Salt Lake Base and Meridian, bears North 89° 32' 30" East 938.64 feet; thence South 89° 32' 30" West 6831.53 feet to the point of intersection of the said center section line produced with the Utah Lake meander line; thence along said meander line as follows: South 4° 41' 50" East 959.17 feet; thence South 11° 26' 40" West 1755.57 feet; thence South 8° 34' 40" West 350.10 feet; thence South 8° 52' 0" East 1039.29 feet; thence South 4° 45' 50" West 1487.45 feet; thence South 7° 18' 10" East 1177.92 feet; thence South 5° 13' 10" East 765.50 feet to the intersection of the said meander line with the East line of County Road, Deed No. 5; thence South 29° 19' East 25.94 feet; thence South 9° 06' East 600.59 feet to the North line of said County Road; thence South 89° 59' 38" East 2079.00 feet along said North line of County Road; thence North 68° 49' East 372.90 feet to the section line between Sections 7 and 8, above Township and Range; thence South 0° 16' 10" East 27.72 feet to the corner common to Sections 7,8,17, and 18, above Township and Range; thence North 89° 20' 05" East 2758.11 feet along said Section line to the East right of way of the Denver and Rio Grande Railroad; thence South 30° 10' 10" East 5269.00 feet along said East railroad right of way to the intersection with the West right of way of State Highway No. 114; thence North 0° 30' 40" West 4587.79 feet along the said West right of way of Highway 114, which right of way is parallel to and 33 feet West of the Center line of said highway, to the section line between Sections 8 and 17, above Township and Range; thence North 89° 20' 05" East 103.04 feet along said Section line to the West right of way fence of the Union Pacific Railroad, said right of way fence being parallel to and 33 feet Westerly of the Center line of said railroad track; thence North 7° 54' West 8037.12 feet along said West railroad right of way to the point of beginning, containing 1523.561 acres.

Also:

Beginning at a point on the Utah Lake Meander Line, said point being at the intersection of the East-West center section line of Section 6, Township 6 South, Range 2 East, Salt Lake Base and Meridian, and said Meander Line, from which point of intersection the East quarter corner of said Section 6 bears North 89° 32' 30" East 2453.69 feet; thence along said Utah Lake Meander Line as follows: South 4° 41' 50" East 959.17 feet; thence South 11° 26' 40" West 1755.57 feet; thence South 8° 34' 40" West 350.10 feet; thence South 8° 52' 00" East 1039.29 feet; thence South 4° 45' 50" West 1487.45 feet; thence South 7° 18' 10" East 1177.92 feet; thence South 5° 13' 10" East 765.50 feet to the intersection of said Meander Line with the East line of County Road, Deed No. 5; thence South 29° 19' East 25.94 feet along said East line of County Road; thence South 9° 06' East 600.59 feet to the North line of said County Road; thence due West to the water's edge 860 feet, more or less; thence Northerly along said water's edge 8100 feet, more or less, to a point which lies due west of the point of beginning; thence due East from said water's edge 1450 feet, more or less, to the point of beginning; it being intended by this instrument to include within the foregoing description all reliction lands West of said meander line as above described and the water's edge of Utah Lake, including or excluding, as the case may be, the area occasioned by the rise or fall of the Lake.

Excepting, however, from the above described lands that certain county road running in a northerly and southerly direction and located west of said meander line, and which road begins at the Southwest corner and terminates at the Northwest corner of the property first above described.

PASSED by the Board of Utah County Commissioners this 3 day of August, A.D. 1942.

R.J. Murdock
William J. Johnson
Sylvan Clark
BOARD OF UTAH COUNTY COMMISSIONERS

ATTEST: C.A. Grant
County Clerk
(Seal)

On motion of the County Sheriff, Wayne Soffe and Louis Petro, special deputy sheriffs at Geneva Works, were released, and Frank Mitchell, s epcial deputy at Ironton, was also released.

On motion of Commissioner Clark, seconded by Commissioner Johnson, and passed, the County Fair for 1942 was cancelled in keeping with the federal recommendation.

In recognition of the work done by the 4-H Clubs in connection with the annual County Fair(cancelled for this year) the Commissioners agreed to appropriate $349.00 for the use of the clubs in their work projects.

Claims were presented and approved for payment as per certified lists on file with the County Clerk, County Auditor, and County Treasurer.

ATTEST: C.A. Grant
County Clerk.

R.J. Murdock
CHAIRMAN OF THE BOARD

August 10, 1942.

The Board of Utah County Commissioners met in regular session in their place of meeting in the City and County Building at Provo, Utah, on Monday, August 10, 1942.

On roll call the following were present:

Chairman R.J. Murdock, Commissioner
Wm. J. Johnson, Commissioner
Sylvan Clark, Commissioner
C.A. Grant, County Clerk.

The Chairman was authorized to sign the following Correction Letters, Nos.: 10560, 10564, 10565, 10566, 10567, 10568, 10569, 10570.

The following hospital bill was approved and ordered paid:

$40.00 to Dr. W.H. Groves of the L.D.S. Hospital for services for Mrs. Beatrice Fox.

The following special deputy sheriffs without pay were appointed: Clinton H. Roberts, J.F. Johnson, to serve at Geneva Works; Wm. H. Brown at Ironton; Silas V. Ford, D.& R.G.W.R.R. at Thistle.

2710

August 7, 1943

Farnsworth & Van Cott
Attorneys-at-Law
The D.& R.G.W.R.R. Co.
Walker Bank Bldg.
Salt Lake City, 1,
Utah

ATTENTION: E. C. Jensen

Gentlemen:

Enclosed herewith are two (2) certified copies of the Commission's Report and Tentative Order in Case No. 2710.

In conformity with the requirements of the Order, please have the substance of the order published in a newspaper of general circulation in Utah County, Utah, for two issues, said publication to be completed on or before August 22, 1943.

Proof of publication should be filed with the Commission on or before August 27, 1943.

Very truly yours,

DEPARTMENT OF BUSINESS REGULATION
Public Service Commission

Theodore E. Thain
Acting Secretary

TET:jp
Encls.

- BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH -

In the Matter of the Application of THE DENVER and RIO GRANDE WESTERN RAILROAD COMPANY, a Corporation, and Wilson McCarthy and Henry Swan, Trustees of the property thereof, in Reorganization Proceedings for permission to construct, maintain and operate a standard gauge railroad track over and upon a state highway, No. U-114, and seven county highways in Utah County, Utah.)	Case No. 2710 REPORT and TENTATIVE ORDER

DOCKETED

By the Commission:

The above-entitled application of The Denver and Rio Grande Western Railroad Company, a corporation, and Wilson McCarthy and Henry Swan, Trustees, was filed with the Commission July 16, 1945.

The Commission ordered the matter handled under summary procedure according to its rules of practice and procedure which provide for an investigation and the issuance of a tentative order, subject to the right of any interested parties to protest within the time specified in the order.

From the investigation made by the Commission, and from the record and file in this matter which are hereby made a part hereof by reference, the Commission makes the following findings:

That The Denver and Rio Grande Western Railroad Company is a corporation, organized and existing under and by virtue of the laws of the State of Delaware, and is authorized to do business in the State of Utah as a common motor carrier of property and persons; that Wilson McCarthy and Henry Swan are Trustees of the property of said railroad company in reorganization proceedings under Section 77-B of the Bankruptcy Act as amended; and that the said The Denver and Rio Grande Western Railroad Company, a corporation, is subject to the jurisdiction of the Public Service Commission of the State of Utah.

That the applicants own and operate a line of standard gage railroad, among other places, in Utah, between Provo, Utah County, Utah, and Salt Lake City, Salt Lake County, Utah; that the main line of said railroad near Geneva, Utah County, Utah, now crosses certain county roads and state highway U-114 at grade; that the applicants propose to construct a second main track near said

Geneva, Utah, parallel to the said main line track, which said second main track will, when constructed, cross at grade said highways at the following described locations:

A county highway, at m.p. 703 plus 1455 feet of the main line of the D.& R.G.W.RR., in the NW-1/4 of Sec. 2 Twp. 7 south, R. 2 E., Utah County, approximately 350 feet south and 700 feet east from the NW corner of Sec. 2, and 418 ft. southeasterly along the center line of present main track from the north line of said Sec. 2.

A county highway, at m.p. 704 plus 1203 feet of the main line of the D.& R.G.W.R.R., in the NE-1/4 of Sec. 34, Twp. 6 South, R. 2 E., Utah County, approximately 1650 feet south and 475 feet east from the northwest corner of the NE-1/4 of Sec. 34, and 2100 feet southeasterly along the center line of present main track from the north line of said Sec. 34.

A county highway, at m.p. 704 plus 3280 feet, on Section line between Sec. 27 and 34, Twp. 6 South, R. 2 E., Utah County at a point 1830 feet east from the SW corner of said Sec. 27.

A county highway, at m.p. 705 plus 4697 feet, on Section line between Sec. 21 and 28, Twp. 6 South, R. 2 E., Utah County, at a point approximately 2050 feet west from the northeast corner of said Sec. 28.

A county highway, at m.p. 706 plus 2365 feet, on line between the NW-1/4 and SW-1/4 of Sec. 21, Twp. 6 south, R. 2 E., Utah County, at a point approximately 1825 feet east from the west line of said Sec. 16.

A county highway, at m.p. 707 plus 173 feet, on Section line between Sec. 16 and 21, Twp. 6 South, R. 2 E., Utah County, at a point approximately 310 feet east from the southwest corner of said Sec. 16.

State highway U-114 at m.p. 707 plus 835 feet on Section line between Sec. 16 and 17, Twp. 6 South, R. 2 E., Utah County, at a point approximately 560 feet north from the southwest corner of said Sec. 16.

At county highway crossing to Geneva Steel Plant at m.p. 708 plus 995 feet, on Section line between Sec. 8 and 17, Twp. 6 South, R. 2 E., Utah County, at a point approximately 2700 feet west from the northeast corner of said Sec. 17.

as shown by blueprint attached to application, and by reference hereby made a part hereof.

That the construction, operation and maintenance of the proposed second main track will be in the public interest and will not create any undue hazards to motorists or others using the crossing, and will facilitate the movement of traffic to the Geneva Steel Plant at Geneva, Utah, without interuption of traffic moving on the main line of said applicants.

STATE OF UTAH
DEPARTMENTAL MEMORANDUM

From
DEPARTMENT

DIVISION Inspection

To
DEPARTMENT Public Service Commission

DIVISION

DATE: July 20, 1943

FILE:

SUBJECT: Report of investigation made regarding application made by The Denver and Rio Grande Western Railroad Company to construct a second main line track paralleling their present main line track in Utah County.

To the Commission:

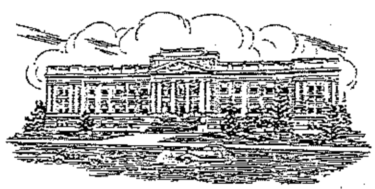
On July 16, 1943, the Denver and Rio Grande Western Railroad Company filed an application with the Public Service Commission requesting permission to construct a second main line track parallel to their present main line track in Utah County between mile post 702 plus 3,156 feet and mile post 708 plus 2,240 feet. In the application the Railroad Company asks for permission to cross eight highways six of which are designated as County Roads and two of which are designated as State Highways; namely, U114 and SR78. The purpose of this second main line track is to serve the Geneva Steel Plant without interruption to their main line of traffic.

On July 19, 1943, I made an inspection of the crossing sites, and I recommend to the Public Service Commission that this application be granted; that the Denver and Rio Grande Western Railroad Company be required to properly bond the tracks in order that the crossing signals will give the necessary warning to motorists; and that the new track be constructed at grade with the other main line track in case of the necessity of improvement to the present State Highway.

I was informed by officials of the State Road Commission that there was no objection to this work being done providing this track was built at grade with the present track. I have also been informed that the officials of Utah County will approve this program as outlined by the Denver and Rio Grande Western Railroad Company.

Respectfully submitted,

Robert H. Slaughter
Inspector



UTAH COUNTY

STATE OF UTAH

PROVO, UTAH

July 23, 1943

RECEIVED JUL 27 '43 SEC'Y. BUSINESS REGULATION COMMISSION of UTAH

Honorable Board of County Commissioners
City & County Building
Provo, Utah

Gentlemen:

I went over the D. & R.G. RR. today, from the viaduct on West Center Street north to the Geneva plant and inspected grade crossings as indicated on the blueprint, and report and recommend as follows:

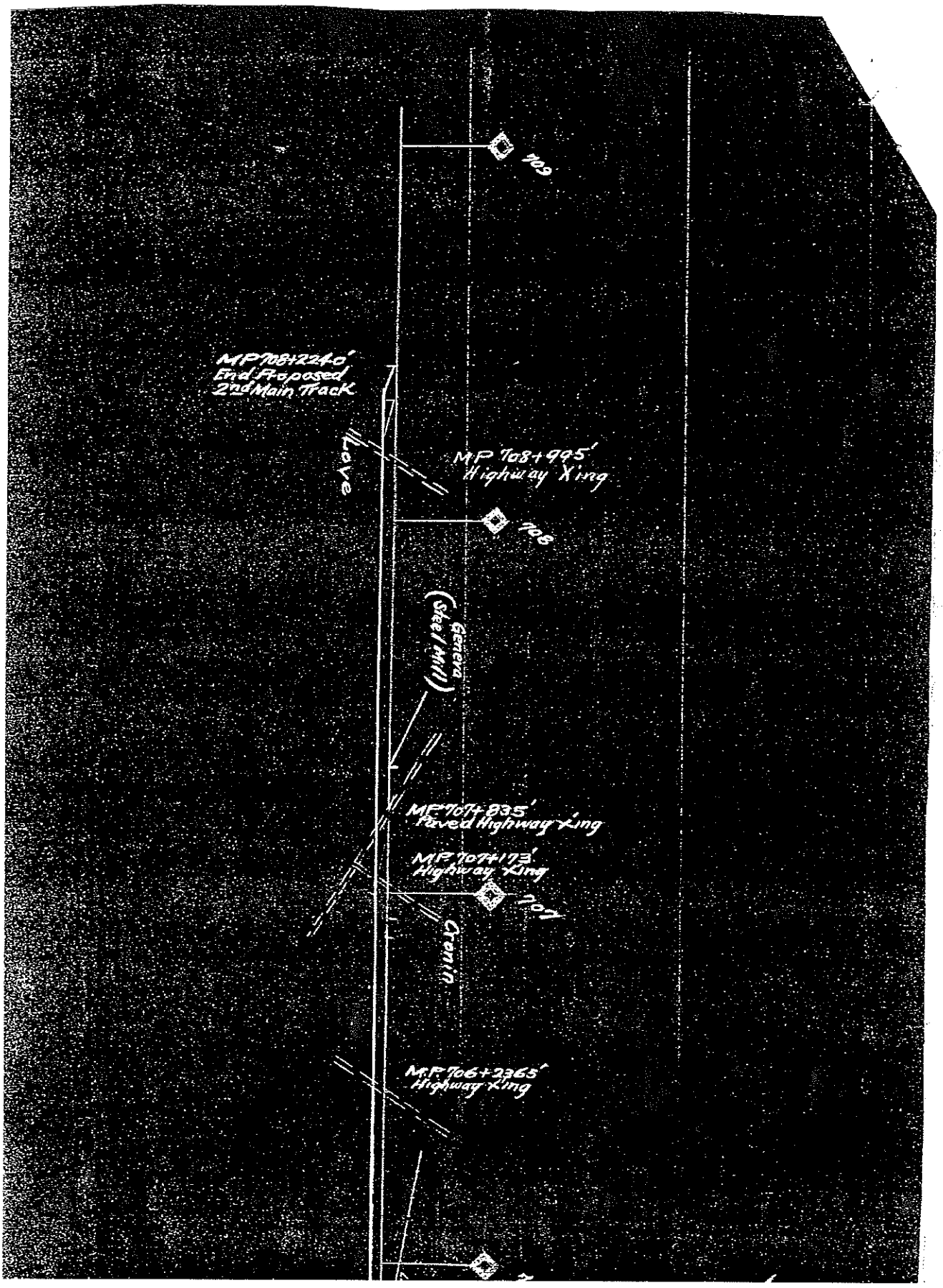
Highway Crossing at M.P. 703+ 1433'. Visibility clear, except for a few useless trees on the East side of track. Highway road grade good. Highway Crossing at M.P. 704 + 1203'. Visibility clear. County Road grade both sides of R.R. track should be raised to grade of track for a distance from tracks of at least 100 feet. Highway Crossing M.P. 704 + 3280'. Visibility clear, except for a few trees on east side of R.R. track. County road grade on West side should be raised to grade of tracks. Highway Crossing M.P. 705+ 4597'. Visibility clear. Highway grade should be raised to level of R.R. tracks on the west side. Highway Crossing M.P. 706 + 2365'. Visibility clear, Highway grade ok. Highway Crossing M.P. 707 + 173'. Visibility clear, except for beet loading station on West side of tracks. Highway grade from the west and between the two R.R. tracks should be raised to grade of R.R. track. Highway Crossing 707 + 835' ok. Highway crossing 708 + 995', Entrance into Steel Plant. Visibility clear. Highway grade should be raised on west side.

I find no reason why the request of the Denver & Rio Grande Western R.R. Company should not be granted.

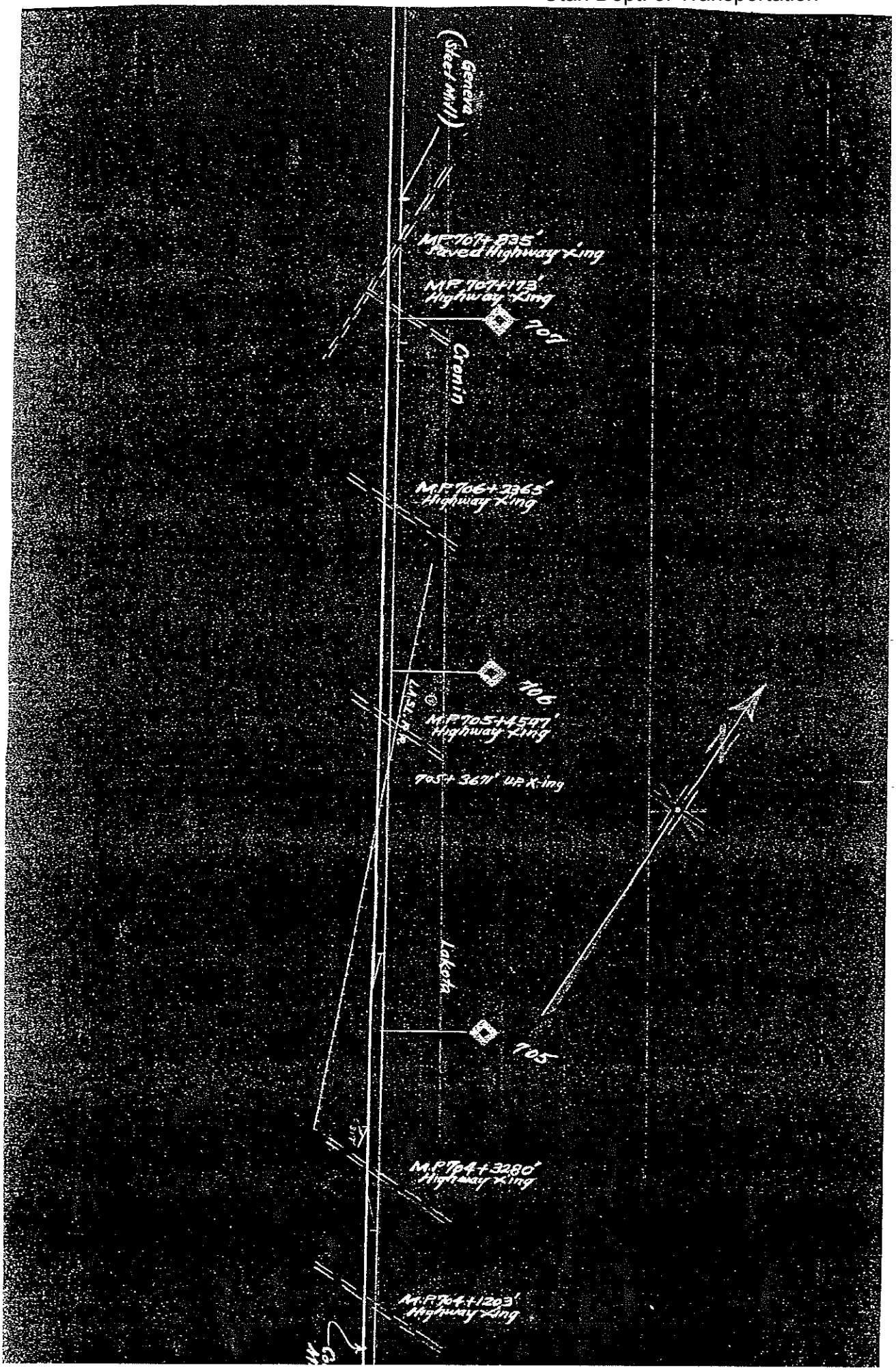
Very truly yours,

Robert L. Wilson
Utah County Surveyor

RLW/bcb


709
MP 708+2240'
End Proposed
2nd Main Track
Levee
MP 708+995'
Highway Xing
708
Geneva
(Steel Mill)
MP 707+835'
Paved Highway Xing
MP 707+173'
Highway Xing
707
Cronin
MP 706+2365'
Highway Xing

Union Pacific Railroad Company
Utah Dept. of Transportation



Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of UNION PACIFIC RAILROAD COMPANY, a corporation, for permission to construct an industry track at grade over and across a public highway in the vicinity of Geneva, Utah County, Utah, known and designated as U-114.

AMENDED APPLICATION

Case 2714

Comes now the Union Pacific Railroad Company and respectfully shows:

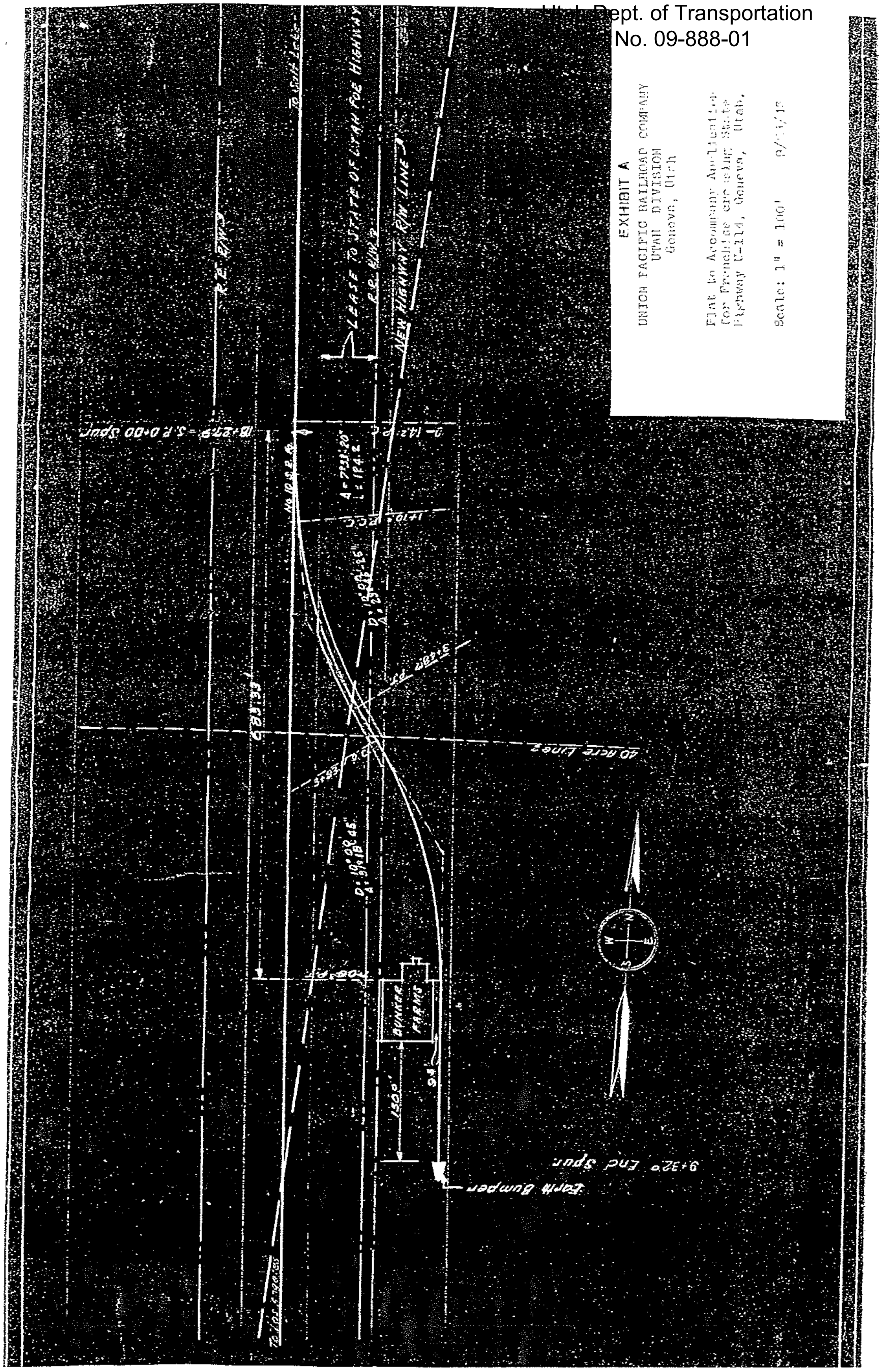
1. That it is a corporation organized under and existing by virtue of the laws of the State of Utah, and owns and operates over a large number of tracks in the State of Utah as well as in other states and is a common carrier for hire of freight, passengers, baggage and express.

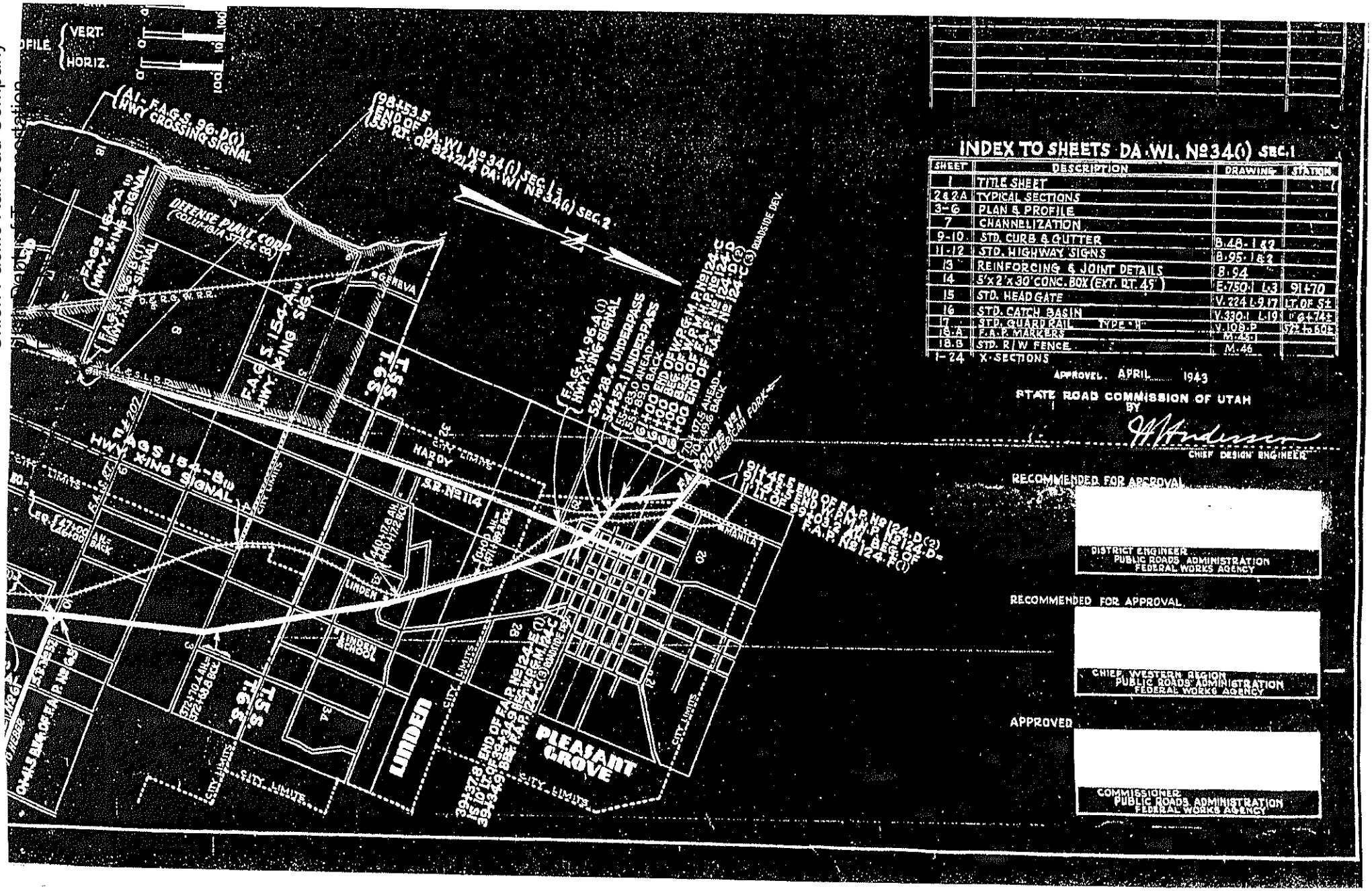
2. That in the vicinity of the town of Geneva, Utah, Antoine L. Bunker and E. Carlyle Bunker, a copartnership doing business under the name and style of Bunker Farms, own and operate a feed mill known as the Bunker Feed Mill; that said copartnership receives shipments of grains from Utah and eastern points, including the soya bean meal from the East, fish meal from California, flour from all Utah points and salt from Salt Lake City, and grinds and mixes the same into feed which is sold direct to the farmers.

3. That at the present time said copartnership hereinbefore referred to have no rail facilities which serve their warehouse and feed mill and they receive shipments from time to time in carload lots and are required, because of a lack of rail connection, to truck the same for approximately one mile to their place of business; that they have made application to the Union Pacific Railroad Company for the construction of a spur track over and across Utah Highway No. 114, at a point more particularly described as follows:

> A 17 ft. strip of ground (8.5 ft. on each side of the center line of said spur track), located in the NE 1/4 of the SE 1/4 of section 8; also in the SW 1/4 of the SW 1/4 of section 9, T. 6 S., R. 2 E., S.L.B.& M. The center line of said track and said strip of ground is described as follows:
>
> Beginning at a point which is 33 ft. perpendicularly distant easterly from the center line of the U.P. R.R. Co.'s

Union Pacific Railroad Company
Utah Dept. of Transportation
No. 09-888-01





INDEX TO SHEETS DA-WI. Nº 34(1) SEC. 1

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7	CHANNELIZATION		
9-10	STD. CURB & GUTTER	B.48-1 & 2	
11-12	STD. HIGHWAY SIGNS	B.95-1 & 2	
13	REINFORCING & JOINT DETAILS	B.94	
14	5'x2'x30' CONC. BOX (EXT. RT. 45°)	E-750-1 L.3	91+70
15	STD. HEADGATE	V.224 L.9.17	LT. OF ℄
16	STD. CATCH BASIN	V.330-1 L.19	" ℄ 74±
17	STD. GUARD RAIL TYPE "H"	V.109-P	672± to 804±
18-A	F.A.P. MARKERS	M.45	
18-B	STD. R/W FENCE	M.46	
1-24	X-SECTIONS		

APPROVED APRIL 1943

STATE ROAD COMMISSION OF UTAH

BY

CHIEF DESIGN ENGINEER

RECOMMENDED FOR APPROVAL

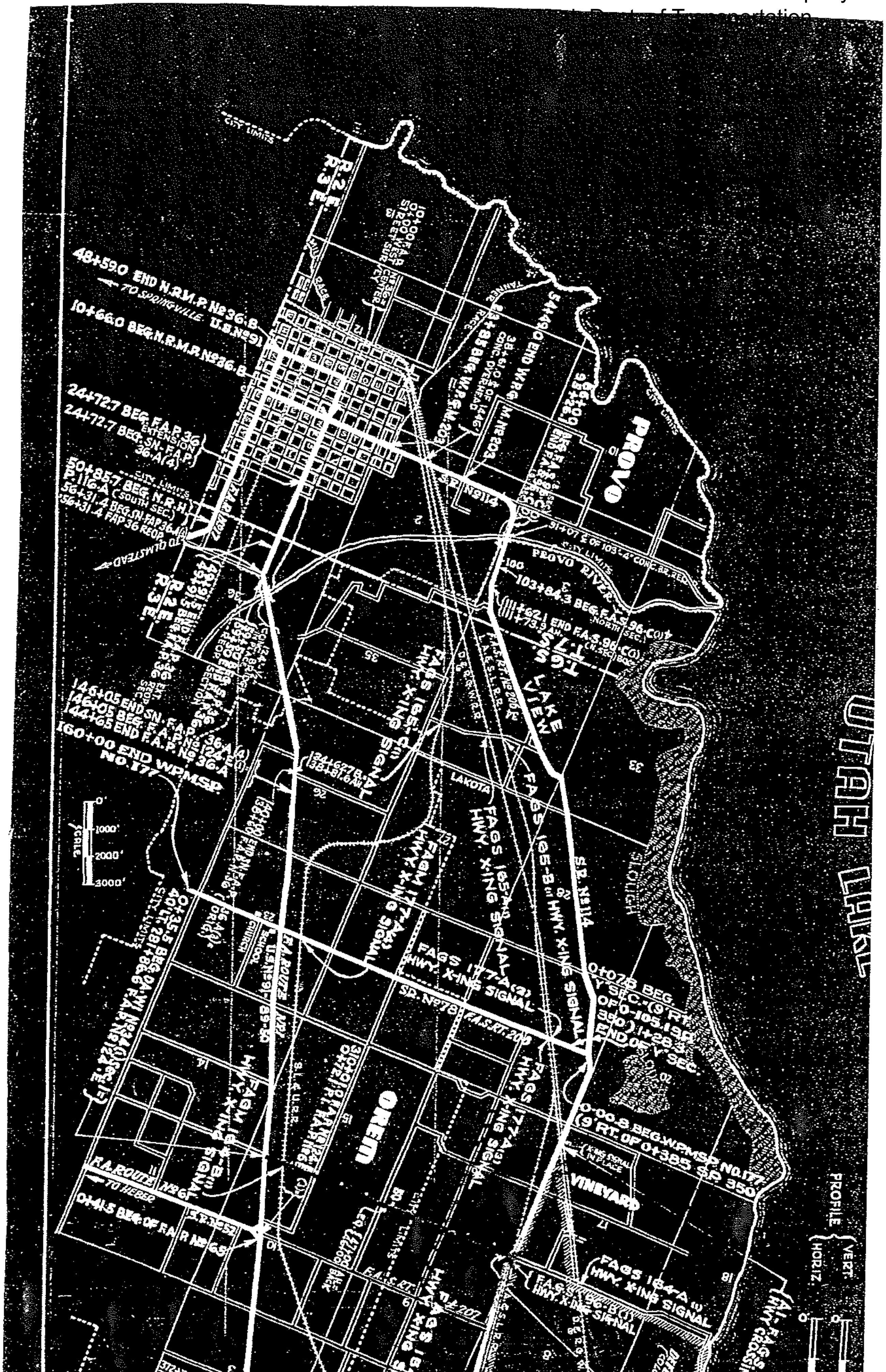
DISTRICT ENGINEER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

RECOMMENDED FOR APPROVAL

CHIEF, WESTERN REGION
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY

APPROVED

COMMISSIONER
PUBLIC ROADS ADMINISTRATION
FEDERAL WORKS AGENCY


UTAH LAKE
PROVO
OREM
VINEYARD
PROVO RIVER
LAKE VIEW
LAKOTA
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TO SPRINGVILLE U.S. No 91
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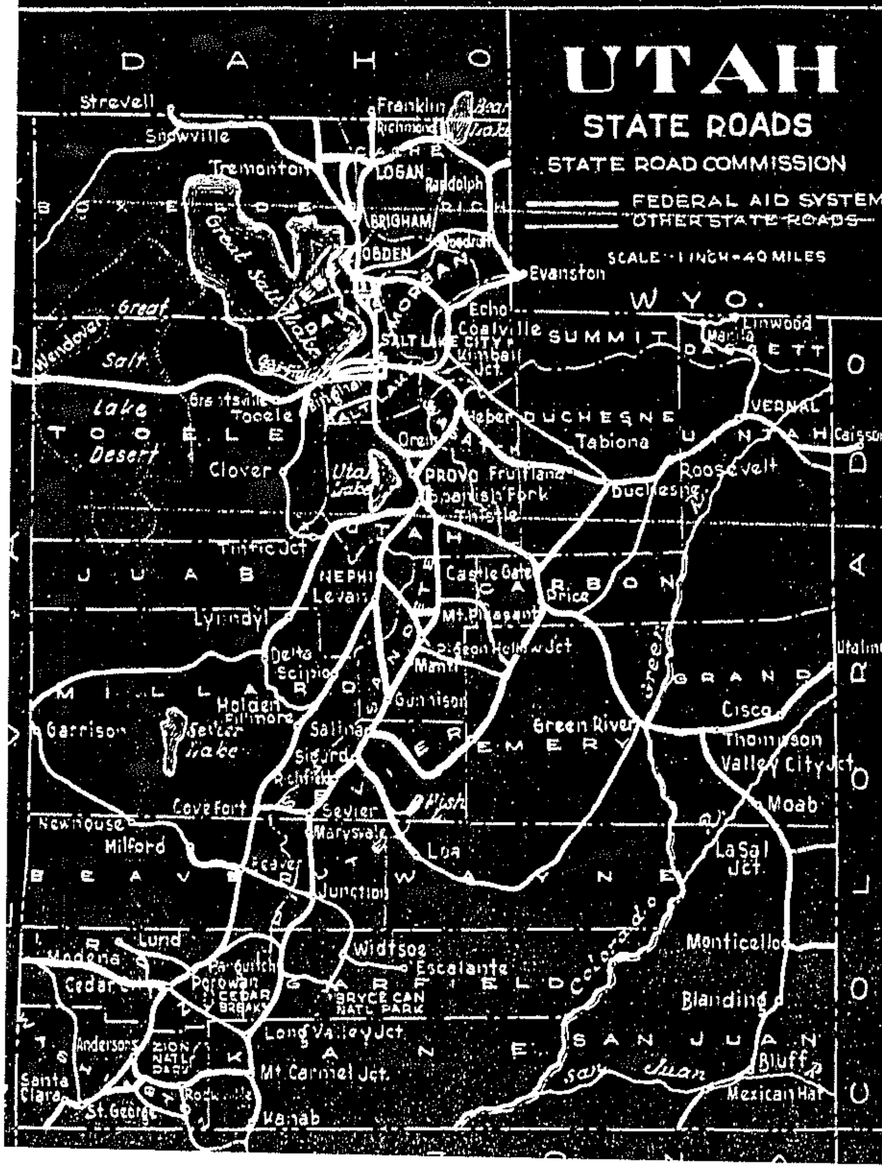

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R.R. ...
D.A.-W.I. No. 34

E OF UTAH
AD COMMISSION

ROPOSED STATE ROAD
ERAL AID PROJECT

VO - VINEYARD
6-C(1) LENGTH 0.322 MILES
HWAY X-ING SIGNALS

)SEC.1 LENGTH 1.840 MILES

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
12	UTAH	96-C(1)	1940	1	17
12	UTAH	F.A.G.S. 165-B(1)	1940	1	4
12	"	F.A.G.S. 165-A(1)	1940	1	4
12	"	F.A.G.S. 165-C(1)	1941	1	4
12	"	F.A.G.S. 177-A(2)	1940	1	4
12	"	F.A.G.S. 177-A(3)	1940	1	4
12	"	F.A.G.M. 177-A(4)	1941	1	4
12	"	F.A.G.S. 164-A(1)	1940	1	4
12	"	F.A.G.M. 164-B(1)	1941	1	4
12	"	F.A.G.S. 154-B(1)	1941	1	4
12	"	F.A.G.S. 164-A(1)	1940	1	4
12	"			1	
12	"	P.A.-W. 324(1)	1943	1	18

INDEX TO SHEETS F.A.G.

SHEET	DESCRIPTION	DRWG.
1	Title Sheet	
2	Situation Plan	
3	Accessories & Signal Equ	
4	Wiring Diagram	

INDEX TO SHEETS F.A.S. No. 96-C (1)

SHEET No.	DESCRIPTION	DRAWING No.	STATION
1	TITLE SHEET		
2	TYPICAL SECTION		
3-4	PLAN AND PROFILE		
5-16	103'-4" 0 to 0 CONC. BRIDGE	C-199	91+07
17-A	F.A.P. AND R/W MARKERS	J-391 RS	
17-B	WIDEN AND SUPER CURVES	J-479	

U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 1/29/2009

Crossing No.: *254903N* Update Reason: *Changed Crossing* Effective Begin-Date of Record: *04/01/99*
Railroad: *UP Union Pacific RR Co. [UP]* End-Date of Record:
Initiating Agency *State* Type and Position: *Public At Grade*

Part I Location and Classification of Crossing

Division:	*DENVER*	State:	*UT*
Subdivision:	*6*	County:	*UTAH*
Branch or Line Name:	*MAINLINE*	City:	*Near OREM*
Railroad Milepost:	*0708.19*	Street or Road Name:	*WGATE ON WGENEVA*
RailRoad I.D. No.:	*WA 708.19*	Highway Type & No.:	
Nearest RR Timetable Stn:		HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	*25-3-11*
Crossing Owner:		Latitude:	*40.2918010*
ENS Sign Installed:		Longitude:	*-111.7331010*
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	*0*	Quiet Zone:	*No*
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category: Public Access:
Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D
Railroad Use:
State Use:

Narrative:

Emergency Contact: *(800)848-8715* Railroad Contact: State Contact:

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: *No*
Total Trains: *20* Total Switching: *0* Day Thru: *10*
Typical Speed Range Over Crossing: From *45* to *60* mph Maximum Time Table Speed: *70*
Type and Number of Tracks: Main: *1* Other *1* Specify: *SIDING*
Does Another RR Operate a Separate Track at Crossing? *No*
Does Another RR Operate Over Your Track at Crossing? *No*

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U.S. DOT - CROSSING INVENTORY INFORMATION
Continued

Crossing *254903N* Effective Begin-Date of Record: *04/01/99*
End-Date of Record:

Part III: Traffic Control Device Information

Signs:

Crossbucks:	*0*	Highway Stop Signs:	*0*
Advanced Warning:	*Yes*	Hump Crossing Sign:	
Pavement Markings:	*No Markings*	Other Signs: *0* Specify: *0*	

Train Activated Devices:

Gates:	*2*	4 Quad or Full Barrier:	
Mast Mounted FL:	*2*	Total Number FL Pairs:	*0*
Cantilevered FL (Over):	*0*	Cantilevered FL (Not over):	*0*
Other Flashing Lights:	*0*	Specify Other Flashing Lights:	
Highway Traffic Signals:	*0*	Wigwags: *0* Bells: *1*	
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	*DC/AFO*
Track Equipped with Train Signals?	*Yes*	Traffic Light Interconnection/Preemption:	*N/A*

Part IV: Physical Characteristics

Type of Development:	*Industrial*	Smallest Crossing Angle:	*60 to 90 Degrees*
Number of Traffic Lanes Crossing Railroad:	*4*	Are Truck Pullout Lanes Present?	*No*
Is Highway Paved?	*Yes*		
Crossing Surface:	*Timber*	If Other:	
Nearby Intersecting Highway?	*Less than 75 feet*	Is it Signalized?	
Does Track Run Down a Street?	*No*	Is Crossing Illuminated?	
Is Commercial Power	*Yes*		

Part V: Highway Information

Highway System:	*Non-Federal-aid*	Functional Classification of Road at Crossing:	*Urban Local*
Is Crossing on State Highway System:	*No*		
Annual Average Daily Traffic (AADT):	*003725*	AADT Year:	*1988*
Estimated Percent Trucks:	*10*	Avg. No of School Buses per Day:	*0*
Posted Highway Speed:	*0*		

U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 1/29/2009

Crossing No.: *254903N* Update Reason: *Changed Crossing* Effective Begin-Date of Record: *04/01/99*
Railroad: *UP Union Pacific RR Co. [UP]* End-Date of Record:
Initiating Agency *State* Type and Position: *Public At Grade*

Part I Location and Classification of Crossing

Division:	*DENVER*	State:	*UT*
Subdivision:	*6*	County:	*UTAH*
Branch or Line Name:	*MAINLINE*	City:	*Near OREM*
Railroad Milepost:	*0708.19*	Street or Road Name:	*WGATE ON WGENEVA*
RailRoad I.D. No.:	*WA 708.19*	Highway Type & No.:	
Nearest RR Timetable Stn:		HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	*26-3-11*
Crossing Owner:		Latitude:	*40.2916010*
ENS Sign Installed:		Longitude:	*-111.7331010*
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	*0*	Quiet Zone:	*No*
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category: Public Access:
Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:
State Use:
Narrative:

Emergency Contact: *(800)848-8715* Railroad Contact: State Contact:

Part II Railroad Information

Number of Daily Train Movements:		Less Than One Movement Per Day:	*No*
Total Trains:	*20* Total Switching: *.0*	Day Thru:	*10*
Typical Speed Range Over Crossing: From	*45* to *50* mph	Maximum Time Table Speed:	*70*
Type and Number of Tracks: Main:	*1* Other *1*	Specify:	*SIDING*

Does Another RR Operate a Separate Track at Crossing? *No*
Does Another RR Operate Over Your Track at Crossing? *No*

U.S. DOT - CROSSING INVENTORY INFORMATION
Continued

Crossing *254903N* Effective Begin-Date of Record: *04/01/99*
End-Date of Record:

Part III: Traffic Control Device Information

Signs:

Crossbucks:	*0*	Highway Stop Signs:	*0*
Advanced Warning:	*Yes*	Hump Crossing Sign:	
Pavement Markings:	*No Markings*	Other Signs: *0* Specify: *0*	

Train Activated Devices:

Gates:	*2*	4 Quad or Full Barrier:	
Mast Mounted FL:	*2*	Total Number FL Pairs:	*0*
Cantilevered FL (Over):	*0*	Cantilevered FL (Not over):	*0*
Other Flashing Lights:	*0*	Specify Other Flashing Lights:	
Highway Traffic Signals:	*0*	Wigwags: *0* Bells: *1*	
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	*DC/AFO*
Track Equipped with Train Signals?	*Yes*	Traffic Light Interconnection/Preemption:	*N/A*

Part IV: Physical Characteristics

Type of Development:	*Industrial*	Smallest Crossing Angle:	*60 to 90 Degrees*
Number of Traffic Lanes Crossing Railroad:	*4*	Are Truck Pullout Lanes Present?	*No*
Is Highway Paved?	*Yes*		
Crossing Surface:	*Timber*	If Other:	
Nearby Intersecting Highway?	*Less than 75 feet*	Is It Signalized?	
Does Track Run Down a Street?	*No*	Is Crossing Illuminated?	
Is Commercial Power	*Yes*		

Part V: Highway Information

Highway System:	*Non-Federal-aid*	Functional Classification of Road at Crossing:	*Urban Local*
Is Crossing on State Highway System:	*No*		
Annual Average Daily Traffic (AADT):	*003725*	AADT Year:	*1988*
Estimated Percent Trucks:	*10*	Avg. No of School Buses per Day:	*0*
Posted Highway Speed:	*0*		

U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 1/29/2009

Crossing No.: *254903N* Update Reason: *Changed Crossing* Effective Begin-Date of Record: *04/01/98*
Railroad: *UP Union Pacific RR Co. [UP]* End-Date of Record: *03/31/99*
Initiating Agency *Railroad* Type and Position: *Public At Grade*

Part I Location and Classification of Crossing

Division:	*DENVER*	State:	*UT*
Subdivision:	*6*	County:	*UTAH*
Branch or Line Name:	*MAINLINE*	City:	*Near OREM*
Railroad Milepost:	*0708.19*	Street or Road Name:	*400 NORTH*
RailRoad I.D. No.:	*WA 708.19*	Highway Type & No.:	
Nearest RR Timetable Stn:		HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	*25-3-11*
Crossing Owner:		Latitude:	*40.2918010*
ENS Sign Installed:		Longitude:	*-111.7331010*
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	*0*	Quiet Zone:	
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category: Public Access:
Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:
State Use:
Narrative:

Emergency Contact: Railroad Contact: State Contact:

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: *No*
Total Trains: *20* Total Switching: *0* Day Thru: *10*
Typical Speed Range Over Crossing: From *45* to *50* mph Maximum Time Table Speed: *70*
Type and Number of Tracks: Main: *1* Other *1* Specify: *SIDING*

Does Another RR Operate a Separate Track at Crossing? *No*
Does Another RR Operate Over Your Track at Crossing? *No*

U.S. DOT - CROSSING INVENTORY INFORMATION
Continued

Crossing *254903N* Effective Begin-Date of Record: *04/01/98*
End-Date of Record: *03/31/99*

Part III: Traffic Control Device Information

Signs:

Crossbucks:	*0*	Highway Stop Signs:	*0*
Advanced Warning:	*Yes*	Hump Crossing Sign:	
Pavement Markings:	*No Markings*	Other Signs: *0* Specify: *0*	

Train Activated Devices:

Gates:	*2*	4 Quad or Full Barrier:	
Mast Mounted FL:	*2*	Total Number FL Pairs:	*0*
Cantilevered FL (Over):	*0*	Cantilevered FL (Not over):	*0*
Other Flashing Lights:	*0*	Specify Other Flashing Lights:	
Highway Traffic Signals:	*0*	Wigwags: *0* Bells: *1*	
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	*DC/AFO*
Track Equipped with Train Signals?	*Yes*	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

Type of Development:	*Industrial*	Smallest Crossing Angle:	*60 to 90 Degrees*
Number of Traffic Lanes Crossing Railroad:	*4*	Are Truck Pullout Lanes Present?	*No*
Is Highway Paved?	*Yes*		
Crossing Surface:	*Timber*	If Other:	
Nearby Intersecting Highway?	*Less than 75 feet*	Is it Signalized?	
Does Track Run Down a Street?	*No*	Is Crossing Illuminated?	
Is Commercial Power	*Yes*		

Part V: Highway Information

Highway System:	*Non-Federal-aid*	Functional Classification of Road at Crossing:	*Urban Local*
Is Crossing on State Highway System:	*No*		
Annual Average Daily Traffic (AADT):	*003725*	AADT Year:	*1998*
Estimated Percent Trucks:	*10*	Avg. No of School Buses per Day:	*0*
Posted Highway Speed:	*0*		

U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 1/29/2009

Crossing No.: *254903N* Update Reason: *Changed Crossing* Effective Begin-Date of Record: *07/15/94*
Railroad: *DRG W Denver & Rio Grande Western RR Co. [DRGW]* End-Date of Record: *03/31/98*
Initiating Agency *Railroad* Type and Position: *Public At Grade*

Part I Location and Classification of Crossing

Division:	*DENVER*	State:	*UT*
Subdivision:	*6*	County:	*UTAH*
Branch or Line Name:	*MAINLINE*	City:	*Near OREM*
Railroad Milepost:	*0705.19*	Street or Road Name:	*400 NORTH*
RailRoad I.D. No.:	*WA 705.19*	Highway Type & No.:	
Nearest RR Timetable Stn:		HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	*25-3-11*
Crossing Owner:		Latitude:	*40.2918010*
ENS Sign Installed:		Longitude:	*-111.7331010*
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	*0*	Quiet Zone:	
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category: Public Access:
Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D
Railroad Use:
State Use:

Narrative:

Emergency Contact: Railroad Contact: State Contact:

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: *No*
Total Trains: *20* Total Switching: *0* Day Thru: *10*
Typical Speed Range Over Crossing: From *45* to *50* mph Maximum Time Table Speed: *70*
Type and Number of Tracks: Main: *1* Other *1* Specify: *SIDING*

Does Another RR Operate a Separate Track at Crossing? *No*
Does Another RR Operate Over Your Track at Crossing? *No*

U.S. DOT - CROSSING INVENTORY INFORMATION
Continued

Crossing *254903N* Effective Begin-Date of Record: *07/15/94*
End-Date of Record: *03/31/98*

Part III: Traffic Control Device Information

Signs:

Crossbucks:	*0*	Highway Stop Signs:	*0*
Advanced Warning:	*Yes*	Hump Crossing Sign:	
Pavement Markings:	*No Markings*	Other Signs: *0* Specify: *0*	

Train Activated Devices:

Gates:	*2*	4 Quad or Full Barrier:	
Mast Mounted FL:	*2*	Total Number FL Pairs:	*0*
Cantilevered FL (Over):	*0*	Cantilevered FL (Not over):	*0*
Other Flashing Lights:	*0*	Specify Other Flashing Lights:	
Highway Traffic Signals:	*0*	Wigwags: *0* Bells: *1*	
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	*DC/AFO*
Track Equipped with Train Signals?	*Yes*	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

Type of Development:	*Industrial*	Smallest Crossing Angle:	*60 to 90 Degrees*
Number of Traffic Lanes Crossing Railroad:	*4*	Are Truck Pullout Lanes Present?	*No*
Is Highway Paved?	*Yes*		
Crossing Surface:	*Timber*	If Other:	
Nearby Intersecting Highway?	*Less than 75 feet*	Is it Signalized?	
Does Track Run Down a Street?	*No*	Is Crossing Illuminated?	
Is Commercial Power	*Yes*		

Part V: Highway Information

Highway System:	*Non-Federal-aid*	Functional Classification of Road at Crossing:	*Urban Local*
Is Crossing on State Highway System:	*No*		
Annual Average Daily Traffic (AADT):	*003725*	AADT Year:	*1988*
Estimated Percent Trucks:	*10*	Avg. No of School Buses per Day:	*0*
Posted Highway Speed:	*0*		

U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 1/29/2009

Crossing No.: *254903N* Update Reason: *Changed Crossing* Effective Begin-Date of Record: *12/02/88*
Railroad: *DRGW Denver & Rio Grande Western RR Co. [DRGW]* End-Date of Record: *07/14/94*
Initiating Agency *State* Type and Position: *Public At Grade*

Part I Location and Classification of Crossing

Division:	*UTAH*	State:	*UT*
Subdivision:	*6*	County:	*UTAH*
Branch or Line Name:	*MAINLINE*	City:	*Near OREM*
Railroad Milepost:	*0708.19*	Street or Road Name:	*4000NORTH*
RailRoad I.D. No.:		Highway Type & No.:	
Nearest RR Timetable Stn:	*GENEVA*	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	*25-3-11*
Crossing Owner:		Latitude:	*40.2918010*
ENS Sign Installed:		Longitude:	*-111.7331010*
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	*0*	Quiet Zone:	
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category: Public Access:
Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D
Railroad Use:
State Use:

Narrative:

Emergency Contact: Railroad Contact: State Contact:

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: *No*
Total Trains: *20* Total Switching: *0* Day Thru: *10*
Typical Speed Range Over Crossing: From *45* to *60* mph Maximum Time Table Speed: *70*
Type and Number of Tracks: Main: *1* Other *1* Specify: *SWITCHING*

Does Another RR Operate a Separate Track at Crossing? *No*
Does Another RR Operate Over Your Track at Crossing? *No*

U.S. DOT - CROSSING INVENTORY INFORMATION
Continued

Crossing *254903N* Effective Begin-Date of Record: *12/02/88*
End-Date of Record: *07/14/94*

Part III: Traffic Control Device Information

Signs:

Crossbucks:	*0*	Highway Stop Signs:	*0*
Advanced Warning:	*Yes*	Hump Crossing Sign:	
Pavement Markings:	*No Markings*	Other Signs: *0* Specify: *0*	

Train Activated Devices:

Gates:	*2*	4 Quad or Full Barrier:	
Mast Mounted FL:	*2*	Total Number FL Pairs:	*0*
Cantilevered FL (Over):	*0*	Cantilevered FL (Not over):	*0*
Other Flashing Lights:	*0*	Specify Other Flashing Lights:	
Highway Traffic Signals:	*0*	Wigwags: *0* Bells: *1*	
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	*DC/AFO*
Track Equipped with Train Signals?	*Yes*	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

Type of Development:	*Industrial*	Smallest Crossing Angle:	*60 to 90 Degrees*
Number of Traffic Lanes Crossing Railroad:	*2*	Are Truck Pullout Lanes Present?	*No*
Is Highway Paved?	*Yes*		
Crossing Surface:	*Timber*	If Other:	
Nearby Intersecting Highway?	*Less than 75 feet*	Is it Signalized?	
Does Track Run Down a Street?	*No*	Is Crossing Illuminated?	
Is Commercial Power	*Yes*		

Part V: Highway Information

Highway System:	*Non-Federal-aid*	Functional Classification of Road at Crossing:	*Urban Local*
Is Crossing on State Highway System:	*No*		
Annual Average Daily Traffic (AADT):	*003726*	AADT Year:	*1988*
Estimated Percent Trucks:	*10*	Avg. No of School Buses per Day:	*0*
Posted Highway Speed:	*0*		

U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 1/29/2009

Crossing No.: *254503N* Update Reason: *New Crossing* Effective Begin-Date of Record: *01/01/70*
Railroad: *DRG W Denver & Rio Grande Western RR Co. [DRGW]* End-Date of Record: *12/01/88*
Initiating Agency *Original* Type and Position: *Public At Grade*

Part I Location and Classification of Crossing

Division:	*UTAH*	State:	*UT*
Subdivision:	*6*	County:	*UTAH*
Branch or Line Name:	*MAINLINE*	City:	*Near OREM*
Railroad Milepost:	*0708.19*	Street or Road Name:	*4000NORTH*
RailRoad I.D. No.:		Highway Type & No.:	
Nearest RR Timetable Stn:	*GENEVA*	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	*25-3-11*
Crossing Owner:		Latitude:	
ENS Sign Installed:		Longitude:	
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	*0*	Quiet Zone:	
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category: Public Access:
Specify Signs: Specify Signals:

	ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:				
State Use:				

Narrative:

Emergency Contact: Railroad Contact: State Contact:

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: *No*
Total Trains: *20* Total Switching: *0* Day Thru: *10*
Typical Speed Range Over Crossing: From *45* to *50* mph Maximum Time Table Speed: *70*
Type and Number of Tracks: Main: *1* Other *1* Specify: *SWITCHING*
Does Another RR Operate a Separate Track at Crossing? *No*
Does Another RR Operate Over Your Track at Crossing? *No*

U.S. DOT - CROSSING INVENTORY INFORMATION
Continued

Crossing *254503N* Effective Begin-Date of Record: *01/01/70*
End-Date of Record: *12/01/88*

Part III: Traffic Control Device Information

Signs:

Crossbucks:	*0*	Highway Stop Signs:	*0*
Advanced Warning:	*No*	Hump Crossing Sign:	
Pavement Markings:	*No Markings*	Other Signs: *0* Specify: *0*	

Train Activated Devices:

Gates:	*2*	4 Quad or Full Barrier:	
Mast Mounted FL:	*2*	Total Number FL Pairs:	*0*
Cantilevered FL (Over):	*0*	Cantilevered FL (Not over):	*0*
Other Flashing Lights:	*0*	Specify Other Flashing Lights:	
Highway Traffic Signals:	*0*	Wigwags: *0* Bells: *1*	
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	*DC/AFO*
Track Equipped with Train Signals?	*Yes*	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

Type of Development:	*Industrial*	Smallest Crossing Angle:	*60 to 90 Degrees*
Number of Traffic Lanes Crossing Railroad:	*2*	Are Truck Pullout Lanes Present?	*No*
Is Highway Paved?	*Yes*		
Crossing Surface:	*Timber*	If Other:	
Nearby Intersecting Highway?	*Less than 75 feet*	Is It Signalized?	
Does Track Run Down a Street?	*No*	Is Crossing Illuminated?	
Is Commercial Power	*Yes*		

Part V: Highway Information

Highway System:	*Non-Federal-aid*	Functional Classification of Road at Crossing:	*Urban Local*
Is Crossing on State Highway System:	*No*		
Annual Average Daily Traffic (AADT):	*003725*	AADT Year:	
Estimated Percent Trucks:	*10*	Avg. No of School Buses per Day:	*0*
Posted Highway Speed:	*0*		

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Attorneys for Anderson Entities

- BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH -

In the Matter of Union Pacific Railroad's Petition for Relief against the Utah Department of Transportation	**ANDERSON ENTITIES' RESPONSE TO UNION PACIFIC'S DISCOVERY REQUESTS, SET ONE** DOCKET NO. 09-888-01

Anderson Geneva, LLC, Ice Castle Retirement Fund L.L.C., and Anderson Geneva Development, Inc. (collectively "Anderson entities"), by and through their legal counsel hereby respond to Union Pacific Railroad's ("UP") first set of discovery requests as follows:

INTERROGATORIES

Interrogatory No. 1. State the name and title of each person contributing information and/or documents for your answers to the interrogatories and responses to the requests for production of documents and identify the subject matter of each person's contribution.

Jerry Grover, P.E.; William Fowler, Russell Christensen

Interrogatory No.2. Identify each individual who has knowledge or information relevant to this matter. If you intend to call any of the named individuals to testify at the hearing of this matter, please so indicate in your response.

Individuals who may have knowledge: Russell L. Christensen, Dan Seegmiller, Ron Livingston, Jerry Grover, John McMullin (Utah County Public Works); Ken Bringhurst (Utah County Public Works), Mike Curtis, Don Overson (City Engineer, Town of Vineyard), Eric

Cheng (UDOT), Jim Marshall (Union Pacific).

Interrogatory No. 3. Identify each testifying expert you have retained in this matter. For each expert, state his/her name, qualifications, and the subject matter of his/her, expertise.

Kent Barney, Land Surveyor, Northern Engineering (Kent Barney) 1040 East 800 North, Orem, Utah 84097.

Interrogatory No. 4. State the date on which the Anderson entities acquired the former Geneva Works property and summarize development-related activities from the date of acquisition to the present.

Property acquired December 23, 2005. Since acquiring property, masterplan and zoning have been completed with road plans and land uses described. Redevelopment agency has been adopted with plans and budgets for infrastructure being completed. Marketing is being conducted within the area of the crossing. Development has occurred for industrial and commercial uses at the north end of the property.

Interrogatory No. 5. State all facts relevant to the determination whether the railroad grade crossing at issue in this matter is private or public.

(a) The history of the road prior to 1975 is that before Geneva Steel was purchased, 400 North was a through county road established at least as early as the 1920's. When the plant was built, the County Commission vacated only the county roads that lay within the legal description of the Geneva plant property. The crossing was not vacated and has been continually used since that time as a public roadway.

(b) 400 North, including the crossing, is a city street within Vineyard Town. To our knowledge the Town of Vineyard has not currently given UTA any permissions or required permits to modify the 400 North crossing in any way, including removal of safety and crossing structures.

(c) In order to vacate any portion of 400 North as a public highway and street, an

extensive notice and hearing process is required under Utah Code 10-8-8.1 through 10-8-8.4 None of the required actions have been taken to legally vacate the road, so closing of the 400 North crossing would not be in conformance with State required procedures.

(d) Publicly available maps created by Utah County, D&RG Railroad, and Utah State Road Commission (predecessor to UDOT), prior to the Geneva Property acquisition by the Department of Defense show that there was a public road which ran along the section line and over the Crossing.

(e) During the period of time the plant operated, an open public road existed into the Geneva property to a parking area. Further entry into the plant from the parking area was governed by gates. This entry was primarily used by employees, but thousands of trips per day, vehicular and pedestrian, occurred at the Crossing by employees of Geneva Steel and by non-employees.

(f) The Federal Railroad Administration, U.S. DOT Crossing Inventory Information ("Inventory") reflects the Crossing as a Public at-Grade Crossing No. 254903N as of 1/29/2009. This Inventory shows that the Crossing was entered into the system approximately January 1, 1970, and classified as a "Public at Grade" crossing. The database was updated on December 2, 1988, July 15, 1994, April 1, 1998, April 1, 1999. All of these updates retain the classification of "Public at Grade" crossing. The 1988 and 1999 updates to the FRA database show UDOT to be the initiator of the update, and the 1994 and 1998 updates show Union Pacific to be the initiator of the update. The current database as of March 25, 2009 continued to reflect a "Public at Grade" crossing. The only parties who can create this Inventory or update this Inventory are UP or UDOT. The Inventory was established under federal law to create a registry that State departments of transportation, railroads, municipalities and the public could rely on and review

for an inventory and status of crossings within their respective borders.

(g) UP employees have acknowledged that internally, their own system showed the Crossing as a Public at-Grade Crossing until UTA recently initiated its commuter rail activities.

(h) A D&RG Railroad Map dated in 1927 (which states that it was correcting a 1919 map) shows the Crossing as a "highway crossing", with a railroad warning sign at the Crossing. It is obviously an at-grade crossing. The 1927 Map was filed by requirement of State law.

(i) Property survey plotting of the Utah County resolution vacating roads within the Geneva property show that it did not include the public roadway crossing within the UP right of way.

(j) UP representatives have acknowledged that the 400 North roadway was public in 1939.

(k) The Public Service Commission determined on August 7, 1943, in a matter initiated by D.&R.G.W. Railroad Company (predecessor to UP), and agreed upon by UDOT and Utah County, that this crossing was a public crossing.

(l) A similar filing was made with the Public Service Commission by D.&R.G.W. in April 1943.

(m) No actions of any party have been taken to vacate the public road over the tracks of UP or to modify the status as a public highway.

Interrogatory No. 6. State all facts supporting the contention that the public regularly used the Crossing and used the area east of the Crossing between 1942 and the present.

See Response to Interrogatory No. 5. In addition, the Town of Vineyard has expressly identified the roadway as a public crossing and a public roadway.

Interrogatory No. 7. State the date on which the fence was placed on the east side of the Crossing and the date on which the fence was removed.

The fence has existed since 1942. There has been no removal of fence. Recently, based on the surveillance conducted by UDOT, the gate was opened and turn around area re-established to avoid any safety concerns for the traveling public.

Interrogatory No. 8. State that date on which the Town of Vineyard approved the Road Master Plan showing that 400 North Street is master-planned as a primary through-road.

November 15, 2008.

Interrogatory No. 9. State the date of the earliest Town of Vineyard General Plan map showing that 400 North Street is master-planned as a primary through-road.

November 15, 2008.

Interrogatory No. 10. Identify all facts that support the contention that the Crossing is a necessary and vital part of the Vineyard Town transportation structure.

The road is part of the Vineyard Town masterplan.

PRODUCTION OF DOCUMENTS

Respondent has compiled and prepared for review and copying the following documents. Such documents are available at the office of legal counsel for review and copying during business hours and on reasonable notice.

Request No. 1. Produce all documents identified in Answers to Interrogatories or used to answer the foregoing Interrogatories.

(1) "Reclamation Map of Portion of Utah County, Utah", surveyed in 1922 by the Department of the Interior, U.S. Geological Survey, State of Utah, Utah County in cooperation with Utah County and the U.S. Reclamation Service. This map shows 400 N. crossing the tracks.

(2) "Reclamation Map of Portion of Utah County, Utah", surveyed in 1922 and 1925 by the Department of the Interior, U.S. Geological Survey, State of Utah, Utah County in cooperation with Utah County and the U.S. Reclamation Service. This map shows 400 N.

crossing the tracks.

(3) "Right of Way and Track Map", filed with the Utah County Recorder by the Denver & Rio Grande Railroad, June 30, 1919 corrected to December 31, 1927. This map shows a "County Road" crossing the tracks at 400 North and identifies it as a "Highway Crossing" and also identifies a crossed "Crossing Sign" as being present at the crossing.

(4) "Road Map of Utah County, Utah Showing County & State Roads", 1930, compiled and drawn by Hugo Price, Civil Engineer, Provo, Utah. This map shows the 400 N. crossing the tracks and classifies it as a "Gravel Surface & Allweather Roads".

(5) "General Highway Map, Utah County, Utah" January 1, 1937, prepared by the Utah State Road Commission in cooperation with the U.S. Department of Agriculture, Bureau of Public Roads, Data obtained from the State-wide Planning Survey. This map shows 400 N. crossing the tracks and classifies it as a "Bituminous Surfaced Road".

(6) Book "Our Vineyard Heritage A Wellspring of Tradition and Change, 1899-1999" published by Vineyard Town as part of the Centennial Celebration has:

Map 1 – "The Settlement of Vineyard Community, 1900's". This map shows 400 N. crossing the railroad track.

Map 2 -- "Vineyard Community Prior to the Coming of Geneva Steel, 1940" . This map shows 400 N. crossing the railroad track.

(7) Map entitled "Land Classification Map, Utah & Goshen Valleys, Utah County", 1943, by the Soil Survey Division Agronomy Department Utah Agricultural Station, Logan Utah. . This map shows 400 N. crossing the railroad track.

(8) "U.S. DOT - Crossing Inventory Information as of 1/29/2009" This is an online generated historical report and shows that the 400 N. crossing was entered into the system on

January 1, 1970 and classified as a "Public at Grade" crossing.

(9) Drawing GP-0388-1 General Plant Roads & Railroads, Railroad Crossing – West Gate, General Plan and Section, September 6, 1972.

(10) Utah County Aerial Photograph 50-26, April 6, 1980, shows cars in parking lot.

(11) Utah County Digital Orthophotography, NW ¼, T6S R2E, April 3, 1995, shows cars in parking lot.

(12) Commission Report and Tentative Order in Case No. 2710, before the Public Service Commission and associated documents, July-August, 1943.

(13) Case No 2714 before the Public Service Commission and associated documents, April, 1943.

(14) Geneva Park East Plat showing road and crossing dedication.

(15) Geneva Steel Drawing #31271, General Plant Roads & Railroads, Open Hearth Parking Area Location and Details, October 23, 1950.

(16) Columbia – Geneva Steel division, USS Steel Corporation, Drawing #509-A, Roads and Railroads, S. 1500 to S. 3000 – Baseline to W. 1000, March 16, 1956.

(17) Columbia Steel Corporation, Drawing #509, Roads and Railroads, S. 1500 to S. 3000 – Baseline to W. 1000, September 5, 1943.

(18) Construction pictures of the Geneva Plant that show the crossing from a distance, they are dated November 30, 1943 and February 23, 1944 where one can make out a crossing sign from each direction, with crossing lights mounted on the sign.

(19) When the U.S. DOT - Crossing Inventory was collected and entered (presumably on January 1, 1970) it shows that there were 2 mast mounted flag gates and that the track was equipped with train signals.

(20) August 3, 1942, the County Commission adopted a "Resolution and Order".

(21) Decision of Utah Department of Transportation dated January 20, 2009 making its finding that the crossing is a Public Crossing.

Request No. 2. Produce copies of all exhibits and/or demonstratives you intend to use at the hearing of this matter.

Anderson Geneva entities have not yet determined which exhibits or demonstrations will be utilized at a hearing but anticipate all of the items identified at Request No. 1 above may be utilized. In addition, Anderson entities may have its survey expert produce maps or demonstrations for the hearing.

Request No. 3. Produce copies of all maps or other drawings that depict the railroad Crossing and that are relevant to any matter at issue in this case.

See responses to foregoing productions Request.

Request No. 4. Produce all documents relating in any way to the designation of the Crossing as private or public.

See response to Request No. 1 above.

Request No. 5. Produce all documents related to any alternate access considered and/or rejected for consideration that would have supplemented or replaced the access provided by the Crossing.

None.

Request No. 6. Produce all documents showing that any public entity has conducted maintenance on the Crossing since 1942.

None.

Request No. 7. Produce all documents showing that the Crossing was used by the general public at any time between 1942 and the present.

See Response to Request No. 1 above.

Request No. 8. Produce all documents that refer to, relate to, or constitute the designation or redesignation of the Crossing as public in any database at any time.

See response to Request No. 1 above.

Request No. 9. Produce all documents that indicate levels of traffic over the Crossing between 1942 and the cessation of operations at Geneva Works.

See Response to Request No. 1 above.

Request No. 10. Produce all documents that support the assertion that Union Pacific has brought this action in bad faith.

See response to Request No. 1 above. In particular, the NRA reports and the 1939 filings and decisions with the Public Service Commission, and D.&R.G.W. maps in UP's possession.

Request No. 11. Produce all documents that support the assertion that actions taken or not taken by UDOT, Union Pacific, and/or UTA engineers with respect to the Crossing were based on bias.

Anderson entities have requested all notes and written reports of surveillance activity and meetings held between UP, UDOT and the Utah Transit Authority.

Request No. 12. Produce all documents that support the assertion that actions taken or not taken by UTA with respect to the Crossing were based on the desire to avoid the expense of improvements to the Crossing.

See response to Request No. 11 above.

Request No. 13. Produce all documents that support the assertion that the Public Service Commission previously has found that the Crossing is public.

(1) Commission Report and Tentative Order in Case No. 2710, before the Public Service Commission and associated documents, July-August, 1943.

(2) Case No 2714 before the Public Service Commission and associated documents, April, 1943.

Request No. 14. Produce all documents that state the projected increase in rail traffic after completion of UTA's commuter rail project.

See response to Request No. 11 above.

Request No. 15. Produce all documents that show the projected configuration of freight and commuter rail tracks at the Crossing after completion of UTA's commuter rail project.

See response to Request No. 11 above.

Request No. 16. Produce all documents that refer or relate to any reconfiguration of the Crossing, i.e., any repositioning of the angle of the road to the tracks, that has occurred between 1942 and the present, including documents that disclose why each reconfiguration was

accomplished, the party or parties that desired the reconfiguration, and any approvals obtained to perform the reconfiguration.

See response to Request No. 1 above.

Request No. 17. Produce all documents indicating the traffic signage and protections in place at the Crossing at any time since the Crossing was built.

See response to Request No. 1 above.

Request No. 18. Produce copies of the Town of Vineyard-approved Road Master Plan and the Town of Vineyard General Plan maps showing that the 400 North Street is master-planned as a primary through-road.

Anderson entities objects to this production request as such documents are publicly available from the Town of Vineyard. Nevertheless, Anderson entities has produced such documents on which it relies.

DATED this 26th day of January, 2010.

DENNIS M. ASTILL, PC LAW FIRM

By: _____
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Attorneys for Anderson Entities

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- BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH -

In the Matter of Union Pacific Railroad's Petition for Relief against the Utah Department of Transportation	**ANDERSON ENTITIES' RESPONSE TO UTAH DEPARTMENT OF TRANSPORTATION'S DISCOVERY REQUESTS** DOCKET NO. 09-888-01

Anderson Geneva, LLC, Ice Castle Retirement Fund L.L.C., and Anderson Geneva Development, Inc. (collectively "Anderson entities"), by and through their legal counsel hereby respond to Utah Department of Transportation's ("UDOT") discovery requests as follows:

INTERROGATORIES

Interrogatory No. 1. Identify each individual who has knowledge or information relevant to this matter. If you intend to call any of the named individuals to testify at the hearing of this matter, please so indicate in your response.

Individuals who may have knowledge: Russell L. Christensen, Dan Seegmiller, Ron Livingston, Jerry Grover, John McMullin (Utah County Public Works); Ken Bringhurst (Utah County Public Works), Mike Curtis, Don Overson (City Engineer, Town of Vineyard), Eric Cheng (UDOT), Jim Marshall (Union Pacific).

Interrogatory No. 2. Identify each testifying expert you have retained in this matter. For each expert, state his/her name, qualifications, and the subject matter of his/her, expertise.

Kent Barney, Land Surveyor, Northern Engineering (Kent Barney) 1040 East 800 North,

Orem, Utah 84097.

Interrogatory No. 3. State the date on which the Anderson entities acquired the former Geneva Works property and summarize development-related activities from the date of acquisition to the present.

Property acquired December 23, 2005. Since acquiring property, masterplan and zoning have been completed with road plans and land uses described. Redevelopment agency has been adopted with plans and budgets for infrastructure being completed. Marketing is being conducted within the area of the crossing. Development has occurred for industrial and commercial uses at the north end of the property.

Interrogatory No. 4. State the nature and frequency of the use by the Anderson Entities of the Crossing since the purchase of the Geneva Works or US Steel property.

Use during 2006 and 2007 was extensive with multiple contractors, workers, Anderson Geneva employees, and others using the Crossing daily. Use in 2008-2009 was more limited but continued for employees, contractors and workers.

Interrogatory No. 5. State who has used the Crossing other than the Anderson Entities and the purpose of entering the Anderson Entities' property.

Harsco Multi-Serv – slag removal on site; CST Environmental, Inc. – demolition and sale of buildings on site; H&K Railroad – demolition and sale of rail materials on site; UDOT – surveying and due diligence on site; Utah Transit Authority – surveying and due diligence on site; Grant Mackay Co. – demolition and salvage work on site; URS Corporation – environmental engineering; Southworth Co – demolition services; TRC – environmental services; JBR Environmental Consulting – environmental services; CH_2M Hill – environmental consulting and engineering; Central Utah Water Conservancy District – engineering, surveying, assessment of onsite wells; Universal Scrap Metals, Inc. – demolition and salvage activity; numerous contractors and laborers working for the above.

Interrogatory No. 6. State all facts supporting the contention that the public regularly used the Crossing and used the area east of the Crossing between 1942 and the present.

(a) The history of the road prior to 1975 is that before Geneva Steel was purchased, 400 North was a through county road established at least as early as the 1920's. When the plant was built, the County Commission vacated only the county roads that lay within the legal description of the Geneva plant property. The crossing was not vacated and has been continually used since that time as a public roadway.

(b) 400 North, including the crossing, is a city street within Vineyard Town. To our knowledge the Town of Vineyard has not currently given UTA any permissions or required permits to modify the 400 North crossing in any way, including removal of safety and crossing structures.

(c) In order to vacate any portion of 400 North as a public highway and street, an extensive notice and hearing process is required under Utah Code 10-8-8.1 through 10-8-8.4 None of the required actions have been taken to legally vacate the road, so closing of the 400 North crossing would not be in conformance with State required procedures.

(d) Publicly available maps created by Utah County, D&RG Railroad, and Utah State Road Commission (predecessor to UDOT), prior to the Geneva Property acquisition by the Department of Defense show that there was a public road which ran along the section line and over the Crossing.

(e) During the period of time the plant operated, an open public road existed into the Geneva property to a parking area. Further entry into the plant from the parking area was governed by gates. This entry was primarily used by employees, but thousands of trips per day, vehicular and pedestrian, occurred at the Crossing by employees of Geneva Steel and by non-employees.

(f) The Federal Railroad Administration, U.S. DOT Crossing Inventory Information ("Inventory") reflects the Crossing as a Public at-Grade Crossing No. 254903N as of 1/29/2009. This Inventory shows that the Crossing was entered into the system approximately January 1, 1970, and classified as a "Public at Grade" crossing. The database was updated on December 2, 1988, July 15, 1994, April 1, 1998, April 1, 1999. All of these updates retain the classification of "Public at Grade" crossing. The 1988 and 1999 updates to the FRA database show UDOT to be the initiator of the update, and the 1994 and 1998 updates show Union Pacific to be the initiator of the update. The current database as of March 25, 2009 continued to reflect a "Public at Grade" crossing. The only parties who can create this Inventory or update this Inventory are UP or UDOT. The Inventory was established under federal law to create a registry that State departments of transportation, railroads, municipalities and the public could rely on and review for an inventory and status of crossings within their respective borders.

(g) UP employees have acknowledged that internally, their own system showed the Crossing as a Public at-Grade Crossing until UTA recently initiated its commuter rail activities.

(h) A D&RG Railroad Map dated in 1927 (which states that it was correcting a 1919 map) shows the Crossing as a "highway crossing", with a railroad warning sign at the Crossing. It is obviously an at-grade crossing. The 1927 Map was filed by requirement of State law.

(i) Property survey plotting of the Utah County resolution vacating roads within the Geneva property show that it did not include the public roadway crossing within the UP right of way.

(j) UP representatives have acknowledged that the 400 North roadway was public in 1939.

(k) The Public Service Commission determined on August 7, 1943, in a matter initiated by D.&R.G.W. Railroad Company (predecessor to UP), and agreed upon by UDOT and Utah County, that this crossing was a public crossing.

(l) A similar filing was made with the Public Service Commission by D.&R.G.W. in April 1943.

(m) No actions of any party have been taken to vacate the public road over the tracks of UP or to modify the status as a public highway.

(n) The Town of Vineyard has expressly identified the roadway as a public crossing and a public roadway.

Interrogatory No. 7. State the date on which the fence was placed on Anderson Entities' property on the east side of the Crossing.

The fence has existed since 1942. There has been no removal of fence. Recently, based on the surveillance conducted by UDOT, the gate was opened and turn around area re-established to avoid any safety concerns for the traveling public.

Interrogatory No. 8. State the reason why the "No Trespassing" sign has been posted on the fence near the Crossing..

Site hazards and environmental conditions on site require protection of the public from deep foundations and potential exposure to environmental hazards. Prior to and during demolition, fences were necessary to avoid theft and liability claims from persons coming on site. It is common to post "no trespassing" signs to deter hunting, shooting, and garbage disposal on a large site.

Interrogatory No. 9. State the facts which demonstrate that the crossing and roadway was maintained by the Town of Vineyard.

Vineyard Town has acknowledged this fact and continues to plow the road and maintain the road.

Interrogatory No. 10. State the reasons why the Anderson Entities do not currently use the Crossing.

The road has been illegally closed by UDOT, Union Pacific and the Utah Transit Authority based on the decision of Eric Cheng at UDOT to temporarily close the road. The road was used continuously by Anderson Entities prior to that time.

Interrogatory No. 11. State the facts relied upon to assert that actions taken or not taken by UDOT, Union Pacific and/or UTA engineers concerning the Crossing were based on bias.

The conversations described to Anderson Entities by Don Overson, Vineyard Town Engineer, made it clear that the parties involved from each entity had already made up their minds. No facts were articulated during that meeting which related to the safety needs or historical use of the Crossing, except that with a closed gate, someone could enter the Crossing and become stopped within the track area. This situation has been remedied.

Interrogatory No. 12. State the facts relied upon to assert that actions taken or not taken by UTA concerning the Crossing were based on the desire to avoid the expense of improvements to the Crossing.

UDOT has prescribed to the Utah Transit Authority the improvements to be made at all crossings of its Commuter Rail South project. By obtaining a temporary closure of the Crossing, Utah Transit Authority engineers have stated that they are not required to install safety improvements as are being installed at all other crossings. Employees of the Utah Transit Authority had initially stated to employees of Anderson Entities they had no knowledge of circumstances at the Crossing. During the surveillance review, upon information and belief, it was reported to Anderson Entities that the Utah Transit Authority personnel present had strong negative opinions about the Crossing.

PRODUCTION OF DOCUMENTS

Respondent has compiled and prepared for review and copying the following documents.

Such documents are available at the office of legal counsel for review and copying during business hours and on reasonable notice.

Request No. 1. Produce copies of all documents you intend to use at the hearing of this matter. For documents you have already provided to UDOT, only identify the documents.

Anderson Geneva entities have not yet determined which exhibits or demonstrations will be utilized at a hearing but anticipate all of the items identified at Request No. 1 above may be utilized. In addition, Anderson entities may have its survey expert produce maps or demonstrations for the hearing.

Request No. 2. To the extent that you have not already produced them, produce all documents relating to the Crossing.

(1) "Reclamation Map of Portion of Utah County, Utah", surveyed in 1922 by the Department of the Interior, U.S. Geological Survey, State of Utah, Utah County in cooperation with Utah County and the U.S. Reclamation Service. This map shows 400 N. crossing the tracks.

(2) "Reclamation Map of Portion of Utah County, Utah", surveyed in 1922 and 1925 by the Department of the Interior, U.S. Geological Survey, State of Utah, Utah County in cooperation with Utah County and the U.S. Reclamation Service. This map shows 400 N. crossing the tracks.

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(6) Book "Our Vineyard Heritage A Wellspring of Tradition and Change, 1899-1999" published by Vineyard Town as part of the Centennial Celebration has:

Map 1 – "The Settlement of Vineyard Community, 1900's". This map shows 400 N. crossing the railroad track.

Map 2 -- "Vineyard Community Prior to the Coming of Geneva Steel, 1940". This map shows 400 N. crossing the railroad track.

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(13) Case No 2714 before the Public Service Commission and associated documents, April, 1943.

(14) Geneva Park East Plat showing road and crossing dedication.

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(18) Construction pictures of the Geneva Plant that show the crossing from a distance, they are dated November 30, 1943 and February 23, 1944 where one can make out a crossing sign from each direction, with crossing lights mounted on the sign.

(19) When the U.S. DOT - Crossing Inventory was collected and entered (presumably on January 1, 1970) it shows that there were 2 mast mounted flag gates and that the track was equipped with train signals.

(20) August 3, 1942, the County Commission adopted a "Resolution and Order".

(21) Decision of Utah Department of Transportation dated January 20, 2009 making its finding that the crossing is a Public Crossing.

Request No. 3 Produce copies of all documents indicating the traffic signage and protections in place at the Crossing since the Crossing was built.

See response to Request No. 2 above.

Request No. 4. Produce copies of documents that refer to, relate to, or constitute the designation or redesignation of the Crossing as public in any database at any time.

See response to Request No. 2 above.

Request No. 5. Produce all documents that indicate the levels of traffic over the Crossing

between 1942 and the cessation of operations at Geneva Works and US Steel.

See response to Request No. 2 above.

DATED this 28th day of January, 2010.

DENNIS M. ASTILL, PC LAW FIRM

By: _____
Dennis M. Astill
Attorneys for Anderson Entities

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Attorneys for Utah Department of Transportation

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of Union Pacific Railroad's Petition for Relief against the Utah Department of Transportation	DOCKET NO. 09-888-01 **UTAH DEPARTMENT OF TRANSPORTATION'S RESPONSE TO UNION PACIFIC RAILROAD COMPANY'S SECOND DISCOVERY REQUESTS**

Utah Department of Transportation ("UDOT") responds to Petitioner Union Pacific Railroad Company's ("Union Pacific") Discovery Requests, Set Two.

INTERROGATORIES

1. Please identify any highway-rail grade crossing in Utah with respect to which

you requested an upgrade of advance warning signs or improved striping on the roadway in the past 20 years.

Response: UDOT does not have any jurisdiction over private crossings and UDOT has not "requested" any upgrades for a state road at grade crossing.

2. Please identify any individual of whom you are aware who ever worked at the former Geneva Works site before plant closure. For each person, state whether he or she is currently involved in any way in the development of the former Geneva Works site.

Response: UDOT does not have information concerning former workers for Geneva Works.

3. Was the Crossing at issue in this matter maintained with proper advance warning signs and pavement markings as required by UDOT at public highway-rail grade crossings.

Response: No. From the appearance of the crossing with the gated property to the east of the tracks, UDOT believed that the crossing was private. Therefore, UDOT believed that such crossing was not under its jurisdiction.

4. If not, did UDOT ever take any action to enforce its requirements concerning advance warning signs and pavement markings? If so, please identify all enforcement efforts, including the date on which enforcement efforts were made and the entity or individual to whom enforcement efforts were directed. If not, please explain why UDOT did not make enforcement efforts.

Response: At first, UDOT believed that the crossing was private until additional documents were provided by the various parties. The documents, actions of the parties and the

appearance of the crossing are conflicting as to whether the crossing is public or private.

REQUEST FOR PRODUCTION OF DOCUMENTS

1. Produce any aerial photographs taken of the former Geneva Works site when the plant was operational.

Response: UDOT does not have the requested documents.

2. Produce all documents constituting or reflecting any enforcement efforts described in your answer to Interrogatory No. 4.

Response: To the extent the documents exist, UDOT has provided the documents within its possession.

Dated this 20th day of April, 2010

Renee Spooner
Assistant Attorney General

MAILING CERTIFICATE

I hereby certify that I mailed a true and correct copy of the foregoing **UDOT's Response to Union Pacific Railroad Company's Second Discovery Requests**, postage prepaid, this 21st day of April, 2010, to the following:

Dennis M. Astill
Dennis M. Astill, PC
9533 South 700 East, Suite 103
Sandy, Utah 84070

David L. Church
Blaisdell and Church
5995 South Redwood Road
Salt Lake City, Utah 84123

Reha K. Deal
Union Pacific Railroad
280 South 400 West, Suite 250
Salt Lake City, Utah 84101

Renee Spruance

State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.
Executive Director

CARLOS M. BRACERAS, P.E.
Deputy Director

April 4, 2008

Jason Bleyl
Civil Design Lead
UTA
669 West 200 South
Salt Lake City, UT 84101

Subject: Surveillance Report
Various Locations in Lindon, Vineyard and Orem
DOT Crossing Nos.: 254902G, 254903N, 806939Y, 254906J, and 806934P

Attendees: Eric Cheng, UDOT; Jim Marshall, UPRR; Adam Cowie, Lindon; Mark Christensen, Lindon/JUB; John Buttenob, HDR; Travis Baxter, UTA; Jason Bleyl, UTA/PB; John Blumenkamp UTA/HDR, Sam Wells, UTA/Parsons; Neal Winterton, Orem; Paul Goodrich, Orem; D Warnock, HNTB

Mr. Stanger:

Background Information:

The Utah Transit Authority UTA) is proposing to construct and operate a commuter rail system from Salt Lake City through Lindon and Orem, to Provo. The rail line will share a corridor with the Union Pacific Railroad (UPRR). Current freight traffic on the UPRR mainline is 8-20 trains per day. Proposed commuter rail traffic is approximately 60 trains per day. The Utah Department of Transportation has reviewed the existing conditions of the crossings listed in this report in conjunction with UTA, UPRR, and Local Officials. It is UTA's intention to replace all of the existing switches and track and install one or two new parallel tracks next to the existing tracks, in most locations.

General Requirements:

Pursuant to sections 54-4-14 and 54-4-15, UCA, and Utah Administrative Rule R930-5, the Utah Department of Transportation herby issues the following mandatory requirements to be implemented due to the increase in rail traffic at each crossing. The requirements noted in this report detail the improvements that must be in place to allow for commuter rail traffic.

Required for each at grade crossing in the light rail transit corridor:

1. Installation of insulated concrete surface, extending two feet beyond outside of shoulder/sidewalk. Replace all UPRR non-insulated concrete panels with insulate panels.
2. Installation of standard flashing lights, gates and bells. LED flashing lights to be used in all new and existing installations when a lamp assembly is replaced.
3. Constant Warning Time (CWT) track circuitry to be installed at each crossing.
4. Install new controller houses in neutral quadrants of each crossing.

5. Signs and striping to be installed as per current edition of MUTCD. This includes, but is not limited to, crossbucks, advance warning signs, RxR paint messages, stop bars, and shoulder/lane striping.
6. All medians to be non-mountable barrier curb. Use UDOT type B3 or equivalent. Medians to be constructed beginning at 10 ft. from edge of rail, but effective length of median is measured from the gate arm.
7. Three-Quad and Four-Quad systems to have loop detection for exit gate management and operation.
8. All tracks in the crossing area to cross roadway at the same elevation, or on an even plane to prevent an uneven ride for automobile traffic.
9. Conform to applicable UDOT standard drawings, where applicable.
10. Gate arms must have a gap no greater than 1 foot from tip of gate to edge of median, or no more than 2 feet in places where two gates extend from opposite sides of the lanes.
11. UDOT shall have option to retain all salvage circuitry and controllers. UTA to contact UDOT on each specific crossing about which salvage items UDOT wants.

Crossing Specific Requirements:

1. DOT No. 254902G, 600 South, Lindon
   a. Remove existing lights and gates and install new flashing lights and gates and raised median barrier.
   b. Widen road to accommodate the large truck and boat trailer traffic, which uses this crossing.
   c. When the Vineyard Connecter Road is constructed by UDOT, this crossing will be closed and a flyover for the new road will be constructed at this location.

2. DOT No. 254903N, Private Crossing to Geneva, Vineyard
   a. This crossing is to be closed.

3. DOT No. 806939Y, 400 South, Orem
   a. Remove existing lights and gates and install new flashing lights and gates and raised median barrier.
   b. When installing west island, provide two left turn lanes westbound.
   c. Match cross section of 400 South west of tracks.
   d. Provide signal preemption for Geneva Road/400 South intersection signal.

4. DOT No. 254906J, 800 South, Orem
   a. Remove access to house on southwest quadrant. This will probably require purchasing the property.
   b. Remove existing lights and gates and install new flashing lights and gates and raised median barrier.

5. DOT No. 8/06934P, 2000 South, Orem
   a. Remove existing lights and gates and install new flashing lights and gates and raised median barrier.
   b. Remove driveway/road in northeast quadrant.
   c. Talk to both Orem and Provo Cities about a future tie of the signals with the UPRR tracks to the east. 2000 South is the boundary between the cities.

If you have any questions regarding this letter, please feel free to contact me at (801) 965-4284.

Sincerely,

Eric Cheng, P.E.
UDOT Chief Railroad Engineer

Cc: Jim Marshall, UPRR
D Warnock, HNTB Corporation
John Buttenob, HDR
Mark Christensen, Lindon City
Paul Goodrich, Orem City

State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

JOHN R. NIORD, P.E.
Executive Director

CARLOS M. BRACERAS, P.E.
Deputy Director

January 20, 2009

Mr. Dennis Astill
Project Manager & General Counsel
Anderson Geneva Development
99 North Geneva Road
Vineyard, UT 84057

Re: Railroad Crossing at 400 North Vineyard Road

Dear Mr. Astill,

We have received your letter dated December 31, 2008 regarding the status of the 400 North and Vineyard Road.

We have investigated the status of this crossing and found out that this crossing is not recognized as a public crossing. It enters private property with gates that are generally locked. UPRR has forwarded this documentation to both the State and Federal Railroad Administrations to modify their records to show this crossing as a private crossing.

Because this is private crossing, the Utah Department of Transportation does not have authority or oversight concerning this crossing. Vineyard City will have to coordinate with Union Pacific Railroad to find an alternative access when the crossing is closed.

Administrative Rule 930-5-2(1) states:

"*Department oversees all at-grade public highway/railway crossings in the state of Utah and provide for the safe, efficient operation of vehicles and pedestrians through highway/railway intersections.*"

Please contact me at (801) 965-4284 if you have any questions with regards to this issue.

Sincerely,

Eric Cheng, P.E.
UDOT Chief Railroad Engineer

UNION PACIFIC RAILROAD COMPANY

James D Marshall
Mgr. Special Projects Ind. & Public
(801)212-2783

280 South 400 West
Salt Lake City, UT 84101

January 28, 2009

File: Crossing Private
UT : Vineyard
DOT 254903N
MP 708.19 – Provo Sub
Utah Service Unit

Mr. Dennis Astill
Project Manager and General Counsel
99 N Geneva Road
Vineyard, UT 84057

Dear Mr. Astill:

As per our previous conversation over the past few years concerning the closure of the private crossing at the above referenced location and the construction of a proposed grade separation south of this location.

As you are aware UTA construction has started on the Provo Corridor and our signal construction schedule is quickly approaching. Signal construction through this area is estimated to be late 2009 or early 2010. At that time we will not be able to support the existing crossing equipment and the crossing will need to be permanently closed.

This letter is to give you advanced notice of the closure. We will forward a formal letter when we have a more defined date.

If design is completed on your proposed grade separation please forward to my office for approval and we can prepare an agreement for your review.

Thank you for you cooperation and assistance in this matter and if you have any questions please fill free to call me at 801-212-2783.

Sincerely

James D. Marshall
Manager Special Projects Industry & Public

CC:

Steve Meyer – UTA

State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.
Executive Director

CARLOS M. BRACERAS, P.E.
Deputy Director

February 25, 2009

Dennis M. Astill
Project Manager and General Counsel
Anderson Geneva Development
99 North Geneva Road
Vineyard, Utah 84057

Re: Railroad Crossing at 400 North Vineyard Road

Dear Mr. Astill:

Thank you for meeting with us and providing the information concerning this crossing on February 19, 2009. After reviewing the information, UDOT will conduct another surveillance review on this crossing based upon the crossing being public because of the FRA inventory listing this crossing as public and Resolution and Order passed by the Utah County Board of County Commissioners in 1942. At this point, UDOT considers this crossing as public unless other information is provided that demonstrates that the crossing is private. This review shall be performed in accordance with Utah Administrative Code R930-5-7. Consequently, Union Pacific Railroad, Utah Transit Authority, the Town of Vineyard and Anderson Geneva will be involved in this review with UDOT. These parties will have the opportunity to provide any documentation concerning the crossing for this review. As part of the review, a meeting will be held at the site of the railroad crossing.

If you have any further questions concerning this matter, please contact me or Renee Spooner.

Sincerely,

Eric Cheng, P.E.
UDOT Chief Railroad Engineer

Cc: Tracy Conti
Robert Hull
Dave Nazare
Renee Spooner
David Church, Vineyard Town
Randy Farnworth, Vineyard Town
Josh Sletten, HNTB

PSOMAS

Balancing the Natural and Built Environment

To: Steve Meyer
Manager of Engineering and Construction, Commuter Rail
Utah Transit Authority
669 West 200 South
Salt Lake City, UT 84101

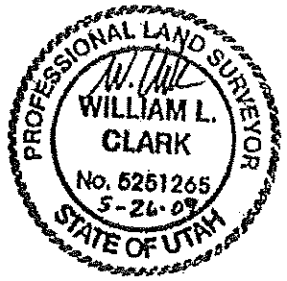
May 26, 2009

Steve,

I have examined the road abandonment document affecting 400 North Vineyard Road and the Railroad Right of Way. The portion of the large legal description affecting the 400 North Road area is found at lines 23 – 25 of the overall legal description. The description calls to and along the existing Section Line common to Sections 8 and 17, Township 6 South, Range 2 East and continuing to the East Line of the Denver and Rio Grand Railroad, then continuing Southeasterly along said East Railroad Right of Way. Psomas has located and measured the subject Section Line and Railroad Right of Way in the field and it's location roughly follows the center of the improved roadway along 400 North Road to it's intersection with the East Line of the Railroad Right of Way. (as shown on survey). The affect of this document would abandon the North Half of 400 North Road, and land lying East of the existing Railroad Corridor (as shown on survey). In my opinion the intent of the document in relation to the road and railroad mentioned above is very clear and unambiguous.

Sincerely, William L. Clark PLS.

W. Clark



4179 Riverboat Road
Suite 200
Salt Lake City, UT 84123

Tel 801.270.5777
Fax 801.270.5782
www.psomas.com

State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.
Executive Director

CARLOS M. BRACERAS, P.E.
Deputy Director

July 13, 2009

Mr. Dennis Astill
Project Manager & General Counsel
Anderson Geneva Development
99 North Geneva Road
Vineyard, UT 84057

RE: 400 North Railroad Crossing Vineyard, Utah – DOT No. 254903N

Dear Mr. Astill:

The Utah Department of Transportation (UDOT) would like to thank you for providing the documents and information to UDOT regarding the status of the 400 North/Vineyard Road highway-rail crossing (the "Crossing"). After reviewing the documents and pertinent information, UDOT classifies this Crossing as a public crossing. However, the current conditions at the Crossing are unsafe for the public. Pursuant to Utah Code Ann. Section 54-4-15, UDOT is ordering the temporary closure of the Crossing. UDOT will contact the parties within the next two weeks to schedule a Diagnostic/Surveillance Team review for a recommendation as to the type of treatments to be used to close the Crossing. The Crossing shall remain closed until the Town of Vineyard improves the approach roadways to the standard of the roadway as classified in its current Master Street Plan and the Crossing has been improved to meet the required safety standards as determined by UDOT with recommendations from the Diagnostic/Surveillance Team review.

Thank you again for your concerns and efforts in this matter. If you have any questions or concerns, please feel free to give me a call.

Sincerely,

Eric Cheng, P.E., CPM
Chief Railroad Engineer

Cc: David Church, Attorney for Vineyard Town
Jim Marshall, UP Railroad
Steve Meyer, UTA
Tracy Conti

Robert Hull
Renee Spooner
Jeff Harris, HNTB
Travis Colledge, HNTB

State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.
Executive Director

CARLOS M. BRACERAS, P.E.
Deputy Director

August 25, 2009

Town of Vineyard
c/o Don Overson
City Engineer
240 East Gammon Rd.
Vineyard, Utah 84058

Subject: Surveillance Report: 400 North Crossing, Vineyard City
DOT#: 254903N

Dear: Mr. Overson:

In accordance with Utah Administrative Rule R930-5, a highway railroad grade crossing surveillance review was conducted on August 6, 2009 for the above stated crossings in Vineyard, Utah. The purpose of the surveillance review was to discuss and recommend to the Utah Department of Transportation treatments to be used in the temporary closure of the 400 North crossing.

Diagnostic Team:

Eric Cheng, UDOT; Don Overson, JUB/Town of Vineyard; Bill Ince, UPRR; Jim Marshall, UPRR; Tyson Payne, UPRR; John Blumenkamp UTA/HDR; Jason Bleyl, UTA/PB; Matt Carter, UTA/PB; Jeff Harris, HNTB/UDOT

Background information:

The Utah Transit Authority (UTA) is proposing to construct and operate a commuter rail system from Salt Lake City to Provo (FrontRunner South). The rail line will share a corridor with the Union Pacific Railroad (UPRR). Current freight traffic on the UPRR mainline is 8-20 trains per day. Proposed commuter rail traffic is approximately 60 trains per day. The Department oversees the state's Rail Safety Program, identified in the state's administrative rule R930-5. Part of the Department's responsibility under this article is to ensure highway-rail crossings operate safely for all parties that utilize them.

Historically, the Crossing in the Town of Vineyard accessed the Geneva Steel site. The Geneva Steel site was sold and the property owners closed the eastern leg of the access road with a fence and gate. The Town of Vineyard has adopted a master road plan that shows an upgraded roadway across the crossing at 400 North. However, under present conditions the

Department has found the crossing poses an un-safe condition and issued an order July 13, 2009, for the temporary closure of the crossing. The Crossing is to remain closed until the east and west approach roadways are improved to level outlined in the Town of Vineyards master road plan and open to the public.

Recommendation: (Reference attached sketch)

1. Remove the west crossing approach pavement.
2. Install concrete barriers with reflective tape along existing west approach.
3. Install Chevron Alignment Sign (W1-8) for both travel directions at the curve.
4. Install double yellow centerline.
5. Place fencing along west side of rail corridor with the construction of the FrontRunner South project.

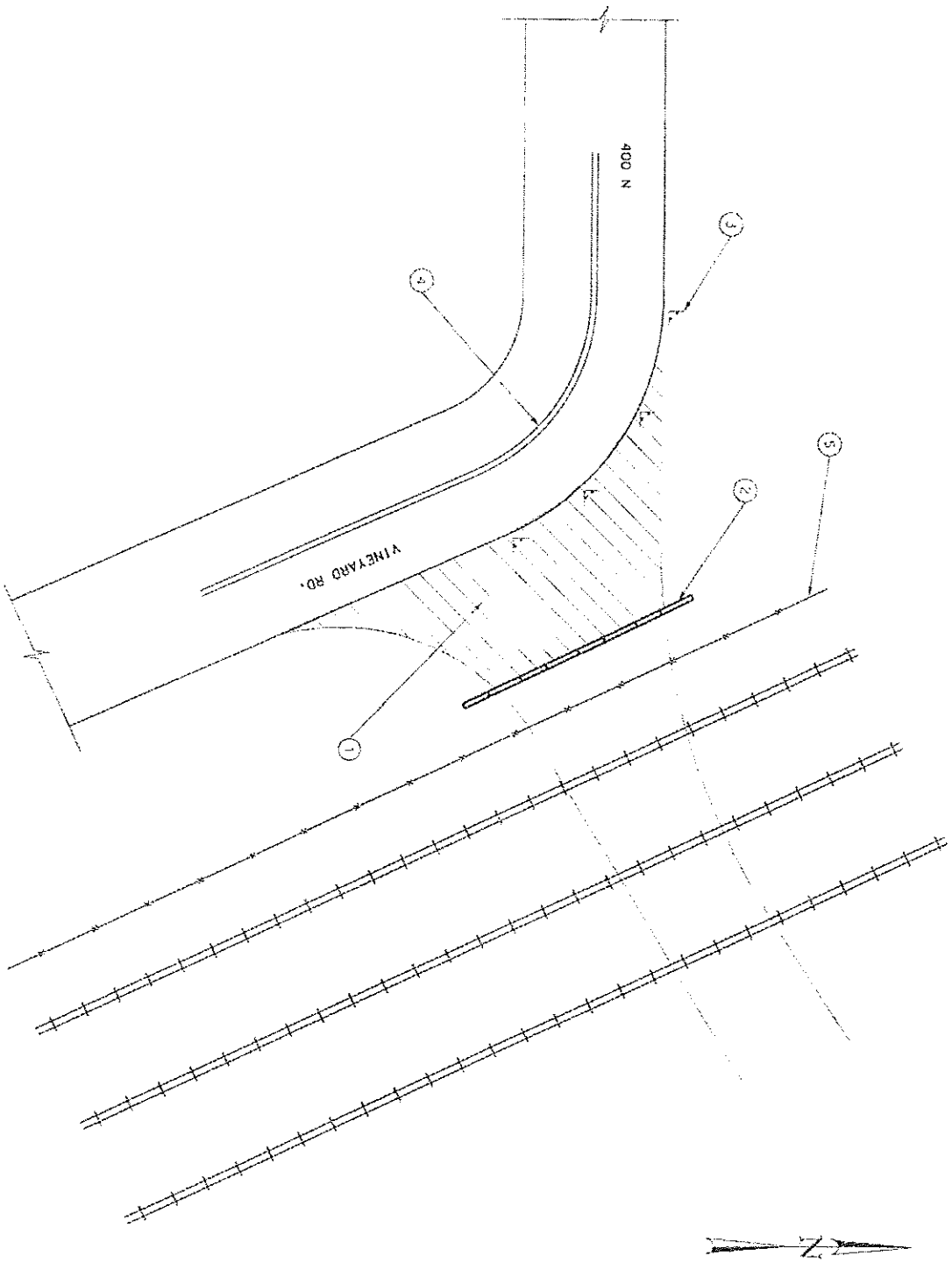
If you have any questions regarding this letter, please feel free to contact me at 801-965-4284.

Sincerely,

Eric Cheng, P. E.
Chief Railroad Engineer

Cc: Jim Marshall, UPRR
Jason Bleyl, UTA/PB
Jeff Harris, UDOT/HNTB

Attachment



PROJECT	SAMPLE DRAWING	UTAH DEPARTMENT OF TRANSPORTATION DIVISION OF TRAFFIC AND SAFETY - SIGNAL AND LIGHTING DESIGN	REVISION
PROJECT NUMBER		APPROVED PROFESSIONAL ENGINEER — MM/DD/YY DATE	DRAWN BY QC CHECKED BY
			NO. DATE APPROVED BY REMARKS

Comment Number	Submission Method and Date Sent	Name and City	Comments	Response Plan
1	Direct email, 10/15/2008	Don Overson, Orem	I am the Vineyard Town Engineer. I think you are going to confuse people with the "NOTIFICATION OF AT-GRADE CROSSING CHANGES IN ACCORDANCE WITH UTAH ADMINISTRATIVE RULE R930-5-14" letter sent out on October 13, 2008. Twice I have made comments on the design drawings telling the designers that Vineyard does not have a 4000 North. In the letter, again 4000 North is referenced as a crossing that will be changed. The attached Vineyard Rd (400 N) map shows the correct coordinates. Also, Lindon does not have a crossing at 600 South. There is no 600 South in Lindon at the railroad. That crossing is entirely in Vineyard and would be Vineyard Rd (1600 North) in Vineyard. The attached 1600 North map shows the correct coordinates. Don E. Overson, P.E. J-U-B ENGINEERS, Inc. ENGINEERS * SURVEYORS * PLANNERS 240 West Center Street, Suite 200 Orem, UT 84057 801-226-0393 FAX: 801-226-0394 E-mail: doverson@jub.com	1
2	Direct email, 10/20/2008	Judy and Kent Player, Draper	We received your "Notification of At-Grade crossing changes" letter. We do not see the 11400 South crossing listed. Why is that? We know that a bridge is planned to be built over the railroad crossing at the same time 11400 So. Hwy is constructed in the near future. Thank you, Judy & Kent Player 763 W. 11560 S. Draper, UT 84020	1
3	Direct email, 10/20/2008	Lynn and Carol Weight, Lehi	Dear Sirs: We have received your letter about the Front Runner that will be bordering our property at 624 South Center Street in Lehi. Could you let us know what impact the Front Runner will have on our property? Because it will run the full length of our lot, we are concerned about the road to the back of our property. We are also concerned about being able to access our driveway with the raised medians installed in the street in front of our home. Is there any information in the form of drawings and measurements that could help us know exactly how we will be affected? Thank you for any information concerning this. Lynn and Carol Weight	1
4	Direct email, 10/20/2008	Jim Strong, Lehi	With all the possible crossing closures that UDOT is considering please seriously consider the much needed underpass at the Lehi Main Street Crossing. It will be a terrible safety hazard with the number of trains coming through Lehi if we do not have an underpass. Thanks for your consideration.....it is important. Jim Strong 33 West 300 South Lehi, Utah 84043	2
5	Direct email, 10/23/2008	Julie Mecham, Lehi	Hi, I did try and find this information on the website but could not. First, how does something like this generally affect property values of nearby locations. I live at 1400 S in Lehi and the crossing is at 1500 S.) Second, how often will the FrontRunner run. Thanks for the information, Julie Mecham	1
6	Direct email, 10/24/2008	Jim Chlumsky, Murray	Dear Mr. Eric Cheng & Mr. W. Steve Meyer, P.E. I am writing in response to the letter of "notification of at-grade crossing changes", sent out by Mr. Meyer on October 13, 2008. My name is Jim Chlumsky and I live at 4704 McCallan Way, which is 4704 South and 230 West, in a towne home community named Inverness Square. We are situated between the railroad crossings of 4800 South Murray Holladay Road, and 4500 S. Frontage Road. I am also the Home Owner Association President of this same Community, located at 4800 S. between 200 and 300 West. We are an association of 119 town homes. As Association President and as a resident living between two RR crossings, I can not begin to tell you how many times I have been woken-up by train whistles, or received complaints by fellow residents of also being woken-up (multiple times in a night), day-in and day-out. I am confident that I can speak not only for myself, yet also for the community as a whole, that we would welcome any and all changes to the above mentioned crossings that will allow the Murray Municipality "to apply for Federal Railroad Administration (FRA) quiet zone status where trains	3

Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01
132

N
W
E
S

2 10 30
0 5 20

(24"x36")
SCALE 1" = 10'
(11"x17")
SCALE 1" = 20'

RAILROAD CROSSING NOTE – STATIONING SHOWN ALONG RAILROAD CENTERLINE REFERENCED TO RAILROAD RIGHT OF WAY MAPS TITLED, THE RIGHT OF WAY AND TRACK MAP OF THE DENVER & RIO GRANDE RAILROAD, DATED JUNE 30, 1919. AND REVISED DECEMBER 31, 1927.

LICENSED LAND SURVEYOR
No. 172782
Kenneth E. Barney
3/24/09
STATE OF UTAH

NORTH QUARTER CORNER, SECTION 17,
TOWNSHIP 6 SOUTH, RANGE 2 EAST,
SALT LAKE BASE AND MERIDIAN

AUGUST 3, 1942 RESOLUTION BOUNDARY
SECTION LINE

SECTION LINE

13.60'

21.00'

COUNTY ROAD
(400 NORTH)

RAILROAD STA. 1389+54.6 SECTION LINE

RAILROAD STA. 1389+41 CROSSING SIGN

RAILROAD STA. 1389+20 HIGHWAY CROSSING

Whistle Post 05

NO. 3

1400

96+35 Concrete

1399+39

5°45'E

Farm Crossing 2 Gates 96+48

NO. 2

90+60 C.I.P. 12"x24"

89+41 Crossing Sign

89+20 Highway Crossing

1390

1389 + 54.6

COUNTY ROAD

1388 + 95 ℄ Match Mark

Konrad Maag
Deed No. 187

NO. 1

To Denver

Cattle Guard 85'

UTAH COUNTY
MAP 20

RIGHT OF WAY AND TRACK MAP
THE
DENVER & RIO GRANDE RAILROAD
SALT LAKE DIVISION
STATION 1388 + 95 TO STATION 1593 + 30
Scale 1-Inch 400 Ft. June 30,1919.
Valuation Department Denver, Colorado
Corrected to Dec. 31, 1927

UTAH V-3-A 8

16

AUGUST 3, 1942 RESOLUTION BOUNDARY

UNION PACIFIC RAILROAD
(DENVER AND RIO GRANDE RAILROAD - 1919)

RAILROAD CENTERLINE

NO.	REVISIONS	BY	DATE
5			
4			
3			
2			
1			

DESIGNED BY:	DATE:
DRAWN BY:	DATE:
CHECKED BY:	DATE:
APPROVED:	DATE:
COGO FILE:	DATE:
REV. COGO FILE:	DATE:

G:\J-07-045-00 EAST LAKE\Drawings\DAS\FINAL\RR-CROSSING.dwg 3/24/2009 1:21:03 PM

Northern
ENGINEERING INC
ENGINEERING–LAND PLANNING
CONSTRUCTION MANAGEMENT
1040 E. 800 N.
OREM, UTAH 84097
(801) 802-8992

400 NORTH PUBLIC RAILROAD CROSSING

RAILROAD CROSSINGS
GENEVA ROAD

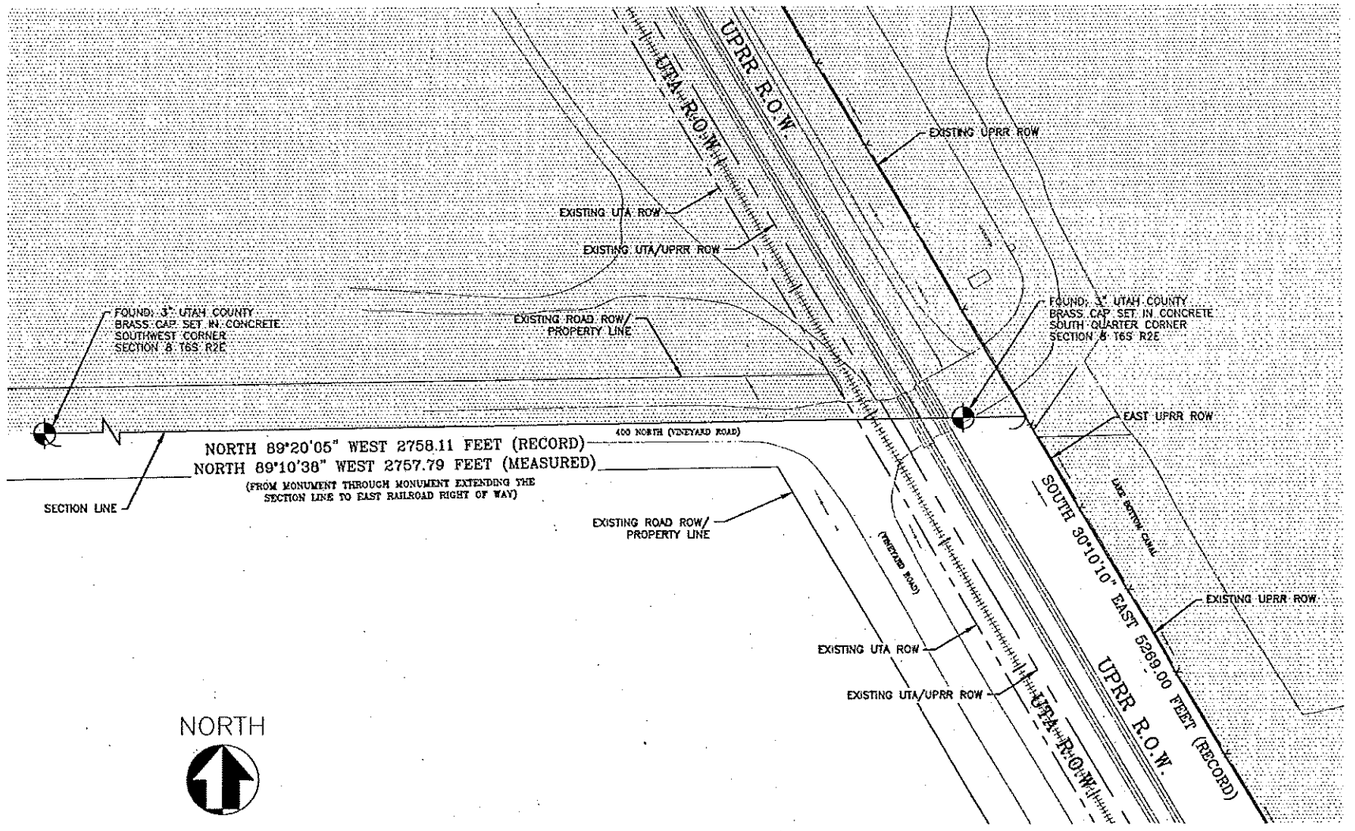
VINEYARD, UTAH

JOB NO. 3-07-045-00

SHEET NO. 1 OF 1

UTAH COUNTY ROAD ABANDONMENT
RECORD OF SURVEY

VINEYARD, UTAH COUNTY, UTAH
A PARCEL OF LAND LOCATED IN SECTIONS 8 AND 17,
TOWNSHIP 6 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN.



SURVEYOR'S CERTIFICATE

I, William L. Clark, do hereby certify that I am a Professional Land Surveyor, and that I hold certificate No. 5251265 as prescribed under the laws of the State of Utah. I further certify that a survey of the property described hereon was performed by me or under my direction, and that this plat correctly depicts the findings of that survey.

WILLIAM L. CLARK No. 5251265 5-26-09 STATE OF UTAH

William L. Clark
P.L.S. No. 5251265

5-26-09
Date

SURVEYORS NARRATIVE

THE PURPOSE OF THIS SURVEY IS TO DEPICT THE LOCATION OF THE LANDS REFERRED TO IN THAT CERTAIN RESOLUTION AND ORDER OF THE BOARD OF COUNTY COMMISSIONERS, OF UTAH COUNTY, UTAH, RECORDED AUGUST 10, 1942 AS DOCUMENT "A68318" IN BOOK 3, PAGE 303, UTAH COUNTY RECORDS, AS IT AFFECTS THE INTERSECTION OF 400 NORTH "VINEYARD" AND THE UNION PACIFIC RAILROAD RIGHT OF WAY. THIS SURVEY DEPICTS THE LOCATION OF THE SECTION LINE AND EAST RIGHT OF WAY OF THE UNION PACIFIC RAILROAD REFERRED TO IN LINES 23 – 25 OF THE LEGAL DESCRIPTION PER SAID RESOLUTION, BEING MORE SPECIFICALLY DESCRIBED AS:

"...TO THE CORNER COMMON TO SECTIONS 7, 8, 17, AND 18, ABOVE TOWNSHIP AND RANGE (TES, R2E); THENCE NORTH 89°20'05" EAST 2758.11 FEET ALONG SAID SECTION LINE TO THE EAST RIGHT OF WAY OF THE DENVER AND RIO GRANDE RAILROAD; THENCE SOUTH 30°10'10" EAST 5269.00 FEET ALONG SAID EAST RAILROAD RIGHT OF WAY...."

PSOMAS HAS MEASURED SAID SECTION LINE AND RAILROAD RIGHT OF WAY LINE IN THE FIELD AND BOTH ARE DEPICTED ON THIS SURVEY. THE SUBJECT SECTION LINE, BEING THE COMMON LINE TO SECTIONS 8 AND 17, TOWNSHIP 6 SOUTH, RANGE 2 EAST, EXISTS APPROXIMATELY IN THE CENTER OF THE IMPROVED ROADWAY OF 400 NORTH (AS SHOWN). THE LANDS AFFECTED BY SAID RESOLUTION (ROAD ABANDONMENT) ARE SHOWN IN HATCHING.

LEGEND

- LANDS AFFECTED BY ROAD ABANDONMENT
- SECTION LINE
- EAST UPRR ROW LINE
- UTA / UPRR ROW LINE
- UTA ROW LINE
- ROAD ROW/ PROPERTY LINE
- FOUND SECTION CORNER

WILLIAM L. CLARK No. 5251265 STATE OF UTAH

DATE: 05/26/09
SCALE: 1"=40'
PROJECT NO.: 8PAR020300

UTAH COUNTY ROAD ABANDONMENT
RECORD OF SURVEY
VINEYARD, UTAH COUNTY, UTAH
A PARCEL OF LAND LOCATED IN SECTIONS 8 AND 17,
TOWNSHIP 6 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN.

PSOMAS
4178 Riverbrook Road, Suite 200
Salt Lake City, Utah 84123
(801) 270-5777 (866) 270-0782 (FAX)

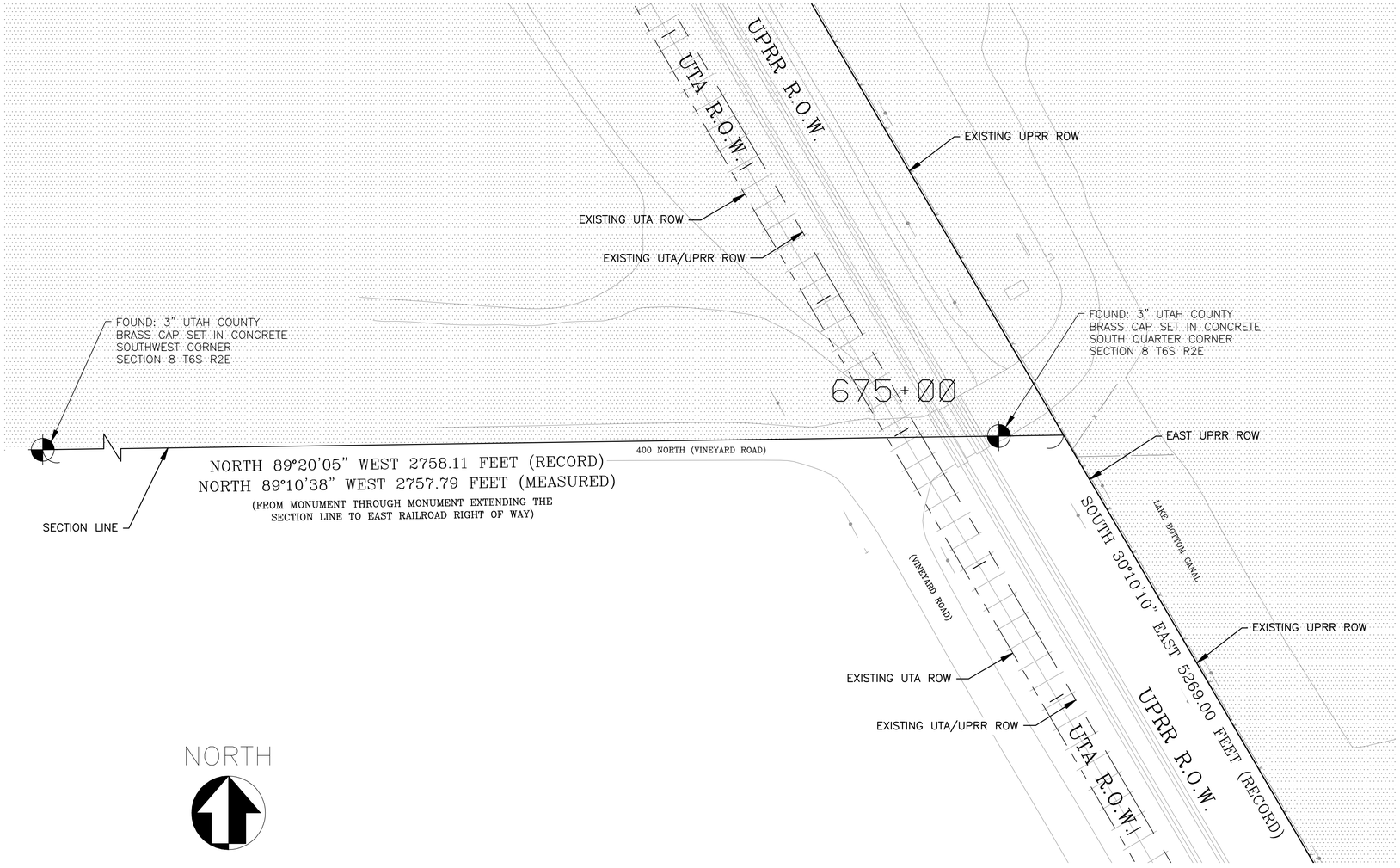
DESIGNED: WLC
DRAWN: DMC
CHECKED: WLC

SHEET 1 OF 1 SHEETS

UTAH COUNTY ROAD ABANDONMENT
RECORD OF SURVEY

VINEYARD, UTAH COUNTY, UTAH

**A PARCEL OF LAND LOCATED IN SECTIONS 8 AND 17,
TOWNSHIP 6 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN.**



NORTH

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

SURVEYOR'S CERTIFICATE

I, William L Clark, do hereby certify that I am a Professional Land Surveyor, and that I hold certificate No. 5251265 as prescribed under the laws of the State of Utah. I further certify that a survey of the property described hereon was performed by me or under my direction, and that this plat correctly depicts the findings of that survey.

_____
William L. Clark Date
P.L.S. No. 5251265

SURVEYORS NARRATIVE

THE PURPOSE OF THIS SURVEY IS TO DEPICT THE LOCATION OF THE LANDS REFERRED TO IN THAT CERTAIN RESOLUTION AND ORDER OF THE BOARD OF COUNTY COMMISSIONERS, OF UTAH COUNTY, UTAH, RECORDED AUGUST 10, 1942 AS DOCUMENT "AA6319" IN BOOK 3, PAGE 303, UTAH COUNTY RECORDS, AS IT AFFECTS THE INTERSECTION OF 400 NORTH "VINEYARD" AND THE UNION PACIFIC RAILROAD RIGHT OF WAY. THIS SURVEY DEPICTS THE LOCATION OF THE SECTION LINE AND EAST RIGHT OF WAY OF THE UNION PACIFIC RAILROAD REFERRED TO IN LINES 23 – 25 OF THE LEGAL DESCRIPTION PER SAID RESOLUTION, BEING MORE SPECIFICALLY DESCRIBED AS:

"....TO THE CORNER COMMON TO SECTIONS 7, 8, 17, AND 18, ABOVE TOWNSHIP AND RANGE (T6S, R2E); THENCE NORTH 89°20'05" EAST 2758.11 FEET ALONG SAID SECTION LINE TO THE EAST RIGHT OF WAY OF THE DENVER AND RIO GRANDE RAILROAD; THENCE SOUTH 30°10'10" EAST 5269.00 FEET ALONG SAID EAST RAILROAD RIGHT OF WAY..... ".

PSOMAS HAS MEASURED SAID SECTION LINE AND RAILROAD RIGHT OF WAY LINE IN THE FIELD AND BOTH ARE DEPICTED ON THIS SURVEY. THE SUBJECT SECTION LINE, BEING THE COMMON LINE TO SECTIONS 8 AND 17, TOWNSHIP 6 SOUTH, RANGE 2 EAST, EXISTS APPROXIMATELY IN THE CENTER OF THE IMPROVED ROADWAY OF 400 NORTH (AS SHOWN). THE LANDS AFFECTED BY SAID RESOLUTION (ROAD ABANDONMENT) ARE SHOWN IN HATCHING.

LEGEND

- LANDS AFFECTED BY ROAD ABANDONMENT
- SECTION LINE
- EAST UPRR ROW LINE
- UTA / UPRR ROW LINE
- UTA ROW LINE
- ROAD ROW/ PROPERTY LINE
- FOUND SECTION CORNER

PROFESSIONAL LAND SURVEYOR No. 5251265 WILLIAM L. CLARK STATE OF UTAH

DATE 08/13/10
SCALE 1"=40'
PROJECT NO. 8PAR020300

UTAH COUNTY ROAD ABANDONMENT
RECORD OF SURVEY
VINEYARD, UTAH COUNTY, UTAH
A PARCEL OF LAND LOCATED IN SECTIONS 8 AND 17,
TOWNSHIP 6 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN.

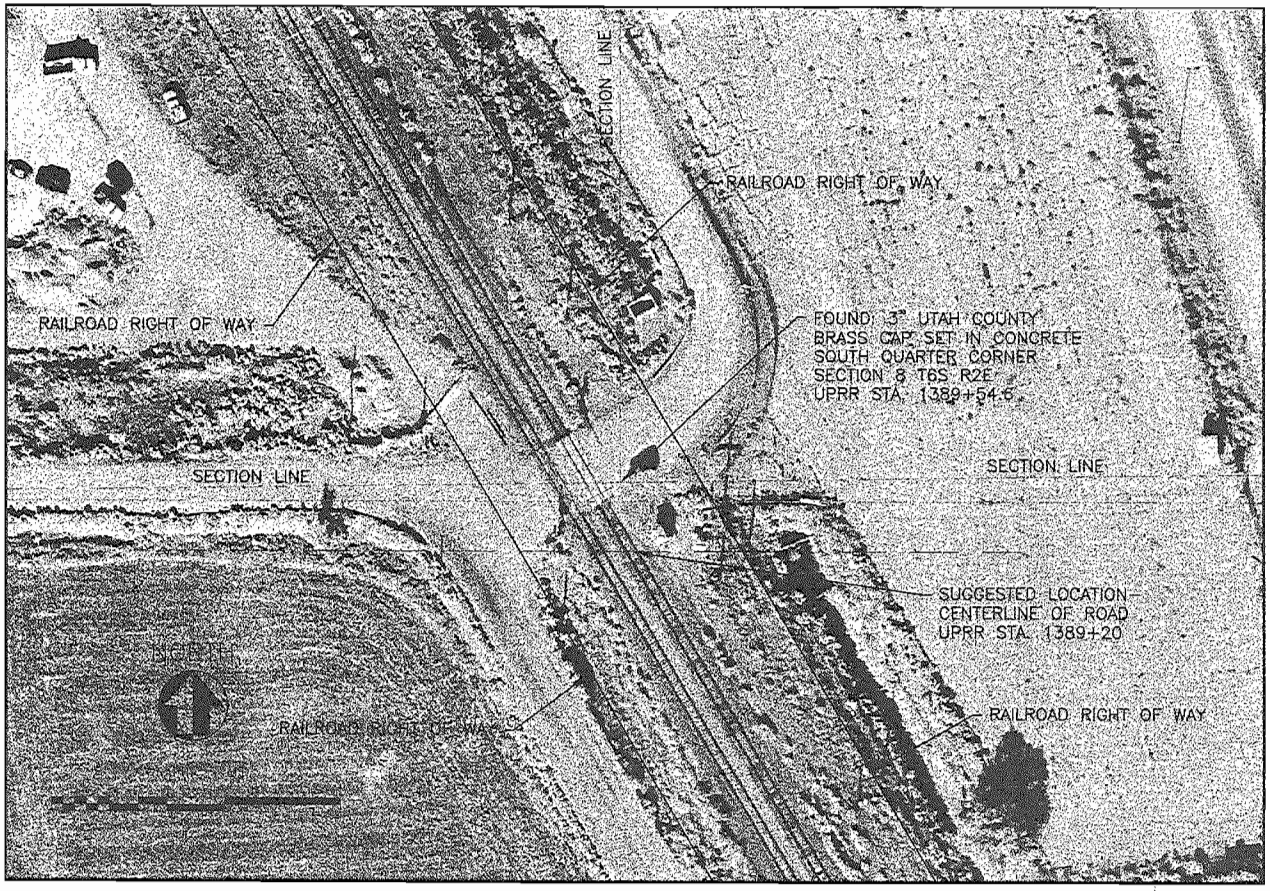
PSOMAS
4179 Riverboat Road, Suite 200
Salt Lake City, Utah 84123
(801) 270-5777 (801) 270-5782 (FAX)

DESIGNED WLC
DRAWN CEA
CHECKED WLC

SHEET 1 OF 1

400 NORTH VINEYARD ROAD EXHIBIT

VINEYARD, UTAH COUNTY, UTAH



SURVEYOR'S CERTIFICATE

I, William L. Clark, do hereby certify that I am a Professional Land Surveyor, and that I hold certificate No. 5251285 as prescribed under the laws of the State of Utah. I further certify that a survey of the property shown hereon was performed by me or under my direction, and that this plat correctly depicts the findings of that survey.

WILLIAM L. CLARK No. 5251285 STATE OF UTAH

William L. Clark
P.L.S. No. 5251265

Date

SURVEYORS NARRATIVE

THE PURPOSE OF THIS SURVEY IS TO DEPICT THE SUGGESTED LOCATION OF A ROADWAY PER INFORMATION REFERENCED TO RAILROAD RIGHT OF WAY MAPS TITLED, THE RIGHT OF WAY AND TRACK MAP OF THE DENVER AND RIO GRANDE RAILROAD, DATED JUNE 30, 1919 AND REVISED DECEMBER 31, 1927, AND ALSO DEPICTED ON A RIGHT OF WAY EXHIBIT PRODUCED BY NORTHERN ENGINEERING AND SIGNED 3/24/09 BY KENNETH E. BARNEY PLS 172762

LEGEND

- RAILROAD RIGHT OF WAY
- SECTION LINE
- SUGGESTED CENTERLINE LOCATION OF ROADWAY

WILLIAM L. CLARK No. 5251285 STATE OF UTAH

DATE 08/13/10
SCALE 1" = 30'
PROJECT NO. 8PARD0300

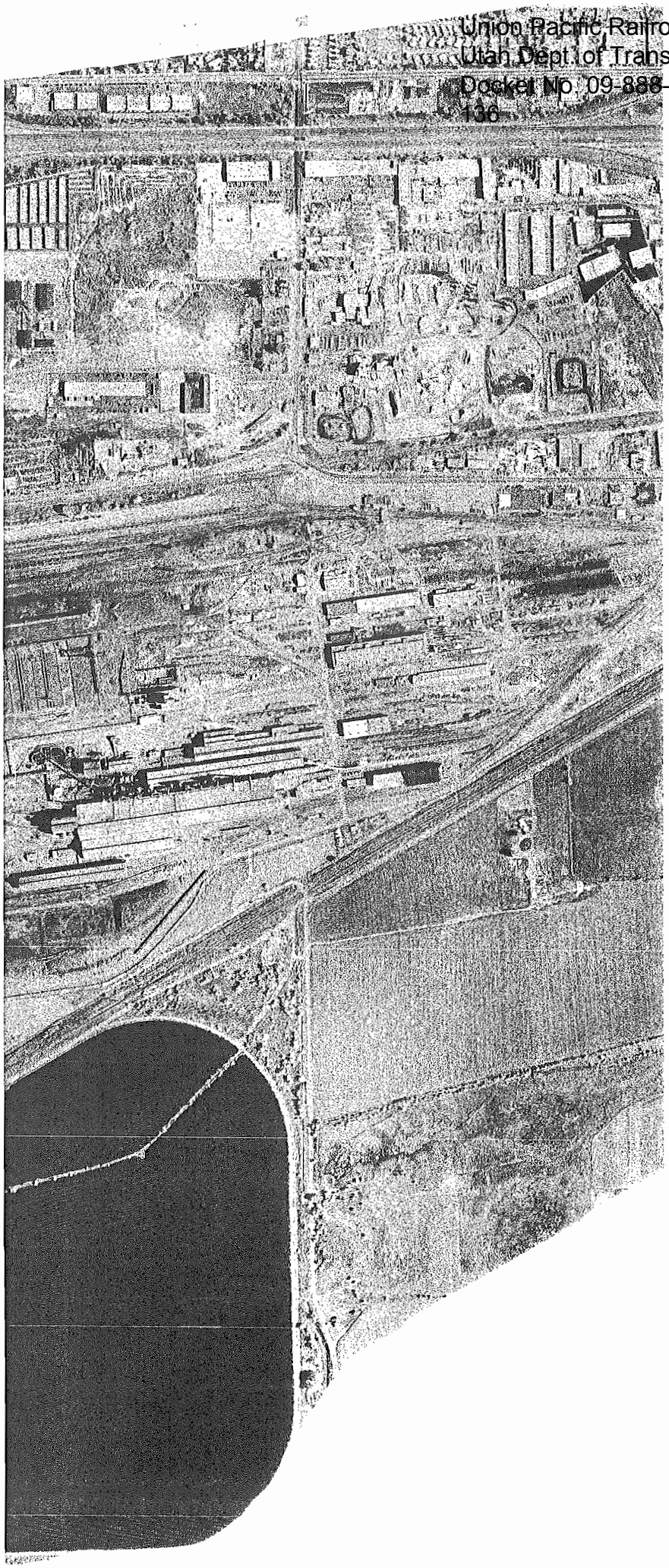
400 NORTH VINEYARD ROAD
EXHIBIT
VINEYARD, UTAH COUNTY, UTAH

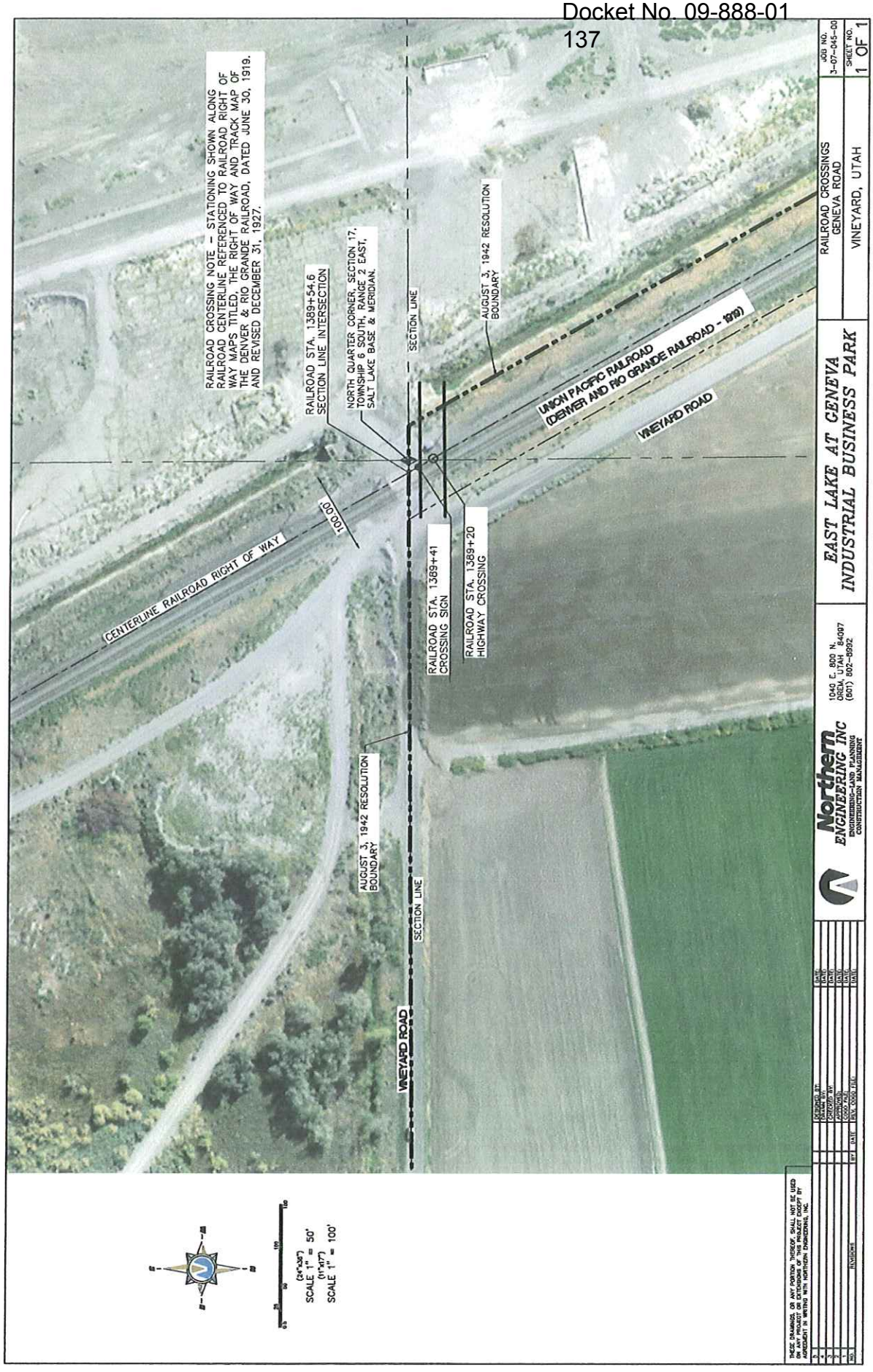
PSOMAS
479 Riverboat Road, Suite 200
Salt Lake City, UT 84103
(801) 270-5777 (801) 270-5782 (FAX)

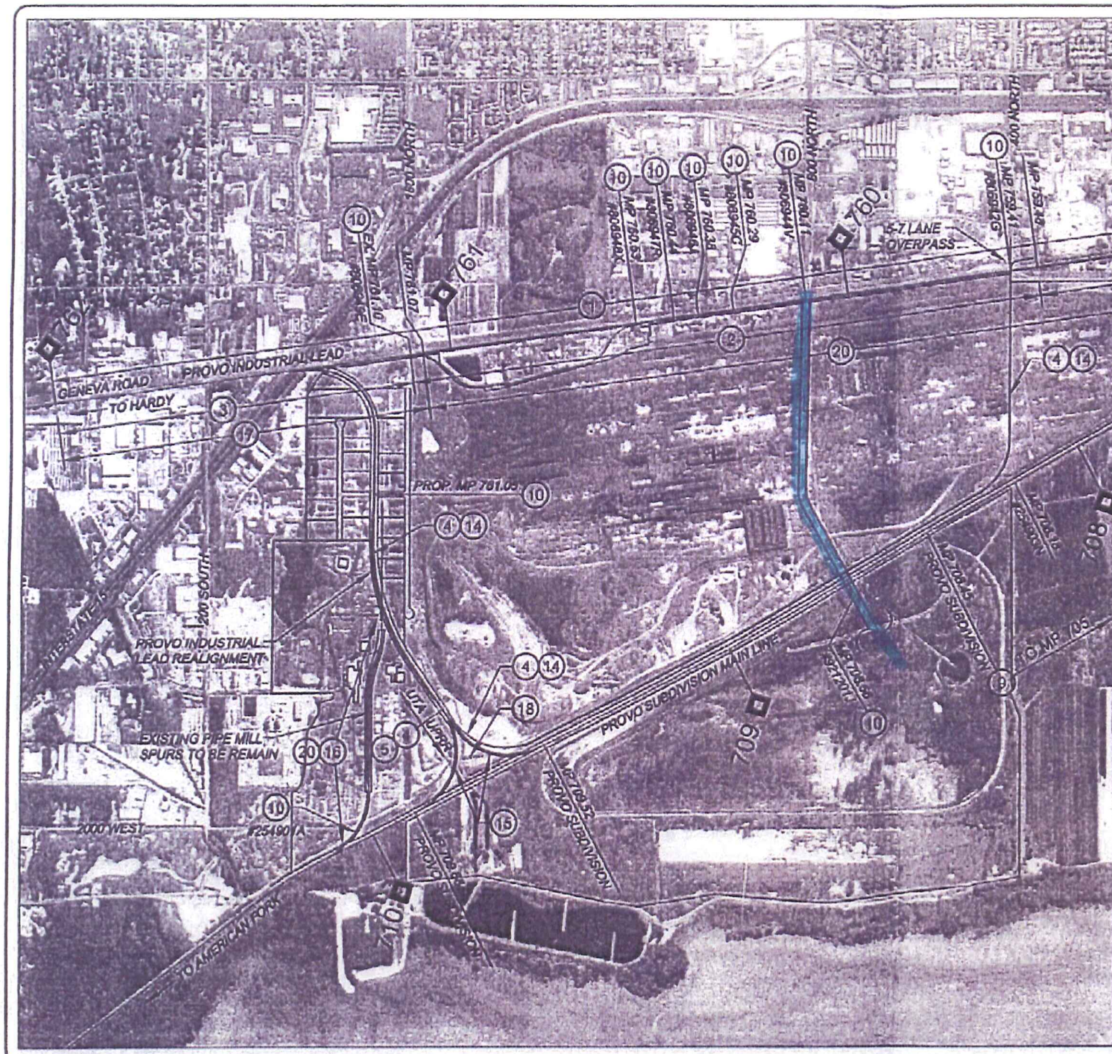
DESIGNED WLC
DRAWN CEA
CHECKED WLC

SHEET 1 OF 1

Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01
135




RAILROAD CROSSING NOTE – STATIONING SHOWN ALONG RAILROAD CENTERLINE REFERENCED TO RAILROAD RIGHT OF WAY MAPS TITLED, THE RIGHT OF WAY AND TRACK MAP OF THE DENVER & RIO GRANDE RAILROAD, DATED JUNE 30, 1919. AND REVISED DECEMBER 31, 1927.
RAILROAD STA. 1389+54.6 SECTION LINE INTERSECTION
NORTH QUARTER CORNER, SECTION 17, TOWNSHIP 6 SOUTH, RANGE 2 EAST, SALT LAKE BASE & MERIDIAN.
SECTION LINE
AUGUST 3, 1942 RESOLUTION BOUNDARY
UNION PACIFIC RAILROAD (DENVER AND RIO GRANDE RAILROAD - 1870)
VINEYARD ROAD
CENTERLINE RAILROAD RIGHT OF WAY
100.00
RAILROAD STA. 1389+41 CROSSING SIGN
RAILROAD STA. 1389+20 HIGHWAY CROSSING
AUGUST 3, 1942 RESOLUTION BOUNDARY
SECTION LINE
VINEYARD ROAD
SCALE 1" = 50' (24"x36")
SCALE 1" = 100' (11"x17")
Northern ENGINEERING INC
ENGINEERING-LAND PLANNING CONSTRUCTION MANAGEMENT
1040 E. 800 N. OREM, UTAH 84097 (801) 802-8992
EAST LAKE AT GENEVA INDUSTRIAL BUSINESS PARK
RAILROAD CROSSINGS GENEVA ROAD
VINEYARD, UTAH
JOB NO. 3-07-045-00
SHEET NO. 1 OF 1



ROAD CROSSING OPENING/CLOSURE SCHEDULE				
MP	XING #	PRIVATE/PUBLIC	OPENING/CLOSURE	RAIL LINE
708.66		PUBLIC	OPENING	PROVO SUB
707.61		PUBLIC	OPENING	PROVO SUB
PROP. 761.05		PUBLIC	OPENING	PROVO IND LEAD
EX 761.10		PUBLIC	OPENING	PROVO IND LEAD
708.18	#254903N	PUBLIC	CLOSURE	PROVO SUB
708.66	#921201J	PRIVATE	CLOSURE	PROVO SUB
710.00	#254901A	PUBLIC	CLOSURE	PROVO SUB
759.08	#806941A	PUBLIC	CLOSURE	PROVO IND LEAD
759.41	#806942G	PUBLIC	CLOSURE	PROVO IND LEAD
760.11	#806944V	PRIVATE	CLOSURE	PROVO IND LEAD
760.29	#806945C	PRIVATE	CLOSURE	PROVO IND LEAD
760.38	#806946J	PRIVATE	CLOSURE	PROVO IND LEAD
760.44	#806947R	PRIVATE	CLOSURE	PROVO IND LEAD
760.53	#806948X	PRIVATE	CLOSURE	PROVO IND LEAD
761.10	#806949E	PRIVATE	CLOSURE	PROVO IND LEAD

LEGEND

- EXISTING RAIL TO REMAIN
- EXISTING RAIL TO BE ABANDONED
- PROPOSED RAIL
- PROPOSED ROAD (POSSIBLE LOCATION)

GRAPHIC SCALE
1500 0 750 1500
(IN FEET)

PRELIMINARY NOT FOR CONSTRUCTION

CALDWELL RICHARDS SORENSEN
1433 North 1075 West Suite 110 Farmington, UT 84025
Phone (801) 836-3343 Fax (801) 836-3370

AGDI-UPRR-UTA-UDOT
SUMMARY OF OBLIGATIONS/BENEFITS
ANDERSON GENEVA CORRIDOR

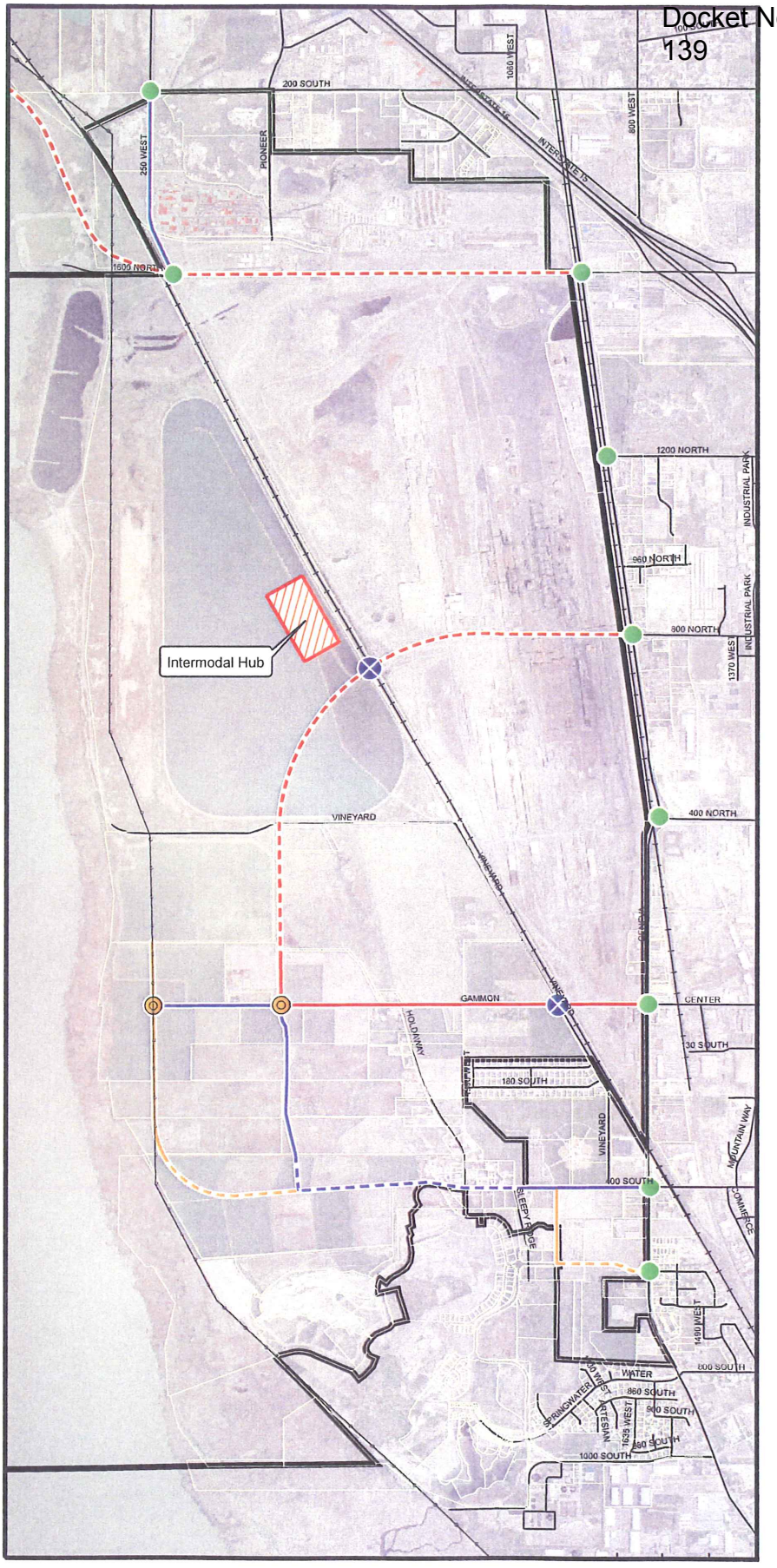
VINEYARD UTAH

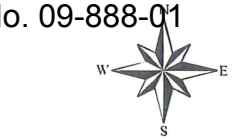
SHEET 1 OF 2

06060.03
PROJECT NUMBER

REV. | BY | DATE | DESCRIPTION

Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01
139





0 750 1,500 3,000
Feet

1 inch equals 1,500 feet

Legend

- Grade-separated RR Crossing
- Intersections with Arterials
- Roundabouts
- Boulevard
- Parkway
- Local
- Future Boulevard
- Future Parkway
- Future Local
- Existing Paved Roads
- Railroad Tracks

THE TOWN OF Vineyard

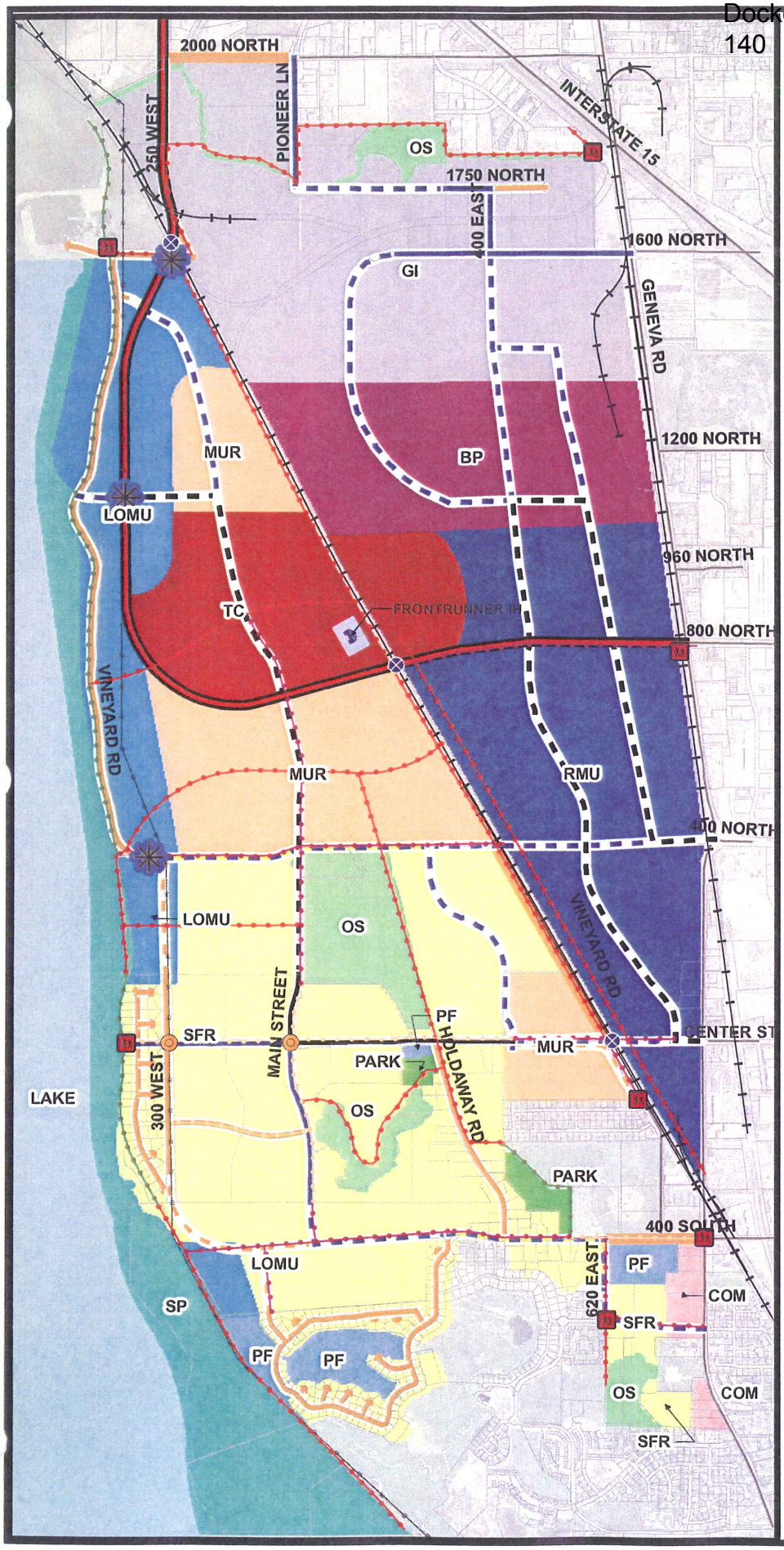
J-U-B

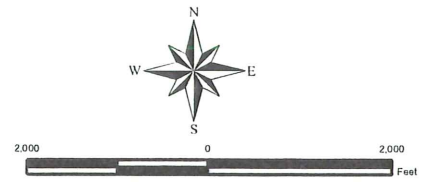
J-U-B ENGINEERS, Inc.
ENGINEERS • SURVEYORS • PLANNERS

TOWN OF VINEYARD

Major Streets Plan

23 October 2006





LANDUSE

- LAKE ACTIVITY AREAS
- BP - BUSINESS PARK
- COM - COMMERCIAL
- GI - GENERAL INDUSTRIAL
- LAKE
- LOMU - LAKE ORIENTED MIXED USE
- MUR - MIXED USE RESIDENTIAL
- OS - OPEN SPACE
- PARK
- PF - PUBLIC FACILITY
- RMU - REGIONAL MIXED USE
- SP - SHORELINE PROTECTION
- SFR - SINGLE FAMILY RESIDENTIAL
- TC - TRANSIT CENTER

ROADWAYS

- TRAIL ACCESS

TRAILS

- DEDICATED EXISTING
- DEDICATED FUTURE
- ON STREET EXISTING
- ON STREET FUTURE
- FRONTRUNNER INTERMODAL HUB
- RAILROAD
- ROUNDABOUTS
- GRADE-SEPARATED RR CROSSING
- VINEYARD CONNECTOR

ARTERIAL

- EXISTING
- FUTURE

COLLECTOR

- EXISTING
- FUTURE
- RECONSTRUCT

LOCAL

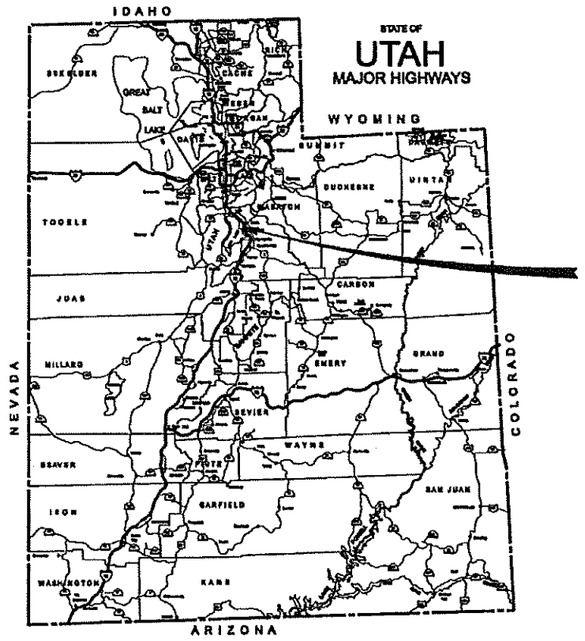
- EXISTING
- FUTURE
- Power Lines

THE TOWN OF Vineyard

TOWN OF VINEYARD
GENERAL PLAN

ADOPTED 26 NOV 08

J·U·B ENGINEERS, Inc.
ENGINEERS + SURVEYORS + PLANNERS



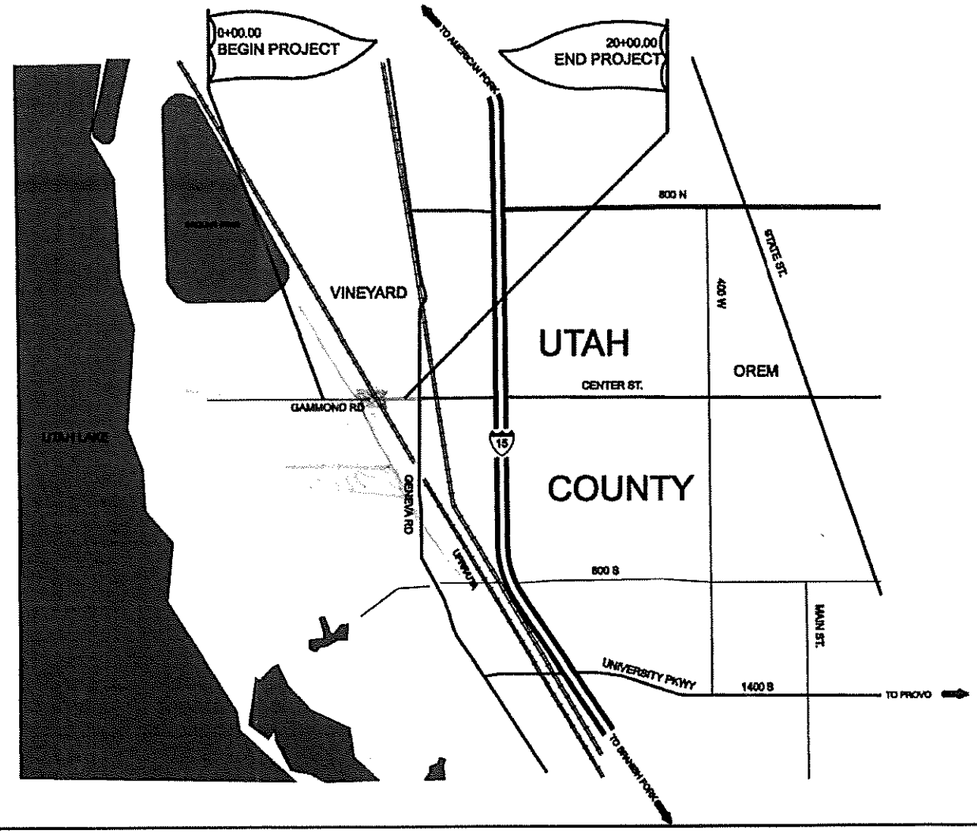
STATE OF
UTAH
MAJOR HIGHWAYS

PROJECT LOCATION

ANDERSON DEVELOPMENT

ANDERSON DEVELOPMENT ROAD CROSSING
NEW BRIDGE OVER UPRR & UTA RAILROAD
30% CONCEPTUAL PLANS
UTAH COUNTY
LENGTH = 2000 FT

INDEX TO SHEETS	
SHEET #	DESCRIPTION
1	TITLE SHEET / INDEX TO SHEETS
TS-1 to TS-3	TYPICAL SECTIONS
DT-1 to DT-2	DETAILS
PP-1	PLAN AND PROFILE
RD-1 to RD-3	ROADWAY PLANS
RW-1	RIGHT OF WAY



SHEET NO. 1

SEE SHEET 1A FOR INDEX TO PLAN

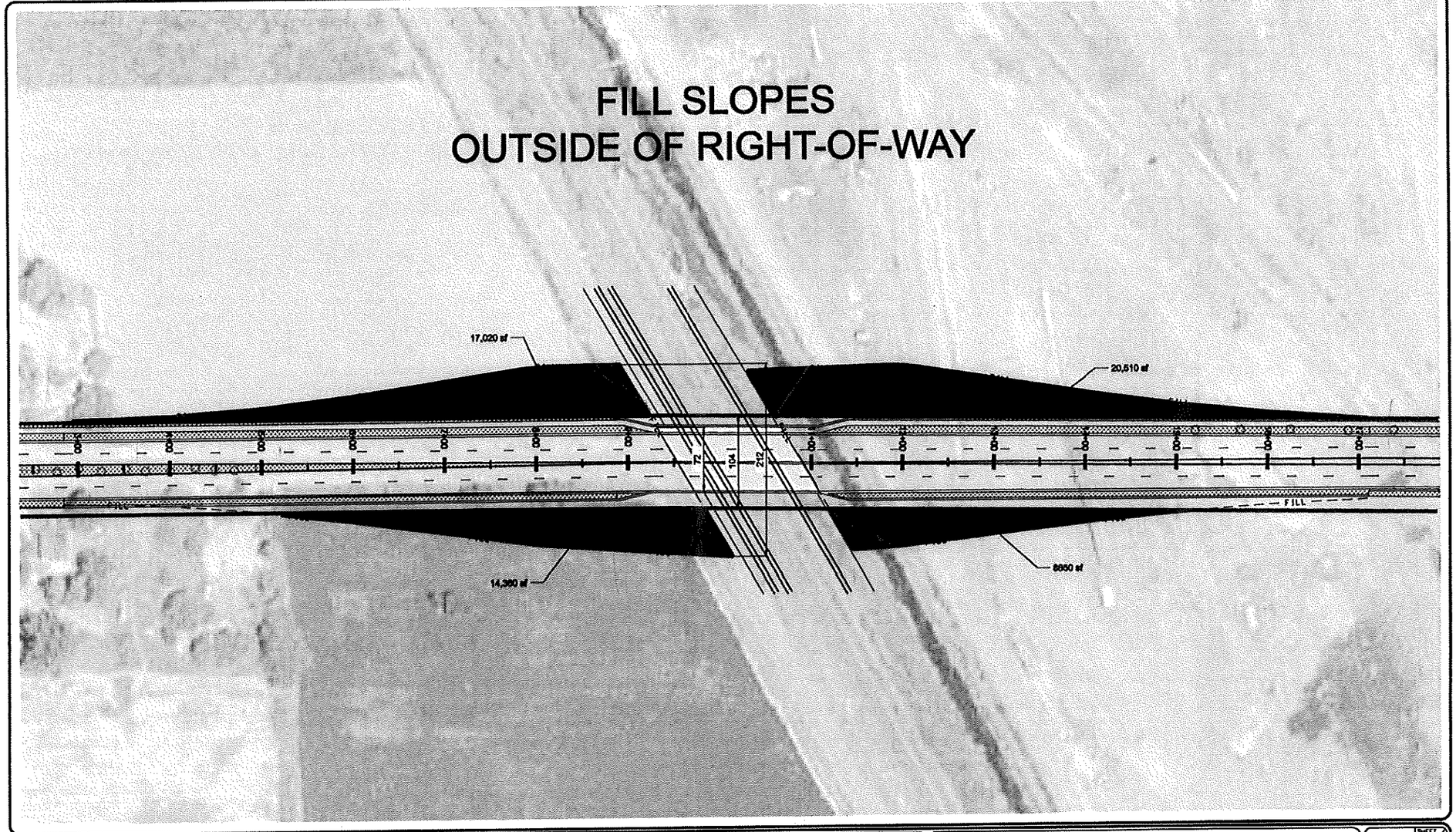
U.S. STANDARD UNITS (INCH-POUND UNITS)

ALL UNITS IN FEET UNLESS OTHERWISE NOTED

N

CALDWELL RICHARDS SORENSEN

FILL SLOPES
OUTSIDE OF RIGHT-OF-WAY



REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL: PAUL HIRST — INITIAL/DATE
PROJECT MANAGER: MATT HIRST — INITIAL/DATE
CHECKED: MATT HIRST — INITIAL/DATE
DRAWN BY: BRANDON TUCKER — INITIAL/DATE
SCALE: 100:1
DATE ISSUED

CALDWELL
RICHARDS
SORENSEN
ENGINEERS TO SUPERSTRUCTURES
1433 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 938-5363
Fax: (801) 938-5570
www.crsengineers.com

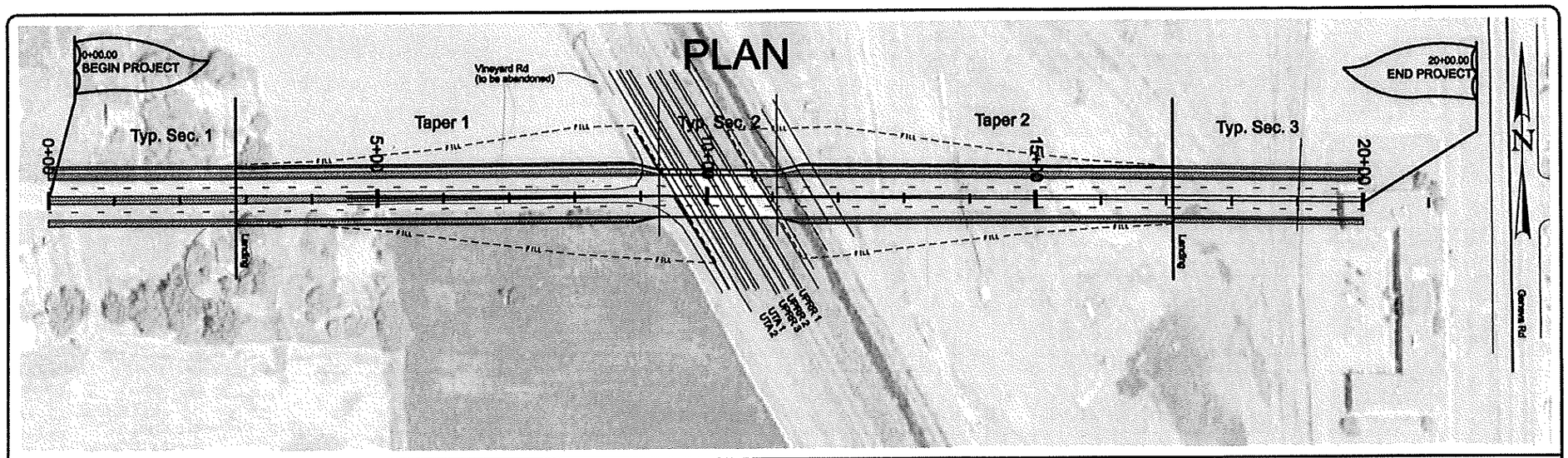
FILL SLOPES DETAIL

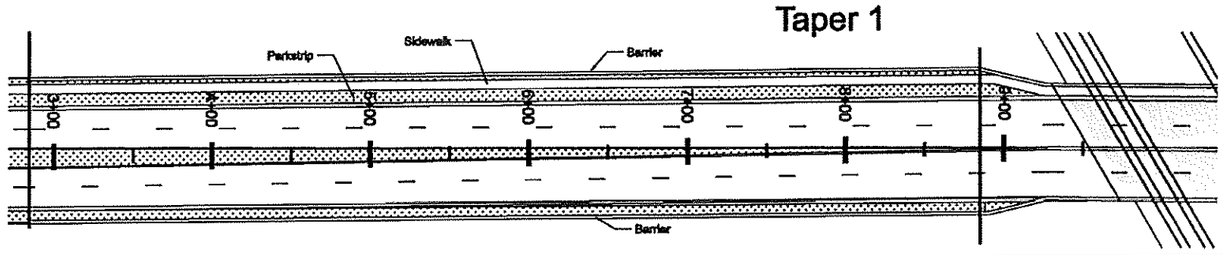
VINEYARD UT

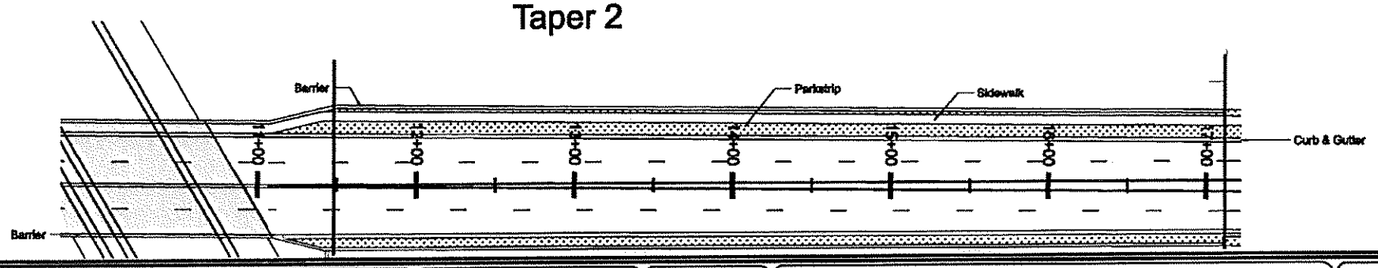
DT | SHEET 2 OF 2

06060C
PROJECT NUMBER

652-1547







REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL: PAUL HIRST — INITIAL/DATE
PROJECT MANAGER: MATT HIRST — INITIAL/DATE
CHECKED: MATT HIRST — INITIAL/DATE
DRAWN BY: BRANDON TUCKER — INITIAL/DATE
SCALE: 1:50:1 — DATE ISSUED

CALDWELL
RICHARDS
SORENSEN
ENGINEERS TO ENHANCE TRUSTWORTHY

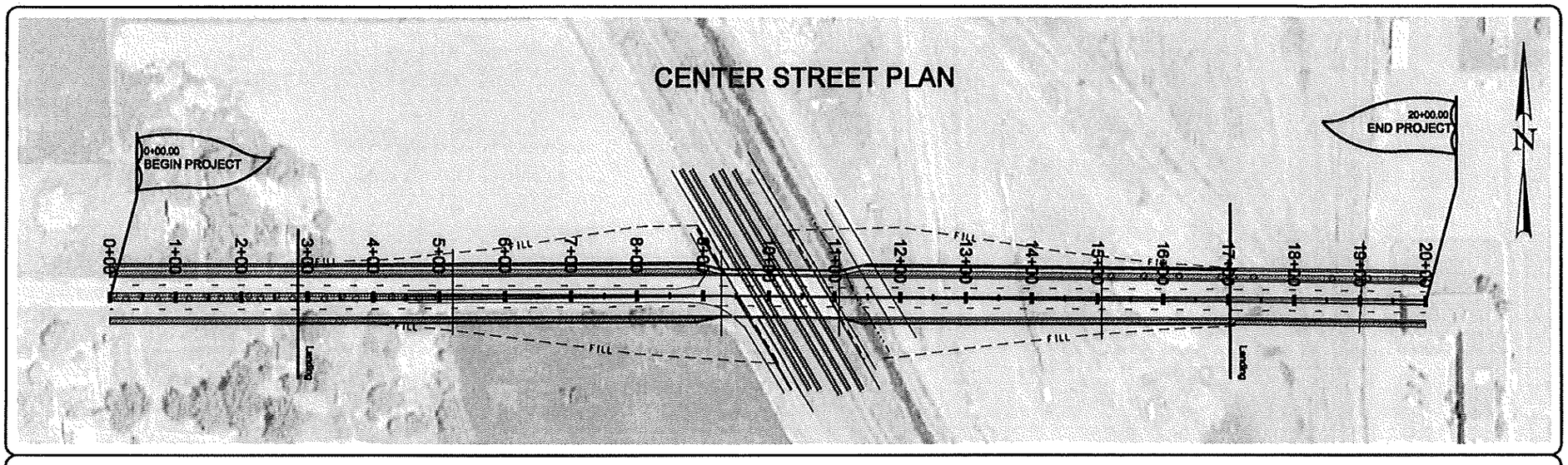
1433 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 939-3063
Fax: (801) 939-3570
www.crsengineers.com

TRANSITION DETAIL

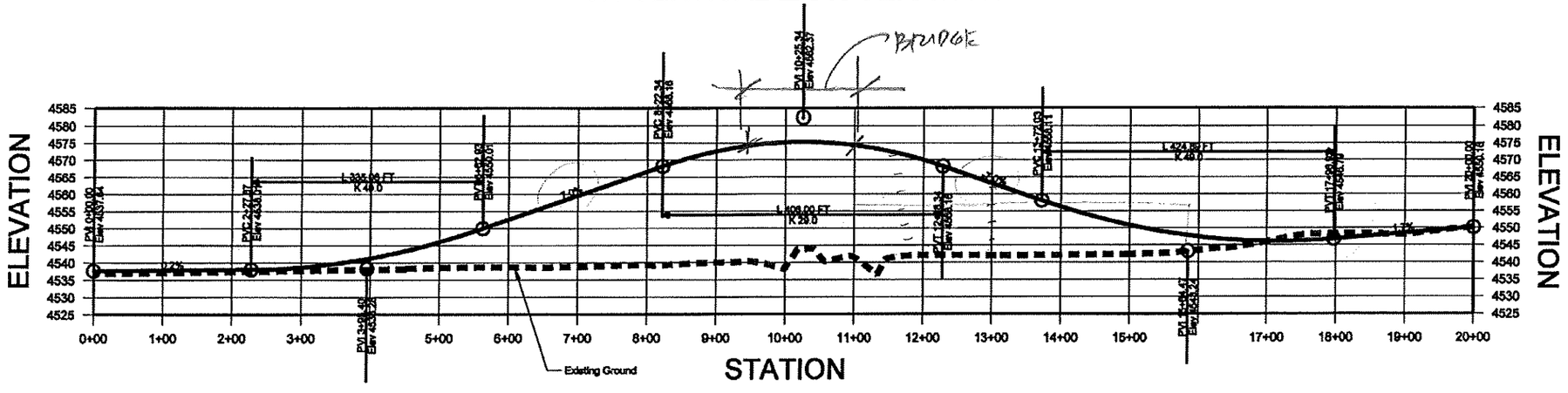
YINEYARD — UT

DT — SHEET 1 OF 2

06060C
PROJECT NUMBER



CENTER STREET PROFILE
5:1 VERTICAL EXAGGERATION



REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL: PAUL HIRST — INITIAL/DATE
PROJECT MANAGER: MATT HIRST — INITIAL/DATE
CHECKED: MATT HIRST — INITIAL/DATE
DRAWN BY: BRANDON TUCKER — INITIAL/DATE
SCALE: 1:20:1 — DATE ISSUED

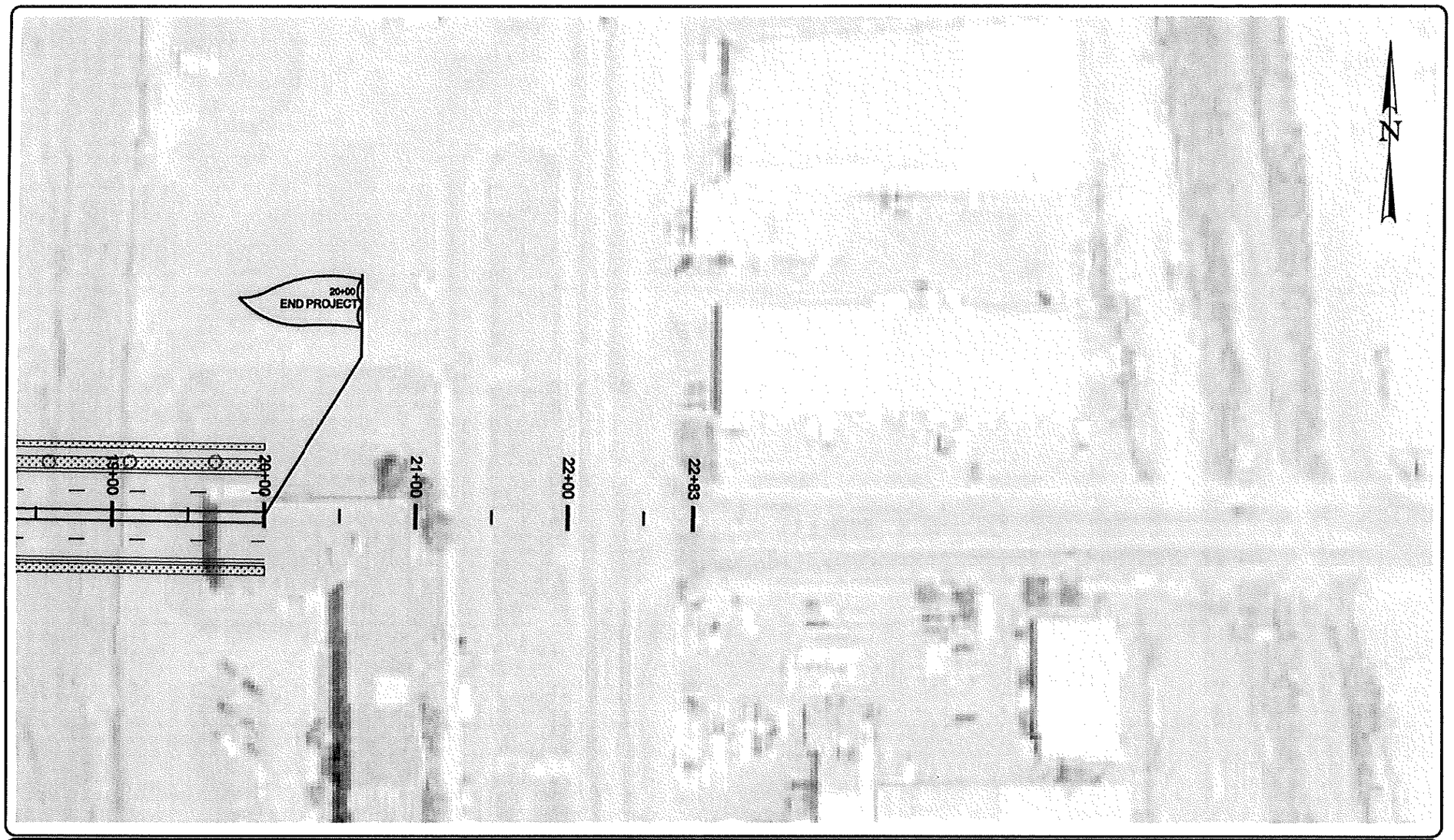
CALDWELL
RICHARDS
SORENSEN
ENGINEERS TO ENHANCE STRUCTURES
1433 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 939-3563
Fax: (801) 939-5570
www.crsengineers.com

ANDERSON DEVELOPMENT ROAD CROSSING
PLAN AND PROFILE

VINEYARD UT

PP — SHEET 1 OF 1

06060C
PROJECT NUMBER



REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL: PAUL HIRST — SEAL/DATE
PROJECT MANAGER: MATT HIRST — SEAL/DATE
CHECKED: MATT HIRST — SEAL/DATE
DRAWN BY: BRANDON BUCKER — SEAL/DATE
SCALE: 60:1
DATE ISSUED:

CALDWELL
RICHARDS
SORENSEN
ENGINEERS TO ENHANCE COMMUNITIES

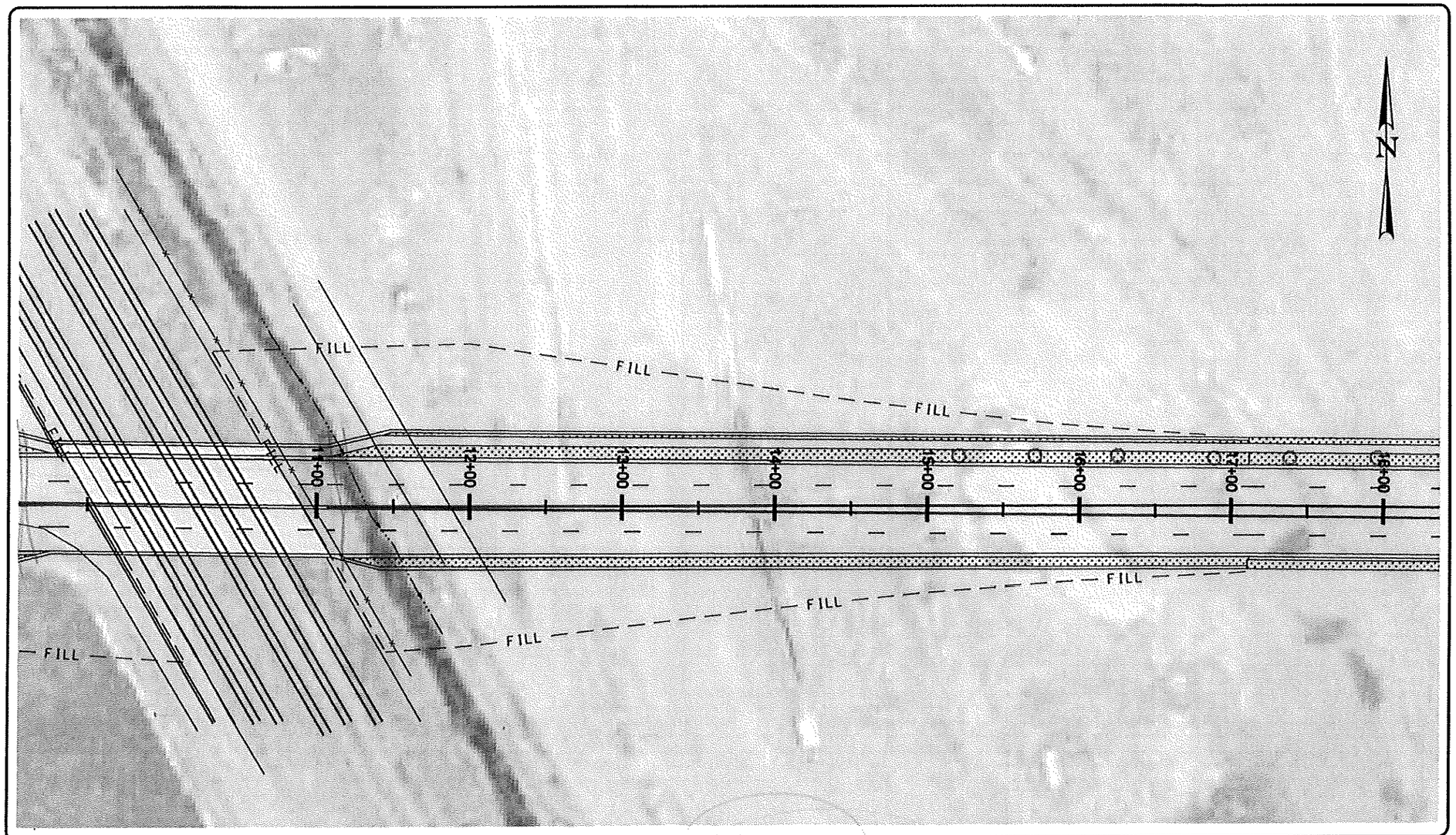
1433 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 939-3565
Fax: (801) 939-3570
www.crsengineers.com

ANDERSON DEVELOPMENT ROAD CROSSING
ROADWAY

VINEYARD UT

RD — SHEET 3 OF 3

06060C
PROJECT NUMBER



REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL — PAUL HIRST — INITIAL/DATE
PROJECT MANAGER — MATT HIRST — INITIAL/DATE
CHECKED BY — MATT HIRST — INITIAL/DATE
DRAWN BY — BRANDON TUCKER — INITIAL/DATE
SCALE — 50:1
DATE ISSUED

CALDWELL
RICHARDS
SORENSEN
ENGINEERS TO INFRASTRUCTURE

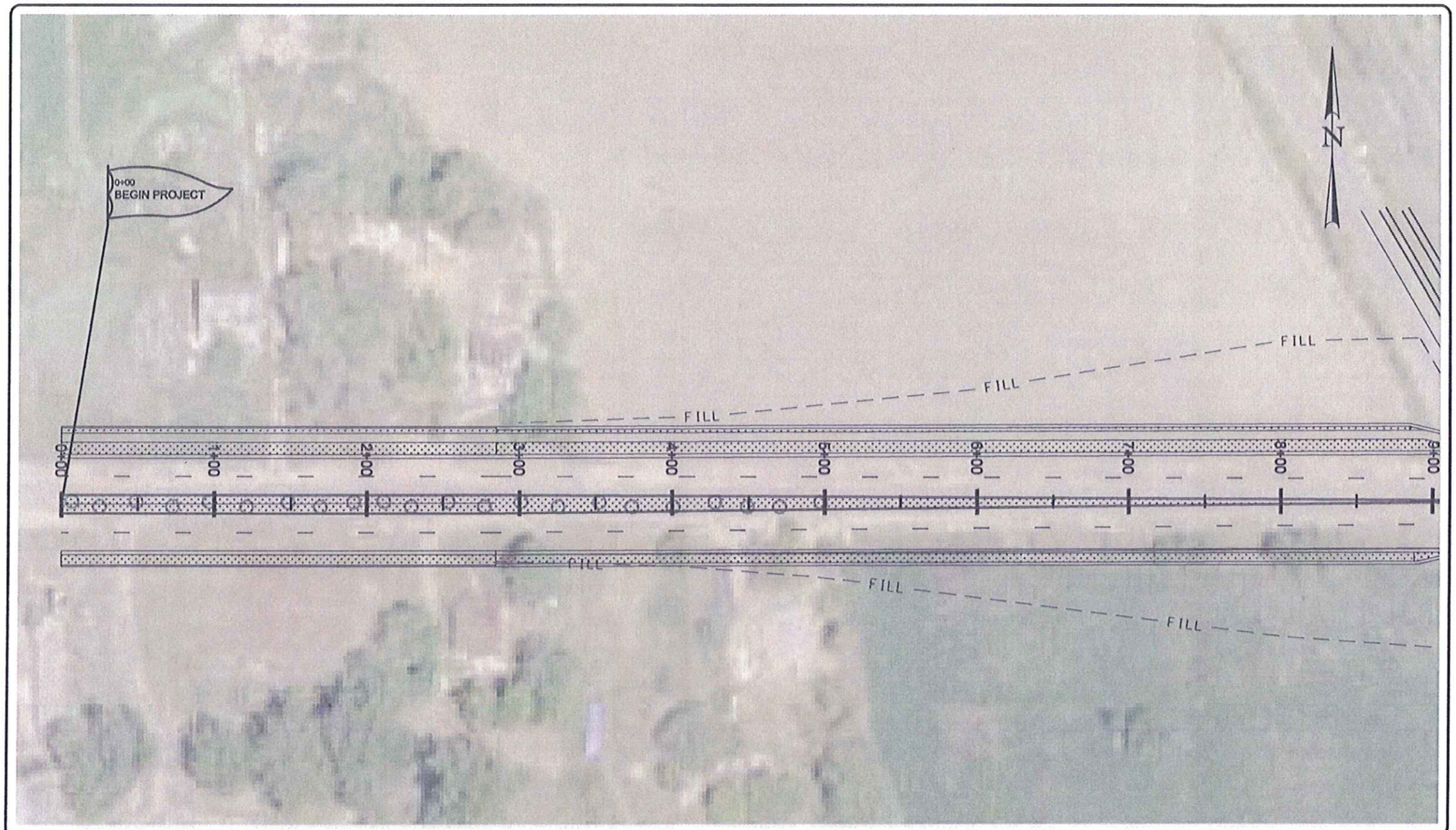
1433 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 539-1065
Fax: (801) 539-1070
www.crsengineers.com

ANDERSON DEVELOPMENT ROAD CROSSING
ROADWAY

VINEYARD UT

RD — SHEET 2 OF 3

06060C
PROJECT NUMBER



REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL	PAUL HIRST	INITIAL/DATE
PROJECT MANAGER	MATT HIRST	INITIAL/DATE
CHECKER	MATT HIRST	INITIAL/DATE
DRAWN BY	BRANDON TUCKER	INITIAL/DATE
SCALE	60:1	DATE ISSUED

CALDWELL
RICHARDS
SORENSEN
ANSWERS TO INFRASTRUCTURE

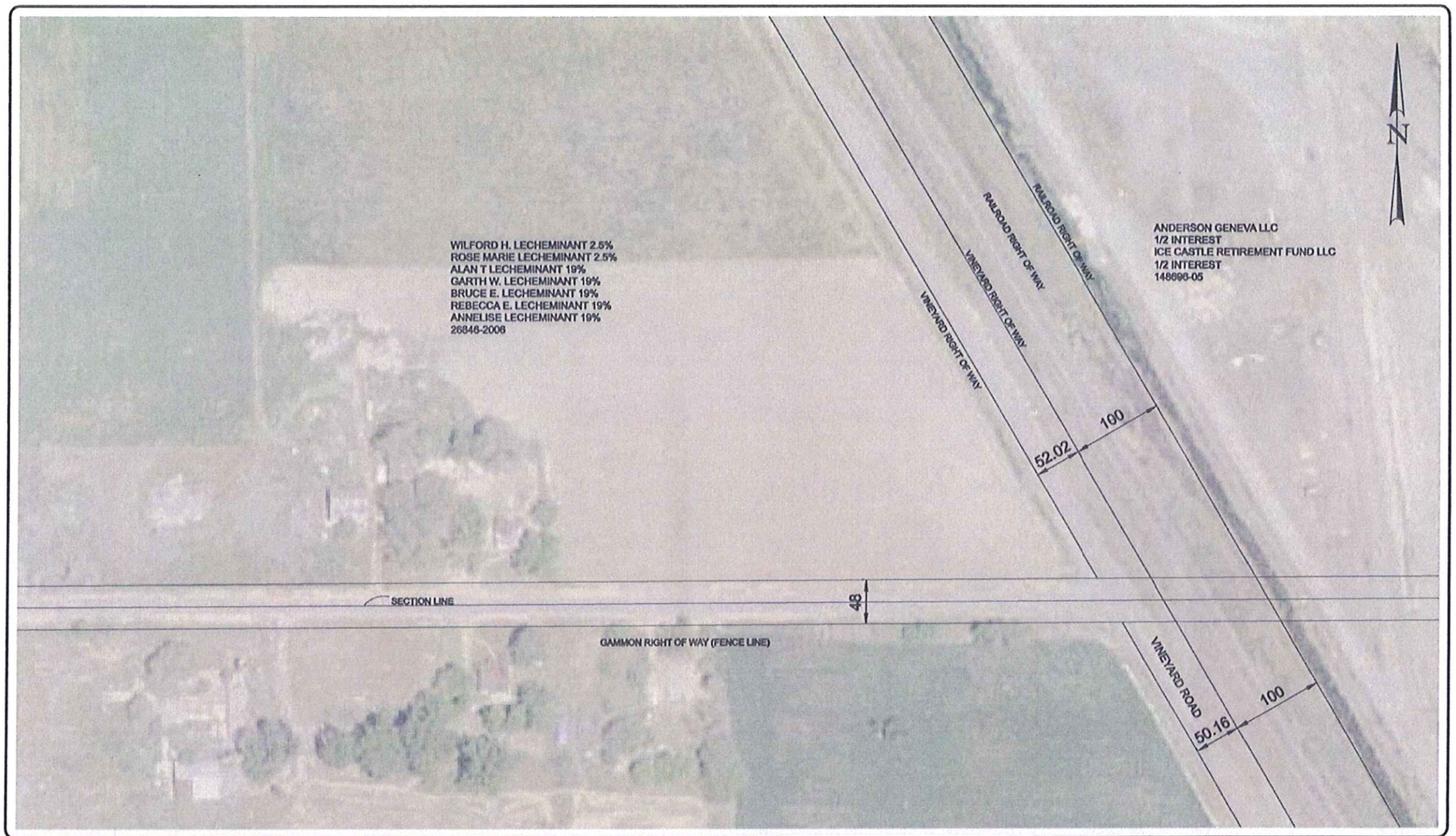
1433 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 939-5565
Fax: (801) 939-5570
www.crsengineers.com

ANDERSON DEVELOPMENT ROAD CROSSING
ROADWAY

VINEYARD UT

RD SHEET 1 OF 3

06060C
PROJECT NUMBER



REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL: MATT HIRST — INITIAL/DATE
PROJECT MANAGER: BILL GOOCH — INITIAL/DATE
CHECKED: MATT HIRST — INITIAL/DATE
DRAWN BY: BRANDON TUCKER — INITIAL/DATE
SCALE: 100-1 — DATE ISSUED

CALDWELL
RICHARDS
SORENSEN
ANSWERS TO INFRASTRUCTURE®

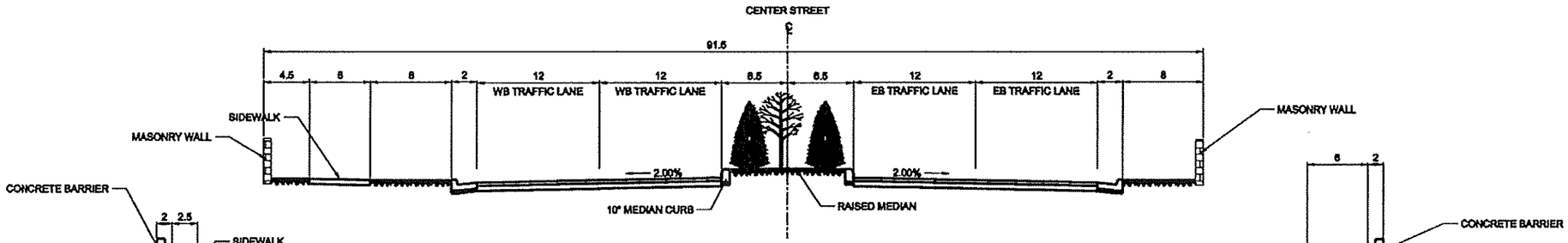
1433 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 939-5565
Fax: (801) 939-5570
www.crsengineers.com

ANDERSON DEVELOPMENT ROAD CROSSING
RIGHT OF WAY

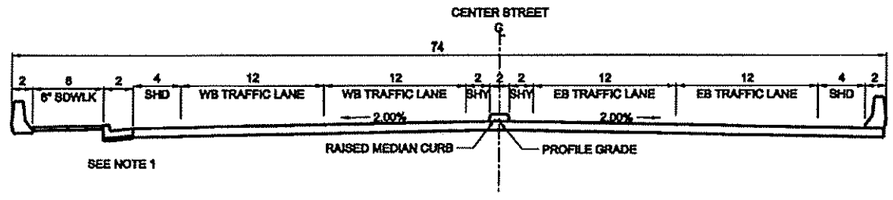
VINEYARD — UT

RW — SHEET 1 OF 1

06060C
PROJECT NUMBER



TYPICAL SECTION 1
CENTER STREET
DESIGN SPEED = 35 MPH
STA 0+00.00 to 2+84.55
SEE PLAN SHEETS FOR TAPERS AND WIDTHS



TYPICAL SECTION 2
CENTER STREET
DESIGN SPEED = 35 MPH
STA 9+27.86 to 11+06.93
SEE PLAN SHEETS FOR TAPERS AND WIDTHS

NOTES:
1. VERTICAL CURB RECOMMENDED TO SEPARATE ROADWAY FROM SIDEWALK - SEE AASHTO "GREEN BOOK" PG. 359
2. CONCRETE BARRIER REQUIRED FOR LACK OF CLEAR ZONE WIDTH (MIN. 10 FT) AS PER AASHTO ROADSIDE DESIGN GUIDE TABLE 3.1

REV.	BY	DATE	DESCRIPTION

PRELIMINARY NOT FOR CONSTRUCTION

PRINCIPAL: PAUL HIRST — INITIAL/DATE
PROJECT MANAGER: MATT HIRST — INITIAL/DATE
CHECKED: MATT HIRST — INITIAL/DATE
DRAWN BY: BRANDON TUCKER — INITIAL/DATE
SCALE: 10:1 — DATE ISSUED

CALDWELL RICHARDS SORENSEN
ANSWERS TO INFRASTRUCTURE

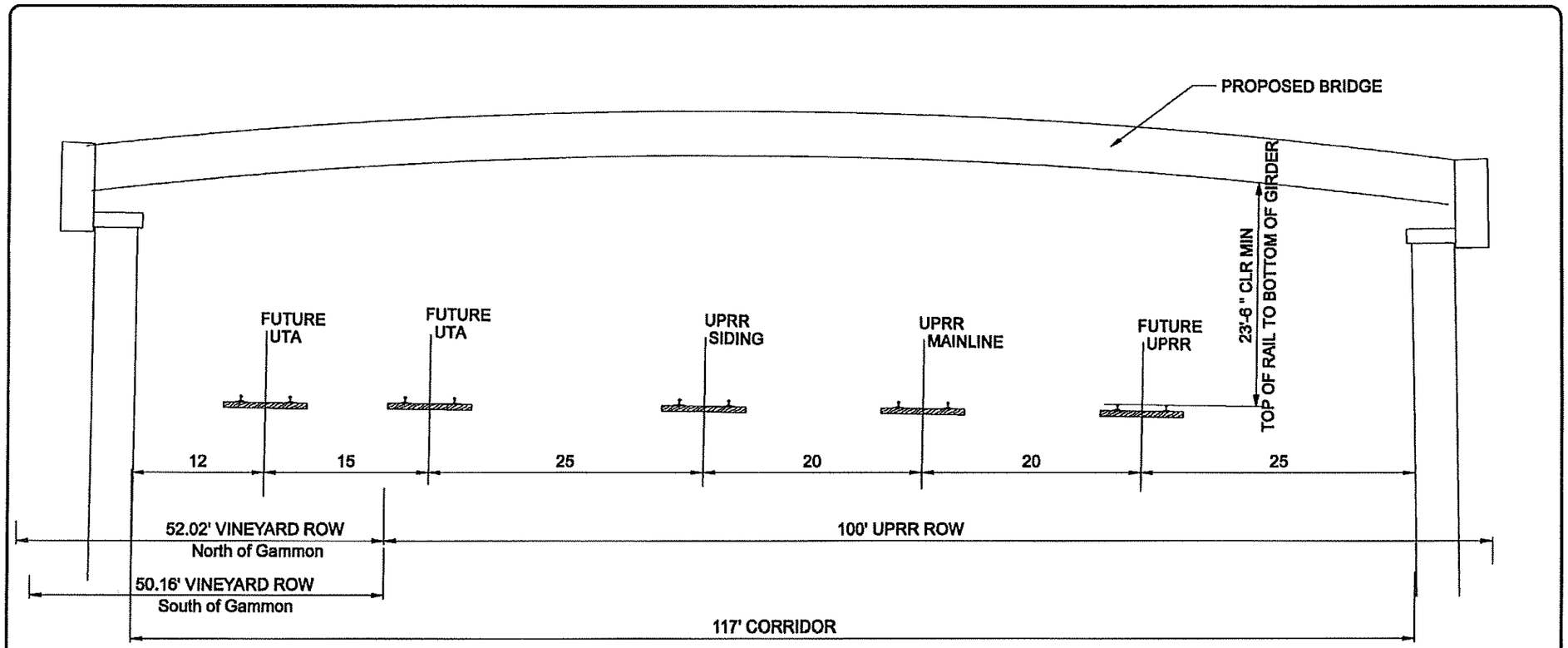
1133 North Hwy 89
Suite 110
Farmington, UT 84025
Phone: (801) 538-5565
Fax: (801) 538-5570
www.crsengineers.com

ANDERSON DEVELOPMENT ROAD CROSSING
TYPICAL SECTIONS

VINEYARD UT

TS — SHEET 1 OF 3

06060C
PROJECT NUMBER



ELEVATION
Looking North Parallel to Rail
(NTS)

NOTE: ROW INFORMATION
OBTAINED FROM UTAH COUNTY

REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL: PAUL HIRST — INITIAL/DATE
PROJECT MANAGER: MATT HIRST — INITIAL/DATE
CHECKED: MATT HIRST — INITIAL/DATE
DRAWN BY: BRANDON TUCKER — INITIAL/DATE
SCALE: NTS
DATE ISSUED:

CALDWELL RICHARDS SORENSEN
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1433 North Hwy 89
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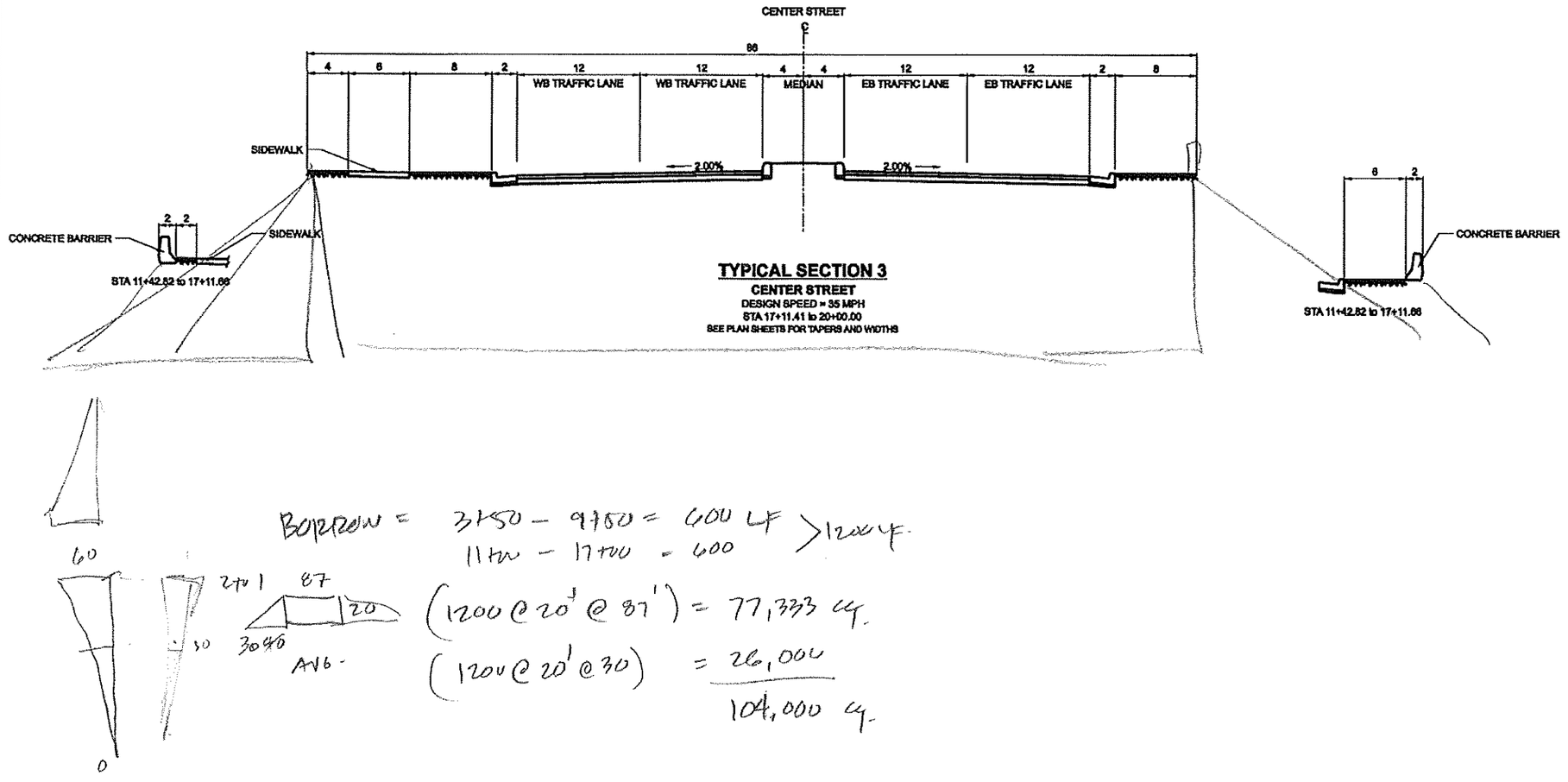
ANDERSON DEVELOPMENT ROAD CROSSING
TYPICAL SECTIONS

VINEYARD UT

TS SHEET 3 OF 3

06060C
PROJECT NUMBER



REV.	BY	DATE	DESCRIPTION

PRELIMINARY
NOT FOR
CONSTRUCTION

PRINCIPAL: PAUL HIRST — SEAL/DATE
PROJECT MANAGER: MATT HIRST — SEAL/DATE
CHECKED: MATT HIRST — SEAL/DATE
DRAWN BY: BRANDON TUCKER — SEAL/DATE
SCALE: 10:1
DATE ISSUED:

CALDWELL RICHARDS SORENSEN
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ANDERSON DEVELOPMENT ROAD CROSSING
TYPICAL SECTIONS

VINEYARD UT

TS
SHEET 2 OF 3
06060C
PROJECT NUMBER

Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01
152

Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01
153

Union Pacific Railroad Company
Utah Dept. of Transportation
Docket No. 09-888-01
154

NEGATIVE 19

GENEVA STEEL WORKS
11-30-43
RESERVOIR

SERIES XVII

NEGATIVE 19

GENEVA STEEL WORKS
11-30-43
RESERVOIR

SERIES XVII

UPRR believes the crossing at MP 708.19 on the Provo Subdivision, DOT #254903N is a Private crossing because:

1. A private crossing is a "highway-rail grade crossing that is not a public highway-rail grade crossing, such as grade crossings that are on privately-owned roadways utilized only by the owner's licensees and invitees." Railroad-Highway Grade Crossing Handbook at 223.

2. "The FHWA Manual on Uniform Traffic control Devices (MUTCD) defines a public highway-rail grade crossing as any intersection between a public roadway and railroad. The Roadway on either side of the crossing must be a public roadway, i.e. under the jurisdiction of, and maintained by, a public authority and open to public travel. If either approach to a crossing does not qualify as a public roadway, then the crossing is typically classified as a private crossing." Private Highway-Rail Grade crossing Safety Research and Inquiry at 3. The link to this manual is **www.fra.dot.gov/downloads/safety/privatexingsafetyresearchinquiry_061008.pdf.**

3. A "Public Road" is defined by the MUTCD as: any road or street under the jurisdiction of and maintained by a public agency and open to public travel. The link to this manual is **http://mutcd.fhwa.dot.gov/HTM/2003r1/html-index.htm.**

4. The crossing at issue here is not public because it has not been maintained by a public agency and is not open to public travel. In fact, it is gated. In addition, at least one of the approaches to the crossing does not qualify as a public roadway. The approach on the east side of the crossing is on private property—property that once was Geneva Steel and is now apparently controlled by Anderson Geneva.

5. Because the east side of the crossing enters into the old Geneva Steel site and was used by Geneva Steel as an entrance to the property, the crossing has been closed to the Public over 60 years.

6. Our understanding is that the roadway on the east side of the tracks was vacated in 1942. There is no existing Public Crossing Agreement between DRGW or UPRR and Vineyard.

7. The residents on the west side have not needed public access through this crossing for the past 60 years. There is no need for a public road at this location. The new property owners have plenty of access on the east side.

8. A new public road at this location would be a financial benefit to Geneva Anderson Development because Geneva Anderson would not be required to construct a new overpass to serve the planned development as previously discussed and designed. This would save the developer millions of dollars and put the majority of the liability on UPRR.

9. UDOT has determined that the FRA database is correct but information in the Database is often incorrect. And the FRA database gives a clear definition of a Public crossing, as outlined above.

Monday, November 9, 1970 continued

if there was something the Commission could do about it.

Chairman Roberts assured her that if she would document these places and advise the Commission, we would see that the matter was corrected.

RETIREMENT - MANDATORY OVER 65: Harrison Conover, County Assessor and Nina B. Reid, County Recorder were invited in to discuss those employees in their offices over age 65 that should retire at the end of this year.

Mrs. Reid pointed out that she had been in touch with Glen Aiken, Salt Lake County Recorder's office and Attorney, and they have a provision in their Merit System whereby an employee can work up to age 69 or mandatory at 70. After age 65, the employees performance is rated each year on an annual basis to see if they can remain for another year. She said she felt that an arbitrary age defeats the merit system. A lot of people are better employees at age 65 than some at 35. She said she felt what is good for the chiefs is good for the Indians. If elected officials over 65 can still work, she feels employees should too.

Mr. Conover said he has four individuals over age 65 and they are performing well on their jobs. It would take quite a while for a new and younger person to obtain the knowledge and ability these people have and they are still valuable employees as far as he is concerned.

Commissioner Stone expressed that he is opposed to forced retirement at any age. He feels it should be looked at each year.

Commissioner Thorn expressed that he felt there was a need for the retirment clause in the Merit System as there are people who are not able to handle their job at age 65 and this gives you an opportunity to replace them without hurting their feelings. He felt that it could be reviewed each year. He felt that it is a safety valve. He suggested that as long as the department heads submit a letter to the Commission requesting that their employees stay on their job, that this could be done on an annual basis. This letter should be addressed to the Commission with a copy for the Personnel Director.

Chairman Roberts noted that this is where your yearly evaluation comes in. It gives you an opportunity to interview and relate to your employee the type of work they are doing and can determine whether or not they should retire. He felt that a letter requesting these employees be retained for another year would be satisfactory. One thing you might think about is that it is possible to put these older people on a less responsible job and pay them less but still retain them.

Vacation: Mr. Conover said he has a problem in that Meda Craig worked for the county for a number of years prior to his taking office as Assessor. She was layed off for about two years and then he rehired her after he took office. Will her length of service be from the day she was employed by the County originally or just since he hired her back the second time?

This is a matter that will have to be taken up with the Merit Council.

Retirement: Chairman Roberts mentioned that this idea of keeping these people beyond retirment age is going to solve some problems, but it will also create some problems. Mr. Conover replied that he would like to budget for an additional employee next year that he can train to take the place of the property appraiser. He also doesn't know what the Greenbelt Amendment will do to his office and how much additional personnel he will need, if any. The work in his office is increasing all of the time. They have 20,000 more automobiles than they had before.

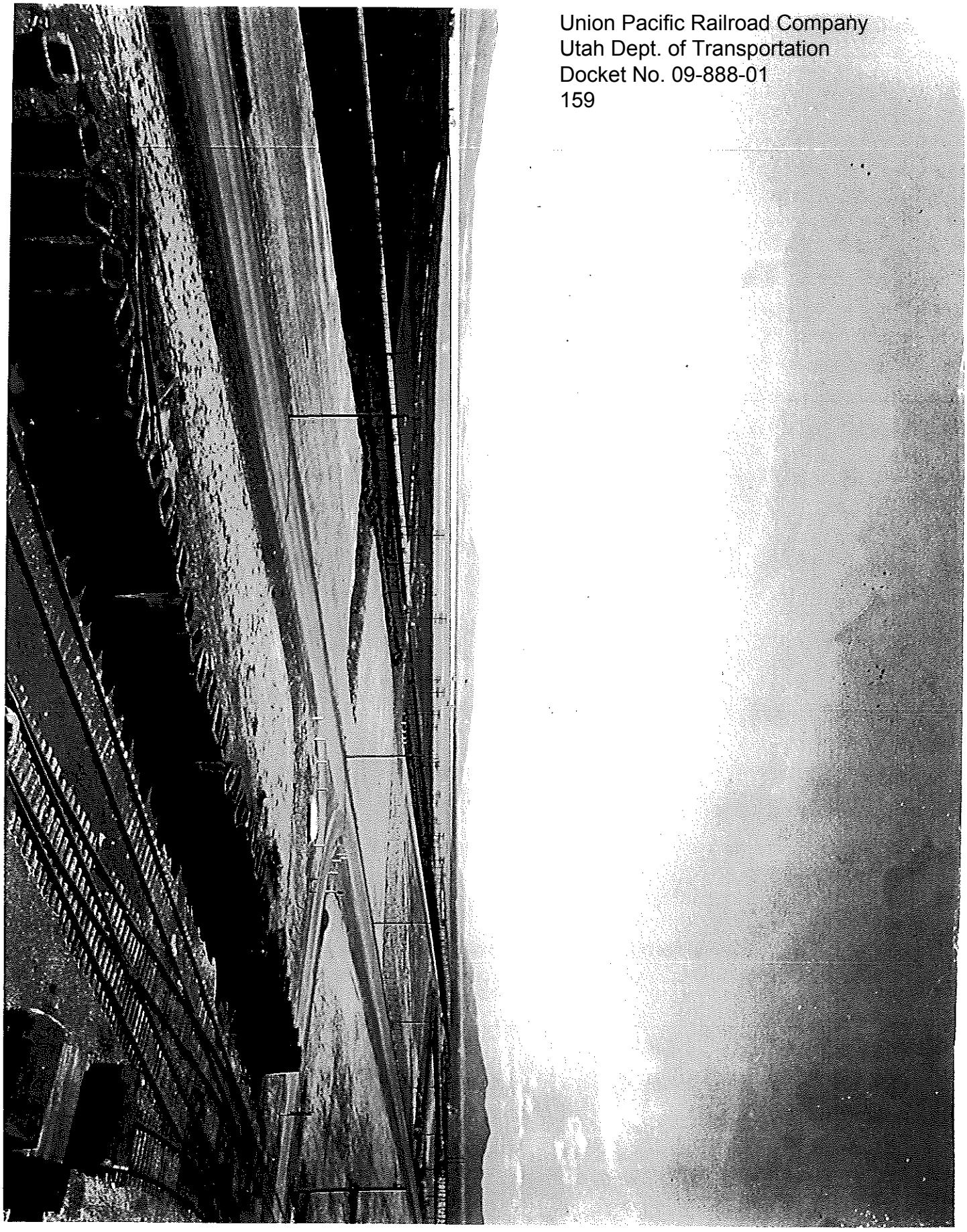
The Commission agreed with him and said they would talk about this with him when they go over his budget.

ROAD - U.S. STEEL - BLAINE STANDIFIRD: Mr. Standifird, representing U. S. Steel, met with the commission and presented a map of the road going north and south on the west side of Geneva. Since they have had a fatality on the railroad crossing there at the West gate of Geneva, they would like to change the road to give them a better approach to the crossing and perhaps move the crossing North a little further providing the Railroad will approve the new crossing. This is a distance of about 600 ft. They would want the county to take this road over. They will build the road up to grade and fill, and would like the county to blacktop it. They were planning on 22 ft. of road and Commissioner Thorn suggested it be increased to 24 ft.

The various possibilities of placing the road in this particular area were discussed and Mr. Standifird expressed that they planned on using reject pipe for the guard rail. (They were planning on 22 ft. of road and Commisston Thorn suggested it be increased to 24 ft.)

(The various possibilities of placing the road in this particular area were discussed and Mr. Standifird expressed that they planned on using reject pipe for the guard rail. They would have two angle turns one left and then one right the way it is proposed. It would require a stop or yield sign on the road coming from the West to the plant. It was pointed out that right angle crossings are always better. Mr. Standifird said they plan on contacting the Railroad people about this matter in a few days and would like the County's opinion on it before they meet with the railroad. The commission expressed their willingness to help with this road and Mr. Standifird will be in touch with the Commission after he meets with the railroad people.

SPANISH FORK - TEXACO SIGN: Mr. Green mentioned that we are having a problem trying to collect on the lease of the property the county owns in Spanish Fork that Texaco has a sign on. Commissioner Stone said they had talked with him about this and have refused to pay. In fact, they have even taken their sign down now. Mr. Green felt that maybe we had better fence our property off to keep others from using it, if



4-4-45
Reservoir

Anderson Geneva Development Inc.

99 N. Geneva Road
Vineyard, UT 84057
Telephone (801) 225-2031
(801)990-4930
Facsimile: (801) 990-4931

February 12, 2009

via email & US Mail

Jim Marshall
UNION PACIFIC RAILROAD
280 South 400 West, Ste 250
Salt Lake City, UT 84101-1887

EXHIBIT NO. 16
Case #09-888-01
Date 8-17-2010
Witness J. Marshall
Reporter Rossann Morgan

RE: 400 North Crossing, Vineyard, Utah
DOT No.: 254903N
Your Milepost: 708.19

Dear Mr. Marshall:

I received your letter of January 28, 2009. I was somewhat surprised at your characterization of our conversations over the past few years regarding the closure of the 400N crossing. We have had many discussions with regard to negotiations attempting to remove the spur line on the west side of Geneva Road. Tangential to that was our willingness to allow or encourage closure of a public at-grade crossing at 400N and Vineyard Road. I recall your position during those discussions to be that UP was not certain it considered that to be a public crossing, or that U.P. would be examining that. We have never considered the crossing to be anything other than a public at grade crossing.

Please be advised that we have filed a petition with the Public Service Commission against UDOT and UTA with regard to the recent actions of UTA and correspondence received from Eric Cheng regarding the 400N Crossing. Based on your letter of January 28th, we have filed a similar petition against Union Pacific Railroad with the Public Service Commission. If there is any attempt to close the crossing, we will immediately seek injunctive relief. In fact, based upon the threat of closure, we will likely seek immediate injunctive relief with the Public Service Commission.

We disagree with the actions of UP in this instance and we are disappointed in the lack of diligence in determining the facts regarding the public at-grade crossing. We believe the determination of UP is incorrect and we will pursue our legal remedies as needed.

I have corresponded with Eric Cheng at UDOT to offer an opportunity to discuss this matter prior to hearing with the Public Service Commission. I am willing to have UP be a part of those discussions. If you would like to do so, please let me know and I will arrange a time.

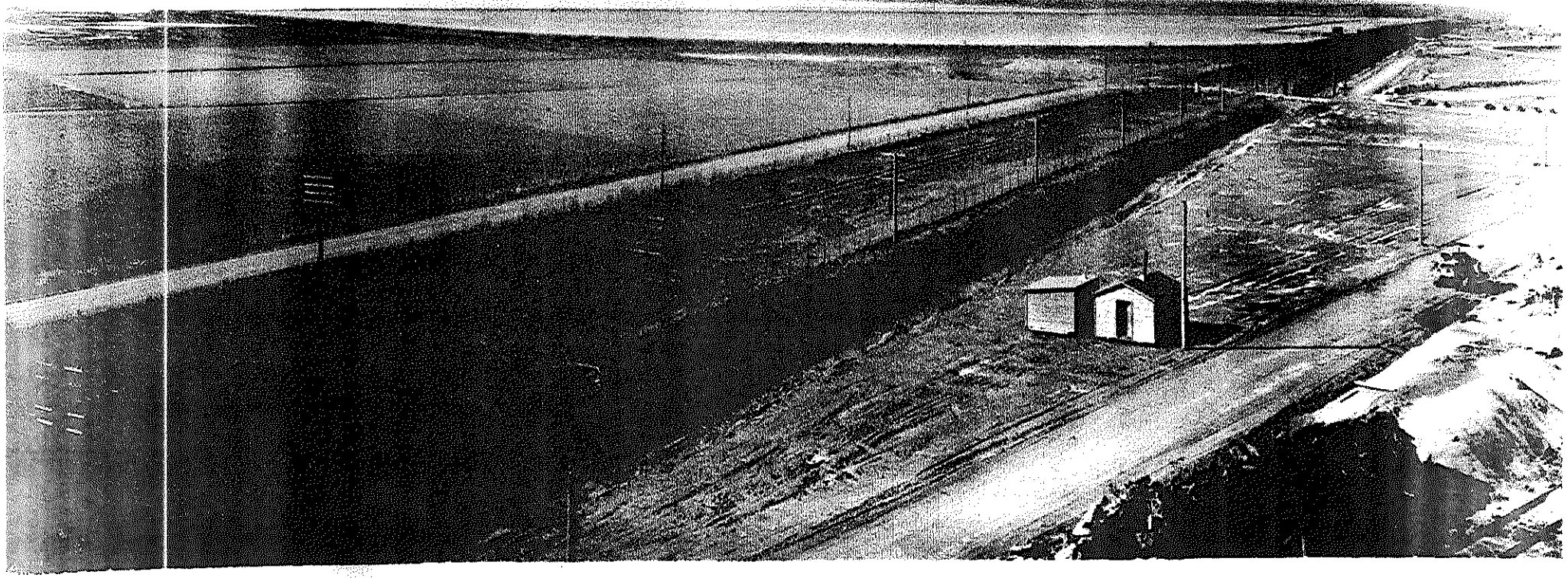
Sincerely,

Dennis M. Astill,
Project Manager & General Counsel

DMA\ss

EXHIBIT NO. 162
Case # 09-888-01
Date 8-17-2010
Witness J. Marshall
Reporter Susann Morgan

EXHIBIT NO.	156
Case	# 09-888-01
Date	8-17-2010
Witness	J. Marshall
Reporter	Susan Wingfield



NEGATIVE 30

GENEVA STEEL WORKS–PROJECT COMPLETE
2–23–44
360 ACRE RESERVOIR

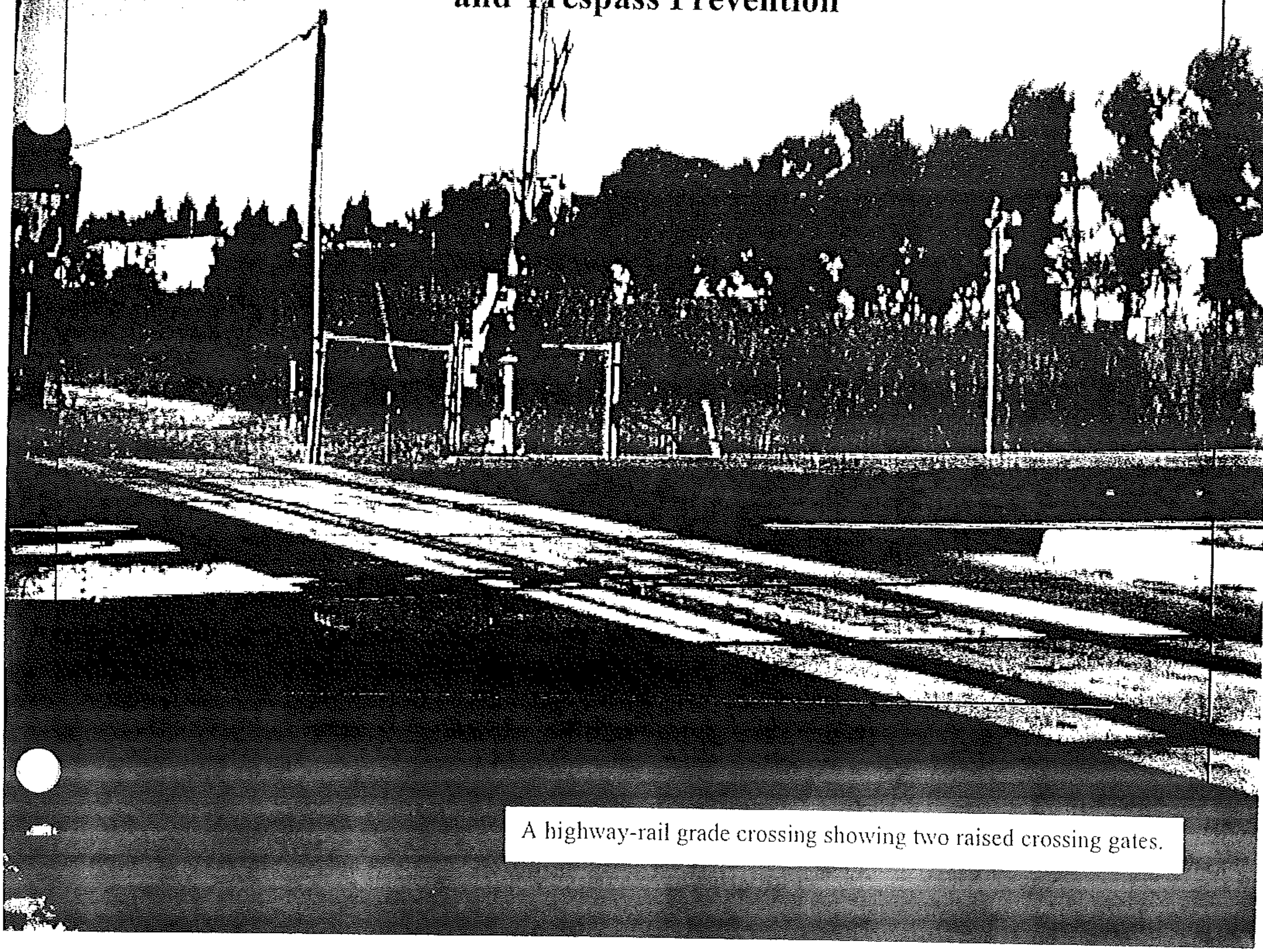
SERIES IV

U.S. Department of Transportation

Secretary's Action Plan

Secretary of Transportation

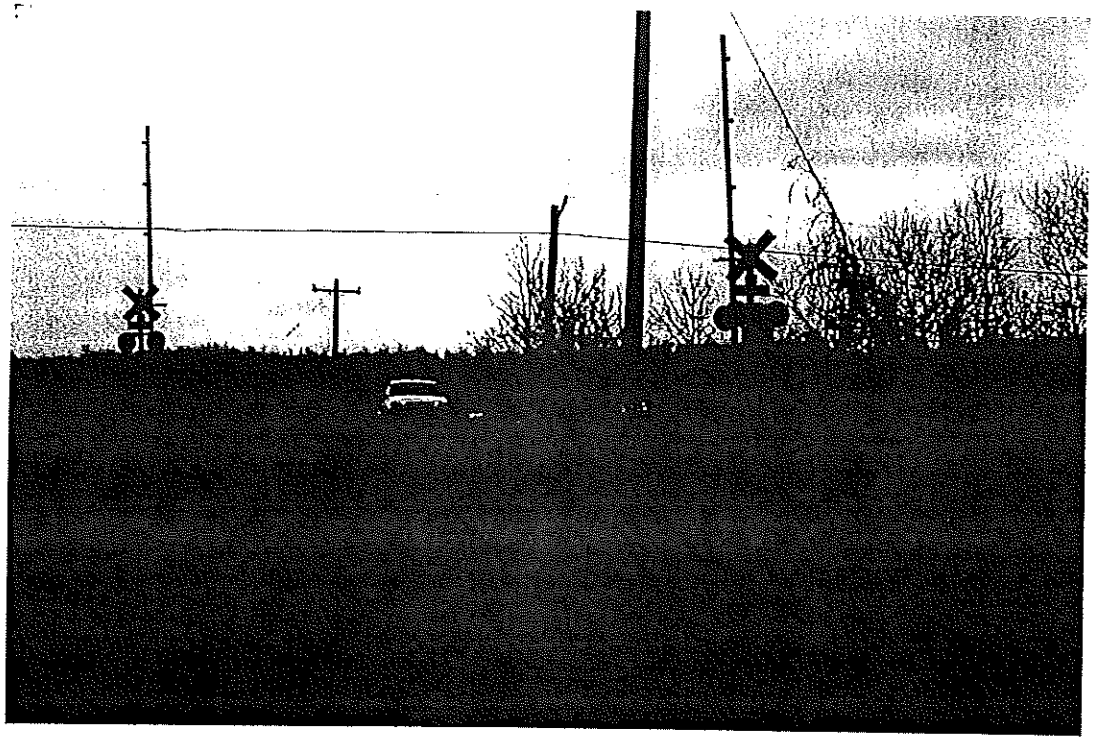
Highway-Rail Crossing Safety and Trespass Prevention



A highway-rail grade crossing showing two raised crossing gates.

The DOT believes it is very useful to work closely with the railroad industry to develop articles on grade crossing safety issues relevant to truckers, and getting these articles published by trucking associations, or in the trade magazines and newsletters prevalent in this industry. In addition, such materials will be posted on websites that drivers can view at their own pace.

EXHIBIT NO 104
Case # 09-888-01
Date 8-17-2010
Witness J. Marshall
Reporter Rossana Morgan



A small pickup truck crosses a two-track railroad on a gravel-surface road, with steep vertical slopes on both sides of the tracks. The steep grade is visible because of the steep angle of the truck as it starts across the tracks. The crossing has flashing lights and gates, but they are not activated, and no train is visible. There is a sign below the flashing lights with the black legend HIGH SPEED TRAINS on a white background.

5. Close Unneeded Crossings

In 1991, the Federal Railroad Administrator endorsed a goal of closing 25 percent of all highway-rail crossings, and the 1994 Action Plan included several program elements intended to help achieve that goal. Although that target has not yet been achieved, DOT leadership has provided significant support for efforts by States and railroads to eliminate redundant and particularly hazardous crossings through consolidation of nearby crossings on major rail lines, grade separations, and other means. Outreach conducted in developing this plan revealed a strong conviction among highway-rail crossing experts that a strong emphasis on closing closures must be continued. Notably, the American Association of State Highway and Transportation Officials (AASHTO) is on record as a supporter of highway-rail crossing closures and consolidations as well as a statement from DOT endorsing such a program.

For the past decade, DOT, through the FRA, has worked towards this goal of a 25 percent reduction in rail/highway at-grade crossings. Closing redundant and particularly hazardous crossings frees resources to address safety at the remaining highway-rail crossings, reduces hazards to trains associated with disturbance of the track structure by large motor vehicles, and permits road authorities and railroads to focus maintenance resources on crossing surfaces at the remaining locations. Very often crossings can be closed with no other adjustments to the road network. In other cases short extensions of access roads are required. The Department remains confident that many additional highway-rail grade crossings, public and private, can be eliminated without detriment to local mobility; and completing this effort is necessary to ensure the ability of freight and passenger railroads to play a constructive role in the National transportation system.

During the development of this Action Plan, there has been much discussion about the need to provide a strong endorsement of the practice of crossing closures and consolidations where appropriate, and to provide a strong mission statement supporting this approach at the Federal level. A number of partners urged that a stronger Federal endorsement of crossing consolidation will assist States in obtaining success with these projects at the local level. The Department unequivocally supports continued efforts to consolidate grade crossings and make more effective use of scarce public safety resources. The Department will also continue to advocate flexibility in Federal-Aid highway programs for crossing closure projects.

While the goal of completing the 25 percent reduction will still be pursued under this new Action Plan, the FRA will concentrate on presenting "best practices" and successful initiatives in providing technical assistance and support to States and local governments in the consolidation of at-grade crossings. Efforts will center on fostering and participating in the development of "tools" - incentives, guidance, and regulations - that will help States, local agencies and railroad companies to facilitate the process and to move closure and consolidation proposals forward. The DOT will encourage States to formulate their own annual goals for closure or consolidation of redundant or unneeded crossings.

The FRA has recently documented North Carolina DOT's Traffic Separation Study (TSS) technique to consolidate crossings, implement mitigation projects and safety improvements at crossings as a best practice. The TSS approach evaluates traffic through and across the railroad corridor, and involves the local government(s) at the beginning of the analysis. The FRA will work to develop an approach to local government that emphasizes closure of redundant and unsafe crossings as crucial to pubic safety and economic development.

In addition, there is a need for a sharper focus on the numerous requests for new at-grade crossings on rail lines with 40 – 100 trains per day. This disturbing trend, which could threaten gains in grade crossing safety, suggests the need for a concept of "Limited Access Rail Lines" in order to enhance safety on high-density rail lines. Such rail lines also host passenger trains in many cases. Tools such as FRA's GradeDec analysis software, along with the TSS process, could be used to determine the decision point between denying access, providing a grade separation, or requiring an upgrade of warning devices, and recommend a program of near and long term projects.

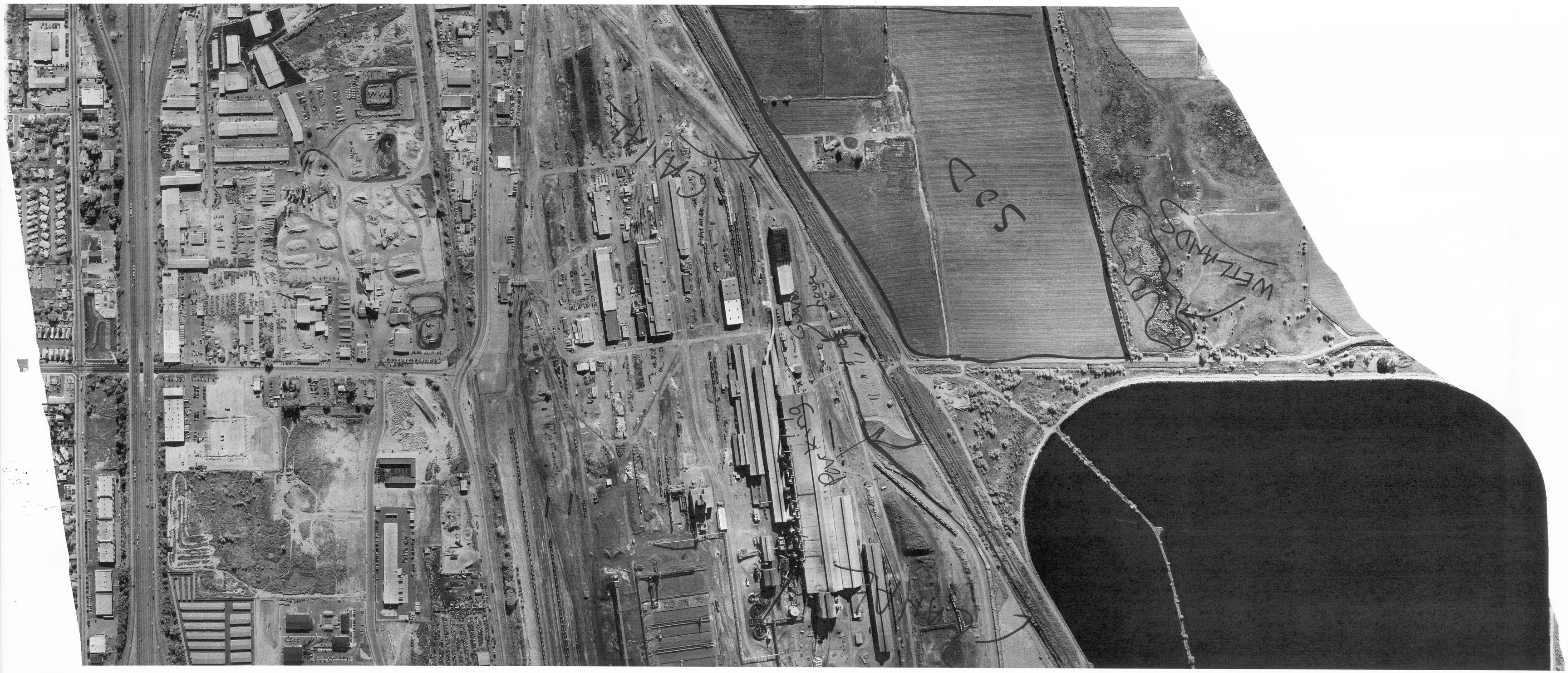
Before the end of 2004, the FRA will complete the update of its grade crossing consolidation and closure manual. This document will serve to emphasize DOT support for closure and consolidation of grade crossings where appropriate, while maintaining essential, alternate and safe access for local communities.

It will also be important to stress that existing pedestrian traffic over a crossing to be closed must be rerouted and accommodated as part of the grade separation or consolidation project.

Pedestrian traffic is also an issue with at-grade crossings. Some railroads are concerned that there are no national engineering or MUTCD standards applied to at-grade pedestrian crossings, thus creating safety and liability issues. The DOT will work within the MUTCD process to obtain adoption of pedestrian traffic control standards in Part 8 of the MUTCD as related to at-grade railroad street and highway crossings and at at-grade pedestrian-only crossings.

By then end of 2005, the FRA will make available a compilation of pedestrian safety devices in use at grade crossings. This will represent the current state of the practice of pedestrian accommodation at grade crossings, including pedestrian-only crossings.

A fully activated pedestrian gate and flashing light signal across a sidewalk adjacent to a highway-rail grade crossing, which itself cannot be seen. A single-track railroad is visible in the lower foreground.



Union Pacific Railroad Co.
Utah Dept. of Transportation
Docket No. 09-888-01
136

400 NORTH VINEYARD ROAD EXHIBIT

VINEYARD, UTAH COUNTY, UTAH

Union Pacific Railroad Co.
Utah Dept. of Transportatio
Docket No. 09-888-01
135

SURVEYOR'S CERTIFICATE

I, William L Clark, do hereby certify that I am a Professional Land Surveyor, and that I hold certificate No. 5251265 as prescribed under the laws of the State of Utah. I further certify that a survey of the property shown hereon was performed by me or under my direction, and that this plat correctly depicts the findings of that survey.

PROFESSIONAL LAND SURVEYOR WILLIAM L. CLARK No. 5251265 8-13-10 STATE OF UTAH

William L. Clark
P.L.S. No. 5251265

Date

SURVEYORS NARRATIVE

THE PURPOSE OF THIS SURVEY IS TO DEPICT THE SUGGESTED LOCATION OF A ROADWAY PER INFORMATION REFERENCED TO RAILROAD RIGHT OF WAY MAPS TITLED, THE RIGHT OF WAY AND TRACK MAP OF THE DENVER AND RIO GRANDE RAILROAD, DATED JUNE 30, 1919 AND REVISED DECEMBER 31, 1927, AND ALSO DEPICTED ON A RIGHT OF WAY EXHIBIT PRODUCED BY NORTHERN ENGINEEREING AND SIGNED 3/24/09 BY KENNETH E. BARNEY PLS 172762

LEGEND

- RAILROAD RIGHT OF WAY
- SECTION LINE
- SUGGESTED CENTERLINE LOCATION OF ROADWAY

PROFESSIONAL LAND SURVEYOR No. 5251265 WILLIAM L. CLARK STATE OF UTAH

DATE 08/13/10
SCALE 1" = 30'
PROJECT NO. 8PAR020300

400 NORTH VINEYARD ROAD EXHIBIT
VINEYARD, UTAH COUNTY, UTAH

PSOMAS
4179 Riverboat Road, Suite 200
Salt Lake City, Utah 84123
(801) 270-5777 (801) 270-5782 (FAX)

DESIGNED WLC
DRAWN CEA
CHECKED WLC

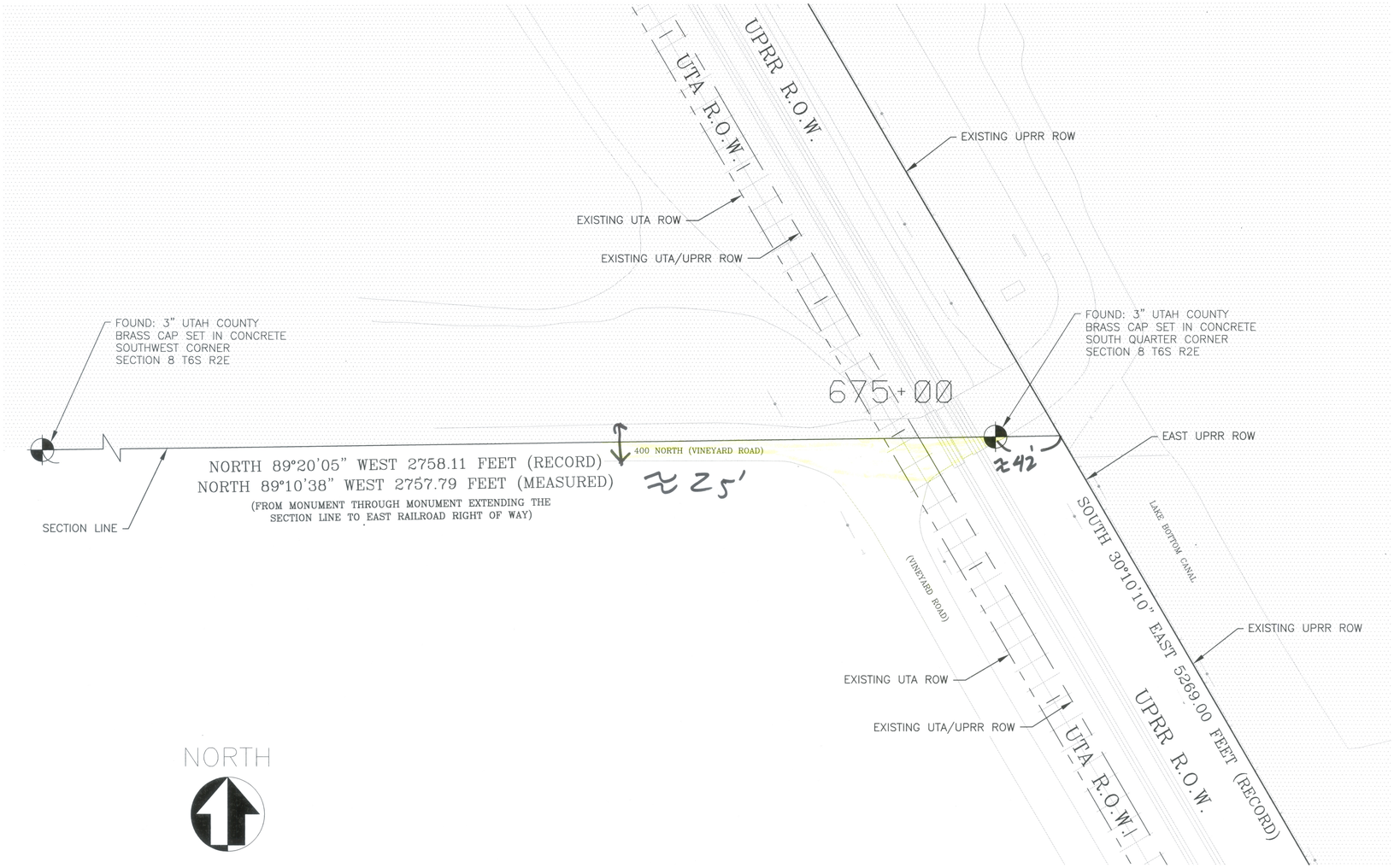
SHEET 1 OF 1

UTAH COUNTY ROAD ABANDONMENT
RECORD OF SURVEY

VINEYARD, UTAH COUNTY, UTAH

A PARCEL OF LAND LOCATED IN SECTIONS 8 AND 17,
TOWNSHIP 6 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN.

Union Pacific Railroad Co.
Utah Dept. of Transportation
Docket No. 09-888-01
134



NORTH

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

SURVEYOR'S CERTIFICATE

I, William L Clark, do hereby certify that I am a Professional Land Surveyor, and that I hold certificate No. 5251265 as prescribed under the laws of the State of Utah. I further certify that a survey of the property described hereon was performed by me or under my direction, and that this plat correctly depicts the findings of that survey.

PROFESSIONAL LAND SURVEYOR
WILLIAM L. CLARK
No. 5251265
6-13-10
STATE OF UTAH

William L. Clark — Date
P.L.S. No. 5251265

SURVEYORS NARRATIVE

THE PURPOSE OF THIS SURVEY IS TO DEPICT THE LOCATION OF THE LANDS REFERRED TO IN THAT CERTAIN RESOLUTION AND ORDER OF THE BOARD OF COUNTY COMMISSIONERS, OF UTAH COUNTY, UTAH, RECORDED AUGUST 10, 1942 AS DOCUMENT "AA6319" IN BOOK 3, PAGE 303, UTAH COUNTY RECORDS, AS IT AFFECTS THE INTERSECTION OF 400 NORTH "VINEYARD" AND THE UNION PACIFIC RAILROAD RIGHT OF WAY. THIS SURVEY DEPICTS THE LOCATION OF THE SECTION LINE AND EAST RIGHT OF WAY OF THE UNION PACIFIC RAILROAD REFERRED TO IN LINES 23 – 25 OF THE LEGAL DESCRIPTION PER SAID RESOLUTION, BEING MORE SPECIFICALLY DESCRIBED AS:

"....TO THE CORNER COMMON TO SECTIONS 7, 8, 17, AND 18, ABOVE TOWNSHIP AND RANGE (T6S, R2E); THENCE NORTH 89°20'05" EAST 2758.11 FEET ALONG SAID SECTION LINE TO THE EAST RIGHT OF WAY OF THE DENVER AND RIO GRANDE RAILROAD; THENCE SOUTH 30°10'10" EAST 5269.00 FEET ALONG SAID EAST RAILROAD RIGHT OF WAY..... ".

PSOMAS HAS MEASURED SAID SECTION LINE AND RAILROAD RIGHT OF WAY LINE IN THE FIELD AND BOTH ARE DEPICTED ON THIS SURVEY. THE SUBJECT SECTION LINE, BEING THE COMMON LINE TO SECTIONS 8 AND 17, TOWNSHIP 6 SOUTH, RANGE 2 EAST, EXISTS APPROXIMATELY IN THE CENTER OF THE IMPROVED ROADWAY OF 400 NORTH (AS SHOWN). THE LANDS AFFECTED BY SAID RESOLUTION (ROAD ABANDONMENT) ARE SHOWN IN HATCHING.

LEGEND

- LANDS AFFECTED BY ROAD ABANDONMENT
- SECTION LINE
- EAST UPRR ROW LINE
- UTA / UPRR ROW LINE
- UTA ROW LINE
- ROAD ROW/ PROPERTY LINE
- FOUND SECTION CORNER

PROFESSIONAL LAND SURVEYOR
No. 5251265
WILLIAM L. CLARK
STATE OF UTAH

DATE 08/13/10
SCALE 1"=40'
PROJECT NO. 8PAR020300

UTAH COUNTY ROAD ABANDONMENT
RECORD OF SURVEY
VINEYARD, UTAH COUNTY, UTAH
A PARCEL OF LAND LOCATED IN SECTIONS 8 AND 17,
TOWNSHIP 6 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN.

PSOMAS
4179 Riverboat Road, Suite 200
Salt Lake City, Utah 84123
(801) 270-5777 (801) 270-5782 (FAX)

DESIGNED WLC
DRAWN CEA
CHECKED WLC

SHEET 1 OF 1

UP 00196

1. ALIGNMENT
2. STATIONING
3. OFFSET

5+50 (+25')

7+80 32

PC 7+00

UP 169

Exhibit No. UP 169
Case
Date
Witness
Reporter