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# **Multi-Modal Traveler Information System**

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*Project Glossary*  
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**MULTI-MODAL TRAVELER INFORMATION SYSTEM  
SYSTEM GLOSSARY**

**TABLE OF CONTENTS**

<b>1</b>	<b>INTRODUCTION</b> .....	<b>1-1</b>
<b>2</b>	<b>DEFINITIONS</b> .....	<b>2-1</b>
<b>3</b>	<b>ABBREVIATIONS AND ACRONYMS</b> .....	<b>3-1</b>

**MULTI-MODAL TRAVELER INFORMATION SYSTEM  
SYSTEM (MMTIS) GLOSSARY**

**1 INTRODUCTION**

This report provides definitions for words or acronyms that are used in the ITS, transportation and communication industries and throughout the MMTIS documentation (listed below):

- Document #17150 - Gateway TIS System Definition Document
- Document #17200 - GCM Corridor Architecture Functional Requirements
- Document #17250 - Gateway Functional Requirements
- Document #17300 - GCM Corridor Architecture Interface Control Requirements
- Document #17350 - Gateway Interface Control Requirements
- Working Paper #18250 - Cellular 911 - State of the Practice
- Working Paper #18380 - GCM Corridor User Needs and Data Exchange Elements
- Working Paper #18400 - Current and Proposed ITS Initiatives
- Working Paper #18500 - GCM MMTIS Strategic Plan
- Working Paper #18520 - Performance Criteria for Evaluating GCM Corridor Strategies and Technologies
- Working Paper #18550 - Alternative GCM Corridor Technologies and Strategies
- Working Paper #18600 - System Interfaces and Information Exchange
- Working Paper #18700 - Information Clearinghouse - Initial Administrative Network
- Working Paper #18790 - Information Clearinghouse - Final Network
- Working Paper #18830 - Weather Detection System Standard Message Sets
- Working Paper #19140 - Gateway Phased Implementation Plan
- Working Paper #19210 - Lessons Learned
- Working Paper #19220 - Gateway Design Options
- Working Paper #19840 - Variable Message Signs (VMS)/Highway Advisory Radio (HAR) State of the Practice
- Working Paper #19845 - VMS/HAR Suggested Guidelines.

The definitions, abbreviations and acronyms supplied herein are meant to serve as the MMTIS standards for these listed documents and all future documentation.

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## **2 DEFINITIONS**

This section contains definitions of terms used throughout the MMTIS documents.

**\*11** - Private based cellular emergency system used in the State of Indiana.

**\*111** - Previously used dedicated number for the cellular emergency system in Pennsylvania.

**\*55** - Private based cellular emergency system used in the State of Missouri.

**\*999** - Private based cellular emergency system used in the Chicago Metropolitan area.

**911** - Public based landline or cellular emergency system depending on location.

**Acceptance Testing** - Formal testing conducted to determine whether or not a system satisfies its acceptance criteria and to determine whether or not to accept the system. (See IEEE Std 1012-1986[12].)

**Acceptance Criteria** - The criteria a system or component must satisfy in order to be accepted by a user, customer, or other authorized entity. (See IEEE Std 610.12-1990.)

**ADVANCE** - *ADVANCE* was an ITS field operational test, performed by the Illinois Department of Transportation, focusing on the evaluation of the potential benefits of ITS in a market that comprises drivers who are, in general, familiar with the area in which they undertake most of their daily traveling. These drivers had use of in-vehicle navigational equipment for approximately thirty days. This project involved around 75 vehicles operating in a three hundred square mile area in the northwest suburbs of Chicago, Illinois.

**Advanced Traveler Information Systems (ATIS)** - A collection of developed technologies aimed at providing real time information about traffic conditions, schedules and routes.

**Advanced Research Projects Agency Network (ARPANet)** - The first Internet, designed in 1969 for the Department of Defense to link several computing centers across the country. It was designed to withstand partial destruction and still function by eliminating any central "hub" that might be vulnerable to attack.

**Advanced Driver Information Systems (ADIS)** - Vehicle features that assist the driver with planning, perception, analysis, and decision-making.

**Advanced Public Transportation Systems (APTS)** - Application of ITS technology (electronic, computer and telecommunications) to public transportation services in order to improve utilization and performance of these services.

**Advanced Traffic Management Systems (ATMS)** - Regional systems aimed at optimizing traffic flow for a set of roads or the entire region. Elements include sensors to monitor traffic flow, centrally programmable traffic signals, automated highway signs, computers and telecommunications technology.

**Algorithm Analysis** - The examination of an algorithm to determine its correctness with respect to its intended use, to determine its operational characteristics, or to understand it more fully in order to modify, simplify, or improve it.

**Algorithm** - (1) A finite set of well-defined rules for solution of a problem in a finite number of steps; for example, a complete specification of a sequence of arithmetic operations for evaluating sine  $x$  to a given precision. (2) Any sequence of operations for performing a specific task. (See IEEE Std 610.12-1990.)

**Alias** - (1) An additional name for an item (2) An alternate label. For example, a label and one or more aliases may be used to refer to the same data element or point in a computer program.

**Analog Modems** - An analog modem translates digital signals from the computer into analog signals that can be transmitted over regular telephone lines (POTS Lines - Plain Old Telephone Service). Current analog modem technology is reaching speeds of 33.6 kbps. It is noted, that most ISPs currently support modem speeds at 28.8 kbps. Communications on voice grade lines requires the use of SLIP (Serial Line Interface Protocol) or PPP (Point to Point Protocol) protocols.

**Analog** - A way of sending voice, video, or data that is "analogous" to the original signal, as opposed to a digital signal which only consists of various discrete states(0 or 1). Analog transmission is associated with voice and data signals over conventional telephone lines.

**Archie** - a program that keeps track of files on hundreds of Internet sites. Archie usually resides at other sites and is accessed over the net by users at your site.

**Argonne National Laboratories (ANL)** - A research facility associated with the University of Chicago that contracts under the auspices of the Department of Energy.

**Arterial Roadway** - See "Functional Classification."

**Artificial Intelligence (AI)** - A computer software programming technique in which a computer learns from past experience, allowing it to make more intelligent decisions with greater program use.

**Asynchronous** - Data that is transmitted without an associated clock.

**Asynchronous Transfer Mode (ATM)** - A form of data transmission in which information is sent one character at a time, with variable time intervals between characters; generally used in communicating via modem. Because asynchronous transmission does not rely on a shared timer that would enable the sending and receiving units to separate characters by specific time periods, each transmitted character consists of a number of data bits (the character itself) preceded by a "begin character" signal, called the start bit, and ending in an optional parity bit followed by 1, 1.5, or 2 "end character" signals, called stop bits.

**Atlanta Traveler Information Showcase** - The Atlanta Traveler Information Showcase project along with the Travelink Kiosks project and various other ITS projects comprise the Advanced Transportation Management System in Atlanta. The ATMS is housed in the Transportation Management Center in Atlanta and provides fiber optic communication links to the Transportation Control Centers in each of the five counties of the region as well as the Metro Area Rapid Transit Authority and the City of Atlanta. All of these systems then have access to each other's surveillance cameras and other information. The Showcase takes the data collected by the ATMS along with data provided by the other projects, performs data fusion and distribution to the traveling public. The primary goal of the Showcase was to demonstrate a variety of technologies which could be used for data dissemination including cable TV, an Internet Home Page, Personal Communications Devices (PCD), in-vehicle navigation devices and Interactive Cable TV.

**Audit** - An independent examination of a work product or set of work products to assess compliance with specifications, standards, contractual agreements, or other criteria. (See IEEE Std 610.12-1990.)

**Automatic Vehicle Locating and Monitoring (AVLM)** - System designed to automatically manage bus transit systems using on-board bus electronics and radio communications technology. The central computer is equipped to record and provide real time schedule and other operational information.

**Automatic Vehicle Location (AVL)** - A computerized system that tracks the current location of vehicles in a fleet. It is used to assist in applications such as dispatching.

**Automatic Vehicle Identification (AVI)** - A system that combines an on-board transponder with roadside receivers to automate identification of vehicles for purposes such as electronic toll collection and stolen vehicle recovery.

**Backbone** - Refers to the common or central transport mechanism which all communications would migrate to, whether cable based or wireless.

**Bandwidth** - 1) The capacity of a communications transmission medium or terminal device to transmit data or information measured in terms of bits or bytes per unit time (i.e., kilobits per second, gigabytes per month, etc.). 2) The range of frequencies within which a transmission medium or terminal device can transfer data or information.

**Base GCM LRMS** - The location referencing message specification that will be used throughout the GCM Corridor. The profile that will be used initially will be the Geographic Coordinate Profile (latitude, longitude, altitude and street name) with the possibility of supporting more profiles in the ultimate phase.

**Baud** - Unit of signal frequency in signals per second. Not synonymous with bits per second since signals can represent more than one bit. Baud equals bits per second only when the signal represents a single bit.

**Bit** - The smallest unit of data processing information. A bit (or binary digit) assumes the value of either 1 or 0.

**bits per second (bps)** - A measure of data transmission rate in serial transmission. Also used to describe hardware capabilities.

**Block Diagram** - A diagram of a system, computer, or device in which the principal parts are represented by suitably annotated geometrical figures to show both the functions of the parts and their functional relationships. (See IEEE Std 610.12-1990.)

**Borman Advanced Traffic Management System (ATMS)** - The centralized operations center that monitors and controls traffic operation on the Borman Expressway. It will also function as the Indiana regional hub for collecting and disseminating traveler data and information to/from the various ITS subsystems within Northwestern Indiana and providing that information to the Gateway.

**Browser** - A program that allows point-and-click Internet navigation (i.e., Mosaic, Netscape, Internet Explorer).

**Bulletin Board System (BBS)** - A computerized bulletin board that can be accessed by members to post and download messages.

**Byte** - A data unit of eight bits.

**C** - A high-level programming language developed at Bell Labs that is able to manipulate the computer at a low level like assembly language. During the last half of the 1980s, C became the language of choice for developing commercial software. C can be compiled into machine languages for almost all computers. For example, UNIX is written in C and runs in a wide variety of micros, minis and mainframes. C is programmed as a series of functions that call each other for processing. Even the body of the program is a function named "main." Functions are very flexible, allowing programmers to choose from the standard library that comes with the compiler, to use third party functions from other C suppliers, or to develop their own.

**C++** - An object oriented version of C created by Bjarne Stroustrup. C++ has become popular because it combines traditional C programming with Object Oriented Programming (OOP) capability. Smalltalk and other original OOP languages did not provide the familiar structures of conventional languages such as C and Pascal.

**Calendar Day** - Consecutive days, including Saturday, Sunday and Holidays.

**Cellular \*999** - Motorist information and retrieval service operated by the Illinois State Toll Highway Authority to obtain traffic incident information from motorists with cellular phones and forward information to the proper response agencies.

**Central Office** - The nerve center of a telephone system.

**Central Computer and Telecommunications Agency (CCTA)** - CCTA is part of the Office of Public Service and Science, which works to improve government's services to the public. They are responsible for stimulating and promoting the effective use of Information Systems in support of the efficient delivery of business objectives and improved quality of services by the public sector.

**Changeable Message Sign (CMS)** - Message signs located along the freeway that can be changed to alert motorists to road conditions or hazards.

**Channel Service Unit (CSU)** - The hardware interface between a T-1 facility and the premises.

**Channel** - The data path between two nodes.

**Chicago Area Traffic Safety Alliance (CATSA)** - A group of mitigation contractors (Chicago Fire Department, tow truck companies, HAZMAT clean-up crews, etc.) formed to work on the Hazardous Material Tracking Project. GCM Corridor funded, this demonstration project aims to show that vehicle transponders can be used to automatically locate a hazardous spill once it occurs.

**Chicago Transit Authority (CTA)** - Operating agency for the mass transit system in the City of Chicago.

**Chicago Area Transportation Study (CATS)** - Metropolitan Planning Organization for the Northeast Illinois region.

**Chicago Department of Transportation (CDOT)** - Agency of Chicago city government responsible for ground transportation related functions and regulation of the public way.

**Client** - A software component which uses a defined interface to access the specialized features of a server. (Also see "Server" and "Client-Server.")

**Client-Server** - A computer architecture in which the tasks required to execute an application are distributed among computer components according to each component's suitability to perform the task.

**Closed Loop Signal System Connection** - The connection from the master of a closed loop traffic signal system to the C-TIC.

**Closed Loop Signal System (CLSS)** - A traffic signal control system which has two-way communication between a master traffic controller and a remote location, usually the traffic engineer's office. The master traffic controller also communicates with numerous local traffic signal controllers. The maximum number of local traffic controllers in the system depends on the manufacturer.

**Co-resident** - A program or module that resides in memory along with other programs.

**Collector Road** - See "Functional Classification."

**COM Center** - See "Communications Center."

**Commercial Internet Exchange Association (CIX)** - A group that Internet Service Providers must have membership in if their services are to be used for commercial purposes.

**Commercial Vehicle Operators Work Group (CVO)** - A committee of the GCM Corridor dealing with commercial vehicle concerns.

**Common Application Environment (CAE)** - A broad conceptual framework for open system development.

**Common Object Request Broker Architecture (CORBA)** - The communications component of the Object Management Architecture (OMA) from the Object Management Group (OMG). It is software that handles the communication of messages to and from objects in a distributed, multi-platform environment.

The concept behind CORBA is to provide a standard way to execute program modules in a distributed environment no matter what language the routines are written in or what platform they reside in. It enables complex systems to be built across an entire enterprise. For example, three-tier client/server applications can be constructed using CORBA-compliant ORBs. CORBA is suited for widely disbursed networks, where an event occurring in one location requires services to be performed in another.

In CORBA, the client makes a request to a common interface known as the Object Request Broker or ORB. The ORB directs the request to the appropriate server that contains the object and redirects the results back to the client. The required object might also be located on the same machine as the client.

The first version of CORBA addressed source code portability across different platforms, and

implementations such as IBM's SOM/DSOM, Sun's DOE and HP's DOMF were designed to this specification. In late 1994, the CORBA 2 specification was introduced to support interoperability between ORBs, so that an ORB from one vendor can communicate directly to an ORB from another.

**Common Open Software Environment (COSE)** - A six company group with a goal to expedite the development of open products. The member companies are USL, IBM, SunSoft, Univel, HP and SCO.

**Communication and Data System Infrastructure (CDSI)** - The Communication and Data System Infrastructure project will develop a preliminary design for a comprehensive and integrated communications and data system infrastructure required to support a multi-modal traveler information system for Southeastern Wisconsin. CDSI will function as the regional hub for collecting and disseminating traveler data and information to/from the various ITS subsystems within Southeastern Wisconsin and providing that information to the Gateway.

**Communications Center** - The IDOT District 1 Operations and Communications Center. The COM Center is the operations hub of the District with the primary responsibility of dispatching the appropriate personnel and coordinating their actions by using up-to-the-minute information from various agencies. The COM Center operates an extensive highway information system serving major interstates, arterials and secondary roads maintained by IDOT District 1. The system includes Highway Advisory Radio messaging, incident reports handling and IDOT maintenance vehicle dispatching, including the Minutemen courtesy patrol and snow removal.

**Communications Center Connection** - The connection from the IDOT Communications Center to the C-TIC to allow for transfer of information to and from the C-TIC (See Corridor Transportation Information Center (C-TIC)).

**Component** - One of the parts that make up a system. A component may be hardware or software and may be subdivided into other components. (See IEEE Std 610.12-1990.)

**Computer Network (CNET)** - A nationally syndicated television program focusing on leading edge computing technology.

**Correctness** - (1) The degree to which a system or component is free from faults in its specification, design, and implementation. (2) The degree to which software, documentation, or other items meet specific requirements. (3) The degree to which software, documentation, or other items meet user needs and expectations, whether specified or not. (See IEEE Std 610.12-1990.)

**Corridor Architecture** - The standards and practices associated with the design of the MMTIS which provide a recommended design for the ITS subsystems, data sharing, and cooperative control of field devices within the Corridor.

**Corridor Transportation Information Center (C-TIC)** - The C-TIC acts as a pass-through between various information sources in Illinois, Indiana and Wisconsin. It is not designed to control and/or monitor traffic control devices but rather to facilitate the sharing of information between various agencies, control centers and private firms. This information will include travel times on selected routes, weather information, incident locations, construction information, etc. Minimal processing of data occurs in the C-TIC. The C-

TIC consists of the hardware and software contained in a centralized facility and includes operations personnel.

**Data** - (1) A representation of facts, concepts, or instructions in a manner suitable for communication, interpretation, or processing by human or by automatic means. (2) Sometimes used as a synonym for documentation. (See IEEE Std 610.12-1990.)

**Database** - A collection of interrelated data stored together in one or more computerized files. (See IEEE Std 610.12-1990.)

**Data Dictionary** - (1) A collection of the names of all data items used in a software system, together with relevant properties of those items; for example, length of data item, representation, etc. (2) A set of definitions of data flows, data elements, files, data bases, and processes referred to in a leveled data flow diagram set.

**Data Flow Diagram** - A diagram that depicts data sources, data sinks, data storage, and processes performed on data as nodes, as well as graphically showing the logical flow of data as links between the nodes. (See IEEE Std 610.12-1990.)

**Data Pipe** - The communication network interconnecting the Gateway, regional hubs and ITS subsystems within the GCM Corridor.

**Data Service Unit (DSU)** - The hardware interface between the CSU and the data terminal devices.

**Data Structure** - A physical or logical relationship among data elements, designed to support specific data manipulation functions. (See IEEE Std 610.12-1990.)

**De Leuw, Cather & Company (DCCO)** - De Leuw, Cather & Company, a member of the Parsons Transportation Group, is providing system engineering services to IDOT and is responsible for system requirements, integration and testing on the GCM C-TIC project. DCCO is also developing the GCM corridor architecture and interface specifications along with the Gateway Requirement Specifications for the GCM corridor through a contract with IDOT.

**De facto** - A set of standards that usually come from industry-wide accepted products. Often it is software that works on multiple platforms from multiple vendors, and has become so widespread that vendors make their products compatible with it.

**De jure** - A set of open standards that are the output from the formal standards organizations. Often De jure standards establish a target ahead of vendors development and encourage, and often help, vendors to incorporate it.

**Dedicated 56.6 kbps lines** - Dedicated 56.6 kbps lines, also known as DDS or digital data services, are dedicated lines established between two or more locations for 56.6 kbps transport. These type of lines were popular when Plain Old Telephone Service (POTS) modem speeds were low, allowing high speed data transport. However, the cost of initiating the line was usually more expensive than a POTS line because the user had to pay the installation cost of any cabling or conditioning equipment between the point of presence (POP) and the phone company.

**Design Requirement** - A requirement that specifies or constrains the design of a system or system component. (See IEEE Std 610.12-1990.)

**Design Specification** - A document that describes the design of a system or component. Typical contents include system or component architecture, control logic, data structures, input/output formats, interface descriptions and algorithms. (See IEEE Std 610.12-1990.)

**Detailed Design** - (1) The process of refining and expanding the preliminary design of a system or component to the extent that the design is sufficiently complete to be implemented. (2) The result of the process in (1). (See IEEE Std 610.12-1990.)

**Digital** - A signal that consists of discrete states. A binary signal has only two states, 0 and 1.

**Distributed Computing Environment (DCE)** - DCE is a layered network operating system. It is the first platform independent product that offers a standardized method of implementing multi-processing threads and Remote Procedure Calls (RPCs) on both UNIX and non-UNIX operating systems.

**Document** - (1) A medium, and the information recorded on it, that generally has permanence and can be read by a person or machine. (2) To create a document as in (1). (See IEEE Std 610.12-1990.)

**Domain Name** - A domain name is a text name appended to a host name to form a unique host name across the Internet.

**Download** - The transfer of information from a host node to a remote node.

**Dual Incidence Matrix Encoded (DIME) files** - Computer-based map files created under contract to the U.S. Census Bureau and used for the 1980 census. The comparable files for the 1990 census are called the TIGER files.

**Dynamic Link Library (DLL)** - A program library written in C or assembler that contains related functions of compiled code. The functions in a DLL are not read until runtime (dynamic linking).

**Electronic Toll and Traffic Management (ETTM)** - Uses AVI to electronically collect tolls, enabling vehicles to pay tolls with less delay at tollbooths.

**Electronic Toll Collection (ETC)** - Advanced toll collection systems using transponder/toll plaza telecommunications devices such as AVI or ETTM systems. Goals of using ETC include increased toll lane throughput. Encompasses both read only and read/write systems and uses short range communications between vehicles and the roadside.

**Electronic Mail** - E-mail can be used to communicate with users throughout the world. Many say that 30 million people are connected to the Internet. E-mail can be served to users directly on a server or to their computer via their ISP mail protocol.

**Emergency Operations Center (EOC)** - Dispatch center for emergency vehicles and management of incidents.

**Emergency Traffic Patrol** - The Illinois Emergency Traffic Patrol Service is operated by the IDOT and dispatched out of the COM Center. The servicemen or "Minutemen" operate fully equipped vehicles and provide services to stranded motorists. The primary objective of the ETP is to aid in congestion mitigation and incident detection/removal. The ETP responds to incidents on the Chicago Expressway System 24 hours per day, and takes action to restore normal traffic flow. The Emergency Patrol Vehicles are equipped for and the Minutemen are trained to handle almost any traffic incident likely to occur. All services are free of charge to motorists.

**Error** - The difference between a computed, observed, or measured value or condition and the true, specified, or theoretically correct value or condition. Systematic Error: a constant error or one that varies in a predictable manner (e.g., equipment misalignment). Random Error: an error that varies in a random fashion (e.g., an error resulting from radio static). (See IEEE Std 610.12-1990.)

**Ethernet** - A *de facto* standard local area network (LAN) using coaxial cables and CSMA/CD (Carrier Sense Multiple Access/Carrier Detect). Similar to an IEEE 802.3 LAN.

**Eudora** - Publicly available (free) e-mail program.

**Expressway** - See "Functional Classification - freeway."

**Extensible Virtual Toolkit (XVT)** - A product allowing applications to be developed independent of the graphical user interface utilized.

**External Interface** - The software and hardware required to provide communications between a system external to the GCM C-TIC or Gateway.

**Failure** - The inability of a system or component to perform its required functions within specified performance requirements. (See IEEE Std 610.12-1990.)

**Fast-Trac** - Oakland County, Michigan field test of ATMS and ATIS.

**Fault** - (1) A defect in a hardware device or component; for example, a short circuit or broken wire. (2) An incorrect step, process, or data definition in a computer program. (See IEEE Std 610.12-1990.)

**Federal Highway Administration (FHWA)** - One of the principal participants in GCM. The GCM Corridor is located within the FHWA's Region 5.

**Fiber Optic Cable** - A group of optical fibers enclosed within protective coverings and strength members.

**File Transfer Protocol (FTP)** - A TCP/IP protocol for file transfer.

**File Transfer Access and Management (FTAM)** - Novell software for use with its Netware LAN operating system.

**File Server** - A computer that stores data for network users, usually on disks or tapes, and provides network access to that data.

**Firewalls** - Security measures that will not allow users to access certain restricted areas.

**Firmware** - The combination of a hardware device and computer instructions and data that reside as read-only software on that device. (See IEEE Std 610.12-1990.)

**Flowchart** - A control flow diagram in which suitably annotated geometrical figures are used to represent operations, data, or equipment and are now are used to indicate the sequential flow from one to another. (See IEEE Std 610.12-1990.)

**Fractional T-1 lines** - Fractional T-1 lines have been introduced in the industry to offer a middle ground between a 56.6 kbps line and a T-1 line. Some users may need more than one 56.6 kbps line but not the capacity of a full T-1, so the phone company offers a fractional T-1 in ranges of 128 kbps to 1024 kbps. This gives the user high speed access without the high cost of a T-1. Some of the typical T-1 charges, however, may apply in some instances.

**Frame Relay** - Frame relay takes the capacity of lines from 56.6 kbps up to T-1 and performs switching much like the conventional voice switching network and POTS (Plain Old Telephone Service). This eliminates the need for dedicated lines between locations and subsequent mileage charges. The frame relay network is typically used to interconnect computer networks into a WAN or even intranet. Instead of leasing a separate line between a host location and each remote location, a single line can be established from each particular location to the frame relay network, minimizing the bandwidth requirements for the host location. When one location needs to communicate with another, the frame relay network sets up a switched virtual circuit (SVC) between the two locations, without the need to route to the host location for routing control. Frame relay services have exploded across the country, making it difficult for phone companies to upgrade the infrastructure fast enough to keep up with the demand. Frame relay services are not available everywhere.

**Freeway** - See "Functional Classification."

**Full Duplex** - Simultaneous two-way independent transmission in both directions. Also referred to as simply "duplex."

**Functional Classification** - Roadways are grouped into the following categories for the purpose of design, funding and access:

- **Local.** Local roads comprise all facilities not included in one of the higher classifications. They permit direct access to residential properties, abutting lands and connection to higher classifications of roadways. They offer the lowest mobility and usually contain no bus routes. Service to through traffic movements usually is deliberately discouraged.
- **Collector.** A collector street provides both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas. It differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods distributing trips from the arterials through the area to their ultimate destination.
- **Arterial.** An arterial serves the major centers of activity, high traffic volume corridors and supplements freeways for long trip desires. Arterials include but are not restricted to partially

controlled access facilities. Arterials provide for a high degree of mobility, while providing access to commercial and industrial areas. Ideally, an arterial does not penetrate residential neighborhoods.

- **Freeway.** A freeway has full control of access where the right of owners or occupants of abutting land to access a highway is fully or partially controlled by public authority. Full control of access means that the authority to control access is exercised to give preference to through traffic by providing access connections with selected public roads only and by prohibiting crossings at grade or direct private driveway connections. Freeways may be toll or non-toll facilities. In the State of Illinois, "expressway" is the legal term for what is the national definition of "freeway."

**Functional Design** - (1) The process of defining the working relationships among the components of a system. (2) The result of the process in (1). (See IEEE Std 610.12-1990.)

**Functional Requirement** - A requirement that specifies a function that a system or system component must be able to perform. (See IEEE Std 610.12-1990.)

**Functional Specification** - A document that specifies the functions that a system or component must perform. Often a part of the requirements specification. (See IEEE Std 610.12-1990.)

**Gary-Chicago-Milwaukee ITS Deployment Committee** - A committee of the GCM Corridor responsible for overseeing the activities of each GCM Working Group and the implementation of the GCM Corridor Program Plan.

**Gary-Chicago-Milwaukee Architecture, Communication and Information Work Group (ACI)** - A committee of the GCM Corridor dealing with the system architecture and communications needs for the GCM Corridor.

**Gary-Chicago-Milwaukee (GCM) Corridor** - ITS priority corridor consisting of 16 urbanized counties and 2,500 miles of roadways which connect the three cities. The 16 counties include Cook, DuPage, Lake, Kane, McHenry, and Will in Illinois, Lake, LaPorte, and Porter in Indiana, and Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha in Wisconsin. The corridor includes all expressways, tollways, major arterials, airports, transit facilities, ports, and rail systems within these 16 counties.

**Gateway** - The physical hardware and software, resident in a central facility, that is responsible for collecting, routing and disseminating all the traveler information collected by the regional hubs.

**Gateway Traveler Information System (TIS)** - The logical collection of regional hubs and ITS subsystems connected within the GCM Corridor to the Gateway, excluding field devices.

**GCM Corridor Object Modal (GCOM)** - The Corridor wide object models which describe ITS objects in the Corridor as well as additional control and coordination objects needed to support the Gateway and other systems within the Corridor.

**General and Detail Design Specification** - Provides increased detail describing the modular and functional structure of the project. Outlines the interfaces to the system environment for use during the programming phase of the project and serves as the controlling technical baseline for coordination with the other groups working on the GCM C-TIC.

**Geographic Information System (GIS)** - A computerized data management system designed to capture, store, retrieve, analyze and report geographic and demographic information.

**GeorgiaNet Authority** - Was formed in 1990, as a state authority, to centrally market and sell, online or in volume, authorized public state information.

**Global Positioning System (GPS)** - A government-owned system of 24 earth-orbiting satellites that transmit data to ground-based receivers. GPS provides extremely accurate latitude and longitude ground position in WGS-84 coordinates. However, for U.S. strategic defense reasons, deliberate error (called selective availability) is introduced into the information that is provided for civilian users.

**Gopher** - A file retrieval program popular with the bulletin board system (BBS) community. Its functionality is now included in World Wide Web (WWW) browsers. Gopher servers enable a simple access technique to transfer information at your site to others as they request it via gopher and WWW.

**Government Open System Interconnect Profile (GOSIP)** - A National Institute of Standards and Technology document that defines a specification of a set of open system interconnect (OSI) protocols that agencies may use.

**Graphical User Interface (GUI)** - Type of computer display based around pictures (i.e., Windows) instead of text (i.e., DOS). The C-TIC user interface is a GUI.

**Half Duplex** - A circuit designed for transmission in either direction but not both directions simultaneously.

**High Occupancy Vehicle (HOV)** - Any vehicle, bus, van, or car with multiple riders. An HOV lane refers to a roadway lane reserved for use by HOV's.

**High Order Language (HOL)** - A programming language that requires little knowledge of the computer on which a program will run, can be translated into several different machine languages, allows symbolic naming of operations and addresses, provides features designed to facilitate expression of data structures and program logic, and usually results in several machine instructions for each program statement. Examples include Ada, COBAL, FORTRAN, ALGOL and PASCAL. (See IEEE Std 610.12-1990.)

**Highway Advisory Radio (HAR)** - A traffic information broadcasting system used in the U.S. Drivers are alerted to tune their car radios to a specific channel in order to receive transmitted information.

**Highway** - 1) A general name referring to roadways of various functional and design classification types including freeways, expressways, arterials and collectors. 2) A legal term describing any public way used for vehicular travel. The term "highway" includes rights-of-way, bridges, drainage structures, signs, guard rails, protective structures and all other structures and apparatus necessary for vehicular traffic.

**Highway Users Federation for Safety and Mobility (HUFSAAM)** - A Washington-based coalition of 400 corporate and association members (plus some 2,000 individual members) with affiliated groups in each state and 14 regional offices around the country. Its main goal is to serve the common interests of business and industry in advancing highway transportation safety and efficiency. HUFSAAM was instrumental in the formation of ITS AMERICA. The Highway/Vehicle Technology Committee of HUFSAAM, composed of

representatives from major U.S. transportation companies, has been charged with identifying the value of ITS and defining how such systems can be effectively utilized.

**Historical Travel Time Data** - Travel times based on previous traversals of a transportation link.

**Hoosier Helpers** - Hoosier Helpers is the motorist aid system for the Frank Borman Expressway and uses roving vehicles equipped to assist disabled vehicles. The Hoosier Helpers provide the necessary help needed to relocate disabled vehicles. This help includes: tire repair, gasoline, vehicle removal (roadway clearance), and other quick auto repairs to get cars moving again (i.e., wiring up a dragging muffler). The Hoosier Helpers also call for emergency assistance when necessary and establish detours to help prevent secondary accidents. The Hoosier Helpers patrol all 16 miles of the Borman Expressway.

**Host** - Generally a node on a network that can be used interactively, i.e. logged into, like a computer.

**Hyperlink** - An active area (typically an underlined word or graphic image) on a world wide web page that transports the user to other related world wide web sites.

**I-95 Corridor Coalition** - The I-95 Corridor Coalition is a partnership of the major public and private transportation agencies within the Northeast Corridor. The overall goal of the 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 I-95 Corridor Coalition has sponsored several projects in response to this need, including the development and deployment of an Information Exchange Network (IEN).

**Illinois Regional Hub** - The facility responsible for collecting and disseminating traveler data and information to/from the various ITS subsystems within Northeastern Illinois and providing that information to the Gateway.

**Illinois Universities Transportation Research Consortium (IUTRC)** - A non-profit corporation owned by Northwestern University, the University of Illinois at Chicago, the University of Illinois at Urbana-Champaign and the Illinois Institute of Technology.

**Illinois State Toll Highway Authority (ISTHA)** - The organization which controls the tollway system in Illinois. This toll system will provide travel time information to the C-TIC based on readings from their I-Pass electronic toll collection system.

**Illinois Department of Transportation (IDOT)** - IDOT is responsible for planning, coordination, construction and maintenance or operation of Illinois' transportation network. IDOT is responsible for providing project management for the GCM C-TIC and for operating the C-TIC and is one of the Parties in GCM.

**Incident Management Software (IMS)** - Software used with the Atlanta ATMS for automatically generating incident response plans.

**Information Service Providers (ISP)** - Private agencies that help perform data dissemination for TravInfo. ISPs receive data via the DBS or the LDS and develop products to provide the data to the end user.

**Indexed Sequential Access Method (ISAM)** - A file access method supporting both sequential and indexed access.

**Indiana Department of Transportation (INDOT)** - INDOT is responsible for planning, coordination, construction and maintenance or operation of Indiana's transportation network. One of the parties in GCM.

**Indiana Tollway** - The Indiana Tollway, Interstate 90, is located in northwestern Indiana (for the GCM Corridor) and begins at the Illinois border (Chicago Skyway) on the west end and ends at the Ohio border on the east end. INDOT is responsible for the operation of the Indiana Tollway and the toll collection facilities. This in contrast to the operation of the Illinois Tollway which is not affiliated with the Illinois Department of Transportation.

**Information Exchange Network (IEN)** - The objective of the IEN is to facilitate communications and information sharing among I-95 Corridor Coalition member agencies 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 and the traveling public of major incidents and their impacts, using VMS and 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, and creating an integrated clearinghouse of real-time multi-modal travel information. The Information Exchange Network provides the points of entry and access to transportation agency databases, and functions as the communications backbone for exchanging information.

**Integrated Services Digital Network (ISDN)** - An international standard that defines end-to-end transmission of voice, data, and signaling. ISDN is a standard that was developed to provide digital communications directly to the POP at an affordable cost. ISDN is a multi-use network in which wholly digital transmission is provided between customer locations, with digital telephones and data terminals being used. Access from the subscriber to the serving central office is defined in terms of "B" channels (64 kbps each) and "D" channels (16 kbps or 64 kbps). The "B" channels carry voice, data, and video traffic in digital form, while the subscriber controls service (signaling and supervision) via a two-way link on the "D" channel. There may be two "B" channels and one "D" channel, called basic rate access, or 23 "B" channels and one "D" channel, called primary rate access (T-1 capacity).

**Integrated Corridor Operations Project (ICOP)** - The Integrated Corridor Operations Project will complete strategic planning and operational test deployment activities for integrated operations of highways and other transportation infrastructure within major freeway corridors in Southeastern Wisconsin. The project will identify effective strategies to improve and coordinate traffic management capabilities, support efficient transit operations, and enhance traveler information. The study area includes freeway corridors in Racine, Kenosha, Milwaukee, Waukesha, Washington, Ozaukee, and Walworth Counties, although the primary focus of the project is Milwaukee and Waukesha Counties. This project is synthesizing and supplementing operational needs assessments completed through the Signal Integration Study to define integration opportunities and develop an integrated corridors strategic plan. ICOP will also select, develop, design and implement an integrated corridor test segment (ICTS) by late 1998, and will evaluate the segment after deployment.

**Intelligent Transportation Systems (ITS)** - Application of electronic computer and telecommunications technology to add efficiency to monitor vehicle use and capacity of existing roadways. ITS goals include

alleviating traffic congestion, reducing accidents, using energy more efficiently, reducing emissions, and increasing transit ridership.

**Interconnective** - Interconnectivity, or general interworking, is the ability to connect and seamlessly exchange information with other systems without a plethora of third party black boxes. Interconnectivity is the applying of open standards to the various layers of the network system; specifically the application, presentation, transport, network and data link layers.

**Interface** - (1) A shared boundary across which information is passed. (2) A hardware or software component that connects two or more other components for the purpose of passing information from one to the other. (3) To connect two or more components for the purpose of passing information from one to the other. (4) To serve as a connecting or connected component as in (2). (See IEEE Std 610.12-1990.)

**Interface Requirement** - A requirement that specifies an external item with which a system or system component must interact, or that sets forth constraints on formats, timing, or other factors caused by such an interaction. (See IEEE Std 610.12-1990.)

**Interface Specification** - A document that specifies the interface characteristics of an existing or planned system or component. (See IEEE Std 610.12-1990.)

**Interface Testing** - Testing conducted to evaluate whether systems or components pass data and control correctly to one another. (See IEEE Std 610.12-1990.)

**Interface Control Specification Document (ICS)** - A document prepared on all critical interfaces to specify physical connectivity protocols, message content, message structure, timing and control methodology.

**Intermodal Surface Transportation Efficiency Act (ISTEA)** - Public Law 102-240, Dec. 18, 1991. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 provides the primary federal funding (\$151 Billion) for all surface transportation programs in the U.S. for the six (6) year period 1992-1997. This legislation includes the Intelligent Vehicle-Highway Systems Act of 1991 (Title VI, Part B).

**Internal Interface** - The software and hardware required to provide communications between systems internal to the C-TIC and/or Gateway.

**Internet Service Provider (ISP)** - Companies that offer access to the Internet (i.e., AOL, Compuserve, MSN, Prodigy, AT&T Worldnet and MCI).

**Internet Relay Chat Program (IRC)** - The IRC program includes hundreds of public and private "chat areas" with topics that span the entire gamut of human interests. Chat in English or a dozen different foreign languages in a real-time discussion forum with people across the globe.

**Internet** - A series of local, regional, national and international networks linked using TCP/IP. Internet links many government, university and research sites. It provides e-mail, remote login and file transfer services.

**Interoperable** - Interoperability is the seamless access of distributed data across all open platforms and software products.

**ITS America** - ITS America is the institutional embodiment of ITS in the United States. ITS America fosters and coordinates the public/private partnership to make the United States surface transportation system safer and more effective by accelerating the development, integration, acceptance and deployment of advanced technology.

**ITS Midwest** - ITS Midwest is a regional chapter of ITS America including the states of Illinois, Indiana and Wisconsin. ITS Midwest plays a key role in outreach, education and support for ITS technical and planning activities. It also provides a forum for planning and support of the GCM Priority Corridor.

**ITS Subsystem** - A facility within the GCM Corridor which is capable of providing and/or receiving traveler information to/from the Gateway TIS.

**Java** - A programming language expressly designed for use in the distributed environment of the Internet.

**kilobits per second (kbps)** - 1,000 bits per second. A measure of data transmission rate in serial transmission.

**Kiosk** - Computer terminal display located in public area such as a shopping center, airport, office complex, etc., giving real-time traffic information for the purpose of trip/route planning. May also include information on services, facilities, etc.

**Landline** - Regular, unconditioned phone lines.

**Layer** - A characteristic of a representation of the road network which simultaneously contains all information present at the given level and all levels above it. Layer n contains all segments and super-segments at level n and all levels above n. Hence, the primary difference from "level" is that it includes the simple segments creating the super-segments, as well as the super-segment. (Also see "Level.")

**Level of Documentation** - A description of required documentation indicating its scope, content, format and quality. Selection of the level may be based on project cost, intended usage, extent of effort, or other factors.

**Level** - The lower level representations have the most detail while the higher levels have progressively less detail. A level n network is constructed from segments of rank n and above. The segments on the higher level have been constructed by chaining together shorter segments of identical rank. These chained together segments are defined to be super-segments. The primary difference from "layer" is that the higher levels do not contain the simple segments creating the super-segment. (Also see "Layer" and "Rank" definitions.)

**Link Identification (Link ID)** - A unique identifier for a specific link. Used in a Traveler Information System.

**Link** - See "Traffic Link."

**Local Area Network (LAN)** - A data communications system consisting of a group of interconnected computers, sharing applications, data and peripherals.

**Local Road** - See "Functional Classification."

**Locale** - A named polygon which defines a geographical area.

**Location** - Defines a point on the road network. It can be specified as a particular road segment plus a relative distance along the segment, and the right or left side of the segment.

**Location Referencing Message Specification (LRMS)** - The Location Reference Message Specification establishes standard formats for messages used within message sets to convey locations. The purpose of the LRMS is to provide a standard interface for the electronic transfer of a location of an event or object of interest to a transportation application. This information is carried in LRMS messages, which are themselves composed of records and fields.

**Location Referencing System (LRS)** - The standardized method used to store and translate location based information so that all parties will be able to understand the information. In order for any transportation data to be useful for an end user, the information must be in relation to a known location; that is, it must convey a locationing scheme. A locationing scheme tells where the information is happening in relation to fixed objects (i.e., streets, landmarks, lat./long. coordinates). Data without some form of location referencing cannot be used effectively.

**Login** - A series of unique security codes, typically a username and password required to access a secure device, application, process or area.

**LORAN-C** - Land-based radio navigation system operated by the U.S. Coast Guard as a public service. This hyperbolic system uses signals broadcast from land-based radio towers.

**Major Road** - A major road is an expressway, highway, or arterial road designed as a heavy thoroughfare. (Also see "Functional Classification.")

**Measure of Effectiveness (MOE)** - Used to evaluate results of operational field tests.

**Megabits per second (Mbps)** - 1 million bits per second. A measure of data transmission rate in serial transmission.

**Metra** - Operator of the heavy rail commuter system in the Chicago area.

**Metropolitan Atlanta Rapid Transit Authority (MARTA)** - Operator of the heavy rail commuter system in the Atlanta area.

**Minutemen** - A name commonly used for IDOT personnel assigned to emergency traffic patrol.

**Modem (MODulate/DEModulate)** - A device that converts serial digital data from a transmitting terminal to a signal suitable for transmission over a telephone line to a receiving terminal.

**MONITOR Traffic Management Center** - The operations facility in Milwaukee which manages information on the freeways in the Metropolitan Milwaukee area. MONITOR will report congestion and incident information to the C-TIC.

**Motif** - The graphical user interface (GUI) endorsed by the Open Software Foundation. It has become the standard graphical interface for UNIX. Motif, Windows and Mac are the three major GUIs.

**Motion Video** - Refers to moving video images, but does not imply a frame rate. Full-motion video refers to fluid, TVlike images displayed at a rate of 24 to 30 frames per second.

**Motor Carrier Safety Assistance Program (MCSAP)** - The Motor Carrier Safety Assistance Program (MCSAP) 100/200 Site Project is a pilot project to equip 17 permanent enforcement personnel with personal computers as well as five portable laptops and printers in order to provide direct access to the Commercial Driver License Information System and the Inspection Selection System. This pilot project is anticipated to be complete in October of 1997, upon which evaluation will be completed by either FHWA or a hired contractor.

**Multi-Modal Traveler Information System (MMTIS)** - The combination of all traveler modes and forms of transportation systems operated through various ITS subsystems within the project limits of the GCM Corridor.

**MUSIC Model (Management Services/ User Interface/ System Interface/ Information and Data Services/ Communication Services)** - A popular model for categorizing standards developed by Central Computer and Telecommunications Agency (CCTA) of Britain.

**National Center for Supercomputing Applications (NCSA)** - The entity at the University of Illinois that created Mosaic, the first world wide web browser.

**National Transportation Communication for ITS Protocol (NTCIP)** - A series of detailed specifications and requirements to provide a communications standard that ensures the interoperability and interchangeability of traffic control and intelligent transportation systems (ITS) devices. The NTCIP is the first protocol for the transportation industry that provides a communications interface between disparate hardware and software products. The NTCIP effort not only maximizes the useability of the existing infrastructure, but it also allows for flexible expansion in the future, without reliance on specific equipment vendors or customized software.

**National Highway System (NHS)** - Interconnected system of principal arterial routes used primarily for serving major population centers, international border crossings, ports, airports, public transportation facilities, intermodal transportation facilities and other major travel destinations which meets defense requirements and serves interstate and inter-regional travel.

**National Highway Traffic Safety Administration (NHTSA)** - A branch of the U.S. Department of Transportation that focuses on safety and standards.

**Navigable Database** - A digital street map database containing sufficient detail and scope to support driver and vehicle guidance applications (e.g., the generation by computer of a high quality driving route between two stated addresses).

**Navigation** - The determination of the vehicle's position and direction of travel, utilizing information provided by GPS, or another internal position device and computerized maps.

**Network** - An interconnected system of computers that can communicate with each other and share files, data and resources.

**Network Address** - Every node on a network has one or more addresses associated with it including at least one fixed hardware address assigned by the device's manufacturer. Most nodes also have protocol specific addresses assigned by a network manager.

**Network Management** - Administrative services for managing a network, including configuring and tuning, maintaining network operation, monitoring network performance and diagnosing network problems.

**Newsgroups** - See "USENET."

**Node** - (1) In a diagram, a point, circle, or other geometric figure used to represent a state, event or other item of interest. (See IEEE Std 610.12-1990.) (2) A node is the intersection and/or interchange where two or more roadways meet or where a roadway begins or ends. (3) Any intelligent device connected to the network. This includes terminal servers, host computers, and any other devices (such as printers and terminals) that are directly connected to the network. A node can be thought of as any device that has a "hardware address" (see Network Address).

**Node - Interchange.** A node specified to represent the physical nature of an interchange (e.g., layout of ramps) for route guidance purposes and to define a freeway or expressway segment and link.

**Node - Intersection.** A node which represents the intersection of roadways that are not grade separated.

**Northwest Central Dispatch (NWCD)** - A multi-community 911 dispatch center located in the Northwest suburbs of Chicago. Traffic related incident information is forwarded to the C-TIC.

**Null Modem Cable** - A device which interfaces between a local peripheral that normally requires a modem and the computer near it that expects to drive a modem and interface to that device; an imitation modem in both directions.

**Object Management Group (OMG)** - A non-profit, member-sponsored international organization dedicated to establishing open standards for Object Technology (OT). The objective of OMG is to provide a fair and equitable reference architecture supported by open interfaces.

**Object Oriented Analysis (OOA)** - Attempts to define object classes associated with the objects and the relationship between different objects and classes in the systems problems domain. OOA attempts to understand the problem domain and what the systems responsibilities are for the problem domain.

**Object-Oriented Programming (OOP)** - Programming that uses objects which combine data and behavior. Objects use the data structure and behavior of their class.

**Occupancy** - Percentage of time a vehicle occupies the area above a loop detector installed in the pavement.

**Open System Interconnect (OSI)** - A seven-layer model developed by the International Organization for Standardization (ISO) that governs communications interchange standards between systems. The model is an internationally accepted framework of standards for intersystem communications.

**Open Database Connect (ODBC)** - A derivative of SQL aimed primarily at desktop databases but has recently acquired support from the big databases such as Oracle and Sybase. While lacking in low level

procedures and having questionable speed issues, ODBC does have an application programming interface to give better functionality than vanilla SQL.

**Open System** - A vendor-independent computing environment consisting of interoperable products and technologies that are commonly available, and that have been designed and implemented in accordance with de jure and de facto standards.

**Open Software Foundation (OSF)** - A not-for-profit industry collaboration for defining a set of open system specifications and adapting a set of technologies that implement them. OSF is essentially creating "middleware" which allows heterogeneous computers to work together in a seamless environment. OSF is industry's collaboration for defining specifications and adapting a set of technologies then implementing them. Their charter is to fill the software gaps in the open movement by creating the middleware that will allow interoperability between major platforms. The OSF corporation was created as a consortium company by IBM, HP, DEC, Hitachi, Siemens, and Groupe Bull. Products include Distributed Computing Environment (DEC), Distributed Management Environment (DME), User Interface (Motif), and Open Software Foundation Operating System (OSF/1).

**Open System Environment (OSE)** - The comprehensive set of interfaces, services, and supporting formats. It includes international, regional and national profiles that are in accordance with the International Organization for Standardization (ISO).

**Open User Recommended Solutions (OURS)** - Non-profit organization with the goal to explore and help solve multi-operating environment computing challenges. It provides a forum for users to talk to multiple vendors about pressing open system problems. Members of OURS include companies such as MIT, Pacific Gas & Electric, Wells Fargo, EDS and Ziff-Davis Labs.

**Optical Fiber** - A glass or plastic fiber that has the ability to guide light along its axis, used as a transmission medium for information.

**Pace Suburban Bus** - Operator of the bus transit system in the Chicago suburbs.

**Packet** - A series of bits containing data and control information, including source and destination node addresses, formatted for transmission from one node to another.

**Paratransit Automated Routing System (PARS)** - PARS will equip paratransit vans with mobile data terminals to allow GPS-based AVL and CAD. In addition, dynamic ride matching and routing capabilities will supplement more conventional CAD/AVL services. Initially, 80 of the 85 vehicles will be included in PARS. The data collected from the vehicles will be used to determine on-time performance, route tolerance, vehicle location, etc.

**Parity** - A check bit defined to check if the correct number of bits are set for that character. Examples- odd, even, disabled (or no.)

**Parsons Transportation Group (PTG)** - De Leuw, Cather & Company is a member of the Parsons Transportation Group consisting of the transportation consulting firms of De Leuw, Cather, Steinman and Barton-Aschman. De Leuw, Cather is providing system engineering services to IDOT and is responsible for design of the system architecture, design of the Gateway, etc., under the MMTIS project.

**Performance Specification** - A document that specifies the performance characteristics that a system or component must possess. (See IEEE Std 610.12-1990.)

**Performance Evaluation** - The technical assessment of a system, subsystem or component to determine how effectively objectives have been achieved.

**Performance** - The ability of a system or subsystem to perform its functions.

**Performance Requirements** - A requirement that imposes conditions on a functional requirement. (See IEEE Std 610.12-1990.)

**Personal Digital Assistant (PDA)** - A hand held computer that provides functions like a notepad or messagepad. PDAs often include data transmission capabilities.

**Personal Communications Device (PCD)** - A small portable device used for communications, such as pager and cellular phones.

**Plain Old Telephone Service (POTS)** - The standard dial-up telephone service provided to homes and businesses for conventional telephone communications. Although the service ultimately ends up within a high speed digital network, service to the point of presence (POP) is analog with a limited bandwidth. Each circuit to the POP has an allocated bandwidth of 56-64 kbps, which was based upon requirements for transporting voice communications, (24 of these circuits are packaged or multiplexed into a higher speed signal at the central office, making up a T-1 (1.544 Mbps) channel). Subsequently, the switching equipment in place for voice transport has limitations for data transport.

**Point-to-Point** - A circuit connecting two nodes only, or a configuration requiring a separate physical connection between each pair of nodes.

**Point-to-Point Protocol (PPP)** - The successor to SLIP, PPP provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits.

**Points of Presence (POP)** - Refers to the area where an Internet Service Provider (ISP) can be reached via a local phone connection.

**Portable Operating System Interface for UNIX (POSIX)** - An IEEE 1003.1 standard that defines the language interface between application programs and the UNIX operating system. Adherence to the standard ensures compatibility when programs are moved from one UNIX computer to another. POSIX is primarily composed of features from UNIX System V and BSD UNIX.

**Portable / Scalable** - The ability to move applications from the vendor's computer to other "open" operating systems or hardware platforms without radically modifying the applications. Portable software can be easily installed and tested on different computing platforms in a convenient and cost effective manner. Closely related to portability is scalability. Scalability is the ability to run applications without modification on larger or smaller models of the same computer. Scalability is achieved when applications are 100% code compatible among a family of platforms and the underlying operating system architecture uses standard system calls for computing resources.

**Position** - The latitude, longitude and altitude of a point on the surface of the earth.

**Print Server** - A dedicated computer that manages printers and print requests from other nodes on the network.

**Protocol** - Specified rules and/or formats for performing functions, communicating and interacting with computer systems or networks.

**Protocol** - A set of conventions that govern the interaction of processes, devices and other components within a system. (See IEEE Std 610.12-1990.)

**Public Information Center (PIC)** - A centralized source of publicly available information for all GCM Corridor initiatives.

**Quality Assurance (QA)** - (1) A planned and systematic pattern of all actions necessary to provide adequate confidence that an item or product conforms to established technical requirements. (2) A set of activities designed to evaluate the process by which products are developed or manufactured. (See IEEE Std 610.12-1990.)

**Quality Control (QC)** - The procedures used for Quality Assurance.

**Regional Transportation Authority (RTA)** - Mass transit oversight agency for the Northeast Illinois Region.

**Remote Data Access (RDA)** - A standard permitting the exchange of information between different database management systems.

**Remote Procedure Calls (RPC)** - An interface that allows an application to call a routine that executes on another machine in a remote location.

**Requirement** - (1) A condition or capability needed by a user to solve a problem or achieve an objective. (2) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed documents. (3) A documented representation of a condition or capability as in (1) or (2). (See IEEE Std 610.12-1990.)

**Requirements Specification** - A document that specifies the requirements for a system or component. Typically included are functional requirements, performance requirements, design requirements and development standards. (See IEEE Std 610.12-1990.)

**Road Segment** - A segment is the section of roadway between two adjacent nodes in a given road network layer. A segment at a higher network layer can be made of more than one segment at a lower layer. A road segment may contain zero or more shape points.

**Road Network** - A road network is a collection of interconnected roadways. Typically, a road network covers a limited geographical area such as the Chicago Metropolitan area, but, it may cover a larger area.

**Roadway** - A roadway is a continuous length of road having the same name. An example of a roadway is Dundee Road or Lake-Cook Road north of Chicago. It should be noted that two or more roadways may share the same section of road. For example, Northwest Highway is a roadway contained within the roadway named "US 14." Some roadways may not have any specified beginning or ending points due to their unusual topological nature such as Circular Drive, Mobius Avenue, Kleins Boulevard, or Eschers Lane.

**Router** - An interconnection device that can connect individual LANs.

**Seattle Advanced Transportation Management System (ATMS)** - The Seattle Advanced Transportation Management System (ATMS) began in 1967 with the installation of closed circuit television cameras to monitor the reversible lanes on I-5. Since that time, the system has been expanded numerous times to include the installation of vehicle detection stations (1978), centralized ramp control (1981), variable message signs and highway advisory radio (1986) and most recently a complete system upgrade that included the replacement of the central control computer and operator consoles as well as the central and user interface software. This last upgrade began in 1989 and was completed in June 1993.

**Segment** - A continuous point of a road which connects two intersections/nodes.

**Selective Availability** - A technique of deliberately introducing inaccuracy into GPS broadcasts for civilian applications.

**Senior Executive Officers for Open Systems (SOS)** - A group of companies who's goal is to influence vendors to produce products that meet their needs and state publicly their commitment to open systems. Members include General Motors, American Airlines, Du Pont, McDonnell Douglas, Eastman Kodak, Motorola, Merck, Unilever and Northrop.

**Serial Line Internet Protocol (SLIP)** - Software allowing the Internet protocol, normally used on Ethernet, to be used over serial line. SLIP is reliant on other higher-layer protocols for error detection. Because of this, SLIP, on its own, would not be satisfactory over a particularly error-prone dial-up link. A SLIP connection needs to have its Internet protocol address configuration set each time before it is established whereas Point-to-Point Protocol (PPP) can determine it automatically once it has started.

**Server** - (1) A computer providing a service, such as shared access to a file system, a printer or an electronic mail system to LAN users. Usually a combination of hardware and software. There are variations on the same theme. They are called file servers and print servers. (2) The component in a computer system which will validate the client request for correct parameters and access privileges and then execute the requested task. It may return a message to the client. (Also see "Client" and "Client-Server.")

**Shape Points** - A node in the Road Segment used to define the curvature or alignment of the roadway.

**Simple Mail Transfer Protocol (SMTP)** - a protocol used to transfer electronic mail messages from one machine to another.

**Simple Network Architecture (SNA)** - IBM's seven layer vendor specific layered architecture for data communications. Specifies the rules governing interactions between networked components in an IBM environment.

**Simple Network Management Protocol (SNMP)** - A widely-used network monitoring and control protocol. Data is passed from SNMP agents, which are hardware and/or software processes reporting activity in each network device (hub, router, bridge, etc.) to the workstation console used to oversee the network. The agents return information contained in a MIB (Management Information Base), which is a data structure that defines what is obtainable from the device and what can be controlled (turned off, on, etc.).

**Smart Card** - An electronic information carrier system that uses plastic cards about the size of a credit card with an imbedded integrated circuit that stores and processes information.

**Specification** - (1) A document that describes in a complete, precise, verifiable manner, the requirements, design, behavior or other characteristics of a system or system component, and, often, the procedures for determining whether these provisions have been satisfied. (See IEEE Std 610.12-1990.)

**SQL Server** - A relational database management system (DBMS) from Sybase, Inc., Emeryville, CA, that runs on OS/2 and Windows NT PCS, NetWare servers, VAXs and UNIX servers. It is designed for client/server use and is accessed by applications using SQL via Sybase's own QBE and decision support utilities.

**Stolen Vehicle Recovery System (SVRS)** - Application of AVI/AVLM type technology with non route specific radio navigation tracking systems to allow locating and tracking stolen vehicles.

**Stop Bits** - The number of bits following a character in a transmission to define the end of a character.

**Strategic ITS Early Deployment Plan (SEDP)** - SEDP is the plan for the evaluation of ITS in Northeastern Illinois. The SEDP will focus on an action plan to target and to deploy key elements of the core ITS infrastructure including real time and multi-modal traveler information systems, itinerary planning, arterial management systems and other building blocks. The SEDP started in February 1997.

**Strategic Regional Arterial (SRA)** - Network of high-design roadways in Illinois intended to supplement the freeway system in handling intersuburban long distance travel.

**Structured Query Language (SQL)** - A language used to interrogate and process data in a relational database. Originally developed by IBM for its mainframes, all database systems designed for client/server environments support SQL. SQL commands can be used to interactively work with a database or can be embedded within a programming language to interface to a database. Programming extensions to SQL have turned it into a full-blown database programming language. Some of the major database management systems (DBMs) that support SQL are DB2, SQL/DS, Oracle, Sybase, SQLbase, INFORMIX and CA-OpenIngres (Ingres).

The American National Standards Institute (ANSI) has standardized the SQL language, but it does not cover all the bases. Each database management system (DBMS) has its own enhancements, quirks and tricks that, for all intents and purposes, makes SQL non standard. Moving an application from one SQL database to another generally requires hand tailoring to convert some of the SQL statements.

Switched 56.6 kbps lines - Switched 56.6 kbps lines are dial-up lines that are conditioned for bandwidths of 56.6 kbps, optimized for data transport through specialized switching equipment within the phone company.

This allows for economical data transport without the cost of dedicated cabling from the point of presence (POP) to the phone company.

**Subsystem** - A secondary or subordinate system within a larger system. (See IEEE Std 610.12-1990.)

**Synchronous Optical Network (Sonet)** - A broadband networking standard based on point-to-point optical fiber networks. SONET will provide a high-bandwidth "pipe" to support ATM-based services. The SONET standard will establish a digital hierarchical network with a consistent worldwide transport scheme. SONET has been designed to take advantage of fiber, in contrast to the plain old telephone system which was designed to copper wires. SONET carries circuit-switched data in frames at speeds in multiples of 51.84 megabits per second up to 48 Gigabits per second. Since SONET uses multiple channels to transmit data, each SONET frame can be considered to be a two-dimensional table of bytes that is 9 rows high and 90 columns deep. For every OC-n level, SONET can transmit n number of frames at a given time. Groups of frames are called superframes.

**System Five (V) Interface Definition (SVID)** - A technology developed by UNIX Standards Laboratory (USL) and its partners in response to the UNIX International (UI) member's requirements. The management specification of SVID defines the functions such as host management, backup, restore, print management, distributed software installations, and user management. A common user interface is provided.

**System** - A collection of components organized to accomplish a specific set of functions. (See IEEE Std 610.12-1990.)

**T-1** - Communication lines conditioned to provide data transmission rates up to 1.544 Mbps. T-1's may be packaged as 24 channels at 64 kbps each, or set up as a single channel with all 1.544 Mbps available for use. T-1 lines are dedicated circuits between the point of presence (POP) and the phone company central office. The subscriber must pay initialization costs, which include the cost of installing and conditioning cable for the distance of cable that does not exist, in addition to mileage costs, which is a surcharge on the length of the circuit. This is a big cost variable for many installations, in fact some areas may not be served by T-1 facilities. In large urban areas, this is less of a concern since much of the infrastructure has been established.

**T-3** - Communication lines conditioned to provide data transmission rates up to 44.736 Mbps.

**Telnet** - Telnet is an application that provides a terminal interface between hosts using the TCP/IP network protocol. It has been standardized so that "telnetting" to any host should give one an interactive terminal session, regardless of the remote host type or operating system.

**Terminal Server** - A device that facilitates communication between hosts and terminals.

**Test Phase** - The period of time during which the components of a hardware or software product are evaluated and integrated, and the product is evaluated to determine whether or not requirements have been satisfied.

**Topologically Integrated Geographic Encoding & Referencing (TIGER) files** - Computer-based map files created for the Census Bureau in support of the 1990 census. They contain dual incidence matrix encoded file (DIME) data augmented with information for new suburbs and small cities (as of 1987) that were not included in the DIME files.

**Traffic and Transit Management Work Group (TTM)** - A committee of the GCM Corridor dealing with traffic signal, transit and incident management and operations.

**Traffic Systems Center (TSC)** - The TSC is responsible for managing congestion on IDOT's District 1 expressway system. The congestion management system includes a vehicle detection, ramp metering, closed circuit television, variable message sign subsystems and CB radio monitoring sites. The TSC is also responsible for distributing congestion information to the public and to independent service providers. The TSC operates between 5 AM and 7 PM on weekdays.

**Traffic Systems Center (TSC) Connection** - The connection to the IDOT TSC which allows for electronic transfer of information from the TSC to the C-TIC.

**Traffic Link** - A traffic link (or link, for short) is a pair of adjacent segments and its associated data within a given network layer. It should be noted that links are directional. Therefore, for adjacent bi-directional segments, there are two links defined, one in each direction. Physically, a traffic link consists of the portion of road from the detected beginning of a segment to the detected beginning of one of its successor segments.

**Transaction Processor (TP)** - A processor in which transactions are executed immediately after they are received by the system.

**Transit Communications Interface Protocols (TCIP)** - A protocol that will allow disparate transit organizations to exchange data. The interfaces will allow transit departments to share data with other operating agencies such as emergency response services and regional traffic management centers. Also, TCIP will support electronic messages for public transportation operations, services and billing.

**Transit System** - A system of transportation involving buses, heavy rail and/or light rail vehicles to transport people.

**Transmission Control Protocol/Internet Protocol (TCP/IP)** - The standard network protocols in UNIX environments. They are almost always implemented and used together and called TCP/IP.

**Traveler Advisory Telephone System (TATS)** - A voice processing system interface that allows travelers to access the Gateway database to obtain travel related information.

**TravelLink** - TravelLink, a link between the high technology world of traffic engineering and the general public, was developed to be fully operational prior to the 1996 Olympic Games in Atlanta. The TravelLink project is sponsored by the Georgia Department of Transportation (GDOT) and is a component of the Advanced Traveler Information System (ATIS) of the Atlanta Regional Advanced Transportation Management System (ATMS). TravelLink provides a system of approximately 130 public access kiosks for distributing advanced traveler information to improve the mobility of travelers in the State of Georgia and the Metropolitan Atlanta region.

**Trilogy** - The Minnesota Department of Transportation (MnDOT) Advanced Traffic Management System includes extensive vehicle detection systems, video surveillance ramp meters and changeable message signs on over 70% (170 miles) of the freeways within the Twin Cities Metropolitan Area. The system has been designed to optimize the operation and management of freeway access, incident management and real-time traveler information. The Trilogy project was sponsored by the FHWA as a Field Operational Test and was

conducted in the metropolitan area. The in-field data collection components of the Trilogy project have been in operation since July, 1995.

**Uniform Resource Locator (URL)** - A standard for specifying an object on the Internet, such as a file or a Newsgroup. URLs are used extensively on the World Wide Web. They are used in hypertext markup language (HTML) documents to specify the target of a Hyperlink.

**Uniforum** - A non-profit international association of open system professionals founded in 1980. Uniforum represents thousands of vendors and users of UNIX and open systems. It provides magazines, newsletters, trade shows and seminars.

**UNIX** - A multitasking, multi-user computer operating system developed by AT&T. UNIX is written in C, also developed by AT&T, which can be compiled into many different machine languages, causing UNIX to run in a wider variety of hardware than any other operating system. UNIX has thus become synonymous with "open systems." UNIX is made up of the kernel (fundamental tasks), the file system (hierarchical directory for organizing the disk) and the shell (interfaces that process user commands). The major command-line interfaces are the Bourne shell, C shell and Korn shell. The UNIX vocabulary is exhaustive with over 600 commands that manipulate data and text every way conceivable. Many commands are cryptic (see comparison below), but just as Windows hides the DOS prompt, graphical user interfaces, such as Motif and Open Look, present a friendlier image to UNIX users.

<b>Command</b>	<b>UNIX</b>	<b>DOS</b>
List directory	ls	dir
Copy a file	cp	copy
Delete a file	rm	del
Rename a file	mv	rename
Display contents	cat	type
Print a file	lpr	print
Check disk space	df	chkdsk

**UNIX International's Transaction processor (TUXEDO)** - A transaction processor (TP) that acts as middleware between applications and the database management layer or transaction managers. This TP interprets the various standard query languages (SQLs) and remote procedure calls (RPCs) and manages the translation commands and exchange of data. It supports many of the major databases for workstations and desktops.

**UNIX International (UI)** - An international, non-profit association dedicated to the evolution of UNIX System V and open systems.

**Upload** - The transfer of information from a remote node to a host node.

**USENET (aka Netnews, Newsgroups)** - Public discussion forums that most resemble computer bulletin board systems. Newsgroup discussions include contributions from thousands of global users who post 'articles' that can then be viewed at any time in the future by readers (who often reply). USENET newsgroups generate hundreds of thousands of pages of discussion every day. Of course, older articles are deleted after a few days or weeks. There are several ITS oriented newsgroups.

**User Operations Manuals** - Operating manuals for C-TIC Console Operators and C-TIC Database Users.

**User Interface** - Computer screen display where the user has the ability to interact with the computer.

**User Instructions** - Documentation conveying to the end user of the system, instructions for using the system to obtain desired results.

**User** - The person using the specific system referred to.

**Validation** - The process of evaluating a system or component during or at the end of the development process to determine whether it satisfies specified requirements. (See IEEE Std 610.12-1990.)

**Variable Message Sign (VMS)** - Signs that electronically or mechanically vary the visual word, number or symbolic display as traffic conditions warrant. A dynamic sign for dynamic traffic conditions. Also referred to as changeable message signs.

**Vehicle Navigation and Information Systems (VNIS)** - "Smart Car" applications for vehicles and route guidance, vehicle location and traffic information displays onboard cars and trucks. Utilizes map databases and electronic toll and traffic management (ETTM) technology.

**Vendor Neutral** - Vendor neutrality is the line between open and proprietary. It is somewhat arbitrary and based upon user perception. The more vendors and platforms that support a given standard the more open it is considered.

**Verification** - (1) The process of evaluating a system or component to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase. (2) Formal proof of program correctness. (See IEEE Std 610.12-1990.)

**Veronica** - A program which searches WWW sites for various information. Veronica usually resides on other people's sites.

**Versa Module Europa (VME)** - VME was introduced in 1981 by Motorola, Philips, Thompson, and Mostek. It was intended to be a flexible environment supporting a variety of computing intensive tasks, and has become a rather popular protocol in the computer industry.

**Volume** - The number of vehicles passing a detector in a specified period of time.

**Walk Through** - A static analysis technique in which a designer or programmer leads members of the development team and other interested parties through a segment of documentation or code, and the participants ask questions and make comments about possible errors, violation of development standards, and other problems. (See IEEE Std 610.12-1990.)

**Week** - Seven (7) days, Monday to Sunday.

**What You See Is What You Get (WYSIWYG)** - Term used with software meaning the format shown on the screen is how it will be printed out.

**Wide Area Network (WAN)** - A network over a large geographical area which interconnects local area networks using common carrier or private communications services.

**Wide Area Information Servers (WAIS)** -A distributed information retrieval system. WAIS is supported by Apple Computer, Thinking Machines and Dow Jones. Clients are able to retrieve documents using keywords. The search returns a list of documents, ranked according to the frequency of occurrence of the keyword(s) used in the search. The client can retrieve text or multimedia documents stored on the server. WAIS offers simple natural language input, indexed searching for fast retrieval, and a "relevance feedback" mechanism which allows the results of initial searches to influence future searches.

**Wisconsin Department of Transportation (WisDOT)** - WisDOT is responsible for planning, coordination, construction and maintenance or operation of Wisconsin's transportation network. One of the parties in GCM. Responsible for operating the MONITOR system.

**Work Day** - Monday, Tuesday, Wednesday, Thursday, Friday excluding legal holidays.

**World Wide Web (WWW)** - The WWW or Web provides graphics, text, sound, and video services to access information on Internet servers around the world. So much information is available on the Web today, that search programs have been developed to search for key words or titles. Web pages are used in the GCM Corridor to provide an interface to the Public Information Center, congestion maps, etc.

**X Windows** - Formally "X Window System," also called "X Windows" and "X," it is a windowing system developed at MIT, which runs under UNIX and all major operating systems. X lets users run applications on other computers in the network and view the output on their own screen. X generates a rudimentary window that can be enhanced with GUIs, such as Open Look and Motif, but does not require applications to conform to a GUI standard. The window manager component of the GUI allows multiple resizable, relocatable X windows to be viewed on screen at the same time. X client software resides in the computer that performs the processing and X server software resides in the computer that displays it. Both components can also be in the same machine. This seems opposite to today's client/server terminology, but the concept is that the server is "serving up" the image.

**X/Open** - A consortium of international computer vendors founded in 1984 to resolve standards issues. They see themselves as an independent unifying organization with the goal of identifying what users require in open systems and to select the standards that are most suitable to achieve the goal of true interoperability.

**X/Open Portability Guide (XPG)** - An evolving seven book set that is a portfolio of application programming interfaces (API) and protocols supported by an extensive suite of conformance tests.

**X Server** - The receiving computer in an X Window system. The X server displays the application that is running on a remote machine, which is the X client.

**X Terminal** - A terminal with built-in X server capability.

**XON/XOFF** - Control characters used for data flow control.

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### **3 ABBREVIATIONS AND ACRONYMS**

This section contains the acronyms used throughout the MMTIS documents.

\*11 - Private based cellular emergency system used in the State of Indiana.

\*111 - Previously used dedicated number for the cellular emergency system in Pennsylvania.

\*55 - Private based cellular emergency system used in the State of Missouri.

\*999 - Private based cellular emergency system used in the Chicago Metropolitan area.

911 - Public based landline or cellular emergency system depending on location.

AASHTO - American Association of State Highway Transportation Officials.

ACI - Gary-Chicago-Milwaukee Architecture, Communication and Information Work Group.

ADIS - Advanced Driver Information Systems.

ADT - Average Daily Traffic.

ADVANCE - Advanced Driver Vehicle And Navigation Concept.

AHAR - Automatic Highway Advisory Radio.

AHS - Automated Highway System.

AI - Artificial Intelligence.

ANL - Argonne National Laboratories.

ANSI - American National Standards Institute.

APTS - Advanced Public Transportation Systems.

ARPANet - Advanced Research Projects Agency Network - Original Internet

ASCII - American Standard Code for Information Interchange.

ATC - Automated (electronic) Toll Collection.

ATIS - Advanced Traveler Information Systems.

ATMS - Advanced Traffic Management Systems.

AVI - Automatic Vehicle Identification.

AVL - Automated Vehicle Location system.

AVLM - Automatic Vehicle Locating and Monitoring.

BAP - Bearer Application Protocol.

BAS - Wisconsin Department of Transportation Central Office Bureau of Automated Services.

BBS - Bulletin Board System.

BECS - Bus Emergency Communications System.

bps - bytes per second.

BSMS - Bus Service Management System.

C-TIC - Corridor Transportation Information Center.

CAD - Computer Aided Dispatch.

CAE - Common Application Environment.

CASE Tools - Computer Aided Software Engineering Tools.

CATS - Chicago Area Transportation Study.

CATSA - Chicago Area Traffic Safety Alliance.

CBD - Central Business District.

CCTA - Central Computer and Telecommunications Agency.

CCTV - Closed Circuit TV.

CCVE - Closed Circuit Video Equipment.

CDE - Common Desktop Environment.

CDOT - Chicago Department of Transportation.

CDSI - Communication and Data System Infrastucture

CERN - European Center for Nuclear Research.

CIX - Commercial Internet Exchange Association.

CLSS - Closed Loop Signal System.

CMIP - Computer Management Interface Protocol.

CMIS - Common Management Information Services.

CMS - Changeable Message Sign.

CNET - Computer Network, a nationally syndicated television program focusing on leading edge computing technology.

CORBA - Common Object Request Broker Architecture.

COSE - Common Open Software Environment.

COTS - Commercially Off The Shelf.

CPP - Corridor Program Plan.

CRC Bytes - Cyclic Redundancy Check bytes.

CSMA - Collision Sense Multiple Access.

CSU/DSU - Channel Service Unit / Data Service Unit.

CTA - Chicago Transit Authority.

CVISN - Commercial Vehicle Information System Network.

CVO - Commercial Vehicle Operations.

DAT - Digital Audio Tape.

DB - Database.

DBMS - Database Management System.

DBS - Data Broadcast System.

DCCO - De Leuw, Cather & Company.

DCD - Data Carries Detect.

DCE - Distributed Computing Environment.

DEC - Digital Equipment Corporation.

DIME - Dual Incidence Matrix Encoded files.

DLL - Dynamic Link Library.

DSR - Data Set Ready.

DSRC - Dedicated Short Range Communications Technology.

DTE - Data Terminal Equipment.

DTR - Data Terminal Ready.

EDP - Early Deployment Plan.

EECS - Electrical Engineering and Computer Science Department at the University of Illinois, Chicago.

EOC - Emergency Operations Center

EPV - Emergency Patrol Vehicle

ERS - Emergency Response Service.

ETC - Electronic Toll Collection.

ETP - Emergency Traffic Patrol

ETTM - Electronic Toll and Traffic Management.

FCC - Federal Communications Commission.

FHWA - Federal Highway Admistration.

FM - Frequency Modulation.

FOT - Field Operational Test.

FTAM - File Transfer Access and Management.

FTMS - Freeway Traffic Management System.

FTP - File Transfer Protocol.

GB - Gigabyte (10<sup>9</sup> Bytes).

GCM - Gary-Chicago-Milwaukee.

GCOM - GCM Corridor Object Model.

GIS - Geographic Information System.

GOSIP - Government Open System Interconnect Profile.

GPS - Global Positioning System.

GPTC - Gary Public Transportation Corporation.

GUI - Graphical User Interface.

HAR - Highway Advisory Radio.

HAZMAT - Hazardous Material(s).

HOL - High Orders Language.

HOV - High Occupancy Vehicle.

HP - Hewlett Packard.

HUFSAM - Highway Users Federation for Safety and Mobility.

HVAC - Heating, Ventilation, Air Conditioning.

IBM - International Business Machines.

ICOP - Integrated Corridor Operations.

ICS - Interface Control Specification.

IDAPI - Integrated Database Application Programming Interface.

IDEM - Indiana Department of Environmental Management.

IDOT - Illinois Department of Transportation.

IEEE - Institute of Electrical and Electronics Engineers.

IEN - Information Exchange Network.

IGOSS - Industry / Government Open Systems Specification.

IMS - Incident Management Software.

INDOT - Indiana Department of Transportation.

IP Address - Internet Protocol Address.

IRC - Internet Relay Chat program.

IRP - International Registration Plan.

ISAM - Indexed Sequential Access Method.

ISDN - Integrated Services Digital Network.

ISP - Information Service Providers.

ISP - Internet Service Provider.

ISTEA - Intermodal Surface Transportation Efficiency Act.

ISTHA - Illinois State Toll Highway Authority.

ITE - Institute of Transportation Engineers.

ITIS - International Traveler Information Interchange Standard.

ITS - Intelligent Transportation Systems.

IUTRC - Illinois Universities Transportation Research Consortium.

IVHS - Intelligent Vehicle Highway System, predecessor to ITS.

kbps - kilobytes per second.

LAN - Local Area Network.

LDS - Landline Data System.

LORAN-C - Long Range Land-based radio navigation system operated by the U.S. Coast Guard as a public service.

LRMS - Location Referencing Message Specification

LRS - Location Referencing System.

LSB - Least Significant Bit.

MB - Megabyte (10<sup>6</sup> Bytes).

Mbps - megabits per second.

MCSAP - Motor Carrier Safety Assistance Program.

METRA - Metropolitan Rail Authority.

MMTIS - Multi-Modal Traveler Information System.

MnDOT - Minnesota Department of Transportation.

MOE - Measure of Effectiveness.

MPO - Metropolitan Planning Organization.

MRB - Management Request Brokers.

NCSA - National Center for Supercomputing Applications.

NFS - Network File System.

NHS - National Highway System.

NHTSA - National Highway Traffic Safety Administration.

NIST - National Institute of Standards and Technology.

NTCIP - National Transportation Communication for ITS Protocol.

NTSC - National Television Standards Committee.

NWCD - Northwest Central Dispatch.

OAM - Operations Administration and Maintenance.

ODBC - Open Database Connect.

OMG - Object Management Group.

OOA - Object Oriented Analysis.

OOD - Object Oriented Design.

OOOP - Object-Oriented Programming.

OpenVMS - DEC's Open VMS Operating System.

OS/2 - IBM's PC Operating System 2.

OS7 - Apple's Operating System 7.

OSE - Open System Environment.

OSF - Open Software Foundation.

OSI - Open System Interconnect.

OT - Object Technology.

OURS - Open User Recommend Solutions.

PARS - Paratransit Automated Routing System.

PCD - Personal Communications Device.

PCD - POSIX Conformance Document.

PDA - Personal Digital Assistant.

PIC - Public Information Center.

POSIX - Portable Operating System Interface UNIX.

PPP - Point-to-Point Protocol.

PTG - Parsons Transportation Group.

QA - Quality Assurance.

QC - Quality Control.

RAM - Random Access Memory.

RBDS - Radio Broadcast Data System.

RDA - Remote Data Access.

REVLAC - Reversible Lane Control.

RISC - Reduced Instruction Set Computer.

RMS - Ramp Metering System.

RPC - Remote Procedure Calls.

RPCGEN Tools - Remote Procedure Call Generation utility.

RTA - Regional Transportation Authority.

SAE - Society of Automotive Engineers.

SCADA - Surveillance Control and Data Acquisition.

SDD - System Definition Document.

SEDP - Strategic ITS Early Deployment Plan.

SEWRPC - Southeastern Wisconsin Regional Planning Commission.

SLIP - Serial Line Internet Protocol.

SMTP - Simple Mail Transfer Protocol.

SNA - Simple Network Architecture.

Sonet - Synchronous Optical NETwork.

SOS - Senior Executive Officers for Open Systems.

SQL - Structured Query Language.

SQL2 - SAG's Structured Query Language version 2.

SRA - Strategic Regional Arterial.

SSI - Surface Systems Incorporated.

SVID - System Five (V) Interface Definition.

SVRS - Stolen Vehicle Recovery System.

SWIM - Southeast Wisconsin Incident Management.

TATS - Traveler Advisory Telephone System.

TBD - To Be Determined.

TCIP - Transit Communications Interface Protocols.

TCP/IP - Transmission Control Protocol/Internet Protocol.

TCT - Traffic Control Technologies.

TDD - Telephone Device for the Deaf.

TIC - Traffic Information Center, also Traveler Information Center.

TIGER - Topologically Integrated Geographic Encoding & Referencing files.

TIS - Traveler Information System.

TMC - Traffic Management Center.

TMS - Traffic Management System.

TOC - Traffic Operations Center.

TP - Transaction Processor.

TRB - Transportation Research Board.

TSC - Traffic Systems Center.

TT - Tra<sup>v</sup>el Time.

TTM - Traffic and Transit Management Workgroup of the GCM Corridor.

TUXEDO - UNIX International's Transaction processor.

TVMS - Transit Vehicle Management System.

UDP - Universal Data Protocol.

UI - UNIX International.

UIC - University of Illinois at Chicago.

UIC-EECS - University of Illinois at Chicago - Electrical Engineering and Computer Science Department.

URL - Uniform Resource Locator.

USDOT - United States Department of Transportation.

USL - UNIX Standards Lab.

VAR - Value Added Reseller.

VDS - Video Detection System.

VME - Versa Module Europa.

VMS - Variable Message Sign.

VNIS - Vehicle Navigation and Information Systems.

VT - Virtual Terminal.

WAIS - Wide Area Information Servers.

WAN - Wide Area Network.

WIM - Weigh in Motion.

Windows NT - Microsoft's New Technology Windows Operating System.

WisDOT - Wisconsin Deartment of Transportation.

WSDOT - Washington State Deartment of Transportation.

WWW - World Wide Web.

WYSIWYG - What You See Is What You Get.

XPG - X/Open Portability Guide.

XVT - Extensible Virtual Tool.

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