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## 7.0 GX DATA MANAGEMENT SYSTEM

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

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

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

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

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

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

- a. An IBM PC or compatible computer, preferably with an 80286 or higher processor
- b. A color card/monitor (CGA, EGA, VGA, or SVGA)
- c. A minimum of 4 Mb of free hard disk space (storage requirements vary with the size of the user's files)
- d. 640 Kb RAM minimum
- e. A high density diskette drive (either 3.5 inch, 1.44 Mb or 5.25 inch, 1.2 Mb)
- f. MS-DOS version 3.3 or later.

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

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

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

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

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

### 7.1 Installation Program

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

## **7.2 Browse Facility**

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

## **7.3 Update Facility**

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

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

## **7.4 Report Facility**

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

## **7.5 Data Extraction Facility**

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

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

### **7.6 Backup and Restore Facility**

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

### **7.7 Documentation**

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