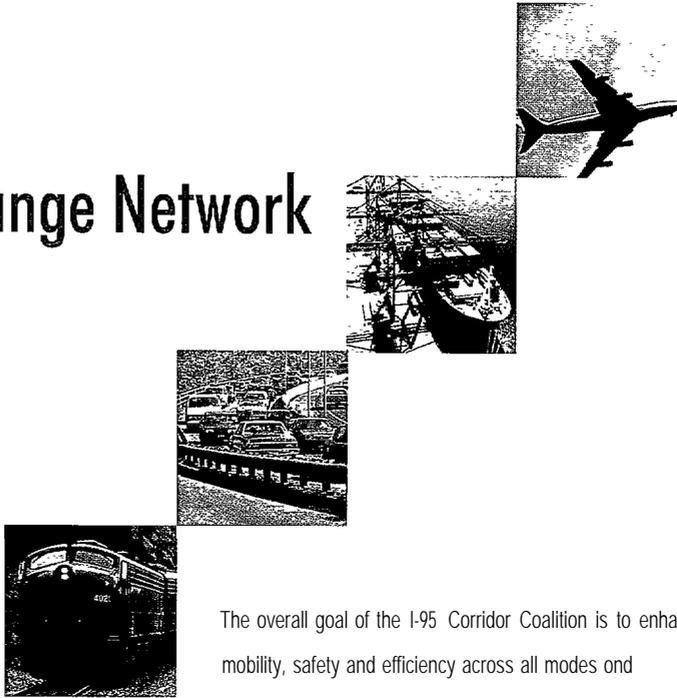


Information Exchange Network


I-95 Corridor Coalition



The overall goal of the I-95 Corridor Coalition is to enhance mobility, safety and efficiency across all modes and transportation facilities that serve the Northeast Corridor. Achieving this goal requires information sharing between the Coalition members and with the traveling public. The Coalition has sponsored several projects in response to this need, including the development and deployment of an Information Exchange Network (IEN). The objective of the IEN is to facilitate communications and information sharing among Coalition member agencies and with private entities. This shared information supports coordinated transportation management and traveler information on a regional and corridor-wide basis-for example:

- + Alerting other agencies of incidents and construction activities that may impact their respective facilities.
- + Using variable message sign (VMS) and highway advisory radio (HAR) belonging to one agency to describe unusual conditions on another agency's facilities.
- + Maintaining a library of standard operating procedures and guidelines for access by IEN users.
- + Creating an integrated clearinghouse of real-time and multi-modal traveler information.

The Information Exchange Network provides the points of entry and access to transportation agency databases throughout the corridor, and also functions as the communications backbone for exchanging this interagency information.

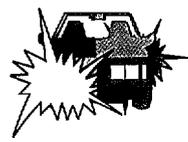
IEN Functionality

IEN applications will support the following functions:



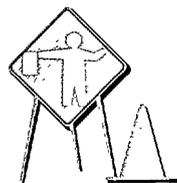
Administration

This facilitates general information exchange between Coalition members via faxes, pagers, e-mail, etc. A related function includes the transfer of data files.



Incident Tracking and Management

An important function of the IEN is to facilitate the exchange of "real-time" information of incidents and their impacts, and to support coordinated incident management activities. Information on major incidents — including location, type of incident, estimated duration, category (i.e., local, regional, corridor), impact and status, and other descriptive information — are input to the IEN and regularly updated by the member agencies.



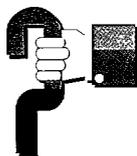
Construction Events

The construction advisory application allows agencies to share information about planned construction activities, including their location and coverage, schedule, lane closures and vehicle restrictions, diversion routes, and contact person(s). This information facilitates the implementation of regional diversions, construction planning, and scheduling.



Variable Message Sign (VMS)/ Highway Advisory Radio (HAR)

The IEN supports the exchange of information regarding the location and usage of VMS and HAR operated by the Coalition member agencies. VMS/HAR information includes locations and types of equipment, status and availability, and current messages.



Static Help

Standard operating procedures (SOPs) and guidelines for the Corridor are being developed by several I-95 Corridor Coalition projects (e.g., Incident Management, Commercial Vehicle Operations, Coordinated VMS/HAR, etc.). The IEN maintains a library of these pre-

approved procedures and guidelines, permitting system operators and managers to electronically access this information.



Traffic Condition and Status

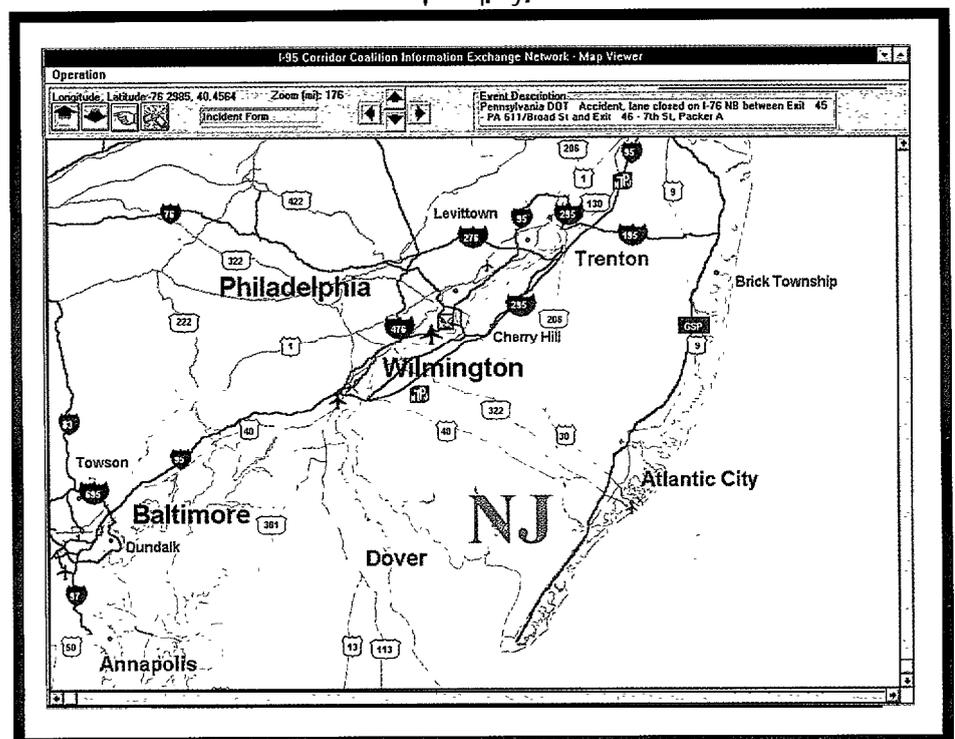
Information on real-time traffic conditions (e.g., volumes, speeds, congestion levels, transit schedule adherence) is extracted from agency-specific systems, processed and aggregated by the IEN, and displayed on maps of the Corridor. The traffic flow conditions are represented by different colors and/or symbols tied to the roadway and transit segments.



Historical Data

The IEN logs and stores the information elements noted above for subse-

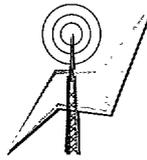
IEN Map Display Screen



quent use and analyses (e.g., transportation planning and congestion management).

private entities providing selected information to the IEN database that is not available from the Coalition members themselves.

tions backbone in support of these and other CVO services as defined by the I-95 Corridor Coalition CVO project.



Traveler Information

It is envisioned that the IEN database, consisting of information and graphics noted above, will be made available to private entities for subsequent added value and dissemination to travelers via radio and television broadcasts, public kiosks, computer bulletin boards at home/office, and in-vehicle devices. Moreover, this information transfer will likely be two-way with the



Commercial Vehicle Operations (CVO)

CVO information elements support the concept of "transparent borders" — that is, CVO initiatives that eliminate unnecessary and/or duplicate inspections, enhance the permitting process across state lines, and support on-line access to credential databases. It is envisioned that, as a minimum, the IEN will function as the communica-



User Interface

The Windows-based user interface includes graphical map displays, "click-on" icons denoting locations of incidents and transportation management devices, text-based description screens, and summary browsers; all linked together.

IEN Incident Tracking Screen

I-95 Corridor Incident Tracking

File Action Log Command View Title

Create F2 Modify F3 Close F5 Events F6 Actions F7

Friday, February 09, 1996 13:50

IDENTIFICATION
 Status: OPEN Create Time: 02/09/96 13:38:11 Close Time:
 Incident ID: 0130400004 Last Update: 02/09/96 13:38:11

INCIDENT DESCRIPTION

Reported by: Pennsylvania DOT State: PA Routes/Facilities: I-76 Article: between
 Direction: NB SB From: Exit Milepost
 EB WB Exit 45 - PA 611/Broad St
 2-Way

Type: Accident, lane closed Description: Pennsylvania DOT : Accident, lane closed on I-76 NB between Exit 45 - PA 611/Broad St and Exit 46 - 7th St, Packer Av Automatic
 To: Exit Milepost
 Exit 46 - 7th St, Packer Av

IMPACT
 Estimated duration: 30 min Scope: Facility Local Region Corridor

Enter Cancel Map

Event Browser

Date/Time: First: 02/09/96 13:30:51 Last: 02/09/96 13:36:00 Event ID: 0130400003 0130400004 Count: 2

Date/Time	Description	Event ID	Count
02/09/96 13:30	Delaware River & Bay Auth. : Debris in Road on I-495 NB at Exit 2 - DE 9	2 - DE 9	2
02/09/96 13:36	Pennsylvania DOT : Accident, lane closed on I-76 NB between Exit 45 - PA 611/Broad St and Exit 46 -		

Close

IEN Architecture

The system architecture is distributed in nature with workstations (i.e., Pentium class personal computers) located at the Coalition member's sites and Traffic Operation Centers (TOCs). These workstations are linked to agency pager networks as appropriate. Automated interfaces to agency transportation management systems are also provided to access the required information from these systems (e.g., traffic flow data, VMS messages, incident status); aggregate and process as required; and transmit over the network.

Some nodes are servers as summarized below:

+ Regional Servers process and aggregate real-time transportation link information — received from the various member agencies via automated interfaces — into a single representation of the region. These servers also store information for historical

purposes and handle interregional communications.

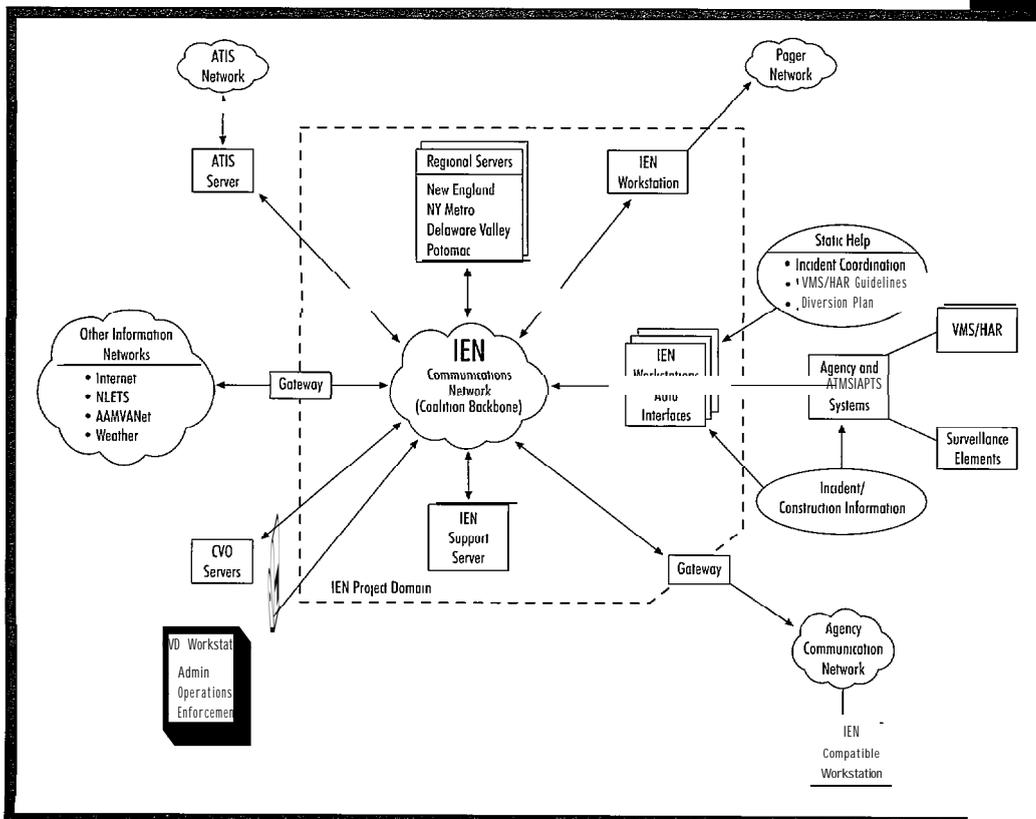
◆ Support Server is used in maintaining static database elements (e.g., mapping) for performing system updates.

◆ An Advanced Traveler Information System (ATIS) Server will “filter” the information contained in the IEN database, and provide the gateway to private entities for subsequent dissemination of this information to travelers.

◆ A CVO Server (or series of servers) may also be incorporated into the IEN to support these activities.

◆ Other - Other servers or gateways may be provided to accommodate the sharing of information between the IEN and other information services.

IEN Architecture and Context



For more information on the Information Exchange Network contact:

I-95 Corridor Coalition
 Technical Coordinator:
 Raman Patel
 (718-786-2442)

Technical Review
 Committee Chair:
 Al Karoly, NYSDOT
 (518-457-7438)

Consultant: I-95
 Northeast Consultants
 Project Manager:

John Wintermute
 (301-816-1837)

Project Manager:
 Louis Neudorff
 (212-473-3310)

Contracting Agency:
 Delaware
 Robert
 (302-300-...)



I-95 Corridor Coalition

I-95 Northeast Consultant
 1900 N. Beauregard Street
 Suite 300
 Alexandria, VA 22304
 (703) 820-5455