

State of California

9-1-1 OPERATIONS MANUAL

GLOSSARY

This glossary defines commonly used telecommunication industry, and 9-1-1 related, terminology that may be found in this manual. A more detailed glossary may be found at the National Emergency Number Association (NENA) website, www.nena.org, (select “Standards and Other Documents”, then “NENA Master Glossary Of 9-1-1 Terminology”).

9-1-1 – A three digit telephone number to facilitate the reporting of an emergency requiring response by a public safety agency.

9-1-1 ADVISORY BOARD – See *CALIFORNIA 9-1-1 ADVISORY BOARD*

9-1-1 COUNTY COORDINATOR – Often referred to as “9-1-1 Jurisdictional Authority”. See “CHAPTER VIII, 9-1-1 County Coordinator” of this manual.

9-1-1 DATABASE – The California 9-1-1 Database is a system made up of two separate elements. The Automatic Location Information (ALI) database, the repository that stores and provides ALI; and, the database management system (DBMS), the database engine that is used to manage and combine adds, moves, and changes to the 9-1-1 database.

9-1-1 NETWORK – See *CALIFORNIA 9-1-1 NETWORK*

9-1-1 OFFICE – See *CALIFORNIA 9-1-1 EMERGENCY COMMUNICATIONS OFFICE*

ABANDONED CALL – A call placed to 9-1-1 in which the caller disconnects before the call can be answered by the Public Safety Answering Point (PSAP).

ADVANCED MOBILE PHONE SERVICE (AMPS) – The analog radio interface utilized in cellular telephone systems.

ALTERNATE ANSWER – A feature that allows California 9-1-1 Network calls to be redirected to a preselected alternate PSAP at a different location in the event of an equipment or network failure. The alternate PSAP would be advised that calls need to be redirected to their PSAP and the alternate PSAP would then activate the feature.

ALTERNATIVE LOCAL EXCHANGE CARRIER (ALEC) – See *Local Exchange Carrier (LEC)*

AMERICANS WITH DISABILITIES ACT (ADA) – Federal Legislation, passed into law July 26, 1990, that prohibits discrimination on the basis of disability.

ANSWERING POSITION – A telephone station or console within a PSAP that answers incoming 9-1-1 calls.

AUTOMATIC CALL DISTRIBUTOR (ACD) – Equipment that automatically distributes incoming calls to available PSAP answering positions in the order they are received; then queues calls, if necessary, until an answering position becomes available.

AUTOMATIC CALL ROUTING – See *SELECTIVE ROUTING*

AUTOMATIC COLLISION NOTIFICATION (ACN) – The process of identifying that a motor vehicle has been involved in a collision, collecting data from sensors in the vehicle, and communicating that data to an ACN Call Center or PSAP.

AUTOMATIC LOCATION IDENTIFICATION (ALI) – The automatic display at the PSAP of the 9-1-1 caller’s telephone number, the address/location of the telephone device, and supplementary emergency services information of the location from which a call originates.

AUTOMATIC NUMBER IDENTIFICATION (ANI) – The automatic display of the telephone number associated with the access line from which a call originates.

BUSY HOUR – The hour each day with the greatest call volume.

CALIFORNIA 9-1-1 ADVISORY BOARD – This board was established, effective January of 2004. Senate Bill 911, as chartered, directs the DGS/TD to consult regularly with specified agencies, officials, and entities, including local representatives from cities and counties to accomplish its responsibilities with regard to management of the delivery of 9-1-1 calls throughout the State.

CALIFORNIA 9-1-1 EMERGENCY COMMUNICATIONS OFFICE (9-1-1 OFFICE) – The 9-1-1 Office is directed to administer funding for equipment and services related to the delivery of 9-1-1 calls in California based upon laws passed by the State Legislature, as defined in California Government Code, Section 53100 et seq.; and, the California Revenue and Taxation Code, Section 41001 - 41019 et seq., Emergency Telephone Users Surcharge Act. (See DGS/TD)

CALIFORNIA 9-1-1 NETWORK – Provides an enhanced infrastructure to carry 9-1-1 calls from the 9-1-1 caller's location in the Public Switched Telephone Network (PSTN) to the appropriate PSAP via wireline (landline), wireless, VoIP, and TSPs.

CALIFORNIA PUBLIC UTILITIES COMMISSION (CPUC) – The CPUC regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises, within California.

CALL DETAIL RECORD (CDR) – The data information (record of incoming call, ANI, trunk number, time of call seizure, time of answer, time of transfer and time of termination) sent to the ALI computer by a remote identifying device; and, may be set up to send to a PSAP printer.

CALL TAKER – As used in this manual, an agent of a PSAP who answers 9-1-1 emergency calls.

CALNENA – Title of the California Chapter of the National Emergency Number Association.

CELL SECTOR – One face of a cell antenna (typically 3-sided) that operates independently of the other sectors.

CELL SITE – The antenna array, base station equipment, and supporting structure (usually a tower) that is the local point of interface between a wireless phone device and a wireless network. Most cell sites have 3 sectors (or antennas). Cell sites having only one antenna providing 360 degree coverage are referred to as omni-directional sites.

CELLULAR SERVICE – See *WIRELESS SERVICES*

CENTRALIZED AUTOMATIC MESSAGE ACCOUNTING (CAMA) – An in-band multi-frequency signaling protocol used throughout 9-1-1 networks in the United States to deliver the ANI of the 9-1-1 caller from the local central office to the selective router and/or PSAP. The CAMA signaling protocol is limited to 8 digits. A number plan digit (NPD) is used to encode the area code of the caller so that a full 10 digit number can be displayed at the PSAP.

CENTRAL OFFICE (CO) – The smallest subdivision within the telephone switching system, the Central Office is the Local Exchange Carrier facility where access liens are connected to switching equipment for connection to the Public Switched Telephone Network. A Central Office is sometimes called a "wire center".

CHP – California Highway Patrol

CLEC – See *LOCAL EXCHANGE CARRIER* in this glossary or refer to "CHAPTER IX – CLEC" of this manual.

COMMERCIAL MOBILE RADIO SERVICE (CMRS) – A category of wireless telephone service regulated by the FCC that includes both cellular and PCS telephone service. See *Wireless Services*.

COMPETITIVE LOCAL EXCHANGE CARRIER – See *Local Exchange Carrier*

COMPUTER-AIDED DISPATCH (CAD) – A computer based system which aids PSAP 9-1-1 call takers by automating selected call taking, dispatching, and record keeping activities.

CONSOLIDATED PSAP – A PSAP where one or more public safety agency PSAPs choose to operate as a single PSAP.

CONTIGUOUS AGENCY – A public agency whose area of responsibility shares a common jurisdiction boundary.

COUNTY COORDINATOR – Often referred to as “9-1-1 Jurisdictional Authority”. See “*CHAPTER VIII, 9-1-1 COUNTY COORDINATOR*” of this manual.

CUSTOMER PREMISE EQUIPMENT (CPE) – Equipment supplied by an equipment service provider and resides at the customer site.

DEPARTMENT OF GENERAL SERVICES, TELCOMMUNICATIONS DIVISION (DGS/TD) – The DGS/TD is organizationally positioned in California State government under the Secretary of State and Consumer Services Agency. The California 9-1-1 Emergency Communications Office (9-1-1 Office) is positioned within the DGS/TD.

DGS/TD – See *DEPARTMENT OF GENERAL SERVICES, TELECOMMUNICATIONS DIVISION*

DIAL BACKUP – PSAP dial-up phone lines designed for use as a backup in the event of an ALI failure to the PSAP via the 9-1-1 Network.

DIRECT DISPATCH METHOD – An operational procedure where 9-1-1 call answering and dispatching are done by the 9-1-1 call takers at a single PSAP.

DIRECT ROUTING – As used in this manual, refers to wireless carriers routing their subscriber’s 9-1-1 call directly to the appropriate local PSAP for emergency response. This is an alternative to the historical practice of sending all calls to the CHP, where calls may not be answered due to call volume or the 9-1-1 caller may wait in queue, then the CHP transfers the 9-1-1 caller to the appropriate local PSAP.

E9-1-1 – See *ENHANCED 9-1-1*

EMERGENCY MEDICAL SERVICE (EMS) – Response centers for fire, hospital, poison control, etc.

EMERGENCY SERVICE NUMBER (ESN) – Numeric routing code assigned by the 9-1-1 County Coordinator that describes a particular combination of telltales (law enforcement, fire, medical). ESNs are used by selective routers direct 9-1-1 calls to the appropriate PSAP for that jurisdiction.

EMERGENCY SERVICES QUERY KEY (ESQK) – See *PSEUDO AUTOMATIC NUMBER IDENTIFICATION*

EMERGENCY SERVICES ROUTING KEY (ESRK) – A 10-digit number correlated to a wireless ESN that is used to route wireless emergency calls through the California 9-1-1 Network to the appropriate PSAP using non-call associated signaling (NCAS) format. The ESRK is used to retrieve the associated ALI data with the wireless call. These numbers are non-dialable. Also known in California as pANI, configured with NPA-511-XXXX.

EMERGENCY SERVICE ZONE (ESZ) – An area of a city, town, or county where the emergency services providers (law enforcement, fire, and medical) are the same throughout. ESZs are established by LECs working conjunction with 9-1-1 County Coordinators. ESZs are associated with ESNs for routing purposes.

EMERGING TECHNOLOGIES – New products and services to deliver network, business, and personal communications.

ENHANCED 9-1-1 (E9-1-1) – An emergency 9-1-1 network which includes network switching, database and PSAP premise elements capable of providing automatic location identification, caller routing, fixed transfer, selective routing, selective transfer, speed calling, and call back number. (*The successor system to what was known as “Basic 9-1-1” which is no longer deployed in California.*)

FEDERAL COMMUNICATIONS COMMISSION (FCC) – The FCC is an independent United States government agency. The FCC is charged with regulating interstate and international communications by radio, television, wire, satellite, and cable.

FORMAT 04 – A standard format to display ALI at the PSAP that adds the latitude, longitude, uncertainty and confidence fields for wireless service providers to send additional location information. Refer to “*CHAPTER IV – WIRELESS*” in this manual for more information.

GEOGRAPHIC INFORMATION SYSTEM (GIS) – A computer software system that enables one to visualize geographic aspects (electronic maps and data sets). It contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. It has the ability to query and analyze data in order to receive the results in the form of a map. It also can be used to graphically display coordinates on a map, i.e. Latitude/Longitude, from a wireless 9-1-1 call.

GLOBAL POSITIONING SYSTEM (GPS) – A system that uses various satellites to ascertain the location of a subject with a high degree of accuracy.

GRADE OF SERVICE – P.01 is the minimum recommended Grade of Service for 9-1-1 trunk groups. The probability (P), expressed as a decimal fraction, of a telephone call being blocked. P.01 is the grade of service reflecting the probability that one call out of one hundred during the busy hour will be blocked. (P.01 = one busy signal per 100 attempts.)

ILEC – See *LOCAL EXCHANGE CARRIER*

INCREMENTAL COSTS – Funding term, as used in this manual, for service and equipment costs necessary to implement or operate a 9-1-1 system approved by the 9-1-1 Office.

INCUMBENT LOCAL EXCHANGE CARRIER (ILEC) – See *LOCAL EXCHANGE CARRIER*

INTERNET PROTOCOL (IP) - A method by which data is sent from one computer to another on the Internet or other networks. See also Voice Over Internet Protocol.

INTELLIGENT WORKSTATION (IWS) – Computer based 9-1-1 answering position equipment that includes computer telephony integration.

LANDLINE – Informal term for the Public Switched Telephone Network (PSTN) access via an actual copper or fiber optic transmission line that travels underground or on telephone poles. Used to differentiate the “wireless” connectivity of a cellular or PCS system.

LOCAL EXCHANGE CARRIER (LEC) - A telecommunications carrier under the state/local Public Utilities Act that provide local exchange telecommunications services. Also known as Incumbent Local Exchange Carriers (ILECs), Alternate Local Exchange Carriers (ALECs), Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), Certified Local Exchange Carriers (CLECs), and Local Service Providers (LSPs).

LOGGING RECORDER – A voice-band audio and data recorder which records to and plays from a permanent storage media such as tape or disk. Logging recorders are typically multi-channel so as to simultaneously record from several sources.

MANAGEMENT INFORMATION SYSTEM (MIS) – A program that collects, stores, and collates data into reports enabling interpretation and evaluation of performance, trends, traffic capacities, etc.

MASTER STREET ADDRESS GUIDE (MSAG) – A table oriented database of street names and “house” number ranges within their associated communities defining Emergency Service Zones (ESZs) and their associated Emergency Service Numbers (ESNs) to enable proper routing of 9-1-1 calls.

MOBILE POSITION CENTER (MPC) – The MPC serves as the point of interface to the wireless network for the emergency services network. The MPC serves as entity which retrieves, forwards, stores and controls position data within the location network.

MOBILE SWITCHING CENTER (MSC) – The wireless equivalent of a Central Office, which provides switching functions from wireless calls and connects to the selective router.

NATIONAL EMERGENCY NUMBER ASSOCIATION (NENA) – The NENA is a not-for-profit corporation established in 1982 to further the goal of “One Nation, One Number”. NENA is a networking source and promotes research, planning and training.

NEXT GENERATION 9-1-1 NETWORK (NG9-1-1) – A system comprised of managed IP-based networks and elements that augment current E9-1-1 features, the next evolutionary step in the development of the 9-1-1 emergency communications system. In stages, NG9-1-1 will provide multimedia data capabilities for PSAPs and other emergency service organizations. For more information on NG9-1-1 in California, you may visit the 9-1-1 Office website, www.td.dgs.ca.gov/services/911 (scroll down and select “State of California Next Generation E9-1-1 Network (NGEN) Project”).

NOMADIC – In the context of location information to support IP based emergency services: A user is said to be nomadic if they are constrained within an access network such that their location can be represented as a definitive civic address for that network attachment. The user may move from one network attachment to another but cannot maintain a session during that move. If the user is able to move outside the definitive civic address without losing network attachment then the user is considered to be mobile, not nomadic.

NON-CALL ASSOCIATED SIGNALING (NCAS) – A methodology of delivering wireless E9-1-1 service over existing E9-1-1 networks without making major modifications to either the network or the CPE. NCAS solutions encode the wireless caller’s callback number, location, and routing information into a 10-digit ESRK to be delivered with the call, and use the existing ALI circuits for the PSAP to retrieve location information.

NONPUBLISHED NUMBER – A telephone number which is not listed in any telephone directory or in Directory Assistance records available to the general public.

NXX – A three digit code in which N is any digit 2 through 9 and X is any digit 0 through 9. Typically used in describing the “Exchange Code” (commonly referred to as a “prefix”) fields of a North American Numbering Plan telephone number. The full numbering system is in the format of “Area Code” + “Exchange Code” + “Line Number” or NPA-NXX-XXXX.

P.01 GRADE OF SERVICE – See *GRADE OF SERVICE*

PACKET – Term used in this glossary of VoIP as “packetized”. Logical grouping of information that includes a header containing control information and (usually) user data. Packets are most often used to refer to network layer units of data. In telecommunications, packet-switching these units of information carriage are individually routed between nodes over data links which might be shared by many other nodes. In packet switched networks, such as the Internet, the data is split up into packets, each labeled with the complete destination address and routed individually.

pANI – See *PSEUDO AUTOMATIC NUMBER IDENTIFICATION*

PERSONAL COMMUNICATIONS SERVICES (PCS) – See *WIRELESS SERVICES*

PRIMARY PSAP – The initial public safety answering point destination to which 9-1-1 calls are directed to through the California 9-1-1 Network.

PRIVATE BRANCH EXCHANGE (PBX) – A private telephone switch that is connected to the Public Switched Telephone Network (PSTN).

PROTOCOL – As used in VoIP in this manual: A set of rules or conventions that govern the format and relative timing of data in a communications network.

PSEUDO AUTOMATIC NUMBER IDENTIFICATION (pANI) – A 10-digit non-dialable number used for routing wireless and VoIP 9-1-1 calls. The pANI is also used for retrieving location information from third party database providers. See *EMERGENCY SERVICES QUERY KEY (ESQK)* and *EMERGENCY SERVICES ROUTING KEY (ESRK)*

PUBLIC AGENCY – As used in this manual and as defined in California Government Code, Section 53101: *“Public agency as used in this article, means the State, and any city, county, city and county, municipal corporation, public district, or public authority located in whole or in part within this State which provides or has authority to provide firefighting, law enforcement, ambulance, medical, or other emergency services”.*

PUBLIC SAFETY AGENCY – See *PUBLIC AGENCY*

PUBLIC SAFETY ANSWERING POINT (PSAP) – A Public Agency facility equipped and staffed with call takers operating under a common management which receives 9-1-1 calls and emergency event notifications for a defined geographic area and processes those calls and events according to a specified operational policy.

PUBLIC SWITCHED TELEPHONE NETWORK (PSTN) – The network of equipment, lines, and controls assembled to establish communication paths between calling and called parties in North America.

REDUNDANCY – Duplication of components, running in parallel, to increase reliability; a backup system (either a device or a connection) that serves in the event of primary system failure.

REFERRAL METHOD – A procedural method by which a PSAP refers a caller to a secondary telephone number in non-emergency cases.

RELAY METHOD – A procedural method by which a PSAP gathers information from a 9-1-1 caller and then verbally relays that information to the appropriate public agency for action.

RESPONSE AGENCY – The public safety agency having legal or consensual obligation to respond to a call for service.

SECONDARY PSAP – A public safety answering point to which 9-1-1 calls are transferred from a primary PSAP.

SELECTIVE ROUTER (S/R) – 9-1-1 S/Rs, sometimes referred to as 9-1-1 tandems, in California are Lucent #5ESS and Nortel DMS 100 switches. In addition to the usual dialtone and telephone features (such as call waiting, 3-way calling, etc.) to telephone service subscribers, these switches have been provisioned with specialized 9-1-1 software that provide features such as: automatic number identification; manual transfer; selective transfer; tandem-to-tandem capability; and, selective routing.

SELECTIVE ROUTING – The process by which a 9-1-1 call is directed to the appropriate PSAP based upon the caller's location information. See '*CHAPTER II, SYSTEM DESCRIPTIONS, "System" Two: 9-1-1 Database*' of this manual.

SELECTIVE TRANSFER – The capability to transfer a 9-1-1 call to a response agency by operation of one of several buttons typically designated as law enforcement, fire, and emergency medical; based on the ESN of the caller.

SERVICE PROVIDER – As used in this manual, a Service Provider is an entity providing one or more of the following 9-1-1 elements: network, CPE, or database service.

SIGNALING SYSTEM SEVEN (SS7)– An out-of-band digital signaling system used to provide routing information, call set-up, and other termination functions. SS7 is used extensively in both landline and wireless telephone networks.

STAR CODE – Star codes are pre-programmed in the selective router and allow PSAPs to transfer E9-1-1 calls to predetermined PSAPs with a single key or digit, while keeping the complete original ANI/ALI data retrieved with the original 9-1-1 call.

STATE EMERGENCY TELEPHONE NUMBER ACCOUNT (SETNA) – Pursuant to California Government Code and Revenue and Taxation Code a surcharge is collected by service providers from California service users for intrastate communication services, remitted to the California Board of Equalization, then transmitted to the State Treasurer to be deposited in the SETNA. The 9-1-1 Office administers the SETNA funding of equipment and services related to the delivery of 9-1-1 calls in California.

STEERING – As used in this manual, when ALI information is required by a PSAP for wireless and VoIP communications services, the two incumbent ALI providers must “steer” the ALI query to the appropriate third party database provider to do a look-up based on the Pseudo Automatic Number Identification (pANI) sent by the PSAP. See ‘*CHAPTER II, SYSTEM DESCRIPTIONS, “System” Two: 9-1-1 Database*’ of this manual.

SWITCHED NETWORK – A system that automatically routes communications between the calling and called person or between data equipment.

TELECOMMUNICATIONS DEVICE FOR THE DEAF (TDD) – Term used to describe communications devices (see Teletypewriter) used by the hearing impaired and/or speech impaired in order to communicate via the telephone network.

TELECOMMUNICATIONS DIVISION – See *DEPARTMENT OF GENERAL SERVICES/TELECOMMUNICATIONS DIVISION*

TELECOMMUNICATIONS RELAY SERVICES (TRS) – A federally mandated service provided by states that provide communication relay between TTY users and voice telephone users, via a third party, for communications assistance. See *VIDEO RELAY SERVICE (VRS)*

TELEMATICS – The system of components that supports two-way communication with a motor vehicle for the collection or transmission of information and commands.

TELEMATIC SERVICE PROVIDER (TSP) – A business that provides voice or data transmission services. These services are provided over a telecommunications network that transmits any combination of voice, video, and/or data between users. A TSP could be, but is not limited to, a Local Exchange Carrier (LEC), a wireless telecommunications provider, a Commercial Mobile Radio Service provider, or a PBX service provider.

TELETYPEWRITER (TTY) –A device capable of information interchange between compatible units using a dial up or private-line telephone network connection as the transmission medium. See *TELECOMMUNICATIONS DEVICES FOR THE DEAF (TDD)*

TIME DIFFERENCE OF ARRIVAL (TDOA) - A network-based wireless location technology that determines a mobile caller’s location by measuring and comparing the differences in a caller’s signal arrival times received at various cell sites.

TRANSFER METHOD – A procedural method where the PSAP redirects or transfers a 9-1-1 call to the appropriate responding agency. Important ANI/ALI information will be delivered with the 9-1-1 call when the call is transferred via a Star Code or preprogrammed speed dial button on a trunk through the California 9-1-1 Network . Calls transferred to a PSAP's seven digit number do not include valuable ANI/ALI information.

TRUNK – Typically, a communication path between central office switches, or between the 9-1-1 Central Office and the PSAP.

UNLISTED NUMBER – See *NONPUBLISHED NUMBER*

VIDEO RELAY SERVICE (VRS) – A service provided by common carriers and other vendors that provide third party communication relay between video telephone users using Internet connections and videophone or webcam and voice telephone users. Such services are located in call centers around the country.

VOICE over INTERNET PROTOCOL (VoIP) - Provides distinct packetized voice information in digital format using the Internet Protocol. The IP address assigned to the user's telephone number may be static (commonly used in home or business office) or nomatic (mobile). For more information on the deployment of VoIP in California, you may visit the 9-1-1 Office website, www.td.dgs.ca.gov/services/911 (scroll down and select "*State of California VoIP E9-1-1 Information*").

WIRE CENTER – A telephone company building that contains one or more central offices.

WIRELESS SERVICE PROVIDER (WSP) – Cellular, satellite or other radio based telephony or data transport commercial entity.

WIRELESS SERVICES – The family of telecommunications services under the heading of Commercial Mobile Radio Service. Includes Cellular Services, Personal Communications Services (PCS), and Commercial Mobile Radio Services (CMRS). For more information on the deployment of Wireless Services in California, you may visit CHAPTER IV of this manual and the 9-1-1 Office website, www.td.dgs.ca.gov/services/911 (scroll down and select "*State of California Wireless E9-1-1 Project*").