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Public Comment Draft

ILLINOIS
STATE TRANSPORTATION PLAN

ENVIRONMENTAL COORDINATION & QUALITY OF LIFE REPORT

ILLINOIS
STATE TRANSPORTATION PLAN

Transforming Transportation for Tomorrow

Illinois Department of Transportation

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1.0 Introduction

Environmental considerations are integral elements in the planning and design of transportation investments in Illinois. Beyond the construction and maintenance of transportation projects, IDOT is proactive in preserving and protecting the environment and maintaining or improving the quality of life for Illinois residents.

All transportation projects involving the use of state and federal funds are required to follow formal procedures designed to protect the natural and social environment of Illinois residents. IDOT primarily manages, maintains and builds the road network under its jurisdiction, but IDOT also builds airports, assists with freight and passenger rail track improvements, and constructs bicycle and pedestrian facilities, where needed. These laws and regulations apply to all projects conducted by IDOT.

In terms of quality of life, people generally want to live where there is open space that provides scenic views and community character, habitat for wildlife, and recreational opportunities. A 2003 survey[1] completed for the Illinois Department of Natural Resources (IDNR) finds that access to open space is one of the keys to a satisfactory quality of life (57 percent believe open space is important to their quality of life). Property values are typically higher for property near parks and other open spaces. With an economy based more on services and less on traditional industry, businesses are free to shop for an appealing location, preferring communities with a high quality of life, including abundance of open space and nearby recreation. Consequently, open space plays a key role in a region's economic future because a region with natural character attracts a skilled labor force. Transportation plays a role in addressing this issue and is a key component of the state's efforts to achieve the quality of life goals.

The purpose of this document is to describe how IDOT addresses environmental issues, coordinates with other State and Federal agencies on state transportation projects and incorporates innovative technologies and methodologies into transportation projects, to continue the pursuit of improving quality of life of transportation system users through the transportation network.

[1] McDonald, C, et. al. Technical Report to the Illinois Department of Natural Resources: Public Attitudes Toward Open Space Initiatives in Illinois, July 28, 2003. www.inhs.uiuc.edu/programs/hd/Special%20Reports/OpenSpaceReport.pdf. Accessed July 27, 2012.

2.0 Environmental Laws and Coordination

The primary purpose of environmental documentation is to ensure that the policies and goals defined in the National Environmental Policy Act are incorporated into the ongoing programs and actions of IDOT. Environmental documentation is intended to accomplish more than mere disclosure however; it is used as a means to plan actions and affect transportation development decisions.

Most of IDOT's environmental work is conducted by the Bureau of Design and Environment (BDE) within the Central Office of IDOT, located in Springfield. The BDE supports all environmental studies by providing environmental expertise and policy guidance, by securing appropriate environmental field surveys and data collection upon the request of the districts, by accomplishing and facilitating coordination with resource and regulatory agencies, and by reviewing and commenting on preliminary and final environmental documentation.

The BDE is responsible for developing standards, specifications, and policies for the state transportation system to provide an economical, safe, and comfortable movement of people and goods within the state. BDE develops standards and provides support services for district highway design programs, and airport and freight investments. BDE also coordinates and prepares federal-aid program documents, and processes plans and contract documents through the letting and contract award stage. In addition, BDE is responsible for developing policies for the preparation, coordination, final review, and approval of project location studies and environmental documents. The policies prepared by BDE include the BDE Manual, the Standard Specifications for Road and Bridge Construction, the Highway Traffic Noise Assessment Manual, and the Community Impact Assessment Manual. [2]

The BDE Manual contains 66 chapters of policies that are used during the project development process. The standards, specifications, and policies established by the BDE must conform to all applicable state and federal laws and regulations. The following laws and regulations provide the environmental legal precedence for guiding IDOT policy development. The list is not intended to be all-inclusive, but highlights some of the most significant statutes that dictate what actions are necessary by IDOT to remain in compliance with environmental law.

2.1 Guiding Laws and Regulations: Federal

2.1.1 National Environmental Policy Act[3]

The National Environmental Policy Act (NEPA) enacted in 1969 is one of the first pieces of legislation to provide a national framework for considering the environment and is the cornerstone for environmental review for all federally funded projects. NEPA requires that all branches of government receiving federal funds give proper consideration to the environment before taking action that could affect it.

[2] Illinois Department of Transportation, Bureau of Design & Environment Manuals and Memoranda. www.dot.state.il.us/desenv/demanuals.html and www.dot.state.il.us/desenv/manuals.html. Accessed July 27, 2012.
[3] US Environmental Protection Agency, National Environmental Policy Act, Basic Information. www.epa.gov/oecaerth/basics/nepa.html. Accessed July 27, 2012.

The passage of NEPA called for the creation of the Council of Environmental Quality (CEQ). The CEQ establishes regulations for implementing NEPA such as categorization for types of projects and the level of environmental review and public involvement they should each receive, namely Categorical Exclusions (CE), Environmental Assessments (EA) and Environmental Impact Statements (EIS). For a project to qualify under the CE designation, the proposed project may not have significant environmental impacts. For an EA, the project is identified as having the potential to have significant impacts. EIS projects have known or expected significant impacts. All three documents discuss what steps are taken to avoid, minimize and mitigate potential impacts.

2.1.2 Highway Beautification Act

The Highway Beautification Act of 1965 was established to provide effective control of outdoor advertising and junkyards to protect the public investment. The Act promoted the safety and recreational value of public travel, the preservation of natural beauty, and integration of landscapes and roadside development reasonably necessary to accommodate the travelling public. Amendments in 1970 required the development of guidelines for consideration of social, economic, and environmental effects of proposed highway projects, including impacts to air, noise, and water quality. Other considerations enacted with the amendments include assessments for:

- community impacts such as cohesion
- access to public facilities and services
- adverse employment
- taxes or property values
- displacement of people, businesses, or farms
- the disruption of community or regional growth

Additionally, the amendments require adequate opportunity for public hearings on the social, economic, and environmental effects of alternative project locations and major design features of proposed highway projects as well as the consistency of the project with local planning goals and objectives.

2.1.3 Surface Transportation and Uniform Relocation Assistance Act

The Surface Transportation and Uniform Relocation Assistance Act of 1987 requires that people whose real property is acquired, or who move as a result of projects receiving federal funds, will be treated fairly and equitably and will receive assistance in moving from the property they occupy.

2.1.4 Civil Right Act, Title VI

Title VI of the Civil Rights Act of 1964 prevents any government agencies receiving federal funds to discriminate on the ground of race, color, or national origin.

2.1.5 Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 governs the use of publicly owned parks, recreation areas, or wildlife and waterfowl refuges of national, state, or local significance or land of an historic site. A project can only use these lands if there is no prudent and feasible alternative to using that land and the project includes all possible planning to minimize harm to the resource resulting from such a use.

2.1.6 Land and Water Conservation Fund Act, Section 6(f)

Section 6(f) of the Land and Water Conservation Fund Act (LAWCON) of 1965 mandates that any site acquired or developed partially or wholly with LAWCON assistance must be retained in public outdoor recreation use in perpetuity. Conversion to any other use must receive prior approval of the National Park Service and requires a replacement of the converted lands and/or facilities of like kind, value, quality, and location. The NPS can approve a conversion only if it finds it to be in accord with the existing Statewide Comprehensive Outdoor Recreation Plan (SCORP). An IDOT conversion request is processed through IDNR.

2.1.7 Clean Air Act

The Clean Air Act of 1970 is the comprehensive federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants. One of the goals of the Act was to set and achieve NAAQS in every state to address the public health and welfare risks posed by certain widespread air pollutants. The setting of these pollutant standards was coupled with directing the states to develop state implementation plans (SIPs), applicable to appropriate industrial sources in the state, in order to achieve these standards. The Act was amended in 1977 and 1990 primarily to set new goals (dates) for achieving attainment of NAAQS.

2.1.8 Clean Water Act and Rivers and Harbors Act

The Clean Water Act (CWA) of 1972 established the basic structure for regulating discharges of pollutants into United States water sources and regulating quality standards for surface waters. The CWA dramatically expanded and reorganized the Federal Water Pollution Control Act of 1948. "Clean Water Act" became the Act's common name with amendments in 1972. The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained as well as regulating non-point storm water runoff.

Although the Rivers and Harbors Act (RHA) of 1899 is an independent Act, the activities identified within the Act are regulated with the CWA. The RHA prohibits the construction of any dam, dike, or causeway over or in navigable waterways of the U.S.; building of any wharfs, piers, jetties, and other structures; and excavation or fill within navigable waters without approval from the Corp of Engineers.

2.1.9 Safe Drinking Water Act

The Safe Drinking Water Act of 1974 ensures the quality of drinking water and protects its sources: rivers, lakes, reservoirs, springs, and ground water wells. The USEPA is authorized to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. Originally centered on water treatment efforts, more recent amendments (1996) have added additional focus on source water protection, operator training, funding for water system improvements, and public information and education.

2.1.10 Emergency Wetlands Resources Act

The Emergency Wetlands Resources Act of 1986 authorized the purchase of wetlands from Land and Water Conservation Fund monies, removing a prior prohibition on such acquisitions. It required the Secretary to establish a National Wetlands Priority Conservation Plan, required the

States to include wetlands in their Comprehensive Outdoor Recreation Plans, and transferred to the Migratory Bird Conservation Fund amounts equal to the import duties on arms and ammunition.

2.1.11 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act of 1968 prescribes the methods and standards through which rivers can be evaluated and added to the National Wild and Scenic Rivers System. The National Park Service maintains a Nationwide Rivers Inventory (NRI) of river systems that qualify or potentially qualify as wild, scenic, or recreational river areas. Agencies must avoid or mitigate adverse effects on rivers identified on the NRI.

2.1.12 National Flood Insurance Act

The National Flood Insurance Act of 1968 created the Federal Insurance Administration and made flood insurance available for the first time through the National Flood Insurance Program (NFIP). Implementation of the program required the development of a mapping convention to identify areas within a 100-year flood boundary (which indicates an area has a one percent chance of flooding in any given year). The Act is managed by the Federal Emergency Management Agency (FEMA), which generates Flood Insurance Rate Maps (FIRM) to delineate the 100-year flood boundary. The NFIP requires local governments to adopt and enforce floodplain regulations; however, only FEMA can determine 100-year flood boundaries. FEMA-FIRM maps must be generated prior to land development.

2.1.13 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory bird, nest, or egg is illegal unless a permit from the Fish and Wildlife Service is granted.

2.1.14 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act of 1934 provides the basic authority for the U.S. Fish and Wildlife Service's (USFWS) involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It also requires Federal agencies that construct, license, or permit water resource development projects to first consult with the USFWS (and the National Marine Fisheries Service in some instances) and State fish and wildlife agency regarding the impacts on fish and wildlife resources and measures to mitigate these impacts.

2.1.15 Threatened and Endangered Species Protection Act

The Threatened and Endangered Species Protection Act of 1973 affords federal protection to any plant or animal species listed as Threatened or Endangered in 50 CFR Part 17. The Act makes it illegal for any individual to kill, collect, remove, harass, import, or export an endangered or threatened species without a permit from the Secretary of the Department of the Interior (DOI). The program promotes the conservation of threatened and endangered plant and animal populations.

2.1.16 Federal Farmland Protection Policy Act

The Federal Farmland Protection Policy Act of 1981 is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that to the extent possible federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years.

2.1.17 National Trails Systems Act

The National Trails Systems Act of 1968 made it federal policy to promote trails by providing financial assistance, support of volunteers, and coordination with states and other authorities. The Act also instituted a national system of recreational, scenic, and historic trails, by designating the Appalachian Trail and the Pacific Crest Trail as the initial components of that system and by prescribing the methods by which, and standards according to which, additional components may be added to the system.

2.1.18 Archaeological and Historic Preservation Act

The Archaeological and Historic Preservation Act of 1974, also is known as the Archeological Recovery Act and the Moss-Bennett Bill. The AHPA requires that Federal agencies provide for "...the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of...any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or program (Section 1)."[4]

2.1.19 National Historic Preservation

As a response to the destruction of older buildings and neighborhoods in the immediate post-World War II years, the National Historic Preservation Act (NHPA) of 1966 was enacted. The NHPA established the framework that focused local, state, and national efforts on preserving the historic resources of the nation. 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. Federal agencies affecting current or potential National Register properties must coordinate with the appropriate State Historic Preservation Officer or Tribal Historic Preservation Officer to consult with during the process. Section 110 set forth the broad historic preservation responsibilities of Federal agencies and is intended to ensure that historic preservation is fully integrated into their activities. Subsequent amendments to Section 110 in 1988 and 1992 set further guidelines as to how federal agencies should establish historic preservation programs and their coordination with the National Park Service and other federal, state, and local government agencies.

2.1.20 Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979, largely in response to the increasing commercial value of more desirable archaeological material, addressed the need for tighter federal regulation in protecting public archaeological resources, providing more detailed descriptions of prohibited activities, and larger financial and incarceration penalties for convicted violators. New emphasis was placed on the protection of archaeological site data and the curation of artifacts after

[4] National Park Service. www.cr.nps.gov/local-law/FHPL_ArchHistPres.pdf. Accessed July 27, 2012.

excavation in attempt to control archaeological looting and black market activities of public archaeological sites and material.

2.1.21 Comprehensive Environmental Resource Conservation and Liability Act

The Comprehensive Environmental Resource Conservation and Liability Act (CERCLA) of 1980 authorized the USEPA to respond to releases or threatened releases of hazardous substances that may endanger public health, welfare, or the environment. Commonly known as Superfund, the law has subsequently been amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the Small Business Liability Relief and Brownfields Revitalization Act of 2002. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The Superfund amendments also stressed the importance of permanent remedies and innovative treatment technologies and increased state involvement on all levels of hazardous waste site and material regulation.

2.1.22 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 gives NEPA the authority to control hazardous waste from "cradle to grave", including the regulation, generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled USEPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

2.1.23 Solid Waste Disposal Act

The Solid Waste Disposal Act of 1965 regulates the recovery, recycling, and environmentally safe disposal of solid wastes. The Act seeks to initiate national research and development programs for new and improved methods of disposal, with provisions for recovery and recycling. Technical and financial assistance was to be provided to state and local governments in the development of programs.

2.1.24 Moving Ahead for Progress in the 21st Century (MAP-21)

The Moving Ahead for Progress in the 21st Century (MAP-21) Act, signed into law on July 6, 2012 replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005, which was built upon the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Transportation Equity Act for the 21st Century (TEA-21). One policy shift in MAP-21 is to streamline and speed the environmental planning process, as a way to facilitate the delivery of transportation infrastructure. As written, the changes primarily apply to highways and bridge projects, although they may be applied to public transportation projects, rail and other multi-modal projects. The new law does not eliminate or reduce the need for environmental review of projects; it mainly addressed process and schedules. The U.S. Department of Transportation and its agencies will issue proposed rules on the areas in question, for review and comment, before defining the new rules and regulations.

2.1.25 Executive Orders

Federal Executive Orders are issued by the President, as directives to the agencies of the executive branch. They have the full force of law, and assist the Federal agencies with managing their responsibilities.

2.1.25.1 Executive Order 11990

Executive Order 11990 establishes protection of wetlands as a national policy. Projects receiving federal funding should avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. The order further provides that each agency shall provide leadership to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities.

2.1.25.2 Executive Order 11988

Executive Order 11988 requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains."

2.1.25.3 Executive Order 12898: Environmental Justice

Executive Order 12898 directs that federally funded programs, policies, and activities not have a disproportionally high and adverse human health and environmental effect on minority and low-income populations. This executive order and idea is known as "environmental justice."

2.1.25.4 Executive Order 13112

Executive Order 13112 directs federal agencies whose actions may affect the status of invasive species, to the extent practicable and permitted by law, prevent the introduction and spread of invasive species.

2.2 Guiding Laws and Regulations: Illinois

2.2.1 Illinois Environmental Protection Act

The Illinois Environmental Protection Act of 1970 is the state's primary statute for establishing a unified, statewide program for restoring, protecting, and enhancing the quality of the environment and to ensure the adverse effects upon the environment are fully considered and borne by those who cause them. The Act implements permit and control programs for air pollution, water pollution, public water supplies, land pollution, noise, atomic radiation, used tires, potentially infectious medical waste, and petroleum underground storage tanks.

2.2.2 Green Governments Act

The Green Governments Act of 2007 established the Green Government Coordinating Council whose purpose is to:

> "integrate more fully into the ongoing management systems, long-range planning, and daily operations of state agencies a number of cost-effective environmental sustainability measures that enhance health and safety, reduce the consumption of energy and fuels, conserve water, minimize emissions and reduce solid and hazardous wastes. The Council will also serve as a resource for units of local government and educational institutions, which includes all public and private school districts, regional offices of education, universities, and colleges."

The Council, made up of 15 representatives from various state agencies is responsible for communicating environmentally sustainable goals to all state agencies, establishing an electronic system to track and report environmental progress, monitoring improvements, and proposing new environmental goals as is appropriate.

2.2.3 Groundwater Protection Act

The Groundwater Protection Act of 1987 created a state policy to restore, protect, and enhance the groundwater of the state as a natural and public resource; to prevent waste and degradation of groundwater resources; and manage the underground water resource to allow for maximum benefit of the people of the state. The Act establishes within state government an Interagency Committee on Groundwater, which is responsible for reviewing and coordinating the State's policy on groundwater protection program and making recommendations on those aspects.

2.2.4 Agricultural Areas Conservation and Protection Act

The Agricultural Areas Conservation and Protection Act of 1979 established a program whereby agricultural land may be protected and enhanced through designation as an "agricultural area". It provides that no land within an agricultural area shall be used for purposes other than agricultural production. Any person may petition for withdrawal of land from a designated agricultural area, and must submit documentation of the proposed alternative use for the land, an explanation of the need for a change from the current use of the land, and an explanation of why land outside the agricultural area would not be suited for the proposed use. The Act indicates that the County Board either accepts or rejects the petition for withdrawal of land after a hearing and an opportunity for review and comment by the county Agricultural Areas Committee and regional planning commissions, if any.

2.2.5 Illinois Farmland Preservation Act

The Illinois Farmland Preservation Act of 1982 is a state policy aimed at protecting the state's prime agricultural land from irreversible conversion to uses that result in its loss as an essential food production resource. It designates the Illinois Department of Agriculture as the lead for implementing the policy and requires designated agencies to prepare Agricultural Land Preservation policies.

2.2.6 Soil and Water Conservation Districts Act

The Soil and Water Conservation Districts Act of 1937 established a policy to strengthen and extend erosion and sedimentation control activities for both rural and urban lands. It provides for implementing a statewide comprehensive and coordinated erosion and sediment control program to conserve and protect land, water, air, and other resources. This control program must be completed by the Illinois Department of Agriculture and Soil and Water Conservation Districts and in cooperation with units of local government, school districts, other political subdivisions of the state, agencies of the state, and other public and private entities. The Act requires state agencies to cooperate with the Illinois Department of Agriculture and Soil and Water Conservation Districts in implementing programs undertaken pursuant to the Act. The Illinois Department of Agriculture is responsible for maintaining the statewide plan.

2.2.7 The Interagency Wetland Policy Act

The Interagency Wetland Policy Act of 1989 mandates state agencies shall preserve, enhance, and create wetlands where necessary in order to increase the quality and quantity of the state's wetland resource base. The Act establishes a state wetlands mitigation policy and requires designated state agencies to create a Wetlands Action Plan for implementation procedures. The Act authorizes state agencies to establish wetlands compensation accounts, and it requires agencies to consider the avoidance and minimization of adverse impacts to wetlands and to provide compensation for unavoidable adverse impacts with a schedule of compensation ratios.

2.2.8 Natural Areas Preservation Act

The Natural Areas Preservation Act of 1981 created provisions for a system of dedicated nature preserves and registered natural areas. It provides that dedicated nature preserves may not be acquired under power of eminent domain, except upon approval by the Illinois Nature Preserves Commission and the Governor. It also provides for promoting, advising, and other assistance for the protection of registered natural areas.

2.2.9 Open Space Lands Acquisition and Development Act

The Open Space Lands Acquisition and Development Act (OSLAD) of 1986 developed a state program that provides up to 50 percent funding, on a reimbursement basis, to eligible units of local government for the acquisition and/or development of land for public outdoor recreation.

2.2.10 Rivers, Lakes, and Streams Act

The Rivers, Lakes, and Streams Act of 1911 assigns to the Office of Water Resources, currently part of the Illinois Department of Natural Resources (IDNR), jurisdiction over public waters of the state. It provides for general supervision of such waters to ensure that none are encroached upon or wrongfully seized by any private interest in any way. The Act establishes authority for requiring permits for actions that affect public waters, and it requires permits for construction within defined floodplains in the state.

2.2.11 Endangered Species Act

The Endangered Species Act of 1972 protects state-listed plants and animals from unauthorized actions. Agencies of state and local governments must evaluate, through a consultation process with the IDNR, whether actions authorized, funded, or implemented by them are likely to jeopardize the

continued existence of listed threatened or endangered species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species.

2.2.12 Illinois Historic Preservation Agency Act

The Illinois Historic Preservation Agency Act of 1985 created the Illinois Historic Preservation Agency (IHPA) to preserve and protect historic properties and library collections, while at the same time making those properties available to the public. The IHPA operates 56 historic sites and memorials and administers all state and federal historic preservation and incentive programs in Illinois, including the National Register of Historic Places and the Abraham Lincoln Presidential Library and Museum.

2.2.13 State Archaeological and Paleontological Resources Protection Act

The State Archaeological and Paleontological Resources Protection Act of 1989 requires the preservation and protection of archeological resources on both public and private lands and discourages their exploitation and destruction by vandalism, looting, commercial development, and construction. The Illinois Historic Preservation Agency (IHPA) issues permits for exploring, excavating, or collecting archeological resources protected by the state after consultation with the land owner. No permit is required for visiting, viewing, recording, photographing, mapping, drawing, or otherwise recording sites so long as the site is not disturbed and nothing is collected.

2.2.14 Illinois State Human Skeletal Remains Protection Act

The Illinois State Human Skeletal Remains Protection Act of 1989 protects from disturbance all graves, grave markers (including burial mounds), and grave artifacts that are over 100 years old and are not located in a cemetery that is registered with the Illinois Office of the State Comptroller. This Act offers protection from vandalism, excavation (including cultivation), removal, exposure, defacement, and destruction. The Illinois Historic Preservation Agency administers this Act.

2.2.15 Illinois Executive Orders

2.2.15.1 Illinois Executive Order No. 4: Preservation of Illinois Farmland

Illinois Executive Order No. 4 (1980), the Preservation of Illinois Farmland, establishes a state policy to protect, through the administration of its current programs and regulations, the state's prime agricultural land from irreversible conversion to uses that result in its loss as an environmental or essential food production resource. It designates the Illinois Department of Agriculture as the lead for implementing the policy and requires designated agencies to prepare Agricultural Land Preservation Policies.

2.2.15.2 Illinois Executive Order No. 7

Illinois Executive Order No. 7 (1985) requires cooperation between executive agencies during the early planning stage of a project. Any project found to have a likely adverse impact on an endangered or threatened species or natural area shall be further studied to determine possible methods of mitigating or eliminating such adverse impact. The order affects all state-funded projects and all local agency projects that include state and federal funds.

2.2.15.3 Illinois Executive Order No. 11

Illinois Executive Order No. 11 (2009) requires a reduction of the environmental impact of Illinois state government operations through efforts in the areas of energy efficiency and conservation, water quality and conservation, sustainable transportation, education and outreach, and through the cooperation and participation of the various state entities.

2.3 Coordination with Outside Agencies: Federal

Coordination on transportation projects is not limited within IDOT (i.e., between the Districts and Central Office), but rather integrated with other federal and state agency programs to maintain compliance with federal and state law. Transportation projects can involve a diverse mixture of impacts to environmental resources. Coordination and cooperation between agencies is essential to address issues and solve problems to ensure Illinois transportation projects fit within the wider considerations of the State of Illinois and the federal government as part of a complete, sustainable national infrastructure.

IDOT coordinates with many governmental agencies, both federal and state, that have various functional responsibilities related to the implementation of environmental laws, regulations, policies, and procedures. Coordination is not strictly limited to the following agencies, but they compose the primary federal and state entities. Additionally, IDOT coordinates with local municipalities, townships, and counties.

2.3.1 Council on Environmental Quality

The Council on Environmental Quality (CEQ) is composed of three members appointed by the President and is tasked with maintaining a quality awareness of the nation's environmental resources. The CEQ was created as part of the enactment of NEPA to oversee the implementation of the Act by issuing regulations to guide all federal agencies. The Chair of the CEQ answers directly to the President and helps to further the President's agenda. Although no project specific coordination occurs between IDOT and the Council, policies drafted by the CEQ are integrated into standards and specifications established by the IDOT BDE.

2.3.2 Federal Highway Administration

The Federal Highway Administration (FHWA) is an agency of the U.S. Department of Transportation and administers the federal-aid program that funds eligible highway improvements nationwide. The basic responsibility of FHWA is to maintain the national highway transportation network through coordination with state DOTs and to ensure all federally funded transportation projects comply with applicable environmental laws, regulations, policies, and procedures. The FHWA maintains divisional and regional offices within each state and coordinates with state DOTs to channel transportation funds to local units of government. IDOT and FHWA cooperate in oversight and approval actions for transportation projects within the state. Both of the parties work together to ensure the federal highway funding program is administered in regulatory compliance and in ways that enhance the value of the program funds.

2.3.3 Federal Transit Administration and Federal Railroad Administration

The Federal Transit Administration (FTA) and Federal Railroad Administration (FRA) are also agencies of the U.S. Department of Transportation. The FTA administers the national transit

program and all federal laws, regulations, policies, and procedures applicable to the use of federal transit funds. FHWA and FTA jointly operate four metropolitan offices around the country that are extensions of their respective Division and Regional offices. The FTA assists and coordinates with IDOT on public and intermodal aspects of federal and state transportation projects and systems in Illinois including integration between bus, rail, and vehicle transit modes. The FRA administers rail safety regulations, railroad assistance programs, and conducts research and development supporting improved railroad safety.

2.3.4 U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (USEPA) is the federal agency created to protect human health and the environment. The agency was established in 1970 through the consolidation of a variety of federal research, monitoring, standard-setting, and enforcement programs. The USEPA creates and enforces environmental regulations associated with numerous environmental laws, including the Clean Air and Clean Water Acts. USEPA is a coordinating partner with IDOT during the development of Environmental Assessments (EA) and Environmental Impact Statements (EIS).

2.3.5 Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) is an agency of the U.S. Department of Homeland Security. The primary mission of FEMA is to reduce the loss of life and property and protect the Nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation. In addition to distribution of funds to IDOT for transportation repairs needed due to natural disaster, FEMA manages the National Flood Insurance Program, which is responsible for generating Flood Insurance Rate Maps (FEMA-FIRM). The Rate Maps provide determination of the boundary of flood zones. IDOT coordinates with FEMA to obtain current mapping and update mapping where necessary.

2.3.6 U.S. Coast Guard

The U.S. Coast Guard (USCG) is a military, multi-mission, maritime service within the U.S. Department of Homeland Security. Its core roles are to protect the public, the environment, and economic and security interests along America's coasts, ports, inland waterways, and adjacent international waters. One of its responsibilities is the issuance of bridge permits over navigable streams. IDOT must obtain a bridge permit when a bridge crosses waters that are used or susceptible to use in the natural condition or by reasonable improvement as a means to transport interstate or foreign commerce. The determination of the need for a permit is made by the USGC. There are two Coast Guard Districts in Illinois: St. Louis, Missouri (navigable streams in downstate Illinois) and Cleveland, Ohio (navigable streams in northeastern Illinois).

2.3.7 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) mission is to provide quality, responsive engineering services in the planning, designing, building, and operating water resources and other civil works projects (navigation, flood control, environmental protection, and disaster response). The USACE regulates structures or work in, over or under navigable waters of the United States and the discharge of dredged or fill materials in waters of the United States, including adjacent wetlands. Regulation is managed under Section 10 of the River and Harbors Act and Section 404 of the Clean

Water Act. Because USACE district offices are primarily separated by watershed boundaries, jurisdictional boundaries cross state lines, but may only occupy a portion of a given state. Five USACE districts are present in Illinois: Chicago, Rock Island, St. Louis, Louisville, and Memphis. The USACE coordinates with IDOT as a member of the Concurrent NEPA/404 Merger Process; as a reviewer of NEPA documents involving USACE plans and/or lands; as an issuer of individual, nationwide, and regional Section 404 permits; and as a member of the Mitigation Bank Review Team.

2.3.8 National Park Service

The National Park Service (NPS) is part of the U.S. Department of the Interior and is responsible for administering the national parks, monuments, and parkways. The NPS is also responsible for the management of national historic and archaeological programs including:

- National Register of Historic Places
- Section 6(f) of the Land and Water Conservation Fund Act
- Wild and Scenic Rivers Program, except for rivers on lands of the U.S. Forest Service

In Illinois, there is one wild and scenic river, the Middle Fork of the Vermilion River, and 55 river segments on the National Rivers Inventory. IDOT coordinates with the NPS when transportation projects and programs involve NPS property and/or interests.

2.3.9 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS), as part of the U.S. Department of the Interior, is designated with the mission of working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The USFWS manages ten National Wildlife refugees in Illinois totaling more than 124,000 acres. These refugees are visited by more than one million people a year to hunt, fish, view wildlife, and to participate in interpretative programs. The USFWS also manages the Federal Endangered Species Act and comments on water resource projects involving Section 404 permitting. Three USFWS field offices are present in Illinois: Barrington, Rock Island/Moline, and Marion. IDOT coordinates with USFWS in the review and comment on NEPA documents, through formal Section 7 Consultation (when threatened or endangered species are impacted), as a member of the Concurrent NEPA/404 process and of the Mitigation Bank Review Team, and as reviewers of individual or regional Section 404 permits.

2.3.10 U.S. Forest Service

The U.S. Forest Service (USFS) is an agency within the U.S. Department of Agriculture and administers programs for applying sound conservation and utilization practices to natural resources of the national forests and national grasslands, for promoting these practices on all forest lands through cooperation with states and private landowners, and for carrying out extensive forest and range research. Two USFS managed lands occur within Illinois: the Shawnee National Forest in southern Illinois and the Midewin National Tallgrass Prairie southwest of Chicago. Coordination occurs concurrently with the USFS and USFWS when project activities have the potential to impact forest service lands.

2.3.11 Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) is an agency within the U.S. Department of Agriculture and administers programs to help America's private landowners and managers to conserve their soil, water, and other natural resources. The NRCS provides expertise in soil science and leadership for soil surveys; erosion and sediment control technologies; and for the National Resources Inventory (NRI), which assesses natural resource conditions and trends in the U.S. An NRCS office is present within each county in Illinois. IDOT coordinates with the NRCS whenever farmland is impacted by a transportation project and in some counties as the reviewer of erosion and sediment control plans.

2.4 Coordination with Outside Agencies: Illinois

2.4.1 Illinois Environmental Protection Agency

The Illinois Environmental Protection Agency (IEPA) is tasked with safeguarding the environmental quality of the state, consistent with its social and economic needs, to protect health, welfare, property, and the quality of life. The agency is responsible for issuing Section 401 Water Quality Certification on Section 404 permits and reviews, and comments on projects, as appropriate, relative to issues of air and water quality, land pollution (including hazardous and special wastes), noise, and underground storage tanks.

2.4.2 Illinois Green Government Coordinating Council

The Illinois Green Government Coordinating Council seeks to:

> "integrate more fully into the ongoing management systems, long-range planning, and daily operations of State agencies a number of cost-effective environmental sustainability measures that enhance health and safety, reduce the consumption of energy and fuels, conserve water, minimize emissions and reduce solid and hazardous wastes. The Council will also serve as a resource for units of local government and educational institutions, which includes all public and private school districts, regional offices of education, universities, and colleges."[5]

The Council, made up of 15 representatives from various state agencies including IDOT, is responsible for communicating environmentally sustainable goals to all state agencies, establishing an electronic system to track and report environmental progress, monitoring improvements, and proposing new environmental goals as is appropriate.

2.4.3 Illinois Department of Natural Resources

The Illinois Department of Natural Resources (IDNR) consolidated the Illinois Department of Conservation, Illinois Department of Mines and Minerals, and the Office of Water Resources, which was formerly the Division of Water Resources under IDOT. IDNR is responsible for reviewing proposed projects, as applicable, to ensure compliance with the Illinois Endangered Species Protection Act, the Illinois Natural Areas Preservation Act, and the Illinois Interagency Wetland Policy Act. The agency also reviews and comments on projects, as appropriate, regarding natural

[5] Illinois General Assembly, Illinois Compiled Statutes. 20 ILCS 3954/Green Governments Illinois Act. www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=2951&ChapterID=5, Section 10. Accessed July 27, 2012.

resources including: streams, forests and trees, prairie and savanna, IDNR properties, nature preserves, Illinois Natural Area Inventory (INAI) sites, and sites included in the Illinois Register of Land and Water Reserves. The Office of Water Resources reviews Section 404 permits in conjunction with USACE and IEPA.

2.4.4 Illinois Department of Agriculture

The Illinois Department of Agriculture (IDOA) was created to be an advocate for Illinois' agricultural industry and provide the necessary regulatory functions to benefit consumers, the agricultural industry, and the state's natural resources. The IDOA is a member of the Concurrent NEPA/404 review process and reviews projects for impacts on farmland conversion to ensure compliance with the Illinois Farmland Preservation Act and Illinois Executive Order Number 4 (1980) for the preservation of Illinois farmland. The agency is responsible for completing the state component of the AD-1006 form for impacts to farmland as a result of transportation projects.

2.4.5 Illinois Historic Preservation Office

The Director of the Illinois Historic Preservation Office (IHPA) is designated as the State Historic Preservation Officer (SHPO). The SHPO is charged with:

- administering federal and state preservation programs and laws, including overseeing the nomination of sites to the National Register of Historic Places
- conducting surveys of historic and archaeological resources
- reviewing federal and state undertakings (such as road projects) for their impact on cultural resources
- working with local governments in developing local historic preservation programs in preparation for designation as Certified Local Governments
- administering rehabilitation tax incentives for qualified historic buildings
- providing Main Street design services
- providing education, training, and technical assistance to the public in historic preservation matters

The Agency is a member of the Concurrent NEPA/404 review process and reviews transportation projects for impacts to historical, architectural, archaeological, and paleontological resources to ensure compliance with state and federal laws.

2.5 Programmatic Agreements

A programmatic, interagency, or implementing agreement is a document that spells out the terms of a formal, legally binding agreement between IDOT and other State and/or Federal agencies. These may also be referred to as Memorandums of Understanding or Memorandums of Agreement (MOU / MOA). A programmatic agreement (PA) establishes a process for consultation, review, and compliance with one or more Federal laws. IDOT uses PAs in order to streamline coordination, eliminate unnecessary paperwork, and focus on projects that have the greatest potential to affect resources. This enables IDOT to maximize the time and effort spent coordinating projects with other agencies. The following represent the most substantive PAs currently in place.

2.5.1 Concurrent NEPA/404 Merger Process

The Concurrent NEPA/404 Merger Process was instituted by FHWA and IDOT for federally funded transportation projects and includes biannual meetings held with representatives of state and federal regulatory and natural resources agencies including the USACE, USEPA, USFWS, IDNR, IDOA, and IHPA. The process involves major projects that will include an Individual Section 404 Permit and are undergoing an Environmental Impact Statement analysis. The projects are presented to the agencies for discussion during various stages of project development. This exchange not only helps the agencies better understand the project purpose and need, but also allows for input from the agencies.

2.5.2 Illinois Statewide Implementation Agreement

The Illinois Statewide Implementation Agreement between the FHWA and IDOT establishes timeframes for Environmental Impact Statements (EIS) and Environmental Assessments (EA) based on TEA-21, which established the need for setting / negotiating time periods for reviews. It is also supportive of the July 1999 USDOT interagency agreement for streamlining reviews. It includes provisions for timeframes agreed to between FHWA and IDOT to streamline EA and EIS development. This process may be affected by new US DOT guidelines resulting from MAP-21.

2.5.3 IDNR-IDOT Natural Resource Review and Coordination Agreement

The IDNR-IDOT Natural Resource Review and Coordination Agreement was developed to clarify responsibilities, thresholds, and time frames for coordination to ensure appropriate consideration of natural resources by both agencies and to eliminate unnecessary coordination. The agreement ensures compliance with the State Endangered Species Act and the Illinois Natural Areas Preservation Act. This agreement also establishes coordination thresholds for stream and forest impacts. By following the procedures in the Agreement, projects are addressed in a uniform manner. Additionally, under the requirements of the Illinois Interagency Wetlands Policy Act, the two agencies set forth a framework of procedures to establish compliance with the goals of the Act. The implementing procedures establish the compensation ratios to be used by state agencies in complying with the Act to accomplish the goal of no net loss of wetlands.

2.5.4 IDOT-IDOA Agricultural Land Preservation Policy Statement and Cooperative Working Agreement

The IDOT-IDOA Agricultural Land Preservation Policy Statement and Cooperative Working Agreement was formulated to describe the potential for transportation projects to convert farmland and to state that it is the policy of IDOT to minimize farmland impacts to the extent practicable and feasible. The Working Agreement outlines specified thresholds for coordination to ensure that projects that will involve farmland conversions are assessed by the IDOA and Natural Resources Conservation Service (NRCS).

2.5.5 Cultural Resources Programmatic Agreements

Cultural Resources Programmatic Agreements have been formulated in compliance with Section 106 of the National Historic Preservation Act, between IDOT, FHWA, and the Illinois State Historic Preservation Officer (SHPO). These agreements include the 1990 Bridge PA that established primary and secondary bridge lists, which included all highway bridges eligible for inclusion or already on the National Register of Historic Places. The 1990 agreement identified all other highway bridges not listed on the primary or secondary lists as having no historic value and available for

repair or replacement without further review. The PA presented an approach for routine maintenance and management and handling of adverse impacts to historic bridges and committed IDOT to develop a plan to seek public comment on the lists and address continuing public participation for changes to the list.

The 2004/2005 Bridge PA updates, but maintains, the program established in 1990. The updated PA allows IDOT to proceed with actions that have an adverse effect to certain bridge types after the recordation of three similar structures of that type and also delegates FHWA's concurrence on individual adverse effect bridge MOUs to IDOT's cultural resources unit.

The 1995 "No Effect" PA established a number of highway project types that are exempt from Section 106 review (for example, modernization of traffic signals). It also allows IDOT professional cultural resources staff to review projects and clear certain classes of highway projects without further review, field survey, or coordination.

The 2002 Programmatic Agreement for the Mitigation of Adverse Effects to Illinois Archaeological Habitation Sites allows professional archaeologists, working under contract to IDOT, to follow a standard excavation and analysis plan in order to mitigate adverse project effects on sites, prehistoric or historic, where people once lived. It does not apply to cemeteries or mounds. The sites covered by the stipulations of this PA are significant for the scientific data they contain. The PA streamlines the compliance coordination process while still affording Native American peoples, where appropriate, the opportunity to comment and consult on the project as it is developed.

3.0 Environmental Resources

NEPA requires the evaluation of environmental resources that could be potentially impacted by a project. Environmental resources include both natural resources such air, water, and wildlife and human resources such as local economies, communities, and historical structures. Implementation of environmental coordination through the years has developed improved planning techniques to avoid, minimize, and mitigate potential impacts created by improvement projects.

This section provides an overview of what types of environmental coordination is completed on IDOT transportation improvement projects and how IDOT evaluates the potential impacts to the environmental resources.

3.1 Air Quality

Impacts to air quality are regulated under the Clean Air Act. Under this act, the United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and environment.

The IEPA collects data daily for the Air Quality Index (AQI) from more than 80 site locations throughout Illinois. IEPA uses more than 200 instruments for the six primary pollutants for which air quality standards have been developed:

- particulate matter 10 micron or less (PM10)
- particulate matter 2.5 micron or less (PM2.5)
- ozone (O^3)
- sulfur dioxide (SO^2)
- nitrogen dioxide (NO^2)
- carbon monoxide (CO).

When the AQI is in this range:	...air quality conditions are:	...as symbolized by this color:
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

Other pollutants include lead and other heavy metals, as well as nitrates and sulfates. The Clean Air Act also designates 188 substances known to have harmful health effects as hazardous air pollutants (HAPs). Most of the HAPs are organic compounds, such as benzene and chloroform. Some HAPs are toxic metals and their compounds, such as arsenic and mercury.

The overall air quality of Illinois must be considered within the context of the industrial demographics of the state. The Chicago metropolitan area in northeastern Illinois and the Metro East St. Louis metropolitan area in the southeast are the most highly industrialized regions of the state. Because these areas regularly or periodically fail to meet the NAAQS, they have been classified as non-attainment areas for federal clean air standards. As of July 2012, the metropolitan Chicago and the metropolitan St. Louis regions are classified as marginal non-attainment areas for

the eight-hour ozone assessment from 2008.[6] The designation requires these regions institute measures aimed at reducing pollutant emissions, and meet the US EPA standards for ozone by 2015.[7]

While industrial sources, such as electricity-generating power plants, are major contributors to pollution in non-attainment areas, vehicle emissions substantially contribute to air pollution in dense urban areas. According to the FHWA, transportation contributes four of the six criteria pollutants: ozone, carbon monoxide, particulate matter, and nitrogen dioxide. One of the challenges facing transportation system designers is how to alleviate traffic congestion in non-attainment areas, especially during peak use hours when vehicles can become stuck idling in one location for extended periods of time. IDOT projects in non-attainment areas must conform to the State's Air Quality Implementation Plan (SIP).

The AQI is an index ranking the quality of the air on a scale of 0-500. The index is separated into six categories (from good to hazardous) based on the value. In terms of the AQI, air quality in Illinois is generally either good or moderate. Unhealthy air quality is uncommon, and very unhealthy air quality is rare; there has never been an occurrence of hazardous air quality in Illinois. The majority of lowest recorded quality occurrences (Category Orange/Unhealthy for Sensitive Groups) were in either the Chicago metropolitan area or the Metro East St. Louis area.

IDOT, through the Illinois Environmental Protection Agency, coordinates with the USEPA when developing it state implementation plan (SIP). To develop the SIP plan, the USEPA has developed an estimation tool called MOVES, an acronym for Motor Vehicle Emissions Simulator. The MOVES model estimates mobile source emissions, including greenhouse gas emissions. Greenhouse gases contribute to the "greenhouse gas effect."

3.2 Water Quality

Illinois has abundant water resources that are critical to the general population in terms of health, economy, transportation, and recreation. The U.S. Geological Survey (USGS) has identified approximately 70,475 miles of streams within Illinois' borders, including major rivers such as the Big Muddy, Cache, Des Plaines, Embarras, Fox, Illinois, Kankakee, Kaskaskia, Rock, Sangamon, and Vermilion rivers. In addition, there are 918 miles of large rivers forming the state's western (Mississippi River), eastern (in part, Wabash River), and southern (Ohio River) borders.

More than 91,400 inland lakes and ponds exist in Illinois, 3,256 of which have a surface area of six acres or more.[8] About three-fourths of Illinois' inland lakes are man-made, including dammed stream and side-channel impoundments, strip-mine lakes, borrow pits, and other excavated lakes. Natural lakes include glacial lakes in the northeastern counties, sinkhole ponds in the southwest, and oxbow and backwater lakes along major rivers. Illinois is also bordered by Lake Michigan; and the state has jurisdiction over approximately 1,526 square miles of open water and 63 miles of Lake Michigan shoreline. Lake Michigan is the third largest of the Great Lakes and is the largest body of

[6] US Environmental Protection Agency. The Green Book Nonattainment Areas for Criteria Pollutants. www.epa.gov/oaqps001/greenbk/index.html. Accessed July 26, 2012
[7] Current Air Quality Index reports are available online to the public at www.epa.state.il.us/air/aqi/
[8] Illinois Natural Resources Geospatial Data Clearinghouse, Water Resources. www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html. Accessed July 26, 2012.

fresh water located entirely within the boundaries of the United States. With the exception of the polar ice caps, the Great Lakes form the largest freshwater system on earth.

Groundwater resources of the state are generally categorized into three primary aquifer classes developed by O'Hearn and Schock (1984). These three principal aquifers are sand and gravel, shallow bedrock, and deep bedrock aquifers. O'Hearn and Schock defined a principal aquifer as having a potential yield of 100,000 gallons per day per square mile and having an area of at least 50 miles. Approximately 58 percent (32,000 square miles) of the state is underlain by principal aquifers. Of these, about 33 percent (18,500 square miles) are major shallow groundwater sources, which are more susceptible to contamination than deep bedrock aquifers. Protection of groundwater resources are important as the Illinois Department of Public Health estimates approximately 30 percent of the population in the state utilize groundwater as their primary source of drinking water.

Water quality is important in both the context of human and ecosystem health. Section 305(b) of the Clean Water Act requires states to report to the US Congress and the USEPA on the quality of the surface and groundwater resources of the state. The 305(b) report is submitted once every two years and must explain how the resource quality of waters is determined in terms of the degree to which predefined beneficial uses (i.e., designated uses) of those waters are attained (i.e., supported). When any designated use for any water body is not fully supported (i.e., impaired), the state must report potential reasons (causes and sources) for the impairment. The Illinois Environmental Protection Agency (IEPA) is responsible for producing this biannual report in Illinois.

Types of beneficial uses include aquatic life, fish consumption, public and food processing water supplies, primary contact (swimming), secondary contact, and aesthetic quality. Each designated beneficial use is protected by a set of water quality criteria. The degree of support (attainment) of a designated use in a particular water body is determined by an analysis of biological, physiochemical, physical-habitat, and toxicity data. Waters that do not meet state water quality standards must be documented in the 303(d) Impaired Waters Listings reports; based on guidance from the USEPA, the Impaired Waters List was integrated into the Water Quality Report after 2006. For each impaired use in each water body, IEPA attempts to identify potential causes and sources of the impairment and develop a Total Maximum Daily Load (TMDL) limit to reduce the target pollutant(s).

The Class I streams list is composed of streams that meet any one of the following criteria:

- *National Park Service candidate for Wild and Scenic Rivers*
- *Illinois Natural Areas Inventory Sites (as Aquatic Natural Areas)*
- *Habitat for Listed State or Federal Threatened / Endangered Species*
- *Illinois EPA Non-Degradation Streams*
- *High Biological Characterization (BSC) Rating*

The IEPA and IDNR periodically conduct additional biological surveys to identify high quality streams relative to aquatic ecology. The IEPA Biological Stream Characterization (BSC) Reports are based on a multi-tiered classification system that rates the quality of Illinois' streams based on their biotic communities and water quality within the major watershed basins of the state. The report characterizes and rates individual streams over distinct reaches rather than generalize an entire waterway. Streams rated Class A are considered "unique aquatic resources" and include the state's highest quality aquatic resources. The Illinois Natural History Survey (INHS) further expands on the BSC ratings using additional information on biodiversity, threatened and endangered species, watch list species, and mussel

diversity.

IDOT roadway projects are evaluated during the environmental process to determine the potential to impact surface or groundwater resources. IDOT maintains a list of 'Class I' streams that are considered of significant interest to the IDNR. Important groundwater resources are located through the identification of Sole Source Aquifers and Groundwater Protection Zones. Sole Source Aquifers are defined by the USEPA as a sole or principal source aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer and that these areas have no alternative drinking water source(s) that could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. Creation of Groundwater Protection Zones are granted to communities by the state for the right to protect both the supply and quality of their source of drinking water through the adoption of local ordinances (also referred to as Wellhead Protection Zones and Aquifer Protection Areas). Any project involving a Class I stream, Sole Source Aquifer, or Groundwater Protection Zone must be analyzed to determine that no negative impact to these resources will occur, either through a direct or cumulative impact.

3.3 Wetlands

The technical definition of a wetland is, "land that has a predominance of hydric soils and that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions". In general, Illinois wetlands are typically low lying areas that pond shallow water or remain saturated to near the surface for all or most of the spring. Before the onset of European settlement, it is estimated that Illinois held over 9 million acres of wetlands. Since settlement, draining for the creation of dry agricultural land has eradicated over 90 percent of Illinois' wetlands.

The U.S. Fish and Wildlife Service has created a wetland classification hierarchy where wetland types are categorized into systems by special modifiers that describe: hydrophytic plant populations, hydrologic regimes, substrate types, and human activities that can artificially affect wetlands. In Illinois, three of the five nationally recognized wetland systems occur: Palustrine, Lacustrine, and Riverine.

Once thought of and treated as merely impediments to agricultural land, wetlands are now recognized as an indispensable component of Illinois' ecosystems for the role they play in sediment and nutrient filtering, flood water storage, and habitat for threatened and endangered species. All IDOT transportation projects must seek to avoid wetland impacts. When adverse impact to or loss of a wetland is unavoidable, impacts must be minimized to the extent practicable, and then mitigated to ensure a 'no net loss' of wetlands result from the project. Wetland mitigation banking is the preferred option to mitigate for wetland impacts. Wetland banks provide for the compensation of wetland impacts by creating large blocks of wetlands in areas determined not to be wetland (or expanding existing wetland areas). A mitigation banking instrument is certified by the USACE to contain values and functions of palustrine, lacustrine, or riverine wetlands. Once established and certified, the mitigation bank can sell 'credits' to offset wetland losses elsewhere.

A wetland mitigation bank can be developed by private individuals, public agencies, or a combination of these entities, but must be managed and preserved in perpetuity. Because

transportation projects often result in the unavoidable loss of wetland areas, IDOT has established three mitigation bank sites specifically for transportation projects: 830-acre Morris Bank in north-central Grundy County; 1,640-acre La Grange Bank in northeastern Brown County; and 105-acre Sugar Camp Creek Bank in central Franklin County. A fourth 73-acre site in Lawrence County has been proposed and is under review.

3.4 Terrestrial Communities

3.4.1 Forests

Hardwood forests occupied 38 percent, or 13.8 million acres, of Illinois' total land area around the time of European settlement. Currently forests comprise 12 percent, or 4.4 million acres, and are fragmented into relatively small parcels of land. From 1800 until the early 1920s, forest land in Illinois steadily declined until reaching its lowest point in 1924 at only 3 million acres. The majority of forestland in Illinois falls within three forest types classified under USDA Forest Service definitions: oak-hickory forests, elm-ash-cottonwood forests, and maple-beech-birch forests. Oak-hickory forests occupy greater than 50 percent of the total forestland acreage in Illinois and are found throughout the state.

Promoting sustainability is an integral component of the environmental process within IDOT. Seventy-five percent of Illinois wildlife requires forest habitat for at least a portion of their lifecycle, including 420 vertebrate species. Forest fragmentation by bisecting roadways can lead to the degradation of these habitats. IDOT requires tree replacement for impacted forestland. Tree replacement can occur through the acquisition of property adjacent to or within the same watershed or providing plantings to local parks or preserves. Highways that bisect large tracts of continuous forested land can impede migration routes, disrupt breeding patterns of many species, and increase incidences of animal-vehicle collisions. In appropriate cases, IDOT will construct animal crossways (specialized bridges or culverts) to direct wildlife movement and road-kills through a corridor. Protecting woodland habitat is not limited to just the planning phases of transportation projects. As part of minimization efforts, trees may be marked for protection during construction. IDOT standards require unintended trees damaged or destroyed during construction to be replaced by the contractor.

3.4.2 Prairies

Illinois was once home to over 22 million acres of native prairie. After the invention of the self-scouring plow, the vast majority of this native Illinois plant community was converted into open cropland. By 1976, it was estimated that only 2,352 acres of high-quality native prairie remained in Illinois, roughly 1/100th of 1 percent of its original acreage. Unplowed remnant prairies are one of the rarest resources in the state. The high productivity of the land where prairies existed has resulted in the conversion of nearly every available parcel to agricultural use. Presently, railroad rights-of-way harbor a number of the highest quality prairie remnants in the state.

Prairie communities are of special concern in Illinois because of their rarity, species diversity, and vulnerability to habitat degradation. At the direction of the BDE, an inventory of native Illinois roadside prairie remnants was conducted by botanists from the INHS during the field seasons of 2001-2003 and will be repeated starting in 2013. The area surveyed occurred where roadways and railroad lines (both active and abandoned railroads) occurred within four hundred feet of each other. The type of information collected for each site included its location, quality, size, distance from edge

of pavement, and species list. Information on high quality areas observed are provided to the IDNR where they may be eligible for inclusion on the INAI site list. Low quality disturbed prairie areas, which are not included within nature preserves, INAI sites, or land and water reserves, are not afforded protection; however, IDOT has planted 5,500 acres of flowers and grasses along roadway right of way to simulate the historic prairie landscape under the Corridors for Tomorrow program

3.5 Wildlife

Wildlife resources in Illinois are of ecological, recreational, and economic value. The state is home to a variety of species that contribute to functioning ecosystems throughout the state. Wildlife in Illinois includes approximately 59 species of mammals, 300 birds, 41 amphibians, and an estimated 60 species of reptiles. Wildlife habitat is found in the many varying land covers within the state ranging from the rocky outcrops of the 'driftless' area in the northwest corner of the state to the cypress swamps along the Cache River in the far southern part of the state. The forests and lakes of Illinois act as important stop-over points for avian species migrating along the major North American Flyways between the Gulf of Mexico and Canadian wilderness.

The Illinois landscape has changed dramatically since the time of European settlement, with natural lands being manipulated and developed. Illinois has lost over 90 percent of its original wetlands, 99.9 percent of its original prairie, and currently has 424 state-listed and 24 federally listed threatened and endangered species within its boundaries. Over the past 30 years, populations of many wildlife species have fallen dramatically; and over the past decade, expenditures for the recovery of federally endangered species have increased more than 600 percent.

The USFWS manages many of the federal programs providing grants to the states for conservation purposes, including the Wildlife Conservation & Restoration Program (WCRP) and State Wildlife Grant Program (SWGP) program. Since 2001, the WCRP and SWGP have translated into about $9 million in federal aid for Illinois wildlife. A condition placed on the WCRP and SWGP funding has been for each state to develop a Comprehensive Wildlife Conservation Plan (CWCP). These plans, developed with cooperation from conservation partners and input from the public, have set a course for stewardship of all wildlife species, with special attention given to species in greatest need of conservation. In Illinois, the CWCP has been renamed the Illinois Wildlife Action Plan.

For an improvement project on IL 29, IDOT has proposed installing 30 wildlife passages for mammal and amphibian/reptile road-kill hot spots. IDOT predicts the passages will reduce the high number of animal-vehicle collisions and remove barriers to wildlife movement. Bridge spans will be lengthened, opening an additional 10 to 25 feet to provide a sufficiently wide, dry-crossing area for large animals; and ledges will be installed in culverts for small animals to use during storms.

IDOT is one of many state and local agencies and environmental groups involved in the Plan. The initiative is focused on addressing the particular needs of wildlife species in an effort to stabilize and reverse trends in declining populations. The IDNR is lead agency in Illinois responsible for preparation of the Plan. The Illinois plan will locate priority areas where conservation opportunities are greatest, identify partner organizations that work in each area, and help leverage resources to accomplish its objectives.

Evaluation of impacts to wildlife is provided within the EA and EIS process. Where projects will impact species listed as threatened or endangered (either state or federal), additional measures are taken to conduct detailed studies related to the individual populations; however, even wildlife not afforded special protection through listing as threatened or endangered are given consideration by IDOT for implementing practical measures to avoid, minimize, and mitigate adverse impacts to these valuable resources. To accommodate wildlife connectivity and to increase safety to the motoring public, projects may include specialized wildlife crossing structures or fencing within project designs in environmentally sensitive locations. These measures not only reduce wildlife mortality and the number of vehicle-animal collisions, but help to ensure that species populations remain viable.

3.6 Threatened and Endangered Species

Under the Endangered Species Act (ESA) and Illinois Endangered Species Act (IESA), IDOT is required to consult with the USFWS and the IDNR to insure that its projects are not likely to jeopardize the continued existence of any listed threatened or endangered species. Coordination with the USFWS and IDNR begin early in the planning process to determine if any listed species occur within a given project corridor. Additionally, IDOT maintains in-house expertise within the BDE to screen project areas for the presence of habitats that may contain or be suitable for a listed species. For a small number of projects, a record of occurrence or known potential habitat for a listed species will be identified from within a project area. Detailed field surveys are required any time the potential for a listed species is present.

When a listed species is located within a project area and complete avoidance is not practicable, IDOT will prepare a Biological Assessment (BA) or Detailed Action Report (DAR) in accordance with the ESA or IESA, respectively, to determine if a species will be impacted, and if so, how the project seeks to avoid, minimize, and mitigate for the impact. The response provided by the USFWS or IDNR is in the form of a Biological Opinion (BO) that includes a statement as to whether the project is likely to jeopardize the continued existence of a listed species (jeopardy opinion) or the project is not likely to jeopardize the continued existence of a listed species (no jeopardy opinion). If the result of the BO is a no jeopardy opinion, an authorization for impacting the species may be granted through an Incidental Take Agreement (ITA) between the USFWS or IDNR and IDOT. An ITA must contain a Conservation Plan (CP) that provides clear documentation of how and when the species will be impacted and how the impact will be mitigated. The approval process includes a period for review of the CP by the public.

A BA and CP must include a description of all measures to be implemented to minimize or mitigate the effects of a project on a listed species and plans to monitor the effectiveness of those measures. A BO may contain non-binding discretionary conservation recommendations. These measures or recommendations often become what are known to the IDOT as project commitments. A

commitment might be a restriction on the dates of construction of a project. For example, construction of a highway bridge may be scheduled so that there is no in-stream work during the spawning and incubation periods of a listed species of fish. For some projects, commitments are made to compensate for the take of a listed species or its habitat; and this may be accomplished by preserving, enhancing, or restoring habitats that contain listed species or their preferred habitat. Compensation can be done on acquired land, on private land through conservation easements, or on public lands in partnership with a land management agency. Other examples of commitments or mitigation measures can be the use of action items that are included in USFWS recovery plans for listed species. Monitoring of project commitments is accomplished by IDOT through its statewide contracts with the Illinois Natural History and State Geological Surveys.

3.7 Special Lands

Reserved land, such as nature and forest preserves, historic sites, parks, recreation areas, and wildlife and waterfowl refuges, are important to the people of Illinois on an economic, educational, recreational, and aesthetic level. Section 4(f) of the Department of Transportation Act of 1966 included a special provision, which stipulated that the FHWA and other DOT agencies cannot approve the use of land from publicly-owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply:

- There is no feasible and prudent alternative to the use of land.
- The action includes all possible planning to minimize harm to the property resulting from use.

Public ownership in Section 4(f) refers to ownership by a local, state, or federal government agency. However, the idea of ownership does not necessarily mean that the government has a proprietary interest in the land, although it may. Public ownership can also mean that a government entity simply has a legal interest in the land, such as a perpetual easement for conservation purposes. In cases where this broader, more ambiguous concept of ownership is applied, it can be necessary to review deed plans and other records to determine whether a piece of land is publicly owned.

Since 1965, federal LWCF dollars allocated to Illinois total more than 150 million dollars. OSLAD similarly has provided a significant investment in Illinois' public parks and open space. From FY 1986 through 2008, the OSLAD program totaled more than $303 million. The main recipients of LWCF and OSLAD funds are local agencies such as park districts, municipalities, forest preserve districts, and conservation districts, which provide outdoor recreation lands and facilities that also serve statewide priorities.

The Land and Water Conservation Fund Act Passed by Congress in 1965 created the Land and Water Conservation Fund (LWCF) program that provides matching grants to pay for half the acquisition and development cost of outdoor recreation sites and facilities. Section 6(f) of the Act prohibits the conversion of property acquired or developed with these grants to a non-recreational purpose without the approval of the National Park Service. Impacts to these lands require that replacement lands of equal value, location, and usefulness are provided as a condition of such conversions.

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) is required to maintain Illinois' eligibility to participate in the LWCF program. Funds can be used by the State of Illinois or passed through to eligible units of local government in the form of competitive grants. The SCORP is prepared as a five-year document by the IDNR and establishes priorities for the use of LWCF funds. These priorities also guide the use of State Open Space Land Acquisition and Development (OSLAD) funds. Like the LWCF program, the OSLAD program funds up to half of eligible costs for outdoor recreation acquisition and development; the OSLAD program is limited to local units of government.

IDOT evaluates all project study areas to determine whether Section 4(f), Section 6(f), or OSLAD properties occur. When unavoidable impacts to these properties occur as a result of a transportation project, appropriate mitigation is required.

3.8 Cultural Resource Management

The National Historic Preservation Act of 1966 established in each state a historic preservation office charged with the surveying of historic properties. The State Historic Preservation Office (SHPO) in Illinois has been a component of three state agencies since its creation in 1969 and currently resides in the IHPA. The responsibility of the SHPO includes oversight of the nomination of sites to the National Register of Historic Places and reviewing federal and state undertakings (such as road projects) for their impact on cultural resources.

The IDOT planning process, as it relates to historic preservation, maintains an important focus on preservation of culturally significant properties. IDOT annually allocates funds for archaeological projects and cultural resource management associated with development of the state's transportation system. IDOT and IHPA have implemented a series of PAs over the course of the previous several decades to ensure that preservation planning and transportation planning complement each other. For over half a century, the Illinois State Archaeological Survey (ISAS) has conducted architectural surveys and archaeological surveys and excavations throughout the state for IDOT. Each year ISAS's Transportation Archaeology Program performs hundreds of archaeological surveys and dozens of excavations of both historic and prehistoric sites. These activities not only preserve the state's rich cultural heritage, but allow for the efficient planning, construction, and enhancement of the state's transportation network.

Extensive cultural resource surveys are conducted prior to the onset of IDOT construction activities. An initial Phase I survey includes surface surveys of open agricultural land and shovel test excavation of grassy and forested areas for both historic and prehistoric sites. When an archaeological site is located through Phase I testing, the artifacts are considered in context for their potential significance. Recommendations for further investigation are made to the SHPO. When further work is recommended, Phase II excavations are conducted to test for the presence of subsurface features, such as prehistoric cooking pits and house basins and historic house foundations and associated features, such as cisterns. Phase III mitigation excavation is conducted on sites deemed significant and where sub-surface features remain intact.

Architectural surveys are conducted to identify potentially significant structures and bridges within project areas. When an observed site within a project study area is potentially eligible for inclusion in the National Register of Historic Places (NHRP), a detailed report may be prepared and

submitted to the SHPO. A professional review board considers each property proposed for listing and makes a recommendation based on its eligibility. The SHPO is responsible for all nominations to the NHRP.

IDOT won the FHWA Environmental Excellence Award in 2011 for its archeological work during the New Mississippi River Bridge project in St. Louis. During this study, historic residential areas were unearthed, resulting in one of the largest archeological excavations involving early life along the Mississippi River. Through a collaborate process, IDOT worked with preservation stakeholders to maintain this historic resource but also keep the important transportation connector project on schedule and on budget.

In November 1990, compliance procedures were established between IDOT, IHPA, and FHWA requiring the establishment of a list of bridge structures with historic significance to be called the Historic Bridge Survey (HBS). A further PA was established between these agencies in 1991 and since updated, which requires projects affecting a HBS structure to be evaluated for potential impacts. Projects involving structures in the HBS typically propose one of the following three (3) alternatives:

- *Bypass the existing bridge,*
- *Relocate the existing bridge,*
- *Remove the existing bridge (where safety is a factor).*

3.9 Agriculture

Farmland occupies nearly 80 percent of the state's total land area and is composed of approximately 76,000 farms. The average size of an Illinois farm, including hobby farms, is 368 acres. Illinois is a nationally leading producer of soybeans, corn, and swine. The state's climate and varied soil types enable farmers to grow and raise many other agricultural commodities, including cattle, wheat, oats, sorghum, hay, sheep, poultry, fruits, and vegetables. Illinois also produces several specialty crops, such as buckwheat, horseradish, ostriches, fish, and Christmas trees.

Most farm acreage is devoted to grain, mainly corn and soybeans. Production of corn for grain in 2011 totaled 1.95 billion bushels, with soy beans yielding 416 million bushels. Rural Illinois benefits principally from agricultural production, while agricultural processing and manufacturing strengthen urban economies. Given the value of the agriculture industry to the economy of Illinois, it is important to protect farmland as a resource. The loss of farmland to the development of public and private sources resulted in the institution of a series of legislative acts to reduce the amount of farmland lost due to state and federally funded projects.

The Illinois Department of Agriculture (IDOA) and USDA-NRCS began reviewing programs, projects, and activities of state and federal agencies in Illinois for compliance with the Farmland Preservation Act and the federal Farmland Protection Policy Act following the implementation of the Acts. The Land Evaluation and Site Assessment (LESA) System was developed by the USDA and adapted by the IDOA to assist in determining which proposed actions would incur the least

harm to the agricultural environment. The LESA System provides an indication as to the continued agricultural viability of a tract or corridor of land currently used for agricultural purposes.

Transportation projects have the potential for significant impacts upon agricultural lands and farming methods. Roads are often the boundaries of agricultural fields and having to divide parcels into smaller sections or cut off portions of sections can result in uneconomical remnants. IDOT's Land Acquisition Policies and Procedures Manual defines an uneconomical remnant as "a parcel determined to have little or no value or utility to the owner of real property after the partial acquisition" of an agency for development. The farming of a given parcel of land is most efficient when the parcel is square or rectangular. Diagonal property acquisitions cut off small sections of property (remnants) that are difficult to access with large farm machinery, rendering them non cost-effective to farm and lowering property value. The inclusion of uneconomical remnants in consideration of projected impacts can significantly increase the amount of farmland removed from production relative to only consideration of the footprint of the roadway.

Impacts to farming operations are not limited to the direct loss of agricultural land. Severances and adverse travel must be considered. Severances occur when controlled access roadways, such as an interstate, prevent a farmer from accessing their land. Estimation of adverse travel must be incorporated when evaluating impacts to farming operation. Adverse travel includes the increased time required to access a parcel as a result of the alterations of the roadway project. As the travel time increases, the profitability and efficiency of a farming operation decreases.

3.10 Socio-Economic Issues

The social fabric of our communities is an important part of the human environment, and alterations in the transportation network can dramatically affect our quality of life. Construction of new roadways, widening of existing ones, or changes in access control can positively or negatively impact a local or even a regional economy. IDOT integrates community impact/ socio-economic assessments into the environmental review process.

IDOT developed a Community Impact Assessment Manual for assisting with the analysis of socio-economic impacts during the planning and design phase of transportation projects. Legislative acts such as NEPA, the Civil Rights Act, Uniform Relocation Assistance and Real Properties Act, and Federal-Aid Highway Act guide the assessment process; however, BDE has used public input collected during the public involvement process through the years to continually enhance the analysis of socio-economic impacts. The public involvement process, which is a component of assessing community impacts itself, provides opportunities for stakeholders and citizens within project corridors to interact directly with IDOT.

Alterations to the transportation network may result in changes to access to properties; cause business and/or residential relocations; create disproportionate hardships to minority groups; separate or fragment neighborhoods; change patterns of movement within a community; and effect public facilities and services, land use, and other potential impacts. While transportation projects must carefully assess negative impacts caused by a project, the selection of a project is based on a defined need for changes within a local community or region; and the purpose is to provide improvements. The assessment process is an integral part of project planning and design and can serve to clearly identify how a project has the potential to stimulate economic growth, preserve

historic and culturally significant features of a community, increase pedestrian or bicycle access, and encourage planned urban growth to reduce sprawl. Throughout the planning process, IDOT remains engaged with communities to reduce negative impacts and maximize the net benefits each community can receive from the transportation improvements.

3.11 Special / Hazardous Waste

Special waste includes solid waste, hazardous wastes, potentially infectious medical wastes, industrial process waste, and pollution control waste. Handling of waste material may require specially trained people and/or special disposal methods. Special waste sites are tracked by numerous state and federal programs. The two most important federal programs related to special waste include the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA). The Illinois Environmental Protection Act sets state regulations for the tracking, monitoring, and remediation standards for incidences of releases. Licensed and non-licensed landfills, waste generators, and Leaking Underground Storage Tanks (LUST) are tracked by the IEPA.

CERCLA, commonly known as Superfund, established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) lists hazardous waste sites nominated or chosen for cleanup under CERCLA.

RCRA established the federal program regulating solid and hazardous waste management. The Act defines solid and hazardous waste; authorizes USEPA to set standards for facilities that generate or manage hazardous waste; and establishes a permit program for hazardous waste treatment, storage, and disposal facilities. While CERCLA addresses uncontrolled releases of hazardous substances, often from facilities no longer in operation where contamination resulted from past practices, RCRA focuses on prevention and remediation of releases from currently operating facilities.

Transportation improvement projects have the potential for acquiring easements and/or land containing special waste issues or disturbing soil on existing right of way that has become contaminated from adjacent properties or accidental spills. Taking title (or lesser interest) to property containing special waste, or moving contaminated soil off-site, exposes IDOT to potential liability for associated investigation and cleanup costs. To limit liability, projects must be screened/assessed for special waste or other regulated substances. Acquisition of an interest in a site determined to contain regulated substances are avoided unless the risks and liabilities can be justified for a given project. Additionally, public and worker safety are paramount to IDOT during construction.

Screening occurs early in the planning stages of IDOT projects. Where the initial screening identifies a potential pathway for contamination, a Preliminary Environmental Site Assessment (PESA) is completed to identify properties on or adjacent to project boundaries that may contain Recognized Environmental Conditions (RECs). Prior to completion of the final design, locations of RECs (if necessary for acquisition or earth disturbance) must have further detailed surveys, including the testing of soils for chemical contaminants. If contaminants are present, a remediation plan must be conducted prior to construction of the project.

3.12 Noise

Federal and state regulations and policy establish procedures for highway traffic noise studies, noise abatement measures, and abatement criteria used for planning and design of highways. These regulations include the Noise Abatement Criteria (NAC), which define highway traffic noise conditions (sound levels) that represent a traffic noise impact and, therefore, warrant consideration of abatement measures; regulations require consideration of abatement when the levels approach the NAC. The NAC are noise impact thresholds and are not attenuation design criteria. Noise levels are expressed as a weighted average hourly decibel level. The decibel (dB) is the unit of measurement for sound; and in traffic noise studies, the measurement is weighted to focus on the frequencies that correlate well with human response.

4.0 Implementation Strategies and Programs

The preceding sections discuss the laws and regulations guiding IDOT policies and procedures and cover how IDOT implements those procedures within its design and construction process. The final section will focus on recent initiatives designed to promote sustainability within transportation projects. Additionally, this section will identify recent innovations applied to transportation projects.

Sustainability is an important pursuit as Illinois continues to grow. IDOT seeks to promote incorporation of all forms of innovation, which assists in creating more efficient, safer, and sustainable transportation system. IDOT cannot eliminate its environmental footprint, but it can develop projects that minimize their impact and are constructed and maintained in an environmentally conscious operation.

4.1 Illinois Livable and Sustainable Transportation Rating System

The Illinois-Livable and Sustainable Transportation (I-LAST) rating system and guideline was developed through the creation of a Joint Sustainability Group composed of the American Council of Engineering Companies of Illinois (ACEC-IL), IDOT, and the Illinois Road and Transportation Builders Association (IRTBA). The purpose of the Group was to develop a document that would be useful for infrastructure practitioners for incorporating greater sustainability practices into transportation improvement projects. A general emphasis has been identifying how to accomplish integration of sustainability; however, no comprehensive guide to aid practitioners making decisions at the project level has been available. In addition, an increasing number of new materials and practices are being used in the field, but no central repository to serve as a manual for practitioners to learn about sustainable transportation practices.

The eight categories of sustainable practices include:

Planning: Includes 10 items that cover context sensitive solutions and land use/community planning considerations

Design: Design choices reducing the environmental footprint of a project, as well as broader design decisions; such as avoiding impacts to socioeconomic resources

Environmental: Concepts that go above and beyond the basic environmental requirements including avoiding habitat fragmentation and restoring wildlife, noise abatement, and consideration of the tree and plants communities within project right-of-ways

Water Quality: Reduction of impervious areas, stormwater treatment, and other construction practices to protect water quality

Transportation: Includes over two dozen individual items that cover traffic operations, transit, and bicycle and pedestrian facility considerations

Lighting: Retrofit or alternative lighting options to reduce electrical consumption and stray light

Materials: Over two dozen specifications covering recycled or salvaged materials, permitting local byproducts to be reused, and protection of topsoil

Innovation: Experimentation with new features promoting sustainable practices

The Joint Sustainability Group spent over two years creating the I-LAST Rating System and Manual using the New York State DOT 'GreenLites' document as a model. In 2010, the Group released the I-LAST Manual as a living document with 153 detailed guidelines and specifications in eight categories of sustainable practices that can be tailored to the needs of an individual transportation project. The Group established several goals to guide the direction of the program and included:

- the requirements for the development of a project-oriented rating system, which is a simple quick and easy tool to use on a broad range of projects,
- the creation of a catalogue of sustainable transportation planning practices with tracking techniques for new ideas
- the establishment of an effective evaluation methodology to determine how sustainable a project is during each phase of development.

The IRTBA Green Council released the Construction Practices Addendum to the I-LAST Manual in 2011 to reflect needs and challenges during the implementation phase. Future efforts will integrate newer sustainable innovations in the transportation industry that did not exist during the creation of I-LAST, but could be included as new practices.

I-LAST is not a substitute for IDOT and/or AASHTO design and construction standards, or an official IDOT policy or procedure. All plans, specifications, and construction must continue to comply with appropriate IDOT and/or AASHTO requirements. The I-LAST Manual is purely advisory in nature and intended to ascertain and document sustainable practices proposed for inclusion on state highway projects. Points awarded in the I-LAST system must be evaluated within the context of each specific project. Due to the varying nature of highway projects and the range of items in I-LAST, there will often be a large number of points that are not applicable on an individual project. Therefore, comparing the absolute score of different projects would not be indicative of the level of sustainability for those projects.

4.2 Illinois Transportation Enhancement Program

The Illinois Transportation Enhancement Program (ITEP) distributes funds to transportation projects that enhance the transportation system. This program is funded with a ten percent set-aside of federal funds for state transportation projects. The enhancement program allows the scope of transportation projects to expand beyond the traditional accommodations for cars, trucks, and transit. Each state has flexibility to create a program that best suits its needs, within the limits of the law. As of October 2012, this program will change in what can be funded and the amount of funding available, based on the new federal legislation, MAP-21. However, the goal of the program remains the same.

The goal of ITEP is to allocate resources to well-planned projects that provide and support alternate modes of transportation, enhance the transportation system through preservation of visual and cultural resources, and improve the quality of life for members of the communities. In order to be eligible for enhancement funding, a project must demonstrate a relationship to surface transportation. The enhancement projects must enhance the transportation system either by serving a transportation need or providing a transportation use or benefit. For example, a bike trail that connects to existing facilities is serving a need for the people traveling to and from the facilities or communities.

Activities are not eligible if they are routine maintenance projects, such as striping a trail, cleaning up debris, and filling potholes. Items such as roadway resurfacing and sidewalk repair are considered routine activities and, therefore, ineligible for the enhancement program.

4.3 Complete Streets

The complete streets movement was borne out of the minds of members of America Bikes, a national coalition of leaders from the bicycle and pedestrian movement. In 2003, the coalition formulated an outreach program to get bicycle and pedestrian considerations into urban transportation projects. A Complete Streets Task Force was formed and garnered support from other entities, such as the American Association for Retired People, American Planning Association, American Public Transportation Association, American Society of Landscape Architects, and American Heart Association. The Task Force lobbied to have a Complete Streets provision as a part of the federal transportation bill, but failed to accomplish this goal. In October 2007, over-riding a veto by then-Governor Rod Blagojevich, Illinois adopted legislation requiring IDOT to evaluate all urban transportation projects for the potential for multi-modal design.

Illinois was the first state to adopt a Complete Streets initiative into law since the movement began; however, 25 additional states had enacted some form of Complete Streets by 2011. By adopting a Complete Streets policy, Illinois agencies direct their transportation planners and engineers to routinely design and operate the entire right of way to enable safe access for all users, regardless of age, ability, or mode of transportation. In June 2010, IDOT issued a procedure memorandum with revisions the BDE Manual intended to implement the 2007 legislation. The procedure memorandum set standards for accommodating walking and cycling in urbanized areas for IDOT highways. The Complete Street philosophy is followed, when appropriate, in all urban street improvement projects involving IDOT.

4.4 Clean Air & Construction

The origins of many of today's standard sustainability practices being instituted into IDOT transportation projects can be found in the initial stages of the Dan Ryan Expressway Reconstruction project. At the onset of the project, IDOT announced that construction procedures would institute environmental and health recommendations pertaining to pollution concerns put forward by the Dan Ryan Health and Environmental Focus Group, comprised of experts from the USEPA and IEPA, American Lung Association of Metropolitan Chicago, Chicago Public Schools, and other local agencies.

On January 31, 2005, the re-named IDOT Health and Environment Focus Group released their Strategy for Urban Expressway Projects with the mission statement to "provide safe, cost-effective transportation for Illinois in ways that enhance quality of life, promote economic prosperity and demonstrate respect for our environment". The four objectives of the strategy were to:

- monitor air quality and noise levels near the construction site
- control excessive particulate matter during construction,
- improve overall project communications
- provide construction project monitoring data for health research

Each objective identified specific target problem areas with recommended initiatives to address the target.

On-site air quality and noise monitoring during construction in the past were generally not required for transportation construction projects, and all initiatives and solicited input were voluntary on the part of IDOT. In 2006, the citizen advocacy group Citizen Action/Illinois joined with the American Lung Association of Metropolitan Chicago to launch the Illinois Campaign to Clean Up Diesel Pollution in an effort to reduce local health risks in Cook County. In June of the same year, in large part due to the efforts of the campaign, Illinois passed legislation preventing stationary diesel vehicles of more than 8,000 pounds from idling more than 10 minutes in air quality non-attainment areas. By 2008, the campaign involved over 60 public health, community, labor, and environmental organizations, to promote the utilization of cleaner fuels and the installation of diesel particulate filters on construction equipment used in publicly-awarded contracts costing over two million dollars.

In 2009, through the efforts of the Illinois Campaign to Clean Up Diesel Pollution, the Cook County Board approved a Green Construction Ordinance that requires all public county construction projects, costing $2 million or more, to use clean fuel and technology that removes up to 90 percent of dirty soot from their equipment. The campaign also helped to secure $31.1 million from the federal Congestion Mitigation & Air Quality grant to clean up diesel buses, trains, trucks, and construction equipment in the Chicago Metropolitan area. During this same time, Governor Quinn signed an Executive Order requiring that any equipment used during IDOT construction projects in the Metro East and Chicago Metropolitan areas be outfitted with pollution controls.

In 2010, IDOT mandated the use of pollution controls on most equipment to be able to reduce diesel soot pollution by 50 percent. Today, the Clean Air Construction Initiative is a cooperative effort of IDOT, the American Lung Association, USEPA, IEPA, and local community agencies aimed at reducing pollutant emissions from transportation projects. IDOT has implemented special provisions dealing with the use of cleaner diesel fuel, idling reduction requirements for construction equipment, and the installation of emission control devices on contractor vehicles. To address potential dust concerns, dust control requirements, such as watering on site, have been outlined in IDOT's Standard Specifications for Road and Bridge Construction.

4.5 Illinois Green Fleets & Alternative Fuels

IDOT received the Illinois Green Government Award in the Sustainable Transportation category in 2010 in large part for progress made in making Illinois' vehicles more environmentally friendly. In 2010, the State of Illinois' fleet included 741 alternative fuel vehicles, 36 gas/electric hybrids, and one E85/electric; the diesel fleet is now 100 percent capable of burning biodiesel fuel. In 2012, IDOT added three all-electric vehicles to its fleet, with more on the way.

In 2011, IDOT took part in an Electric Vehicle Forum in Springfield hosted by the American Lung Association. The purpose of the forum was to discuss opportunities and obstacles surrounding electric vehicles. One of the obstacles identified was the lack of readily available information for drivers to locate alternative refueling stations. IDOT provided an update on steps being taken to display signage along state highways, which included increased utilization of blue logo signs to inform travelers where charging stations and ethanol-based and other bio fuels are available.

4.6 Land Use Coordination

IDOT coordinates transportation programs and projects with local land use plans at several levels. At the planning level, IDOT is a participating member of all 14 existing Metropolitan Planning Organizations (MPOs) in the urbanized areas of Illinois. In addition, IDOT will participate in the organization and operation of two new MPOs created by the 2010 census. Through the continuous, cooperative and comprehensive transportation planning process conducted by the MPOs, IDOT is made aware of local land use and economic development plans and coordinates the development of its proposed programs and projects with all participating local agencies.

At the programming level, IDOT conducts multi-year program outreach meetings to provide local officials and the public an opportunity to comment on the proposed projects in the program. Land use implications of proposed transportation projects and coordination with local land use plans would be identified at this stage. For those proposed projects in the program located in urbanized areas, land use coordination occurs through the MPO programming process.

Finally, at the project level the Context Sensitive Solutions (CSS) process requires close coordination with public officials and targeted stakeholder groups during the preliminary engineering phase. This ensures that each project is developed within a context that is sensitive to local plans, proposals and desires. Coordination with local land use plans is part of the CSS process.

4.7 Project Innovations

IDOT strives to meet the needs of the current generation while ensuring that the needs of future generations are also met by observing, researching, and implementing sustainable business and construction practices. As a large and influential governmental organization, IDOT is committed to sustainability and seeks to act as a leader of conservation, efficiency, and environmental citizenship in Illinois and throughout the country.

As a governmental entity responsible for over 140,000 miles of roads and streets, employing a staff of over 5000, occupying over four million square feet and with approximately 5000 vehicles in use, IDOT has a large environmental footprint. Sustainability activities are part of the Department, but many activities do not have a formal name attached to them. IDOT has proposed to establish a Sustainability Practices Unit to be the formal conduit for the integration of sustainability into the Department. The Unit will identify on-going environmental initiatives, research new opportunities, and recommend policy and program enhancements. Unit staff will strive to offer a balance of environmental vision while being logistically and economically pragmatic. The Unit could serve to highlight and promote numerous discreet project driven activities occurring throughout the state. The following activities are not necessarily associated with any initiatives, but are highlighted for their sustainability practices.

4.7.1 Air Quality Monitoring

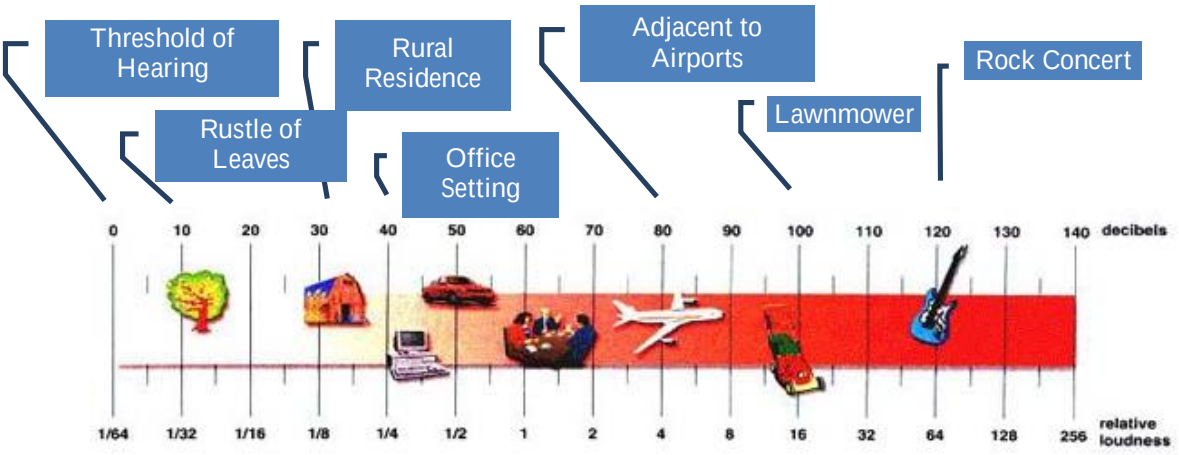
The activities of a transportation construction project can cause the dissemination of many air-borne pollutants. Earth-moving, paving of roadway surfaces, and the application of architectural coatings are a few of the activities that create high levels of particulate matter, greenhouse gases (i.e., carbon dioxide, methane, nitrous oxide), and other substances harmful to the environment and human health. Starting with the Dan Ryan Expressway Reconstruction project in 2004, IDOT began

installing air monitoring equipment at transportation construction sites, particularly around sensitive sites such as schools, hospitals, and parks. The equipment used to monitor air quality varies according to each situation and location.

Dust control measures include water spraying, street sweeping, and the application of dust suppressants. Resin-modified emulsions (such as Road Oyl) are an all-natural and environmentally friendly option. For high dust-producing activities, such as on-site concrete processing and material recycling, high-powered atomized spray units capable of blanketing areas more than 20,000 square feet are available.

4.7.2 Noise Control

As communities grow, so does the need for expanded transportation networks. It is the policy of IDOT to assess traffic noise impacts on proposed transportation projects such as highways on new location or the addition of through travel lanes (lane expansion). IDOT has established multiple NAC based on land use. Lands requiring serenity to maintain their significance are provided lower (quieter) thresholds than land uses in developed areas, such as commercial centers. The NAC thresholds for the categories range from 52-72 dBA Leq (the weighted hourly decibel level). For impacted locations where the NAC is approached, abatement is investigated.



Evaluation of the existing and future noise conditions are models using the FHWA Traffic Noise Model (TNM). Field measurements are collected and entered into the computer model to validate the results predicted against those observed. The validation of existing conditions provides confidence of the future predicted results. The model calculates the noise impacts to residential areas, schools, libraries, and parks or other recreational areas that may be affected by highway traffic noise.

Abatement measures include the construction of noise walls or berms to reduce traffic noise from the transportation improvement. All proposed abatement measures are modeled to identify the total number of benefited receivers. While landscaping can be used as an effective visual barrier, studies have shown that trees and shrubbery alone do not provide significant reduction in noise levels and are not approved as a noise abatement measure. In locations where abatement measures are shown to provide adequate protection for impacted receivers, the impacted receivers support the abatement

measures; and if the abatement measures are practicable and feasible, the measures are included as a mitigation commitment for the transportation improvement.

4.7.3 Storm Water

Sustainable storm water practices focus on managing and reducing runoff of water containing pollutants such as sediment, oil, grease, deicing salts, and metals, among others. Constructed wetlands are options for large-scale projects, but other options include mechanical treatment systems such as oil and grit separators, catch basins, infiltration trenches, rain gardens, ditch checks, sediment traps, and forebays. Reducing impervious areas and installing filtering mechanisms, such as natural (unpaved) medians and bioswales, help to filter pollutants out of storm water runoff and return it to the groundwater system through natural pathways. Bioswales are open, gently sloping, vegetated channels designed to filter storm water runoff from the roadway.

The I-55 at Arsenal Road Interchange Project, which included interchange and frontage road reconstruction and relocation, incorporated bioswales and innovative stormwater management design into the project.

4.7.4 Energy Consumption

The future of transportation is directly linked to the future of world energy markets, particularly petroleum. Despite significant gains in energy efficiency in transportation, consumption is expected to continue to grow, although at a slower rate. Improvements in fuel efficiency are projected to continue, but future gains may be smaller and more expensive to attain. Also, growth in travel demand historically has offset a share of the gains in fuel efficiency and can be expected to do so in the future. Pressure to turn to alternative fuels or reduce vehicle use will intensify to conserve energy and reduce air pollution and congestion.

IDOT addresses the issue of energy consumption in many of its sustainable construction practices. Advances in roadway and construction lighting technology, such as LED and induction lighting and retro-reflective signage, help to reduce strain on power grids. In 2008, IDOT conducted a study on the feasibility of wind turbines providing the energy to power rest area facilities along highways, lessening their strain on grid-produced energy. The study showed that wind turbines could be cost effective at some rest areas with proper placement of the turbines in relation to sufficient wind potential. Installation has not yet occurred at any of the state's rest areas; however, the funding could be provided in the future based on the results of the feasibility study. Other energy saving possibilities for rest areas include solar practices, motion-activated lighting, LED lighting, geothermal HVAC systems, water saving plumbing fixtures, and thermal pane glass.

IDOT has instituted idling requirements for construction vehicles to reduce diesel consumption and air pollutants. IDOT also coordinates traffic signal systems to limit vehicle stops at signals, which can affect fuel consumption by 6-13 percent, according to USDOT. The inclusion of Complete Streets design elements, such as sidewalks and bicycle paths into transportation projects, encourages individuals to consider non-motorized possibilities.

Sustainable initiatives have also been introduced in IDOT offices and other workplaces with emphasis on recycling and reducing electricity use. Many of the strategies to reduce energy use are simple procedures such as:

- turning off lights when a room is not in use,
- following through with routine maintenance of equipment and vehicles,
- installing occupancy sensors for rooms that constant lighting is not needed,
- closing of blinds when rooms are not being used
- turning off computers that are not in use
- installing LED bulbs when possible
- installing low flow fixtures on water faucets and reducing leaks and drips
- implementing a tracking system of electricity and water use.

4.7.5 Lighting

Energy Efficient Roadway Lighting Applications is a set of guidelines put forward in 2009 by IDOT to help implement more efficient roadway lighting standards. Recommendations are made for use of induction lighting, light emitting diode (LED) lighting, and New High Intensity Discharge (HID) lamp and ballast combinations. It is noted that while costs for these lighting types may have greater up-front costs, they use less energy and last longer, saving money on energy consumption and maintenance.

Induction lighting, which utilizes induction coils or electrode-less antennae rather than filaments or electrodes, have the advantages of long life (100,000 hours), energy efficiency, high brightness, minimal color shifting, low starting temperatures, minimal amount of mercury gas use, the ability to instantly shut on and off, and have a high color rendering index.

LED lights use a semiconductor device that converts electricity into light and do not have a filament that will burn out. LEDs do not use hazardous materials such as mercury, perform well in cold environments, and are proficient at placing light in a single direction, reducing light pollution and wasted energy. They also have a long life (60,000 hours), use less energy than other lamps, can be dimmed overnight and brighten when pedestrians approach, can have transmitters and receivers to alert utility personnel when maintenance is needed, and can flash to guide first responders. In June 2012, the City of Morris in Grundy County approved entering into an agreement with IDOT to share in the cost of upgrading various traffic signals in the city to LED lights. LED lights, while significantly more expensive as an upfront cost, produce up to 93 percent energy savings compared to a typical incandescent bulb. While incandescent bulbs typically last about one year, an LED bulb may last 7 or even up to 10 years and consumes less than half the power of an incandescent bulb (10 watts as opposed to 22 watts).

The State of Illinois requires that road signs are either illuminated or made with retro-reflective sheeting material. Improved reflective highway signs are reducing the need for electric sign lighting, reducing strain on power grids at a savings of up to $700 per sign.

4.7.6 Pavement

Sustainable pavement systems are defined as a network of high-quality, long-lasting pavements whose design, construction, and management take into account economic and social development and environmental preservation. Sustainable practices in the pavement industry target increased use of recycled materials and encourage innovations in the design and construction of asphaltic mixtures. For example, long-lasting pavement, also known as perpetual or thick pavement, is a

design strategy to achieve sustainable pavements that have minimum repair cost. Asphaltic mixtures with reclaimed asphalt pavements (RAP), recycled asphalt shingles (RAS), warm mix technologies, and porous asphalt mixes are examples of sustainable practices.

Governor Quinn signed legislation in 2011 approving and encouraging the use of recycled asphalt shingles in paving mixes for IDOT projects. The legislation allows businesses that specialize in waste collection from construction and demolition sites to double the amount of shingles they can provide to recycling facilities for use later in the production of asphalt. The reuse of the shingle asphalt is anticipated to save space in landfills and save an estimated $8 million annually.

The legislation also advocates the use of warm-mix asphalt. Warm-mix asphalt technology allows asphalts to be produced and applied at lower temperatures than hot-mix asphalts, reducing the amount of fuel needed for production and consequently reducing greenhouse gases. On a practical level, the lower temperatures of warm-mix asphalt result in greater workability and better compaction that improves cracking resistance.

Other reclaimed materials more commonly being used in construction projects include crushed concrete, steel, copper wire, fly ash; Lime kiln dust, air-cooled blast furnace slag (ACBFS), ground granulated blast furnace slag (GGBF), crumb rubber, glass beads, glass cullet, and microsilica.

IDOT has completed several projects using RAS pavement, including the Bishop Ford Expressway I-94 in 2009 and Interstate I-80 near Joliet in 2011. IDOT had 23 contracts that utilized RAS in HMA mixtures in 2011. The total RAS used was 3,234 tons.

4.7.7 Recycling Programs

IDOT used over 1.7 million tons of recycled materials in highway construction in 2009. The FY-2011 figures are anticipated to be substantially higher due to the largest road program in Illinois history. Cooperation with other agencies provides opportunities as well. Recycled lumber was used by the Department of Agriculture to manufacture Emerald Ash Borer (beetle) informational kiosks at IDOT rest areas. On-going recycling programs serve to reduce consumption and save money. For example, a program for recycling aluminum signs is estimated to annually save/recycle more than 200,000 gallons of water; $600,000 a year from the state budget; and 470,000 pounds of aluminum (50,000 – 60,000 aluminum signs).

4.8 Other Actions

IDOT policies and programs on sustainability have been recognized at the state and national level, including awards for Innovative Projects in three successive years, 2009-2011, from the Illinois Green Government Coordinating Council; the Governor's Green Vendor Award in 2010 for use of plant-based inks and biodegradable supplies; and recognition by the Respiratory Health Association of Metropolitan Chicago and Citizen Action/Illinois in 2010 for construction management practices to improve air quality. IDOT maintains an extensive public outreach program to continue to serve the greater public interest. Below is a list of current or recent outreach programs/projects:

4.8.1 Adopt-A-Highway

The Illinois Adopt-A-Highway (AAH) program brings citizen volunteers into partnerships with IDOT to pick up trash and keep our roadsides clean. The program also educates and encourages people to stop littering. Through the cleanup efforts of more than 10,000 Adopt-A-Highway volunteers throughout Illinois, visitors and tourists have a better first impression of our state.

4.8.2 10,000 Trees to Schools

2013 will mark the fourth consecutive year IDOT is conducting the 10,000 Tree Giveaway of seedlings to school districts throughout Illinois. Many school districts have received oak tree seedlings, donated to IDOT by Living Lands and Waters. All nine IDOT transportation districts will participate and coordinate distribution to area school districts. Trees provide tremendous benefits to the environment by removing carbon dioxide, providing oxygen to breathe, cooling shade, protection from soil erosion, and more beautiful surroundings.

IDOT Awards for Innovation

In 2011, Thomas Emerson (ISAS Interim Director) and John Walthall (IDOT Chief Archaeologist) received the Federal Highway Administration's (FHWA) Environmental Excellence Award. The Environmental Excellence Awards were designed to recognize and reward the commitment to deliver projects that protect and enhance the environment, shorten project delivery, advance innovative technology, and "go greener." These awards officially recognize the partners, projects, and processes that enhance FHWA's awareness of the environment and how they do business.

In 2012, IDOT received an America's Transportation Award for the Interstate 55 Reconstruction Project in Madison County. IDOT used a new comprehensive strategy to manage traffic and accelerate the construction schedule for reconstruction work in the 11-mile corridor in the East St. Louis Metro area. This Smart Traffic Monitoring System monitored real-time traffic conditions and automatically updated dynamic messaging, including driving instructions and current delay times for particular locations. Due to this system and other innovative strategies by IDOT, the $42.3 million project was completed ahead of schedule with very few crashes, significant resource savings, and excellent feedback from the public.

4.8.3 Fallen Soldier Tree Memorial

The Fallen Soldier Tree Memorial parking area at Illini State Park in Marseille spans two and a half acres and is dedicated to the men and women from Illinois who have died in Afghanistan or Iraq. The site is graced by more than 250 oak trees, planted by volunteers—one for each Illinois service member lost to these conflicts. This living memorial creates a peaceful, environmentally-friendly sanctuary, in fallen US Armed Forces personnel can be honored. In addition to planting trees, volunteers placed a large boulder with a bronze plaque, installed a flagpole with solar lighting, and poured a concrete parking area.

4.8.4 Jubilee College State Park Prairie Plantings

In a 2011 joint venture, IDOT, the Illinois Department of Corrections, IDNR, Prairie Dog Volunteers, and Brimfield High School students planted 5000 prairie plugs at Jubilee College State Park.

4.8.5 Rain Barrel Contest

IDOT sponsors a rain barrel-decorating contest for Illinois schools, offering a chance for students to earn their school a rain barrel by submitting artistic designs for the exterior of a rain barrel. The focus of the program is to encourage the involvement of young people in sustainable practices and educate them about the importance of water conservation and quality.

In 2011, IDOT also awarded free rain barrels to two elementary schools from each district for their participation in a contest to decorate rain barrels. At the 2011 Annual Sustainable Symposium in Springfield, the Rain Barrel Decorating contest idea earned IDOT a Green Government Award from the Illinois Green Government Coordinating Council. The award, based on demonstrating an exceptional commitment to improving the environmental quality of Illinois, was in the Water Quality & Conservation category.

In 2012, students across Illinois from third grade through high school submitted their artwork, with submissions from 45 schools being chosen to receive a rain barrel. IDOT will roll out the contest for the third time in the fall of 2012 with 50 rain barrels to be awarded.

4.8.6 Green Initiatives Website

The goal of the sustainability website is to highlight the various accomplishments that IDOT has achieved in the area of sustainability. The sustainability website will include information regarding the Office of Sustainable Practices and include information on sustainable projects in the areas of construction, maintenance, operations, education & outreach, fuel conservation, green purchasing, employee services, water conservation, PrePass, and other areas. The Sustainability website will also detail IDOT's successful and ongoing cross-departmental collaborations with other state agencies and the Green Government Coordinating Council. The Sustainability website will include pictures and have links to other state agencies, federal agencies, and other environmental-oriented websites.[9]

4.8.7 Feasibility of Energy Crop Production in IDOT Right-of-Way

In early 2012, IDOT entered into an inter-agency agreement with the University of Illinois to study the use of IDOT right-of way (ROW) to grow cellulosic grasses to produce biofuels such as E-85 and pelletized biomass. Over 8,000 acres of ROW have been tentatively identified as possible sites for crop production.

This three-year study will require planting of various grasses along state ROW in the Rantoul area. The use of cellulosic grasses for biofuels can decrease dependence on foreign oil, add revenue to the department and reduce the use of a food crop (corn) for biofuel. These grasses may also absorb salt and reduce pollution that enters rivers and streams.

4.8.8 Mississippi Rapids Welcome Center Wind Turbine Study

As of July 2012, IDOT completed a study on the feasibility of installing a Wind Turbine Generator (WTG) at the Mississippi Rapids Welcome Center, located 1 mile east of the Illinois / Iowa state line along I-80, and is now waiting for installation. The wind turbine will be used to power the Welcome Center building.

4.8.9 Sustainable Practices Manager

IDOT has a Sustainable Practices Manager on staff. The responsibility of this position include:

- Identifying sustainability opportunities that may provide IDOT with significant benefits including grants and other financial savings.
- Ensuring compliance with the law by tracking all environmental legislation that affect IDOT.

[9] Illinois Department of Transportataion, Green Initiatives. www.dot.state.il.us/green/index.html. Accessed July 27, 2012.

- Promoting the conservation of resources, energy efficiency, waste reduction and recycling, pollution prevention, increased reliance on renewable resources, and other measures consistent with sustainable living throughout IDOT and the State.
- Coordinating additional long-range sustainable practices in IDOT.
- Engaging with all IDOT departments and other state agencies in order to maximize and achieve sustainable goals.