State Highway-Rail Grade Crossing Action Plan

01 December 2011

Georgia Department of Transportation

Office of Utilities

Prepared with assistance from:

MorelandAltobelli Associates,Inc

Plan Document Development History

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05/18/2011	Incomplete working draft Plan to FRA, GOHS, GOL for informal review & comment
06/24/2011	Submission of formal draft to FRA for review and comment, with copy to GOHS, GOL, and DDS.
06/27/2011	Draft Plan available on GDOT website for public review and comment through 8/01/2011. Draft Plan is to remain on website after end of comment period through adoption of Final Plan.
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11/01/2011	Bar charts illustrating crash experience and Figure depicting corridor studies added to Plan
11/25/2011	GDOT receives letter from FRA approving plan.
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1.0 Introduction

1.1 Plan Genesis

Section 202 of the Rail Safety Improvement Act of 2008 (RSIA08), Public Law 110-432 (H.R.2095 / S.1889), that was signed into law on 16 October 2008 required the U.S. Secretary of Transportation to identify the ten States with the most highway-rail grade crossing collisions, on average, over the past three years, and to require those States to develop State highway-rail grade crossing action plans. Section 202 further provided that these plans must identify specific solutions for improving safety at crossings, including highway-rail grade crossing closures or grade separations, and must focus on crossings that have experienced multiple collisions, or are at high risk for such collisions.

The Federal Railroad Administration (FRA) (http://www.fra.dot.gov/) published a Final Rule in the 28 June 2010 *Federal Register* (Volume 75, No. 123) addressing the development, review, and approval of the State highway-rail grade crossing action plans required by the Rail Safety Improvement Act.[1] The Rule includes the requirement that State highway-rail crossing action plans cover a five year time period.

Alabama, California, Florida, Georgia, Illinois, Indiana, Iowa, Louisiana, Ohio, and Texas were identified as the ten states with the most highway-rail grade crossing collisions in the 2006-2008 three calendar year period. The Georgia Department of Transportation (GDOT) (http://www.dot.state.ga.us/Pages/default.aspx) Office of Utilities, Railroad Safety Program, led and coordinated the preparation of this Plan to conform with the requirements of 49 CFR Part 234, Grade Crossing Signal System Safety and State Action Plans; Subpart B, Reports and Plans; § 234.11 State highway-rail grade crossing action plans.

[1] Click underlined webpage addresses in electronic version of document for hyperlinks to webpages.

1.2 Scope and Objective

The regulatory requirement for the preparation of this State Highway-Rail Grade Crossing Safety Action Plan, hereinafter Plan, is based on Georgia 2006, 2007, and 2008 train-road user collision data. Collision data from the broader and more current 2006-2010 period were used in the development of this Plan. (Also, the use of five year collision experience in evaluating crossing collision risk is customary, and is the period GDOT weighs most heavily in prioritizing highway-rail crossing safety improvements.) This Plan, upon approval by FRA and adoption by GDOT, applies through 2017.

The focus of the Plan is road user safety at highway-rail grade crossings where the general public road system and general railroad system intersect within Georgia. This Plan considers only highway-rail grade crossings located on the network of highways, roads and streets that constitute the general public highway system located within Georgia. It does not include the highway-rail grade crossings of privately owned roads or drives, although the general public may have access to and use such private crossings. It also does not include the highway-rail grade crossings of publicly owned roads that are not part of the general public highway network, such as crossings located within the secure areas of U.S. military installations, or crossings otherwise secured from use by the general public. Hereinafter references to a "crossing" or "crossings" refer to public highway-rail grade crossings as defined above, unless otherwise indicated.

Crossing warning devices may be classified as passive or active warning devices. Passive warning devices typically consist of warning and regulatory signs and pavement markings. Hereinafter references to passive crossings should be understood to refer to crossings without any active warning devices. Active warning devices typically consist of automatic gates, and/or flashing lights, and bells.[2] Hereinafter references to "gates" or "gate crossing" or crossings should be understood to be crossings equipped with automatic gates, flashing lights and bell(s) active warning devices, and "flashers" or "flasher crossings" understood to refer to crossings equipped with automatic flashing lights and bell(s) only.

The objective of this Plan is to identify specific solutions that will reduce collisions between trains or on-track equipment, and pedestrians or vehicles at crossings. Crash is a widely used within the traffic engineering field that refers to collisions, accidents or wrecks. The term crash hereinafter should be understood to refer to such incidents.

Crossing closures and grade separations are integral to this Plan because they greatly reduce, or in the case of grade separations, eliminate crashes.[3] The Plan will also focus on crossings with a history of multiple crashes or otherwise have risk factors associated with multiple crash crossings. The Rail Safety Improvement Act recognized that such crossings account for a disproportionately high fraction of crashes, and thus focus on such crossings offer a great opportunity to reduce the total numbers of crashes. Multiple crash crossings hereinafter generally refer to crossings that have experienced more than one crash in the 2006-2010 period.

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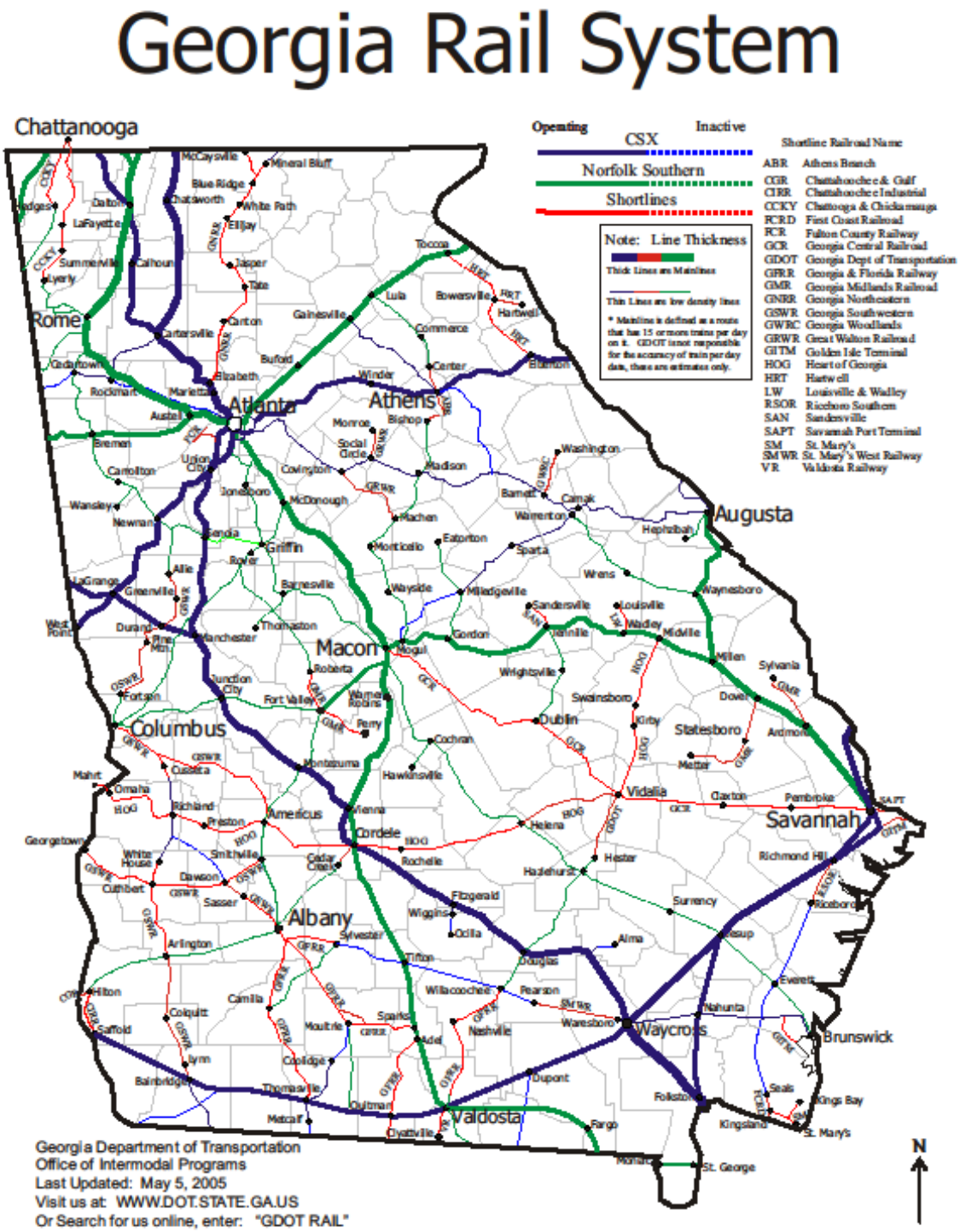
[2] Actuated signs such as a "No Left Turn" sign actuated in connection with pre-emption, an interconnection between active warning devices at a crossing and a nearby intersection signal, though regulatory in nature, may be considered to be active warning devices.

[3] Rerouting of traffic from a closed crossing to another crossing does not completely eliminate crash risk associated with the closed crossing.

Figure 1 Georgia Railroad System



1.3 Georgia Railroad System

The general railroad system in Georgia consists of the networks of Class I railroads CSX Transportation (CSXT) (http://www.csx.com/) and Norfolk Southern (NS) (http://www.nscorp.com/), and 24 Class III railroads that collectively operate approximately three dozen branch line segments. Short line railroad is an informal term applied to small railroad companies operating over relatively short distances that have much smaller gross revenue than Class I railroads. Georgia's Class III railroads conform to this informal definition.[4] Hereinafter Georgia railroads, exclusive of CSXT, NS and Amtrak, collectively may be referred to as short lines. The Georgia Railroad System is depicted in Figure 1 on the preceding page.

The 1,676 route mile CSXT and 1,778 route mile NS Georgia railroad networks generally extend throughout Georgia.[5] CSXT, because of its larger presence in Florida, has greater through traffic and generally higher average train traffic density on its Georgia network than NS.[6]

CSXT and NS each operate a pair of major trunk lines that cross in Atlanta. One each of the CSXT and NS trunk lines through Atlanta broadly parallel Interstate 75 (I-75) through Georgia. They also each operate a trunk line that generally parallels Interstate 85 northeast of Atlanta with the CSXT trunk line paralleling Interstate 85 (I-85) southwest of Atlanta, and the NS trunk line paralleling Interstate 20 (I-20) west of Atlanta.[7]

Both NS and CSXT railroads have been constructing additional capacity in the form of second main track, and new and extended passing sidings on these trunk lines. The NS I-85 northeast/ I-20 west trunk line is part of NS' Crescent Corridor, a national-scale $2 billion public-private partnership (NS, USDOT, various states and localities) to improve railroad transportation between the northern mid-Atlantic and the central southeastern regions of the United States.[8]

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[4] "Class" followed by an Arabic number refers to a standard of track, while "Class" followed by Roman numerals refers to the size of a railroad based on operating revenue. Class I railroads are defined by the Surface Transportation Board as those with $401.4 million in operating revenue. Amtrak is a Class I railroad, but does not own any of the 316 route miles over which it operates within Georgia. No Class II railroads currently operate within Georgia. Class III railroads are those with $32.1 million or less in operating revenue. The Louisville and Wadley Railroad (L&W) has not operated its 10 mile track in many years, and is not included herein as one of the 24 Georgia Class III railroads.

[5] Revised from 1,908 NS miles reported in the 2009 State Rail Plan to 1,778 miles per Georgia Railroads Association website. (Independent tabulation of NS route miles consists of 1,510 Georgia Division route miles, including approximately 50 miles of major lead tracks + 286 other Division routes miles = 1,796 route miles.) Independent rudimentary calculation is 1,583 CSXT route miles in Georgia.

[6] The 2009 State Rail Plan (SRP) reported approximately one-half of the total rail tonnage in Georgia is through traffic. Georgia is a net destination state for rail traffic, largely because of coal traffic to power plants.

[7] CSXT and NS apply various names to their various corridors. This description associates them with interstates that are more familiar to those outside of the railroad industry.

[8] The Crescent Corridor is network corridor of more than a single route. A small segment of a second Crescent Corridor route is located in Dade County, Georgia's most northwestern county.

Other notable Class I trunk lines experiencing or subject to construction of additional capacity in Georgia include the CSXT lines along the Atlantic Coast generally paralleling Interstate 95 (I-95); the CSXT line between Manchester and Birmingham, AL, an important intermodal route between Florida and the Midwest route that connects to the CSXT I-75 corridor; and the NS Macon-Savannah line serving intermodal traffic to and from the Georgia Ports Authority's Garden City Terminal in Savannah, the third largest international container traffic port in the United States.

CSXT and NS both operate a number of secondary trunk lines in Georgia, and relatively little in the way of light or very light density lines.[9] Maximum freight train speeds on Georgia Class I railroad trunk lines, exclusive of speed restrictions, is typically 60 miles per hour (mph) for intermodal trains, and 50 mph for other freight trains.[10] Maximum freight train speeds on Georgia Class I railraod secondary lines are generally 25-40 mph.

Twenty-four Georgia short lines collectively operate over 1,200 route miles, including nearly 400 route miles leased by owner GDOT to various short lines.[11] Most of Georgia's short line route miles are located in southwest Georgia, or in the southeast central Georgia quadrangle bounded by Macon, Augusta, Savannah and Cordele. The large majority of the Georgia short line network consists of light (<5 mega gross tons, MGT) or very light (<1 MGT) traffic lines.[12] The majority of Georgia's current short line trackage was divested by CSXT and NS in the late 1980's and 1990's. Georgia short line main track is generally Class 2 (25 mph maximum freight speed) track, though some short lines operate Class 1 (10 mph maximum freight speed) main track.[4]

1.3.1 Passenger Service

Georgia intercity passenger service currently consists of eight daily Amtrak trains operating on CSXT along the Atlantic Ocean coast (Silver Service, Palmetto, and Auto Train), and one pair of Amtrak trains (Crescent) operating between New York and New Orleans via Washington and Atlanta.[13] The latter pair of trains operate on NS' Crescent

[9] The 2009 State Rail Plan identified 31% of NS and 15% of CSXT route miles as light density lines.

[10] Unit auto carrier trains may be operated as intermodal trains. Intermodal trains may operate at up to 70mph on portions of the CSXT A-Line, the only line in Georgia where freight trains may operate in excess of 60mph.

[11] The 39 GDOT-owned route miles of the western Preston-Omaha portion of the HOG, and the 17 route miles of the NS-owned ABR between Bishop and Madison are not included because these segments have not been operated in many years. The 27 miles between Shady Dale and Covington last operated by GRWR, and the 17 miles between Chattanooga and Hedges, last operated by CCKY, are not included because these segments have been inactive for over a year. The latter two segments are owned by NS.

[12] The Sandersville Railroad, and perhaps a small segment of the HOG, are likely the only Georgia short lines with traffic greater than 5MGT.

[13] Amtrak Trains 89 and 90 (Palmetto) terminate and originate in Savannah and operate within Georgia only on the 12 miles of the A-Line (former Atlantic Coast Railroad) north of the Savannah Amtrak station. Amtrak Trains 91 and 92 (Silver Star) operate on the CSXT S-Line (former Seaboard Air Line Railroad) north of Savannah, and the A-Line south of Savannah. The other four trains operate on the A-Line within Georgia.

Corridor within Georgia. These 79 mph passenger routes are the only railroad lines within Georgia where trains operate in excess of 60 mph.[14]

Commuter service between Macon and Atlanta, and Athens and Atlanta, was under active development in the first few years of the 21st century.[15] Grade crossing safety was given great attention in the commuter service planning, and would receive great attention in the event of the active resumption of planning activity. [16,17]

The SAM Shortline, operated by the Georgia Department of Natural Resources under the guidance of the Southwest Georgia Railroad Excursion Authority, operates approximately 140 excursion trains annually over a 34 mile route between Cordele and Plains in southwest Georgia on the Heart of Georgia (HOG) Railroad.[18] The Blue Ridge Scenic Railway operates approximately 240 excursion trains annually in Fannin County on the 13 mile portion of the Georgia Northeastern Railroad (GNRR) between Blue Ridge, and McCaysville on the Tennessee border. The Tennessee Valley Railway Museum operates about two dozen excursion trains annually on the Chattooga and Chickamauga Railway (CCKY) in northwestern Georgia. All three of these excursion services operate on GDOT-owned railroad lines.

There are three federally designated Southeast high speed rail (HSR) corridors in Georgia. One of the corridors is the NS Crescent Corridor. Another is on CSXT along the Atlantic Coast. The third Atlanta-Macon-Jesup HSR corridor on NS connects the other two HSR corridors. A Chattanooga-Atlanta High Speed Ground Transportation (HSGT) study is currently underway.

Any Georgia implementation of HSR passenger service would not occur until after the 2017 period of this Plan. As with commuter rail, grade crossing safety (if even applicable) would receives great attention in the HSR planning process. More information on the characteristics of the Georgia railroad network and HSR is available in the 2009 State Rail Plan.
(http://www.dot.state.ga.us/travelingingeorgia/rail/Documents/StateRailPlan2009.pdf)

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[14] There are numerous permanent speed restrictions along the Amtrak-used lines, particularly on the NS lines. Freight trains may operate at up to 70mph on the CSXT A-Line passenger route.

[15] Development was progressed to FTA issuing Findings of No Significant Impact in the first half of the last decade.

[16] It is very unlikely that new Athens-Atlanta or Griffin-Atlanta commuter service will be implemented during the 2012-2017 period of this Plan. $20,000,000 in funding to further plan new Griffin-Atlanta commuter service however is included in the final 15 Oct 2011 list of projects to be funded by a proposed new ten year Atlanta regional 1% sales tax that will fund transportation projects, Transportation Special Purpose Local Option Sales Tax, or T-SPLOST.

[17] The Georgia Transportation Investment Act of 2010 provides a mechanism by which regions statewide each have the ability to impose a 1% sales tax to fund transportation projects within the region. T-SPLOST referenda currently will be submitted for approval to the electorate of each of the 12 regions of the state on 31 July 2012.

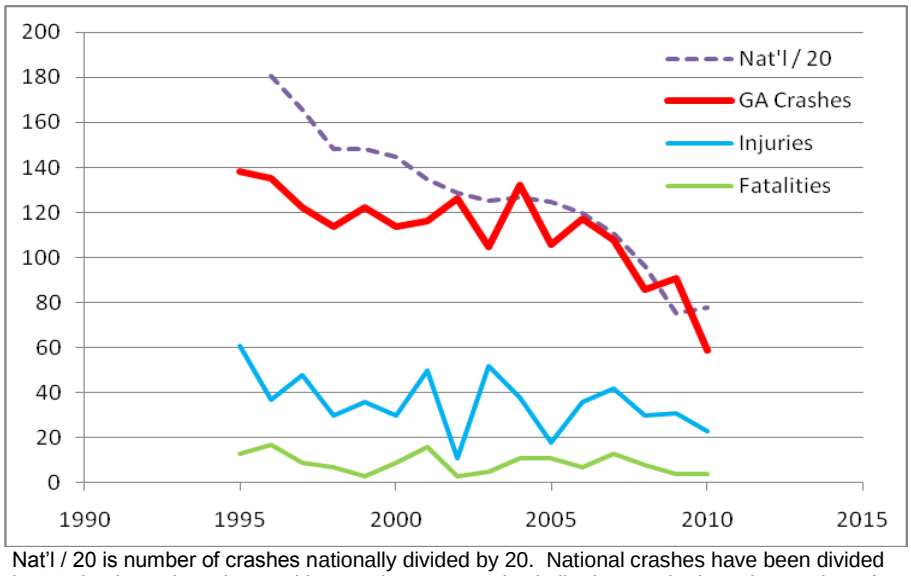
[18] SAM derives its name from Savannah, Americus and Montgomery Railroad, a HOG predecessor railroad over which SAM trains operate.

2.0 Problem Identification

Crossing crashes have decreased dramatically since the advent of the federal aid crossing safety program of Title 23, United States Code, Chapter 1, Section 130 (23 USC § 130), commonly and hereinafter referred to as the Section 130 Program. Crashes have decreased despite significant increases in highway and railroad traffic. The Section 130 Program funds hazard elimination at crossings, typically but not limited to installation of active warning devices.

Nationally there were 10,973 motor vehicle crashes resulting in 786 fatalities and 3,596 personal injuries at public crossings in 1975. Those numbers decreased to 1,559 crashes, 135 fatalities and 638 injuries in 2010. The rate of decrease was greatest in the late 1970's through 1998, and flattened during the 1999-2006 period. The number of crashes began to decline at a greater rate in the 2007, perhaps reflecting at least in part diminished economic activity resulting in less highway and train traffic.

Figure 2 Georgia Motor Vehicle Crossing Crashes 1995-2010



Nat'l / 20 is number of crashes nationally divided by 20. National crashes have been divided by 20 simply to place the resulting quotient on a scale similar in magnitude to the number of Georgia crashes for the purpose of comparing trends. (The 2003 spike in injuries coinciding with a dip in crashes was the result of an Amtrak crash that resulted in 25 passenger injuries.)
Source: FRA (http://safetydata.fra.dot.gov/officeofsafety/publicsite/Query/gxrtab.aspx)

There were 345 Georgia motor vehicle crashes resulting in 23 fatalities and 130 injuries at public crossings in 1975. There were 59 Georgia crashes resulting in four fatalities and 23 injuries in 2010.[19] Figure 2 depicts the numbers of national and Georgia crashes, and Georgia casualties the 1995-2010 period. Georgia experienced one fatality

[19] There have been one pedestrian and 38 motor vehicle crashes at Georgia public crossings that have resulted in 15 personal injuries in 2011 through June. The pedestrian crash and 24 of the vehicular crashes occurred at active crossings, and 14 crashes occurred at passive crossings. At this rate there will be 76 motor vehicle crashes in 2011, more than the 59 crashes in 2010, Georgia's best year, but fewer than the 83 in Georgia's second best year 2008. One of the passive crossings experiencing a 2011 crash has since been closed, and another has been equipped with gates.

for every 13 motor vehicle crashes (7.7%), and one casualty for nearly every third crash (32%) that occurred at public crossings in the 1995-2010 period.[20] These fractions have been rather constant throughout that period.

Georgia's reduction in crashes since 1975 has tended to lag the reduction nationally, a circumstance explained in part by the fact that Georgia's population and hence traffic growth have since 1975 substantilly exceeded national averages. Georgia has of late has closed the gap to near-parity with the nation for the 1975-2010 period. This was due in part to a slight uptick in crashes nationally in 2010, while Georgia has had improvement generally exceeding the national average since 2004, including one of its best years of improvement that resulted in its best year ever in 2010.

The decrease in the number of Georgia crashes since 2004 invites new and re-invigorated efforts to sustain if not improve upon the rate of decrease in the numbers of Georgia crashes and casualties. Georgia, a state with large numbers of crossings and crashes, is positioned to significantly contribute to reductions in crashes and casualities nationally.

The numbers of 2011 Georgia public crossings and route miles by CSXT, NS, Amtrak and short lines are detailed in Table 1. Table 1 also details 2006-2010 period crash experience by warning device category; passive, flashers, or gates.

Table 1 2011 Georgia Public Crossings and 2006-2010 Public Crossing Crashes [1]

Railroad	2011 Crossings and 2006-2010 Crossing Crashes								Route Miles
	Passive		*Flashers*		*Gates*		*Totals*		
	Xings	Crashes	Xings	Crashes	Xings	Crashes	Xings	Crashes	
CSXT	635	67	85	24	821	113	1,541	204	1,676
Amtrak (CSXT)	19	1	1		58	3	78	4	157
NS	1,135	79	106	34	916	84	2,157	197	1,778
Amtrak (NS)	7	1			116	3	123	4	159
Short lines	1,273	25	67	8	305	6	1,645	39	1,223
Totals	**3,043**	**173**	**258**	**66**	**2,042**	**209**	**5,343**	**448**	**4,677**
% of Total	57%	39%	5%	15%	38%	47%			

Source for number of crossings: FRA website Railroad Safety/Safety Data, 8.06, FRA Public Crossing Inventory By State

1 Motor vehicle crashes. The table includes some crossings that are officially open but for practical purposes are closed crossings. Also, there are a number of crossings within Georgia that are functionally one crossing but are counted as two crossings because there are separate USDOT IDs applied to the adjacent track(s) of each railroad at the crossing.

2 Crashes have been assigned to the maintenance railroad when the maintenance railroad is an operating railroad.

3 Consists of all crossings other than gate or flasher crossings, and therefore includes a few crossings with extraordinary active warning devices such as bell-only crossings.

4 includes 13 four quadrant gate crossings.

5 Amtrak route miles and crossings are for information only. Amtrak route miles and crossings are included within CSXT and NS route miles and crossings. CSXT Amtrak route miles consists of 126 A-Line routes miles with with 43 gates and 14 crossbuck crossings, of which seven are gate crossings located on the 11.6 route-miles north of Central Jct in Savannah, and 31 S-Line route miles wti 15 gate, one flasher and five crossbuck crossings.

6 Short line route miles, including route miles owned by a NS but last operated by a short line, exclude approximately 100 route miles of track that have not been operated for a year of more. The table includes the approximately 96 crossings on this 100 miles of track, approximately 18 of which are equipped with gates, two with flashers, and 80 are passive crossings. See footnote 11 .

[20] It should be understood that the percentages of crashes involving a casualty are slightly smaller percentages than those indicated because some casualty crashes involve multiple casualties, and because casualty crashes involving both personal injury and fatalities are classified as fatality crashes..

Approximately 43% of the approximately 5,343 total public grade crossings within Georgia are equipped with active warning devices.[21] Approximately 59% of the 1.541 CSXT crossings, and 47% of the 2,195 NS crossings are equipped with active warning devices. The higher fraction of CSXT crossings equipped with active warning devices reflects the generally higher density train traffic on the CSXT network in Georgia.

Approximately 23% of shortline public crossings are equipped with active warning devices. Flasher crossings constitute 18% of the shortline active warning device crossings, 60% more than the 11% of Class I railroad crossings. This is a result of older active warning device installations that occurred when there were higher traffic volumes on the lines prior to NS and CSXT disvestiture of light density lines in the late 1980's and 1990's, at a time when flashers were more commonly installed than at present.

Sixty-one percent of the 448 Georgia public crossing crashes in the 2006-2010 period occurred at active warning device crossings. Flashing light crossings account for five percent of total crossings, and approximately 11% of the active warning device crossings (258 of 2,300), but account for approximately 15% of the total crashes, and 24% of the active warning device crossing crashes (66 of 275).

Table 2 2006-2010 Multiple Crash Public Crossings By Warning Device Category [1]

Railroad [2]	**2011 Public Grade Crossings and 2006-2010 Multiple Crash Crossings**							
	Passive [3]		*Flashers*		*Gates* [4]		*Totals*	
	Xings	Crashes	Xings	Crashes	Xings	Crashes	Xings	Crashes
CSXT	635	11	85	14	821	55	1,541	80
Amtrak (CSX)	19		1		58	3	78	3
NS	1,135	27	106	19	916	29	2,157	75
Amtrak (NS)	7	1			116	2	123	3
Short lines	1,273	4	67	4	305	2	1,645	10
Totals	**3,043**	**43**	**258**	**37**	**2,042**	**91**	**5,343**	**171**
% of Total	57%	25%	5%	22%	38%	53%		

See Table 1 for table notes.

The numbers of 2006-2010 period multiple crash public crossing crashes by CSXT, NS, Amtrak and short lines by type of warning device are detailed in Table 2. Multiple crash crossing crashes are substantially more likely to occur at active warning device crossings than passive crossings. One-quarter of all crashes at passive crossings occur at multipe crash crossings, while nearly twice as many, 46%, of all crashes at active warning device crossings occur at multiple crash crossings. There were no crashes at 90% of all active warning device crossings, and only one crash at 7.2% of active warning device crossings in the 2006-2010 period. There were no crashes at 95% of all passive crossings, and only one crash at 4.3% of passive crossings in the same period. The numbers of crossings and crash information of Tables 1 and 2 are depcited in bar chart form in Figures 3, 4 and 5.

[21] See Table 1 note 6 and footnote 11 for additional detail concerning number of crossings.

Figure 3 Georgia Public Crossings

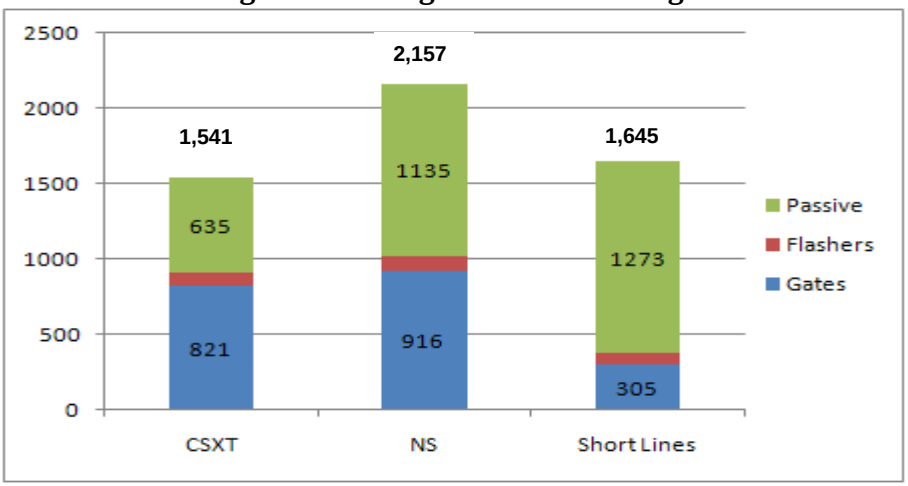


Figure 4 2006-2010 Georgia Crossing Crashes

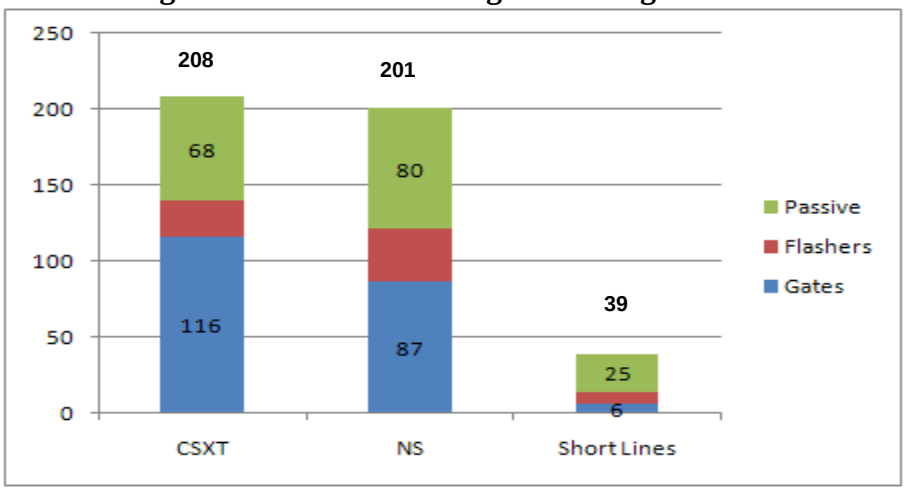
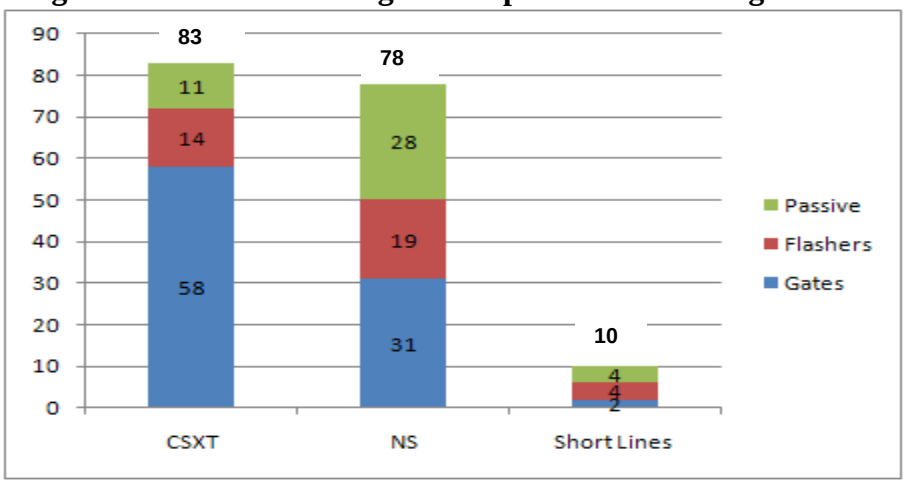


Figure 5 2006-2010 Georgia Multiple Crash Crossing Crashes



Note: Amtrak crashes are included in host railroad CSXT or NS crash totals in Figures 3, 4 and 5.

Table 3 identifies the numbers of crashes at active and passive public crossings by NS and CSXT railroad segments. It includes Amtrak crashes that occurred on the NS and CSXT networks. (See Appendices E-2 and E-3 for short line crash information.) A general comparison of crashes at the Class I railroad segment level may be distorted by especially poor crash experience at one or two crossings, and thus misrepresent typical crossing crash experience on the segment. For instance, eleven crashes at one CSXT A&WP Subdivision flasher crossing over a few year period that included portions of the 2001-2005 and 2006-2010 periods inflates the crash experience of typical crossings of the segment in comparison to other segments. (There have not been any additional crashes at that A&WP Subidivision crossing since gates were installed.) GDOT anticipates performing additional crash analysis as described in Section 7.1 in further pinpointing particular problem segments.

2.1 Pedestrians

Pedestrians may be struck by or collide with trains or on-track equipment at crossings. There have been between one and five Georgia pedestrian incidents at public crossings each year, and an average of 2.8 pedestrian incidents annually, during the 1995-2010 period.[22] The relatively constant number of incidents is a nominal decrease in the rate of occurance given increased population and train traffic over the 1995-2010 period. Pedestrian incidents, while rather constant in absolute terms, are increasing as a fraction of total incidents because of the decline in motor vehicle crashes. Pedestrian incidents accounted for a five year rolling average of 2.2% of total incidents in 1999, and for 3.1% in 2010.[23]

There were 25 Georgia fatalities and 16 personal injuries resulting from the 45 pedestrian incidents at public crossings in the 1995-2010 period. Pedestrian fatalities constituted 15% of the total crash fatalities in the 1995-2010 period.

Two-thirds of pedestrains involved in incidents at grade crossings in the 2001-2010 period were male, less than the 78% of drivers involved in crossing crashes that were male. While the number of vehicular crashes generally decreases with increasing driver age, the ages of pedestrians involved in crossing incidents approximates a normal distribution about a late 40's age. (See Appendix E-1 for driver and pedestrain age and gender information.)

2.2 Problem Solutions Categorization

Crashes are a safety concern largely associated with crossing hazard and road user's poor judgment. Hazards may be remediated by increasing hazard awareness and fostering better judgment, and implementing physical changes that reduce physical hazards. The multi-disciplinary three E's of safety; education, engineering and enforcement that have long been applied to improve crossing safety are central to reducing crashes.

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[22] Between one and five is inclusive meaning, one, two three four or five incidents per year.

[23] A rolling average is used to better convey overall trend because of the relatively small number of incidents and in a given year, and the high relative variability of number of crashes from year to year.

Table 3 NS and CSXT 2001-2010 Crashes by Railroad Segment

			2001-2005			2006-2010			2001-2010		
District / Subdivision	**Segments**	Miles	Act	Pass	Tot	Act	Pass	Tot	Act	Pass	Tot
	Norfolk Southern										
AGS	TN-Trenton,GA-AL	24	1	2	3	1	1	2	2	3	5
Americus	Columbus-Cusseta	10	0	1	1	0	0	0	0	1	1
	Macon-Ft Valley	28	2	0	2	3	2	5	5	2	7
Albany	Ft Valley-Albany	77	0	3	3	1	0	1	1	3	4
	Albany-AL (Blakely)	59	1	4	5	0	1	1	1	5	6
Atlanta-North	Cohutta-Austell	113	18	7	25	12	11	23	30	18	48
	Austell-Atlanta	15	2	0	2	1	0	1	3	0	3
Atlanta-South	Atlanta-McDonough-Macon	92	12	4	16	16	5	21	28	9	37
Augusta	Millen-Augusta	53	4	4	8	6	1	7	10	5	15
Birmingham	Austell-AL (Tallapoosa)	50	18	8	26	17	4	21	35	12	47
Brunswick	Macon-Ocmulgee R.	90	2	5	7	1	3	4	3	8	11
	Ocmulgee R.-Brunswick	93	2	7	9	3	6	9	5	13	18
CGA	Bremen-Rome	37	1	4	5	0	3	3	1	7	8
	Senoia-Newnan-Bremen	54	0	4	4	2	3	5	2	7	9
Charlotte	SC (Toccoa)-Atlanta	94	17	12	29	19	5	24	36	17	53
Columbus	Ft Valley-Columbus	72	0	8	8	2	6	8	2	14	16
Dublin	Sandersville-Dublin	36	0	0	0	0	0	0	0	0	0
Eatonton	Gordon-Eatonton	40	0	2	2	0	3	3	0	5	5
Fairbanks-Krannert	Rome-Krannert	22	1	1	2	0	0	0	1	1	2
Griffin	Atlanta-Griffin-Macon	102	19	19	38	17	7	24	36	26	62
Lula	Lula-Center	32	0	2	2	1	2	3	1	4	5
Macon	Macon-Arabi	78	11	4	15	10	2	12	21	6	27
	Arabi-Valdosta	76	10	13	23	6	7	13	16	20	36
Valdosta	Valdosta-FL (Jax)	66	2	0	2	2	0	2	4	0	4
Madison	Macon--Monticello-Machen	50	3	1	4	3	2	5	6	3	9
Navair	Valdosta-FL (Lake Park)	18	0	2	2	0	1	1	0	3	3
Savannah	Millen-Macon	111	0	1	1	0	5	5	0	6	6
	Savannah-Millen	79	1	4	5	2	2	4	3	6	9
Camak	Waynesboro-Camak	48	0	3	3	1	0	1	1	3	4
Thomaston	Barnesville-Thomaston	18	0	1	1	0	0	0	0	1	1
	NS Totals		**127**	**126**	**253**	**126**	**82**	**208**	**253**	**208**	**461**
	CSX Transportation										
A&WP	East Point-West Point	81	26	13	39	21	7	28	47	20	67
Abbeville	SC (Elberton)-Atlanta	116	25	5	30	18	3	21	43	8	51
Augusta	Augusta-SC	19	3	2	5	3	4	7	6	6	12
(Augusta)	A&S in Augusta	1	0	2	2	0	0	0	0	2	2
Bainbridge	FL-Bainbridge	10	0	3	3	0	1	1	0	4	4
Brunswick	Waycross-Brunswick	49	0	4	4	0	3	3	0	7	7
Camak	Camak-Milledgeville	49	0	0	0	0	0	0	0	0	0
Cartersville	Cartersville-Cedartown	37	0	3	3	0	0	0	0	3	3
Charleston	Savannah	12	3	2	5	4	1	5	7	3	10
Chattanooga	Chattanooga-AL	5	0	1	1	0	0	0	0	1	1
Columbia	Savannah-SC (Cylo)	31	2	4	6	1	4	5	3	8	11
Dothan	Thomasville-AL	66	3	5	8	1	1	2	4	6	10
Etowah	Cartersville-TN (Tennga)	60	4	2	6	4	1	5	8	3	11
	Cordele-Manchester	103	13	10	23	5	3	8	18	13	31
Fitzgerald	Waycross-Cordele	96	8	35	43	16	15	31	24	50	74
	Ocilla Branch	5	0	0	0	0	2	2	0	2	2
Gainesville	Athens-Gainesville	38	0	8	8	0	4	4	0	12	12
Georgia	Augusta-Lake Oconee	81	5	14	19	7	7	14	12	21	33
	Lake Oconee-Atlanta	89	17	8	25	21	6	27	38	14	52
Jesup	Jesup-Waycross	39	6	2	8	2	1	3	8	3	11
	Waycross-Nahunta	34	0	3	3	0	1	1	0	4	4
Lineville	Manchester-Alabama	43	4	0	4	3	1	4	7	1	8
Manchester	Manchester-Atlanta	78	6	4	10	9	3	12	15	7	22
Nahunta	Jesup-Folkston	96	2	6	8	1	3	4	3	9	12
	Folkston	3	2	0	2	0	0	0	2	0	2
Savannah	Savannah-Ogeechee R.	25	2	2	4	3	3	6	5	5	10
Thomasville	Waycross-Thomasvile	107	1	3	4	2	6	8	3	9	12
W&A	Atlanta-Cartersville	48	19	3	22	23	0	23	42	3	45
	Cartersville-TN (Graysville)	89	7	5	12	8	0	8	15	5	20
	CSXT Totals		**158**	**149**	**307**	**152**	**80**	**232**	**310**	**229**	**539**

1 NS districts or CSXT subdivisions were divided into smaller segments where lengths exceeded 120 miles, or generally where there is a distinct change in train traffic volumes.

2 The CSXT Atlanta Terminal Subdivsion was disaggregated to the A&WP, Abbeville, Georgia, Manchester and W&A Subdivisions from which the subdivision was created.

2.2 Problem Solutions Categorization

Crashes are a safety concern largely associated with crossing hazard and road user's poor judgment. Hazards may be remediated by increasing hazard awareness and fostering better judgment, and implementing physical changes that reduce physical hazards. The multi-disciplinary three E's of safety; education, engineering and enforcement that have long been applied to improve crossing safety are central to reducing crashes.

Education must be an important element of the Plan. Activation failures, the term applied to the circumstance wherein an active crossing warning system fails to indicate the approach of a train at least 20 seconds prior to the train's arrival at the crossing, or fails to indicate the presence of a train occupying the crossing, is a very uncommon occurrence. As previously mentioned, 61% all Georgia crashes in the 2006-2010 period occurred at crossings equipped with active warning devices. These crashes typically resulted from poor judgment on the part of road users, and/or willful disregard of an active warning, circumstances that additional and better education can remediate.

Education and enforcement complement each other.[24] Law enforcement disciplinary actions applied to road users change driver behavior by reinforcing education and improving judgment on one hand, and deterring willful disregard of active warning devices on the other.

Engineering develops and determines the most cost effective infrastructure to reduce or eliminate crossing hazards, and prioritizes the application of limited resources to maximize safety benefits. Gates are installed at approximately three dozen Georgia crossings each year, including improvement from flashers to gates at some crossings.[25] Statewide there are 3,043 passive and 258 flasher public crossing candidates to consider for installation of gates. There are other active warning device improvements to consider as well, such as improved control equipment, new or improved pre-emption, and flashing light unit improvements.[26]

There are a number of passive warning devices beyond the general basic passive advance warning and crossing warning devices mandated by the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/kno_2009.htm). The identification of extraordinary hazards, and the judicious application of special circumstance passive warning devices, is another element of Engineering.

Beyond the three E's, it is important to measure and monitor progress to insure goals and objectives are met in an efficient and cost effective manner. Measurement and analysis are necessary to improve hazard elimination strategies, as well as develop and evaluate new strategies and measures to reduce crashes. Measurement requires data. The fourth principal action item category of this Plan is thus data and data analysis.

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[24] There is also an education element applicable to law enforcement personnel understanding both the law and the adverse consequence to road user non-compliance.

[25] Georgia standards do not preclude new flasher installations, but as a practical matter new installations of flashers are rare in Georgia. The majority of the three dozen annual gate installations are funded by the Section 130 Program.

[26] Pre-emption is the transfer of normal operation of highway intersection signals to a special control mode. As applied to railroad crossings, the purpose of pre-emption is to control signals so as to allow highway traffic to move clear of a crossing, or prevent highway traffic from occupying a crossing, upon approach of a train. Flashing light unit improvements typically consist of upgrading from 8 inch to 12 inch flashing light units and/or upgrading from incandescent to LED illumination.

3.0 Action Items Summary

The objective of this Plan is to identify specific solutions that will reduce collisions between trains or on-track equipment, and pedestrians or vehicles at crossings. The three E's of safety, education, engineering and enforcement, were discussed in the foregoing section. Table 4 summarizes and categorized Plan action items as one of the three E's, or a fourth category, data and data analysis.

Table 4 Summary of Action Items

No. [1]	Action Item	Organizations (other than GDOT)	Duration Completion [2]
4.0	***Education***		
4.1	Increase Publicity and Awareness	GA Operation Lifesaver (GOL), Gov's Office of Hwy Safety (GOHS), Railroads	Ongoing, quarterly and annual meetings
4.1	Publicity materials	GOHS, GOL, Railroads via Georgia Railroad Association	Periodically
4.2	Review and update as necessary Driver's, CDL, and Motorcycle Operator's Manuals, and Teen/Parent Driving Guide crossing elements. Review and update as necessary DUI / defensive driving school crossing elements.	GA Dept of Driver Svcs (DDS), GOL	Dates of next publication of manuals and guides, and school regu-lation update
4.3	Continuing Driver Education	GOL, DDS, Georgia Motor Trucking Ass'n (GMTA), Georgia Ass'n for Pupil Transportation (GAPT)	Ongoing
5.0	***Engineering***		
5.1	Leverage Section 130 funds to promote crossing closures and consolidations	Local governments	Ongoing
5.2	New Grade Separations	Local governments	Ongoing
5.3	Active Warning Device Improvements	Local governments	Ongoing
5.4	Other Warning Device Improvements	Local governments	Ongoing
6.0	***Enforcement***		
6.1	Georgia Code change	Georgia General Assembly, Governor	Indefinite
6.2	Law Enforcement Training	GOL	Ongoing
6.3	Law Enforcement Activity	Georgia State Patrol, local governments / local law enforcement agencies	Ongoing
7.0	***Data Analysis***		
7.1	Inventory and crash data	Railroads	Ongoing
7.2	Programmatic Corridor Study and Corridor Improvements	Railroads, Local governments	Ongoing
7.3	School Bus Use of Crossing Reporting	School districts	Ongoing

1 The number is that of the action item section within the Plan document.
2 Ongoing refers to activities through the end of the 2017 Plan period, and indicates activities to be continued beyond the end of the Plan period.

4.0 Education *4.1 Increase Publicity and Awareness*

GDOT will assist in the development of subject matter to be shared with print and broadcast media, and local governments, to increase awareness of crossing hazards in general, and multiple crash or high risk crossings in particular. Table 5, consisting of the seventeen gate crossings that have experienced three of more crashes in the 2005-2010 period, exemplifies such subject matter.[27] The 64 multiple crash crossing crashes in the 2005-2010 period at the crossings identified in Table 5 represent to 11% of all crashes, and one-quarter of all crashes at gate crossings, that occurred statewide during that period.

Table 5 Georgia's Multiple Crash Locations

(Crossings equipped with gates at the time of crash that have experienced the most crashes)

County *(City)*	Road Name	USDOT ID	2005-2010 Crashes	Comment
Gwinnett	Jones Mill Rd [1]	916933L	6 [1]	Three 2010 crashes. Located adjacent to Buford Hwy south of Norcross.
(Marietta)	Whitlock Ave	340388B	6 [2]	SR120, 2008 fatality and 2007 pedestrian personal injury crashes
(Buford)	Church Street	717824J	5	2005 double fatality crash
Bartow	Sandtown Rd	340426H	5	Located southeast of Emerson, Crossing situated on reverse curve
DeKalb	Turner Hill Rd	279681D	4	SR124, 2008 fatality crash
Cobb	White Circle	340400F	4	Located north of Marietta
(Marietta)	Waverly Way	340387U	4	Next crossing south of Whitlock Ave
Chatham *(Garden City)* [3]	Borne Ave (SR307)	632473Y	3 [4]	Quadruple fatality, and 2 single fatality crashes, 2 of which were Amtrak crashes, during of 22 days in Oct 2007
(Locust Grove)	Peeksville Rd	718425B	3	2007 and 2008 fatality crashes
Douglas	Sweetwater Road	726570V	3	2009 Amtrak crash, and a fatality crash nine days later (Lithia Springs locale)
(Douglasville)	Rose Avenue	726590G	3	2009 Amtrak crash
(Sugar Hill)	Lanier Avenue	717828L	3	2009 Amtrak crash
Barrow	Johns-Manville Rd	640133H	3	Two of three involved pickup truck
(Atlanta)	Sylvan Road	718082W	3	Two 2009 crashes
Gordon	Hill City Road	719730P	3	Crossing situated on reverse curve
(Conyers)	Rockbridge Rd	279669W	3	Two crashes involving tractor-trailers stuck on crossing
(Douglasville)	Brown Street	726586S	3 [5]	One crash was an auto driven off side of crossing and stuck
17 Crossings 12 fatalities and one personal injury			**64**	**of 567 total crashes, and of 259 gated crossing crashes statewide**

1 Placed ahead of Whitlock Ave with 6 crashes, two of which had casualties, because of a 12 Jan 2011 crash that is not included among the six 2005-2010 crashes.
2 The six 2005-2010 crashes do not include a 2007 pedestrian fatality crash.
3 The railroad is the Garden City municipal limit.
4 The three crashes do not include a 01 July 2011 crash.
5 The 726586S crossing is to be closed, along with 2 adjacent grade crossings, and replaced with a grade separation (See Table 6).

[27] Note a six year instead of five year period.

GDOT will consult with Georgia Railroads, Georgia Operation Lifesaver (GOL) (http://georgiaol.org/), and the Governor's Office of Highway Safety (GOHS) (http://www.gahighwaysafety.org/) in preparing such materials.[28] Future materials may be based on various other criteria than that used for Table 5, such as passive crossings with multiple crashes, crossings experiencing tractor-trailer crashes, or a geographic focus within Georgia. GOL and GOHS will use the materials as appropriate in presentations and activities. GDOT will furnish the list to the local governments associated with the materials as applicable.

GOHS will add a link on the GOHS home page to the Georgia GOL home page, and GOHS will add a link to the FRA Office of Safety webpage (http://safetydata.fra.dot.gov/officeofsafety/) to the GOHS Questions and Answers webpage that addresses the question concerning sources of statistics and data.

4.2 Georgia Department of Drivers Services

The Georgia Department of Driver Services (DDS) (http://www.dds.ga.gov/) produces four publications for Georgia Motor Vehicle operators:

- Commercial Driver's Manual (CDL), current edition 2009, http://www.dds.ga.gov/docs/forms/CDL_Drivers_Manual_4_17_09.pdf, next revision tentatively late 2011 or 2012
- Parent/Teen Driving Guide, current edition July 1, 2010, http://www.dds.ga.gov/docs/forms/40Hour_ParentTeen_DrivingGuide.pdf, next revision tentatively 2012
- 2010 Drivers Manual, current edition 2010, http://www.dds.ga.gov/docs/forms/FullDriversManual.pdf, next revision tentatively late 2011
- Motorcycle Operators Manual, current edition 2009, http://www.dds.ga.gov/docs/forms/MotorManual.pdf, next revision tentatively 2012

The DDS publications will be reviewed for crossing content by GDOT, GOL and others, and revised as necessary in conjunction with their next periodic updates. (The process of GDOT offering suggestions for consideration is already underway for the CDL Manual that is currently in the process of being revised.[29]) One change for consideration in one or manuals is the inclusion of a brief explanation of Emergency Notification Signs (ENS) at crossings. Road users may be directed to first call the telephone number on the sign, and then call 911, in situations where stopping trains that may be approaching the crossing is absolutely the most important immediate reporting action that should be taken.

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[28] GOL is the Georgia unit of Operation Lifesaver, Inc (OLI). OLI, founded in 1972, is a non-profit organization providing public education programs to prevent collisions, injuries and fatalities on and around railroad tracks and crossings. The GOHS mission is to educate the public on traffic safety and facilitate the implementation of programs that reduce crashes, injuries and fatalities on Georgia roadways.

[29] GDOT suggestions included changes reflective of 2009 MUTCD changes that require yield or stop signs at passive crossings.

DDS sets the standards for basic Driver Education Programs, and sets standards for and approves Driving Under the Influence (DUI) and Defensive Driving Schools in Georgia. Driver attendance of courses at such schools may be required in connection with motor vehicle infractions. Other drivers may attend at the behest of their employers, or to qualify for motor vehicle insurance discounts. GOL will make crossing safety presentations at both public and private Driving Schools. DDS will review crossing content standards, and revise standards as appropriate.

4.3 Driver Education

Georgia enacted legislation in 1997, 2001, and 2005 that significantly increased driver education requirements for drivers less than 18 years of age, and imposed restrictions on passengers for drivers under the age of 18. The Georgia legislation may have contributed to notable decreases in crashes involving drivers less than 25 years of age over the 2001-2010 period. It bodes well for further decreases in crashes if the increased educational requirements for young drivers result in fewer crashes as drivers age. (See Appendix C for details on driver age and gender.)

GOL will make presentations to businesses on crossing safety including employers that operate large vehicle fleets of vehicles such as United Parcel Service (UPS), a GOL member. The national support center, Operation Lifesaver, Inc. (OLI http://oli.org/) has recently launched an on-line program for professional truck drivers (http://oli.org/e-learning-survey/) that is being used by Georgia Motor Trucking Association (GMTA http://www.gmta.org/), UPS, and YRC Worldwide.

5.0 Engineering

5.1 Crossing Closures and Consolidations

(See Section 6.1 for discussion of Georgia code concerning crossing closure.)

GDOT routinely examines adjacent crossings for closure potential when it assesses crossings for warning device improvement, and in connection with construction of new grade separations or other new highways or capacity improvements.

GDOT has actively sought to leverage Section 130 Program improvements to close crossings, including crossings that are already equipped with active warning devices. One strategy employed by GDOT is to develop a package of active warning improvements that includes a crossing closure or closures, and active warning device improvement at a crossing or crossings that would not otherwise warrant improvement if a crossing or crossings were not closed. This provides local officials the incentive of additional warning device improvements in promoting closure in interactions with constituents and crossing stakeholders. This approach may also be particularly effective when the combination of closure(s) and additional gate installation result in all crossings within a municipality or county (or a substantial segment of a railroad line within a county) are equipped with gates. GDOT routinely includes development of packages of improvements that include closures in its Section 130 corridor crossing studies (see Section 7.2 for discussion of crossing corridor studies).

Packaging together warning device improvements and closures recently came to fruition in closing two crossings on NS in Adel, and is approaching fruition with respect to closing two crossings on CSXT in Waycross.[30] It is progressing on closure of a Floyd County crossing. Crossing closures are likewise promising in connection with improving flashers to gates at a Quitman and a Collins crossing, and equipping a couple of Coweta County crossing with gates.

Projects near Douglas and Waycross, Georgia exemplify crossing closures in connection with highway capacity projects. These projects will involve widening state highways parallel and relatively close to railroad lines. Plans are to close one crossing, and install of gates at one or both crossings on either side of the closed crossing in connection with widening of SR32 west of Douglas. Plans are to close two crossings in connection with widening SR38 west of Waycross.[31]

A grade separation project in Douglasville exemplifies crossing closures in connection with new highway that includes a grade separation. Plans are to close two grade crossings, and relocate another grade crossing to improve crossing geometry as part of the project. (See Table 6.)

GDOT has been supportive of the general success that CSXT and NS have had in Georgia in demanding three crossing closures for each new grade crossing. NS was successful in closing three Jackson County crossings in conjunction with the new Steve Reynolds Blvd crossing 717714Y. Jackson County is considering another new crossing, and is seeking to identify crossing closure candidates. Barrow County is seeking to reopen 640131U, and is aware that CSXT will require closure of three crossings.

5.2 Grade Separations

Crossing safety is but one of many elements considered with respect to new grade separations. Road user delay is usually the most important grade separation consideration from an economic perspective.

Many Georgia grade separations have been and are being constructed in connection with new or relocated highways, in addition to new grade separations replacing grade crossings at or near the same location as the grade crossing, sometimes in connection with highway widening. New grade separations improve crossing safety even when grade crossings are not closed in connection with the new construction when new traffic is attracted to the new grade separation, or diverted from grade crossings to grade separations.

Table 6 identifies grade separations that are currently under construction, in the GDOT Construction Work Program (CWP), or in the Long Range Plan (LRP). Other grade separations may be in the proposal/pre-planning stage, and not yet included in the LRP. The CWP is updated annually for the current and subsequent five fiscal year

[30] Unfortunately, there was a 2011 crash at one of the two crossings that were closed in Adel, and another 2011 crash at an Adel crossing that was equipped with gates as part of the package of crossing safety improvements shortly before the crossing was closed and gates in service, as previously mentioned in footnote 18.

[31] P.I. 421345 Douglas, and P.I. 522780 Waycross.

Table 6 New Grade Separations [1]

County *(City)*	Name	USDOT ID	P.I. No. [2]	Comment
Projects currently under construction – 6 grade separations				
(Garden City)	Borne Avenue	734155V	0000345	SR309
Cobb	Lewis Road	719826E	0004446	Overpass
(Kennesaw)	S. of Cherokee St	New	0004509	Pedestrian underpass
(Stockbridge)	Park Trail	New	0007946	Pedestrian underpass
Troup	S. LaGrange Loop	New	350990	Underpass
(Lithonia)	Lithonia Ind Blvd	New	753230	Underpass
Construction Work Program (CWP) Projects – 16 grade separations				
Bibb	Sardis Church Road	New 729374Y	0000566	Grade separations of two rail lines located ~3 miles apart
(Atlanta)	C.W. Grant Pkwy	717985E	0001817	Design nearly complete
Barrow	W. Winder Byp	719816Y	0006327	
(Douglasville)	(relocated) SR92	726586S	0006900	726587Y & 726588F will be closed, & 726589M relocated to improve geometry. T-SPLOST TIA-DO-003 [3]
Houston	(relocated) SR96	New	0008407	Design underway
Chatham	DeLoach Pkwy	New	0008690	Pt. Wentworth Lead overpass
Stephens	SR17	New	122110	Design underway
(Jackson)	SR36	718448H	333171	Alternately / also P.I. 322440
(Valdosta)	W. Hill Street	723530M	422710	SR38 (US84)
(Albany)	Clarke St ext	New	450540	
Whitfield	Carbondale Rd	New	610890	
Floyd	W. Rome Byp	New	621600	Design underway
Floyd	W. Rome Byp	New	621660	Design underway
Murray	Haden Tyler Rd	340661F	642370	Design underway
Gordon	S. Calhoun Byp	New	662510	Design underway
Long Range Program (LRP) Projects – 15 grade separations *(exc highlighted gray)*				
(Hazlehurst)	Tallahassee St	729021L	0001810	SR19-US23
DeKalb	Montreal Road	639803B	0001814	
Gwinnett	Rock Bridge Rd	639794E	0001815	
(Auburn)	Sixth Street	640138S	0001816	
(Griffin)	A.K. Bolton Pkwy	904053X	0001818	SR16
(Waycross)	SR4-US1Bus	New	0002870	
Bleckley	SR87	729305R	0003625	In connection with widening
Peach	Fort Valley Byp	New	0006963	SR49C ext to SR96 in NE quad
Twiggs	SR96	729405V	322460	In connection with widening
(LaGrange)	Roanoke Road	638738K	350920	SR109
(LaGrange)	I-185 - SR1 Conn	New	362910	Grade separation possibility
(Douglas)	SR135	638202N	431830	Douglas Bypass
(Cordele)	Midway Road	638311S	442660	
Telfair	S. McRae Byp	New	531100	Grade seps at NS & HOG RR
Rockdale	Sigman Road	903962J	752215	Alternately P.I. 752210
(Jesup)	Sunset Blvd	729079U	Proposed	SR169, project concept report
(Jonesboro)	J'boro Connector	New	TIA-CL-005	T-SPLOST project [3]
(Kennesaw)	Moon Station Rd	340486U	TIA-CO-021	T-SPLOST project [3]
(Doraville)	Moon Station Rd	New	TIA-DK-057	T-SPLOST project [3]
Gwinnett	Sugarloaf Pkwy ext	New	TIA-GW-060	T-SPLOST project [3]

Table notes on next page.

Table 6 notes (previous page)

1 Sources: TREX http://app5-trex-web.dot.ga.gov/trex_external/viewer.htm),
Trans Pi (http://www.dot.state.ga.us/informationcenter/transpi/Pages/ProjectSelection.aspx)

2 In some instances the projects are large and the grade separation is but an element of the project.

3 Projects to be under construction prior to 2022 if metro Atlanta Transportation Special Option Sales Tax (T-SPLOST) referendum is approved. Other projects in the table that are located outside of metro Atlanta may be included in other regional T-SPLOST referenda. See footnote 17 for T-SPLOST information.

period. The current CWP covers projects through June 2017.[32] The CWP consists of projects for which funding has been identified, and for which concrete steps toward project implementation, including up to initiation and completion of construction, are anticipated to occur during the period of the CWP.

The LRP identifies projects for further development where construction, if it were to occur, would not commence until after the period covered by the CWP. LRP projects are included in this Plan because they may be further developed over the course of the term of this Plan. LRP projects are also mentioned to demonstrate that grade separation projects, or the inclusion of grade separations as an element of larger or broader projects, are regularly considered in Georgia's long range transportation planning processes. Grade separations as stand-alone projects, or as elements of other projects, will continue to be included in long range transportation planning,[33] GDOT will continue to seek crossing closure(s) in connection with new roads with new grade separations, and closure of adjacent crossings when a new grade separation replaces a grade crossing.[34]

The Governor's Road Improvement Program (GRIP) was initiated by the Georgia General Assembly to connect 95% of Georgia cities with a population of 2,500 or more to the Interstate system by a four-lane road.[35] GRIP implementation would place 98% of the state's population within 20 miles of a four-lane road. The 19 corridor GRIP is currently three-quarters complete or in the process of being completed. Many new grade separations have been constructed in connection with GRIP.

There are currently approximately two dozen locations where the remaining approximately 1,000 miles of incomplete GRIP corridors cross railroads.[36] New grade separations are anticipated at some of these crossings upon GRIP build out.

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[32] The GDOT (and Georgia) fiscal year is July 1 through June 30. The CWP information in this Plan is generally based on the 2011 CWP that applies through June 2017.

[33] GDOT performs Value Engineering (VE) Studies on all construction projects with total combined costs of $10M or more. Some grade separations exceed $10M. Grade separations less than $10M by themselves may be part of a larger project and thereby subjected to VE Study. VE Studies in some instances have determined that a grade separation does not provide good value (highway delay being the controlling benefit as mentioned in the first paragraph of this section), and the grade separation is replaced with a grade crossing.

[34] A new Douglasville grade separation for instance will result in the closure of two grade crossings, and relocation of another grade crossing that will improve safety by improving crossing geometry.

[35] GRIP: http://www.dot.state.ga.us/informationcenter/programs/roadimprovement/GRIP/Pages/default.aspx The General Assembly increased the original 2,845 mile 1989 GRIP network in 2001 and 2005. The build out GRIP currently totals 3,273 miles.

[36] There are eight crossings on the 169 mile on East-West corridor connecting I-85 and I-59, five or six on that part of US280 corridor between Cordele and I-16, four or five on US441 corridor, three each on the Fall Line Freeway corridor and that part of the SR32 corridor between Dawson and Ashburn, and one each on the US27 (SR1) and SR17 corridors. (The SR133 corridor is in design and maintains an existing grade crossing.)

5.3 Active Warning Device Improvements

GDOT utilizes the Peabody-Dimmick formula in the objective portion of its prioritization process for installation of gates in administering the Section 130 Program.[37] The formula result, referred to as the Hazard Index, is then adjusted for five year crash history and crash severity, and school bus use of crossings, resulting in an Adjusted Hazard Index (AHI). AHI is thus a prioritization tool with a crash experience element. The decrease in total crashes indicates it is useful in prioritizing the installation of gates.

Gates have already been installed at six crossings where collectively 19 crashes have occurred in the 2005-2010 period.[38] The installation of gates, though not certain to eliminate future crashes, has been effective as there have not been any crashes at any of the six crossings since gate installation.[39]

GDOT has programmed the installation of gates at 12 other multiple crash crossings where 32 other crashes have occurred since 2005. These crossings are identified in Table 7. GDOT anticipates installation of gates at all of the Table 7 crossings, with the exception of Old Dixie Highway 717987T, Riddleville Road 865801H and SR53 340856T where gate installation is to be coordinated with other highway projects, to be completed prior to 2014.[40]

GDOT will continue its emphasis on close examination of multiple crash crossings by initiating comprehensive diagnostic analyses at the eight multiple crash crossings identified in Table 8 prior to the end of 2012. Gates will be programmed for installation if warranted as a result of the diagnostic analysis, with installation anticipated to be completed prior to 2016. Gates will have been installed at 26 passive crossings that collectively experienced 69 of the 228 total multiple passive crossing crashes in the 2005-2010 period, if gates are installed at all Table 7 and Table 8 crossings.

GDOT has also programmed the installation of gates at many non-multiple crash crossings that are not identified in this Plan. The multiple crash crossings programmed for installation of gates identified in Table 7 and for diagnostic analysis in Table 8, are identified because of the Plan's focus on multiple crash crossings.

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[37] The circumstances under which GDOT would consider installation of flashers are so limited that it is installation of gates instead of installation of active warning devices more aptly describes improvement of active warning devices at passive crossings.

[38] Note this is the most recent six year period, but consists of crossings with two or more crashes within a consecutive five year period. Fourteen of the 19 crashes occurred at four flasher crossings. The 19 crashes at multiple crash crossings do not include two crashes at the W. Paces Ferry Road crossing where four-quadrant gates have since been installed to replace two-quadrant gates in connection with the establishment of a new quiet zone. Gates have also been installed in 2011 at Sweat St 637584H which experienced crashes in 2003, 2004, and 2009, just outside of the cited 2005-2010 window.

[39] The six crossings are as follows: Weldon Rd 050409R (6 crashes, flashers); Aaron Blvd (4 crashes excluding a pedestrian fatality, four-track flashers); and Roper Rd (3 crashes, passive); two crashes each at Athens St 640124J (two-track flashers), Minchew Rd 638165N (passive), and Barber St 639913L (two-track flashers).

[40] Simple gate installations are typically completed within two years of being programmed by GDOT.

Table 7 2005-2010 Multiple Crash Crossings Programmed for Gates [1]

County *(City)*	Name	USDOT ID	2005-2010 Crashes	P.I. No.	Comment
Fulton	Old Dixie Hwy [2]	717987T	3	0001817	Existing flashers on Brewery Lead
(Augusta)	Arthern Road	633711T	2	0005934	Two-track crossing
(Sandersville)	Riddleville Rd	865801H	2	0007415	SR242, existing flashers
(Warner Robins	Ignico Road	729216Y	5 [3]	0008952	Existing flashers
Dodge	Garrison Road	729365A	2	0008953	NS line serving Brunswick
Gordon	Midway Road	719727G	2	0009730	Relocation to improve geometry
(Madison)	Jefferson St	279605K [4]	3	0009735	4 track joint CSXT-SCS xing [4]
(Augusta)	L. Walker Blvd	723120U [5]	2	0009736	3 track joint NS-CSXT xing [5]
(Atlanta)	Brown's Mill Rd	717958H	4	0009895	Non-main 3-track crossing
(Lithonia)	Main Street	279684Y	3	0010191	Two-track flasher crossing
(Homerville)	Mulch Plant Rd	637404H	2	0010358	Plus a 2004 fatality crash
Pickens	SR53	340856T	2	632710 [6]	GNRR multi-track flashers
(East Point)	Bayard Street	718006D	3	0002165	2007 & 2-2002 crashes, 4 trk fls
(Gordon)	Henry Owens Rd	719723E	2	0004607	2004 & 2003 crashes
(Tyrone)	Valleywood Rd	639492C	2	0010309	2001 & 2008 crashes, 2 tracks
Total [1]	**12 Crossings**		**32**	**15 Xings,**	**36 crashes inc the latter 3 xings**

1 Multiple crash crossings programmed for installation of gates that are not included in totals because the multiple crashes occurred outside of the 2005-2010 period are highlighted gray.
2 Included as part of Grant Parkway grade separation identified in Table 8.
3 The five crashes do not include a June 2011 crash.
4 USDOT ID is that of the CSXT crossing. The Squaw Creek Southern Railroad crossing USDOT ID is 733136M.
5 USDOT ID is that of the NS crossing. The CSXT crossing USDOT ID is 633713G.
6 Currently in the Long Range Program, but GDOT has initiated diagnostic evaluation of the crossing for gate installation.

This Plan includes more specific detail within its first few years. Other multiple crash crossings will be subjected to diagnostic investigation and programmed for installation of gates as warranted prior to 2018, in addition to investigation and the programming of installation of gates at non-multiple crash crossings.

Table 8 Multiple Crash Crossings for Diagnostic Analysis [1]

County *(City)*	Name	USDOT ID	2005-2010 Crashes	Comment
(Winder)	Beulah Street	640128J	3	Multi-track flashers
(Thomson)	Greenway St	279506M	3	Flashers
(Quitman)	M.L. King Jr. Dr	643305Y	2	Multi-track flashers [1]
(Fort Valley)	State Univ Dr	733469N	2	Multi-track flashers (aka S. Macon St)
(Griffin)	13th Street	718191A	2	Multi-track flashers
(College Park)	Roberts Road	050364L	2	Plus 2-2002 crashes at passive xing
(Fairburn)	Johnston Circle	050408J	2	Plus 2002 crash at passive crossing
(Palmetto)	Harper Street	050404G	2	Main trk & major sdg at passive xing
Total	**8 crossings**		**18**	

1 This crossing is included in a corridor study that was completed in Feb 2011. It may be programmed for gates. The installation of gates is part of a package of crossing safety improvements that will be pursued that would result in a crossing closure.

Georgia has not installed four-quadrant gates with Section 130 funds. GDOT will consider using Section 130 funds to install four-quadrant gates (not in connection with the establishment of a quiet zone) at crossings equipped with gates that have experienced multiple crashes.

5.4 Other Safety Improvements

GDOT does not require a monetary local match to install active warning devices at crossings in its administration of Section 130 funds. GDOT leverages Section 130 funds however by typically requiring local road authority contribution in the form of installing or renewing passive warning devices at crossings (advance warning signs and pavement markings, center line and lane line markings, and special hazard signs, etc) where active warning devices are being installed or improved.[41]

GDOT also often requires local road authorities contribute in the form of installing or widening hard surface pavements to minimum widths and distances from the crossing prior to gate installations.[42] Other geometry improvements such road or crossing relocation, or road profile improvements by local road authorities may be required. GDOT will consider requiring a wider minimum width pavement, depending on crossing circumstances, so as to accommodate bollards or some other type of median divider.

Passive warning device improvements may cost effectively improve crossing safety. GDOT has also used Section 130 funds for comprehensive passive warning device improvement. GDOT typically makes comprehensive passive warning device improvements subsequent to completion of crossing corridor studies that are discussed hereafter in Section 7.2. GDOT plans to continue to follow up on corridor studies by correcting passive warning device deficiencies, and making passive warning device improvements across corridors.

GDOT, when making passive warning device improvements, is focusing more attention to passive warning devices that identify special crossing hazards, particularly high profile crossings, and limited storage distance between crossing and nearby stop signs on crossing roads where the stop sign may result in vehicles being stopped on crossings.[43] GDOT will consider including performance-based specifications in connection with passive warning device and regulatory signage improvements to increase the cost-effectiveness of the improvements.

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[41] Local road authority herein means County or municipal governing authority as concerns county road or city street system respectively.

[42] Currently a minimum 20 foot width hard surface pavement a minimum 200 feet from the crossing is typically required, though greater widths, and greater or lesser distance from crossing may be required, depending on circumstances.

[43] GDOT's informal general standard concerning storage distance is to display W10-11 series signs whenever the vehicle storage distance is 40 feet or less because bus use of such crossings is of concern. The general informal standard is that W10-11 series signs are displayed whenever vehicle storage distance is less than 75 feet on other than local roads, based on a tractor-53 foot trailer combination.

GDOT in its Section 130 passive warning device improvement projects works with local road authorities to change traffic controls at adjacent intersections, or prohibit use of crossings by certain types of vehicles in place of hazard warnings to improve crossing safety.[44] The most recent revision of the MUTCD added a new the ninth signal warrant that provides guidance concerning use of highway intersection signal at intersections adjacent to crossings as a means to control queuing. GDOT is routinely considering the warrant in its diagnostic crossing evaluations.

Twenty-two percent (39 of 175) of the 2006-2010 period public crossing crashes at passive Georgia crossings involved vehicles striking a train. One implication is that many road users may be traveling too fast approaching the crossing based on sight conditions. GDOT will more closely consider treatments, particularly on relatively high speed highways, that augment standard crossing advance warnings to alert road users to a crossing ahead, or encourage reduced speed approaching crossings, such as rumble strips.[45]

Georgia is also actively examining and as warranted installing pre-emption at crossings. The City of Marietta has plans to install pre-emption at the Whitlock Avenue crossing, a multiple crash crossing identified in Table 5. GDOT will be investigating installation of pre-emption at the Waverly Way crossing, another Marietta crossing identified in Table 5. Traffic queued on these crossings because of the signals appears to have been a contributing factor in one-half dozen crashes in the 2005-2010 period though the highway intersections are located more than 200 feet from each of these crossings.

GDOT corridor crossing studies, described in Section 7.2, have also identified crossings where pre-emption is required or recommended but not present, with GDOT subsequently programming pre-emption installation projects.[46]

[44] An example is changing stop sign control to give the crossing traffic right-of-way. In some instances change from two-way stop to all-way stop has been made. Though not as desirable as giving crossing traffic right-of-way, a four-way stop reduces crossing hazard relative to a two-way crossing road stop.

[45] Rumble strips in many instances can do the double duty of helping alert drivers to a crossing as well as a stop sign at nominal distance beyond the crossing.

[46] Madison St 636976F in Thomasville, and Broad St 636831U in Cairo were identified by a Corridor Crossing Study completed in Feb 2011, and are expected to be programmed for installation of pre-emption.

6.0 Enforcement

6.1 Georgia Code *(See Section 7.3 for discussion of Georgia code governing school bus use of crossings.)*

Crossing surface condition may affect crossing safety. Georgia code, the Official Code of Georgia Annotated (O.C.G.A.), proscribes the railroad's grade crossing surface maintenance responsibility. GDOT has developed a means of resolving disputes between railroads and road authorities concerning crossing surface and geometry.

More importantly as concerns crossing safety, O.C.G.A. § 32-6-193.1, *Elimination of grade crossings by physical removal; procedures*, provides a means to close public crossings that are not "reasonably necessary in the interest of public safety". "Reasonably necessary in the interest of public safety" in the code "means that the enhancement of public safety resulting from such elimination of the grade crossing will outweigh any inconvenience to the reasonable passage of public traffic, specifically including without limitation emergency vehicle traffic, caused by such rerouting of traffic." Code requires each of eleven identified factors be considered with respect to crossings closure.[47]

O.C.G.A. § 32-6-193.1 permits railroads to petition to close crossings, and notably allows railroads to request a GDOT review of a local road authority's rejection of a petition to close a local road crossing. Railroads have exercised the latter provision, and GDOT has on occasion reversed the local road authority's decision to deny crossing closure, most recently in Casseels Road 637344B.[48] GDOT will continue to apply code standards in evaluating crossings for closure.

6.2 Law Enforcement Training

Georgia was one of the first states in the nation to offer specialized training to law enforcement and emergency responders in how to respond to train-vehicle collisions, Grade Crossing Collision Investigation (GCCI), and Rail Safety for Emergency Responders (RSER). Georgia Operation Lifesaver (GOL), as part of a GOHS grant program, will be providing this training in 2011 and 2012. GOL will also provide special school bus driver training through the Georgia Association for Pupil Transportation (http://www.gaptonline.org/), and commercial truck drivers through the Georgia Motor Trucking Association (http://www.gmta.org/).

6.3 Law Enforcement Activity

The crossing crash subject matter prepared as described in Section 4.1 (Table 5 for example) can be used to focus enforcement activity as well as serve as an education and awareness tool. GDOT will furnishing the information to the Georgia State Patrol in addition to local governments, and will suggest local government target enforcement activities at the subject crossings or corridors.

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[47] See Appendix B for O.C.G.A. language.

[48] The petition was motivated in part by a 2003 fatality crash involving Amtrak that also injured 25 passengers.

7.0 Data Analysis

7.1 Inventory and Crash Data

The Rail Safety Improvement Act required this Plan focus on multiple crash crossings, or crossings that are at high risk for multiple crashes, and identify specific solutions for improving safety at such crossings. Much of this Plan as described thus far has focused on specific solutions at crossings that have experienced multiple crashes.

The Federal Highway Administration's *Railroad-Highway Grade Crossing Handbook* (http://safety.fhwa.dot.gov/xings/com_roaduser/07010/) is an excellent general source of crossing crash risk factors and prediction of crashes and crash severity based on risk factors. This Plan section will focus on the identification of Georgia crossings that are at high risk for multiple crashes.

Analysis of past crash experience may be the single best source of identifying risk factors. GDOT recently completed a comprehensive update of USDOT and GDOT crossing inventory information. Updated inventory information can result in better crash report information, and consequently better crash analysis.

Crash analysis has been an integral part of GDOT's administration of the Section 130 Program. Plan development was grounds for initiating additional analysis that is yet underway. The examination of 2005-2010 multiple crash public crossing data thus far indicate that the following characteristics are associated with Georgia multiple crash crossings (in no particular order of importance):

- Amtrak crossings – Six of the eight total 2006-2010 period Amtrak crashes in Georgia occurred at multiple crash crossings.[49] Five of those six crossings were equipped with gates. The other was a passive crossing. (One gate and one passive crossing round out the eight.)
- Flasher crossings, particularly multiple track flasher crossings – Many Georgia multiple crash crossing crashes occur at flasher crossings, including short line flasher crossings. Flasher crossings accounted for 29% (37 of 128 per Table 2) of the active warning device multiple crash crossing crashes in the 2006-2010 period but constitute only 11% of active warning device crossings. This experience is what would be expected based on USDOT national level research that indicates that gates may be expected to reduce crashes at flasher crossings by roughly two-thirds, everything else being equal.

  Georgia flasher however are more likely to be located on lower railroad and higway traffic volume crossings than crossings equipped with gates. The expectation, given lower railroad and higway traffic volumes, is that there should be fewer multiple crash flasher crossing crashes than have occurred.

  Multiple track flasher crossings are a hazard concern because six of the 14 flasher crossings with multiple crashes in the 2006-2010 period are multiple track

[49] The Amtrak multiple crash crossings were multiple crash crossings because of NS or CSXT crashes at the crossings, not because there were two or more Amtrak crashes at the crossings.

crossings. Multiple track multiple crash crossings account for 44% of all multiple crash flasher crossing crashes excluding two single track flasher crossings that each experienced five crashes.[50]

- Crossings with irregular or poor highway alignment – These include crossings where the highway alignment as a high vertical profile or hump at the crossing that may result in low ground clearance vehicles becoming stuck on the crossing. Also included are crossings where there is a change in horizontal curvature or change from tangent to curvature at or very near the crossing. These two alignment characteristics at a crossing exacerbate each other. Horizontal curvature is of extra concern where the highway is narrow because vehicles are more apt to leave the crossing surface at the crossing and become stuck while fouling the crossing.

Generally speaking, Amtrak crossings are high hazard Georgia crossings to the small extent that the relative number of Amtrak crashes is higher than freight train crashes on the lines where Amtrak operates. Amtrak crossing crashes in the 2006-2010 period account for 15% (3 of 20) of the crashes on the CSXT segments and 9% (4 of 45) of the crashes on the NS segments where Amtrak operates in Georgia.[51]

Georgia's Amtrak crash experience may be indicative of more crashes occurring where trains operate at higher speeds because the Amtrak routes are the only Georgia routes where train speeds may exceed 60 mph. This experience is may also indicate the role of a wide mixture of train speeds, because freight trains other than intermodal trains are restricted to 60 mph on CSXT and 50 mph on NS Amtrak routes within Georgia.

Georgia flasher crossings collectively are no more hazardous than flasher crossings elsewhere in the US. Installing gates at flasher crossings however, may produce a greater safety return on investment that installation of gates at passive crossings. This occurs in spite of the fact that the installation of gates at a passive crossing reduces the relative risk by more than the two-thirds reduction of the installation of gates at a flasher crossing when the risk at a flasher crossing is much greater than crash risk at a passive crossing.

GDOT anticipates using the Class I railroad segment crash information developed in the preparation of Table 3 to perform additional crash analysis. Likewise GDOT anticipates performing additional analysis to identify specific characteristics associated with crashes where the proximity of intersections is a cause of contributing factor, and develop and implement mitigation accordingly.

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[50] The two single track flasher crossings are Weldon Rd 050409R and Ignico Rd 729216Y. There have been no crashes at Weldon Rd since gates were installed a few years ago, and gates are programmed for installation at Ignico Rd.

[51] This especially appears to be the case for Amtrak on NS routes in Georgia. There are 56% more Amtrak crashes on NS than on CSXT in Georgia after adjusting for Amtrak train volume and numbers of crossings. This may be explained perhaps by the fact that 108 of the 123 NS Amtrak crossings are located in metropolitan Atlanta where highway traffic volumes are higher and/or the NS Amtrak crossings are located in north Georgia where topography and railroad geometry generally result in lower sight distances from the crossing along the railroad.

7.2 Programmatic Corridor Study and Corridor Improvements

GDOT has long taken a programmatic corridor approach in prioritizing crossings for diagnostic evaluation, and programming improvements based on the evaluation. Amtrak routes and the Strategic Rail corridor Network (STRACNET), which in Georgia are medium or high train traffic routes, have been the focus of past corridor studies.[52]

GDOT's corridor approach appears to be producing results. Corridors used by Amtrak were examined in the early years of the last decade, and passive warning device improvements and gate installations were subsequently made at crossings used by Amtrak. Amtrak crashes at passive public crossings decreased from six in the 2001-2005 period to one in the 2006-2010 period. Freight train crashes at passive crossings on those same corridors decreased too, from 28 to 18 in the same periods, resulting in a 44% reduction in crossing crashes for combined Amtrak and freight trains at corridor crossings.[53]

Crash experience and the existing types of warning devices are very important to GDOT in the selection of corridors for crossing studies.[54] Train traffic characteristics, and to a lesser degree train and highway traffic trends, are also considered when selecting corridors for diagnostic crossing evaluation. Considering traffic trends in selecting corridors proactively addresses crossing safety.

GDOT as part of its administration of the Section 130 Program has identified the following corridors for possible comprehensive crossing corridor studies over the next few years. The corridors are listed in no particular order.[55] Figure 6 depicts corridors that have been the subject of comprehensive corridor studies since 2004 as well as those identified for possible comprehensive in this Plan.

- CSXT Augusta-Atlanta based on a relatively high number of crashes per route-mile at passive crossings, and a relatively high number of flasher crossings (Georgia Subdivision in Table 3).
- NS Atlanta-Macon based on increasing Savannah Port traffic in addition to already existing heavy railroad traffic (Atl South District in Table 3).

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[52] FRA and the U.S. Department of Defense (DoD) have identified a 38,800 mile long STRACNET important to national defense. This rail network serves 193 DoD installations that have missions that require rail service. It includes 32,500 miles of rail lines critical for movement of military equipment to various ports, and 5,000 miles of rail lines that connect DoD installations to each other.

[53] The number of crashes is rather small, and the reductions have not been subjected to rigorous mathematical analysis, but the warning device improvements seem to have resulted in significant improvement. See Charlotte and Birmingham Districts, and Columbia, Charleston, Savannah, and Nahunta Subdivisions in Table 3.

[54] The existing type of warning devices is relevant in that these studies are taken with the primary purpose of making active warning device improvements.

[55] The Griffin-Atlanta corridor will be examined if new Griffin-Atlanta commuter service is included in the pool of projects to be submitted to the metro Atlanta electorate in a 31 July 2012 referendum, and the referendum is approved. Section 130 participation in the funding any Griffin-Atlanta crossing corridor study in that circumstance has not been determined at this time.

Figure 6 Georgia Corridors Crossing Studies

- NS Macon-Brunswick based on recent significant increases in railroad traffic, particularly motor vehicle import-export traffic, through the Port of Brunswick (Brunswick District in Table 3).
- CSXT Athens-Gainesville based on a relatively high number of crashes per railroad route-mile at passive crossings on a line located at the fringe of exurban metropolitan Atlanta (Gainesville Subdivision in Table 3).
- NS Rome-Bremen-Newnan based on steady mostly coal traffic on a line located in rapidly developing exurban metropolitan Atlanta (CGA District in Table 3).[56]
- CSXT Atlanta-West Point based on a relatively high number of crashes per route-mile on a line that extending from the Atlanta urban core to the fringe of exurban metropolitan Atlanta, and that has been experiencing higher than average train traffic growth because of, among other things, construction of the West Point KIA motor vehicle assembly plant that is served by the line (A&WP Subdivision in Table 3).

GDOT crossing corridor studies have largely focused on Engineering. Future corridor studies will include more emphasis on the education and enforcement components of crossing safety.

7.3 School Bus Use of Crossing Reporting

Georgia code requires that public school districts exercise best efforts to avoid use of passive warning device only crossings, that they annually report school bus use of passive crossings to GDOT, and that GDOT use that information as an important factor in prioritizing installation of active warning devices. GDOT uses school bus use of crossings in its Adjusted Hazard Index as previously mentioned.

GDOT in 2011 will conclude preparation and dissemination of instructions for counting school bus use of crossings to promote uniformity of reporting across school districts, and furnish the instructions to school districts. Likewise GDOT is completing geographically ordered lists of crossings by railroad line and county to assist school districts in reporting school bus use of passive crossings as they are required to do by code. School districts will be requested to report school bus use of crossings equipped with active warning devices every five years (years ending in five or zero) with that information used to update GDOT and USDOT crossing inventory databases.

[56] GDOT will consult with Georgia Power/Southern Company concerning coal-fired Plants Wansley and Yates served by the line prior to performing a corridor study. There have been media reports of closure and /or change in fuel at one or both plants because of air quality concerns. Traffic on the line largely consists of coal traffic to the plants, and closure or change in fuel would significantly affect railroad traffic on the line.

Appendix A - 49 CFR Part 234, Subpart B, § 234.11

49 CFR Part 234, Grade Crossing Signal System Safety and State Action Plans

Subpart B, Reports and Plans

§ 234.11 State highway-rail grade crossing action plans

(a) *Purpose.* The purpose of this section is to reduce collisions at highway-rail grade crossings in the ten States that have had the most highway-rail grade crossing collisions, on average, during the calendar years 2006, 2007, and 2008. This section does not restrict any other State, or other entity, from adopting a highway-rail grade crossing action plan. This section also does not restrict any of the States required to develop action plans under this section from adopting a highway-rail grade crossing action plan with additional or more stringent requirements not inconsistent with this section.

(b) *Application.* This section applies to the ten States that have had the most highway-rail grade crossing collisions, on average, during the calendar years 2006, 2007, and 2008.

(c) *Action plans.* (1) The ten identified States shall each develop a State highway-rail grade crossing action plan and submit such a plan to FRA for review and approval not later than August 27, 2011.

(2) A State highway-rail grade crossing action plan shall:

(i) Identify specific solutions for improving safety at crossings, including highway-rail grade crossing closures or grade separations;

(ii) Focus on crossings that have experienced multiple accidents or are at high risk for such accidents; and

(iii) Cover a five-year time period.

(d) *Review and approval.* (1) State highway-rail grade crossing action plans required under paragraph (c) of this section shall be submitted for FRA review and approval using at least one of the following methods: Mail to the Associate Administrator for Railroad Safety/Chief Safety Officer, U.S. Department of Transportation, Federal Railroad Administration, 1200 New Jersey Ave., SE., Washington, DC 20590; or e-mail to *rrs.correspondence@fra.dot.gov.*

(2) FRA will review and approve or disapprove a State highway-rail grade crossing action plan submitted pursuant to paragraph (d) of this section within 60 days of receipt.

(3) If the proposed State highway-rail grade crossing action plan is disapproved, FRA will notify the affected State as to the specific areas in which the proposed plan is deficient. A State shall correct all deficiencies within 30 days following receipt of written notice from FRA.

(4) FRA may condition the awarding of any grants under 49 U.S.C. 20158, 20167, or 22501 to an identified State on the development of an FRA approved State highway-rail grade crossing action plan.

U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

NOV 2 5 2011

Mr. Keith Golden
Commissioner
Georgia Department of Transportation
600 West Peachtree Street
Atlanta, GA 30308

Dear Mr. Golden:

As you are aware, Section 202 of the Rail Safety Improvement Act of 2008 (RSIA, Public Law 110-432), requires the Secretary of the U.S. Department of Transportation to identify the 10 States that had the most highway-rail grade crossing collisions, over a 3-year average, and requires those States to develop a State grade crossing action plan within a reasonable period of time. Section 202 of the RSIA also requires the action plan to identify specific solutions for improving safety at crossings, including "highway-rail grade crossing closures or grade separations, and shall focus on crossings that have experienced multiple accidents or are at high risk for such accidents." The Secretary delegated this effort to the Federal Railroad Administration (FRA) and, in turn, the June 28, 2010, Federal Register (Vol. 75, No. 123, Page 36551) identified these States, which included Georgia. FRA notified the Georgia Department of Transportation (GDOT) of this requirement in an August 4, 2010, letter.

FRA has completed its review of the Georgia Action Plan, and appreciates all efforts to comply with the congressional requirement and Federal regulations. FRA notes that the Georgia Action Plan substantially meets all of the requirements to discuss current and future plans related to highway-rail grade crossing closures, grade separations, and crossings with multiple incidents, and requires no significant changes or corrections. FRA is also pleased that this action plan provides additional information on the State's efforts to demonstrate its holistic approach to enhance safety at or near highway-rail grade crossings. FRA understands that the submitted action plan may be subject to adjustments, based on issues such as, but not limited to, context-sensitive data, incident trends, and regulatory and legislative requirements.

Thank you for Georgia's ongoing efforts to improve highway-rail grade crossing safety. If you need additional information, please feel free to contact Mr. Ron Ries, Staff

Director, Highway-Rail Crossing and Trespasser Programs Division, at (202) 493-6285 or Ronald.Ries@dot.gov.

Sincerely,

for Jo Strang
Associate Administrator for Railroad Safety/Chief Safety Officer

cc: Mr. Jeff Baker, GDOT
Mr. Key Phillips, GDOT
Mr. Stenley K. Mack, GDOT

Appendix B – Selected Georgia Code

(http://www.lexisnexis.com/hottopics/gacode/Default.asp)

School Buses

O.C.G.A. § 32-6-200 (d) (2): Each local school district in this state shall survey its established school bus routes annually and submit to the Department of Transportation a list identifying each rail crossing that does not have active warning devices on an established bus route. Each local school district shall be required to submit this information to the department each year by no later than September 1.

O.C.G.A. § 32-6-200 (d) (3): Each local school district shall exercise best efforts to minimize the number of established school bus routes that cross rail crossings that do not have active warning devices.

O.C.G.A. § 32-6-200 (d) (4): The department shall use the information about school bus routes as an important factor in selecting rail crossings to upgrade with active warning devices.

Crossing Surfaces

O.C.G.A. § 32-6-190: Any railroad whose track or tracks cross a public road at grade shall have a duty to maintain such grade crossings in such condition as to permit the safe and reasonable passage of public traffic. Such duty of maintenance shall include that portion of the public road lying between the track or tracks and for two feet beyond the ends of the crossties on each side and extending four feet beyond the traveled way or flush with the edge of a paved shoulder, whichever is greater, of such crossing.

Crossing Closures

O.C.G.A. § 32-6-193.1. Elimination of grade crossings by physical removal; procedures

(a) The department shall by rule or regulation prescribe uniform criteria for its own use and that of local governing authorities in assessing whether elimination of a grade crossing on a public road by physical removal of the grade crossing and barricading or removing the approaches thereto without construction of an underpass or overpass is reasonably necessary in the interest of public safety. For purposes of this Code section, "reasonably necessary in the interest of public safety" means that the enhancement of public safety resulting from such elimination of the grade crossing will outweigh any inconvenience to the reasonable passage of public traffic, specifically including without limitation emergency vehicle traffic, caused by such rerouting of traffic. Such criteria shall include consideration of each of the following factors:

(1) Number and timetable speeds of passenger trains operated through the crossing;

(2) Number and timetable speeds of freight trains operated through the crossing;

(3) Distance to alternate crossings;

(4) Accident history of the crossing for the immediately preceding five-year period;

(5) Type of warning device present at the crossing, if any;

(6) The alignments, horizontal and vertical, of the roadway and the railroad and the angle of the intersection of those alignments;

(7) The average daily traffic volume in proportion to the population of the municipality if the crossing is located within a municipality or the population of the county if the crossing is located within an unincorporated area of a county;

(8) The posted speed limit over the crossing;

(9) The effect of closing the crossing upon access by persons utilizing:

(A) Hospital or medical facilities and public health departments, specifically including without limitation utilization by medical personnel;

(B) Facilities of federal, state, or local government, specifically including without limitation court, postal, library, sanitation, and park facilities; and

(C) Commercial, industrial, and other areas of public commerce;

(10) Any use of the crossing by:

(A) Trucks carrying hazardous material;

(B) Vehicles carrying passengers for hire;

(C) School buses;

(D) Emergency vehicles; or

(E) Public or private utility vehicles, specifically including without limitation water, sewer, natural gas, and electric utility maintenance and repair vehicles; and

(11) Any other relevant factors as prescribed by the department.

(b) (1) Any railroad may file a written petition requesting an order to eliminate a grade crossing on a public road by physical removal of the grade crossing and barricading or removing the approaches thereto without construction of an underpass or overpass. Any such petition shall be filed by certified mail or statutory overnight delivery, return receipt requested, with the department in respect to the state highway system, a county governing authority in respect to its county road system, or a municipal governing authority in respect to its municipal street system.

(2) Any petition by a railroad under this subsection shall include without limitation information as to each of the factors set forth in paragraphs (1) through (5) of subsection (a) of this Code section.

(3) The department or the local governing authority, whichever is applicable, shall conduct a public hearing on the matter prior to deciding whether to grant or deny such a petition.

(4) (A) No railroad shall have a duty to file a petition for elimination of a grade crossing as authorized by this subsection.

(B) Neither the failure of a railroad to file such a petition nor any decision by the department or any local governing authority regarding such a petition shall give rise to a cause of action against the railroad, the department, or a local governing authority by a person for injuries or damages arising from the existence or use of such crossing.

(c) (1) If the department in respect to the state highway system, a county governing authority in respect to its county road system, or a municipal governing authority in respect to its municipal street system determines that elimination of a grade crossing in accordance with this Code section is reasonably necessary in the interest of public safety, the department or the local governing authority may issue an order to eliminate the crossing. Such order shall be in writing, and a copy shall be served upon the railroad. If a local governing authority issues such an order, it shall make a record of its findings and transmit a copy of the same along with the order to the department.

(2) If the department in respect to the state highway system, a county governing authority in respect to its county road system, or a municipal governing authority in respect to its municipal street system determines that elimination of a grade crossing in accordance with this Code section is not reasonably necessary in the interest of public safety, the department or the local governing authority may issue an order denying a petition to eliminate the crossing. Such order shall be in writing, and a copy shall be served upon the railroad. If a local governing authority denies a petition, it shall make a written record of its findings and transmit a copy of the same along with the order and petition to the department.

(3) (A) Any railroad aggrieved by an order of a local governing authority under this subsection may make a written request to the department for review of such order. Such request shall be accompanied by a $500.00 filing fee. The department shall within 60 days after the filing of such request review the matter.

(B) Upon review of the order and findings of the local governing authority and any filings by the railroad, if the department determines that elimination of a grade crossing in accordance with this Code section is not reasonably necessary in the interest of public safety, the department shall order that the crossing shall remain open.

(C) Upon review of the order and findings of the local governing authority and any filings by the railroad, if the department determines that elimination of a grade crossing in accordance with this Code section is reasonably necessary in the interest of public safety, the department shall issue an order to eliminate the crossing.

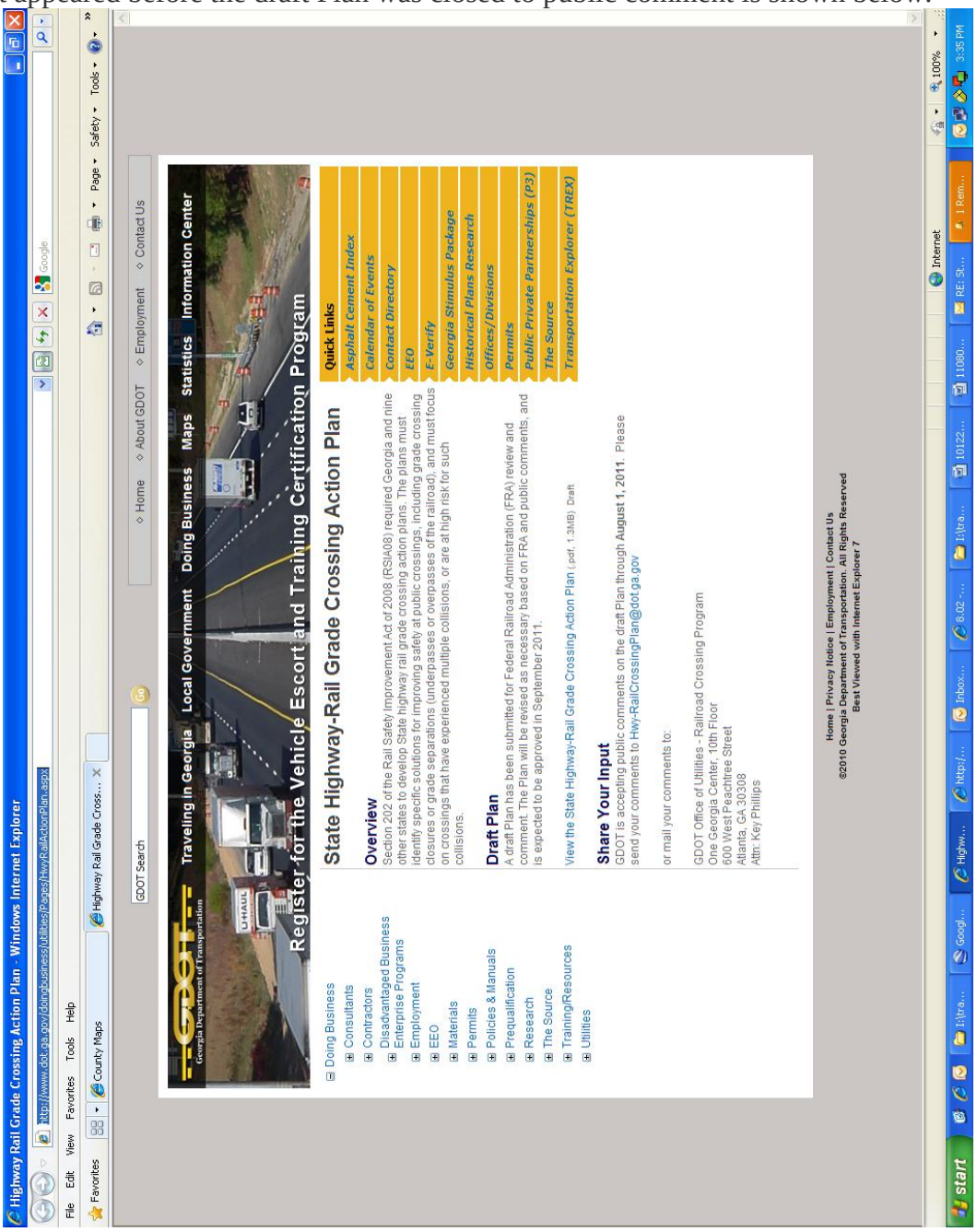
(D) Any such order of the department shall be in writing, and a copy of the order shall be served upon the railroad and the local governing authority. As part of such order, the department shall assess all its costs of investigating and reviewing the matter against the railroad if an order for the crossing to remain open is issued or against the county or municipality if an order to eliminate the crossing is issued, and the party so assessed shall be liable therefor to the department; provided, however, that any filing fee paid to the

department by a railroad shall be applied to any such amount assessed against the railroad, and the balance of such filing fee, if any, shall be refunded to the railroad. The department shall keep detailed records of its costs of investigation and review for purposes of this subparagraph, and such records shall be subject to public inspection as provided by Article 4 of Chapter 18 of Title 50.

(d) If an order to close a grade crossing is issued, the railroad shall at its expense physically remove the crossing from the tracks and for two feet beyond the ends of the crossties on each side and extending four feet beyond the traveled way or flush with the edge of a paved shoulder, whichever is greater, of such crossing and erect a department approved barricade; and the department in respect to the state highway system, the county in respect to its county road system, or the municipality in respect to its municipal street system may at its expense remove approaches to the crossing. The provisions of Code Section 32-6-195 for division of costs of elimination of a grade crossing by construction of an underpass or overpass shall not apply to elimination of any grade crossing under this Code section.

Appendix C – Public Comment

A GDOT webpage (http://www.dot.ga.gov/doingbusiness/utilities/Pages/HwyRailActionPlan.aspx) included a link to the draft Plan submitted 24 June 2011 to FRA for formal FRA review.[57] The draft Plan webpage was available on-line on June 27, 2011. The webpage as it appeared before the draft Plan was closed to public comment is shown below.



[57] As information the webpage address in App E of the draft plan was incorrect. It omitted "Action" between "Rail" and "Plan."

GDOT received the one public comment concerning the Plan shown below.

From: caclendenen@mmm.com [mailto:caclendenen@mmm.com]
Sent: Wednesday, July 06, 2011 2:10 PM
To: Hwy-RailCrossingPlan
Subject: Comments on the published Rail crossing Draft.

Gentlemen,

Thank you for taking the time and effort to publish the departments plan to address railroad crossings in Georgia. I would like to again commend you on your efforts to ensure the safety of the motoring public a highway-rail crossing across the state. Moreover, I believe your efforts are paying off as we continue to see a reduction in Highway-Rail Grade crossing collisions in Georgia. However, with the expansion of the Port facilities in Savannah, the increase in manufacturing companies relocating to the south and the continued population growth coupled with the reduction in maintenance support of existing crossings, Georgia is likely to remain in the FRA's top ten states of highway-rail grade collisions. Below are some suggestions to the published drafts. The suggestion compliment the existing plan and enhances the current/future data collections capability.

In this current fiscal crisis, it is challenging to fund and maintain the existing railroad crossing infrastructure with the traditional maintenance resources. Additionally, states are looking to ensure the financial resources spent to improve safety provides a maximum return on investment. The below suggestions include low cost safety enhancement programs with performance based characteristics to ensure greatest safety yield per dollar spent. Typical enhancement projects replace existing signs and pavement markings, however the state does receive an guarantee that product performance will meet expectations and the contractor has little if any culpability on the applied materials.

The final recommendation is for enhanced data management to include inventory and assessment of passive warning devices and pavement markings at each rail location to help establish a single database for inventory, location, maintenance activities, and FHWA retroreflectivity requirements. This database should be tailored with any existing GDOT system and will enable the state to be in compliance with all FHWA signs and marking retroreflectivity requirements.

Add to Section 5.4 Other Safety Improvements

GDOT has also used Section 130 Program funds for comprehensive passive warning device improvement, typically subsequent to completion of crossing corridor studies that are discussed hereafter in Subsection 7.2. GDOT is focusing more attention to passive warning devices that identify special crossing hazards, particularly high profile crossings, and limited storage distance between crossing and nearby stop signs on crossing roads that may result in vehicles being stopped on crossings when making passive warning device improvements

GDOT in connection with passive warning device improvement projects works with local governments to change traffic controls at adjacent intersections, or prohibit use of crossings by certain types of vehicles in place of warnings. The most recent revision of the MUTCD added a new the ninth signal warrant that provides guidance concerning use of highway intersection signal at intersections adjacent to crossings as a means to control queuing. GDOT is routinely considering the warrant in its diagnostic crossing evaluations.

Passive warning devices such as the installation of advanced warning signs or regulatory signage tend to have high cost benefit ratios due to the economical cost of such improvements compared with the improved safety at crossing locations. Many states are implementing such programs and are often including performance-based specifications in the project contract documents. Performance-based contracts for traffic sign improvement projects (passive devices) would include value-based features for GDOT including automatic update of sign inventory information (see section on Inventory, Assessment, and Replacement plan) to keep data current, extended warranties, and increased reporting and accountability for the contractor. Often these contracts contain provisions for pay over time or pay for performance linking long-range performance guarantees to financial payment or a performance bond required by the Contractor. Agencies generally have significant financial leverage to ensure quality workmanship and long term performance through these contracts. Performance characteristics generally apply to the immediate deliverables as well as long range performance of pavement markings and traffic signs.

Add to Section 7.0 Data and Data Analysis

Section 7.4 Traffic Sign and Pavement Marking Inventory, Assessment, and Replacement Program

In 2008 the FHWA finalized a new rule requiring agencies to meet minimum standards for retroreflectivity of traffic signs by specific phase-in dates as outlined in the rule. Included in the rule was a requirement for agencies to have a management plan established for traffic sign assets within 4 years from adoption of the rule. GDOT is in a unique position on any proposed passive improvements for railroad grade crossings that would be implemented through the implementation of this plan. As mentioned in Section 5.4 there are benefits to including performance-based measures in these improvement contracts to enhance the value provided to GDOT. One example of this is to require the contractor to conduct inventory and assessment evaluations of both existing and new grade crossing features as part of the project scope of work. Agencies would then benefit from a comprehensive inventory of all pavement marking and traffic sign features at each crossing. All performance information and data tracking would be organized electronically and associated with each inventory and assessment attribute such as an individual RR Crossing pavement marking or traffic sign.

Other states have incorporated this activity into the regular work flow operations of the

contractor. Once projects are complete agencies such as GDOT that implement this system then have a current and active management plan for all traffic signs at those improved grade crossing locations. The inventory and assessment specification requirements should be tailored to complement any existing GDOT system or to develop a completely new system thereby enabling GDOT to be compliant with FHWA standards at those improved crossings immediately upon completion of the contract. In addition to the FHWA rule for traffic signs that is in existence today, there is discussion within the ranks of the FHWA to also establish minimum reflectivity requirements for pavement markings. Establishing a single database for both pavement markings and traffic signs, implemented through a performance-based contract, would position GDOT ahead of any pending legislation for pavement markings in addition to the benefit of developing a comprehensive management plan for traffic signs at the time of implementing passive safety improvements.

Appendix D – Georgia Amtrak Crossings

NS Amtrak Crossings

County	Gates	Flashers	Crossbucks	Separation	Private
Stephens	2		1	10	
Habersham	3			13	
Habersham-Banks	4		1	3	
Banks-Hall	2		2		
Hall	22		1	14	1
Gwinnett	40			9	1
DeKalb				10	
Fulton	1		1	16	1 (+2 Seps)
Cobb	6			7	1
Douglas	24		1		2
Carroll	12				1
Totals	**116**	**0**	**7**	**82**	**7**

CSXT Amtrak Crossings

County	Gates	Flashers	Crossbucks	Separation	Private
Effingham S-Line	13	1	2	1	3
Chatham S-Line	2		3	3	
S-Line Subtotal	***15***	***1***	***5***	***4***	***3***
Silver Star operates on the S-Line north of Central Jct, and the A-Line south of Central Jct					
All other Amtrak trains operate on the A-Line. (Note that the pair of Palmetto trains operate only as far south as Savannah on the A-Line.)					
Chatham A-Line North of Central Jct	***7***	***0***	***0***	***9***	***1***
Chatham A-Line South of Central Jct	2		1	9	
Bryan	4			2	
Liberty	5		2	1	2
Long	3		1		1
Wayne	11		1	2	7
Brantley	6		9		2
Charlton	5		1	3	3
A-Line South of Central Jct Subtotal	***36***	***0***	***14***	***17***	***15***
A-Line Route Totals	**43**	**0**	**14**	**26**	**16**
S-Line & A-Line S. of Central Jct Route Totals (Silver Star)	**51**	**1**	**19**	**21**	**18**

A P P E N D I X E-1 - Age and Gender of Drivers and Pedestrian Involved in Grade Crossing Crashes and Incidents

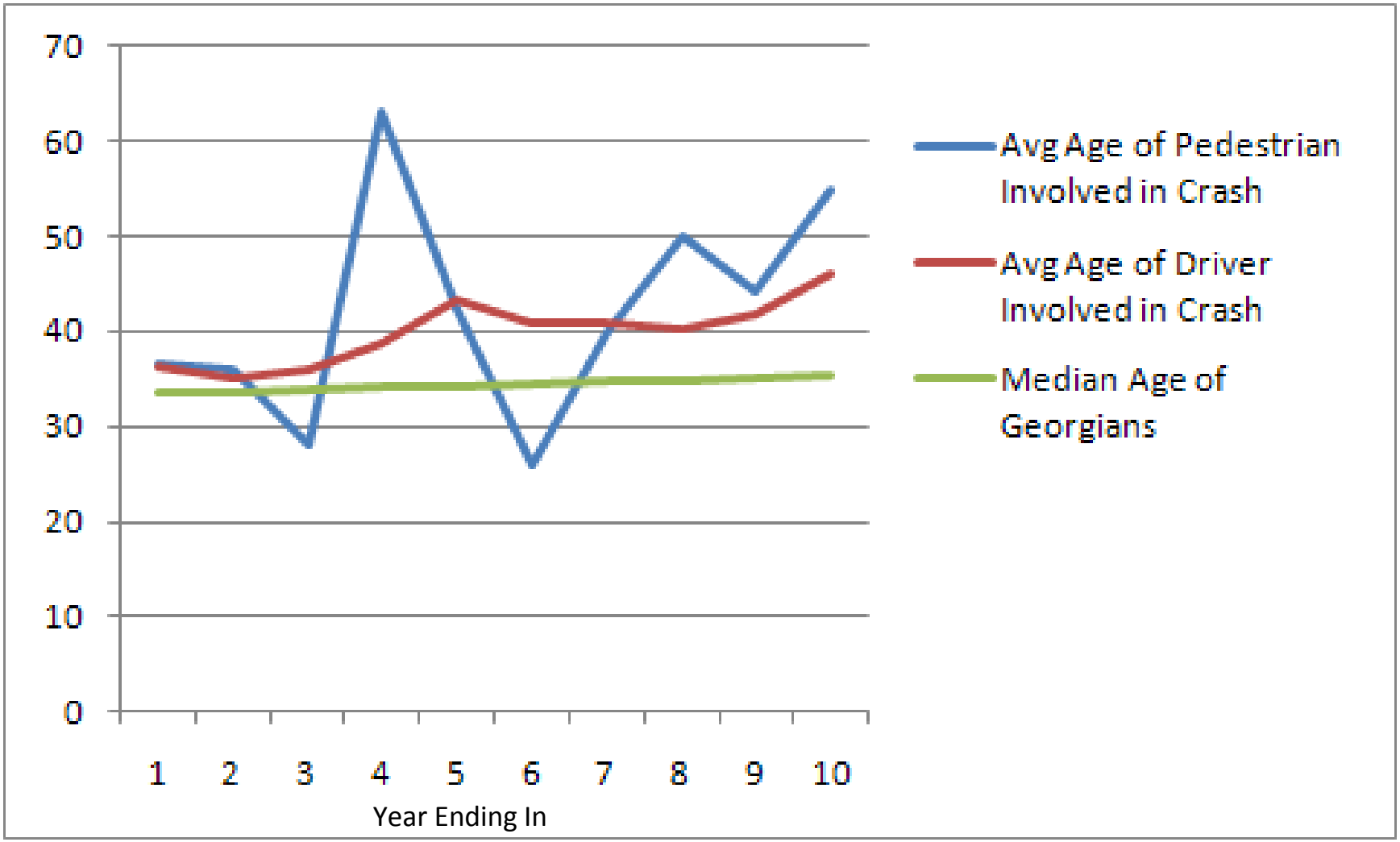
Age of Driver	Georgia Motor Vehicle Hwy-RR Grade Crossing Crashes (Public and Private Crossings)													
	Year											Average	Percentage	
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total	Crashes / Yr	of crashes	Male
<19	10	10	6	6	5	7	8	3	2	2	**59**	5.9	6.0%	69.5%
19-24	30	36	31	28	9	11	11	12	7	4	**179**	17.9	18.2%	77.1%
25-34	19	24	21	22	13	21	24	19	17	7	**187**	18.7	19.0%	76.5%
35-44	19	25	16	24	32	18	15	22	19	11	**201**	20.1	20.4%	80.6%
45-54	18	22	18	29	15	20	30	11	16	6	**185**	18.5	18.8%	81.1%
55-64	6	8	10	10	12	14	10	4	12	9	**95**	9.5	9.7%	83.2%
65-74	3	5	5	3	6	5	7	8	1	3	**46**	4.6	4.7%	84.8%
>74	5	1	1	5	5	3	2	4	2	3	**31**	3.1	3.2%	74.2%
Subtotal	**110**	**131**	**108**	**127**	**97**	**99**	**107**	**83**	**76**	**45**	**983**	**98.3**	**100.0%**	
Average age	36.3	35.4	35.9	39.1	43.3	40.8	40.9	40.8	41.9	46.4	**39.4**			
Age not rptd	10	9	4	25	31	34	26	24	28	21	**212**			
Male	75.0%	78.3%	80.2%	87.2%	80.7%	68.6%	76.2%	75.5%	75.5%	75.0%				77.7%

Source: FRA Percentage of male drivers in last row of table includes crashes where gender but not age was reported.

Age of Pedestrian	Georgia Pedestrian Hwy-RR Grade Crossing Crashes (Public and Private Crossings)													
	Year											5 Yr rolling	Percentage	
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total	Average	of incidents	Male
<19									1		**1**		4.8%	100.0%
19-24	1		1				1				**3**		14.3%	33.3%
25-34						1		1			**2**		9.5%	100.0%
35-44		1	1		1						**3**		14.3%	33.3%
45-54	1			1	1			1		1	**5**	2.8	23.8%	40.0%
55-64							1		1	1	**3**	3.2	14.3%	100.0%
65-74		1						1	1		**3**	3.2	14.3%	66.7%
>74				1							**1**	2.8	4.8%	0.0%
Subtotal	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**3**	**3**	**2**	**21**		100.0%	
Age not rptd			1	1	1	1	3				**7**		gender not reported	
Male	1	1	1	2	1	2	2	2	3	1	**16**		66.7%	

Source: FRA

Median age in GA: 1990, 31.5 yrs; 2000, 33.4 yrs; 2010 35.3 yrs.



No ages were reported for approximately one-third of pedestrians involved in crashes. The apparent trend of increasing age of pedestrians involved in crash may not be significant in that there are relatively few crashes involving pedestrians at crossings, and average age may be significantly affected by one event. For instance, the 2004 spike to 63 years average age was based on two crashes involving an 80 year old and a 46 year old. The 2006 dip to 26 years old was based on the age of the one pedestrian in one crash.

The average age of drivers involved in Georgia crossing crashes over the course of the 2001-2010 period seems to be increasing well in excess of the increase in age of the driving population in Georgia. The median age of Georgia residents increased by nearly two years between 2000 and 2010 from 33.4 years to 35.3 years. The five year rolling average driver age (based on crashes where driver age was reported) of Georgia drivers involved in crossing crashes increased from 38 years to 42 years in the shorter 2005-2010 time period. Male drivers accounted for slightly over three-quarters of the drivers involved in crossing crashes. The fraction of drivers involved in crashes that are male generally increases with driver age, except for drivers 75 years old and older, reflecting the longer life expectancy of women.

The average age of drivers involved in Georgia crossing crashes in the 2001-2010 period increased for multiple reasons. Most importantly there has been a large reduction in the number crashes involving drivers less than 25 years of age. There has also been a smaller reduction in the number of crashes involving drivers between the ages 25 and 54 inclusive. The number of crashes involving drivers 55 years old and older increased from 2001 to 2005 and then decreased from 2006 to 2010, ending the decade at approximately the same number of crashes as in 2001.

Georgia enacted legislation in 1997 (Teenage and Adult Driver Responsibility Act, TADRA), 2001, and 2005 (Joshua's Law) that significantly increased driver education requirements for drivers less than 18 years of age, and imposed restrictions on passengers for drivers under the age of 18. 16 year old driver's license applicants currently must complete a driver's education course with 30 hours of classroom study and 6 hours of behind the wheel training, complete at least 40 hours of supervised driving, and pass a comprehensive on-the-road driving test. 17 years old driver's licence applicants currently must complete at least 40 hours of supervised driving and pass a comprehensive on-the-road driving test. The Georgia legislation imposes a midnight to 6am curfew on Class D (less than 18 year old) licensees. The legislation may have contributed to fewer crossing crashes for drivers less than 19 years of age over the 2001-2010 period. It may also have contributed to significantly fewer crashes for drivers 19-24 years of age as evidenced by a reduction in crossings crashes trailing the dates of the legislation and improvement of 16-18 year old driver crossing crash experience by a few years.

Even with recent improvement, drivers less than 25 years of age experience significantly higher numbers of crashes that those in the 25-54 age group that have experience relatively equal numbers of crashes by age. The number of crashes by those over age 55 decreases rapidly around age 60, reflecting less driving by the retired.

A P P E N D I X E-2 - Short Line Railroad and Amtrak Crashes

	Shortline	Segment	Route Miles	Year 2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total Crashes	Pub Xing Crashes	Comment
ABR	Athens Line	Note 1	21				1							1		Leased from NS
CBR	Chattahoochee Bay Railroad		2													
CIRR	Chattahoochee Industrial RR		15													
CCKY	Chattooga & Chickamauga Rwy	Chattanooga-Lyerly	48													
(NS)	Last operated as CCKY	Chattanooga-Hedges	Note 2					1						1	1	Inactive since 2009
FCRD	First Coast Railroad		10													Leased from CSXT
FCR	Fulton County Railway		8													Leased from CSXT
GC	Georgia Central Railway	Macon-Vidalia (Note 3)	95	*2*	1	1	*2*					2	1	9	7	6 (inc 2 pvt) in Laurens Co.
.	.	Vidalia-Savannah	78	1	1		1	1		1	1	1	1	8	7	All in Toombs or Evans Co.
.	.	Albany-Thomasville	58										1	1	1	
.	.	Albany-Sparks	58	1	2		1	1	3				1	9	9	Leased from NS
GFRR	Georgia & Florida Railway	Adel-Foley, FL	35						1				1	2	2	
.	.	Albany-Sylvestor	10	1										1	1	
.	.	Valdosta-Willacoochee	43	2									1	3	3	
GITM	Golden Isles Terminal RR		13					1	*3*	1	2			7	3	Leased from GPA
GNRR	Georgia Northeastern RR	Marietta-White Path	70	1		1			3	2			1	8	8	2001 CSX on GNRR
		White Path-McCaysville	22			1								1	1	
GRWR	Great Walton Railroad		10		1					1	1			3	3	2007 on E-Line of Note 6
		Midville-Kirby	23													
GS	Georgia Southern Railway	Dover-Metter	28				1	1						2	2	Pioneer Railcorp
		Roberta-Perry	30									1		1	1	
.	.	Cuthbert-Bainbridge	68						1		2			3	3	
GSWR	Georgia Southwestern Railroad	Columbus-Americus	60													Leased from NS
.	.	Columbus-Ft. Benning	9													Note 4
.	.	Smithville-Eufaula	66	1								1		2	1	Inc 8 mi GDOT-owned br
GWRC	Georgia Woodlands Railroad		17													
HOG	Heart of Georgia Railroad	Note 5	136				3				1			4	4	All 4 crashes in Americus
HRT	Hartwell Railroad		58			2			1			2		5	5	
LW	Louisville & Wadley Railroad	10 miles														Inactive for many years
ORC	Ogeechee Railroad		22				1							1	1	Ardmore-Sylvania only
RSOR	Riceboro Southern Railway		17					1						1		Leased from CSXT
SAN	Sandersville Railroad		13	1	1	1				1	1	2	2	9	9	
SAPT	Savannah Port Terminal RR		10	1	3	1	4	4	4	5	6			30		Leased from GPA
SCS	Squaw Creek Southern RR	Note 6	22													Leased from NS
SM	St. Marys Railroad		14		2		1							3	3	Boatwright Companies
SMWR	St Marys West Railway		24													
VR	Valdosta Rwy		10				1		1					2	1	
Totals (short line route miles and all crashes)			**1223**	**11**	**11**	**7**	**16**	**10**	**17**	**11**	**16**	**9**	**9**	**117**		
Public Crossing Crashes				**9**	**8**	**6**	**10**	**5**	**11**	**4**	**6**	**8**	**9**		**76**	
ATK	Amtrak	on CSXT	157	1	3	1	2	1		4		*2*		14	13	
		on NS	159	3		2	1	1	1			3		11	11	

Genesee & Wyoming Railroads	GDOT-owned	
Omnitrax Railroads		
Shared railroad management		

Private crossing crashes

Private crossing crash reported by CSXT

One of the crashes occurred at a private crossing.

Crashes shown for current short line railroad where short line railroads have changed

Notes:
1 - Excludes 17 Bishop-Madison route miles that have been out of service for years.
2 - 17 route miles owned by NS and last operated by CCKY.
3 - Include 3 mile Vidalia branch owned by City of Vidalia.
4 - Excludes 15 GDOT-owned Ft. Benning-Cusseta route miles that have not been operated in years.
5 - Excludes 39 GDOT-owned Preston-Omaha route miles that have not been operated in years.
6 - Excludes 27 Shady Dale-Covington route miles that have been out of service for over a year.

A P P E N D I X E-3 - Crashes by Year, Type of Warning Device and Railroad

							Public Crossing Crashes - Year Ending																																
		Route	2001-2010 crashes				1			2			3			4			5			6			7			8			9			10		
RR	Segment	Miles	X	F	G	Tot	X	F	G	X	F	G	X	F	G	X	F	G	X	F	G	X	F	G	X	F	G	X	F	G	X	F	G	X	F	G
CSXT			220	68	244	532	39	9	15	34	6	24	27	8	21	25	11	30	23	8	24	19	8	32	17	5	29	13	5	20	14	3	29	9	5	20
Amtrak	CSXT		6	1	5	12	1			1		1	1			1	1		1			1					4									
NS		1778	190	76	179	445	18	9	16	18	13	22	25	4	14	28	10	18	25	5	19	21	6	21	24	14	17	11	8	24	14	5	17	6	2	11
Amtrak	NS	316	1	0	9	10	1		2						2			1			1												3			
ABR		21																																		
CBR		2																																		
CIRR		15																																		
CCKY	Chattanooga-Lyerly	48																																		
(NS)	Chattanooga-Hedges	Out of svc			1	1															1															
FCRD		10																																		
FCR		8																																		
GC	Macon-Vidalia	95	6		1	7	1					1	1			1															2			1		
.	Vidalia-Savannah	78	7			7	1			1						1			1									1			1			1		
.	Albany-Thomasville	58	1			1																												1		
.	*Camilla Spur*	*2.2*																																		
GFRR	Albany-Sparks	58	7	1	1	9	1			1		1				1			1			2	1											1		
.	Adel-Foley, FL	35	2			2																1												1		
.	Albany-Sylvestor	10	1			1	1																													
.	Valdosta-Willacoochee	43	3			3	2																											1		
GITM		13	1	2		3													1				2													
GNRR	Marietta-White Path	70	4	2	2	8			1				2										2	1	2									1		
	White Path-McCaysville	22	1			1																														
GRWR		10	3			3				1															1			1								
	Midville-Kirby	23																																		
GS	Dover-Metter	28	2			2										1			1																	
	Roberta-Perry	30			1	1																											1			
.	Cuthbert-Bainbridge	68	2		1	3																1						1		1						
.	Columbus-Americus	60																																		
GSWR	Columbus-Ft. Benning	9																																		
.	Smithville-Eufaula	66	1			1	1																													
.	*Sasser Branch*	*8*																																		
GRWC		17																																		
HOG	. .	136	4			4										3												1								
HRT		58	4	1		5							2									1									1	1				
.	*orig HRT branch*	*9.4*																																		
LW		Out of svc																																		
ORC		22	1			1										1																				
RSOR		17																																		
SAN		13	3	4	2	9		1			1		1												1				1				2	1	1	
SAPT		10																																		
SCS		22																																		
SM		14	2		1	3				1		1				1																				
SMWR		24																																		
VR		10	1			1										1																				
Shortlines		1223	56	10	10	76	7	1	1	4	1	3	6	0	0	10	0	0	4	0	1	5	5	1	4	0	0	4	1	1	4	1	3	8	1	0
All Railroads			473	155	447	1075	66	19	34	57	20	50	59	12	37	64	22	49	53	13	45	46	19	54	45	19	50	28	14	45	32	9	52	23	8	31
Ped crashes (inc above)			2	3	23	28			2			2	1		2		1	2			3	1	1				5			3			3		1	1

One on ATK, none on short lines

Instructions for Reporting School Bus Use of Highway-Railroad Crossings in Georgia

Prepared by the Georgia Department of Transportation, Office of Utilities
for the Georgia Department of Education

Last revised: 21 October 2011

Purpose. Georgia state law requires that school districts report school bus use of highway-railroad grade crossings not equipped with active warning devices (flashing lights, or flashing lights and gates) to the Georgia Department of Transportation (GDOT) no later than September 1 of each year. GDOT and the Federal Railroad Administration (FRA) seek information on school bus use of crossings equipped with active warning devices as well. GDOT requests that school district report school bus use of crossings equipped with active warning devices every five years in years ending in zero and five, i.e. 2015, 2020, 2025 etc. GDOT will provide the information to FRA. This document has been prepared to provide for uniform reporting of school bus use of crossings by school districts.

The reporting of school bus use of crossings applies only to established school bus routes. Established school bus routes for the purpose of reporting bus use of crossings are bus routes that transport pupils between residences and schools in the morning, midday in the case of regular one-half day schooling, or afternoon. Established school bus routes include routes that regularly transport pupils between one school and another, or regularly transport pupils between schools and other venues, such as vocational or special education bus routes. Established school bus routes include routes that transport pre-school pupils if such routes are operated by school districts. Infrequent, irregular, impromptu, or ad hoc school bus use of crossings, such as pupil transportation in connection with field trips, athletic events, or extracurricular activities, should not be reported.

Quantified School Bus Use of Crossings. Each operation of a school bus over a crossing shall be counted as one school bus use of the crossing. A bus route that crosses in only one direction one time per day shall be counted as one school bus use of the crossing. A bus route that crosses once in the morning and once again in the afternoon shall be counted as two school bus uses of the crossing. A bus route that crosses over and back in the morning, and over and back in the afternoon, shall be counted as four school bus uses of the crossing. The total number of school buses using a crossing is the sum of the numbers of crossing uses of each of the bus routes using the crossing. The total number of school buses using the crossing for the three routes described above is 7 (one for the first route, plus two for the second route, plus four for the third route).

School bus use of crossings shall be reported as the average number of buses using a crossing on a typical school day rounded up to the nearest whole number if applicable. A vocational bus route transporting pupils between schools that operates once in the morning and once in the afternoon three days per week would equal 1.2 daily school buses uses of the crossing (2 operations times 3 days per week divided by 5 days per school week = 1.2). A vocational bus route that operates once in the morning and back in the afternoon once a week equals 0.4 school bus uses of the crossing. The total number of school buses using the crossing for the two vocational routes described above is two. (1.2 for the first route, plus 0.4 for the second route =1.6, which when rounded up to the nearest whole number is reported as 2. <u>Round up the sum of the fractional uses of crossings, do not round up each fraction and then sum</u>.)

Reporting. School districts are required to report the name or road designation (state route or county route number), USDOT crossing identification number (Appendix A), and the number of buses using grade crossings. Note that school districts shall report use of crossings in another county or state if applicable.

GDOT requests that the districts report the railroad, both the road name and designation if known, and the type of crossing warning devices when reporting a mixture of active and passive crossings, to insure the crossing is correctly identified. GDOT also requests that districts distinguish between buses with pupils and empty buses (no pupils on board) using crossings.

In the case of crossings not equipped with active warning devices, GDOT requests the district report the number of additional buses carrying pupils that would use a crossing if it were equipped with active warning devices. This request recognizes that state law requires school districts to use best efforts to minimize the number of school buses using grade crossings not equipped with active warning devices. GDOT will use the information to consider installation of active warning at passive crossings that would be used by school buses, or used by greater numbers of school buses, if the crossing were equipped with active warning devices. (Do not include the number of buses currently using the crossing, and do not include additional buses that would use the crossing but not in the transportation of pupils, in reporting that latter number.)

GDOT will provide school districts lists of crossings by county to assist in the reporting of school bus use of crossings. The crossings will be listed in geographical order along rail lines within the county. These lists may be used to report school bus use of crossings. A sample list of crossings is included in these instructions. Alternately the blank form that follows the sample form may be used to report school bus use of crossings.

School districts wholly located within counties where there are no actively operating railroads and that do not use passive crossings in adjacent counties, and school districts within counties that have active railroads but where school buses do not use passive crossings, are requested to submit a document that reports no use of crossings. The following Georgia counties of as August 8, 2011 do not have active railroads:

Baker	Heard	Pulaski
Chattahoochee (inactive GSWR)	Lincoln	Rabun
Clay	Lumpkin	Stewart (inactive HOG RR)
Dawson	McIntosh	Towns
Forsyth	Oglethorpe	Union
Harris	Pike	White

Mail completed tables to:

Mr. Jeff Baker, P.E.
GDOT State Utilities Engineer
600 W. Peachtree Street, 10th floor
Atlanta, GA 30308

Contact Key Phillips by telephone at 404-631-1376, or by e-mail at kphillips@dot.ga.gov with any questions.

CSX Transportation (CSXT) – Crossings listed from Fulton County south to Meriwether County (1 of 2)

City *(Locale)*	Road Name [1]	Route	USDOT ID	RR Mile-post (ANB) [2]	Warning Devices [3]	School bus use [4]		
						Buses with pupils on board	Empty buses (no pupils on board)	If equipped with active warning devices [5]
	(Bethany) Milam Road	CR59	639501Y	840.33	Gates			
	Coast Line Road	CR61	639500S	839.78	Underpass			
	Estate Farm	Private	639499A	839.06				
	Sandy Creek Road	CR365	639498T	838.35	Cant Gates			
	Jenkins Road	CR75	639497L	837.90	Overpass			
***Hanson Materials Branch** – east side of main track*								
Tyrone	*Joel Cowen Parkway*	SR74	640192K	*836.95*	*Cant gates*			
Tyrone	*Hanson Materials*	Private	926196G	*836.95*				
Tyrone	Swanson Road	CR72	639495X	837.69	Gates			
Tyrone	Handley Road	*CS557*	639494R	836.50	Gates			
Tyrone	Joel Cowen Parkway	SR74	643042M	836.34	Overpass			
Tyrone	Tyrone Road	CR358	639493J	836.08	Gates			
Tyrone	Valleywood Road	CS556	639492C	835.30	Crossbucks			
Tyrone	East Crestwood Road	CS551	639491V	834.94	Gates			
Tyrone	Senoia Rd (Old SR74)	*CR480*	639489U	834.13	Gates			
Tyrone	Farm / Sgl Family Res	Private	639488M	833.79				
Tyrone	Property Access	Private	639487F	833.54				
***Rock Spur**– west side of main track*								
Tyrone	*Shamrock Industrial Blvd*	*CS639*	*926199C*	*833.13*	*Crossbucks*			
Tyrone	*Georgia Masonry Supply*	*Private*	*926198V*	*833.13*				
Tyrone	*Rockwood Road*	*CR87*	*926200U*	*832.83*				
				x				
Tyrone	Rockwood Road	CR87	639482W	833.10	Gates			
Peachtree City	Wilk Grove Baptist Ch.	Private	639481P	832.21				
Peachtree City	Property Access	Private	639480H	832.00				

See next page for table notes.

SAMPLE

CSX Transportation (CSXT) – Crossings listed from Fulton County south to Meriwether County (Continued)

City *(Locale)*	Road Name [1]	Route	USDOT ID	RR Mile-post (ANB) [2]	Warning Devices [3]	School bus use [4]		
						Buses with pupils on board	Empty buses (no pupils on board)	If equipped with active warning devices [5]
Peachtree City	Comcast and access	Private	639479N	831.54				
Peachtree City	Floy Farr Parkway	SR54	639471J	829.84	Overpass			
Paschall Lead Track– *west side of main track*								
Peachtree City	*Huddleston Road*	*CS327*	*640075P*	*829.25*	*Crossbucks*			
Peachtree City	*Paschall Company*	*Private*	*640076W*	*829.25*				
Peachtree City	Paschall Road	CS320	639470C	829.13	Gates			
Peachtree City	Kelly Drive	CS490	639469H	828.43	Gates			
Peachtree City	TDK Boulevard	CS597	643041F	827.43	Overpass			
Peachtree City	Peachtree City W&S	Private	639468B	827.14				
Peachtree City	Dividend Drive	CS322	639467U	826.72	Gates			
Write in below any public crossings along the railroad line that are not included above, and/or any grade crossings along the line that are located in adjacent Fulton or Meriwether Counties, that are used by school buses. Please strike through any crossings above that have been closed.								

SAMPLE

1 Private crossings are highlighted gray. Spur track or branch line crossings are in *italic font*, and branch lines or spur tracks with multiple crossings are identified and enclosed by colored rows.
2 Milepost prefix letters.
3 Crossbucks = no active warning devices. Flashers = flashing lights. Gates = flashing lights and gates. Cant flashers = cantilevered (over road) flashing lights. Cant gates = Cantilevered flashing lights and gates. It is requested that bus use of crossings equipped with active warning devices be reported in years ending in zero and five.
4 Indicate "Ø" if crossing is not used by school buses.
5 Indicate the estimated number of additional buses with pupils on board that would use crossing if the crossing were equipped with active warning devices (i.e. flashing lights or flashing lights and gates). Do not include additional empty buses, or any school buses with pupils on board currently using the crossing.

Submitted by: _____ (signature)
_____ (print name)
_____ (school district)
_____ (title)

Phone number: _____

Mail to: Mr. Jeff Baker, P.E.
GDOT State Utilities Engineer
600 W. Peachtree Street, 10th floor
Atlanta, GA 30308

Questions: Key Phillips, 404-631-1376, kphillips@dot.ga.gov

School District: _____ **Date:** _____ **Page 1 of** _____

Street, Road or Highway Name	Road No. [1]	USDOT ID [2]	Railroad	Warning Devices [3]	School bus use [4]		
					Buses with pupils on board	Empty buses (no pupils on board)	If equipped with active warning devices [5] (optional)

1 Abbreviations: CS = City Street, CR = County Road, SR = State Route, US = United States Route. Examples: CS867, CR15, SR120, US82.
2 See Appendix A for information about crossing USDOT IDs.
3 Most sophisticated types of warning device: gates, flashing lights and signs = gates, flashing lights and signs = flashers, signs (crossbucks, and/or stop or yield signs only) = Signs, or "none" if no warning devices are present. (Gates are the most sophisticated type of warning device, flashing lights are less sophisticated, and signs are the least sophisticated type of device. A crossing equipped with gates, flashing lights, and signs shall be reported as "gates". A crossing equipped with flashing lights and signs shall be reported as "flashers". A crossing not equipped with active warning devices shall be reported as "signs", or if warning signs are not present, "none". It is requested that bus use of crossings equipped with active warning devices be reported in years ending in zero and five.
4 Indicate the estimated number of additional buses with pupils on board that would use crossing if the crossing were equipped with active warning devices (i.e. flashing lights or flashing lights and gates). Do not include additional empty buses, or any school buses with pupils on board currently using the crossing.
5 Indicate the estimated number of additional buses with pupils on board that would use crossing if the crossing were equipped with active warning devices (i.e. flashing lights or flashing lights and gates). Do not include additional empty buses, or any school buses with pupils on board currently using the crossing.

Submitted by: _____ (signature)
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School District: _____ Date: _____ Page ____ of _____

Street, Road or Highway Name	Road No. [1]	USDOT ID [2]	Railroad	Warning Devices [3]	School bus use [4]		
					Buses with pupils on board	Empty buses (no pupils on board)	If equipped with active warning devices [5] (optional)

See Page 1 for table notes.
It is not necessary to submit a second page if all crossings used by school buses may be identified on one page. Include additional pages as necessary.

APPENDIX A - Crossing Identification

There are approximately 5,300 public highway-railroad grade crossings in Georgia. Norfolk Southern (NS) with approximately 2,400 Georgia public grade crossings, and CSX Transportation (CSXT) with approximately 1,500 crossings, are the two principal railroads in Georgia. Various short line railroads account for the remaining approximately 1,400 public grade crossings. All crossings, including private road crossings and railroad overpasses or underpasses, are identified by a unique six digit-one letter USDOT identification number (USDOT ID). 638212U, 729388G, 638228R and 279604D (photos below) are examples of USDOT IDs. The number portions of USDOT IDs are generally sequential along a railroad line. There may be abrupt changes in numerical sequence, or USDOT IDs that are out of numerical sequence however.

Grade crossings are required to have an Emergency Notification Sign (ENS) posted at the crossing. The ENS identifies the crossing, and provides an emergency notification telephone number. ENS at Georgia crossings are typically a fiberglass material sign that is attached to a crossbuck signpost, or a flashing light, or flashing light and gate signal mast or signal post. (Crossbuck is the name commonly applied to the X-shaped sign that has the legend "RAILROAD CROSSING" in black letters on a white background, that is displayed at crossings.) A generic ENS is shown at upper left.

When there is no ENS, the USDOT ID may sometimes be determined from a metal plate attached to a crossbuck signpost, or a flashing light, or flashing light and gate signal mast or post. The USDOT ID may also sometimes be found on a railroad signal equipment case or housing at the crossing.

Note that the USDOT ID metal plates are not updated when there is a change in railroad ownership, and thus may indicate a predecessor railroad (for example "SCL" for Seaboard Coast Line, a CSXT predecessor, see plate below). ENS however are supposed to be changed to reflect the current railroad operator (note ENS may not be current if the railroad operator has recently changed). Photographs of the ENS commonly used at NS and CSXT crossings, a USDOT ID plate, and USDOT ID as identified on a railroad equipment housing, are shown below.

Older version CSXT Emergency Notification Sign (ENS)

Older version NS Emergency Notification Sign

USDOT Crossing Identification Plate
(former Seaboard Coast Line - SCL)

USDOT ID (279604D) on signal equipment enclosure

APPENDIX B – Georgia Code

The reporting of school bus use of highway-railroad grade crossings by school districts to GDOT is required per Official Code of Georgia Annotated (O.C.G.A.) § 32-6-200 (d) (2) [per HB426 signed by Governor Perdue May 5, 2008, and effective January 1, 2009], and indirectly by the federal Rail Safety Improvement Act of 2008 (Public Law 110-432, H.R.2095 / S.1889).

O.C.G.A. § 32-6-200 (d) (2) states: "Each local school district in this state shall survey its established school bus routes annually and submit to the Department of Transportation a list identifying each rail crossing that does not have active warning devices on an established bus route. Each local school district shall be required to submit this information to the department each year by no later than September 1."

Active warning devices, as mentioned parenthetically in the forgoing instructions, are crossings equipped with automatic flashing lights, or automatic flashing lights and gates and usually are equipped with a bell or bells.

The Rail Safety Improvement Act of 2008 requires that GDOT periodically update the USDOT National Crossing Inventory database. The USDOT National Crossing Inventory database includes the number of school buses using public grade crossings, including crossings equipped with active warning devices. It is therefore necessary that school districts provide information concerning the numbers of buses using all grade crossings, and not simply identify crossings that are not equipped with active warning devices that are used by school buses as required by O.C.G.A. § 32-6-200 (d) (2).

O.C.G.A. § 32-6-200 (d) (4) states: "The department [GDOT] shall use the information about school bus routes as an important factor in selecting rail crossings to upgrade with active warning devices."

School bus use of crossings is a very important, and often the single most important factor used by GDOT when prioritizing installation of active warning devices, or active warning device improvements. Other important criteria used by GDOT for prioritizing installation of active warning device improvements are crossing crash history, and train and highway traffic volume and speed, and sight distance from the highway along the railroad. An order of magnitude cost for installation of flashing lights and gates is $250,000, though installation costs may vary widely with specific circumstances.

O.C.G.A. § 32-6-200 (d) (3) states: "Each local school district shall exercise best efforts to minimize the number of established school bus routes that cross rail crossings that do not have active warning devices."

The presumption is that school districts establish bus routes that avoid crossings that are not equipped with active warning devices, or establish routes that use such crossings less than would be the case than if the crossings were equipped with active warning devices. GDOT thus requests information about potential school bus use of crossings if active warning devices were to be installed at crossings that are note currently equipped with active warning devices. The potential use of crossing information allows GDOT to consider reductions in pupil transportation expenses for school districts and reductions in pupil time-in-transit when prioritizing crossings for active warning device installation.

APPENDIX C – Attendance Zones Changes

Changes in school attendance zones, whether or not the changes involve new schools, may significantly alter school bus routes and hence the number of school buses using crossings. The process of examining crossings for active warning device improvements or installation of active warning devices through analysis, design and installation of the new or improved warning devices typically requires approximately one year.

The September 1 school bus use of crossing reporting date requirement typically occurs shortly before or just after new attendance zones and hence bus route changes have been implemented. Considering the one year active warning device construction process, **GDOT requests that school districts inform GDOT well in advance of tentative and significant school bus use of crossings that are not currently used by school buses, or significant increases in school bus use of crossings, for those crossings that are not currently equipped with active warning devices, or are equipped with only flashing lights and not flashing lights and gates.** Advance notice of one year, or preferably 18 months, to GDOT enables GDOT to examine the crossings and if necessary program installation of active warning device improvements so that the installation would be completed prior to the beginning of new or increased school bus use of crossings.

GDOT understands that precise numbers of buses using a non-active warning device crossing may not be available until a few months before the attendance zone change becomes effective. An order of magnitude estimate of school bus use of non-active warning device crossings by the school district is sufficient for GDOT to analyze crossings.

Key Phillips
Railroad Crossing Program Manager
404-631-1376
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is the GDOT contact person to report such information, and is the contact person concerning the railroad crossing safety program in general.

APPENDIX D – Emergencies at Railroad Crossings

Note the railroad may be directly telephoned at the telephone number on the ENS at the crossing. Consideration should be given to telephoning the railroad prior to 911, or immediately afterward, in event of emergencies at or very near a crossing where stopping trains that may be approaching the crossing is absolutely the most important immediate concern. (Contacting the railroad directly eliminates the small delay in 911 personnel relaying crossing location and emergency information to the railroad.) Be prepared to report the crossing USDOT ID (six digits and one letter) and any other crossing identification information on the ENS such as crossing name or milepost to the railroad if such information is available.

APPENDIX E – Georgia Railroad Abbreviations

Abbreviation	Railroad	Counties where small railroads are located are provided at left
ABR	The Athens Line LLC	Jackson, Clarke and Oconee
CHAT	Chattahochee Bay Railroad (Hilton-Dothan, AL)	Early (No public xings in GA)
CIRR	Chattahoochee Industrial Railroad	Early
CCKY	Chattooga and Chickamauga Railroad	Walker and Chattooga
CSXT	CSX Transportation	
FCRD	First Coast Railroad, Inc (formerly part of CSXT)	Camden
FCR	Fulton County Railroad (formerly part of CSXT)	Fulton
GFRR	Georgia and Florida Railway (five lines, Valdosta-Willacoochee, Adel-Foley, FL, Albany-Sparks, Albany-Sylvester, Albany-Thomasville)	
GC	Georgia Central Railway LP (Savannah-Macon)	
GNRR	Georgia Northeastern Railroad Co. (Marietta-TN)	Cobb, Cherokee, Pickens, Gilmer and Fannin
GSWR	Georgia Southwestern Railroad, Inc. (three lines, Columbus-Americus, Smithville-Eufaula, AL, Cuthbert-Bainbridge)	
GWRC	Georgia Woodlands Railroad	Taliaferro and Wilkes
GITM	Golden Isles Terminal Railroad	Glynn and Chatham
GS	Georgia Southern (three lines Dover-Metter, Midville-Kirby & Roberta-Ft. Valley- Perry) (formerly Georgia Midlands and prior to Ogeechee Ry)	Bulloch and Candler, Burke and Emanuel, Crawford, Peach & Houston
GRWR	Great Walton Railroad Co.	Walton and Jasper
HRT	Hartwell Railroad Co.	Stephens, Franklin, Hart & Elbert
HOG	Heart of Georgia Railroad, Inc. Vidalia-Plains)	
LW	Louisville and Wadley Railway Company (inactive)	Jefferson
NS	Norfolk Southern Corporation	
ORC	Ogeechee Railroad Company	Effingham and Screven
RSOR	Riceboro Southern Railway Co. LLC	Bryan and Liberty
SAN	Sandersville Railroad Company	Washington
SAPT	Savannah Port Terminal Railroad	Chatham
SCS	Squaw Valley Southern	Jasper, Morgan & Newton (Newborn)
SM	St. Marys Railroad	Camden
SMW	St. Marys Railway West LLC	Ware and Atkinson
VRY	Valdosta Railway LP	Lowndes