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NENA Milepost Operational Information Document (OID)

NENA Milepost Operational Information Document
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OPERATIONAL INFORMATION DOCUMENT

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This document has been developed by the National Emergency Number Association (NENA) Railroad Milepost Working Group

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1. Executive Overview

As a result of their investigation into a railway collision, the National Transportation Safety Board (NTSB) issued a report in 2001 that identified certain safety issues relating to this event. One of these issues was the adequacy of maps used by emergency response personnel for railroad accidents. The NTSB recommended that NENA should facilitate the inclusion of railroad milepost markers on all emergency response maps across the country.

After the formation of this Working Group, it was determined that other government agencies were interested in obtaining and standardizing this and other location data. The purpose of this Operational Information Document is to provide a recommendation regarding the development of a national database to include milepost information and other data for highways and railways within the United States.

It is recognized that standards are needed to identify define the data elements which should be provided on electronic and/or paper maps used by the public safety community. This will facilitate locating emergency events and providing coordination among responding local, state and federal units.

It is recommended that railroad and highway milepost and other location elements be integrated into a common dataset. These data, incorporated into electronic and paper maps, should be made available to PSAP call takers and other homeland security stakeholders. It is recommended that standards be developed to identify the process by which these data are to be disseminated. These data could also be incorporated into publicly available maps to magnify their utility.

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2. Introduction

2.1 Purpose and Scope of Document

The purpose of this Operational Information Document is to provide a recommendation regarding the development of a national database to include milepost information and other data for highways and railways within the United States.

2.2 Reason to Implement

A national database that includes location data for highways and railways would facilitate locating emergency events and providing coordination among responding local, state and federal units.

2.3 Reason for Reissue

NENA reserves the right to modify this document. Whenever it is reissued, the reason(s) will be provided in this paragraph.

2.4 Recommendation for Standards Development Work

Standards are needed to identify define the data elements which should be provided on electronic and/or paper maps used by the public safety community. Standards must also be developed to identify the process by which these data are to be disseminated to the nation's Public Safety Answering Points (PSAPs).

2.5 Cost Factors

The costs associated with compilation and maintenance of the database, as well as making it available to interested parties, will depend upon the data elements defined and format in which it is provided.

2.6 Acronyms/Abbreviations

Some acronyms/abbreviations used in this document have not yet been included in the master glossary. After initial approval of this document, they will be included. Link to the master glossary is located at http://www.nena.org/9-1-1TechStandards/nena_recommended_standards.htm.

The following Acronyms are used in this document:	
ASLARRA	American Short Line and Regional Railroad Association
AAR	Association of American Railroads
CONUS	Continental United States
DOE	Department of Energy
DHS	Department of Homeland Security
FHA	Federal Highway Administration

The following Acronyms are used in this document:	
FRA	Federal Railway Administration
GPS	Global Positioning System
IPI	Imagery and Geospatial Plans and Policy Branch
NGA	National Geospatial Intelligence Agency
NHTSA	National Highway Traffic Safety Administration
NNSA	National Nuclear Security Administration
NTSB	National Transportation Safety Board
NORAD	North American Aerospace Defense Command
NAD83	North American Datum 1983
OST	Office of Secure Transportation
PSAP	Public Safety Answering Point
SNL	Sandia National Laboratories
SPCS	State Plane Coordinate Systems
USMC	United States Marine Corps
USNG	United States National Grid
USGS	United States Geological Survey
WGS 84	World Geodetic System 1984

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3. Highway and Railway Mileposting

3.1. Railway Mileposting Project

3.1.1. Background

On February 5, 2001 a rear-end collision occurred between an Amtrak passenger train and CSX freight train near Syracuse, New York. The accident resulted in injuries to all 4 crew members and 58 of the passengers aboard the Amtrak train. As a result of their investigation into this collision, the National Transportation Safety Board (NTSB) issued a report that identified certain safety issues relating to this event. One of these issues was the adequacy of maps used by emergency response personnel for railroad accidents.

In their report of November 27, 2001, the Safety Board concluded that in the emergency response to this accident, some initial confusion about its location occurred because the emergency response agency maps did not identify railroad milepost locations. The Board issued a recommendation that the National Emergency Number Association (NENA), with the cooperation of the Association of American Railroads (AAR) and the American Short Line and Regional Railroad Association (ASLARRA), should facilitate the inclusion of railroad milepost markers on all emergency response maps across the country.

This Working Group was formed to investigate this issue and develop a recommendation to effect the implementation of the NTSB's request.

3.1.2. Progress

The Working Group was referred by the Association of American Railroads (AAR) to the website of the Federal Railway Administration (FRA) to obtain the milepost information. The Group was informed that the Highway Rail Crossing Inventory Data listing on this website provided milepost and latitude/longitude information for each grade crossing.

At the initial Working Group meeting at NENA's National Conference in Denver (June 2003) the FRA website information was distributed. Discussion followed on accessing the website information and preliminary findings. A review of the available data and comparison with current location identification was to be conducted by committee members and their staff.

3.1.3. Findings and Recommendations

After a review of the available data and comparison with current location identification, it is indicated that the FRA data needs updating. According to FRA representatives, out of 300,000 railroad crossings nationally, about 50% have no longitude or latitude (x,y) listed. Of those that do have longitude or latitude indicated, only about 50% appear to be accurate enough for 9-1-1 purposes (within about 150 feet). The FRA has been working with State authorities in an attempt to update the database. Funding and prioritization appear to be issues that are hampering these efforts. Representatives of the local PSAPs and local addressing coordinators should be included when developing these data.

It is the recommendation of this Working Group that a standard system of identifying each grade crossing be developed, and data elements recognizable and understandable to both PSAP and Railroad personnel be included. These elements should include the following:

- FRA Crossing Number
- A street address (address point or block designation) assigned by the local addressing authority
- Community Area identifying the locality as determined by local PSAP and addressing coordinators
- Longitude and latitude coordinates

We need to be cognizant of the limited technological resources available to some PSAPs. Any implementation procedure must have universal application in order to facilitate the identification of all grade crossings regardless of PSAP resources. At a minimum, it is recommended that:

- The FRA Crossing Number be prominently displayed at each grade crossing
- A database to cross-reference the FRA Crossing Number, street address, community area and longitude-latitude coordinates be made available to both PSAP call-takers and railroad personnel.

3.2. Highway Mileposting Project

3.2.1. Background

In May 2004 a representative of the Sandia National Laboratories (SNL) contacted NENA. The Sandia National Laboratories support the system that monitors and safeguards the transport of nuclear weapons and special nuclear material within the continental United States (CONUS). This organization also provides service to Department of Energy/National Nuclear Security Administration Office of Secure Transportation (DOE/NNSA OST) and has a significant interest in Homeland Security.

The purpose of their inquiry was to obtain a dataset of highway milepost locations for CONUS to use as a tactical consequence management tool. In the case of an incident, they are required to contact the designated local law enforcement agency for that jurisdiction. Global Positioning System (GPS) coordinates (longitude-latitude) are available to their command and control center and vehicles in the transportation convoy. The challenge is to convert these (or any other) coordinates to a location that can be understood by emergency responders, so that the location can be safely approached on the ground.

3.2.2. Progress

On August 24, 2004 a meeting was held at NENA headquarters in Arlington, VA. This meeting focused on mile marker identification relating to highways, railways and waterways. Present were representatives from NENA, Sandia National Laboratories (SNL), NORAD, Department of Homeland Security (DHS), National Highway Traffic Safety Administration (NHTSA), Federal

Highway Administration (FHA), National Geospatial Intelligence Agency (NGA), U.S. Geological Survey (USGS) and the Imagery and Geospatial Plans and Policy Branch (IPI), United States Marine Corps (USMC). Each agency represented recognized the need for a dataset that contains both highway mileposts and their corresponding longitude and latitude.

It appears that there is no milepost dataset currently available from either the private sector or Federal government. Individual states, however, provide this data in varying formats. It was suggested that the U.S. National Grid (USNG) coordinates be included to provide complementary location information to the longitude-latitude/Mileposting scheme. It was also suggested that NENA develop an Operational Information Document concerning this issue. This document is the result.

3.2.3. Recommendations

Integration of railroad and highway milepost and other location elements into a common dataset is recommended. Inclusion of longitude and latitude data is essential. These data, incorporated into electronic and paper maps, should be made available to PSAP call takers and other homeland security stakeholders. These data could also be incorporated into publicly available maps to magnify their utility.

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