

2005
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 last recalculation and adjustment was made for Calendar Year 2002 and published in the Appendix for the *2003 Railroad Safety Statistics Annual Report*. They were used in the Procedure for PCAPS 2003.

Using the accident data for Calendar Years 1999 to 2003 (to predict 2004), the process of determining the three (3) new "normalizing constants" for PCAPS 2005 is performed such that the sum of the 2004 accident prediction values for all open public at-grade crossings, as of December 2004, is made to equal the sum of the *observed* number of accidents that occurred for those 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.

The *observed* accidents are those accident records that are in the data file. While mismatched data records caused by inaccurate accident/inventory reporting were included, those accidents which occurred prior to the date of a warning device change (at crossings that had a warning device change between 1999 to 2004), were excluded as well as any closed crossings. 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 in the annual Bulletin.

The constants were redetermined for the "national" model using the crossings in the National Inventory File as of December 2004. Those using the "DOT Model" should update their models by replacing the old constants with the new recalculated values. These "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 2005, these new constants will be in the 2005 PCAPS Computer Program and Internet version WBAPS on the FRA Website at <http://safetydata.fra.dot.gov/officeofsafety/>. The table below lists the new and prior constants.

ACCIDENT PREDICTION AND RESOURCE ALLOCATION
PROCEDURE NORMALIZING CONSTANTS

WARNING DEVICE GROUPS	NEW	PRIOR YEARS					
	2005	2003	1998	1992	1990	1988	1986
(1) Passive	.6407	.6500	.7159	.8239	.9417	.8778	.8644
(2) Flashing Lights	.5233	.5001	.5292	.6935	.8345	.8013	.8887
(3) Gates	.6513	.5725	.4921	.6714	.8901	.8911	.8131