

Glossary of Terms

2050 Vision

The year 2050 provides a vision horizon for developing long-term transportation solutions for the I-70 Mountain Corridor project. The alternatives are developed and evaluated on a variety of performance measures that can be reliably established for 2035 and for their ability to meet travel demand in 2050.

7th Pot Program

A group of 28 statewide transportation projects that the Colorado Department of Transportation (CDOT) has identified and placed on an accelerated construction schedule because they have strategic and high priority significance to regional and local transportation planning.

Acid mine drainage

Drainage from mines and mine wastes with a pH between 2.0 and 4.5. It results from the oxidation of sulfides exposed during mining, which produces sulfuric acid and sulfate salts. The acid dissolves minerals in the rocks, degrading the quality of the drainage water.

Advanced Guideway System

An Advanced Guideway System is generally a high-speed fixed guideway transit system. The specific technology for the Advanced Guideway System has not been defined but is intended to represent a modern, “state-of-the-art” transit system. For the purposes of analysis in this document, the advanced guideway technology is assumed to be an urban magnetic levitation (maglev) transit system. However, the actual technology would be identified in feasibility studies and related Tier 2 processes.

Aesthetic Design Guidelines

Guidelines that professionals who plan, design, and construct transportation facilities use to improve the aesthetic appearance of transportation projects. The goal of aesthetics design in the highway environment is to create a pleasurable experience for the user and a positive contribution to the visual character of the community, while attending to safety and efficiency needs.

A Landscape Level Inventory of Valued Ecosystem Components (ALIVE)

The Colorado Department of Transportation initiated the A Landscape Level Inventory of Valued Ecosystem Components (ALIVE) Committee to develop an ecosystem approach at a landscape level to identify wildlife habitat of high ecological integrity, wildlife habitat linkages, and barriers to wildlife crossings along I-70. The ALIVE committee was composed of wildlife professionals from agencies with jurisdictional concerns in the Corridor. The committee also evaluated goals for the development of conservation measures such as the design of structures suitable for wildlife crossings and protective land purchase to preserve habitat linkage for lynx and other wildlife species in the Corridor.

Annual average daily traffic (AADT)

Daily traffic volumes averaged over all 365 days in the year.

Area of Potential Effect (APE)

Geographic area likely to be affected by direct, indirect, and/or cumulative impacts of a proposed action.

Attainment area

An area considered to have air quality as good as or better than the National Ambient Air Quality Standards defined in the Clean Air Act.

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Auxiliary lane

A lane that extends between a freeway on-ramp and off-ramp. They are added on freeways to reduce impacts of heavy on-ramp traffic merging with a freeway through lane.

Barrier effect

The results of adding natural or man-made diversion structures that prevent a plant or animal from moving across an otherwise permeable area. Barriers can be physical obstructions that physically prevent movement (such as walls or fences), or they can be behavioral obstructions that prevent movement due to a perception of danger or risk (for example, areas with substantial human activity or habitat transitions such as a forest edge).

Best management practices

Structural and/or management practices employed before, during, and after construction to protect receiving-water quality. These practices provide techniques to either reduce soil erosion or remove sediment and pollutants from surface runoff.

British Thermal Unit (BTU)

The amount of energy required to heat one pound of water one degree Fahrenheit. It is used to describe the efficiency of fuels; that is, the heat energy obtained when a certain quantity is burned.

Bus in Guideway

A Bus in Guideway is dedicated to special buses with guideway attachments such as guide wheels used for steering control permitting a narrow guideway and safer operations. Two vehicle types are considered in this document: dual-mode and diesel. The dual-mode buses use electric power in the guideway and diesel power when outside the guideway in the general purpose lanes. The diesel buses use diesel power at all times, both in the guideway and outside the guideway. In addition to serving Corridor destinations, buses can drive outside the guideway in general purpose lanes and provide continuous routing, without transfers, between several Denver metropolitan area locations and off-Corridor destinations (such as Central City, Black Hawk, Winter Park Resort, Keystone Resort, Arapahoe Basin Ski Area, and Breckenridge). The specific technology and alignment would be determined in a Tier 2 process.

Capacity

The maximum number of vehicles that can be expected to pass through a given segment of roadway or lane during a given period of time, measured in vehicles per hour or passenger cars per hour.

Catenary

Overhead wires that provide electricity for transit propulsion.

Clean Water Act

The Clean Water Act establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and regulating quality standards for surface waters. The Federal Water Pollution Control Act was enacted in 1972 by Public Law 92-500 and amended by the Water Quality Act of 1987. The act regulates discharge of pollutants to waters of the U.S.

Collaborative Effort

A process to establish trust and confidence in agency leadership and collaborative decision making. The Collaborative Effort team formed for this process consists of a 27-member stakeholder group that formed to build agreement (consensus) around a broad alternative that identifies travel modes and transportation improvement priorities for the I-70 Mountain Corridor project.

Collapsible soil

Deposits that undergo a sudden change in structural configuration when inundated with water, with an accompanying decrease in volume. This process is also known as *hydrocompaction*, *hydroconsolidation*, *collapse*, *settlement*, *shallow subsidence*, and *near-surface subsidence*. The volume change occurs with no change in vertical load, caused solely by the effects of water. Additional subsidence can be caused by solution of disseminated gypsum crystals in the soil when saturation occurs.

Consensus Recommendation

The final recommendation of the Collaborative Effort team regarding improvements to the Corridor. *See Collaborative Effort*. The Consensus Recommendation is included in Appendix C of the PEIS and formed the basis for the Preferred Alternative analyzed in this document.

Construction energy

The energy that goes into developing the raw materials and equipment necessary to build and maintain the roadway; the energy expended in physically constructing a roadway.

Context Sensitive Solutions (CSS)

A collaborative, interdisciplinary approach that involves all stakeholders in developing a transportation project that fits into its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. Stakeholders are involved early, continuously, and meaningfully throughout the project development process.

Criteria pollutant

A pollutant determined to be hazardous to human health and regulated under the Environmental Protection Agency's National Ambient Air Quality Standards. The 1970 amendments to the Clean Air Act require the Environmental Protection Agency to describe the health and welfare impacts of a pollutant as the "criteria" for inclusion in the regulatory regime.

Cultural resource

The physical remains of past human activity having demonstrable association with prehistoric or historical events, individuals, or cultural systems. Cultural resources may include archaeological sites, districts, and objects; standing historical structures, objects, or groups of resources; locations of important historic events; or places, objects, and living or nonliving things that are important to the practice and continuity of traditional cultures.

Cumulative impacts

Impacts that occur when the effects of an action are added to or interact with the effects of other human-initiated actions or natural events in a particular place and within a particular timeframe. Other known past, present, and future actions must be taken into account. Cumulative impacts combine to produce effects that are different than if each occurred in isolation. The Council on Environmental Quality (CEQ) requires that these impacts be addressed in National Environmental Policy Act documents. The study area is usually larger and the timeframe longer than for direct and indirect effect analyses.

Cut and fill

The process of constructing a railway, road, or canal whereby the amount of material from cuts roughly matches the amount of fill needed to make nearby embankments, so minimizing the amount of construction labor.

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dB(A)

The abbreviation for the *A-weighted sound level* measured in decibels that describe a receiver's noise at a specific moment in time. The letter *A* indicates that the sound has been filtered to reduce the strength of very low and very high frequency sounds, much as the human ear filters sound.

***de minimis* impact**

For publicly-owned public parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the activities, features, or attributes of the property. For historic sites, a *de minimis* impact means that the FHWA has determined (in accordance with 36 Code of Federal Regulations Part 800) that either no historic property is affected by the project or that the project will have “no adverse effect” on the historic property. A *de minimis* impact determination does not require analysis to determine if avoidance alternatives are feasible and prudent, but consideration of avoidance, minimization, mitigation or enhancement measures should occur.

Decibel

The unit used to measure the intensity of a sound.

Denver metropolitan area

The greater Denver area consisting of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties.

Design Speed

The maximum speed at which a vehicle can be operated safely on a road in perfect conditions.

Dewater

Remove or reduce water content from a sludge or slurry, or to remove water during construction activities, such as bridge construction, tunneling, or utility relocation. .

Direct impact

Effects that in some way alter the quality of life or fitness of a receptor. Direct impacts are experienced immediately when a project is implemented.

Drainage tunnel

A horizontal opening designed to intersect mine workings and ore veins below the groundwater table to dewater the mines without pumping.

Ecotone

The zone where two vegetation types or successive stages meet.

Effluent

Wastewater (treated or untreated) that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters.

Energy consumption

The use of energy to power engines, machines, or buildings. Vehicles consume petroleum-based fuels, one of the earth's main energy sources. Vehicle energy consumption is affected by the type of vehicle using the roadway, the travel speed, geometry, congestion, and condition of the road.

Entrenched channel

An area that contains continuously or periodically flowing water that is confined by banks and a streambed. An entrenched channel usually has a relatively narrow width with little or no flood plain and often has meanders worn into the landscape.

Environmental Justice

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmentally Preferable Alternative

Under NEPA regulations, the agency must identify the “environmentally preferable alternative” in the Record of Decision. The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.

Expansive soil and rock

Soil and rock composed entirely or in part of clay or claystone. Expansive soil swell when wet.

Fen

Wetlands with a highly organic upper soil horizon (more than 12 percent organic matter).

Fixed Guideway Transit

A "fixed guideway" refers to any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes heavy rail, commuter rail, light rail, monorail, trolleybus, aerial tramway, inclined plane, cable car, automated guideway transit, ferryboats, that portion of motor bus service operated on exclusive or controlled rights-of-way, and high-occupancy-vehicle (HOV) lanes.

Floodplain

An area adjacent to a stream or river that is inundated periodically by high volume flows.

Forest Service Sensitive Species

Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by:

- a. Significant current or predicted downward trends in population numbers or density.
- b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution

Fugitive dust

A type of nonpoint source air pollution that does not originate from a specific point. Fugitive dust originates in small quantities over large areas. Significant sources include unpaved roads, agricultural cropland, and construction sites.

Geographic Information System (GIS)

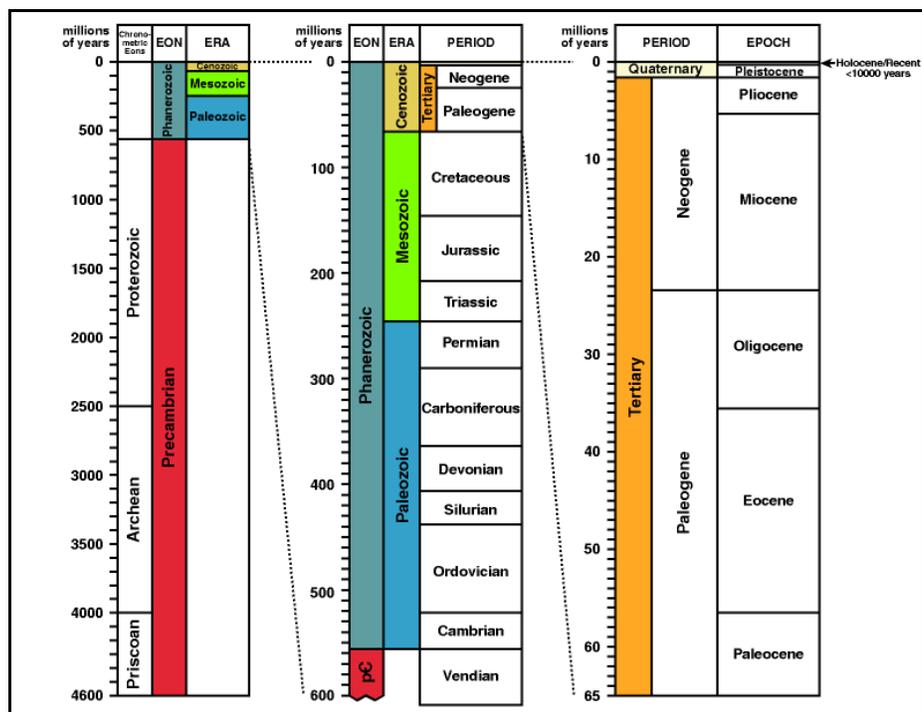
A computerized data management system designed to capture, store, retrieve, analyze, and display geographically referenced information. An environmental inventory is a collection of GIS data pertaining to a geographic area, and it can be used in environmental analysis and documentation for highway projects.

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Geologic hazard

A naturally occurring or man-made geologic condition or phenomenon that presents a risk or potential danger to life and property. Examples include landslides, flooding, earthquakes, ground subsidence, faulting, dam leakage and failure, mining disasters, pollution, and waste disposal.

Geologic time periods



Geologic units

A volume of a certain kind of rock of a given age range. Geologic units of different ages usually appear in different shades of color on a map. For example, sandstone of one age might be colored bright orange, while sandstone of a different age might be colored pale brown. Many geologic units are given names that relate to where their characteristics are best displayed, or where they were first studied. They are named and defined by the geologists who made the geologic map, based on their observations of the kinds of rocks and their investigations of the age of the rocks.

Geomorphology

The science that treats the general configuration of the Earth's surface; specifically, the study of the classification, description, nature, origin, and development of present landforms and their relationships to underlying structures, and the history of geologic changes as recorded by these surface features. The term applies especially to the genetic interpretation of landforms and is also used to describe features produced only by erosion or deposition.

Gold Medal fishery

Designations made by the Colorado Division of Wildlife based on more formal studies of fish population and fish weight as well as "exceptional" recreational value.

Greenhouse gas emissions

The physical and chemical reactions that release gases into the atmosphere through natural and human-made processes. Some sources of human-made greenhouse gas emissions include the combustion of fossil fuels, deforestation, livestock, and agricultural activities.

Greenhouse gases

Many chemical compounds found in the Earth's atmosphere act as "greenhouse gases." These gases allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth's surface, some of it is reflected back towards space as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide, methane, and nitrous oxide), while others are exclusively human-made (like gases used for aerosols).

Gross Regional Product

One of several measures used to estimate the size of a metropolitan area's economy. The market value of all final goods and services produced within a metropolitan area in a given period of time.

Historic property

A legal term that refers specifically to any property (historic or prehistoric) listed on or eligible for inclusion in the National Register of Historic Places (National Register). A historic property can be an archaeological site, a historic site, or a traditional use area. Not all such sites meet the specific National Register criteria for historic property designation.

HOV/HOT lanes

An HOV lane is an exclusive traffic lane or facility limited to carrying high occupancy vehicles (HOVs) and certain other qualified vehicles. An HOV is a passenger vehicle carrying more than a specified minimum number of passengers (for example, an automobile carrying more than one or more than two people). HOVs include carpools and vanpool as well as buses. A High Occupancy Toll (HOT) lane is an HOV facility that allows lower occupancy vehicles (that is, solo drivers) to use these facilities in return for toll payments, which could vary by time-of-day or level of congestion.

Impervious surface

Impervious surfaces are mainly artificial structures—such as pavements (roads, sidewalks, driveways and parking lots) that are covered by impenetrable materials such as asphalt, concrete, brick, and stone—and rooftops. Soils compacted by urban development are also highly impervious. Impervious surfaces are an environmental concern because, with their construction, that can modify urban air and water resources. For example, pavement materials seal the soil surface, eliminating rainwater infiltration and natural groundwater recharge, or pollutants can enter stormwater/sewer systems and ultimately streams, leading to negative effects on fish, animals, plants, and people.

Indirect impact

Effect on a receptor, its habitat, or its environment that occurs after project implementation. An indirect impact is often not immediately obvious.

Induced growth

Land development or economic growth that occurs in response to changes in the natural or built environment, such as changes to a transportation facility.

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Indirect land use impacts (or longer-run and wider-spread changes to development patterns and comprehensive plans) that are induced by a transportation improvement. Induced growth can reduce the effectiveness of transportation investment, may conflict with local growth desires, and trigger adverse environmental impacts.

The estimation of induced growth effects requires the identification of the transportation project contribution to changes in development patterns. Once the project effect on land use has been identified, this information can be used to estimate the environmental impacts attributable to land use changes caused by the transportation project, such as habitat fragmentation or stormwater runoff effects on water quality.

Intelligent Transportation Systems (ITS)

The application of advanced technologies to improve the safety and efficiency of transportation systems.

Jurisdictional wetland

Jurisdictional wetlands are those that are regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Jurisdictional wetlands must exhibit three characteristics: hydrology, hydrophytes, and hydric soils, as defined by the USACE.

Kilowatts (or kilowatt-hours)

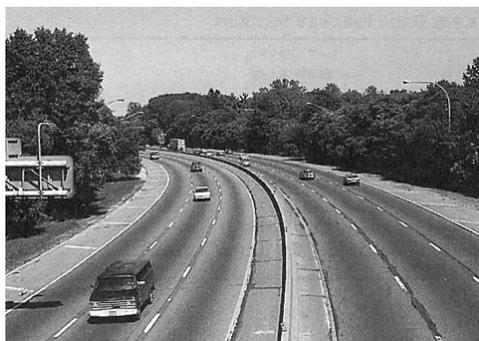
A unit of energy equal to 1,000 watts. A kilowatt is used to quantify the energy output or energy consumption of engines or machines. One kilowatt is approximately equivalent to 1.34 horsepower.

Lateral channel

An area of continuously or periodically flowing water that is confined by banks and a streambed but undergoes structural changes that can be measured due to erosion.

Level of Service (LOS)

A qualitative measure of the operational characteristics of a traffic stream, ranked from A (best) to F (worst). LOS is described in terms of speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.



Level of Service A: Free-flow operations; vehicles are able to move freely within the traffic stream. Average spacing between vehicles is 528 feet or 26 car lengths, giving motorists a high comfort level. Effects of minor traffic incidents are easily absorbed, with traffic quickly returning to free-flow operation.

Level of Service B: Reasonably free-flow; speeds are generally maintained. Lowest average spacing between vehicles is 330 feet or 18 car lengths. Ability to maneuver within the traffic stream is only slightly restricted; the motorist has a generally high comfort level. Incidents are still quickly absorbed.



Level of Service C: Speeds are still at or near free-flow speeds, but freedom to maneuver is noticeably restricted; lane changes require vigilance. Minimum average spacing between vehicles is in the range of 220 feet or 11 car lengths. Queues may form behind any significant lane blockage. Drivers experience an increase in tension because of additional vigilance required for safe operation.

Level of Service D: Speeds begin to decline slightly with increasing flows. Vehicles are spaced at about 165 feet or 9 car lengths. In this range, density begins to increase more quickly with increasing flow. Freedom to maneuver is more limited; drivers experience reduced physical and psychological comfort levels. Even minor disturbances create queuing.



Level of Service E: Operations are volatile, because there are virtually no usable gaps in the traffic stream. Vehicles are spaced at approximately 6 car lengths, with little room to maneuver at more than 50 mph. Any disruption (vehicles entering from an entrance ramp or changing lanes) causes a disruption wave to move throughout the traffic flow. The lower boundary of LOS E (between LOS E and LOS F) is considered to be operating at capacity, at which point the traffic stream has no ability to dissipate any disruptions. Maneuverability is extremely limited, and driver comfort level is extremely poor.

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Level of Service F: This LOS signifies a breakdown in vehicular flow. Queues form behind breakdown points that occur because of traffic incidents and recurring points of congestion (merging or weaving where the number of vehicles arriving is greater than the number of vehicles discharged). Breakdown occurs when the ratio of arrival flow rate to actual capacity or the forecast flow rate to estimated capacity exceeds 1.00. Whenever LOS F conditions exist, there is a potential for breakdown in traffic flow to extend upstream for significant distances.



Life zones

A geographic region or area defined by its characteristic life forms that are usually delineated by latitudes. In Colorado, the Alpine life zone has different plant and animal communities than the Foothills life zone.

Linkage interference zone

A term for habitat connectivity that refers to the connection of or the interference with habitats across a barrier. Linkage zones are not necessarily associated with predictable daily or seasonal movements.

Loudest hour

Noise impacts are defined by loudest hour equivalent noise levels (Leq) that approach or exceed FHWA Noise Abatement Criteria (NAC) values for the appropriate Activity Category. For example, the Noise Abatement Criterion for residential areas (Category B) is 67 dB(A) Leq. The FHWA Noise Abatement Criteria are used in determining traffic noise impacts on human activities.

Low-income population

Low-income populations are defined using income limits set annually by the U.S. Department of Housing and Urban Development (HUD), which considers individuals and households earning less than 30 percent of the area median income of a community to be low-income. Income limits are adjusted for household size to establish county-specific low-income thresholds.

Macroinvertebrates

Invertebrates visible to the naked eye, such as insect larvae and crayfish.

Magnetic levitation (maglev)

A system of transportation that suspends, guides, and propels vehicles (predominantly trains) using magnetic levitation from a very large number of magnets for lift and propulsion. This method has the potential to be faster, quieter, and smoother than wheeled mass transit systems. The power needed for levitation is usually not a particularly large percentage of the overall consumption; most of the power used is needed to overcome air drag, as with any other high speed train.

Maintenance area

An area in compliance with the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act.

Management Indicator Species

Animals or plants selected because changes in their population respond to the effects of Forest Service management activities. The Management Indicator Species list is one of the many tools the United States Forest Service uses to provide for the diversity of plant and animal communities and to gauge the effects of management activities.

Management prescription area

Specific geographical areas defined by a forest plan. Each management area has a set of objectives, allowable land uses, and characteristics unique to it.

Mill tailings

Remnant rock that was crushed and ground to 40 mesh size and processed through amalgamation or other procedures to extract precious metals.

Minority population

Minorities are defined as persons who are Black, Hispanic, Asian American, or Native American Indian or Alaskan.

Mobility

The ability of traffic or other travel modes to move unimpeded through a highway or other transportation facility.

Mitigation measure

Action developed in response to an impact identified in the analysis that could be taken to avoid, reduce, or compensate for the projected impact. Usually includes appropriate monitoring and enforcement activities to comply with NEPA's intent.

Mobile source air toxics (MSATs)

Compounds emitted from highway vehicles and nonroad equipment which are known or suspected to cause cancer or other serious health and environmental effects. Identified by the Environmental Protection Agency, MSATs are the 21 hazardous air pollutants generated in large part by transportation sources.

MOBILE6

An emission factor model that the Environmental Protection Agency uses for predicting gram per mile emissions of hydrocarbons (HC), carbon monoxide (CO), nitrogen oxides (NO_x), carbon dioxide (CO₂), particulate matter (PM), and toxics from cars, trucks, and motorcycles under various conditions.

Mountain pine beetle

The mountain pine beetle, *Dendroctonus ponderosae*, is a species of bark beetle native to the forests of western North America. Mountain pine beetles inhabit pines, particularly the Ponderosa pine, lodgepole pine, whitebark pine, Scots pine, and limber pine. During early stages of an outbreak, attacks are limited largely to trees under stress from injury, poor site conditions, fire damage, overcrowding, root disease, or old age. As beetle populations increase, the beetles attack the largest trees in the outbreak area.

Multimodal

Involving various modes of highway and non-highway transportation, such as rail, transit, walking, and bicycling.

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National Ambient Air Quality Standards

The Clean Air Act requires the Environmental Protection Agency to set National Ambient Air Quality Standards (40 Code of Federal Regulations Part 50) for pollutants considered harmful to public health and the environment. The Environmental Protection Agency's Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. They include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), particulate matter (PM₁₀ and PM_{2.5}), ozone (O₃), and sulfur dioxide (SO₂).

National Environmental Policy Act (NEPA)

The National Environmental Policy Act of 1969 establishes policy, sets goals, and provides means for the protection of the environment in federal decision-making. Under NEPA, all federal agencies must consider the environmental impacts of any proposed action that includes federal money or affects federal land and public input in relevant decisions. The Council on Environmental Quality regulations for implementing NEPA are found in 43 Code of Federal Regulations 1500–1508.

National Register of Historic Places

The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. Properties listed or eligible for listing in the National Register of Historic Places meet defined criteria and are significant to the history of their community state, or the nation.

Noise abatement criteria

Federal Highway Administration regulations for mitigation of highway traffic noise in the planning and design of federally aided highways are contained in 23 Code of Federal Regulations Part 772. The regulations require the following during the planning and design of a highway project:

1. Identification of traffic noise impacts; examination of potential mitigation measures;
2. Incorporation of reasonable and feasible noise mitigation measures into the highway project; and
3. Coordination with local officials to provide helpful information on compatible land use planning and control.

The regulations contain noise abatement criteria that represent the upper limit of acceptable highway traffic noise for different types of land uses and human activities. The regulations do not require meeting the abatement criteria in every instance. Rather, they require highway agencies make every reasonable and feasible effort to provide noise mitigation when the criteria are approached or exceeded.

Nonattainment area

A geographic area in which the level of air pollution is higher than the level allowed by nationally accepted standards for one or more pollutants.

Nonjurisdictional wetland

Wetlands not under the jurisdiction of the U.S. Army Corps of Engineers. See **Jurisdictional Wetland**. Examples of non-jurisdictional wetlands include irrigation ditches and roadside drainage ditches.

Nonpoint source pollution

Pollution that originates from diffuse areas and unidentifiable sources. Common non-point sources are agriculture, forestry, the atmosphere, ground water, city streets, mining, construction, dams, channels, landfills, and saltwater intrusion.

Noxious weeds

An alien plant or parts of an alien plant that have been designated by rule as being noxious or has been declared a noxious weed by a local advisory board, and meets one or more of the following criteria:

1. Aggressively invades or is detrimental to economic crops or native plant communities;
2. Is poisonous to livestock;
3. Is a carrier of detrimental insects, diseases, or parasites; and
4. Is detrimental to the environmentally sound management of natural or agricultural ecosystems due to the direct or indirect effect of the presence of this plant.

Operational energy

The energy consumed by vehicles once a highway is constructed that is dependent on the fleet make-up and projected traffic volumes.

Peak Hour

The hour in which the maximum traffic demand occurs on a roadway facility. On most roads during weekdays, higher traffic volumes occur in the morning and in the evening because of work-related trips.

Pier

In engineering, a term applied to a mass of reinforced concrete or masonry supporting a large structure, such as a bridge.

Placer mine

The extraction and concentration of heavy metals or minerals from placer deposits by various methods, generally using running water. Also *hydraulic mining*, *drift mining*.

Point source pollution

Any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship, or factory smokestack.

Preferred Alternative

The "agency's preferred alternative" is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors. The Preferred Alternative for the I-70 Mountain Corridor project is described in Chapter 2, Section 2.7.

Preservation options

Strategies used by state and local governments to protect existing transportation or planned corridors from inconsistent development. These techniques may include, but are not limited, to the following:

- Local zoning and subdivision controls
- Growth management controls
- Right-of-way acquisition

Programmatic Environmental Impact Statement (PEIS)

A programmatic environmental impact statement is a way of considering a program of improvements under NEPA that resemble a planning process resulting in a number of projects, some with potentially different purposes and needs. (See **Tier 1**).

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Propulsion energy

The energy required to move a vehicle; today, vehicles generally use internal combustion engines or electrical motors. Recent trends in technology aim to reduce energy consumption through development of energy-efficient propulsion systems.

Ramp meter

A traffic signal located at the on-ramp to a highway to control the flow rate of vehicles entering the highway. A ramp meter controls the frequency and spacing of merging vehicles, which helps to improve the traffic flow on the highway.

Rapid subsidence

The accelerated downward settling or sinking of the Earth's surface with little or no horizontal motion.

Record of Decision

The Record of Decision is the final step for agencies in the EIS process. The Record of Decision is a document that states what the decision is; identifies the alternatives considered, including the environmentally preferred alternative; and discusses mitigation plans, including any enforcement and monitoring commitments.

Receptor

Another term for an affected resource, either human or natural. NEPA provides a complete list of receptors that must be analyzed in EIS documents.

Re-entrained dust

Material re-suspended in the air by vehicles traveling on unpaved and paved roads. Re-entrained dust on road and pavement surfaces arises from winter sanding, vehicle tires tracking soil from unpaved roads, the erosion of the road surface itself, and the degradation of parts of the vehicle, especially the tires.

Regulated materials

The generation, storage, disposal, and release of any hazardous substance or petroleum product that falls within the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). Properties contaminated by hazardous waste or petroleum products, highway accidents that potentially release environmental contaminants into adjacent land and streams; and potential contamination from mine tailings and wastes from historic mines are examples of regulated materials.

REMI (TranSight) model

TranSight is the leading tool for evaluating the total economic effects of changes to transportation systems. With TranSight, users test alternative transportation changes and are able to observe the short- and long-term impact on jobs, income, population, and other economic variables. This sophisticated modeling tool integrates travel demand models with the REMI model, and is constructed with extensive data on emissions, safety valuation factors, and other data.

Residual impact

Any direct, indirect, or cumulative impact of an action that remains after application of all mitigation measures. When describing residual impacts, consideration must be given to future generations, long-term productivity of resources, and irreversible and irretrievable commitments of resources.

Resource tipping point

The critical point in an evolving situation that leads to a new and irreversible development for a resource.

Right-of-way

The land owned or acquired for highway operations and maintenance.

Riparian

Of, on, or relating to the banks of a river, stream, or drainageway.

Screening (alternatives analysis)

A systematic process in which a broad range of alternatives is narrowed down to those that best meet the goals of a project based on the project's purpose and need, as well as focus on key issues and concerns related to the study area. Alternatives that pass through the screening process are retained for full evaluation in the Environmental Impact Statement to identify a preferred alternative.

Scoping

An early step in the NEPA process that includes seeking agency and public views and information, receiving comments and suggestions, and determining issues to evaluate during the environmental analysis. Scoping can involve public meetings, telephone conversations, or written correspondence.

Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires federal agencies to define and document the resources listed on or eligible for the National Register of Historic Places located within the Area of Potential Effects (APE), in consultation with the State Historic Preservation Office (SHPO), to determine the effects of the proposed project on them.

Section 106 Programmatic Agreement

A document that spells out the terms of a legally binding agreement between a state Department of Transportation (DOT) and other state and/or federal agencies. A Programmatic Agreement establishes a process for consultation, review, and compliance with one or more federal laws, most often with those federal laws concerning historic preservation. There are two basic kinds of programmatic agreements:

- A Programmatic Agreement that describes the actions that will be taken by the parties to meet their environmental compliance responsibilities for a specific transportation project, called here a *project-specific Programmatic Agreement*
- A Programmatic Agreement that establishes a process through which the parties will meet their compliance responsibilities for an agency program, a category of projects, or a particular type of resource, called here a *procedural Programmatic Agreement*

In the context of Section 106 of the National Historic Preservation Act, a Programmatic Agreement differs from a Memorandum of Agreement (MOA) in that MOAs are used to resolve known and definable adverse effects on historic properties that result from a federal undertaking. Programmatic Agreements are used when the effects of an undertaking are not fully known. Programmatic Agreements are also a tool for implementing approaches that do not follow the normal Section 106 process. This is done to streamline and enhance historic preservation and project delivery efforts.

Section 404

Section 404 of the Clean Water Act requires permits for any discharge of dredged or fill material into the aquatic ecosystem, including wetlands. Impacted ecosystems must be mitigated and monitored according to the Clean Water Act.

Glossary of Terms

Section 4(f)

Properties that are defined under Section 4(f) of the Department of Transportation Act of 1966 (49 USC 303). Department of Transportation (DOT) regulations explicitly state that the Secretary of Transportation cannot approve the acquisition of publicly-owned land from a park, recreation area, or wildlife refuge, or land from a national, state, or local historic site unless no feasible and prudent alternative exists. These properties are commonly referred to as 4(f) properties.

Section 6(f)

Properties that are defined under Section 6(f)(3) of the Land and Water Conservation Fund Act signed into law on September 3, 1964. These properties consist of publicly-owned land, including parks and recreation areas purchased or improved with monies from the Land and Water Conservation Fund, and are intended to remain in use for public recreation in perpetuity.

Sediment Control Action Plan

The management practice that protects surface and ground water resources. Transportation projects are designed, constructed, and operated according to standards that will minimize erosion and sediment damage to the highway and adjacent properties. Erosion control includes developing erosion control plans and selecting, installing, and inspecting erosion and sediment control measures.

Sedimentation

The deposition of soil or mineral particles, usually into a water body or drainage.

Seeps

A place where groundwater flows slowly to the surface and often forms a pool; a small spring. Seeps are usually not flowing, with the liquid sourced only from underground. Seeps are often used in environmental sciences to define an exfiltration zone (seepage zone) where contaminated water from waste dumps or other sources leaves a waste system.

Sensitivity analysis

The study of how the variation (uncertainty) in the output of a mathematical model can be apportioned, qualitatively or quantitatively, to different sources of variation in the input of the model. Put another way, it is a technique for systematically changing parameters in a model to determine the effects of such changes.

Settling basin

(1) An artificial basin or trap designed to collect the suspended sediment of a stream before it flows into a reservoir and prevent rapid siltation of the reservoir; for example, a desilting basin. The settling basin is usually provided with means to draw off the clear water. (2) A sedimentation structure designed to remove pollutant materials from mill effluents; a tailings pond.

Special management area

Public lands with federal management prescriptions that favor wildlife and their habitats because of limits they impose in some way on human activities.

State Transportation Improvement Plan

A plan that establishes state transportation spending for a period of six years.

Superfund site

A Superfund site is any land in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency as a candidate for cleanup because it poses a risk to

human health and/or the environment. All sites where releases or potential releases have been reported are listed in the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS).”

Suppressed growth

The inhibition, or suppression, of land development or economic growth due to conditions in the natural or built environment.

Indirect land use impacts (or longer-run and wider-spread changes to development patterns and comprehensive plans) that are suppressed by a transportation improvement. Suppressed growth can alter the effectiveness of transportation investment, may conflict with local growth desires, and trigger environmental impacts.

The estimation of suppressed growth effects requires the identification of the transportation project contribution to changes in development patterns. Once the project effect on land use has been identified, this information can be used to estimate the environmental impacts attributable to land use changes caused by the transportation project.

Sustainability

The concept of sustainability is accommodating the needs of the present population without compromising the ability of future generations to meet their own needs.

Stream and Wetland Ecological Enhancement Program (SWEEP)

The Colorado Department of Transportation initiated Stream and Wetland Ecological Enhancement Program (SWEEP) to identify and address environmental issues related to the improvement of wetlands, streams, and fisheries in the I-70 Corridor. The streamlining process provides early consideration of water-related needs in future design and construction decisions.

Threatened and Endangered species

A classification of plant and animal species listed in the Endangered Species Act. Endangered species are in danger of becoming extinct; threatened species are in danger of being listed as endangered.

Tier 1

Tier 1 processes generally identify the preferred modes, general location, and capacity of a preferred alternative. A Tier 1 document presents information on transportation needs in the study area, key environmental resources, the development and evaluation of feasible alternatives, a preliminary assessment of expected impacts, and the identification of a recommended transportation plan (set of feasible alternatives) to be carried through into more detailed study during Tier 2 processes.

Tier 2

Tier 2 processes are conducted after the completion of a Tier 1 document and identify individual construction projects considered under the “umbrella” preferred alternative in Tier 1. Tier 2 processes involve more detailed engineering, environmental analyses, and mitigation planning.

Total Maximum Daily Load (TMDL)

A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Water quality standards vary by use; for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing). Section 303 of the Clean Water Act establishes the water quality standards and TMDL programs.

Glossary of Terms

Transportation/Travel Demand Management (TDM)

Programs designed to reduce or shift demand for transportation through various means, such as the use of public transportation, carpooling, telecommuting, and alternative work hours. TDM strategies can be used to manage congestion during peak periods and mitigate environmental impacts.

Traffic Noise Model (TNM)

A traffic noise prediction model designed, developed, tested and documented by the Federal Highway Administration.

Transportation System Management (TSM)

Actions that improve the operation and coordination of existing transportation services and facilities, such as ramp metering.

Total suspended solids (TSS)

Particles, both mineral (clay and sand) and organic (algae and small pieces of decomposed plant and animal material), that are suspended in water.

Unmet demand

A situation that occurs when travelers choose to not make a trip or avoid a desired trip because of severe congestion conditions, long travel times, or other unsatisfactory conditions.

Vehicle mile of travel

A unit to measure vehicle travel made by a private vehicle, such as an automobile, van, pickup truck, or motorcycle. Each mile traveled is counted as one vehicle mile regardless of the number of persons in the vehicle.

Vehicles per day (vpd)

This is a measure of traffic volume and is used as the unit for Average Annual Daily Traffic.

Vehicles per hour (vph)

A ratio used in defining the hourly volume.

Viewshed

An area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point, often from public areas such as from public roadways or public parks. In urban planning, viewsheds tend to be areas of particular scenic or cultural value that are deemed worthy of preservation against development or other change.

Volume-to-capacity ratio

The ratio of flow rate to capacity. Volume-to-capacity may be the actual or projected rate of traffic flow on a designated lane group during a peak 15-minute interval divided by the capacity of the lane group. The volume-to-capacity ratio is a measure of capacity sufficiency, that is, whether or not the physical geometry provides sufficient capacity for the subject movement. Low ratios depict relatively free flow conditions. High ratios depict more congested conditions.

Watershed

The areas that drain to surface water bodies, including lakes, rivers, estuaries, wetlands, streams, and the surrounding landscape.

Waters of the U.S.

The term waters of the U.S. means:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
4. All impoundments of waters otherwise defined as waters of the U.S. under this definition;
5. Tributaries of waters;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands)

Wetland

Wetlands consist of areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Environmental Protection Agency, 40 Code of Federal Regulations 230.2 and USACE, 33 Code of Federal Regulations 328.3).

Wilderness area

An area of at least 5,000 acres that contains most of its natural characteristics, is little influenced by human activities, and provides opportunities for solitude. Wilderness areas are protected and managed to preserve these natural conditions.

Wildlife movement corridor

A segment of land that maintains connectivity between areas of critical wildlife habitat, allowing members of a species to travel across and between landscapes.

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