

2007

## ACCIDENT PREDICTION AND RESOURCE ALLOCATION PROCEDURE NORMALIZING CONSTANTS

The U.S. DOT Highway-Rail Crossing Resource Allocation Procedure, as described in the *Rail-Highway Crossing Resource Allocation Procedure User's Guide, Third Edition*, August 1987, DOT/FRA/OS-87/10, uses three "normalizing constants" in the accident prediction formula, Formula A, Section 3.2.4, Page 17. These constants need to be periodically adjusted in order to keep the procedure matched with the current accident trends, the current number of open crossings, and the changes in the warning devices. The last recalculation and adjustment was made for Calendar Year 2005 and were used in the Procedure dated 2005.

The process for determining the three (3) new "normalizing constants" for 2007 is performed by making the sum of the calculated accident prediction values for all currently open public at-grade crossings for Calendar Years 2001-2005, as of December 2006, be equal to the sum of the *observed* number of 2006 accidents that occurred at the same crossings. This process is performed for each of the respective three formulae for the three types of warning device categories, (1) passive, (2) flashing lights, and (3) gates. This process normalizes the calculated prediction for the current trend in accident data (which is downward) for each of the three types of warning device categories, and adjusts for the current total number of open crossings (which is downward) and the accidents occurring at them, and any changes in warning devices at any of the crossings currently open.

The *observed* accidents result from those records in the accident data file that exist for only those crossings that are currently open. This means that the number of *observed* accidents, for currently open crossings, will not be equal to the actual number of accidents that are reported for a specific year. While mismatched data records caused by inaccurate accident/inventory reporting are included, those accidents which occurred prior to the date of a warning device change are excluded, as well as any closed crossings.

The new constants were determined for the national model using all open public crossings in the National Inventory File as of December 2006. Those using the DOT Model should update their models by replacing the old constants with the new recalculated values. The "normalizing constants" are located in the computer program ACPD.NEW as shown in the *User's Guide Third Edition* at the top of Page A-4, Appendix A1 and in RESAL.NEW on Page B-3, Appendix B1.

As of December 2007, these new constants will be in the 2007 PCAPS Computer Program and Internet version WBAPS located on the FRA Website at <http://safetydata.fra.dot.gov/officeofsafety/>. The table below lists the new and prior year constants.

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WARNING DEVICE GROUPS	NEW	PRIOR YEAR CONSTANTS						
	2007	2005	2003	1998	1992	1990	1988	1986
(1) Passive	<b>.6768</b>	.6407	.6500	.7159	.8239	.9417	.8778	.8644
(2) Flashing Lights	<b>.4605</b>	.5233	.5001	.5292	.6935	.8345	.8013	.8887
(3) Gates	<b>.6039</b>	.6513	.5725	.4921	.6714	.8901	.8911	.8131