



# [ GLOSSARY OF TERMS ]

INTERNATIONAL BRIDGE, TUNNEL AND TURNPIKE ASSOCIATION

2016

## Disclaimer

This glossary is a practical and easy-to-use guide to toll industry terminology and vocabulary used around the world. While every effort has been made to present accurate and up-to-date definitions, this glossary should be used as a resource, not as an authority.

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**AAMVA**

American Association of Motor Vehicle Administrators represents the state & provincial officials in the United States and Canada who administer and enforce motor vehicle laws. AAMVA encourages uniformity & reciprocity among the states and provinces and develops model programs in motor vehicle administration, law enforcement and highway safety.

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**AASHTO**

American Association of State Highway and Transportation Officials (AASHTO) is an interest group based in Washington, DC, involved in research, advocacy and technical assistance. Primary focus is highways. AASHTO is also a standard setting organization.

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**ABCR**

Associação Brasileira de Concessionárias de Rodovias is the Association of Brazilian Road Concessionaires (ABCR)

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**ACC**

Adaptive Cruise Control. Also known as Autonomous Intelligent Cruise Control (AICC) and Intelligent Cruise Control (ICC). Dynamic speed and distance control in relation to the vehicle in front using on-board equipment.

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**Account**

Each OBU is assigned to a User's Account. The Account serves as the final destination for system transactions. For a pre-paid account the User periodically credits funds (from a Fiduciary) to the Account to offset the transaction cost.

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**Account Processor**

An Account Processor is a third party organization that processes Accounts and transactions for an Issuer. For example, retailers who issue credit cards often contract account processing to third party companies like Payment Tech. In tolling, third-party Account Processors often operate Customer Service Center (CSC) entities.

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**ACH**

The "Automated Clearinghouse" is a financial transaction network operated by the Federal Reserve. The ACH processes a number of different types of financial transactions including inter-bank transactions, credit card transactions, E-checks (a form of electronic payment), etc.

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**ACI**

Automobile Club d'Italia

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**ACM**

Automated Coin Machine - Unattended machines used for toll payment by coinage

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**ADAC**

Allgemeiner Deutscher Automobil Club e.V

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**ADT**

Average Daily Traffic

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**AENOR**

Asociación Española de Normalización: is the Spanish Association for Standards

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**AET**

All-Electronic Tolling - Technology which enables cashless toll collection, either through transponders and/or license plate readers, eliminating the necessity of stopping the vehicle to pay the toll. AET is sometimes referred to as "cashless" tolling.

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**AETC**

All-Electronic Tolling Conversion - Process of changing a toll collection method from manual cash payments to fully automated electronic payments.

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**AETIS**

Association of Electronic Toll and Interoperable Services - Association representing European Electronic Toll Services (EETS) providers as a stakeholder group with regard to the European Union (EU). <http://www.aetis-europe.eu/>

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**Aggregation**

Transaction processing costs in electronic toll collection can be a significant component of an Issuer's operating costs. To minimize this cost, Issuers often aggregate groups of transactions from Service Providers into a single transaction that is sent to the Fiduciary. This lowers the transaction cost by splitting the credit card transaction fee across a number of transactions. For example, a Customer Service Center (CSC) may collect all transactions for a period of time, and Aggregate those transactions into a single credit card charge to the User's card account. As a result the Authority pays only a single transaction fee.

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**AICC**

Autonomous Intelligent Cruise Control. Also known as Adaptive Cruise Control (ACC) and Intelligent Cruise Control (ICC). Dynamic speed and distance control in relation to the vehicle in front using on-board equipment.

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**AISCAT**

Associazione Italiana Società Concessionarie Autostrade e Trafori: is the Italian Association of Turnpikes, Tunnels, Bridges and Other Toll Road Concessionaire Companies.

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**ALI-SCOUT**

A Siemens navigation system having an in-vehicle interface that provides turn-by-turn visual and voice guidance.

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**ANPR**

Automatic Number Plate Recognition

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**ANSI**

American National Standards Institute

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**Application**

This is the software that runs on the On-Board Unit and RSU Application Platform. The Application contains the “brains” (i.e. logic) that conducts the transaction using the Public and Private Keys (see below).

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**Application Platform**

This is the computer that is collocated with the On-Board Unit and Roadside Unit. It runs the Application, or software that conducts the transaction.

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**APTA**

American Public Transportation Association - The American Public Transportation Association (APTA) advocates the advancement of public transportation. APTA members are public organizations that are engaged in the areas of bus, paratransit, light rail, commuter rail, subways, waterborne passenger services, and high-speed rail.

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**ASA**

Automatic Speed Adaptation. Various concepts aimed at limiting the vehicle speed in relation to different defined speeds (static, variable or dynamic) for certain road sections via various user interfaces (informative, supportive or compulsory). Also known as Intelligent Speed Adaptation (ISA).

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**ASECAP**

Association Européenne des Concessionnaires d'Autoroutes et d'Ouvrages à Péage (European Association of Operators of Toll Road Infrastructures). ASECAP is the only European professional association of toll motorway companies. It brings together 17 Full members (France, Italy, Ireland, Spain, Portugal, Austria, Greece, Croatia, Hungary, Slovenia, Serbia, Belgium, The Netherlands, the

United Kingdom, Norway, Denmark, Poland) and 4 Associate members (Morocco, Germany, Slovak Republic, Czech Republic) that manage a total network of over 28,000 km (tolling) and over 12,000 km (charging).

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### **ASETA**

Asociación de Sociedades Españolas Concesionarias de Autopistas, Túneles Puentes y Vías de Peaje: is the Spanish Association of Turnpikes, Tunnels, Bridges and Other Toll Road Concessionaire Companies.

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### **ASFA**

Association des Sociétés Françaises d’Autoroutes et d’Ouvrages à Péage: is the Federation of French Motorway and Toll Facility Companies. ASFA is a professional organization which promotes the concessionary system for its members.

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### **ATA**

American Trucking Associations - American Trucking Associations is the national trade association for the trucking industry. <http://www.truckline.com/>

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### **ATI**

Alliance for Toll Interoperability - Organization established to promote and implement toll collection interoperability among states and agencies. ATI's goals include establishing interstate customer video tolling and interoperability, establishing protocols & systems allowing for secure sharing of vehicle information and the investigation of RFID toll technology interoperability. ATI's membership consists exclusively of toll facility operators. <http://www.tollinterop.org/>

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### **ATIS**

Advanced Traveler Information System

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### **ATM**

Automatic Teller Machine - An electronic telecommunications device that enables the customers of a financial institution to perform financial transactions without the need for a human cashier or clerk

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### **ATMS**

Advanced Traffic Management System

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### **ATRACIT**

Advanced Traffic Control In Historical Town (Czech project)

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## **Authority**

A legal jurisdiction created to operate tolled infrastructure (e.g., E-470 Public Highway Authority, New York State Thruway Authority, North Texas Tollway Authority). Also known as the “District” in some states.

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## **Automatic/Automated Vehicle Identification**

AVI. Automated Vehicle Identification. A system which transmits signals from an on-board tag or transponder to roadside receivers for uses such as electronic fee collection and stolen vehicle recovery.

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## **Autonomous Vehicle**

An autonomous vehicle is a vehicle that is capable of sensing its environment and navigating without human input. Autonomous vehicles detect surroundings using radar, lidar, GPS, Odometry, and computer vision. Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage.

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## **AUTOPASS**

autoPASS is an electronic toll collection system used in Norway. It allows collecting road tolls automatically using electronic radio transmitters and receivers operating at 5.8 GHz.

## **AVC**

Automatic/Automated Vehicle Classification. Determines the type of vehicle (car, truck, bus, etc.) and the vehicle characteristics (weight, number of axles, tires, etc.) as required for toll classification.

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## **AVC**

Automatic/Automated Vehicle Classification - Determines the type of vehicle (car, truck, bus, etc.) and the vehicle characteristics (weight, number of axles, tires, etc.) as required for toll classification.

## **AVI**

Automated Vehicle Identification. A system which transmits signals from an on-board tag or transponder to roadside receivers for uses such as electronic fee collection and stolen vehicle recovery.

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## **Back Office**

Database system that enables registration and maintenance of customer accounts; facilitates funds transfer between participating Authorities. See also Customer Service Center (CSC).

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## **Bandwidth**

The amount of data that can be passed along a communications channel in a given period of time.

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**Barrier System**

A toll system, parking facility, etc. wherein the customer must come to a partial or full stop at a barrier until the payment has been processed.

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**Beacon**

Also known as Road-Side Unit and RSU. The roadside infrastructure component of an ETC system; a receiver or transceiver that identifies the On-Board Unit in the vehicle, and identifies the account, permitting an electronic toll transaction to occur.

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**CARDME**

Concerted Action for Research and Demand Management in Europe . A European Commission project on ETC interoperability that involves national administrations.

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**CCTV**

Closed Circuit Television

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**CDMA**

Code Division Multiple Access, a cellular technology. See also: Global System for Mobile Communications (GSM).

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**CEN**

Comité Européen de Normalisation: is the European Committee for Standardization.

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**CEN 278**

CEN TC278 is the Technical Committee #278 responsible for Road Transport and Traffic Telematics, whose Working Group 9 has agreed upon the norms for ETC based upon DSRC 5.8 GHz.

**CENELEC**

Comité Européen de Normalisation Electrotechnique: is the European Committee for Electrotechnical Standardization

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**Certificate Authority**

A Certificate Authority (CA) is an organization that issues and manages security credentials and Keys for message encryption and decryption. As part of Public Key Infrastructure (PKI), the CA provides certificates (Keys) to Issuers. The Keys are used to encrypt, sign and secure Electronic Payment Services (EPS) transactions.

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**CESARE**

Common EFC System for an ASECAP Road tolling European system. CESARE is a project set up by ASECAP and partially funded by the European Union with the intention of specifying, designing,



developing, promoting and implementing a common interoperable Electronic Fee Collection System (EFC) on European toll roads.

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### **Classify**

To determine the category of the vehicle to be tolled based upon its specific structure, weight, axles, tires, etc.

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### **Clearinghouse (Financial)**

A Clearinghouse Network routes transactions for reconciliation. The term applies to all types of financial transactions, not just toll transactions. Examples of Clearinghouses (or Clearinghouse Networks) include the Federal Reserve Automated Clearinghouse Network (ACH), VISA, MasterCard, American Express, Pulse & Cirrus. It is important to note the distinction between a Clearinghouse and a Fiduciary (defined below): A Fiduciary converts transactions into Funds, a Clearinghouse routes transactions to Fiduciaries.

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### **Clearinghouse (Toll Authorities)**

Provides all requisite financial services to transfer monies between participating Authorities; provides accurate and timely downloads of customer accounts, violations and all other information necessary for an interoperable system.

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### **Closed Barrier System**

A facility that has both mainline toll barriers as well as ramp toll plazas, placed such that no toll-free traffic movement is permitted. (examples: the Sam Houston Tollway, E-470)

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### **Closed System**

A system that monitors your entrance and exit and calculates the toll on the basis of distance traveled.

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### **Closed Toll Section**

Section of a toll road where an entry ticket is needed and where the amount of the toll to be paid is subject to the distance traveled.

### **Concession**

A grant of a tract of land made by a government or other controlling authority in return for stipulated services or a promise that the land will be used for a specific purpose. In some cases this will mean the exclusive right to market some product like fuel or food on a turnpike. In the U.S. it may relate to leased space in a rest area. In some instances, both inside and outside the U.S. the concession is the tolled facility itself and a private company operates the facility for a profit under agreed upon guidelines or payments.

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### **Concessionaire Company**

Mainly in Europe: A company which is awarded, by a concessioning Administration, the operation of a toll facility. Usually the contract includes the design, construction, financing and operation of the facility.

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### **Congestion Pricing**

Congestion Pricing (also called Value Pricing) refers to variable road pricing (higher prices under congested conditions and lower prices at less congested times and locations) intended to reduce peak-period vehicle trips. Tolls can vary based on a fixed schedule, or they can be dynamic, meaning that rates change depending on the level of congestion that exists at a particular time. It can be implemented when road tolls are implemented to raise revenue, or on existing roadways as a demand management strategy to avoid the need to add capacity. Some highways have a combination of un-priced lanes and Value Priced lanes, allowing motorists to choose between driving in congestion and paying a toll for an un-congested trip. This is a type of Responsive Pricing, meaning that it is intended to change consumption patterns (Vickrey, 1994).

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### **Connected Vehicle**

Connected Vehicle Program - The U.S. DOT Research and Innovative Technology Administration (RITA) \ ITS Joint Program Joint Program Office (ITS JPO) is the major sponsor of the Connected Vehicle program. Connected Vehicle focuses on localized Vehicle-to-Vehicle, Vehicle-to-Infrastructure and Vehicle-to-Device Systems (V2X) to support safety, mobility and environmental applications using vehicle Dedicated Short Range Communications (DSRC)\Wireless Access for Vehicular Environments (WAVE). This program has support from most of the automakers and a number of state departments of transportation.

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### **Contract Issuer**

Organization that issues contracts and which is responsible for payment to the Transport Service Provider (TSP) on behalf of the customers.

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### **Contributo (Contribution)**

Tribute levied on certain private subjects, justified by the fact that these subjects benefit from the results of a given public activity. It shares the characteristics of both tax (tassa)--being the consideration for a service, and tax (imposta)--to be paid even if the subjects have not requested the service.

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**Cordon (Area) Tolls**

Cordon tolls are fees paid by motorists to drive in a particular area, usually a city center. Some cordon tolls only apply during peak periods, such as weekdays. This can be done by simply requiring vehicles driven within the area to display a pass, or by tolling at each entrance to the area.

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**Cross-lane read**

A phenomenon where the signal from a transponder is picked up by the reader or Roadside Unit (RSU) in a toll lane other than the lane the vehicle is traveling in. This can result in toll being applied to the wrong vehicle, double charges or lost transactions.

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**CSC**

Customer Service Center - A facility used to service customers.

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**CTOC**

California Toll Operators Committee - A collaborative organization of California's toll facility operators/owners, primarily concerned with developing protocols and resolving issues related to ETC interoperability.

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**DATEX**

A data exchange protocol, structured in a set of technical annexes, containing also a database of road traffic related events, standardized by the CEN.

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**DDE**

Direction Départementale de l'Équipement. A de-centralized department of the French Ministry of Transport made responsible to implement and to follow the national policy.

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**Dedicated ETC Lane**

A lane in which only electronic toll transactions are processed.

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**Dedicated Short Range Communication (DSRC)**

A short to medium range communications service that supports both Public Safety and Private operations engaged in roadside-to-vehicle and vehicle-to-vehicle communication environments. DSRC is meant to be a complement to cellular communications by providing very high data transfer rates in circumstances where minimizing latency in the communication link and isolating relatively small communication zones are important. Typically this refers to 5.9GHz communication.

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**DG INFSO**

European Commission - Directorate General for Information Society

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**DG TREN**

European Commission - Directorate General for Energy and Transport

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**DIMES**

Digital IMaging Enforcement System

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**DMI**

Danish Meteorological Institute

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**DMS**

Dynamic Message Sign. See Variable Message Sign

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**DMV Hold**

Department of Motor Vehicles Hold. A process whereby a vehicle's registration can't be renewed until any toll violations are settled with the toll agency.

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**DOT**

Department of Transportation - Agency (either state or federal) that oversees local or national transportation systems.

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**DPI**

Dots Per Inch (in photography)

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**DSRC**

Dedicated Short Range Communication - A short to medium range communications service that supports both Public Safety and Private operations engaged in roadside-to-vehicle and vehicle-to-vehicle communication environments. DSRC is meant to be a complement to cellular communications by providing very high data transfer rates in circumstances where minimizing latency in the communication link and isolating relatively small communication zones are important. Typically this refers to 5.9GHz communication.

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**EBITA**

Earnings before interest, taxes, and amortization (EBITA) refers to a company's earnings before the deduction of interest, taxes and amortization expenses. It is a financial indicator used widely as a measure of efficiency and profitability.

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**EC**

European Commission

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**EETS**

European Electronic Tolling Service - In 2004 the European Parliament and the Council of the European Union adopted a directive on the interoperability of electronic road toll systems, laying down the general conditions for EETS to be used on the entire EU road network. The Commission adopted the EETS definition in October 2009.

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**EFC**

Electronic Fee Collection

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**EFC Operator**

Organization that is empowered by toll system agency to collect the toll and operate the Electronic Fee Collection (EFC) infrastructure.

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**EGNOS**

European Geostationary Navigation Overlay System

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**Electronic Funds Transfer**

Process by which payments associated with toll passage, parking fees, etc. are communicated from the Authority maintaining the Customer account to the Authority providing the service.

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**Electronic Toll Collection**

ETC. The collection of tolls based the automatic identification and classification of vehicles using electronic systems.

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**EMS**

Emergency Medical Services

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**EMV**

(Europay, MasterCard, Visa) is the global standard that is helping ensure smart cards, terminals and other systems can interoperate. The major card associations have set a January 2006 deadline for Europe-wide migration to EMV cards.

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**EPS**

Electronic Payment Services. Any use of an On-Board Unit to pay for a service.

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**EPSNIS**

Electronic Payment Services National Interoperability Specification - Specification developed by OmniAir and patterned after the specifications used by banks and credit card companies to handle

billions of card payments, EPSNIS is designed to be the basis for interoperable back office processing of toll payments.

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### **ERP**

Electronic Road Pricing - Electronic Road Pricing is a system used for managing road congestion. Based on a pay-as-you-use principle, motorists are charged when they use priced roads during peak hours. ERP rates vary for different roads and time periods depending on local traffic conditions. This encourages motorists to change their mode of transport, travel route or time of travel.

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### **ERTICO**

ERTICO - ITS Europe - ERTICO is a network of Intelligent Transport Systems and Services stakeholders in Europe connecting public authorities, industry players, infrastructure operators, users, national ITS associations and other organisations together. <http://www.ertico.com/ertico-its-europe/>

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### **e-Safety**

Joint initiative of the European Commission (DG Enterprise and DG Information Society), the industry and other stakeholders that aims to accelerate the development, deployment and use of Intelligent Integrated Safety Systems, that use information and communication technologies in intelligent solutions, in order to increase road safety and reduce the number of accidents on European roads.

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### **ETC**

Electronic Toll Collection. The collection of tolls based the automatic identification and classification of vehicles using electronic systems.

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### **ETC Lane**

A toll lane that accepts ETC as toll payment from a driver, without having to stop.

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### **ETSI**

European Telecommunication Standardization Institute

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### **ETTM**

Electronic Traffic and Toll Management

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### **EU**

European Union

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### **European EFC service**

European Electronic Fee Collection Service. Complementary service to the national electronic toll services of the Member States, that shall ensure the interoperability, for users, of the electronic toll systems that have already been deployed in the Member States and of those to be deployed in the

future in respect of the EC Directive throughout the territory of the Member States of the European Union.

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### **Eurovignette**

In Europe a sticker proving that a distance related toll has been paid by the user. An EC Directive is in the process of being approved introducing the Eurovignette in Member States for HGV

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### **EVR**

Electronic Vehicle Registration - Electronic vehicle registration (EVR) uses radio frequency identification technology (RFID) to electronically identify vehicles and validate the identity, status, and authenticity of vehicle data. A unique electronic identification code is established for each vehicle via a tamper-resistant windshield sticker tag, and each unique code is linked to a record in the centralized owner/vehicle-based database. EVR can be used to automate vehicle registration, reduce car theft and other fraudulent activities and increase tax and toll revenues.

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### **Expected TCS Revenue**

Expected TCS Revenue at manual lanes and mainline Automated Vehicle Identification (AVI) lanes is calculated by multiplying the number of transactions in each Automatic Vehicle Classification (AVC) class by the toll due for that AVC class at that location. Expected TCS Revenue at ramp locations is calculated by multiplying the flat toll due for the ramp by the number of transactions regardless of AVC class.

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### **Express Lane**

A popular naming convention used to depict and differentiate it from other types of Electronic Toll Collection (ETC) lanes, an Express Lane is an ETC lane where vehicles pass the collection point (Gantry, plaza, Road-Side Unit) at highway speeds without stopping.

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### **Expressway**

A High Capacity Road (HCR) free of toll.

### **E-ZPass**

The E-ZPass Group is an association of 25 toll agencies in 15 states that operates the ... E-ZPass electronic toll collection program. E-ZPass ... is the world leader in toll interoperability, with more than 24 million E-ZPass devices in circulation.

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### **FAIR lanes**

Fast And Intertwined Regular lanes

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### **FasTrak**

The trade name of electronic toll collection in California (e.g. E-Z Pass, Sun Pass, Peach Pass, etc.)

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**Federal Register**

The Federal Register is the daily publication of the US Federal Government documenting proposed rules, final rules and public notices of federal agencies as well as Presidential actions.

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**FHWA**

The Federal Highway Administration is a part of the U.S. Department of Transportation and is headquartered in Washington, D.C., with field offices across the United States.

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**Fiduciary**

The Fiduciary as used here is a bank, credit card company, etc. that functions as the funds source to replenish the User's Account.

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**Free Flow**

See Open Road Tolling.

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**FTE**

Florida's Turnpike Enterprise - Florida's Turnpike Enterprise is a business unit of the Florida Department of Transportation (FDOT). The FTE is responsible for all operations on every FDOT-owned and operated toll road and bridge, representing about 600 miles of roadway and 80 percent of all toll facilities in Florida.

**Funds**

Money remuneration for transactions.

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**GALILEO**

The GALILEO satellite radio navigation system, an initiative launched by the European Union and the European Space Agency, is based on a constellation of 30 satellites and ground stations providing information concerning the positioning of users in many sectors, including transport.

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**Gantry**

A physical structure, generally located over the toll lanes, used for the location of ETC equipment, signs, etc.

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**GIS**

Geographic Information System. A data management system designed to collect analyse and report geographic and demographic information.

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**GNSS**

Global Navigation Satellite System



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**GPS**

Global Positioning System used for positioning and road segment identification. Similar to GALILEO.

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**Gridlock**

The situation on a road where demand exceeds capacity to the extent that traffic is rendered stationary for unacceptable periods.

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**GSM**

Global System for Mobile Communications

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**HCM**

Highway Capacity Manual. An engineering reference manual for road design.

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**HCR**

High Capacity Road

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**HGV**

Heavy Goods Vehicles. Typically refers to trucks over 3.5 tons

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**HMI**

Human-Machine Interface. A front-end user interface.

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**Hot Lanes**

High Occupancy Toll (HOT) lanes are High Occupancy Vehicle (HOV) lanes that also allow access to low occupancy vehicles if drivers pay a toll. It is a type of managed lane. This allows more vehicles to use HOV lanes while maintaining an incentive for mode shifting and raising revenue. HOT lanes are often proposed as a compromise between HOV lanes and Road Pricing.

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**HOV Lanes**

High Occupancy Vehicle lanes. Lanes typically reserved for vehicles with two or more occupants.

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**Hub**

Or “Clearinghouse Hub”, is a node on the Clearinghouse Network, interfaces to all other Hubs on the Clearinghouse Network.

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**IAG**

InterAgency Group. The E-Zpass InterAgency Group is the entity responsible for creating and administering E-Zpass, a collaboration between 21 member agencies on the East Coast of the United States that provides interoperable electronic tolling.

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**IAS**

International Accounting Standards

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**IBTTA**

International Bridge, Tunnel and Turnpike Association is the worldwide alliance of toll operators and associated industries that provides a forum for sharing knowledge and ideas to promote and enhance toll-financed and other direct-user-fee-financed transportation services.

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**ICC**

Intelligent Cruise Control. Also known as Autonomous Intelligent Cruise Control (AICC) and Adaptive Cruise Control (ACC). Dynamic speed and distance control in relation to the vehicle in front using on-board equipment.

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**IntelliDrive**

A Service Mark of the U.S. DOT. IntelliDrive<sup>SM</sup> is a suite of technologies and applications using wireless communications to provide connectivity among all types of vehicles; between vehicles and roadway infrastructure; and among vehicles, infrastructure and wireless consumer devices to improve safety, mobility and environment.

[http://www.its.dot.gov/presentations/pdf/MW\\_IntelliDrive\\_Overview.pdf](http://www.its.dot.gov/presentations/pdf/MW_IntelliDrive_Overview.pdf).

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**InterAgency Group**

IAG. The E-Zpass InterAgency Group is the entity responsible for creating and administering E-Zpass, a collaboration between 21 member agencies on the east coast of the United States, that provides interoperable electronic tolling.

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**Interoperability**

A cooperative arrangement established between public and/or commercial entities (Authorities, parking lot operators, etc.) wherein tags issued by one entity will be accepted at facilities belonging to all other entities without degradation in service performance.

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**Interstate System Construction Toll Pilot Program**

This U.S. DOT Federal Highway Administration Program authorizes up to three facilities on the Interstate System to toll for the purpose of financing the construction of new Interstate highways.

[http://ops.fhwa.dot.gov/tolling\\_pricing/interstate\\_constr.htm](http://ops.fhwa.dot.gov/tolling_pricing/interstate_constr.htm)

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**IO-EFC**

Interoperable Electronic Fee Collection - National and/or global Interoperability among various electronic toll collection technologies .

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**IOP**

Interoperability - National and/or global Interoperability among various electronic toll collection technologies.

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**IRG**

Individual Route Guidance. Route guidance provided to the individual user at each choice point by means of in-vehicle equipment receiving dynamic data.

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**ISA**

Intelligent Speed Adaptation. Various concepts aimed at limiting the vehicle speed in relation to different defined speeds (static, variable or dynamic) for certain road sections via various user interfaces (informative, supportive or compulsory). Also known as Automatic Speed Adaptation (ASA).

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**ISF**

Internal Service Fund - In government accounting, a fund used to account for goods or services given to one department by another on a cost reimbursement basis. The fund is profit and loss oriented and hence follows accrual accounting.

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**ISO**

International Organization for Standardization.

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**Issuer**

The organization that is responsible for issuing accounts and Private Keys to be used in the Transponder employed by a User to engage in an electronic payment service. In the US today, the Issuer is generally an Authority, but there are examples where it is a bank or credit card company in Europe. Note that the Issuer often employs a third party Account Processor (Customer ServiceType Center) to process the accounts.

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**ITS**

Intelligent Transportation Systems. A broad range of diverse technologies, including information processing, communications, control and electronics, which, when applied to our transportation system, can save time, money and lives.

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## **IVHS**

Intelligent Vehicle Highway Society (U.S.A.)

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## **JPO**

Joint Programs Office - The U.S. DOT's ITS (Intelligent Transportation Systems) Joint Program Office focuses on intelligent vehicles, intelligent infrastructure and the creation of an intelligent transportation system through integration with and between these two components. The Federal ITS program supports the advancement of ITS through investments in major research initiatives, exploratory studies and a deployment support program including technology transfer and training. [http://www.its.dot.gov/its\\_jpo.htm](http://www.its.dot.gov/its_jpo.htm)

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## **Key Service**

Keys must adhere to rules in order to be useful. The type of encryption used will determine some of those rules, for example key size. At a minimum, each Private Key should be unique. A Key Service is an organization that provides and manages Keys for an Application. The Key Service implements rules that insure that all Keys issued adhere to the policies for the Application. The Internet, which uses Keys to ensure privacy, has made Key Services something of a commodity.

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## **Keys**

Keys (Public and Private) are numbers that are used to encrypt data. In our case, the data being encrypted is in effect, the secure transaction. Keys come in two types: Public and Private. The User holds the Private Key in secret. Public Keys are tied to a specific Private Keys, with the possibility of having many Public Keys for each Private Key. The Public Key is used by Service Providers to decrypt and verify transactions encrypted by a Private Key on an On-Board Unit.

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## **LAN**

Local Area Network

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## **Lane Controller**

A specific type of in-lane (generally, but not always) equipment used to respond to or detect in-lane sensors (AVI Reader, treadles, beam detectors, loops, etc.) and using precision algorithms, make appropriate decisions (raise gate, take violation image, activate driver feedback lights, etc.).

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## **Leakage**

Transactions where no revenue is collected, or revenue is not fully collected. (Does not include non-revenue or violation transactions wherein the vehicle is either not permitted to cross the barrier or where a violation image is taken.)

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## **Liber-t**

Commercial brand of the common interoperable Electronic Fee Collection (EFC) used for light vehicles in the French concession context.

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## **Loop Detector**

A vehicle sensor used either to count or detect the presence of a vehicle in the toll lane. The metallic mass of a vehicle located above wires laid in the concrete produce electromagnetic signals that can be sensed electronically.

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## **LSVA**

Leistungsabhängige Schwerverkehrsabgabe - The LSVA (Leistungsabhängige Schwerverkehrsabgabe) is a nationwide distance-related road fee that replaced an annual flat fee imposed on heavy vehicles in Switzerland. The LSVA legislation resulted from treaties with the European Union when weight limits on transport vehicles carrying goods across the Alps were increased from 28 tons to 40 tons. Studies forecast that this weight limit increase would double heavy goods traffic on the Swiss road network by 2015 unless the LSVA were enacted. The intent of the measure was to encourage rail transport rather than road transport. [http://www.osmose-os.org/documents/212/Switzerland\\_pric.pdf](http://www.osmose-os.org/documents/212/Switzerland_pric.pdf)

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## **Managed Lane Network**

A region-wide network of priced ("managed") lanes on freeway systems.

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## **Managed Lanes**

"Managed lanes" are highway facilities or lanes whose operation is modified in response to changing traffic conditions. Managed lanes operate as a "freeway-within-a-freeway" and is separated from the general-purpose lanes. Examples include high-occupancy vehicle (HOV) lanes, value priced lanes, high-occupancy toll (HOT) lanes, or exclusive or special use lanes. Each of these concepts offers unique benefits; therefore, careful consideration is given to project goals and objectives in choosing an appropriate lane management strategy or combination of strategies. Project goals may include increasing transit use, providing choices to the traveler, or generating revenue.

[http://ops.fhwa.dot.gov/publications/managelanes\\_primer/](http://ops.fhwa.dot.gov/publications/managelanes_primer/)

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## **Manual Lane**

A toll lane wherein a Toll Service Attendant is present to accept cash, token or ticket as toll payment from a Customer.

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## **Manual Vtoll**

A scenario that takes place whereby the customer's license plate information is used to establish vehicle identification in lieu of an Electronic Toll Collection (ETC) payment. (If the license plate is not registered with an ETC account, the owner of the vehicle is assumed to be a toll evader or violator).

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**MBUF**

Mileage-Based User Fee - A mileage based road user charge, also referred to as "vehicle miles of travel" (VMT) fees are prices for road use predicated on the mileage driven on a given class of roadway.

**MEDIA Project**

Management of Electronic Fee Collection (EFC) through Dedicated Name Short Type Range Communication (DSRC) Interoperability in the Alpine Area

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**MISTER**

Minimum Interoperability Specifications for Tolling on European Roads. MISTER groups a team of experts on satellite navigation and cellular network-based electronic fee collection within the framework of a contract with the European Commission, DG TREN. The main objective is to prepare a complete draft of the ISO 17575 technical specification on the "Application Interface Definition for Electronic Fee Collection (EFC) based on Global Navigation Satellite Systems and Cellular Networks (GNSS/CN)". Its goal is to complement the ISO 17575 draft in order to set up a pan-European EFC service based on GNSS/CN.

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**Mixed Use Lane**

A toll lane in which different kinds of means of payments are accepted (e.g. card-based and electronic toll transactions).

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**MLFF**

Multi-Lane, Free Flow - The multi-lane free flow (MLFF) is a system that allows free-flow high-speed tolling for all highway users using electronic toll collection or video license plate recognition.

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**Mobility**

The ability to move or be moved easily.

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**Modal Transfer**

The transfer of traffic from one transport mode to another, normally from road to public transport.

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**Motorway**

A road with at minimum of two lanes in each direction with specific parameters for width, ratio of turns, existence of emergency lane, and SOS columns. In Europe usually a Toll Road.

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**MoU**

Memorandum of Understanding

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**MPO**

Metropolitan Planning Organisations.

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**Multi-Protocol Technology**

A multiprotocol technology bridges the interoperability gap between diverse RFID technologies used for electronic toll collection (ETC) and other ITS applications such as Automatic Equipment Identification and Electronic Vehicle Registration.

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**Next Generation Toll Technology**

A term that represents a category of Telematics technologies, to include ETC, that will use the 5.8-5.9GHz worldwide ITS frequency band and will be designed in accord with open standards and specifications.

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**Non-Revenue Tag**

A tag associated to an account where passage is permitted in the absence of toll collection.

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**O & M**

Operations and Maintenance (Department).

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**OBU**

On-Board Unit. The in-vehicle device component of a DSRC (or ETC) system. A receiver or transceiver permitting the Operator's Roadside Unit (RSU) to communicate with, identify, and conduct an electronic toll transaction; also called a 'transponder' or 'tag.'

---

**OBU Issuer**

Organization that issues On-Board Unit (OBU) on behalf of the Contract Issuers.

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**Occupancy**

The portion of time where a point or short road section is occupied by one or more vehicles or persons.

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**OCR**

Optical Character Recognition. Hardware and software system capable of recognizing alpha-numerical characters.

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**OECD**

Organisation For Economic Co-Operation And Development. The OECD consists of 30 member countries that share a commitment to democratic government and the market economy. Best known

for its publications and statistics, its work covers economic and social issues from macroeconomics to trade, education, development, science and innovation.

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### **OmniAir**

OmniAir Consortium - The OmniAir Consortium, Inc. advocates for the development and promotion of certification for the Intelligent Transportation [Systems (ITS)] industry.

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### **On-Board Transponder**

Also called a transponder, tag, and On-Board Unit. The in-vehicle device component of a DSRC (or ETC) system. A receiver or transceiver permitting the Operator's Roadside-Unit (RSU) to communicate with, identify, and conduct an electronic toll transaction.

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### **On-Board Unit**

OBU. The in-vehicle device component of a DSRC (or ETC) system. A receiver or transceiver permitting the Operator's Roadside Unit (RSU) to communicate with, identify, and conduct an electronic toll transaction; also called a 'transponder' or 'tag.'

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### **Open Barrier Systems**

Differ throughout the industry but often are designed to have toll barriers across the mainline plazas, but do not have ramp toll barriers on all of the interchanges, typically allowing some local traffic movements toll-free.

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### **Open Protocol**

A communications technology where all requisite knowledge is made available to vendors, operators and users at no cost, license fees, etc.

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### **Open Road Tolling System**

ORT. An electronic Toll Collection System without toll plazas, where drivers will get charged the toll without having to stop, slow down, or stay in a given lane.

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### **Open Source Procurement**

A process in which all qualified vendors are permitted and capable of bidding in the absence of requisite proprietary knowledge, hardware or software.

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### **Open Toll Section**

Section of a toll road where a fixed amount is paid, not depending on the distance traveled or on where the vehicle enters or exits the road.

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**OPERA**

Outil Pour l'Exploitation d'un Reseau d'Autoroutes. A system which monitors traffic conditions, predicts the traffic flows, analyses the impacts, then selects appropriate messages and continues to update these messages as required.

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**Operator**

An entity that manages the functions of a tolled facility, parking lot, etc.

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**Organisation For Economic Co-Operation And Development**

The OECD groups 30 member countries sharing a commitment to democratic government and the market economy. Best known for its publications and statistics, its work covers economic and social issues from macroeconomics to trade, education, development, science and innovation.

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**ORT**

Open Road Tolling System. An electronic Toll Collection System without toll plazas, where drivers will get charged the toll without having to stop, slow down or stay in a given lane.

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**Overpass**

Also known as Grade Separation. Where the traffic flows are separated by a bridge to carry one of the flows.

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**Patron Toll Display**

Any in-lane display capable of providing driver feedback (e.g. toll paid, low balance).

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**Patron Toll Fair Display**

Any in-lane device displaying amount of toll paid (typically located in a Manual (cash) Lane or above the coin basket on the Automated Coin Machine (ACM)).

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**PDA**

Personal Digital Assistant

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**Peer-to-Peer Network**

Peer to peer is an approach to computer networking where all computers share equivalent responsibility for processing data. Peer-to-peer networking (also known simply as peer networking) differs from client-server networking, where certain devices have responsibility for providing or "serving" data and other devices consume or otherwise act as "clients" of those servers.

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## **Performance Specification**

A document which details the functional and business requirements of an Electronic Toll Collection (ETC) System without providing complete technical details (as would be presented in a technical specification) leaving this to the ingenuity of the proposer.

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## **PISTA**

Pilot on Interoperable Systems for Tolling Application. A project sponsored in part by the European Union, focusing on Interoperable Systems for Tolling Applications. The main objective of the project is the actual implementation of Interoperable Electronic Fee Collection (IO-EFC) throughout a corridor belonging to several European motorway networks.

## **PPP, P3**

A public–private partnership, sometimes referred to as PPP, or P3, is a government service or private business venture funded and operated through a partnership of government and one or more private sector companies. A PPP involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project.

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## **Priced Managed Lanes**

See "Managed Lanes" and "Managed Lane Network"

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## **PSP**

Payment Service Provider. An organization that collects the money from the customer and handles the payment of services (e.g. credit or petrol card companies, banks).

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## **PTD**

Patron Toll Display. Any in-lane display capable of providing driver feedback (e.g. toll paid, low balance).

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## **Public Key Infrastructure**

PKI. A set of policies and procedures for establishing a secure method for exchanging information. It includes the use of Certificate Authorities (CAs), Keys and digital Signatures as well as all the hardware and software used to manage the process.

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## **Public/Private Partnership**

A public/private partnership, sometimes referred to as PPP, or P3, is a government service or private business venture funded and operated through a partnership of government and one or more private sector companies. A PPP involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project.

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### **Ramp Metering**

Also known as Ramp Control and Motorway Access Control. Implementation of signal control measures on a ramp or on slip road to control the traffic entering the main road in order to ensure a smooth downstream traffic flow.

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### **Ramps**

Manned or automatic lanes that are separate from the main plaza of a toll facility used for entrance to, or exit from the tollway.

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### **RCI**

Road Charging Interoperability. This project is financed by the European Commission and it proposes to make possible to carry out any road charging transaction in Europe with a single in-vehicle equipment. The RCI project will develop an open, integrated framework enabling road charging interoperability at the technical level based on the key existing and planned road charging deployments in Europe (AUTOPASS, EUROPASS, LSVA, TELEPASS, TIS, TOLLCOLLECT, VIA-T and VIA VERDE).

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### **RCTC**

The RCTC is responsible for coordinating highway and transit planning and identifying projects for state and federal funding, and for all aspects of regionwide planning for Riverside County's mobility. <http://www.rctc.org/>

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### **RDS - TMC**

Radio Data System – Traffic Message Channel

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### **Reconciliation**

The process by which the Back Office is used to adjudicate conflicts in transaction data (e.g. the difference between an Automatic/Automated Vehicle Classification (AVC)-determined vehicle class and the customer's pre-programmed tag class) and establish the toll amount to be deducted from the customer's account.

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### **REETS**

Regional European Electronic Tolling Service - The REETS project is to support the existing EU legislation on the interoperability of electronic road tolls collection (see EETS). The project is focused on EETS compliant services in cross-border regional areas, including : Austria, Denmark, France, Germany, Italy, Poland and Spain, as well as Switzerland. <http://www.reets.eu/> .

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### **Registered Toll Customer**

A toll facility user who has enrolled in either an RFID tag or "pay by plate" program.

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## **Responsive Pricing**

Pricing that is intended to change consumption patterns.

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## **RFID**

Radio Frequency Identification - Radio-frequency identification (RFID) is the wireless contactless use of radio-frequency electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects. The tags contain electronically stored information. Some tags are powered by and read at short ranges (a few meters) via magnetic fields (electromagnetic induction). Others use a local power source such as a battery, or else have no battery but collect energy from the interrogating EM field, and then act as a passive transponder to emit microwaves or UHF radio waves.

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## **RITA**

Research and Innovative Technology Administration (USDOT) - The Research and Innovative Technology Administration (RITA) coordinates the U.S. Department of Transportation's (DOT) research programs and is charged with advancing the deployment of cross-cutting technologies to improve [the U.S.] transportation system. [http://www.rita.dot.gov/about\\_rita](http://www.rita.dot.gov/about_rita)

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## **Road Pricing**

Also called Value Pricing. A system by which congestion and improved roadways can be managed through different levels of toll rates at peak and non-peak hours.

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## **Road-Side Unit**

The roadside infrastructure component of an ETC system; a receiver or transceiver that identifies the On-Board Unit in the vehicle, and identifies the account, permitting an electronic toll transaction to occur. Also called a 'reader,' or 'beacon.' Also referred to as RSU.

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## **Roundabout**

Also known as a Rotary and a Traffic Circle. A road junction where traffic circulates in one direction.

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## **RSU**

Road-Side Unit. The roadside infrastructure component of an ETC system; a receiver or transceiver that identifies the On-Board Unit in the vehicle, and identifies the account, permitting an electronic toll transaction to occur. Also called a 'reader,' or 'beacon.'

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## **RUC (Road User Charges)**

Road user charges are direct charges levied for the use of roads, including road tolls, distance or time based fees, congestion charges and charges designed to discourage use of certain classes of vehicle, fuel sources or more polluting vehicles. These charges may be used primarily for revenue generation,

usually for road infrastructure financing, or as a transportation demand management tool to reduce peak hour travel and the associated traffic congestion or other social and environmental negative externalities associated with road travel such as air pollution, greenhouse gas emissions, visual intrusion, noise and road accidents.

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### **SAFETEA-LU**

Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users - The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) is US federal transportation legislation, enacted Aug. 2005, which provided for funding and directions to support the Federal-aid highway program.

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### **Saturation limit**

The point in a traffic condition where the arrival flow rate exceeds the maximum sustainable flow.

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### **SCATS**

Sydney Co-ordinated Adaptive Traffic System. A traffic signal control system in Sydney, Australia.

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### **SCOOT**

Split Cycle and Offset Optimisation Technique. A traffic signal control system.

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### **SDER**

Schéma Directeur d'Exploitation de la Route. The national traffic management master plan for France.

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### **SDIR**

Schéma Directeur d'Information Routière. The road information master plan for France.

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### **Service Provider**

Any organization that provides a service, which is authorized and/or paid for through the use of a transponder. The most common example today is Toll Authorities. Other examples may be retailers, parking facilities, etc. who accept transponder transactions as payment or as part of ITS functions.

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### **SGCAM**

Système de Gestion des Cartes de l'Assurance Maladie

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### **Shadow Tolls**

Per vehicle amounts paid to a facility operator by a third party such as a sponsoring governmental entity and not by facility users.

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## **Signature**

The Signature is a code, encrypted by a Private Key, which may be used by third parties verify that data or transactions containing the Signature originated from a specific Private Key. For example, when the On-Board Unit Private Key is used to “sign” data, the Signature may be later verified by the Issuer as coming from the Private Key. This prevents an intermediary who does not know the Private Key from altering the message or its contents. As used here, a Signature is inserted in each transaction generated by an On-Board Unit. The Signature remains with that transaction until the transaction is processed by the Issuer. Issuer processes the transaction. This allows the Issuer to independently verify the source and integrity of the transaction.

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## **Single-Protocol Technology**

An electronic toll system designed to recognize and operate with transponder devices using a single specific data transfer protocol.

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## **Smart Card**

A small plastic card embedded with a memory chip and often a microprocessor, used for financial transactions, identification, as a key, etc.

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## **Software algorithm**

An established, recursive computational procedure for solving a problem in a finite number of steps.

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## **Spread Spectrum Ethernet Radio**

Communication systems where users transmit in the same bandwidth simultaneously. In this transmission technique, the frequency spectrum of a data-signal is spread using a code un-correlated with that signal.

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## **SRA**

Strategic Rail Authority in the United Kingdom.

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## **Sticker**

See also Eurovignette. A sticker or vignette proving that a distance or time-related toll has been paid by a user.

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## **SunPass**

Electronic toll collection system used in Florida.

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## **SUV**

Sport Utility Vehicle

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**System Integrator**

A contractor hired by an agency to build an electronic toll collection system with various parts supplied by different vendors. Essentially the “prime” contractor.

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**Tag**

Also known as an On-Board Unit and Transponder. The in-vehicle device component of a DSRC (or ETC) system. A receiver or transceiver permitting the Operator's Road-side Unit (RSU) to communicate with, identify, and conduct an electronic toll transaction.

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**TCP/IP**

Transfer Protocol Control/Internet Protocol. TCP/IP is a set of protocols developed to allow co-operating computers to share resources across a network.

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**TCS Revenue**

Toll Collection Services Revenue. Cash, Automated Vehicle Identification (AVI)/Electronic Toll Collection (ETC), fines and ISF (Internal Service Fund) revenue as recorded on Authority financials.

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**TDM**

Time Division Multiplexing - Simultaneous electronic transmission of two or more messages in one or both directions over a single transmission path, with signals separated in time or frequency. In time-division multiplexing, different time intervals are employed for different signals. This is used to differentiate between ETC tags in a roadway environment.

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**Team Florida**

Transportation and Expressway Authority Membership of Florida (TEAMFL) - The Transportation and Expressway Authority Membership of Florida (TEAMFL) was formed in 1997 to facilitate the exchange of information among toll agencies and the transportation industry. The membership is made up of board members and executive staff of statewide expressway and transit authorities, the Florida Department of Transportation, the Florida Transportation Commission and private sector transportation partners. TEAMFL members discuss statewide issues in an effort to develop high quality roadway systems throughout the state.

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**Team Texas**

Transportation and Expressway Authority Membership of Texas (TEAMTX) - The transportation and expressway authority membership of Texas, organized to offer an opportunity for those involved in developing, operating, funding, and arranging express toll roads and bridges to communicate and trade information, questions, experiences, and data.

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**Telematics**

Technologies in automotive communications, combining wireless voice and data capability for management information and safety applications.

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**TELEPASS**

Italy brand name of the national ETC system.

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**TELTEN**

TELeMatic implementation on the Trans-European Road Network. A Report prepared by ERTICO and published in October 1994.

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**TERN**

Trans European Road Network. Main Corridors linking European Member States.

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**Throughput Volume**

The number of vehicles passing through a Toll Lane, in one direction, over a defined period of time.

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**Ticket Systems**

Require each driver to stop and pick up a ticket upon entry and then stop and relinquish the ticket and pay the toll upon exit. The concept of ticket systems can be extended to that of an “electronic ticket” as determined by electronic sensors located in entry and exit lanes, parking lots, etc.

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**TIS (Télépéage Inter-Sociétés)**

Télépéage Inter-Sociétés. Technical and contractual context of electronic fee collection (EFC) interoperability in the French concession system.

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**Title 21**

State mandated standards for electronic toll collection and interoperability in California.

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**Toll**

A fee charged by a toll facility operator in an amount set by the operator for the privilege of traveling on said toll facility.

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**Toll Collection System**

The combination of elements and components that constitute the means to collect a fee for use of a tolled facility.

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**Toll Lane**

Restricts traffic flow to facilitate either the automatic or manual collection of tolls.

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**Toll Plaza**

An area, with restricted traffic flow, where tolls are collected from drivers, either manually or electronically.

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**Toll Receipt**

Receipt given to customer while in the toll lane that can show amount paid, date, time, lane, Toll Service Attendant and vehicle classification. The concept of a toll receipt may be extended to that of a monthly statement listing all toll transactions for that period.

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**Toll Service Attendant**

TSA. An employee of an operator or other entity who is assigned the duty of collecting tolls from toll facility customers.

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**Transaction**

A time-framed event occurring in the toll lane representing either a cash or electronic toll. The transaction is identified by all or a combination of the following parameters; location, time, date, vehicle class, vehicle ID, toll amount, etc.

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**Transaction Model**

Assembly of exchanging information between the Roadside Equipment (RSE) and the On-Board Unit (OBU), which is associated to the passage of a vehicle through an electronic toll collection (ETC) lane. The transaction includes the whole set of required data collecting the toll and clearing the funds.

---

**Transponder**

The in-vehicle device component of a DSRC (or ETC) system. A receiver or transceiver permitting the Operator's Road-Side Unit to communicate with, identify, and conduct an electronic toll transaction. Also called On-Board Unit and Tag.

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**Transport Service Provider**

TSP. A provider of both road transport service and ETC service. Both services may be provided by two different entities: the Road Operator who provides the transport service and the ETC Operator who collects the transit data.

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**TRB**

Transportation Research Board - The Transportation Research Board (TRB) of the National Academies provides leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multi-modal. TRB is one of six major divisions of the (US) National Research Council— a private, nonprofit institution that is the principal operating agency of the National Academies in providing services to the government, the public, and the scientific and engineering communities. The National Research Council is jointly

administered by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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### **Treadle**

An axle-counting device, located in the lane and activated by the presence of a tire included as part of an Automatic/Automated Vehicle Classification (AVC) or surveillance system.

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### **TSP**

Transport Service Provider. A provider of both road transport and ETC service. Both services may be provided by two different entities: the Road Operator who provides the transport service and the ETC operator who collects the transit data.

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### **TTI**

Traffic and Traveler Information

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### **Turnpike**

In the U.S.A.: toll road

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### **UDC**

Urban Drive Control. Project of 4th framework research: UDC contributes to the integration of traffic management and longitudinal control of vehicles. Driving speed recommendations are sent via short-range communication beacons to vehicles equipped with adaptive distance and speed control.

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### **UITP**

International Association of Public Transport - UITP is the International Association of Public Transport. UITP advocates sustainable urban mobility, bringing together all public transport stakeholders and all sustainable transport modes, and engaging decision-makers, international organizations and other key stakeholders to promote and mainstream public transport and sustainable mobility solutions. UITP's headquarters office is located in Brussels, Belgium and the association counts 11 regional offices around the world. <http://www.uitp.org/vision-mission>

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### **UMTS**

Universal Mobile Telecommunications System

### **UNI**

Unione Normatori Italiani. Italian Standardisation body.

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### **UNINFO**

An affiliated Italian body to UNI devoted to develop standard for Information Technology.

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**UPS**

Uninterruptible Power Supply. A secondary source of power used to maintain system operation in the event that the source of primary power has become disrupted.

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**Urban Road Pricing**

Also called road user charges (RUC), urban road pricing consists of direct charges levied for the use of roads, including tolls, distance or time based fees, congestion charges and charges designed to discourage use of certain classes of vehicle, fuel sources or more polluting vehicles. These charges may be used primarily for revenue generation, usually for road infrastructure financing, or as a transportation demand management tool to reduce peak hour travel and associated traffic congestion or other social/environmental externalities associated with road travel such as air pollution, greenhouse gas emissions, visual intrusion, noise and road accidents.

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**USDOT**

United States Department of Transportation.

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**User**

Any driver driving on a Toll Facility. The User is the holder of an account and On-Board Unit. The User may use the On-Board Unit to pay for tolls or services. In toll collection terms the User may be referred to as the “motorist”.

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**User Charge**

Payment of a given sum of money that allows the use of a service for a certain time period.

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**UTC**

Urban Traffic Control. Network traffic control in urban areas. Utilizes signal controlled intersections in a network in order to optimize the performance of the network according to certain criteria.

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**Value Pricing**

See also Road Pricing. A system by which congestion and improved roadways can be managed through different levels of toll rates at peak and non-peak hours.

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**Variable Message Sign**

VMS. Changeable message boards located on a facility that display to customers text information such as weather and road conditions that may affect traffic conditions and travel times. Also known as Dynamic Message Sign (DMS).

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**Variance**

Refers to an error in the toll communication system which occurs when something between the On-Board and Road Side dialogue has failed.

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**VES**

Violation Enforcement System. The collective equipment and procedures that capture a violation transaction, image and the citation process.

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**V-HA**

Vehicle-Highway Automated Systems - The automated highway system is defined as "a lane or set of lanes where specially equipped cars, trucks and buses could travel together under computer control (Rillings, 1996)." Automated highway systems combine magnetic sensors, computers, digital radio, forward-looking sensors, video cameras, and display technologies.

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**VIA-T**

Spanish trademark for ETC.

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**VICS**

Vehicle Information and Communication System. A Japanese system which transmits real time traffic information to a car navigation system which is then displayed in text and graphic form.

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**Video Billing**

A billing system using video images of a vehicle's license plate to identify the customer responsible for toll payment.

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**Vignette or Sticker**

A sticker proving that a distance or time-related toll has been paid by the user.

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**VII**

Vehicle Infrastructure Integration

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**Violation**

A record of an unpaid toll which occurs when a customer does not pay the proper amount.

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**Violation Camera**

Camera located at each toll lane that takes pictures of violation events. Image capture contains, at minimum, human or Optical Character Recognition (OCR) readable pictures of the front, rear or both license plates.

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**Violation Enforcement System**

VES. The collective equipment and procedures that capture a violation transaction, image and the citation process.

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**Violation Lighting**

Lights located around the lane to enhance ambient light conditions for the VES cameras to take pictures of vehicles.

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**Violation Processing Center**

VPC. A place where violation processing systems and/or human reviewers work on reviewing and processing violations through the system.

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**Violations Processing**

The composite set of procedures, equipment and operations used in the Back Office to examine violation images and assign the correct toll to either an ETC account holder or to a toll evader based on a Division of Motor Vehicle (DMV) lookup of license plate vehicle registration. True violations will include a fine, processing/administrative fee and any other punitive action as dictated by local law.

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**VMS**

See Variable Message Sign

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**VMT**

Vehicle Miles of Travel. The sum of all the miles traveled by vehicles (not people) in a specified amount of time

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**WCDMA**

Wide-band Code-Division Multiple Access, a 3G technology that increases data transmission rates in GSM systems by using the CDMA air interface instead of Time Division Multiple Access (TDMA).

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