



PA Route 41 Highway Improvement Project

FREQUENTLY USED TECHNICAL TERMS

List of Technical Terms

Advisory Council on Historic Preservation (ACHP)

Advisory Council on Historic Preservation (ACHP) provides a forum for influencing federal policy, programs, and activities as they affect historic and archaeological resources in communities and on public lands nationwide.

Affected Environment

The physical features, land, area or areas to be influenced, affected or created by an alternative alignment under consideration; also includes various social and environmental factors and conditions pertinent to an area.

Agency Coordination Meeting (ACM)

A monthly gathering of representatives from ten natural and cultural resource agencies who review projects. The goal of ACM is to foster effective agency communications during the development of projects so that environmental issues are identified, clearly understood, and properly addressed early in the process. Project Team representatives present updates on their work to the ACM at several key stages of project development.

Agricultural Lands Condemnation Approval Board (ALCAB)

A six-person, independent administrative board with jurisdiction over the condemnation of certain types of agricultural lands in Pennsylvania. The Board reviews proposals and presentations made by the Department of Transportation and determines whether there is a “feasible and prudent alternative” to the condemnation of farmland for transportation use.

Alignment Studies

A general term for engineering work involving the vertical and horizontal positioning, adjusting and refining, and comprehensive evaluation of a trial line or lines through a selected study corridor. All relevant features, controls, travel desires, impact, benefits and costs are taken into account in these studies. Alignment studies are typically performed to access the relative feasibility of a proposed transportation facility linking two identified points.

Alternative

Any one of a number of transportation proposals for a project including: no-build, new alignment (off-line) and network upgrade (on-line). Alternatives are developed during the preliminary alternatives analysis phase.



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| Alternative Analysis | Preliminary engineering and environmental studies of a wide range of alternatives. The objective is to reduce the number of alternatives for more detailed study, and then after substantial and detailed engineering and environmental studies, to select a preferred alternative. |
| Americans with Disabilities Act (ADA) | This federal law prohibits discrimination on the basis of disability in the services, programs or activities of all state and local governments. Under the provisions of ADA, the Department must take steps to make all public involvement activities related to the Transportation Project Development Process accessible to persons with disabilities. This includes providing services and/or auxiliary aids to those with special needs. |
| Average Daily Traffic Volume (ADT) | The average number of vehicles that travel on a road during the day. |
| Capacity | The maximum number of vehicles that can reasonably be expected to pass over a lane or a roadway during a given time period under prevailing roadway and traffic conditions. |
| Categorical Exclusion Evaluation (CEE) | An environmental document required by NEPA for federal projects that do not have a significant effect on the environment. |
| Citizens Advisory Committee (CAC) | A group of residents representing the population of the study area who assist in the formulating transportation planning goals and objectives, evaluating alternative plans, selecting recommended courses of action, and setting priorities. They represent community interests and contribute valuable information to project sponsors about the location, design and implementation of proposed transportation improvements. |
| Clean Air Act (CAA) | The Clean Air Act is the federal law designed to make sure that all Americans have air that is safe to breathe. Public health protection is the primary goal, though the law also seeks to protect our environment from damage caused by air pollution. |
| Clean Water Act | The principal law governing pollution of the nation's surface waters. |
| Code of Federal Regulations (CFR) | The Code of Federal Regulations (CFR) is a codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government. |
| Comment Period | Usually two weeks or longer during which a document is reviewed by agencies and the public, who may submit verbal or written comments. It can be applicable to all types of engineering and environmental documents which are circulated, as well as formal presentations such as those which may be given by Transportation Department officials at a Public Hearing. |



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| Comprehensive Plan | The general, inclusive, long range plan for future development of a community. The plan identifies needed infrastructure improvements and funding need for future capital improvements in an area. |
| Congestion Management System (CMS) | Congestion Management System program identifies, develops, evaluates, and implements transportation strategies to reduce traffic congestion and enhance mobility. This information helps PennDOT develop policies for managing congestion to plan projects for alleviating congestion. |
| Consensus | The point at which agencies and other public offer their agreement with recommendations or findings. Although unanimous consensus is seldom achieved, continuous coordination throughout the study process is expected to garner support from most agencies and much of the public. |
| Context Sensitive Design (CSD) | Context Sensitive Design is a collaborative, interdisciplinary approach that involves all stakeholders with the goal of developing a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. CSD is an approach that considers the total context within which a transportation improvement project will exist. |
| Corridor | Land between two termini within which traffic, transit, land use, topography, environment and other characteristics are evaluated for transportation purposes. |
| Cumulative Impact | The sum of all direct, indirect and secondary impacts resulting from a transportation improvement project. |
| Design Criteria | Established state and national standards and procedures that guide the establishment of roadway layouts, alignments, geometry and dimensions for specified types of roadways in certain defined conditions. The principal factors governing the design criteria for roadways are traffic volumes, design speed, the physical characteristics of vehicles, the classification of vehicles and the percentage of various vehicle classification types that use the roadway. |
| Design Year | The year for which a roadway facility is designed, normally 20 years after planned completion. |
| Detailed Alternatives Analysis | Intensive engineering and environmental studies of a small range of alternatives which are modified to avoid or minimize disruptions to environmental resources. The objective is to select a preferred alternative. |



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| Determination of Eligibility | The process is used to determine the significance of a potential historic property. The State Historic Preservation Officer (PA Historical and Museum Commission), applies the National Register of Historic Places criteria to decide if a property is historic. |
| Direct Effects | Influences or occurrences caused by a given action and occurring at the same time as the action. Changes in noise levels, traffic volumes, or visual conditions are some examples of direct effects of a new highway. |
| Environmental Assessment (EA) | An Environmental Assessment (EA) is prepared when the significance of environmental impacts is not clearly known. EAs are intended to briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) for a Finding of No Significant Impact (FONSI). If it is determined at any point in the development of the EA that impacts are significant, then an EIS must be pursued. Alternately, if at any point during the EA process it is found that no significant impacts would occur as a result of the project, a Categorical Exclusion Evaluation (CEE) could be prepared, or the EA process could be completed with a “Finding of No Significant Impact” (FONSI) being issued. |
| Environmental Impact Statement (EIS) | Required by the National Environmental Policy Act of 1969, an EIS is the highest level environmental document that provides “full and fair discussion of significant environmental impacts. It informs decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.” PennDOT developed a 10-Step Transportation Project Development Process to be used as a guide in the development of EISs. |
| Environmental Justice | An executive order requiring federal agencies to avoid, minimize and address with mitigation the disproportionately high and adverse impacts to minority and low-income populations. |
| Federal Emergency Management Agency (FEMA) | This federal agency is responsible for reducing loss of life and property and protecting our nation’s critical infrastructure from all types of hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response and recovery. |
| Federal Highway Administration (FHWA) | This federal agency oversees the process of planning, designing and constructing federally funded highway projects. FHWA approves the selected alternative and prepares the Record of Decision (see Record of Decision). |
| Federal Transit Administration | This federal agency serves as a clearinghouse for information on mass transit and public transportation. |



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| Final Design | Final Design begins after the environmental document is approved and includes the preparation of detailed engineering plans, specifications and estimates for approved transportation projects. These plans are then utilized for right-of-way acquisition, utility relocation and construction contract advertisement and award. |
| Finding of No Significant Impact (FONSI) | An administrative determination by the Federal Highway Administration based upon studies providing data to support that a project will have no significant impact on the environment or the community. |
| Historic Resource | A building, structure, site, district, or object which is significant in American history, architecture, archaeology, engineering or culture. |
| Hydric Soils | Soil that is saturated or flooded long enough during the growing season to develop conditions which indicate the possible presence of wetlands. |
| Impacts | Positive or negative effects upon the natural or human environment resulting from transportation projects. |
| Indirect Effects | Impacts that can be expected to result from a given action that occur later in time or further removed in distance; for example, induced changes to land use patterns, population density or growth rate. |
| Level of Service (LOS) | <p>A rating system used by traffic engineers as a qualitative measure describing operational conditions along a segment of roadway. This measure is generally associated with a roadway's ability to provide adequate capacity for volume of traffic (number of vehicles) using the road. The six levels are designated "A" through "F".</p> <p>LOS A - Excellent traffic flow, with free flowing traffic.</p> <p>LOS B - Very good traffic flow, stable flow, presence of other users is noticeable.</p> <p>LOS C - Traffic flow is still good, stable flow, operations of individual users becomes significantly affected by other users.</p> <p>LOS D - The influence of congestion becomes noticeable, speed and the ability to maneuver are severely restricted. Drivers experience a generally poor level of comfort.</p> <p>LOS E - The limit of acceptable delay for many agencies. Operating conditions are at or near capacity. Speeds are reduced to a low but uniform volume. Driver frustration is generally high.</p> <p>LOS F - Traffic volumes exceeds available capacity. Traffic queues form and traffic flow is characterized as stop-and-go.</p> |



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| Logical Termini | The rational of beginning and ending point of a transportation project that enhances good planning and serves to make the proposed improvement usable. |
| Metropolitan Planning Organization (MPO) | A planning group designated for each urban area with a population of 50,000 or more. Members include both private citizens and local government officials. An MPO addresses federal aid planning mandates by producing local area transportation plans or transportation improvement programs on an annual or biannual basis, or by employing other strategies that make existing systems more efficient. |
| Mitigation Measures | Specific design commitments made during the environmental evaluation and study process that serve to moderate or lessen impacts resulting from the proposed action. These measures may include planning and development commitments, environmental measures, right-of-way improvements and agreements with resource or other agencies. |
| Mobility Action Plan | A long range transportation to guide the decision making process for transportation investments. The Plan provides a balanced transportation system for the safe, efficient and convenient movement of people and goods. |
| National Environmental Policy Act of 1969 (NEPA) | The federal law that requires the preparation of an Environmental Impact Statement for major undertakings using federal funds. To comply with NEPA, PennDOT developed a 10-Step process to address all potential environmental, social, cultural and economic impacts of a proposed highway project before decisions are reached on design. Public involvement is an integral component of this process. |
| National Historic Preservation Act (NHPA) of 1966 as amended | The National Historic Preservation Act (NHPA) requires federal agencies to assess the impact of proposed projects on historic or culturally important sites, structures or objects within the site of the proposed projects. It further requires federal agencies to assess all sites, buildings, and objects on the site to determine if any qualify for inclusion in the National Register of Historic Places. The Act also establishes a procedure for archaeological investigation activities and a system of civil and criminal penalties for unlawfully damaging or removing such artifacts. |
| National Register of Hitoric Places (NRHP) | The National Register of Historic Places is the nation’s official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate and protect our historic and archeological resources. |



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| National Wetlands Inventory (NWI) | The National Wetlands Inventory (NWI) of the U.S. Fish and Wildlife Service produces information on the characteristics, extent and status of the Nation’s wetlands and of deepwater habitats. |
| Natural Resources | Resources, such as wetlands, wildlife, streams, aquatic life, etc., which must be considered in the project development process. |
| Needs Study | This study identifies current and anticipated problems that must be corrected in order to provide safe, efficient transportation facilities. These problems or deficiencies constitute the need for improvements. |
| Network Upgrade (on-line) Alternative | An alternative which considers improvements to the existing roadway network such as the addition of lanes and minor shifts to correct deficiencies. |
| New Alignment (off-line) Alternative | An alternative consisting of a new highway in a new location. |
| “No-Build” Alternative | This alternative would include only routine maintenance improvements such as resurfacing, traffic lane marking and minor lane widening to the existing highway system. The no-build alternative is always evaluated during the environmental studies for transportation projects. |
| Origin/Destination Survey (O/D Survey) | A survey conducted of the motorists using the study area roadways to determine and document current traffic patterns. |
| Peak Hour | Time when a highway carries its highest volume of traffic, usually the morning or evening “rush” period when commuters travel to and from work. |
| PA Department of Agriculture (PDOA) | Regulatory agency with jurisdiction over agricultural lands as designated by the U.S. Department of Agriculture and Agricultural Security Areas as defined by PA Act 43, and productive farmland. The Department carries out the judicial responsibilities of PA Act 100 by overseeing the conduct of the Agricultural Lands Condemnation Approval Board (ALCAB). |
| PA Department of Conservation and Natural Resources (PA DCNR) | Regulatory agency responsible for overseeing state forest and state park lands within the Commonwealth. |
| PA Department of Environmental Protection (PA DEP) | Regulatory agency responsible for enforcing state environmental regulations. |
| PA Department of Transportation (PennDOT) | PennDOT is the project sponsor and is responsible for the preparation of project documentation. |



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| PA Fish and Boat Commission (PFBC) | The PFBC has expertise related to aquatic species and their habitat and provides comments and input on those issues as part of the project development process. |
| PA Game Commission (PGC) | The PGC has expertise related to game and wildlife species and their habitat and provides comments and input on those issues as part of the project development process. |
| PA Historical & Museum Commission (PHMC) | Through its Bureau for Historic Preservation, PHMC is responsible for identifying, evaluating and protecting historic resources in the Commonwealth of Pennsylvania. |
| PA Natural Diversity Inventory | The Pennsylvania Natural Diversity Inventory (PNDI) conducts inventories and collects data to identify and describe the Commonwealth's rarest and most significant ecological features. These features include plant and animal species of special concern, rare and exemplary natural communities, and outstanding geologic features. |
| Preliminary Alternatives Analysis | A wide range of preliminary alternatives is first developed and evaluated based on preliminary engineering and environmental studies. The objective is to reduce the number of alternatives for more detailed study in the Detailed Alternatives Analysis. |
| Public Hearing | A formal meeting designed to provide the public with the fullest opportunity to express support of, or opposition to, a transportation project in an open forum at which a verbatim record (transcript) of the proceedings is kept. |
| Public Workshop or Meeting | A meeting conducted by PennDOT at which interested people have the opportunity to meet with transportation and environmental professional to ask questions and voice their opinion about a proposed project. |
| Record of Decisions (ROD) | A document prepared by the Division Office of the Federal Highway Administration that presents the basis for selecting and approving specific transportation proposal that has been evaluated through the various environmental and engineering studies of the Transportation Project Development Process. Typically, the ROD identifies the alternative selected in the Final EIS, the alternatives considered, measures to minimize harm, monitoring or enforcement programs and an itemized list of commitments and mitigation measures. |
| Resource Agencies | A group of approximately ten federal and state agencies or commissions which review projects for their consistency and sensitivity to environmental laws and policies. Regulatory agencies are empowered to issue permits or recommend approval or denial of a permit. These agencies |



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| Resource Agencies (continued) | review PennDOT projects during monthly Agency Coordination Meetings, also known as ACM Meetings (see ACM definition). |
| Right-of-Way (ROW or R/W) | Land, property or interest therein acquired or devoted to transportation purposes, including construction, maintenance, operations and protection of a facility. |
| Secondary and Cumulative Effects Analysis (SCEA) | Analysis to define impacts which are caused by a specific action, as well as the combination of other actions, and which take place later in time or further removed in distance but are still reasonably foreseeable. |
| Section 4(f) | Enacted as a portion of the Federal Department of Transportation Act of 1966, Section 4(f) declares “that a special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges and historic sites.” The use of these sites for a transportation project will not be approved unless it is determined that there is no other prudent or feasible alternative. |
| Section 106 | Section 106 of the (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the Council. Briefly explains five steps in the review process: identify and evaluate historic properties, assess effects, consultation, Council comment, and proceed. |
| Section 404 of the Clean Water Act | Section 404 of the Clean Water Act requires approval by the United States Army Corp of Engineers (Corps) prior to the dredging or placement of any fill materials into the waters of the United States, including wetlands. |
| Sight Distance | Sight distance is the length of roadway visible to the driver. Highway design criteria specifies the minimum sight distance that must be available at certain areas along a highway. Stopping sight distance is the minimum sight distance that must be available to enable a vehicle traveling near the design speed to stop before reaching a stationary object. Stopping sight distance should be available at all points along a highway. Intersection sight distance is the minimum sight distance that must be available at intersections to enable vehicles to safely maneuver through the intersection and to avoid collisions with another vehicle. |
| State Implementation Plan | A document prepared by state government officials specifying measures to be used in the attainment and maintenance of National Ambient Air Quality Standards. |



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| Study Area | A geographic area selected and defined at the outset of engineering or environmental evaluations, which is sufficiently adequate in size to address all pertinent project matter occurring within it. |
| State Historic Preservation Officer (SHPO) | State Historic Preservation Officers (SHPOs) administer the national historic preservation program at the state level, review National Register of Historic Places nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review. SHPOs are designated by the governor of their respective state or territory. |
| Traffic Analysis Zone (TAZ) | A subdivision of the project study area for which demographic data is collected in order to estimate traffic volume; the arrival and departure pattern of the estimated traffic is also organized by TAZs. |
| Traffic Calming | Traffic Calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users. |
| Transportation Improvement Program (TIP) | A long-range transportation plan established by the MPOs in each urbanized area which consists of a prioritized list of projects or project segments to be carried out within the next three years after adoption of the TIP. |
| Transportation Project Development Process | PennDOT's procedures for advancing a transportation improvement project from concept to construction which are divided into five Phases, from Planning to Construction. The philosophy behind the process emphasizes the integration of engineering and environmental studies, and continuous coordination among Department offices, state and federal resource agencies and the public. The ultimate goal is to select, design and construct the most reasonable, practical, cost-effective, technically sound and environmentally sensitive transportation improvement option or package of improvements. |
| Twelve-Year Program | The official prioritized listing, as adopted by the PA Department of Transportation and the State Transportation Commission, of those transportation improvements identified for development and implementation in Pennsylvania during the upcoming 12 years. The plan, together with any additions or changes, is subject to review and readoption biannually as an ongoing process. |
| U.S. Army Corps of Engineers (Corps) | The federal agency which, along with the Environmental Protection Agency (EPA) has the authority, under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, to regulate development activities that affect the waters of the United States. The Corps administers the wetland permit process. |



U.S. Environmental Protection Agency (EPA)

The federal agency responsible for enforcing environmental regulations such as the National Environmental Policy Act, Clean Air Act and Clean Water Act.

U.S. Fish and Wildlife Service (US FWS)

The federal agency responsible for commenting on the potential effect of a project on fish and wildlife resources.

Watershed

The area drained by a river or river system enclosed by drainage divides.

Wetlands

The term wetland describes what are more commonly known as marshes, bogs, swamps, wet meadows and shallow ponds. Wetlands are an important natural resource that provides flood control, pollution control and habitat for fish, birds and mammals, and other aquatic life.