

Glossary of Urban Public Transportation Terms

Special Report 179

Transportation Research Board, National Academy of Sciences

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**Special Report 179
Subcommittee on Definitions
Committee on Public Transportation Planning and Development
Transportation Research Board
Commission on Sociotechnical Systems
National Research Council**

Transportation Research Board Special Report 179

Price \$3.00

Edited for TRB by Amy E. Shaughnessy

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Library of Congress Cataloging in Publication Data

National Research Council. Transportation Research Board. Committee on Public Transportation Planning and Development. Subcommittee on Definitions.
Glossary of urban public transportation terms.

(Special report - Transportation Research Board, National Research Council; 179)

1. Urban transportation—Dictionaries. 2. Local transit—Dictionaries. 3. Transportation—Dictionaries. I. Title. II. Series: National Research Council. Transportation Research Board. Special report - Transportation Research Board, National Research Council; 179.

HE141.N37 1978 388.4'03 78-8600

ISBN 0-309-02666-0

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Introduction

As urban public transportation has matured and become more sophisticated, the number of technical terms has grown significantly. Without some organization and standardization, this growing body of jargon can cause semantic difficulties and actually impede communication and the flow of ideas among the individuals and organizations involved in urban public transportation. Although many glossaries exist, they are usually limited in scope or developed for subjects other than urban public transportation. Moreover, the authors of these glossaries tend to invent new terms without sufficient consideration of whether existing terms are satisfactory for their purposes. This tendency is perpetuated by the fact that there is no single comprehensive glossary to which they can refer.

Thus, there is a clear need for a reference publication such as this, which is designed to organize and to some extent standardize terms related to urban public transportation. It should assist transit system operators to understand the analytical language of urban planners and the latter to understand the operational language of transit system operators. More generally, it should serve as a basic reference for anyone interested in urban transit planning.

Development of the Glossary

The Subcommittee on Definitions of the TRB Committee on Public Transportation Planning and Development worked on this glossary for more than 3 years. It held many meetings to work out ways to organize the terms and establish consistency in the definitions. Drafts of the glossary ranged from some that had fewer than 600 terms to some that were twice the size of this final glossary. There were many discussions about terms that should be added and others that should be deleted. The final version is at best a compromise of many varying views.

Arriving at an appropriate definition for each term was even more difficult. The definition selected was the one that the subcommittee considered to be from the most authoritative source. The definitions were modified, where necessary, to conform to the subject matter of the glossary. The appended list indicates the wide range of sources that were consulted. Many of the definitions were revised after the review comments were received. This glossary represents the best information that was available to the subcommittee at the time of publication.

Structure of the Glossary

The definitions in this glossary are organized alphabetically by term. In looking up a term, one should first identify the primary word or words in the term (e.g., **transit system**) and then the modifiers (e.g., **group rapid**). Acronyms and abbreviations are presented at the beginning of each alphabetical section and indicate the term related to the acronym or abbreviation that will provide the definition (e.g., **ADT**—average daily traffic; see *traffic, average daily*).

Acknowledgments

Although this glossary was prepared by the Subcommittee on Definitions, many organizations and individuals assisted in reviewing and commenting on the several drafts. Review comments were received from committees of professional and technical societies; from industry associations; and from individuals associated with transit operating properties, metropolitan planning organizations, universities, consulting firms, and federal, state, and local agencies. Their valuable assistance significantly contributed to the accuracy and quality of the glossary.

Sources

- G. W. Aljian. *Purchasing Handbook*. McGraw-Hill, New York, 1966.
- American Association of State Highway Officials. *AASHO Highway Definitions*. Special Nomenclature Committee, AASHO, Washington, D.C., June 1968.
- Arthur Andersen and Company. *Urban Mass Transportation Industry Financial and Operating Data Reporting System*. Urban Mass Transportation Administration, U.S. Department of Transportation, Washington, D.C., Nov. 1973.
- Automobile Club of Southern California. *A Glossary of Urban Transportation Terminology*. ACSC, Engineering Department, Feb. 26, 1963.
- J. S. Baker and W. R. Stebbins, Jr. *Dictionary of Highway Traffic*. Traffic Institute, Northwestern Univ., Evanston, Ill., 1960.
- Barton-Aschman Associates. *Guidelines for New Systems of Urban Transportation: Vol. 1—Urban Needs and Potentials*. U.S. Department of Housing and Urban Development, Washington, D.C., May 1968.
- Boeing Vertol Company. *Detail Specification for State-*

- of-the-Art Car. Urban Mass Transportation Administration, U.S. Department of Transportation; and Boeing Vertol Company, Philadelphia, May 1973.
- L. E. Boone and D. L. Kurtz. Contemporary Marketing. Dryden Press, New York, 1974.
- D. Brand and M. L. Manheim, eds. Urban Travel Demand Forecasting. HRB Special Rept. 143, 1972.
- R. A. Burco. Urban Public Transport: Service Innovations in Operations, Planning and Technology. Organisation for Economic Cooperation and Development, Paris, Sept. 1, 1972.
- California Department of Transportation. Trans Guide Glossary. Division of Mass Transportation, California Department of Transportation, Sacramento, Nov. 5, 1973.
- Canadian Good Roads Association. Glossary of Transportation Planning Terms. Canadian Good Roads Association, Reference Paper No. 5, Ottawa, Oct. 1967.
- R. F. Casey. Summary Data for Selected New Urban Transportation Systems. Transportation Systems Center, U.S. Department of Transportation, Nov. 1972.
- Chicago Transit Authority. Historical Information: 1859-1965. Chicago Transit Authority, Jan. 1, 1966.
- G. R. Cockle, ed. Car and Locomotive Cyclopedia of American Practices. Simmons-Boardman Publishing Corporation, New York, 3rd Ed., 1974.
- L. E. Cole, ed. Tomorrow's Transportation. U.S. Department of Housing and Urban Development, 1968.
- Daniel, Mann, Johnson, and Mendenhall. Los Angeles Metropolitan Transit Authority Rapid Transit Program. Daniel, Mann, Johnson, and Mendenhall, Los Angeles, Aug. 26, 1960.
- W. H. Dunton and P. R. Norton. Guideline Specification for Urban Rail Cars. Urban Mass Transportation Administration, U.S. Department of Transportation; and Boeing Vertol Company, Philadelphia, March 1973.
- C. P. Elms, ed. Lea Transit Compendium. N.D. Lea Transportation Research Corporation, Huntsville, Ala., Vols. 1 and 2, 1974 and 1975.
- A. L. Handman, R. W. Bee, and R. L. Bush. Transportation System Candidates for Urban Applications. Urban Mass Transportation Administration, U.S. Department of Transportation; and Mitre Corporation, McLean, Va., May 28, 1970.
- C. Henderson and others. Future Urban Transportation Systems: Descriptions, Evaluation, and Programs. U.S. Department of Housing and Urban Development and Stanford Research Institute, Menlo Park, Calif., March 1968.
- W. S. Homburger, ed. Characteristics of Mass Transit Systems. In Urban Mass Transit Planning, Institute of Transportation and Traffic Engineering, Univ. of California, Berkeley, 1967, pp. 23-48.
- C. T. Horngren. Cost Accounting: A Managerial Emphasis. Prentice-Hall, Englewood Cliffs, N.J., 3rd Ed., 1972.
- Institute for Rapid Transit. Rapid Transit References Manual. Institute for Rapid Transit, Washington, D.C., May 1967.
- Institute for Rapid Transit. Guidelines and Principles for Design of Rapid Transit Facilities. Technical and Operations Committee, Institute for Rapid Transit, Washington, D.C., May 1973.
- Institute of Electrical and Electronics Engineers. IEEE Standard Dictionary of Electrical and Electronic Terms. Wiley-Interscience, New York, 1972.
- Kaiser Engineers. Peoplemover Systems for Mid and Lower Manhattan. Kaiser Engineers, New York, Jan. 31, 1973.
- E. J. Kelly. Marketing: Strategy and Functions. Prentice-Hall, Englewood Cliffs, N.J., 1965.
- R. F. Kirby and others. Para-Transit: Neglected Options for Urban Mobility. Urban Institute, Washington, D.C., 1974.
- R. Lane, T. J. Powell, and P. P. Smith. Analytical Transport Planning, Halsted Press, New York, 1973.
- R. E. Leis, E. S. Cheaney, and N. Simons, Jr. Functional Specifications for New Systems of Urban Mass Transportation. Battelle Columbus Laboratories, Columbus, Ohio; and Urban Mass Transportation Administration, U.S. Department of Transportation, Nov. 1972.
- National Association of Motor Bus Owners. Bus Facts. National Association of Motor Bus Owners, Washington, D.C., 39th Ed., 1972.
- Parsons, Brinckerhoff, Tudor, Bechtel. Civil and Structural Design Criteria. San Francisco Bay Area Rapid Transit District, San Francisco, Vol. 1, 1968.
- K. S. Sibley. Mass Transit Technology: A Comprehensive Survey of Vehicular Hardware. Rensselaer Polytechnic Institute, Troy, N.Y., 1973.
- R. J. Solomon and A. Saltzman. History of Transit and Innovative Systems. Urban Systems Laboratory, Massachusetts Institute of Technology, Cambridge, Mass., March 1971.
- R. J. Solomon, and J. S. Silien. Modes of Transportation. American Society of Civil Engineers, New York, Aug. 1968.
- Traffic Engineering and Control. Vocabulary of Traffic Engineering Terms. Printer Hall, London, 1968.
- U.S. Department of Transportation. 1974 National Transportation Study, Manual 2: Procedures and Data Forms. U.S. Department of Transportation, Oct. 1972.
- U.S. Department of Transportation. Urban Origin-Destination Surveys. Federal Highway Administration, U.S. Department of Transportation, 1973.
- U.S. Department of Transportation. Urban Transportation Planning—General Information and Introduction to System 360. Federal Highway Administration, U.S. Department of Transportation, March 1972.
- U.S. Department of Transportation. Demand-Responsive Transportation: State-of-the-Art Overview. Transportation Systems Center, U.S. Department of Transportation, Aug. 1974.
- U.S. Interstate Commerce Commission. Railway Statistical Terms. Bureau of Statistics, U.S. Interstate Commerce Commission, June 1941.
- Urban Transportation Systems Associates. Urban Mass

- Transportation Travel Surveys. U.S. Department of Transportation, Aug. 1972.
- Alan M. Voorhees and Associates. Screening and Evaluation of Public Transit Vehicle Systems. Alan M. Voorhees and Associates, McLean, Va.; and Twin Cities Area Metropolitan Transit Commission, St. Paul, Minn., Feb. 1970.
- Washington Metropolitan Council of Governments. Glossary of Planning Terms. Washington Metropolitan Council of Governments, Washington, D.C., Information Rept. No. 20, July 1969.
- Westinghouse Air Brake Company and others. Evolutionary Improvements in Urban Transportation Systems: Vol. 3, Appendix 4, of Study of Evolutionary Urban Transportation. U.S. Department of Housing and Urban Development, Feb. 1968.
- A. Whittick, ed. Encyclopedia of Urban Planning. McGraw-Hill, New York, 1974.
- J. S. Wright and D. S. Warner. Advertising. McGraw-Hill, New York, 1966.
- G. Zaltman. Marketing: Contributions from the Behavioral Sciences. Harcourt, Brace and World, New York, 1965.

a

AADT—annual average daily traffic; see *traffic, annual average daily*.

AAWDT—annual average weekday traffic; see *traffic, annual average weekday*.

ACV—air cushion vehicle; see *vehicle, air cushion*.

ADT—average daily traffic; see *traffic, average daily*.

AFC—automatic fare collection; see *fare-collection system, automatic*.

AGT—automated guideway transit; see *transit system, automated guideway*.

ATC—automatic train control; see *train control system, automatic*.

ATO—automatic train operation; see *train operation system, automatic*.

ATP—automatic train protection; see *train protection system, automatic*.

ATS—automatic train supervision; see *train supervision system, automatic*.

ATU—Amalgamated Transit Union.

AVI—automatic vehicle identification; see *vehicle identification system, automatic*.

AVL—automatic vehicle location; see *vehicle identification system, automatic*.

AVM—automatic vehicle monitoring; see *vehicle monitoring, automatic*.

A-95—a circular from the U.S. Office of Management and Budget that furnishes guidance to federal agencies for cooperation with state and local governments in the evaluation, review, and coordination of federal assistance programs and projects.

absenteeism—unjustified failure to report to work when scheduled.

acceleration—increase in velocity per unit time; in transit, often measured in kilometers (miles) per hour per second.

access

limited—the ability of a facility to permit entry or exit only at predetermined points, as in rail transit or freeways.

unlimited—the ability of a facility to permit entry or exit at any point, as in taxi or dial-a-bus service or city streets.

accessibility—1. A measure of the ability of all persons to travel between various origins and destinations. 2. The sum of the travel times from one zone to all other zones in a region, weighted by the relative attractiveness of the destination zones involved.

point—a measure of the ability of all persons in all zones to travel to a certain point.

region—a measure of the ability of all persons in all zones within a certain region to travel to other zones within that same region.

station—a measure of the ability of all persons within a defined area to use a specific transit station.

transit—a measure of the ability of all persons to travel between various origins and destinations by using transit.

zone—1. A measure of the ability of all persons in a zone to travel to other zones. 2. The average time required for people in a particular zone to travel to a transit station.

action plan—a description of the organization and processes used by a state to account for the economic, social, and environmental impacts of highway projects (required by Federal Highway Administration regulations).

aerial structure—see *guideway, elevated*.

agency shop—an establishment in which, by agreement, all employees in the bargaining unit who do not join the union are required to regularly pay a fixed amount as a condition of employment to defray union expenses incurred on their behalf; see also *union shop* and *open shop*.

air cushion system—a transportation system that uses vehicles supported by a cushion of air; see also *vehicle, air cushion*.

alerter—an electronic device that automatically cuts off propulsive power and applies the brakes; see also *deadman control*.

algorithm

Moore's—a numerical procedure for determining the shortest paths from a single starting node to each other node in a network.

routing and control—a numerical technique for assigning vehicles to routes and controlling flows of traffic.

allowances—points or duration of time in a bus driver's daily schedule that are included in pay calculations, e.g., travel time, report time, and overtime.

alternative, low-capital—see *low-capital transportation improvements*.

Amalgamated Transit Union—the dominant union in the transit industry; membership is limited to nonmanagement employees of the transit industry.

anchor, rail (anticreeper)—a device attached to a rail to prevent longitudinal movement under traffic.

anticreeper—see *anchor, rail*.

arbitration—a method of settling disputes between labor and management through recourse to an impartial third party, whose decision is usually final and binding.

advisory—arbitration without a final and binding award.

compulsory—arbitration that is required by law.

voluntary—arbitration in which both parties agree to submit disputed issues to arbitration.

area coverage—the geographical area that a transit system is considered to serve, normally based on acceptable walking distances from loading points, e.g., 0.4 km (0.25 mile).

area sampling—a statistical technique that divides a geographical region into smaller areas and uses random selection to determine specific areas or respondents to be interviewed.

arterial service—generally long bus routes that operate on surface arterial streets.

assignment sheet—in bus operations, a comprehensive list showing all regularly scheduled timetable runs and the operator for each.

attitudinal data—data collected from people concerning their attitudes toward existing and proposed services and other issues related to transportation planning and operations; see also *behavioral data*.

attractions, trip—the number of daily trips to a zone generated by present or future land uses in that zone; it nor-

mally refers to the nonhome end of a trip.

attributes, service—those aspects of a transportation alternative that affect travel decisions regarding its use, such as travel time, reliability, and safety.

attrition arrangement—in labor, the policy of relying on voluntary resignations, deaths, and retirements, rather than firings, to reduce a company's labor force.

automatic progression—1. A labor policy by which rates of pay of workers in jobs with established rate ranges are increased automatically at fixed intervals. 2. Automatic movement from a trainee pay rate to the pay rate of a job classification or to the minimum level of a rate range.

auxiliary system—any mechanism or structure other than the body, motor, or propulsion-system gearing that performs a function at some time during the operation of a vehicle, e.g., heating and air conditioning system, pumps, motor alternator, air compressor or hydraulic power unit, lighting system.

availability, transit system—a measure of the capability of a transit system to be used by potential patrons, such as the hours the system is in operation and the route spacing.

b

BOS—bus-only street; see *street, transit*.

ballast—material placed on a track bed to hold the track in line and elevation; it consists of hard particles that are stable, easily tamped, permeable, and resistant to plant growth.

bargaining

collective—negotiation between an employer and union representatives usually on wages, hours, and working conditions.

crisis—contract negotiations that take place in the face of an imminent strike deadline caused by expiration of the current contract, threatening strike or lockout, or other special consideration.

industrywide—negotiations between employers and unions that would result in an agreement that would apply to the entire industry or a substantial part thereof.

joint—the negotiation of an agreement between two or more unions and a single employer.

bargaining agent—a union designated by an appropriate government agency or recognized voluntarily by the employer as the exclusive representative of all employees in the bargaining unit for purposes of collective bargaining.

bargaining right—the legally recognized right of a union to represent workers in dealings with employers.

exclusive—the right and obligation of a union designated as the majority representative to bargain collectively for all employees, including nonmembers, in the bargaining unit.

bargaining unit—a group of employees recognized by the employers or designated by a government agency as appropriate for representation by a union for purposes of collective bargaining.

base headway—see *headway, base*.

base period—the time of day during which vehicle requirements and schedules are not influenced by peak-period demands; transit riding is fairly constant and low to moderate in volume, and service is scheduled at constant intervals.

base-period fleet—the number of buses required to maintain base-period schedules.

base-period service—the level of vehicle operations during the base period.

base rate—the amount of pay for work performed during a unit of time exclusive of overtime or incentive earnings (under incentive systems, it may refer to the amount paid for an established task at normal work levels).

base run—see *run, base*.

base year—in transportation planning, the year to which the major portion of the data gathered in a transportation survey relates; the first year of a planning period.

bay, bus—a branch from or widening of a road that permits buses to stop without obstructing traffic while passengers board or alight.

behavioral data—data based on the way individuals and groups of individuals behave when faced with a set of transportation alternatives; see also *attitudinal data*.

belt, passenger—see *walkway, moving*.

belt system—a means of overcoming either vertical or horizontal distances, e.g., an escalator, pedestrian belt, belt or cable that carries individual vehicles (aerial cabins and gondolas).

beltway—see *highway, belt*.

benefit, fringe—see *fringe benefit*.

berth—an authorized location at a transit stop or station at which vehicles allow passengers to board or alight.

bicycle lane—a portion of a roadway or right-of-way that has been designated for preferential or exclusive use by bicycles; it is distinguished from the portion of the roadway reserved for motor vehicular traffic by a painted stripe, curb, or other similar device.

bicycle route (bicycle way, bikeway)—any road, street, path, or way that is specifically designated in some manner as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other vehicles or pedestrians.

bidding runs—see *sign-up*.

bikeway—see *bicycle route*.

bilevel car—see *car, bilevel*.

block—1. A length of track of defined limits on which the movement of trains is governed by block signals, cab signals, or both. 2. A group of cars classified for movement to the same yard or terminal. 3. The operating schedule of a transit vehicle (from garage to garage), including scheduled and deadhead service.

absolute—a block governed by the principle that no train shall enter the block while it is occupied by another train.

absolute permissive—on a track that is signaled in both directions, the section between sidings that, for opposing movements, extends from siding to siding and may be occupied by only one train and that, for following movements, is divided into two or more blocks that are signaled as absolute blocks.

permissive—a block governed by the principle that a train other than a passenger train may be permitted to follow a nonpassenger train in the block.

block mileage—the daily distance traveled in a block (definition 3).

bogie—1. A swiveling axle or truck of a rail car. 2. The driving-wheel assembly of a six-wheel semitrailer truck.

booked drivers—drivers who have picked regular runs, including relief runs.

booker—an employee who assigns buses to scheduled runs and maintains a garage record that shows all buses that are parked there.

booking sheet—a list of scheduled runs posted to inform each operator of the bus assigned to him or her and its parking place.

boycott—an effort by a union, usually in collaboration with other unions, to discourage the use of the products of an employer with whom the union is in dispute.

secondary—a boycott extended to firms that do business with an employer with whom the union is in dispute.

brake

air—a brake in which the mechanism is actuated by ma-

nipulation of air pressure above atmospheric pressure.

automatic air—a brake in which air is stored under pressure above atmospheric pressure so that a reduction in pressure (regardless of how initiated) applies the brake automatically and an increase releases the brake automatically.

continuous—a system of brakes interconnected among rail cars so that the brakes on the different cars are operable simultaneously from the locomotive or from any car.

electropneumatic—an automatic air brake provided with electrically controlled valves for applying and releasing the brakes; the instantaneous and simultaneous braking on all rail cars prevents surging.

vacuum—a brake actuated by air pressure that is lower than atmospheric pressure.

braking

closed-loop—a modulated braking effort that is under continuous direction of the train control system; see also *braking, programmed*.

dynamic—a system of electrical braking in which the traction motors, when used as generators, convert the kinetic energy of the vehicle into electrical energy and, as a result, exert a retarding force on the vehicle.

electric—a braking system in which electrical energy is a principal braking agent.

electromagnetic—electric braking in which mechanical braking is actuated by electromagnetic means.

emergency—irretrievable unmodulated (open-loop) braking to a stop, usually at a higher retardation rate than that obtained with a maximum service brake application; once it is initiated, the brake application cannot be released until the train has stopped.

friction—braking by use of shoes against wheels.

magnetic—see *braking, electromagnetic*.

maximum service—the normal maximum unmodulated (open-loop) braking effort employed to stop a train; the brake can be released and reapplied.

open-loop—unmodulated braking without continuous direction from the train control system; see also *braking, emergency, and braking, maximum service*.

programmed—automatically modulated (closed-loop) braking that requires that a stop be completed at a designated point within a specified distance.

regenerative—a form of dynamic braking in which the kinetic energy of the motor and driven machinery is returned to the power-supply system.

broad gauge—see *gauge, broad*.

bus—a self-propelled rubber-tired vehicle that is not confined to a fixed guideway and that is designed to transport a large number of persons, specifically, to transport more persons than a limousine or van, i.e., designed to transport at least 11 to 15 persons.

articulated—an extra-long bus that has the rear portion flexibly but permanently connected to the forward portion with no interior barrier to movement between the two parts; the passenger capacity is about 60 to 80 per-

sons seated, with room for many standees, and the length is from 18 to 21 m (60 to 70 ft).

charter—see *service, charter bus*.

double-decked—a bus that has two levels of seating and a passenger seating capacity of 40 to 80 persons; the total bus height may be 4.4 to 5.4 m (14.5 to 18 ft).

dual-control (dual-mode bus)—a bus designed to operate both on city streets and on rails (or other types of fixed guideway).

electric—a bus that is propelled by electric motors mounted on the vehicle and whose power source is located on the vehicle or on a trailer.

express—a conventional bus that operates in limited-stop service on a busway or in mixed traffic on freeways or arterials.

local—a bus that picks up passengers and discharges them at frequent designated stops on city streets.

motor—a bus that has a self-contained source of motive power.

school—see *service, school bus*.

standard urban—a motor bus designed to accommodate the maximum number of passengers both seated and standing for short-ride, frequent-stop service and to have quick-opening entrance and exit service doors; it may be powered by diesel, gasoline, or propane engines contained within the bus.

subscription—see *service, subscription bus*.

suburban transit (suburban coach)—a motor bus designed primarily for maximum seated passenger load and usually equipped with overhead parcel racks, front service door, and raised seat floor with all transverse seats; it is used primarily in express or limited-stop service.

trolley (electric trolley bus, trolley coach)—an electric bus propelled by a direct-current motor that draws power through a trolley from overhead electric conductors (trolley wires); the power-collection apparatus (trolley pole or pantograph) is designed to allow the bus to ma-

neuver in mixed traffic over several lanes and pick up passengers at the street curb.

urban transit—see *bus, standard urban*.

bus bay—see *bay, bus*.

bus lane—a street or highway lane intended primarily for buses, either all day or during specified periods, but used by other traffic under certain circumstances, e.g., making a right turn.

exclusive—a lane reserved for buses on a street, highway, bridge, or tunnel that other traffic is restricted from using; see also *busway*.

preferential—see *bus priority system*.

reserved—see *bus lane, exclusive*.

reversible—a lane that is reserved for the exclusive use of buses and other high-occupancy vehicles and that can be operated in either direction during peak hours; it may be the center lane in an arterial street that is used for left-turning traffic in off-peak hours.

bus-only street (BOS)—see *street, transit*.

bus platoon—several buses operating in tandem, each bus following the operating characteristics of the one in front.

bus priority system—a means by which buses are given an advantage over other traffic, e.g., preemption of traffic signals or bus priority lanes.

metered freeway—a means of giving buses preferential access to a freeway by restraining the entrance of other vehicles through the use of ramp metering.

bus stop—a waiting, boarding, and alighting area, usually designated by distinctive signs and by curbs or pavement markings.

busway—a special roadway designed for exclusive or predominant use by buses in order to improve bus movement and bus passenger travel times; it may be constructed at, above, or below grade and may be located in separate rights-of-way or within highway corridors.

exclusive—a busway designed for the exclusive use of buses.

C

CBD—central business district.

C&C—command and control system.

CRT—cathode-ray tube; see *tube, cathode-ray*.

CWR—continuous welded rail; see *rail, continuous welded*.

cab—1. The space in a locomotive or rail car that contains the operating controls. 2. A taxicab.

cab signal—see *control system, cab-signal*.

calibration—adjustment of travel simulation models so that simulated travel is in agreement with observed travel.

cam controller—a device used to control the voltage and cur-

rent (and thus the speed and torque) of traction motors in direct-current series by switching voltage-dropping resistors in and out of the circuit by means of cam switches.

capacity—1. The maximum number of vehicles that can pass over a given section of a lane or roadway in one or both directions during a given time period under prevailing roadway and traffic conditions. 2. The number of passengers that can be transported over a given section of a transit line in one direction during a given time period (usually 1 h) under prevailing traffic conditions.

crush—the maximum passenger capacity of a vehicle, in

which the spacing between passengers is zero (i.e., the passengers are touching one another) and one more passenger cannot enter without causing serious discomfort to the others.

line—the maximum number of transit vehicles or passengers that can be carried over a line segment during a given time period with every vehicle operating at the minimum headway that the control system permits.

normal vehicle—the maximum number of passengers that the vehicle is designed to accommodate comfortably.

seating—the number of passenger seats in a vehicle.

standing—the number of standing passengers that can be accommodated in a vehicle in a normal (noncrush) full load.

system—the maximum number of passengers or vehicles a given system is designed to carry in a specified time period.

capacity restraint—see *trip assignment, capacity restraint*.

capsule transit system—see *transit system, capsule*.

captive transit rider—a person who does not have immediate access to private transportation or who otherwise must use public transportation in order to travel.

car

A—a self-propelled rail car that has a control cab at one end; the A car operates in conjunction with a B car to form a married pair.

articulated—a rail car that consists of two or more full-sized units that are free to swivel and whose inner ends are carried on a common center truck and connected with a flexible joint.

B—a self-propelled rail car that has some controls and auxiliary equipment but lacks a control cab; the B car operates in conjunction with an A car to form a married pair.

bilevel—a rail car that is used principally as a commuter rail car and that contains two levels of seating through the length of the car; see also *car, double-decked, and car, gallery*.

C—a self-propelled rail car that does not have a control cab (may also refer to a double-ended car).

commuter rail—a passenger-carrying rail car that is usually self-propelled and equipped with a control cab and is designed to operate in multiple units or trains on railways that are part of a general railroad system; it may be nonpowered, noncontrol, or both.

double-decked—a bilevel rail car that has a complete second level that extends the full width of the car.

double-ended—a self-propelled rail car that has controls at both ends.

dual-powered turboelectric—a commuter railroad car capable either of deriving power from a third rail or other external power source or of self-propulsion by gas-turbine-driven generator on nonelectrified portions of track.

electric-control trail—a trailer car that is provided at one or both ends with a master controller and other apparatus necessary for controlling the train.

gallery—a bilevel rail car that has a partial second level

with seating along the sides and an open well in the middle.

motor—see *car, rail motor*.

multiple-unit (MU)—two or more units or connected pairs of rail cars equipped so that all cars in the train may be operated from any car that has an operator's station.

multiple-unit electric—an electric rail car arranged either for independent operation or for simultaneous operation with other similar cars (when connected to form a train of such cars) from a single control station.

Presidents' Conference Committee (PCC car)—a light-rail car or streetcar first produced in 1935 that accommodates approximately 142 passengers including standees; its performance and efficiency demonstrated great improvement over any streetcar previously built; see also *Presidents' Conference Committee*.

rail diesel—a self-propelled rail car that has a diesel engine and can operate in multiple units.

rail motor—a rail car that is propelled by some form of motor located on the car itself and can often operate in multiple units; common types are electric, which are equipped with electric motors and receive current either from a third rail or from a trolley wire, and those that are propelled by internal combustion engines, which may have either electric or fluid drive.

rail rapid transit—a passenger-carrying electric rail car that is usually self-propelled and equipped with a control cab at one or both ends and is designed to operate in single or multiple units on subway, surface, or elevated urban railways with frequent station stops; it can accept and discharge passengers rapidly through several doors and may have positive train control or complete automation.

rectifier electric motor—a rail car that collects propulsion power from an alternating-current distribution system and converts this to direct current for application to direct-current motors by means of rectifying equipment carried by the rail car; may be defined by type of rectifier used, e.g., ignitron electric car.

self-propelled—a rail car propelled by a motor that is carried by the car itself.

self-propelled electric—a rail car that requires no external source of electric power for its operation, e.g., diesel electric, gas electric, storage-battery electric.

single-unit—a self-propelled rail car equipped with a control cab at one or both ends that operates alone.

third-rail electric—a rail car that collects propulsion power through a third-rail system.

track—a self-propelled rail car (e.g., burro crane, highway rail car, detector car, weed burner, tie tamper) that may or may not operate signals or shunt track circuits.

trailer (trail car)—a rail car not provided with motive power that is used in multiple-unit trains operated by rail motor cars.

trolley—an electric motor car that collects propulsion power from a trolley system; it usually has a trolley pole and runs on rails.

turboelectric—see *car, dual-powered turboelectric*.

urban rail—a commuter rail car or rail rapid transit car.

car pool—a group of people who share their automobile transportation to designated destinations on a regular basis.

catenary system—1. The system that consists of the overhead conductor (trolley wire) that supplies electric power to vehicles through contact with a pantograph or trolley current-collecting device (trolley pole). 2. The conductor's supporting structure of wires suspended between poles and bridges.

census block—a geographic area wholly contained within a census tract and bounded on all sides either by streets or by a combination of streets, natural features, waterways, railroads, transmission lines, or property lines of public and semipublic tracts.

census tract—a division of a metropolitan area that provides comparable small-area population and housing census tabulations.

central business district (CBD)—the downtown retail trade area of a city or an area of very high land valuation, traffic flow, and concentration of retail business offices, theaters, hotels, and services.

centralized traffic control system—see *traffic control system, centralized*.

centroid—a point within a traffic zone or district that is chosen to be representative of the center of trip-making activities of the zone or district.

certification—1. Approval by the Federal Highway Administration and the Urban Mass Transportation Administration of a local transportation planning process with regard to compliance with legislative and regulatory requirements. 2. Formal designation by the National Labor Relations Board or other government agency of a union that has been selected by the majority of employees to be the bargaining agent for those employees.

chopper—a solid-state electronic alternative to the cam controller that provides energy to traction motors by very rapidly turning the motor current on and off in a controlled manner.

circuit, track—an electrical circuit that uses the rails to actuate traffic control devices and flashers and gates at crossings as well as to indicate track occupancy.

closure, intercar—a flexible enclosure that provides a weatherproof passageway between coupled cars.

coach, suburban—see *bus, suburban transit*.

collective bargaining—see *bargaining, collective*.

collector, current—the mechanical assembly on the undercarriage of a vehicle that makes sliding contact with the power rails mounted in the guideway; see also *trolley*.

collector street—see *street, collector-distributor*.

command and control system (C & C)—any means of maintaining prescribed headways; effecting starting and stopping, merging, and switching; and controlling other such functions; it is usually considered to include vehicle protection, vehicle operation, and line supervision to ensure safe movement of the vehicle within the system.

commute, reverse—see *reverse commute*.

commuter—a person who travels regularly between home and a fixed work or school location.

compensation—the entire range of wages and benefits, both current and deferred, that workers receive for their employment.

conciliation—see *mediation*.

conductor—1. The operating employee who controls the doors on rail transit vehicles and who may have fare-collecting duties. 2. The railroad employee in charge of a train and train crew.

connectivity—the ability of a transportation network to provide service to the maximum number of origin-and-destination trip pairs through the optimal integration of routes, schedules, fare structures, information systems, and modal transfer facilities.

consist—the makeup or composition (number and specific identity) of a train of vehicles.

continuous transit system—see *transit system, continuous*.

contraflow lane—a highway or street lane on which, during certain hours of the day, public transit or other specially designated vehicles operate in a direction opposite to that of the normal flow of traffic on that lane during the remainder of the day.

control system

asynchronous network—an electronic system for controlling headways that is not synchronized and in which the vehicle position is independent of time and the longitudinal control of the vehicle is independent of line traffic when it is not in close proximity to another vehicle but that usually becomes a car-following procedure when the vehicle is in close proximity to another vehicle.

augmented block-guidance—an automated block control system for vehicles with short headways.

automatic block-signal—a system of governing consecutive blocks by block signals, cab signals, or both that are actuated by a train or by certain conditions affecting the use of a block.

block-signal—a standard rail signal system that uses a fixed signal at the entrance of a block to govern the headways of trains entering the block.

cab-signal—a method of indicating in the cab, by means of lights or other signals, whether the track ahead is clear or occupied and of automatically stopping the train when conditions warrant if the engineer does not reduce speed or stop in response to the cab signal.

car-following—a method of longitudinal vehicle control whereby a following vehicle senses its position and velocity in relation to that of the car preceding it and remains a specified distance behind it; see also *control system, asynchronous network*.

dynamic block—see *control system, moving block*.

fixed block—an automatic train control system that maintains vehicles on fixed headways by a block-signal system or some other means and that uses a fixed block with track circuits to detect the presence of trains and to supply some or all of the commands to the trains.

manual block-signal—a system of governing a block or a series of consecutive blocks by means of signals that are operated manually and that use information received by

telephone, telegraph, or other means of communication.

merge—a system used to effect the safe merging of vehicles or trains at intersections and switches.

moving block—an automatic train control system that permits trains to be spaced on a track according to their relative velocity and location.

moving slot—a position-control system in which the vehicle synchronizes itself with a nonphysical discrete slot that accommodates one vehicle-length plus tolerances and is regulated with respect to other slots in its movement along the guideway.

multiple-unit—a system designed to control the operation of two or more motor cars or locomotives in a train through the simultaneous control by one operator of the motors on all units.

point-follower—see *control system, moving slot, and control system, synchronous network*.

quasi-synchronous network—an electronic system for controlling headways in which vehicles can be directed to move from one slot to another; see *control system, synchronous network*.

synchronous network—an electronic system for the longitudinal control of headways that fixes the positions of all vehicles in slots along the guideway with respect to time, e.g., moving slot control system; all slots to be used by the vehicle must be available before it is permitted to depart.

wayside—a command and control system in which vehicles are controlled by electronic or mechanical devices alongside the guideway.

conveyor, pedestrian—see *walkway, moving*.

cordon line—an imaginary line that encloses a study area and within which are conducted interviews, traffic counts, and so on.

corridor—a broad geographical band that follows a general directional flow connecting major sources of trips and that may contain a number of streets and highways and transit route alignments.

cost—see also *expenses*.

annual capital—the sum of the annual outlay for plant and equipment and the interest and taxes paid on capital items.

construction capital—a nonrecurring cost involved in the construction of a transportation system, including fixed facilities, roadways, yards, garages, power distribution and control facilities, stations and access facilities, station parking facilities, and the associated financing charges and administrative and design costs.

depreciation—the decrease in value of property through wear, deterioration, or obsolescence.

fixed—an indirect cost that remains relatively constant irrespective of the level of operational activity.

incremental (marginal)—the net change in dollar costs that is directly attributable to a given decision or proposal compared with some other alternative (including the existing situation or the do-nothing alternative).

operating—the sum of all costs that can be associated with the operation and maintenance of the system during the

period under consideration, generally excluding depreciation on plant and equipment, interest paid for loans on capital equipment, and property taxes on capital items.

out-of-pocket—a cost that is directly attributable to a particular operation and that would not be incurred if that operation were not undertaken.

platform labor—the total cost for the services of trainmen or bus operators; including all bonuses, allowances, and so on.

right-of-way—the cost involved in providing the necessary rights-of-way, including costs for all lands required (and any developments thereon), easements (including scenic), access rights and consequential damages, appraisals, legal fees, special engineering surveys, preparation of right-of-way plats, and relocation payments.

relocation—the cost to relocate residential and commercial establishments whose property must be taken to provide the system's right-of-way.

rolling stock—a cost associated with the purchase of new rolling stock (e.g., buses, rail cars) for revenue service.

station and terminal construction—the cost of constructing new stations and terminals and improving existing ones.

total—the sum of the operating cost and the capital costs.

variable—a cost that varies in some relation to the level of operational activity.

vehicle capital—the sum of the periodic cost of the vehicle, including depreciation, interest payments, excessive damage or loss, and property taxes.

vehicle interest—the original investment cost less the vehicle obsolescence cost multiplied by the standard rate of interest to be used for discounting purposes.

vehicle obsolescence—periodic decline of the investment cost of a vehicle, assuming that the vehicle is not placed in service.

vehicle property-tax—the periodic property tax charged on a vehicle by a state or local government.

cost-of-living allowance—a regular increase in employees' wages or salaries made on the basis of an escalator clause or other agreement.

count—1. A process that tallies a particular movement of people or vehicles past a given point during a stated time period, giving a directional, total two-way, peak-hour, or 24-h value. 2. A volume of persons or vehicles.

coupler—1. An appliance for mechanically coupling rail cars together automatically by impact that is also capable of uncoupling automatically or manually without requiring a person to go between cars. 2. An automatic connector that couples electric or pneumatic train lines together between rail cars.

coupling

electronic—coupling achieved by very close headway control between vehicles to form trains without physical contact between the vehicles.

magnetic—coupling achieved by the use of energized electromagnets.

crisis bargaining—see *bargaining, crisis*.

crossing

grade—a crossing or intersection of two railroads, highways, or a railroad and a highway at the same level or grade.

track (railway)—a structure consisting of four connected frogs that is used where one track crosses another at grade.

crossover—1. Two turnouts, with track between, that connect two nearby and usually parallel tracks. 2. Pedestrian

or vehicular links (at grade or grade separated) across a transportation facility.

crosstie—1. The transverse member of the track structure to which the rails are fastened to provide proper gauge and to cushion, distribute, and transmit the stresses of traffic through the ballast to the roadbed. 2. A part of a rail car's underframe.

current collector—see *collector, current*.

d

DAR—dial-a-ride; see *transportation system, demand-responsive*.

DHV—design hourly volume; see *volume, design hourly*.

DLIM (DSLIM)—double-sided linear induction motor; see *motor, double-sided linear induction*.

data base—information organized for analysis or used as the basis for a decision.

deadhead—to move a revenue vehicle without passengers or cargo on board, e.g., on a regular route to and from a garage or from the end of one revenue trip to the beginning of another.

deadheading pay—special payment to a transportation worker who is required to report for work at a point removed from the home terminal or to return without passengers or freight after completing a run.

deadman control—a pedal or handle or both (usually the brake-valve handle and a pedal) that must be kept in a depressed position while a locomotive or self-propelled rail car is operating; if pressure is released from both at the same time, the power is cut off and the brakes are applied.

debt service—funds allocated for repayment of previously incurred debt, including both principal and interest.

deceleration—decrease in velocity per unit time; in transit practice, often measured in kilometers (miles) per hour per second.

deck—the floor of a locomotive cab or rail car.

demand

diverted—see *traffic, diverted*.

generated—see *traffic, generated*.

induced—see *traffic, induced*.

latent travel—the potential number of trips that could be made by people who cannot now travel because of the inconvenience or unavailability of present modes or inability to use them.

travel—the number of trips that would be made by vehicles or passengers along a particular route or corridor under specified conditions, e.g., difference in fare or service level.

demand-actuated transportation system—see *transportation system, demand-responsive*.

demand-responsive transportation system—see *transportation system, demand-responsive*.

demotion—see *downgrading*.

density, train—1. The number of trains that can be operated safely over a segment of railway in each direction during a 24-h period. 2. The average number of trains that pass over a specified section of railroad in a specified period.

depreciation—see *cost, depreciation*.

derail—1. A track safety device designed to guide a rail car off the rails at a selected spot in order to prevent collisions or other accidents; commonly used on spurs or sidings to prevent unattended rolling cars from fouling the main line. 2. To run off the track.

describer, train—a display device or document that gives information about the origin, destination, class, or character of trains, engines, or rail cars that are moving or to be moved between given points.

desire line—a straight line on a map that connects the origin and destination of a trip and that shows by its width or density the volume of trips between that origin and destination pair.

destination—the point at which a trip terminates or the zone in which a trip ends.

dial-a-ride (DAR)—see *transportation system, demand-responsive*.

diaphragm, vestibule—a device that encloses the passageway between rail passenger cars.

digitizer—a device that is used to convert graphic information, such as that in a map, into numerical data for subsequent data processing.

directional split—the proportional distribution between opposite flows of traffic on two-way facilities.

disadvantaged, transportation—people whose range of transportation alternatives is limited, especially in the availability of relatively easy-to-use and inexpensive alternatives for trip making, e.g., the young, the elderly, the poor, the handicapped, and those who do not have automobiles.

discharge—the dismissal of a worker from his employment, usually as a result of unsatisfactory performance, e.g., insubordination, absenteeism, or inefficiency.

dispatcher—1. The person responsible for having every scheduled run leave the yard or garage on time and maintain schedule, matching the work force with the work load on a minute-by-minute basis. 2. In rail transport, the person who controls train movement or priority on a given segment (division) of track. 3. In demand-responsive transportation, the person who assigns the customers to vehicles and notifies the appropriate drivers.

dispute—a disagreement between the union and management, e.g., inability to agree on contract terms or an unsettled grievance.

distribution, trip—the process of estimating movement of trips between zones using surveys or models.

district—a grouping of contiguous zones.

diversion—the shifting of traffic from one mode of travel to another or from one route to another.

downgrading (demotion)—reassignment of a worker to a task or job that requires lower skills and has a lower rate of pay.

dragging the lines—engaging in a work slowdown.

drive—the equipment used for converting available power into mechanical power suitable for operation of a machine.

diesel-electric (oil-electric)—a self-contained system of

power generation and application in which the power generated by a diesel engine is transmitted electrically by means of a generator and a motor (or multiples of these) for purposes of propulsion.

gas-electric—see *drive, gasoline-electric*.

gasoline-electric—a self-contained system of power generation and application in which the power generated by a gasoline engine is transmitted electrically by means of a generator and a motor (or multiples of these) for purposes of propulsion.

gas-turbine-electric—a self-contained system of power generation and application in which the power generated by a gas-turbine engine is transmitted electrically by means of a generator and a motor (or multiples of these) for purposes of propulsion.

oil-electric—see *drive, diesel-electric*.

steam-turbine-electric—a self-contained system of power generation and application in which the power generated by a steam turbine is transmitted electrically by means of a generator and a motor (or multiples of these) for purposes of propulsion.

dual control—see *transportation system, dual-mode*.

duo-rail—having two rails (which may be elevated, surface, or underground and made of steel, wood, or concrete) for each line.

dynamic block control—see *control system, moving block*.

e

ECE—external combustion engine; see *engine, external combustion*.

earnings—in general, the remuneration (pay) of a worker or group of workers for services performed during a specific period of time.

average—the arithmetic mean of the total earnings of a group of workers.

gross—a worker's total earnings, including overtime payments, shift differentials, production bonuses, cost-of-living allowances, commission, and so on.

straight-time—a worker's earnings excluding overtime payments, shift differential, and other extra monetary payments.

Electric Railway Presidents' Conference Committee—see *Presidents' Conference Committee*.

electrified—supplied with electric power picked up externally through a third rail, pantograph, or trolley pole.

engine—1. A mechanism for converting the energy in steam, air, or other gas under pressure into mechanical energy in the form of motion. 2. A rail unit or combination of units operated from a single control, propelled by whatever form

of energy, that is used in a train or yard. 3. A locomotive.

external combustion (ECE)—an engine in which fuel ignition takes place outside the cylinder, turbine, or the like and in which energy is turned into mechanical force, e.g., a steam engine.

gas turbine—an internal combustion engine in which the hot compressed gases of combustion drive a turbine.

helper—an extra engine at the head of a train used to assist a train in climbing a grade or leaving a yard; see also *engine, pusher*.

internal combustion (ICE)—an engine in which the power is developed through the expansive force of fuel that is fired or discharged within a closed chamber or cylinder.

light—an engine that does not have a caboose or rail cars attached.

pusher—an extra engine at the rear of a train used to assist a train in climbing a grade or leaving a yard; see also *engine, helper*.

radio-controlled—an unmanned engine within a train that is separated by rail cars from the lead unit but controlled from it by radio signals; also called *slave unit*.

road—a large, powerful locomotive used in main-line or road service.

steam—an engine driven or worked by steam; specifically a reciprocating engine that has a piston driven by steam in a closed cylinder.

switch (switcher)—a locomotive used for switching cars in yards and terminals and usually built to carry all its weight on the driving wheels.

enumeration district—a group of census blocks for use in data collection procedures and tabulations.

escalator clause—a provision in a labor agreement that stipulates that wages are to be automatically increased or reduced periodically according to a schedule related to changes in the cost of living as measured by a designated index or other standard, e.g., average earnings; may also apply to any tie between employee benefits and the cost of living, as in a pension plan.

expenses—see also *cost*.

casualty and liability—budget elements that include protection of the transit system from loss through insurance programs, compensation of others for their losses due to acts for which the transit system is liable, and a miscellaneous category of corporate losses but that exclude the cost of repairing damaged property, of writing off property damaged beyond repair, and of maintaining a staff to insure and process claims for and against the transit system.

equipment, maintenance, and garage—the costs of repairing and servicing equipment, wages and salaries of maintenance personnel, and tires and tubes (exclusive of federal excise taxes).

interest on debt obligations—charges for the use of capital (the liability for which is usually represented by debt instruments) borrowed for the operation of the transit system, excluding interest charges pertaining to construction debt that is capitalized.

labor—pay and allowances due employees in exchange for the labor services they render, as well as any payroll taxes levied thereon.

leases and rentals—payments for the use of capital assets not owned by the transit system.

materials and supplies—the costs for tangible products obtained from outside suppliers or manufactured internally, including freight charges, purchase discounts, cash discounts, sales taxes, and excise taxes (except on fuel and lubricants); this element covers both materials and supplies issued from inventory and those purchased for immediate use.

operating—the cost of maintaining property and conducting transportation and incidental services, including accrued depreciation.

property retirement write-offs—the undepreciated cost (book value) of disposed assets less the salvage proceeds (excluding insurance amounts) received at disposition; if the salvage amounts realized exceed the book value, this excess is entered as a credit.

services—the costs of labor and other work provided by outside organizations for fees and related expenses, including independent audits.

station—costs of wages of personnel in company-operated bus terminals and of agents who sell tickets and provide station services on a commission basis in smaller communities.

taxes—the charges levied against the transit system by federal, state, and local governments, excluding payroll taxes and sales and excise taxes on materials and services purchased (except those on tires, tubes, fuel, and lubricants).

transportation—costs of drivers' wages, wages and salaries of other employees in the transportation department, motor fuel and oil costs (exclusive of taxes), and tolls for the use of highways, bridges, tunnels, and ferries.

expressway—a divided highway for through traffic that has full or partial access control and generally has grade separations at major intersections.

extraboard (extra)—an operator who has no assigned run but is used to cover runs deliberately left open by the scheduling department (extra runs) or runs that are open because of the absence of regularly assigned operators; a minimum guarantee, specified in the contract, is frequently paid if no work is available.

f

factor

expansion—a value used to adjust a sample to represent an entire population.

friction—in a gravity model, the empirically determined value that expresses the effect of spatial separation between zones on trip interchanges.

growth—a value used to adjust existing data to produce

an estimate for some future year.

load—the ratio of use to capacity of equipment or a facility during a specified time period.

peak-hour—the ratio between peak-hour traffic and the traffic during a specified base period.

trip—the ratio of the estimated number of trips to the actual or observed number.

factor analysis—an analytical technique for identifying the major interrelationships between variables; frequently used in transportation demand analysis.

fail-safe—incorporating a feature that ensures that any malfunction affecting safety will cause the system to revert to a state that is known to be safe.

fare—the authorized payment for a ride on a passenger vehicle, whether cash, token, transfer, or pass.

average—the arithmetic average of all fares paid by all passengers, including those who received special or reduced fares.

basic—the one-zone fare with no discounts, i.e., what it costs an adult paying a single cash fare to take a one-zone ride.

differential—a charge for a trip that varies according to the time of day, direction, distance, or other characteristic of the ride or surrounding circumstances.

flat—a charge for a trip that is the same regardless of the trip's characteristics.

graduated—a fare that is proportional to the distance traveled.

reduced—a special fare for children, students, senior citizens, or others that is less than the regular fare.

single-coin—a fare established so that it may be paid by a single coin, e.g., a dime or a quarter.

zoned—a fare that is determined by the length of the trip measured in terms of defined zones.

fare box—a device that accepts coins, bills, or tokens given by passengers as payment for rides.

registering—a device that receives, records, and accumulates fares received from or deposited by passengers as payment for rides.

fare-collection system—the procedures and devices used to collect fares and to accumulate and account for fares paid.

automatic (AFC)—the controls and equipment that automatically admit passengers on insertion of the correct fare in coins, tokens, tickets, or farecards (farecards must be inserted again on exit, at which point an additional fare may be required); it may include special equipment for transporting and counting revenues.

fare-registering turnstile—see *turnstile, fare-registering*.

fatalities, annual—for a transportation mode, the total number of yearly deaths associated with the mode, including deaths of passengers using the mode itself, pedestrians, and passengers in other vehicles.

feedback—the return to the input of a part of the output of

a process in order to obtain or approach a final answer.

feeder service—a service that transports passengers to a station or transfer point for rapid transit bus or rail service.

ferryboat—a vessel that carries passengers or vehicles or both over a body of water; it is generally powered by conventional steam or diesel engines.

first out—1. A car or engine on the extreme end of any track. 2. A crew that is next in order to be called for duty.

first-track kilometers—see *right-of-way kilometers*.

fixed-guideway system—a system of vehicles that can operate only on its own guideway constructed for that purpose.

flange, car-wheel—a projecting edge or rim on the circumference of a wheel that is designed to keep it on a rail.

flow map—a map that depicts the width of a transportation system route in direct proportion to the volume of vehicles or passengers using the route.

force, tractive—the total propelling force measured at the rims of the driving wheels or, in the case of a rack vehicle, at the pitch line of the gear rack.

freeway—a divided highway for through traffic that has full access control and grade separations at all intersections.

metered—a freeway to which access is controlled by entrance ramp signals that use fixed-time signal settings or regulated by a computerized surveillance system to prevent freeway congestion.

freewheeling—operating with both the propulsion and braking systems inactive, that is, with tractive force at zero.

frequency, service—the number of vehicles moving in the same direction that pass a given point on a route within a specified interval of time.

fringe area—that portion of a municipality immediately outside the central business district that is characterized by a variety of business, industrial, service, and some residential activity.

fringe benefit—a supplement to a worker's wages or salary that is paid for by the employer, e.g., paid vacations, pensions, health and life insurance plans.

frog—a track structure used at the intersection of two running rails to provide support for the wheels and passageways for their flanges so that wheels on either rail may cross to the other.

full-crew law—a law or regulation that requires a minimum number of workers to be present on particular job assignments.

funicular—see *railway, funicular*.

g

GRT—group rapid transit; see *transit system, group rapid*.

gas-electric drive—see *drive, gasoline-electric*.

gas-turbine-electric drive—see *drive, gas-turbine-electric*.

gauge

broad—a rail track gauge that is more than 1.435 m (4 ft 8.5 in) wide.

narrow—a rail track gauge that is less than 1.435 m (4 ft 8.5 in) wide.

standard—a rail track gauge that is 1.435 m (4 ft 8.5 in) wide.

track—the distance between the inside face of the two rails of a track measured perpendicular to the gauge line.

gauge line—a line 1.59 cm (0.625 in) below the top of the center line of head of running rail along the side that is nearer the center of the track.

governor—a device that holds the speed of an engine approximately constant regardless of the load or that keeps the engine from exceeding a predetermined speed within the limits of the engine.

grab iron—a steel bar attached to rail cars and engines as a hand hold.

grade crossing—a crossing of highways, railroad tracks, other fixed guideways, or pedestrian walks or combinations of these at the same level.

grade separation—a separation of intersecting streams of traffic by the provision of crossing structures or underpasses.

graphics, interactive—the display of computerized data in a form that permits interaction between a person and the

computer, e.g., visual display on a cathode-ray tube.

grid—a system of imaginary lines that divides a study area into small geographic zones.

grievance—any complaint or dissatisfaction expressed by an employee in connection with his job, pay, or other aspect of his employment.

grievance procedure—a formal plan specified in a labor agreement that provides a channel for the adjustment of grievances through discussions at progressively higher levels of authority in the company and the union, usually culminating in arbitration if necessary; formal procedures may also be provided in nonunion companies, but there is no union to represent the workers.

ground-effect machine—see *vehicle, air cushion*.

group riders—1. Riders who have a common origin and destination who travel together in the same vehicle.
2. Users of a subscription transportation service.

guaranteed annual wage plan—a plan whereby employees who meet certain qualifications are assured wage income or employment for a full year or the greater part of a year.

guideway—the surface or track and its supporting structure on or in which transit vehicles travel.

elevated (aerial structure)—a transit guideway on a structure that provides overhead clearance for vehicles that operate on the prevailing surface of the terrain.

elevated on fill—a transit guideway above the prevailing surface of the terrain that is supported by an embankment rather than by a structure.

open-cut—a transit guideway below the surface in an excavated cut that has not had a covering constructed over it.

h

HOV—high-occupancy vehicle; see *vehicle, high-occupancy*.

halo effect—the tendency to associate a favorable feature of an object with other characteristics of the same or associated objects.

hardware, computer—the physical equipment or devices that form a computer and its peripheral equipment.

headway—the spatial distance or time interval between the front ends of vehicles moving along the same lane or track in the same direction.

base—the scheduled time between transit vehicle trips

during an off-peak (usually midday) period.

heater, switch—a device for melting snow or ice at switches by means of steam, electric, or oil heat or by air jets.

highway—a publicly maintained road that is open to the use of the public for vehicular travel.

belt (beltway)—an arterial highway for carrying traffic partially or entirely around an urban area or portion thereof.

radial—an arterial highway that leads to or from an urban center.

highway system, automated—a system designed to automat-

ically control modified conventional automobiles by electrical signals from overhead circuits or circuits embedded in the highway.

hold down—to claim a certain run from the extraboard when the operator regularly assigned the run is to be absent for more than a week.

hold out—to place rail cars on any track temporarily be-

fore placing them on the track designated by the switch list.

horsepower—a measure of power approximately equivalent to 746 watts, i.e., the force that will raise 746 kg a distance of 1 m in 1 s (550 lb a distance of 1 ft in 1 s).

hump—an incline in a railroad yard over which rail cars are uncoupled and allowed to roll into a classification yard.

I

ICE—internal combustion engine; see *engine, internal combustion*.

impedance—the conditions, such as capacity limits, high costs, and distance, that may restrict travel volume over a transportation link.

incline—see *railway, electric incline*.

indication, signal—the information conveyed by the aspect of a signal.

indicator, block—a device used to indicate the presence of a train in a block.

inductor—a roadway element consisting of a mass of iron, with or without a winding, that stimulates the control, train stop, or cab-signal mechanisms on the vehicle.

industrywide bargaining—see *bargaining, industrywide*.

injunction—a court order that restrains one or more persons, corporations, or unions from performing some act that the court believes would result in irreparable injury to property or other rights.

injuries, annual—for a transportation mode, the total number of yearly injuries associated with the mode, including injuries to passengers of the mode itself, pedestrians, and passengers in other vehicles.

input—1. Information (instructions or data) to be transferred from external storage (usually tape or cards) to internal storage of a computer. 2. Information to be used in an analysis.

inspector—a supervisor of public transportation line operations who evaluates performance, enforces work rules, and

untangles problems; an inspector may be mobile (covering several districts in a radio-equipped car) or fixed (assigned to a post at a designated intersection).

instrument, track—a device in which the vertical movement of the rail or the blow of a passing wheel operates a contact to open or close an electric circuit.

intercar closure—see *closure, intercar*.

interchange—1. The system of interconnecting ramps between two or more intersecting guideways (rail lines, highways, and so on) that are grade separated. 2. The transfer of rail cars from one road to another so that they may be used on roads other than that of the owner.

interface, transportation—1. The point at which two or more modes of transportation meet. 2. The point at which two or more transit system routes meet.

interlocking—an arrangement of switch, lock, and signal devices that is located where rail routes cross and that is interconnected in such a way that their movements must succeed each other in a predetermined order, thereby preventing opposing or conflicting train movements; see also *limits, interlocking*.

intersection—the point at which two or more guideways or roadways meet.

island, loading—a pedestrian refuge within a highway that is provided at regular transit stops for the protection of passengers from traffic while they wait for and board or alight from transit vehicles.

iteration—the repetition of an operation or process, usually making use of the results of the previous operation.

j

JCL—job control language.

jerk—time rate of change of acceleration or deceleration of a vehicle; measured in km/h/s² (mph/s²).

jitney—see *transportation system, jitney, and service, jitney*.

job analysis—the systematic study of a job, including its specifications; its mental, physical, and skill requirements; and its relation to other jobs.

job classification—the arrangement of the tasks in an establishment or industry into a limited series of jobs or occupations that are rated in terms of skill, responsibility, experience, training, and similar considerations, usually for wage-setting purposes.

job control language (JCL)—a computer language that provides the operating system of a computer with the information necessary to process a program.

job description—a written statement of the elements of a particular job or occupation, e.g., purpose, duties, equipment used, previous training required, physical and mental demands, working conditions.

job evaluation—the determination for wage-setting purposes of the relative importance or ranking of jobs in an establish-

ment by systematically rating them on the basis of selected factors, such as skill, responsibility, or experience.

job posting—a listing of available jobs, usually posted on a bulletin board so that employees may bid for promotion or transfer.

joint bargaining—see *bargaining, joint*.

joint board or council—a delegation of the locals of a single national or international union in a particular area that is working to further the interests of the union (when more than one union is involved, the term *trade council* may be used).

journey—see *trip*.

jumper—a flexible conductor or group of conductors arranged to connect electric circuits between adjacent vehicles or rails.

junction—a location at which routes converge or diverge.

jurisdictional dispute—a conflict between two or more unions over the organization of a particular establishment or whether a certain type of work should be performed by members of one union or another.

jurisdictional strike—a work stoppage resulting from a jurisdictional dispute.

k

KEW—kinetic energy wheel; see *wheel, kinetic energy*.

kiss and ride (kiss 'n' ride)—the procedure whereby a transit or commuter passenger is driven to his or her first transit terminal point in a private vehicle by another person who

then drives the vehicle away from the terminal to another destination (derived from the situation in which a wife drives her husband to the terminal, she kisses him goodbye, he rides the transit system to work, and she drives home or to other destinations).

l

LCTI—low-capital transportation improvements.

LEM—linear electric motor; see *motor, linear electric*.

LIM—linear induction motor; see *motor, linear induction*.

LIMV—linear induction motor vehicle; see *vehicle, linear induction motor*.

LRT—light-rail transit; see *transit system, light-rail*.

LRRT—light-rail rapid transit; see *transit system, light-rail rapid*.

labor turnover—the movement of workers into and out of employment in a company or industry through hiring, layoffs, recall, resignations, and so on; the rate of labor turn-

over is usually expressed as the number of accessions and separations during a given period per 100 employees.

lateral motion—motion crosswise of the track experienced by all railcar parts except the wheels and axles that results from the flexibility that must be provided in the track structure to permit its negotiation.

layoff—the involuntary separation of a worker from employment for a temporary or indefinite period, without prejudice toward the worker.

leader—see *run, leader*.

level of service—see *service, level of*.

levitation, magnetic—the raising of a vehicle by magnetic force, either by attraction or by repulsion.

light rail—see *transit system, light-rail, and light-rail rapid*.

limited access—see *access, limited*.

limits

interlocking—the track length between the most remote opposing home signals of an interlocking; see also *interlocking*.

yard—a slow-speed area on main tracks that often extends 8 to 16 km (5 to 10 miles) from either end of a yard.

line

double-track main—a main line that has two tracks, which permits trains to move in opposite directions at the same time.

main—the principal part of a roadway, railroad, or other transportation facility over which all or most of the traffic moves; it excludes branches, side roads, sidings, ramps, and so on.

one-way—a guideway or roadway dedicated to the unidirectional flow of vehicles.

single-track main—a main line that has one track, which is used for following movements; opposing movement requires passing sidings.

line circuit, electric train—a continuous multiple electric circuit that extends between vehicles and is provided with control stations to permit the control of traction motors and other equipment from any of several points on the train (or, in special cases, from one point only).

line haul—see *service, line-haul*.

line kilometers—the sum of the actual physical length (one-way) of all streets, highways, or rights-of-way traversed (including exclusive rights-of-way and specially controlled facilities), regardless of the number of routes or vehicles that pass over any of the sections.

link—a section of a transportation system network defined by intersection points (nodes) at each end; it may be one way or two way.

link load—the assigned volume of traffic on a link.

link loading—the process of determining the link loads by selecting routes of travel and accumulating the trip volumes on each link that is traversed.

load control—a system for controlling the power output (loading) of a diesel engine to meet the requirements for traction power and auxiliary power.

load point, maximum—the section or point of a transit line or run that carries the highest total number of passengers for that line or run.

local—a rail passenger or freight train or bus that stops at virtually every station on the line; see also *service, local*.

locking—the electrical or mechanical establishment of a condition for a switch, interlocking route, speed limit, or automatic function that cannot be altered except by a prescribed and inviolate sequence of unlocking.

lockout—a temporary withholding of work or denial of employment to a group of workers by an employer during a labor dispute in order to influence a settlement at or close to the employer's terms.

joint—a lockout action undertaken at the same time by two or more employers.

locomotive—a self-propelled vehicle that runs on rails, generates or converts energy into motion for the purpose of hauling rail cars, and has no space for a revenue load; it may be operated by steam, electricity, oil, gas from volatile oils, or compressed air.

diesel-electric—a locomotive that uses one or more diesel engines to drive electric generators that in turn supply electric motors that are geared to the driving axles.

diesel-hydraulic—a locomotive in which power from one or more diesel engines is delivered through hydraulic transmission to the driving axles by means of shafts and gears.

electric—a locomotive in which the propulsion is effected by electric motors mounted on the vehicle; the electric power usually comes from an external source.

freight—a locomotive commonly used for hauling freight trains and generally designed to operate at higher tractive-force values and lower speeds than a passenger locomotive of equal power.

gas-turbine—a locomotive in which power developed by a turbine drives electric generators that supply traction power through electric motor-gear drives; it usually burns oil, but some that burn coal have been developed.

multiple-unit electric—a locomotive composed of two or more multiple-unit electric motive-power units connected for simultaneous operation of all such units from a single control station.

passenger—a locomotive commonly used for hauling passenger trains and generally designed to operate at higher speeds and lower tractive-force values than a freight locomotive of equal power.

self-propelled—a locomotive that requires no external source of electric power for its operation, e.g., diesel-electric, gas-electric, storage-battery-electric, turbine-electric.

switching—see *engine, switch*.

loop—a guideway layout in which the guideway forms a loop that closes on itself.

low-capital alternative—see *low-capital transportation improvements*.

low-capital transportation improvements (LCTI)—a group of transportation improvements designed to increase the use of existing transportation facilities that requires little or no additional right-of-way or expenditure of capital resources, e.g., traffic engineering, safety projects, staggered work hours, 4-d workweeks, fringe and corridor parking, exclusive or preferential bus lanes.

m

MAC—major activity center.

MAGLEV—magnetic levitation; see *levitation, magnetic*.

MR—motivational research.

MTC—manual train control; see *train control system, manual*.

MU—multiple unit; see *car, multiple-unit*.

maintenance-of-membership clause—an arrangement in a collective bargaining agreement that requires that employees who are members of the union at the time the agreement is negotiated, or who voluntarily join the union subsequently, must maintain their membership for the duration of the agreement (or a specified shorter period) as a condition of continued employment; see also *union security*.

major activity center (MAC)—a distinct geographical area characterized by a large transient population and heavy traffic volumes and densities, e.g., central business district, major air terminal, large university, large shopping center, industrial park, sports arena.

major activity center system—see *transit system, major activity center*.

marker—a front or rear signal of a train (flag or lamp).

market—1. The potential consumers of a transportation product or service or a geographical area that includes a significant number of potential consumers. 2. The extent of demand for a transportation commodity or service. 3. Economic activity through which the exchange of transportation goods and services is effected.

market analysis—a type of market research that involves the measurement of the extent of a transportation market and the determination of its characteristics.

market information system—a systematic approach to providing relevant information to such decision makers as travelers on a continuing basis.

market outline—a summary of the relative position of a type of transportation product or service in the total market.

market potential—a calculation of the maximum possible number of buyers or users of a transportation good or service during a stated period.

market profile—an analysis of the characteristics (age, sex, income, and so on) of people who constitute the market for a transportation product or service.

market research—the application of behavioral analysis to identify the service attributes that most strongly influence the decisions of different groups, e.g., about travel.

market segment—a portion of the population that has similar socioeconomic and other demographic characteristics and potentially similar travel behavior.

market segmentation—the production of numerous separate products or services and different marketing mixes to satisfy segments of the total market.

market share—the percentage of a transportation market

controlled by a particular supplier.

market target—a specified segment of the potential transportation market that has been analyzed and selected by a supplier in order to direct the marketing mix toward satisfying this market segment.

marketing—the performance of business activities that directs the flow of goods and services from producer to consumer or user.

marketing concept—a managerial philosophy of consumer orientation that holds that all planning begins with an analysis of the consumer and all supplier decisions are based on profitable satisfaction of the consumer's wants.

marketing cost analysis—the classification of accounting data into functional accounts (the purpose for which the expenditure was made) rather than the traditional natural accounts (e.g., salaries and supplies) so that the marketer can evaluate the profitability of particular customers, territories, and product lines.

marketing management—the planning, direction, and control of the entire marketing activity of a transportation supplier, including the formulation of marketing objectives, policies, programs, and strategy and product development; organizing and staffing to carry out plans; supervising marketing operations; and controlling marketing performance.

marketing mix—the blend of production, distribution, and promotion policies that is used by a firm to influence customers.

marketing planning—the work of setting up objectives for marketing activity and of determining and scheduling the steps necessary to achieve such objectives.

marketing strategy—the supplier's plan for selecting a particular market segment and then satisfying the segment through a careful blending of the elements of the marketing mix.

married pair—two semipermanently coupled rail cars; see also *car, A*, and *car, B*.

master agreement—a single or uniform collective bargaining agreement that covers several plants of a single employer or the members of an association of organizations.

matrix

impedance—an array of zone-to-zone trip impedances, e.g., travel times and travel costs.

trip (trip tables)—an array of the number of trips made between each zone pair.

median (median strip)—the portion of a divided highway that separates the opposing flows of traffic.

mediation (conciliation)—an attempt by a third party to help in negotiations or in the settlement of a dispute between an employer and a union through suggestions, advice, or other ways of fostering agreement short of dictating its provisions (a characteristic of arbitration); most of the mediation in the United States is undertaken through federal and state mediation agencies.

mediator—a person who undertakes mediation of a dispute.

megalopolis—a heavily populated region centering on a metropolis or embracing several metropolises (the largest U.S. megalopolis extends from Boston to Washington, D.C.).

merchandising—the planning and supervision involved in marketing the particular product or service at the places, times, and prices and in the quantities that will best serve to realize the marketing objectives of the suppliers.

metered freeway—see *bus priority system, metered freeway*.

metro—see *transit system, rail rapid*.

midibus—a small bus with a passenger capacity of approximately 20 to 30 persons.

minibus—a small bus with low passenger-carrying capacity (8 to 20) that has wide operating flexibility.

miss-out—a situation in which an operator fails to report for work without notifying his employer.

mixed traffic—the operation of transit vehicles on nonexclusive rights-of-way.

modal split—1. The proportion of total person-trips that uses each of various specified modes of transportation. 2. The process of separating total person-trips into the modes of travel used.

mode—a means of travel, e.g., automobile, transit, or walking.

door-to-door—a single mode of transportation that provides service between the exact origin and destination points without transfer or use of another mode.

dual—a system in which the vehicle operates under its own power and control in one mode but operates under automatic control, external power, or both in the second mode; see also *propulsion system, dual-power, and transportation system, dual-mode*.

origin-to-destination—a mode in which the passenger-carrying vehicle will not stop along the way to pick up additional demand passengers.

model—an analytical tool (often mathematical) used by transportation planners to assist in making forecasts of land use, economic, and travel activity.

abstract choice—a model based on the assumption that it is not necessary to identify travel-choice variables by the name of their mode, destination, time of day, or other characteristic but only by their attributes, e.g., level-of-service variables.

activity allocation—a mathematical formulation used to predict the geographical distribution of land-use activities.

aggregate demand—a model calibrated by combining observations of travel by individuals into geographic or demographic units that are used to estimate new flows when service attributes or unit sizes change.

binary-choice—a demand model used in trip generation that is based on the assumption that travelers make one of two possible choices.

demand—a mathematical formulation that relates the amount of travel to the level and price of the transportation service and the socioeconomic characteristics of the traveler.

deterministic—a model that expresses the interaction of system elements with complete certainty, i.e., absolute values.

direct demand—a model that simultaneously (in a single equation) predicts all travel choices for aggregate groups of individuals.

disaggregate demand—a model that is calibrated by using the observations of the travel-choice behavior of individuals directly and is usually set up as a probabilistic model.

Fratrar—a method of expanding a given distribution of trips on the basis of growth factors for the origin and destination ends.

general share—a mathematical model that estimates a share of trips, such as a mode share of all trips or a destination share of trips from a given origin.

gravity—a mathematical trip-distribution model that is based on the premise that the amount of travel between two zones is proportional to the amount of activity in each of the two zones and inversely proportional to the resistance to travel between the two zones.

intervening opportunities—a mathematical trip-distribution model that is based on probability theory and that distributes trips from one zone to each other zone in proportion to the probability that the trips have not found a prior destination in zones ranked closer to the zone of origin.

modal-split—a model used to forecast the proportion of total person-trips that would use each of the various modes of transportation.

multiple-choice—a model that relaxes the assumption of only two possible choices and allows any number of possible choices within a given level of travel choice, such as mode, route, or time period, or between any or all of these trip characteristics.

probabilistic—a model that determines or estimates the probability of a predicted event.

regional growth—a model used to estimate land uses in a region.

sequential—a demand model that is based on the assumption that travel decisions are made in a sequence of steps, e.g., whether or how often to travel (trip generation), what destination to choose (trip distribution), which mode to choose (modal split), and which route to choose (traffic assignment).

share—a demand-forecasting model that divides a trip total (such as total trips from an origin) into its various components (such as trips from the origin to each of the destinations).

simultaneous—a demand-forecasting model that is based on the assumption that travelers choose a level of trip frequency, time of day, destination, mode, and path as a single choice and that, in making that choice, travelers consider the alternatives for each of these choices simultaneously.

specific choice—a model based on the assumption that it is necessary to identify travel-choice variables by the name of their mode, destination, time of day, or other characteristic.

traffic—a mathematical equation or graphic technique used to simulate travel patterns, particularly those in urban areas.

monobeam—a type of guideway that has a generally rectangu-

lar cross section that vehicles usually straddle.

monorail—a single rail or beam, usually elevated, that provides lateral guidance and that vehicles are either supported by or suspended from.

asymmetrical—a monorail system in which the vehicle is suspended to one side of the beam.

saddle—a monorail system that has stabilizing rails below the main load-bearing rail and in which the vehicle rides on the beam.

supported—a monorail system, either of the saddle type or stabilized by gyro or overhead rails, in which the vehicle rides on the guideway beam.

symmetrical—a monorail system in which the vehicle is suspended directly below the rail.

Moore's algorithm—see *algorithm, Moore's*.

motivational research (MR)—research that attempts to relate behavior to underlying desires, emotions, and intentions rather than to merely enumerate behaviors or describe a situation; it relies heavily on the use of techniques adapted from psychology and other social sciences.

motor—a machine that transforms energy into mechanical torque or force by means of a rotating shaft or a linear motion.

alternating-current—an electric motor (synchronous, induction, or commutator) that operates on alternating current.

asynchronous—an asynchronous machine that transforms electrical power from any alternating-current system into mechanical power and whose rotor does not turn at synchronous speed.

compound—a direct-current motor that has two separate field windings, one (usually the predominating field) connected in parallel with the armature circuit and the other connected in series with the armature.

direct-current—an electric motor (series, shunt, or compound) that operates on direct current.

double-sided linear induction (DLIM or DSLIM)—a linear induction motor that has a primary winding on each side of the secondary winding or reaction rail, which must be vertical.

electric—a machine that transforms electric energy into mechanical energy.

induction—an asynchronous alternating-current motor that converts alternating-current electric power delivered to the primary winding (usually the stator) and carried as induced current by the secondary winding (usually the rotor) into mechanical power.

linear electric (LEM)—an electric motor that produces mechanical torque or force through linear, rather than rotary, motion.

linear induction (LIM)—an asynchronous linear alternating-current motor in which the primary winding (in the guideway) induces a current in the secondary winding (on the vehicle—or vice versa) to produce opposing magnetic fields that propel the vehicle.

linear synchronous (LSM)—a synchronous linear alternating-current motor that supplies fixed-speed operation for the powered vehicle.

series-wound—a commutator motor in which the field circuit is connected in series with the armature circuit.

single-sided linear induction (SLIM or SSLIM)—a linear induction motor that has a single primary winding on one side of the secondary or reaction rail.

synchronous—a synchronous machine that transforms electrical power from any alternating-current system into mechanical power, usually using direct-current field excitation; the average speed of normal operation is exactly proportional to the frequency of the power system to which it is connected.

traction—an electric motor, usually direct current and series wound, that propels a vehicle by exerting its torque through the wheels.

motorman—the operating employee who controls the movement of a rail vehicle.

moving block—see *control system, moving block*.

multimodal—concerning or involving more than one transportation mode at the same time.

multiple-use area—a transportation right-of-way used for other purposes in addition to transportation, e.g., parks, recreation.

n

network—1. A system of links and nodes that describes a transportation system. 2. The configuration of highways or transit routes and stops that constitutes the total system.

composite—a group of interconnected lines that represents a multimodal combination of existing and proposed transportation facilities and routes; often used for simulating travel patterns and determining capacities or other transportation system characteristics.

spiderweb (simplified)—a simulated highway system for a given area that is composed only of connections between zone centroids without respect to the physical street layout; it is usually used for corridor analysis.

network control—see *control system, asynchronous network; control system, quasi-synchronous network; and control system, synchronous network*.

node—a point that represents an intersection of two or more

highways or transit routes or a zone centroid; used in traffic assignment.

no-lockout and no-strike clause—a provision in a collective bargaining agreement through which the union agrees not

to strike and the employer agrees not to lock out any employees for the duration of the contract; this provision may contain certain qualifications, e.g., the union may strike if the employer violates other provisions of the agreement.

O

OBD—outlying business district.

O-D study—origin-destination study; see *study, origin-destination*.

off book—a list of operators who have asked to be excused from work on a specific day.

off days—operators' time off.

off-line—1. Not under direct computer control. 2. Not in the main flow of traffic or processes.

off peak—a period of day or night during which travel activity is generally low and a minimum of transit service is operated.

offset—the amount of time (systemwide) that the train control computer has added into the theoretical schedule in order to maintain proper train sequencing, scheduled connections, and headways.

oil-electric—see *drive, diesel-electric*.

on-and-off (ride) check—a record of the number of passengers who board and alight at each stop on a route, recorded by a checker who rides the bus.

one-zone ride—a transit ride within the limits of one fare zone.

on-line—1. Under direct computer control. 2. In the main flow of traffic or processes.

open shop—an establishment that has a policy of not recognizing or dealing with a labor union or one in which union membership is not a condition of employment; see also *union security*.

operating employee—a trainman, operator, station employee, crossing gateman, towerman, yard foreman, switchman.

operating speed—see *speed, operating*.

operational system—a system that is now available for use.

operator—an employee of a transit system who spends his

or her workday in the operation of a vehicle, e.g., bus driver, streetcar motorman, trolley coach operator, cable-car gripman, rapid transit train motorman, conductor.

platform—see *operator*.

rapid transit—an operating employee who performs the combined duties of a conductor and motorman on a rail rapid transit train.

regular—an operator who has picked a regular run or who is not listed on the extraboard.

operator assignment sheet—a listing that shows both the vehicles needed by time of day for each division and how many operators are needed; see also *assignment sheet*.

operators' off-day board—a list of all routes that shows the number of crews and assigned off days.

origin—the location of the beginning of a trip or the zone in which a trip begins.

outlaw—one who works beyond the legal time limitations.

outlying business district (OBD)—the portion of a municipality that is normally separated from the central business district and fringe area but that supports considerable business activity and has its own traffic circulation superimposed on some through traffic.

output—something produced; the result of a process.

outside time—see *spread*.

overtime—time worked in excess of the basic workday or workweek, as defined by law, collective bargaining agreement, or company policy; it may apply to time worked on Saturdays, Sundays, and holidays at premium rates.

owl bonus—a premium paid for working owl runs.

owl bus—the first bus in the morning that leaves the garage, picks up regular operators, and brings them to the garage to work their runs.

owl run—see *run, owl*.

p

PAS—public automobile service; see *transportation system, public automobile service*.

PCC—Presidents' Conference Committee.

PCC car—Presidents' Conference Committee car; see also *Presidents' Conference Committee*.

PRT—personal rapid transit; see *transit system, personal rapid*.

paddle—a list for each scheduled bus that shows every scheduled trip and the time points for each trip between pull-out time and pull-in time.

paddle board—the headway sheets made up for each run that have all pieces of work on that run circled for the operator.

paid area—an area a passenger may enter only after having paid a fare or displayed proper credentials.

paid break—the time between two pieces of paid work for which the operator is paid.

paid kilometers—see *vehicle kilometer, revenue*.

pallet system—see *transportation system, pallet*.

pallet-pod system—see *transportation system, pallet-pod*.

pantograph—a current collector that usually consists of two parallel, hinged, double-diamond frames designed to take power from an overhead contact wire by means of a gliding contact shoe.

pantograph gates—gates located outside and at the end of transit cars so that, when cars are coupled, the gates of each car meet to prevent people from falling from the platform between cars.

parameter—1. A measurable characteristic of a sample or population. 2. An independent variable used in the development of mathematical models.

paratransit—forms of public transportation services that are more flexible and personalized than conventional fixed-route, fixed-schedule service but not including such exclusory services as charter bus and exclusive-ride taxi; vehicles are usually available to the public on demand, by subscription, or on a shared-ride basis; see also *service, subscription bus* and *subscription van; shared ride; and transportation system, demand-responsive*.

park—to bring a vehicle to a stop and keep it immobile along a curb or curb line of any public way or in any place where such stopping is proper.

park and ride (park 'n' ride)—a procedure that permits a patron to drive a private automobile to a transit station, park in the area provided for that purpose, and ride the transit system to his or her destination.

parking

fringe—a facility for leaving parked vehicles that is located outside the central business district and that serves transit travelers to the central business district.

peripheral—see *parking, fringe*.

remote—a facility for leaving parked vehicles that is located a significant distance from a major activity center.

parking demand—the estimated number of vehicles people wish to park at a given location during a specified time period.

parking facility—an area, either enclosed or open and attended or unattended, in which automobiles may be left, with or without payment of a fee, while the occupants of the automobiles are using other facilities or services.

parking supply—the total number of parking spaces within a given area or facility.

parking turnover—the ratio of the total number of parked cars accommodated during a given period in a specified area to the total number of parking spaces.

parkway—an arterial highway for noncommercial traffic that has full or partial control of access; usually located within a park or a ribbon of parklike development.

pass—a means of transit prepayment, usually a card that carries some identification, that is displayed to the driver or conductor in place of paying a cash fare.

passenger—a person who rides a transportation vehicle, excluding the driver or the crew members of a public transportation vehicle.

revenue—a passenger from whom a fare is collected.

transfer—a passenger who transfers to a line or route after paying a fare on another line or route.

passenger belt—see *walkway, moving*.

passenger controls—a system of railings, booths, turnstiles, and other appurtenances for collecting fares and controlling the movement of passengers.

passenger conveyor—see *walkway, moving*.

passenger count—a count of the passengers on a vehicle or the passengers who use a particular facility.

passenger flow—the number of passengers who pass a given location in a specified direction during a given period.

passenger kilometer—a statistical unit representing the transportation of one passenger a distance of 1 km (0.62 mile).

passenger load—the number of passengers on a transit vehicle at the maximum load point.

passenger riding count—a count of the number of passengers who board and leave a vehicle, noting arrival and departure times, at designated stops along the route; performed by a surveyor or checker riding the vehicle.

passenger standing count—an estimation of the number of people aboard a vehicle at the time the vehicle passes a checkpoint; performed by a surveyor or checker on the street.

passenger traffic—see *passenger flow*.

path, minimum—the route of travel between two points that has the least accumulation of time, distance, or other impedance measure.

patron—see *passenger*.

patronage—the number of transit passengers carried during a given time period.

pavement, moving—see *walkway, moving*.

pay guarantee—a guarantee of pay for workers, usually per day or per week, that is stipulated by written contract.

payroll speed—a factor used in payroll calculations that is derived by dividing the number of revenue kilometers operated by the pay hours of the appropriate employee classification, usually motormen (rail system) or operators (bus system).

peak—the hours, usually in the morning or afternoon, when demand for transportation service is heaviest.

peak/base ratio—the ratio between the number of vehicles operating in passenger service during the peak-hour period and that during the base period.

peak equipment—see *peak service*.

peak hour—that hour during which the maximum amount of travel occurs; may be specified as the morning peak hour or the afternoon or evening peak hour or as both combined.

peak service—operation of the maximum number of vehicles during the peak period (usually the morning or evening commuter hours).

pedestrian—a person traveling on foot.

pedestrian-assist system—see *transit system, pedestrian-assist*.

pedestrian conveyor—see *walkway, moving*.

penalty rate (hazard pay, premium pay)—an extra rate of pay for particularly hazardous or onerous work; sometimes applied to any premium or overtime rate of pay.

people mover—a transportation system (e.g., continuous belt system, “free” vehicle, or automated guideway transit) that provides short-haul collection and distribution service, usually in a major activity center.

personal rapid transit—see *transit system, personal rapid*.

pick—the selection by operators of regular assignments in an order determined by the operator’s seniority; see also *sign-up*.

picketing—patrolling near an employer’s place of business by union members (pickets) to publicize the existence of a labor dispute, to persuade workers to join the union or the strike, to discourage customers from buying or using the employer’s goods or service, or to prevent the employer from operating his equipment.

pick-out sheet—a form that shows the out and in times for each scheduled bus on a line (including the times the bus is scheduled to pass a designated relief point) and that is used for the coupling of runs.

piece of work—a unit of work of any size from part of a trip to a full day’s run of round trips.

pilot—1. A person or object that guides motormen in the operation of trains during a single-track movement. 2. A wheelguard that protects the front truck of a car from foreign objects on the track; also called a cowcatcher. 3. An experienced operator who guides a new operator over his or her route.

pitch—a rising and falling motion about the transverse axis.

planning, sketch—a transportation analysis procedure that

is simpler, faster, and cheaper than using a full conventional system and that typically requires less detailed input and provides less specific output.

platform—that portion of the station directly adjacent to the tracks at which trains stop to load and unload passengers; the full platform is the length of the longest trains that will operate on the system.

platform man—see *reportman*.

point

indication—the point at which the train control or cab-signal impulse is transmitted to the locomotive or vehicle apparatus from the roadway element.

merge—the section of a guideway or roadway at which two lines converge to become one.

penalty—a disciplinary measure used by some transit systems as an alternative to suspension whereby the operator must report to the operators’ room for a certain number of hours (corresponding to the points levied) each day for one or more days; if there is no work, he or she is paid nothing but, if the dispatcher needs an operator to cover an open run, that operator may be used and paid for the actual number of hours worked, observing a minimum number of hours.

point check—a record of actual time and passenger travel on all trips that pass a specific location.

point-follower control system—see *control system, synchronous network*.

point of convergence—the point at which two bus lines meet to operate over the same street.

point of divergence—the point at which two bus lines separate after operating over the same street.

point of extension—the point at which one line ends and another line on the same street begins.

point of intersection—the point at which one line crosses or abuts another line.

point-to-point deviation—a transit routing pattern in which the vehicle passes through prespecified points in accordance with a prearranged schedule but is not given a specific route to follow between these points and provides door-to-door service between those points; see *service, point deviation*.

power, dual—see *propulsion system, dual-power*.

power system—the electrical devices and equipment used to convert and transmit power to operate a vehicle.

preferential hiring—an agreement by which an employer gives preference in hiring to union members, to applicants who have previous training and experience in the industry, to workers displaced from another plant or from another part of a particular plant, or by order of the National Labor Relations Board to employees found to have been discharged because of discrimination.

pre-metro system—see *transit system, pre-metro*.

premium pay—compensation at a rate higher than the regular rate as a result of overtime, shift differentials, or penalty rates.

Presidents’ Conference Committee (Electric Railway Presidents’ Conference Committee)—a group of leading streetcar operators who, between 1930 and 1935, sponsored the development of the PCC car, which had performance charac-

teristics far superior to any previous model of streetcar; see also *car, Presidents' Conference Committee*.

pretest—a test of the procedures to be used in conducting a travel or other survey.

pricing objectives—the goals a company seeks to reach through implementation of its pricing strategy.

priority lane—a lane reserved for high-occupancy vehicles, i.e., buses, car or van pools.

process

deterministic—a process in which all factors are known and predictable and that produces a fixed replicable output.

stochastic—a process that involves random variables and a nonreproducible output.

production clerk—the employee responsible for the overall cross-checking and distribution of schedules.

productivity—the ratio of units of output to units of input, e.g., vehicle-kilometers per operator-hour.

program—1. A series of actions to be taken to achieve a goal; it differs from a plan in that it is relatively short term and tends to deal with specific actions rather than define a desired end state. 2. A precise sequence of machine-coded instructions for a computer to use to solve a problem.

progression, automatic—see *automatic progression*.

propulsion system—the wheels, motors, driving mechanism, controls, and appurtenances that propel a vehicle.

dual-power—a propulsion system that is capable of operation from two different types of power source, e.g., an internal combustion engine and overhead electricity or a third rail.

prototype—a vehicle that is built to test a new design and that performs in essentially the same way the production vehicle will; see also *transportation system, prototype*.

public automobile service system—see *transportation system, public automobile service*.

public way—any public street, road, boulevard, alley, lane, or highway, including those portions of any public place that have been designated for use by motor vehicles.

pull in—1. A trip that is concluded by withdrawing the vehicle from revenue service into a storage area. 2. A transit vehicle that is removed from revenue service without having completed its prescribed run. 3. The trip from a finishing point to the station.

pull out—1. A deadhead trip to the point at which the vehicle begins an in-service trip. 2. A train that is leaving a yard.

push door—a bus exit door that alighting passengers operate by pushing outward.

q

qualitative interview—an open-ended, detailed, or depth interview, the findings of which are not projectable and cannot be summed up by tabulation; see also *survey, quantitative*.

queue—1. A waiting line of vehicles, e.g., traffic at a signal,

buses at a park-and-ride facility. 2. A waiting line of persons.

queue jumper—a short section of exclusive or preferential bus lane that enables buses to bypass an automobile queue or a congested section of traffic.

r

rack railway—see *railway, cog*.

rail—a rolled steel shape designed to be laid end to end in two parallel lines on ties to form a track for rail cars, traveling cranes, and similar vehicles.

continuous welded (CWR)—a railroad track that has welded joints that provide a smoother running surface and ride than standard (unwelded) rail.

guard (track)—a rail or other structure that is laid parallel to the running rails of a track to prevent the wheels from being derailed or to hold the wheels in alignment to pre-

vent their flanges from striking the points of turnouts, crossing frogs, or the points of switches.

high—the outer or superelevated rail of a curved track.

low—the inner rail of a curve that is maintained at grade while the opposite or outer rail is elevated.

power—the main power supply from which current collectors mounted on a vehicle pick up power.

restraining—a rail placed parallel to the inside running rail on a curve to restrain the wheel flange and reduce wear on the outside running rail.

running—the rail or surface that bears the tread of the wheel.

third—an electric conductor located alongside the running rail from which power is collected by means of a sliding contact mechanism attached to the truck of electric cars.

rail joint—a fastening designed to unite abutting ends of rails.

insulated—a connecting mechanism used to insulate abutting rail ends from one another electrically.

rail rapid transit—see *transit system, rail rapid*.

rail service—see *transit system, rail*.

rail transport, conventional—interurban transportation on duo-rail tracks that uses trains of steel-wheeled freight- and passenger-carrying vehicles that are either locomotive hauled (diesel or electric) or self-propelled (diesel or electric).

railroad, commuter—see *transit system, commuter rail*.

railway

cog (rack railway)—a railway in which vehicles are propelled wholly or in part by the engagement of powered toothed wheels (gears) in racks fastened between the rails.

electric incline—a railway in which vehicles are propelled by an electric hoist along inclined tracks; the hoist propels a single car, with or without counterweights, or two cars in balance.

funicular—a short, very steep railway that has two parallel sets of tracks on which cars or trains are raised or lowered on a cable so that they are approximately counterbalanced.

street—see *streetcar*.

Railway Labor Act of 1926—a federal law that established a framework for labor-management relations in the railroad industry (and later the airline industry) and is administered by the National Mediation Board and the National Railroad Adjustment Board.

ramp—1. A facility that provides access to the through lanes of freeways and expressways and whose operating characteristics can affect the capacity of through expressway or freeway lanes. 2. In traffic assignment, a link that connects a freeway node and an arterial node. 3. An inclined section of roadway over which traffic passes for the primary purpose of ascending or descending so as to make connections with other roadways; also, an interconnecting roadway of a traffic interchange, or any connection between highway facilities of different levels, that vehicles may use to enter or leave a designated highway.

moving—an inclined moving walkway; see *walkway, moving*.

ratio

operating—the ratio of operating expenses to operating revenue.

travel-time—1. The ratio of the travel time between two points using a freeway route to the travel time between the same points using a nonfreeway route. 2. The ratio of the travel time from an origin to a destination using public transportation to the travel time between the same origin and destination using an automobile.

recall—the process of bringing laid-off employees back to

work, usually based on the same principles that governed the order of layoff in inverse order (e.g., the last worker to be laid off is first to be recalled).

recapitulation of schedules—an information sheet that contains basic schedule data for each line of the system as well as system totals and a summary of schedule allowances expressed in time and money.

receiver—an employee who issues such supplies as transfers to each operator; when an operator fails to meet his or her check-in time, the receiver immediately notifies the dispatcher, who then attempts to fill the run (the receiver previously also issued and received each operator's change-making cash).

recovery time—see *time, layover*.

redundancy—the existence in a system of more than one means of accomplishing a given function.

refuge, pedestrian—a space designed for the use and protection of pedestrians, including both the safety zone and the area at the approach that is occupied or outlined by protective deflecting or warning devices; see also *island, loading*.
regeneration—the recovery of energy by returning it to the line or by storing it through use of a flywheel or other means.

register—a device used to record the number or cash value of coins or tokens collected in payment of fares.

regression analysis—a statistical technique for estimating best fit mathematical relationships between a dependent variable and one or more independent variables.

relay, track—a relay that receives all or part of its operating energy through conductors (of which the track rails are an essential part) and that responds to the presence of a train on the track.

relay time—see *time, layover*.

reliability—the probability that a specified function will be performed, without failure and within the design parameters for the period of time intended, under actual operating conditions.

relief person—an operator or trainman who replaces another operator or trainman at the completion of his or her run or portion of run.

relief run—see *run, relief*.

report—the time interval required for a driver to prepare for a run; see also *time, report*.

reportman (platform man)—an operator on the extraboard who has reported for work and is awaiting assignment to an open run (a minimum amount of pay is generally guaranteed even if the operator is not assigned to a run).

reroute—to operate on a route other than the scheduled route.

reserved man—an operator who does not have a regular run but who is paid a minimum rate to be available to work in the absence of a regular operator or in an emergency.

restoration of service—the resumption of service according to schedule after it has been operating off schedule.

retarder, car—a braking device, usually power operated, that is built into a railway track and used to reduce the speed of cars by means of brake shoes that, when set in braking position, press against the sides of the lower portions of the wheels.

retirement—withdrawal from working life or from a particular employment, usually because of old age or disability.

retroactive pay—wages due for past services, frequently required when wage increases are made effective as of an earlier date or when contract negotiations are extended beyond the expiration date.

revenue

auxiliary transportation—revenue earned by operations closely associated with the transportation operations, such as station and vehicle concessions and advertising.

charter service—revenue earned by operating vehicles under charter contracts.

federal operating assistance—funds obtained from the federal government to assist in paying the cost of operating transit services.

freight tariff—revenue earned by carrying freight on runs whose primary purpose is passenger operations.

local operating assistance—funds obtained from local government units to assist in paying the cost of operating transit services, excluding assistance-in-kind and forgiven indebtedness but including grants and reimbursements for general operating assistance, demonstration project assistance, fare subsidies, tax payments, and interest payments.

nontransportation—revenue earned by activities not associated with the provision of the system's transit service, such as sales of maintenance services, rental of vehicles and buildings, and investment income.

passenger fares for line service—revenue earned by carrying passengers along regularly scheduled routes, including the base fare, zone premiums, express service premiums, and quantity purchase discounts applicable to the passenger's ride.

regular passenger—revenue received from regular passenger operations, including special fare subsidies received to make up reduced fares (e.g., for school children or senior citizens) but excluding revenue received from charter operations.

special transit fare—revenue earned by rides given in regular transit service but paid for otherwise than by the rider and for rides given along special routes for which revenue is guaranteed by a beneficiary of the service.

state operating assistance—funds obtained from one or more state governments to assist in paying the cost of operating transit services, excluding assistance-in-kind and forgiven indebtedness.

taxes levied directly by transit system—tax revenues earned by transit systems that are organized as independent political subdivisions and have their own taxation authority, excluding revenues from local, state, or federal governments that have been raised through the taxing authority of the granting governmental unit.

total operating—the sum of regular passenger revenue and charter revenue.

transfer fee—fees collected for extra-cost transfers.

revenue kilometer—see *vehicle kilometer, revenue*.

revenue passenger—see *passenger, revenue*.

reverse commute—movement from a residence to a place of

employment in a direction opposite to the main flow of traffic, such as from the central city to a suburb.

reverse move—the forward movement of a train going against the normal direction of traffic.

ride check—a check of a run or of an operator for conditions en route.

ride quality—a measure of the comfort level experienced by a passenger in a moving vehicle, taking into account the vibration frequency, accelerations (longitudinal, transverse, and vertical), jerk, pitch, yaw, and roll.

rider—a passenger on any revenue-service vehicle.

captive—a person limited by circumstances to use one mode of transportation.

captive transit—a person who does not have a private vehicle available or cannot drive for any reason and who must use public transportation in order to travel.

choice—a rider who has a variety of modes of travel available and selects one to use.

ridership—the number of persons using a transit system within any given period (expressed as hourly, daily, or yearly ridership).

riding frequency (habit) coefficient—the number of revenue trips during a year divided by the resident population of the area served.

right-of-way—1. The strip of land occupied by or intended for a transportation facility. 2. The precedence in passing accorded to one vehicle or person over another. 3. The legal power of passage over another person's land.

exclusive—a lane or other facility that is fully grade separated or access controlled and is used only by a specified mode or vehicles at all times.

exclusive transit—a right-of-way that is fully grade separated or access controlled and is used exclusively by transit.

right-of-way kilometers (first-track kilometers)—the length of rail right-of-way occupied by one or more tracks.

right to strike—the right of employees represented by a collective bargaining unit to engage in a work stoppage if negotiations reach an impasse (in most states this is not applicable to public transit system employees; i.e., it is illegal for such employees to strike the publicly owned system that employs them).

right-to-work law—a state law that prohibits any requirement that a worker join a union in order to get or keep a job.

road

access—a road that gives direct access to the land and premises on one or both sides.

bypass—a road that takes through traffic around a congested area and thereby facilitates through movement and relieves local congestion.

collector—see *street, collector-distributor*.

road kilometers—linear kilometers of highway as measured along the centerline of the right-of-way.

roadbed—the foundation on which the track and ballast of a railroad rest.

roadway—see *right-of-way*.

roll—the motion about the longitudinal axis of a vehicle.

rolling stock—the vehicles in a transit system including

buses, rail cars, and trains.

route—1. The geographical path followed by a vehicle or traveler from start to finish of a given trip; several routes may traverse a single portion of road or line. 2. In traffic assignments, a continuous group of links that connects two centroids, normally the path that requires the minimum time to traverse.

route deviation service—see *service, route deviation*.

route kilometers—the sum of the round-trip length of all routes operated, regardless of the number of times certain portions of the streets, highways, or rights-of-way may be duplicated by different routes.

route profile—a chart that shows all passenger boardings and alightings along a bus route during an operating day, listing individual bus stops vertically and the sequence of trips (by time) horizontally.

route structure—a network of routes.

routing and control algorithm—see *algorithm, routing and control*.

run—1. The trip of a transit vehicle in one direction from the beginning of a route to the end of it. 2. A transit driver's assignment of trips for a day of operation.

base (straight run)—a regular run that has no unpaid breaks and is normally 8 h in duration.

leader—a run that operates ahead of another run on the same line.

one-piece—a driver's work schedule that is approximately 8 h long and for which the driver stays on the same vehicle without relief.

open—a run that is put into effect after a pick has become effective and that will be assigned from the extraboard until the next picking of runs.

owl—a run that operates during the late night and early morning hours.

regular—a scheduled combination of trips whose total time guarantees, equals, or exceeds payment for the number of hours specified as a day's work.

relief—a week's work composed of a combination of other operators' scheduled days off of regular runs.

split—two operating assignments separated by a period of time during which the driver is unassigned and not paid by the transit operator.

straight—see *run, base*.

swing—see *run, split*.

run cutting—the process of organizing all scheduled trips operated by the transit system into runs.

run picking—see *sign-up*.

running gear—the wheels, axles, springs, axle boxes, frames, and other carrying parts of a bus, truck, rail car, or locomotive.

running hot—running ahead of schedule.

rush hour—see *peak hour*.

S

SLIM or **SSLIM**—single-sided linear induction motor; see *motor, single-sided linear induction*.

SLT—shuttle-loop transit; see *transit system, shuttle-loop*.

SMSA—standard metropolitan statistical area.

sample—a part of a statistical population that is studied to gain information about the whole.

simple random—a random sample in which the probability of selection of each item in the universe is equal.

sampling—the process or technique of selecting a suitable sample.

probability—a method of sampling in which each unit of the universe has a known or equal chance of selection.

quota—a method of sampling designed to obtain a specific number of respondents with known characteristics.

random—a form of probability sampling in which each unit of the universe has an equal chance of selection.

stratified—a sampling technique that sets a quota for certain classifications of the population being sampled on the basis of the proportion of each in the total population (universe) or of previous information about the relative distributions in these classifications.

schedule—a listing in time sequence of every trip and every time point of each trip from open to close of service on a transit line.

theoretical—the yard and end-of-line dispatch times throughout the day that are entered into the train-control computer memory for purposes of comparison with actual performance.

scheduling—analyzing demand to determine service frequency; combining work pieces to form operator sign-ups and runs along predefined routes.

screen line—an imaginary line, usually following such physical barriers as rivers or railroad tracks, that splits a study area into two parts and along which traffic counts and interviews may be conducted and compared.

seat kilometer—the movement of one transit passenger seat over 1 km (the total number of seat kilometers for a vehicle is obtained by multiplying the number of seats in the vehicle by the number of revenue kilometers traveled).

section, block—a section of track of defined length, the use of which is regulated by a fixed signal at the entering end of a double track and at each end of a single track.

section 13c—a section of the Urban Mass Transportation Act

of 1964 related to labor protection that is designed to protect transit employees against any worsening of their position with respect to their employment as a result of assistance granted to any organization under the provisions of the act.

section 13c agreement—an agreement between management and labor to comply with the provisions of section 13c of the Urban Mass Transportation Act of 1964, as amended; see also *section 13c*.

seizure laws—laws that permit public seizure of transit properties if a work stoppage involving these properties poses a serious threat to the public interest.

selected link analysis—an analysis of origins and destinations of trips assigned to a specified link or links in a network.

semantic differential technique—in attitudinal research, a method of rating the emotional connotations of words and concepts by the use of adjectives paired with their opposites.

semi-metro system—see *transit system, semi-metro*.

seniority—the status of an employee in relation to other employees for such purposes as determining order of promotion, layoff, and so on.

sensor

discrete—a sensor that does not provide qualitative information but has a binary output, i.e., “on” or “off.”

induction loop—a loop of wire (inductor) embedded in the roadbed that carries a small electric current that is used to sense a passing vehicle and to yield information about the presence and velocity of the vehicle.

service

charter bus—public transportation service on an exclusive basis, rendered in a vehicle that is licensed to render that service and engaged at a single price for the trip or period of time agreed on by the operating licensee, its agent, or the chauffeur and the charterer.

demand jitney—see *service, route deviation*.

express—service that provides higher speeds and fewer stops than are generally found on other portions of the system or on the same route in local service.

feeder—local transit service that picks up and delivers passengers to a rail rapid transit station or express bus stop or terminal.

jitney—public transportation on a nonexclusive basis, rendered in a vehicle that is licensed to render that service at a fixed rate or fare for each passenger on a fixed route along a public way, from which it may deviate from time to time in response to a demand for its service or to take a passenger to his or her destination, thereafter returning to its route.

level of—1. Multidimensional characteristics that indicate the quality and quantity of transportation service provided, including characteristics that are quantifiable (travel time, travel cost, number of transfers) and those that are difficult to quantify (comfort, modal image).
2. A measure of the effectiveness of a highway in serving traffic in terms of operating conditions.

limousine (livery service)—demand-responsive public transportation on an exclusive basis, rendered in a ve-

hicle that is licensed to render that service for hire at rates of fare agreed on by the operating licensee, its agent, or the chauffeur and the passengers.

limited—a transit service that operates only during a certain portion of the day or in a specified area or that serves only certain segments of the population.

line-haul—transit operations (generally express) along a single corridor or variety of corridors.

livery—see *service, limousine*.

local—a type of operation that involves frequent stops and consequent low speeds, the purpose of which is to deliver and pick up transit passengers as close to their destinations or origins as possible.

many-to-few—a service that picks up passengers at many different origins and delivers them to a few destinations.

many-to-many—a service that picks up passengers at many different origins and delivers them to many different destinations within the service area.

many-to-one—a service that collects passengers from many origins and delivers them to a specific point, e.g., an office building, train station, or bus stop.

one-to-many—a service that distributes passengers from one point of origin to many destinations.

point deviation—public transportation service in which the transit vehicle is required to arrive at designated transit stops in accordance with a prearranged schedule but is not given a specific route to follow between these stops; it allows the vehicle to provide doorstep service for those who request it.

public automobile—see *transportation system, public automobile service*.

revenue—1. Line service operation, excluding deadheading or layovers. 2. Any service scheduled for passenger trips.

route deviation—public transportation on a nonexclusive basis that operates along a public way on a fixed route from which it may deviate from time to time in response to a demand for its service or to take a passenger to a destination, after which it returns to its route.

school bus—public transportation on a nonexclusive basis that, for direct or indirect compensation, transports children to any regularly conducted public or private school or school-related activities.

shuttle—a transit service operated on a short route, often as an extension to the service of a longer route.

skip-stop—service in which alternate vehicles stop at alternate loading and discharging points on the same route.

subscription bus—a service in which routes and schedules are prearranged to meet the travel needs of riders who sign up for the service in advance; the level of service is generally higher than that of regular passenger service (fewer stops, shorter travel time, and greater comfort), and the buses are usually obtained through charter or contract arrangements.

subscription van—service like that provided by a subscription bus, except that the van may be privately owned, leased from a public or private company, or provided by the employers of the van riders; the driver is usually a

member of the van pool.

service area—see *area coverage*.

severance pay (dismissal pay or allowance, termination pay, separation pay, layoff allowance)—monetary allowance paid by employer to displaced employees, generally on permanent termination of their employment with no chance of recall, but often on indefinite recall with recall rights intact; the payment is usually graduated by the length of service.

shared ride—a trip, other than by public transit, on which the passengers enter at one or more points of origin and disembark at one or more destinations and for which each pays an individual fare.

sharp (running hot)—running ahead of schedule.

shift (tour of duty, stint, trick, turn)—a part of the daily working schedule of a transit system or its employees.

evening—a work schedule that ends at or near midnight.

fixed—a work schedule in which the hours remain the same, week after week, for each group of workers.

night (graveyard)—a work schedule that starts at or near midnight.

rotating—a work schedule in which crews change their hours at periodic intervals.

split—a daily work schedule that is divided into two or more parts.

swing—the fourth or rotating shift used on continuous 7-day or round-the-clock operations.

shift differential (shift premium)—additional compensation (cents per hour or percentage of the daily rate) paid to workers employed at other than regular daytime hours.

shop—a location at which transit vehicles are repaired.

shoppers' special—a limited or express transit trip during nonpeak hours that is designed to carry passengers to shopping areas.

shuttle—a public conveyance that travels back and forth over a particular route, especially a short route or one that connects two transportation systems.

shuttle-loop transit (SLT)—see *transit system, shuttle-loop*.

shuttle system—see *transit system, shuttle*.

sidewalk, moving—see *walkway, moving*.

signal

automatic—a signal that is controlled automatically by certain conditions of the track area that it protects.

automatic block—a system in which signals are actuated automatically by a train, a broken rail, an open switch, a car standing on a turnout that is fouling the main track, or some other shunting of the signal circuit.

block—a fixed signal installed at the entrance of a block to govern trains entering and using that block.

fixed—a signal at a fixed location that indicates a condition that affects the movement of a train.

grade-crossing protection—a railroad crossing flasher or gate that is operated automatically by the approach of a train at a grade crossing.

wayside—a fixed signal that is located along the track right-of-way.

signal-actuating device

pedestrian—a device to control traffic signals that is actuated by pedestrians.

vehicle—a device to control traffic signals that is actuated by vehicles.

signal preemption—a mechanical, optical, or sonic technique for altering the normal signal phasing or the sequence of a traffic signal in order to provide preferential treatment for multipassenger vehicles, buses, trains, and so on.

sign-up (run picking, bidding runs, mark-up)—the procedure by which, at regular intervals or when new service or realignments of service are implemented, operators may change work assignments to other runs, usually on the basis of seniority.

skip-stop—see *service, skip-stop*.

slave unit—see *engine, radio-controlled*.

software, computer—1. Documented procedures for the performance of an activity on a computer. 2. The set of programs needed to use a computer for a given operation.

spacing—see *headway*.

speed—see *velocity*.

average—see *velocity, effective*.

operating—the highest overall speed at which a vehicle can be safely operated under prevailing traffic and environmental conditions.

overall trip—the average speed maintained per round trip, including layover time; it is calculated by individual trips, by running-time periods, or for the entire schedule.

schedule—the one-way distance between terminals divided by the scheduled running time between the terminals.

speed-flow relationship—the relationship between the capacity of a transportation facility and the speed of the vehicles operating on it.

split

directional—the proportional distribution of opposite flows of traffic.

modal—see *modal split*.

spread—the time between two parts of a transit operation, generally between the morning and afternoon or evening periods.

square trip table—a table of zone-to-zone trips by direction between each pair of zones.

standard metropolitan statistical area—an area defined by the U.S. Office of Management and Budget that consists of a central city and its contiguous areas and that constitutes an integrated economic and social unit.

standard error of estimate—a statistical measure of the differences between the actual and estimated values of a variable.

station—1. An enclosed building or covered area that acts as a collection and distribution point for passengers. 2. The location to which operators report and from which their work originates. 3. In transportation planning, the location along the external cordon line at which interviews are made.

all-stop—in transit systems that use skip-stop scheduling, a station that is served by all scheduled trains or vehicles.

block—a place at which manual block signals are displayed.

center-platform—a station that has a single platform located between two tracks or guideways.

off-line—a station at which the vehicle is removed from

the main line for loading or unloading so that the flow of traffic on the main line is not impeded.

on-line—a station designed so that a loading or unloading vehicle remains on the main line and may therefore impede the flow of other traffic along the line.

passenger—a facility used primarily for passengers boarding or alighting from operating revenue vehicles, including major terminals, wayside stations, and passenger shelters along transit ways.

side-platform—a station at which the tracks or guideways are located between two platforms.

steam-turbine electric—see *drive, steam-turbine-electric*.

stochastic process—see *process, stochastic*.

stop—a waiting, boarding, and alighting area, usually designated by distinctive signs and by curb or pavement markings.

far-side—a stop located on the far side of an intersection, which requires that the vehicle cross the intersection before picking up or discharging passengers.

midblock—a stop located at a point midway between intersections.

near-side—a stop located on the near side of an intersection, at which the vehicle picks up or discharges passengers before crossing the intersection.

terminal—a stop located at the end of a transit line.

stratum—a group of persons or households with the same or similar socioeconomic characteristics.

street

arterial—a major thoroughfare, used primarily for through traffic rather than for access to abutting land, that is characterized by high vehicular capacity and continuity of movement.

collector-distributor—a street that gathers and disperses traffic between the larger arterial highways and less important streets, that has intersections at grade, and that is equally important in providing traffic movement and access to abutting properties.

local access—a public street that provides access for pedestrians and vehicles to properties that front on it, but is not intended for through traffic.

major—an arterial highway that has intersections at grade and gives direct access to abutting property and whose geometric design and traffic control measures are used to expedite the safe movement of through traffic.

mixed mode—carrying mixed traffic, e.g., having no exclusive bus lanes or priority lanes for buses.

transit—a street reserved only for transit vehicles.

street furniture—equipment placed on the street, e.g., lights, benches, signs, bus shelters, kiosks, and plants.

streetcar—a lightweight electrically powered rail car that is operated singly or in short trains on fixed rails in mixed traffic on city streets.

streetcar system—see *transit system, light-rail*.

strike (walkout)—a temporary stoppage of work by a group of employees (not necessarily members of a union) that is designed to express a grievance, enforce a demand for changes in the conditions of employment, obtain recognition, or resolve a dispute with management.

general—a strike that involves all organized workers in a

community or nation (rare in the United States).

sit-down—a strike during which workers stay inside the plant or workplace but refuse to work or allow others to do so.

wildcat—a strike that is not sanctioned by the union and that violates an agreement.

strip, median—see *median*.

structure, aerial—any structure, other than a culvert, that carries a roadway or guideway above an earth or water surface.

study, origin-destination (O-D study)—a study of the origins and destinations of the trips of vehicles or passengers.

subballast—coarse aggregate that is spread on the surface of a cut or fill before the ballast is spread.

subway—1. That portion of a transportation system that is constructed beneath the ground surface, regardless of its method of construction. 2. An urban public transportation system that uses below-ground right-of-way. 3. A pedestrian underpass.

survey

attitude—a survey that seeks information on attitudes, motives, and opinions.

home interview—a survey in which data are collected at the home in face-to-face or telephone interviews.

license plate—a survey in which license plate numbers of vehicles at one point are tabulated and compared with a similar listing at another point; it may be used to establish approximate trip origin by identifying the registration address from motor vehicle records.

origin-destination—see *study, origin-destination*.

postcard—a survey conducted by having the driver give a form postcard to passengers or by mailing such a postcard to the home with a request that the card be completed and mailed back.

quantitative—a survey investigation that gives results in numbers that can be tabulated and projected; see also *qualitative interview*.

roadside—a survey in which vehicles are stopped and drivers, passengers, or both are interviewed to secure information about the trip being made.

telephone—a home interview survey in which the contact is made by telephone.

travel—the collection of data that describe the social, economic, and travel characteristics of given groups of people who make trips by various modes of transportation.

suspension—1. The system of wheels and axles, air cushions, or other devices that support a vehicle on the guideway or roadway and the springs and dampers that further isolate it from shocks and vibrations. 2. A form of disciplinary action of a temporary nature, e.g., removing a worker from his job for a stipulated time with the consequent loss of pay as punishment.

switch—a device that moves rails laterally to permit movement of the vehicle from one track to another.

electrically locked—a hand-operated switch equipped with a remotely controlled electrical device that restricts the movement of the switch.

yard—a device used to alter the direction of trains from one track to another.

switching—a means of changing the route of a vehicle or

train from one guideway to another.

switching locomotive—see *engine, switch*.

t

TACV—tracked air-cushion vehicle; see *vehicle, tracked air-cushion*.

TIP—transportation improvement program.

TLV—tracked levitated vehicle; see *vehicle, tracked levitated*.

TSM—transportation system management; see *transportation system management element*.

taxicab—a vehicle that has a passenger-carrying capacity similar to that of an automobile and that serves primarily as a demand-responsive public passenger vehicle for hire; it may be a converted automobile or one specially built for taxicab service.

taximeter—a mechanical or electrical device that records and indicates a charge or fare calculated according to distance traveled, waiting time, traffic delay, initial charge, number of passengers, and other charges authorized by ordinance or by rule.

taximeter flag—that part of a taximeter that is used to mechanically engage or disengage the taximeter from operation.

telephone call list—a list of operators who desire extra work but remain at a location other than the drivers' station.

terminal—1. An area or building that serves a transportation facility for the picking up, transfer, or discharge of passengers or goods. 2. An off-street facility owned or leased by a transit company for the purpose of turning transit vehicles around. 3. An elaborate transit stop at the meeting point of several routes or of different modes of transportation that is located off-street and is designed to handle not only the movement of transit vehicles or trains and the boarding and alighting of passengers but also transfer movements between routes and different modes. 4. The end of a transit route, regardless of whether special facilities exist for turning the vehicle or handling passengers.

off-street—a turn-around point for vehicles that is located on private property away from other vehicular traffic.

stub—a terminal in which the entering vehicle must depart by the same way it came in.

terminal layout sheet—a form on which the scheduled departure times of trains from the line terminals are laid out prior to final adjustment.

terminal sheet—the final timetable of vehicle departures from the line terminals that is used, in conjunction with the time points and running time, to govern the operation of vehicles over the public streets.

terminus—either end of a route.

territory, train-control—the portion of a railroad division or district that is equipped with an automatic train-control system.

through routing—the practice of joining the ends of radial bus routes to travel through downtown rather than have each route turn back in the downtown and go back to its origin.

throughput

passenger—the number of people who pass a given point or set of points during a given period of time.

vehicle—the number of vehicles that pass a given point or set of points during a given period of time.

time

access—the time elapsed on a trip from the moment of leaving the point of origin to the moment of boarding a vehicle.

allowance—1. Time for which an operator is paid in order to meet a guaranteed minimum even though the hours have not been worked; also called pad time. 2. Time for which an employee is paid for preparing a bus for service or street relief, obtaining working materials, and putting the bus up at the end of the day.

deadhead—see *deadhead*.

delay—the amount of time by which a vehicle in service is delayed for various reasons, such as traffic congestion.

down—1. A brief period during which workers are unable to perform their tasks while they wait for vehicle replacement, repair, and so on. 2. A payment made to employees for such lost time. 3. A period during which a vehicle is inoperative because of repairs or maintenance.

dwelt—the scheduled time a vehicle or train requires to discharge and take on passengers at a stop, including opening and closing doors and time spent standing.

excess—time delay associated with travel to or between major transit routes, e.g., walking, waiting, or transferring.

interzonal travel—the travel time between zones, including the terminal time at each end of the trip and the driving time.

intrazonal travel—the travel time for trips that begin and end in the same zone, including the terminal time at each end of the trip.

journey—see *trip time, linked*.

layover (recovery time, relay time)—for buses, the time allowed at a stop between arrival and departure for the purpose of turning vehicles, recovery of delays, and preparing for the return trip.

overall travel—see *trip time, linked*.

pad—see *time, allowance* (definition 1).

penalty—the amount of time by which a run exceeds its stipulated length and for which a special allowance must be paid.

platform—the period during which an operator is charged with the operation or care of a vehicle, including dead-head, layover, and other time the vehicle may be in operation but not in passenger service.

preparation—the time given an operator to prepare a vehicle for revenue service.

preparation and storage—the time in minutes paid to an operator to prepare or store the vehicle when pulling out or in.

pull-in—the time at the end of a run that allows the operator to make the final fare-box reading, organize his or her belongings, and turn in transfers and tickets to the dispatcher; not included in platform time.

pull-out—the time at which the operator leaves the yard or garage.

relay—see *time, layover*.

relief—the time at which operators report to specified points to relieve and be relieved.

relief point—a designated time point at which drivers may take a lunch period or rest break.

report—the time at which an operator must report if he or she is to work an assignment.

running—the time required (actual or scheduled) for a transit vehicle to move from one point to another, including making stops.

spread—see *spread*.

stopped—the time spent stationary on a journey because of the stoppage of other traffic.

straight—time worked at the regular rate (distinguished from overtime).

terminal—1. The time required at trip ends to unpark and to park, including any necessary walking time. 2. For rail vehicles, the time allowed at a terminal between arrival and departure for turning vehicles, recovery of delays, and preparing for the return trip.

transfer—the time required to effect a change of mode or to transfer between routes of the same mode.

travel—see *trip time, linked*.

wait—the time spent waiting for a transit vehicle.

time off—the clock time recorded when an operator has completed the duties required after the pull-in time.

time on—the clock time recorded when an operator begins to make preparations for pull-out time.

time point—a point on a line or route for which the time that vehicles are scheduled to pass is specified (on a bus system, it is usually the arriving time; on a rail system, it is the leaving time).

time series—data collected by observing the same phenomenon at several points in time.

timetable—a listing of the times at which vehicles are due at specified time points.

token—a stamped piece, usually metal, equal in value to the flat fare or standard one-zone fare on a transit system.

track

electrified—rail track equipped for the operation of electrically propelled vehicles that receive electric power from a source external to the vehicle.

rail—the parallel rails over which rail vehicles operate; see also *trackwork*.

vehicle—the width of a wheeled vehicle, usually measured from the outside of the rims of the wheels.

track kilometers—the sum of the one-way linear kilometers of all trackage operated, including all main track and trackage in yards, car barns, switches, and turnouts.

first-track (line kilometers)—the number of linear kilometers of right-of-way occupied by one or more tracks or lanes.

revenue—the number of kilometers of track used in passenger-carrying service.

service—the number of kilometers of track used exclusively in nonrevenue service.

track schedule—a document issued once each week that describes the departments and personnel that are scheduled to occupy any portion of track during the following week.

trackwork—the rails, switches, frogs, crossings, fastenings, pads, ties, and ballast or track-support slab over which transit cars are operated.

tractive effort—the force exerted by a locomotive on the track for the movement of a train.

tractive force—the force exerted by powered equipment (e.g., a locomotive) as measured for statistical purposes at the rim of the driving wheels.

trade council—see *joint board or council*.

traffic—the vehicles or persons passing a specified point during a given period.

annual average daily (AADT)—daily traffic that is averaged over a calendar year.

annual average weekday (AAWDT)—the calendar-year average of daily traffic considering only Monday through Friday.

average daily (ADT)—the average number of vehicles that passes a specified point during a 24-h period.

converted—induced traffic that represents trips converted from some other transportation mode.

diverted—induced traffic that is transferred from another transportation route, corridor, or mode.

generated—induced traffic that is developed as new traffic as the result of an improvement; it excludes converted or diverted traffic.

induced—traffic that is increased on a facility or route not by normal growth but solely by an improvement or change in the facility.

traffic control system, centralized—a traffic control system in which the signals and switches for a designated section of track are controlled from a remotely located centralized traffic control machine.

traffic count—a record of the time and number (actual or estimated) of vehicles, people aboard vehicles, or both that pass a given checkpoint.

train—1. Two or more transit vehicles physically connected and operated as a unit. 2. An engine or more than one en-

gine coupled, with or without cars. 3. On a headway sheet, a single bus or streetcar and all the scheduled work it performs during the operating day; see *block* (definition 3).

elephant—a low-speed specialized bus that operates in trains in major activity centers.

push-pull—a conventional locomotive and a set of cars equipped with one or more cab cars from which the locomotive can be controlled; the train is either pushed by the locomotive and controlled from the leading coach or pulled and controlled from the locomotive in the conventional manner.

train control system

automatic (ATC)—a system for automatically controlling train movement, enforcing train safety, and directing train operations by electronic computers; see also *train operation system, automatic*; *train protection system, automatic*; and *train supervision system, automatic*.

continuous (continuous inductive train control)—a locomotive or self-propelled car apparatus that is constantly in operative relation with the track circuit and is immediately responsive to a change in the character of the current flowing in the track circuit.

manual (MTC)—a system in which train movement is completely controlled by the motorman.

train operation—the way in which a train is operated, which may be automatic with automatic overspeed control or manual with either automatic or manual speed control.

train operation system, automatic (ATO)—the subsystem within automatic train control that performs the functions of speed control, programmed stopping, and (sometimes) door operation.

train protection system, automatic (ATP)—the subsystem within automatic train control that provides fail-safe protection against collisions, overspeed, and other hazardous conditions.

train supervision system, automatic (ATS)—the subsystem within automatic train control that monitors trains, automatically adjusts the performance of individual trains to maintain schedules, and provides data for supervisory flexibility.

trainmen—operating employees who are qualified and engaged in work as motormen and conductors.

tramway, aerial—a means of aerial or overhead transportation in which material or personnel are transported in carriers supported and moved by means of wire ropes or cables.

transfer—1. A slip of paper issued to a passenger that gives him or her the right to change from one transit vehicle to another according to certain rules. 2. To change from one transit vehicle or mode to another transit vehicle or mode.

emergency—a transfer issued to passengers under emergency conditions that does not conform to the rules for normal transfer, e.g., one issued at the point of a break in service to permit continuation of ride by an alternate route or in a reverse direction.

free—a transfer that requires no additional payment.

paid—a transfer that requires an additional payment.

paid area—a passenger interchange made entirely within a paid area.

physical—a passenger interchange from one route to

another (by walking through a section of paid area) made without the use of a paper transfer and without payment of additional fare.

transfer passenger—see *passenger, transfer*.

transit, public (mass transit)—passenger transportation service, usually local, that is available to any person who pays a prescribed fare; it operates on established schedules along designated routes with specific stops (e.g., bus, light rail, rapid transit).

transit dependent—having to rely on public transportation to meet one's travel needs.

transit facilities, exclusive—transportation system elements (e.g., freeway ramps, bus lanes, and loading or unloading areas) that are set aside for the use of transit vehicles only.

transit system—the facilities, equipment, personnel, and procedures needed to provide and maintain mass transportation service to the public.

automated guideway (AGT)—an advanced transportation system in which automated, driverless vehicles operate on fixed guideways with exclusive right-of-way.

bus rapid—a bus operation that is generally characterized by operation on an exclusive or reserved right-of-way that permits high speeds and may include reverse-lane operations on freeways.

capsule—a system of small cars or individual capsules propelled by belts, rollers, or cables.

commuter rail—the portion of passenger railroad operations that carries passengers within urban areas but that differs from rail rapid transit in that the passenger cars are heavier, the average trip lengths are longer, and the operations are generally run by railroad companies as part of their overall service.

continuous—a system that provides continuous movement, as on a moving belt; the whole system or portions of it may operate at variable speeds.

fixed-guideway—a transit system that consists of an exclusive guideway and vehicles that cannot operate off the guideway.

group rapid (GRT)—an automated guideway system that has either on-line or off-line stations and vehicles that carry 6 to 100 passengers and may combine to operate as a single unit (train).

light-rail (LRT)—an urban transportation system that uses electrically powered rail cars operating singly or in short trains on fixed duo-rail guideways, may be grade separated, and loads passengers from low or medium-height platforms.

light-rail rapid (LRRT)—a light-rail transit system that operates on grade-separated right-of-way.

major activity center (MAC)—a system that provides service for short trips within small, densely populated major activity centers such as shopping centers and downtown areas.

metro—see *transit system, rail rapid*.

nonelectrified rail—rail operations in which the means of propulsion is produced on board the vehicle.

personal rapid (PRT)—an automated guideway transit system that uses small vehicles (two to six passengers) op-

erating under computer control between off-line stations to provide demand-responsive service (except, perhaps, during peak periods) with headways of 3 s or less.

pre-metro—a light-rail transit system that operates in tunnels that are designed to be upgraded to rail rapid transit.

rail—a rail system operated within urban areas on exclusive (or nearly exclusive) rights-of-way, whether at surface level or above or below ground, including light-rail and rail rapid transit systems but not commuter rail transit or automated guideway systems.

rail rapid—a transit system that uses high-speed passenger rail cars operating singly or in trains on fixed rails in exclusive rights-of-way in underground tunnels, on elevated structures, in open cuts, or at surface level with very few, if any, grade crossings (at which rail traffic has the right-of-way) and that generally serves one contiguous urban area; also called *metro*.

rapid—a high-speed rail or bus service that operates on exclusive rights-of-way over long distances with few stops.

semi-metro—a light-rail transit system that uses exclusive right-of-way for much of its length, usually at surface grade but occasionally in tunnels.

shuttle—a transit system that is characterized by a back-and-forth operation, usually over a short distance, and that may reverse its direction of travel rather than turn around.

shuttle-loop (SLT)—an automated guideway transit system in which vehicles (which may operate separately or in trains) operate along fixed shuttle or loop guideways with few or no switches and that usually has on-line stations.

transportation, urban public—includes both public transit and paratransit.

transportation disadvantaged—see *disadvantaged, transportation*.

transportation improvement program (TIP)—a program of proposed projects to improve an area's transportation system that is prepared for submittal to the U.S. Department of Transportation as part of the grant-in-aid application process.

transportation system—a system that provides for the movement of people and goods.

air-cushion—a transportation system that uses vehicles that are supported by a cushion of air.

balanced—a system in which all facilities and services for intrametropolitan travel are treated as part of a single system and each component is planned in a manner that most effectively uses its special characteristics in combination with other elements.

demand-actuated—see *transportation system, demand-responsive*.

demand-responsive—a transportation service characterized by flexible routing and scheduling of relatively small vehicles to provide door-to-door or point-to-point transportation at the user's demand and that operates either on the street and highway system (e.g., taxicab) or on a guideway.

dual-mode—a system that operates both manually on public streets and automatically on an automated guideway.

high-speed ground—a system that uses vehicles intended to serve a densely traveled corridor at cruise speeds of 480 to 800 km/h (300 to 500 mph).

jitney—a nonscheduled paratransit system in which small vehicles operate much like taxis except that passengers do not command exclusive use of the vehicle and vehicles generally follow a specific route but may deviate occasionally from the normal route for pickup or discharge of passengers.

pallet—a system that uses platforms or pallets to carry conventional automobiles, minibuses, or freight automatically on high-speed guideways.

pallet-pod—a pallet system that uses pods consisting of passive vehicles that are transferred from line to line by an automated conveying mechanism (pods may be suited to either passengers or goods and be of varying sizes, as may pallets).

pedestrian-assist—a system of fast pedestrian conveyors and other devices designed to aid pedestrian movement.

prototype—a system that has been built to demonstrate the capability of operating in the manner intended.

public automobile service (PAS)—a system designed to facilitate short-range urban trips at modest speed through the use of a fleet of small electric automobiles available at self-service stands every few blocks for rental by the trip to accredited drivers.

tube—a system in which vehicles (usually nonpowered vehicles propelled by differential air pressures, gravity, or both) operate within a sealed tube at very high speeds.

urban—the system of elements that supports the movement of people and goods in a city (e.g., transit services, highways, traffic engineering, and operations), including both private and publicly owned carriers.

transportation system management (TSM) element—the portion of the transportation improvement program that outlines non-capital-intensive steps that will be taken to improve the transportation system, e.g., improvements in system and traffic management, such as bus priority or reserved lane systems and restrictions on downtown traffic or parking.

tread, steel wheel—the exterior cylindrical or conical surface of a wheel that comes in contact with the rail.

tree—a record that shows the shortest routes and travel times from a given zone to each node in the highway network (the tracing of routes has a strong resemblance to the trunk and branches of a tree).

skimmed—a series of records, compiled using data obtained from the tree records, that lists the travel time, cost, or distance between each pair of zones.

trace—the sequence of nodes that defines the links that comprise the shortest path between two centroids.

trip—1. A one-way movement of a person or vehicle between two points for a specific purpose. 2. A mechanical lever or block signal that, when in the upright position, activates a train's emergency braking system.

external-external—a trip that has both its origin and destination outside the study area but that involves travel

through the study area.

external-internal—a trip that has either its origin or destination inside the study area.

home-based—a trip that has either its origin or destination at the residence.

inbound—a trip into the central business district.

internal-internal—a trip that has both its origin and its destination inside the study area.

interzonal—a trip that involves travel between two zones.

intrazonal—a trip that has both its origin and its destination in the same zone.

linked (linked journey)—a trip from the point of origin to the final destination, regardless of the number of vehicles used.

non-home-based—a trip that has neither its origin nor its destination at the home.

one-way—see *trip*.

outbound—a trip out of the central business district.

part—a trip added to the beginning or end of a regular run (the regular operator has preference in working the part trip at overtime pay, unless the extra time exceeds 1.5 h).

person—a trip made by a person by any mode or combination of modes for any purpose.

round—the movement of a person or a vehicle from a point of origin to a destination and then back to the same point of origin.

track—a device that is located near the track and interconnected with the signal system in such a way that the brakes of a train that passes a red signal will be applied and the train will be brought to a stop.

unlinked—a trip made in a single vehicle.

vehicle—the one-way movement of a vehicle between two points.

trip assignment—a process by which trips described by mode, purpose, origin, destination, and time of day are allocated among the paths or routes in a network according to one of a number of flow-distribution models.

all-or-nothing—a trip-assignment technique that allocates the total number of trips between two zones to only one path between them, usually chosen on the basis of minimum travel time.

capacity restraint—an iterative process by which the volume allocated to a route is compared with the capacity of that route and the speed of the route is adjusted accordingly to reflect its characteristics of speed, volume, and density; new minimum-time paths are calculated at the beginning of each iteration.

diversion—a trip-assignment technique that allocates trips to alternate routes on the basis of the relative times or distances or both involved.

incremental—a trip-assignment procedure that approximates flow equilibrium by loading fixed increments of traffic and adjusting link speeds to reflect relationships of speed, volume, and density; minimum-time paths are calculated after each incremental assignment.

stochastic—a probabilistic trip-assignment technique that allocates trips with deviation from the minimum-time route on the basis of differences in travel time.

trip card—a computer data card that contains survey-derived, trip-related information.

trip distance

linked (total travel distance)—the distance traveled on a linked trip, i.e., from the point of origin to the final destination, including the walking distance at trip ends and at transfer points.

unlinked—the distance traveled on an unlinked trip, i.e., on a single vehicle.

trip distribution—see *distribution, trip*.

trip end—a trip origin or a trip destination.

trip generation—the determination of the number of trips that have their origin or destination in a specified location or area.

trip generator—a point from which trips are produced, such as a dwelling unit, a store, a factory, or an office.

trip-length frequency distribution—a distribution of the number or the percentage of trips made at various intervals of trip time or distance.

trip production—the number of trips that have their origin or destination at a specified location or area.

trip purpose—the primary reason for making a trip (e.g., work, shopping, medical appointment, recreation).

trip sheet—1. A sheet on which operators and trainmen record their day's work and receipts for a run. 2. A record kept of the information required by ordinance or by rule for a shift worked by the driver of a public passenger vehicle in demand-responsive service.

trip table—1. A table that shows the number of trips between zones classified by mode, purpose, time period, type of vehicle, or other category. 2. A matrix of the number of passenger or vehicle trips from one area or zone to another. 3. A matrix of the number of trips from each zone to all other zones.

trip time

linked (total travel time, journey time)—the time duration of a linked trip, i.e., from the point of origin to the final destination, including waiting and walking time at trip ends and transfer points.

unlinked—the time duration of an unlinked trip, i.e., one made on a single vehicle.

tripper (extra)—a short piece of work that cannot be incorporated into a full day's run.

trolley—an electric power collector, the function of which is to make contact with a trolley wire.

trolley bus (trolley coach)—see *bus, trolley*.

trolley car—see *streetcar*.

trolley pole—a swiveling spring-activated pole attached to an electric car or locomotive that holds the trolley in contact with the overhead conductor, which is usually a trolley wire.

trolley wire—an overhead electric conductor that supplies power to trolley buses and rail cars.

truck—the assembly of parts consisting of wheels and axles with necessary springs and structural members that support the main body of a rail car at each end.

tube, cathode-ray (CRT)—a vacuum tube similar to a television picture tube that is used for visual readout of com-

puter data in some vehicle control and information systems.

tunnel—the portion of a transportation facility that is constructed beneath the ground surface.

turnout—the arrangement of a switch and a frog with closure rails by which rolling stock can be diverted from one track to another.

turnover point—a point along a transit route at which a large proportion of passengers leave the vehicle.

turnstile, fare-registering—a device that unlocks a turnstile to allow a passenger to enter the paid area after inserting the correct amount of money or a token.

U

UA—urbanized area.

underground—a rail transit system that operates in tunnels or subways located below ground level.

unfair labor practice—an action by either an employer or union that violates the provisions of national or state labor relations acts (e.g., refusal to bargain in good faith).

union recognition—acceptance by an employer of a union as the representative of his or her employees; the first step in the establishment of a collective bargaining relationship.

union security—protection of a union's status by a provision in the collective bargaining agreement that establishes a closed shop, union shop, agency shop, or maintenance-of-membership arrangement.

union shop—an establishment in which, by agreement, all employees are required to become members of the union within a specified time after hiring (typically 30 days) and to remain members of the union as a condition of continued employment.

unit

A—a motive power unit so designed that it may be used as the controlling unit of a multiple-unit train and that

has adequate visibility in a forward direction as well as a cab and equipment to permit full control and observation of the propulsion power and brake applications for the train.

B—a motive power unit designed primarily for use in combination with an A unit for the purpose of increasing power but not equipped for use as the leading unit or for full observation of the propulsion power and brake applications for the train; it is normally equipped with a single control station to permit independent movement of the unit itself.

electric motive-power—a self-contained electric traction unit that consists of wheels and a superstructure capable of independent propulsion from a power supply system and that may have an independent control system (usually applied to locomotives that receive electric power from an external source).

unlimited access—see *access, unlimited*.

urbanized area (UA)—a city (or twin cities) that has a population of 50 000 or more (central city) and surrounding incorporated and unincorporated areas that meet certain criteria of population size or density.

V

VMT—vehicle miles of travel; see *vehicle kilometer*.

value, default—a design value that is based on experience or studied conclusions and that is used as a substitute value when an actual value is not available.

van, subscription—see *service, subscription van*.

van pool—a prearranged ride-sharing service in which a number of people travel together on a regular basis in a van, which may be a company-sponsored van that has a regular volunteer driver.

vehicle

air cushion (ACV)—any vehicle supported by a cushion of air.

high-occupancy (HOV)—a passenger vehicle that carries two or more persons, e.g., a bus, car pool, van pool.

linear induction motor (LIMV)—a vehicle propelled by a linear induction motor.

magnetic cushion—a vehicle suspended by magnetic levitation.

passenger—any piece of transit equipment used for the

movement of passengers.

public service—a vehicle used for public passenger transport.

revenue—a vehicle used to provide goods movement or passenger transit service for which a fare is normally required.

tracked air-cushion (TACV)—a laterally guided vehicle that is suspended above the track by an air cushion system.

tracked levitated (TLV)—a laterally guided vehicle that is suspended above the track by an air cushion system, magnetic levitation, or other means.

vehicle hour—the operation of a transportation vehicle for a period of 1 h.

vehicle identification system, automatic (AVI, automatic vehicle location)—a system that senses, at intervals, the location of vehicles that carry special electronic equipment that communicates a signal back to a central control facility.

vehicle kilometer—the movement of one vehicle a distance of 1 km (0.62 mile) in transportation service.

nonrevenue—the distance in kilometers that a vehicle is operated while it is not used for passenger service, e.g., movement into shops or transfer between operating stations.

revenue—the distance in kilometers that a revenue vehicle is operated while it is available for passenger service.

vehicle monitoring, automatic (AVM)—a procedure whereby electronic equipment sends signals back to a central control facility to locate a vehicle and provide other information about its operations.

velocity (speed)—the time rate of motion in a given direction.

cruise—the forward speed that a vehicle maintains when it is neither accelerating nor decelerating.

effective—the average speed at which a vehicle travels, including dwell times at stations, acceleration, and deceleration.

maximum—the highest speed that a vehicle or train is capable of achieving.

vestibule diaphragm—see *diaphragm, vestibule*.

vine—a record that shows the shortest routes from a given zone to all nodes; a node may be passed through more than once.

voltage

high—the prime power voltage supplied to a rail car by the catenary or third rail, usually 500 to 1500 V direct current.

low—the voltage used for most auxiliary systems on a rail car, usually 24 to 72 V direct current or 110 to 240 V alternating current.

volume

design hourly (DHV)—the amount of traffic a transportation facility is designed to carry in an hourly period.

line—the total number of passengers carried on a transit line during a given period.

link—in planning, the total number of highway vehicles or transit passengers assigned to a network link.

service—the maximum number of vehicles that can pass a given point during a specified period while a specified level of service is maintained.

W

wage escalation—see *escalator clause*.

walkway, moving (moving sidewalk, passenger conveyor, passenger belt)—a fixed conveyor device (usually in the form of a flexible metal belt) on which pedestrians may stand or walk while being transported.

Washington Job Protection Agreement—an agreement negotiated in the railroad industry in 1936 and still in effect that provides displacement and severance allowances to employees who are required to accept new positions or who are separated from employment because of unification, consolidation, merger, or pooling of separate facilities, operations, or services.

way—see *guideway*.

way, moving—a way over which vehicles, passengers, or goods are propelled passively and controlled via a moving

belt, cable, or other mechanical means; see also *walkway, moving*.

wheel

driving—a wheel that is directly powered by an electric traction motor and that transforms motor torque into tractive effort.

flat—a car wheel that has flat spots on the tread.

kinetic energy (KEW)—a flywheel designed to store rotational energy.

work sharing—an arrangement designed to avoid layoffs whereby available work during slack periods is spread as evenly or as equitably as possible among the regular employees by reducing each worker's daily or weekly hours or by establishing a week-on, week-off basis; also called division of work, share the work, spread the work.

Y

yard—1. A system of tracks within defined limits that is provided for making up trains, storing cars, and other purposes and over which movements not authorized by timetable or train order may be made subject to prescribed sig-

nals and rules or special instructions. 2. An open storage lot for electric trolley buses and motor buses.

yaw—an angular motion about the vertical axis of a vehicle.

Z

zone, traffic assignment—a division of a study area that is represented by a centroid and used for traffic assignment purposes.

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