

GLOSSARY

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Acronyms and Abbreviations

ACRS	Air Cushion Restraint System (commonly called Air Bag)	mpg	miles per gallon
AGT	Automated Guideway Transit	MVMA	Motor Vehicle Manufacturers Association
AMC	American Motors Corporation	NAAQS	National Ambient Air Quality Standards
AQCR	Air Quality Control Region	NAS NAE	Natural Academy of Sciences and National Academy of Engineers
BLS	Bureau of Labor Statistics	NEPA	National Environmental Policy Act of 1969
Btu	British thermal unit	NHTSA	National Highway Traffic Safety Administration
CAFE	Corporate average fuel economy	No,	nitrogen oxides
CBD	Central Business District	OCS	Outer Continental Shelf
CEQ	Council on Environmental Quality	OPEC	Organization of Petroleum Exporting Countries
CID	cubic inch displacement	OSHA	Occupational Safety and Health Administration
CO	carbon monoxide	PIES	Project Independence Evaluation
CPI	Consumer Price Index	PL	Public Law
CVCC	compound vortex controlled combustion	PMT	passenger miles traveled
CVT	continuous variable transmission	PMVI	Periodical Motor Vehicle Inspection
DOE	U.S. Department of Energy	PRT	personal rapid transit
DOT	U.S. Department of Transportation	RSV	research safety vehicle
DPI	disposable personal income	SEC	Securities and Exchange Commission
DPM	downtown people mover	SIE	spark ignition engine
EGR	exhaust gas recirculation	SLT	shuttle-loop transit
EPA	U.S. Environmental Protection Agency	SMSA	Standard Metropolitan Statistical Area
EPCA	Energy Policy and Conservation Act	SRI	Stanford Research Institute
ERDA	Energy Research and Development Administration	Sydec	System Design Concepts, Inc.
FHWA	Federal Highway Administration	TCP	transportation control plan
FMVSS	Federal Motor Vehicle Safety Standard(s)	TSM	transportation system management
FTC	Federal Trade Commission	UMTA	Urban Mass Transportation Administration
GMC	General Motors Corporation	U.S.C	United States Code
GNP	Gross National Product	VMT	vehicle miles traveled
GRT	group rapid transit	WAES	Workshop on Alternate Energy Strategies
HC	hydrocarbons	WOCA	World Outside Communist Area
HE\	U.S. Department of Health, Education, and Welfare		
ICE	internal combustion engine		
LARPP	Los Angeles Reactive Pollutant Program		
LDV	light duty vehicle		
MMBD	million barrels per day		

Definitions

- Adiabatic**—Occurring without loss or gain of heat; in automotive engines, a design that incorporates thermal shielding to prevent radiant heat loss—thereby increasing thermal efficiency and allowing recapture of heat from the exhaust stream.
- Air Cushion Restraint System (ACRS)**—An automotive safety device in which a sensor, activated by the rapid deceleration caused by impact with another vehicle or a fixed object, triggers a mechanism that inflates air bags in front of the driver and front-seat passengers. The driver bag is housed in the steering wheel hub. The passenger bag is in the area typically used for a glove compartment.
- Air Quality Control Region (AQCR)**—A geographic area, designated by the Federal Government, where two or more communities either in the same or different States have the same air quality or share a common air pollution problem. AQCRs were established by the Clean Air Act of 1963 as the areas in which attainment of National Ambient Air Quality Standards is to be measured. Currently there are 247 such regions in the United States and its territories.
- Air Quality Standards**—The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographic area. (Also called National Ambient Air Quality Standards.)
- Allocation**—An administrative distribution of funds by the Federal Government among the States (performed for funds that do not have legislatively mandated distribution formulas).
- Appropriation**—A legislative action that makes funds available for expenditure with specific limitations as to amount, purpose, and duration. In most cases, an appropriation act permits money previously authorized by substantive legislation to be obligated and payments to be made. In the highway program, appropriations specify the amount of funds which Congress will make available to liquidate prior obligations; that is, the sum of all payments of vouchers to be submitted during a given fiscal year. Highway appropriations permit the payment of obligations incurred in previous years.
- Arterial**—A highway primarily for through traffic, usually a continuous route.
- Authorization**—Substantive legislation that empowers an agency to implement a particular program and, in many cases, establishes an upper limit on the amount of funds that can be appropriated for that program.
- Automated Guideway Transit (AGT)**—A class of transportation systems in which unmanned vehicles are operated on fixed guideways along an exclusive right-of-way. Commonly, AGT systems are divided into three classes: Shuttle-Loop Transit, Group Rapid Transit, Personal Rapid Transit.
- Automobile**—As used in this study, a four-wheeled vehicle, with a gross weight of less than 6,000 pounds, designed primarily for use as a passenger car. Coupes, sedans, and station wagons of all sizes are considered automobiles. Light-duty trucks and vans, even though used as passenger vehicles, are not classed as automobiles. Motorcycles and mopeds are also excluded.
- Barrel**—A measure of petroleum or petroleum products, equivalent to 42 U.S. gallons.
- Brayton Cycle Engine**—A high-speed, external combustion engine in which expanding gases from continuously burning fuel are used to drive a turbine. Most of the turbine output is used as motive power, but some is used to drive a compressor to provide air for the combustion process. (Also known as Gas Turbine Engine.)
- British Thermal Unit (Btu)**—The quantity of heat required to raise the temperature of 1 pound of water 1 degree Fahrenheit at or near 39.2 F. (used as a measure of the energy content of fuels).
- Corporate Average Fuel Economy (CAFE)**—The sales-weighted average fuel consumption (in mpg) for all passenger vehicles sold by an automotive manufacturer in a given model year.
- Capacity (Highway)**—The maximum number of vehicles that can pass over a given section of a lane or roadway in one direction (or in both directions for a two-lane or three-lane highway) during a given time period under prevailing roadway and traffic conditions.
- Categorical Grant**—As applied to highway financing, funding from a higher level of government (Federal or State) that is earmarked for expenditure for particular purposes.
- Central Business District (CBD)**—Usually the downtown retail trade area of a city, or generally, an area of very high land valuation, traffic flow, and concentration of retail business offices, theaters, hotels, and service businesses.

- Cetane Number**—A measure of the ignition value of a diesel fuel, representing the percentage by volume of cetane in a mixture with methyl-naphthalene that gives the same ignition lag as the fuel being tested (also called “cetane rating”). For gasoline, the equivalent measure is octane number.
- Chassis**—The frame, wheels, and machinery of a motor vehicle, on which the body is supported.
- Civilian Labor Force**—The total number of persons 16 years old and over who are employed and those who are unemployed and seeking work, excluding members of the Armed Forces and institutionalized persons.
- Collector (Collector/Distributor)**—A free access road that provides the link between arterials and local access streets.
- Compact-Size Car**—A pre-1975 automobile industry designation for cars with a wheelbase between 101 and 111 inches. After 1975 these cars are included in the **small** category. (See **Vehicle Size Class**.)
- Consumer Price Index (CPI)**—The index issued by the U.S. Department of Labor, Bureau of Labor Statistics, as a measure of average changes in the retail prices of goods and services usually bought by the families of wage earners and clerical workers living in cities.
- Contract Authority**—A form of budget authority that permits obligations to be made for the full amount of the authorization (i.e., the empowerment to enter into contracts in advance of appropriations). The Federal-Aid Highway Program utilizes contract authority.
- Conventional Transit**—A system or organization providing intraurban common-carrier passenger service by vehicles carrying 12 or more seated passengers over at least one regular fixed route with a published time schedule (does not include variable-route service, unscheduled service, or interurban service).
- Crash Avoidance (Systems)**—Motor vehicle systems designed to avoid collisions or to reduce the impact velocities of collisions that cannot be avoided. They are intended to overcome:
- failure or inability of the driver to see or otherwise perceive a hazardous circumstance soon enough,
 - inability of the driver to respond quickly enough once an impending crash circumstance is recognized, and
 - inadequate response of the vehicle to appropriate or typical driver inputs.
- Crashworthiness**—Motor vehicle design features (vehicle structure and occupant restraint systems) that reduce the severity of injuries to vehicle occupants and damage to the vehicle when a collision occurs. (See also **Vehicle Damage Protection**.)
- Curb Weight**—The weight of the empty vehicle (including fuel). (See also **Gross Vehicle Weight**.)
- Diesel Engine**—An internal-combustion engine in which the fuel is injected into the cylinder near the completion of the compression stroke and is ignited by the heat of the compressed air in the cylinder. No spark plug or carburetor is needed.
- Diesel Fuel**—The middle distillate petroleum fraction used as a fuel in diesel or compression ignition engines. (Most diesel fuels have a cetane number in the range of 30 to 65.)
- Disposable Personal Income (DPI)**—The income remaining to individuals after deduction of all personal taxes and all nontax payments to governments.
- Drivetrain**—The combination of gears, clutches, shafts, etc. that transmit energy from the engine to the wheels.
- Emissions**—All substances discharged into the air from a stack, vent, tail pipe, carburetor, or other source.
- Emission Standards**—The maximum amount of a pollutant that can legally be discharged from a single source, either mobile or stationary.
- Ethanol**—A colorless, volatile, inflammable liquid (C_2H_6O); any of various compounds that are analogous to ethyl alcohol in constitution and that are hydroxyl derivatives of hydrocarbons. (Also called ethyl alcohol.)
- Expressway**—(See **Freeway**.)
- Fatality**—As applied to automobile safety, a death that occurs within 1 year as the result of an automobile accident.
- Federal-Aid Highway Program**—Those programs that apportion Federal funds to the States, with a requirement for State matching funds, for the Interstate, primary, secondary, and urban systems and for the urban extensions of the primary and secondary systems. Other Federally supported programs, such as Forest Highways, Highway Beautification, etc., are not included under this term.
- Federal-Aid Highway Systems**—The four categories of roads eligible for Federal funds:
1. *Federal-Aid Primary System*—a system of connected main highways within each State.
 2. *Federal-Aid Secondary System*—A system of secondary roads including farm-to-market roads, rural mail routes, public school routes, local rural roads, access roads to airports, county roads, and township roads.

3. **Interstate System—Technically** The National System of Interstate and Defense Highways; a system of freeways established by the Federal Government in 1944 to connect principal cities and industrial areas.
 4. **Federal-Aid Urban System**—A system of roads, including some extensions of the Interstate System, that serves major urban activity centers and includes high-volume arterial and collector routes and access roads to terminals of other transportation modes.
- Fleet**—The total stock of vehicles in use in the country.
- Freeway (Expressway)**—A divided arterial highway designed for the safe unimpeded movement of large volumes of traffic, with full control of access and grade separations at intersections.
- Fuel Cell**—An electrical power source in which fuel and oxidant are fed continuously to the electrodes, converting chemical energy into electrical energy directly, without the need to recharge an electrical outlet.
- Gross National Product (GNP)**—The market value of all goods and services produced by the Nation's economy. As calculated quarterly by the Department of Commerce, gross national product is the broadest available measure of the level of economic activity.
- Gross Vehicle Weight**—The weight of the empty vehicle plus the weight of the maximum anticipated load. (See also Curb Weight.)
- Highway Trust Fund**—A trust fund established by Congress in 1956 to finance construction of the 45,000-mile National System of Interstate and Defense Highways. Trust Fund revenues accrue from highway user taxes.
- Household**—All persons occupying a housing unit.
- Household Formation**—The establishment of new households (individuals, couples, or families); the consumer unit that rents or buys and occupies housing units. New households are formed by marriage, divorce or separation, children moving from their parents' homes to their own dwelling units, or movement from group quarters to individual dwelling units.
- Hybrid Vehicle**—A vehicle with two propulsion systems that use different sources of energy—typically an energy storage system (battery or flywheel) and an internal-combustion engine to provide auxiliary power for periods of heavy load, such as during acceleration or high-speed cruise.
- Hydrocarbon**—An organic compound made up entirely of carbon and hydrogen.
- Hydrocarbon Fuels**—Fuels that contain an organic chemical compound of hydrogen and carbon.
- Intermediate-Size Car**—A pre-1975 automobile industry designation for cars with a wheelbase between 112 and 118 inches. (See Vehicle Size Class.)
- Internal Combustion Engine (ICE)**—Any engine, either reciprocating or rotary, in which the fuel is burned inside of the engine.
- Interstate Highway System**—(See National System of Interstate and Defense Highways.)
- Jitney**—A car or small bus that carries passengers over a regular route according to a flexible schedule.
- Lead**—Tetraethyl lead or any other organo-metallic lead compound added to gasoline to prevent engine knock.
- Light-Duty Vehicle (LDV)**—Any motor vehicle either designed primarily for transportation of goods and rated at 6,000 pounds gross vehicle weight (GVW) or less, or designed primarily for transportation of persons and having a capacity of 12 persons or less.
- Light Truck**—A truck with a gross vehicle weight of 10,000 pounds or less.
- Local Street**—A street intended only to provide access to abutting properties.
- Mass Transit**—For-hire, common-carrier, ground passenger transportation service provided for travel within communities or metropolitan areas. Included are all forms of surface, elevated and subsurface modes that use fixed guideways or operate on streets, highways or waterways. All air transportation modes are excluded.
- Methanol**—A light, volatile, poisonous liquid alcohol (CH₃O) formed in the destructive distillation of wood or made synthetically.
- Middle Distillates**—A category of petroleum fuel that includes home heating oil and the diesel fuels burned by surface transportation carriers.
- Mobility**—The satisfaction of travel demand. The parameters of mobility are number of trips, trip length, number of persons served, and the mode of transportation.
- Modal Split**—The distribution of person trips by mode of travel.
- Motor Bus**—A rubber-tired, self-propelled, manually steered transit vehicle with fuel supply carried on board.
- National Ambient Air Quality Standards (NAAQS)**—The prescribed levels of atmospheric pollutants that cannot be exceeded legally during a specified time in a specified geographic area. NAAQS are established by EPA under the authority of the Clean Air Act of 1970.

- National System of Interstate and Defense Highways**—A system of freeways established in 1944 to connect principal cities and industrial areas. It was later expanded to include mileage within urban areas. Dedicated construction funding is provided through the Highway Trust Fund for the planned 42,500-mile system.
- Nitrosamines**—Any of various neutral compounds that are characterized by the grouping NNO, some of which are powerful carcinogens.
- No-Fault Insurance**—A motor vehicle insurance plan under which an accident victim is compensated, usually up to a stipulated limit, for actual losses (as medical bills and lost wages) but not for claims of pain and suffering, by his own insurance company regardless of who is responsible for the accident.
- Obligations**—Commitments made by Federal agencies to pay out money, as distinct from the actual payments, which are "outlays." Generally, obligations are incurred after the enactment of budget authority. However, since budget authority in the highway program is in the form of contract authority, obligations are permitted to be incurred immediately after apportionment.
- Octane Number**—A number that is used to measure the antiknock properties of liquid motor fuel.
- Oil Shale**—A finely grained sedimentary rock composed mostly of clay that contains an organic material called kerogen, which can be refined into a product with properties similar to petroleum fuels.
- Organization of Petroleum Exporting Countries (OPEC)**—The Association of the world's largest oil producing and exporting countries. There are 12 full members: Abu Dhabi, Algeria, Ecuador, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, and Venezuela. Gabon is an associate member.
- Otto Cycle Engine**—A spark-ignition, internal combustion engine, fueled by a mixture of gasoline and air that is introduced in a cylinder and ignited by an electrical spark. Also called four-stroke cycle since two revolutions per cylinder or four piston strokes are required: intake, compression, power, exhaust.
- Paratransit**—Forms of public transportation that provide modes of service between that of the private automobile and conventional transit. Paratransit can be grouped into three categories: hire and drive, hail or phone, and pre-arranged shared use.
- Particulates**—Any material, except uncombined water, that exists as a solid or liquid in the atmosphere or in a gas stream at standard conditions. The particulate matter in automobile exhaust is made up of several organic substances, including lead.
- Passenger Miles Traveled (PMT)**—One passenger traveling one mile. As a measure of transportation, the aggregate of the miles traveled by all passengers on all trips for a given time period for a specified area.
- Passive Restraint**—A device, requiring no prior action by the user, that restrains motor vehicle occupants from possible injury-producing movements during a collision.
- Performance (Automobile)**—The capability of the automobile to accelerate, to perform passing maneuvers, and to climb grades. One measure is the time required to accelerate from 0 to 60 mph.
- Personal Consumption Expenditures**.—The market value of purchases of goods and services by individuals and nonprofit institutions and the value of food, clothing, housing, and financial services received by them as income in kind. It includes the rental value of owner-occupied houses, but excludes purchases of dwellings, which are classified as capital goods (investment).
- Pickup Truck**—A vehicle with an enclosed cab for the driver and an open-topped metal box over the rear wheels.
- Public Transit**—(See Mass Transit.)
- Public Transportation**—(See Mass Transit.)
- Rail Rapid Transit**—A mode of urban transportation in which transit vehicles operate on a fixed rail guideway.
- Rankine Cycle Engine**—An external-combustion engine in which a working fluid is expanded and contracted to transform chemical energy into mechanical energy.
- Revenue Passenger Mile**—One revenue-paying passenger traveling one mile. As an aggregate, revenue passenger miles represent the total distance traveled by all transit passengers.
- Revenue Vehicle-Mile**—One transit vehicle (bus, trolley car, subway car, etc.) traveling one mile while in revenue service. Revenue vehicle-miles represent the total mileage traveled by vehicles in scheduled or unscheduled revenue-producing services.
- Spark-Ignition Engine**—An engine employing an electrical device to create a spark to initiate combustion of the fuel-air mixture.
- Standard-Size Car**—A pre-1975 automobile industry designation for cars with a wheelbase of 119 inches or more. (See Vehicle Size Class.)
- Stirling Cycle Engine**—An external-combustion engine in which heat from burning fuel is used to expand a confined working fluid (usually

helium or hydrogen) that drives a piston. The expanded (and thus cooled) working fluid is compressed and reheated for another piston stroke.

Stratified-Charge Engine—A slightly modified Otto cycle engine in which fuel is fed into the cylinders in a way that produces a rich fuel-air mixture near the spark plug and a lean mixture elsewhere. The spark plug ignites the rich mixture which, in turn, ignites the lean mixture, producing a more complete burn and in some designs, a more efficient use of fuel.

Subcompact Car—A pre-1975 automobile industry designation for cars with a wheelbase of 100 inches or less. After 1975 these cars are included in the small category. (See Vehicle Size Class.)

Synthetic Fuel (Synfuel)—A fuel that does not exist in nature, but can be manufactured or synthesized from natural materials. Generally, synthetic fuels are derived from other forms of fossil fuels that are less convenient for consumer use. Synthetic liquid fuels are produced from coal, shale, and tar sands.

Tar sands—Geological deposits of sand and clay that are heavily impregnated with oil.

Three-Way Catalyst—A treatment system for automobile exhaust that employs platinum or rhodium as the active noble metal catalyst for conversion of HC, CO, and NO_x. The device

derives its name from the fact that it acts on the three major atmospheric pollutants in automobile exhaust.

Transit—(See Mass Transit.)

Truck—A motor vehicle designed primarily for goods movement which is used on public highways and streets.

Turbocharger—An air compressor driven by exhaust gases from an engine and used to force the fuel-air mixture into the cylinders at greater than atmospheric pressure, thereby boosting the power of the engine.

Vehicle Damage Protection—Vehicle design features intended to reduce the cost of damage to the vehicle in low-speed collisions. These features have no effect on death or injury to vehicle occupants. (See also Crashworthiness.)

Vehicle Miles Traveled (VMT)—One vehicle traveling one mile. As an aggregate measure, VMT represents the travel by all vehicles on a given roadway or on all roadways in a specified geographic area during a given time period.

Vehicle Size Class—A classification of motor vehicles by length. Pre-1975 and post-1975 size classes are shown in the following table:

Pre-1975	Post-1975
Subcompact (100" or less)	Small (less than 100")
Compact (101" -111")	Medium (100" - 112")
Intermediate (112" - 118")	Large (over 112")
Standard (119" or over)	