

Chapter One

ORGANIZATION AND FUNCTIONS (Program Development)

BUREAU OF DESIGN AND ENVIRONMENT MANUAL

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Chapter 1

ORGANIZATION AND FUNCTIONS

(Program Development)

Chapter 1 provides a general organizational structure for the Illinois Department of Transportation (IDOT) Office of Program Development and brief discussion of the bureaus comprising the Office of Program Development. The Chapter also provides a detailed discussion of the work functions of the Units within each Section of the Bureau of Design & Environment (BDE). For a complete and updated organizational chart of the entire Department, see the IDOT internet site.

1-1 OFFICE OF PROGRAM DEVELOPMENT

The Office of Program Development (OPD) consists of five central bureaus responsible for developing policies, procedures, standards, and guidelines to accomplish the Department's highway system improvement program. Additionally, the five central bureaus under the Office of Program Development provide guidance to districts to ensure statewide uniformity of policy interpretation, program coordination with Federal, State, and local agencies, and compliance with Federal, State, and local laws and regulations. The five bureaus comprising the Office of Program Development include the Bureau of Bridges and Structures (BB&S), the Central Bureau of Land Acquisition (CBLA), the Central Bureau of Local Roads and Streets (CBLRS), the Bureau of Safety Programs and Engineering (BSPE), and the Bureau of Design and Environment (BDE).

1-2 BUREAU OF DESIGN AND ENVIRONMENT

The Bureau of Design and Environment (BDE) consists of five sections: Aerial Surveys, Location and Environment, Policy and Procedures, Preliminary Engineering, and Project Coordination and Implementation. BDE is responsible for developing highway standards, specifications, and policies for use on the state maintained Federal-aid highway system. Additionally, BDE is responsible for developing policies for the preparation, coordination, final review, and approval of project location studies and environmental documents; providing support services for district highway design programs; coordinating and preparing Federal-aid program documents; and processing plans and contract documents through the letting and contract award stage.

Figure 1-2.A presents the organization of BDE.

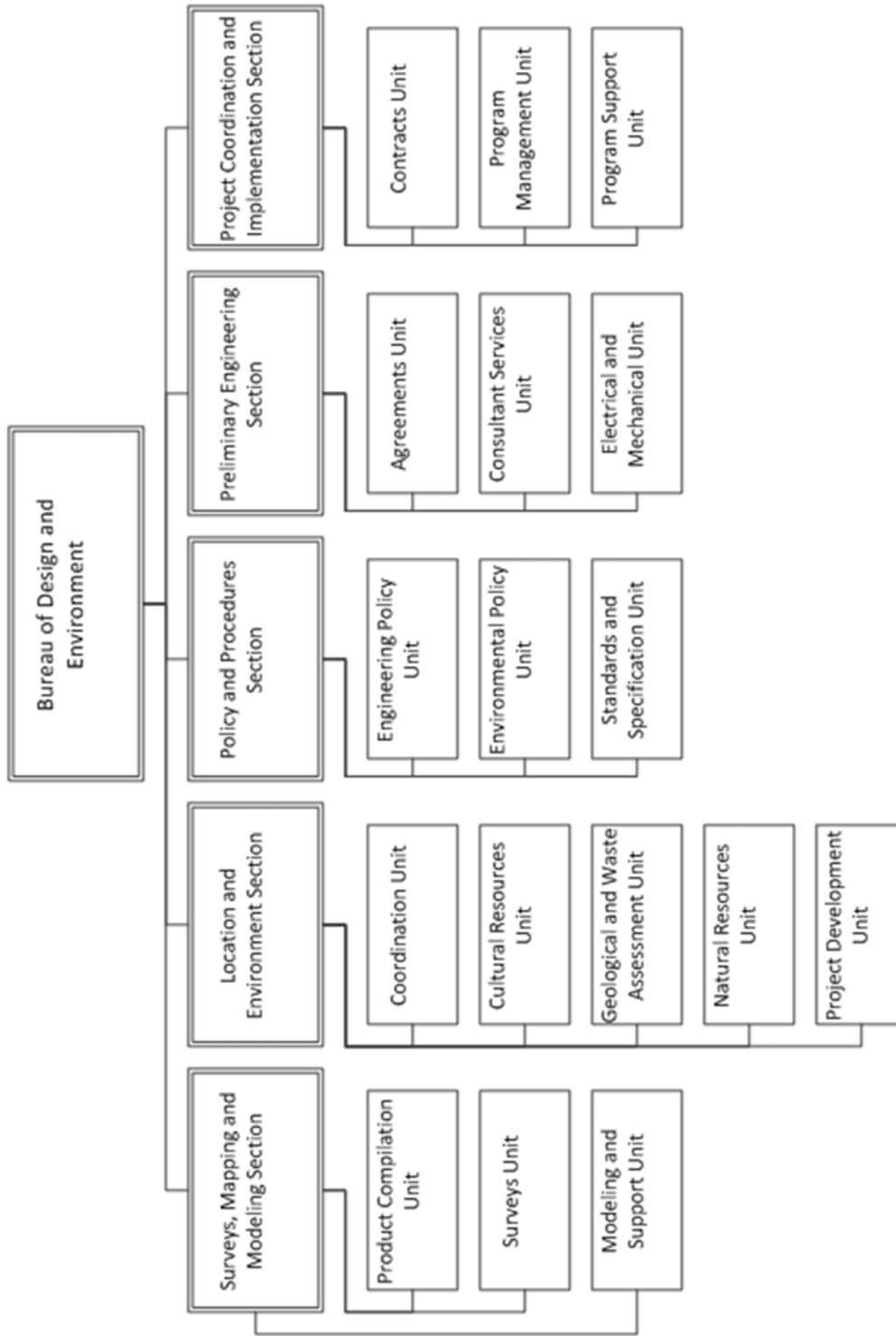
1-2.01 Surveys, Mapping and Modeling Section

The Surveys, Mapping and Modeling Section consists of three units: the Surveys Unit, Product Compilation Unit, and the Modeling and Support Unit.

1-2.01(a) Surveys Unit

The Surveys Unit, in combination with the district field survey crews, is responsible for the following:

- providing aerial photography and other survey services for the Department and other State agencies including scale changes for maps, plans, charts, and photographic plates used for reproduction and printing;
- maintaining survey datums and coordinate systems for a reference or base for all surveys in the State;
- providing technical assistance on surveying as needed to the districts and local jurisdictions;
- assisting with high-order geodetic surveys and field survey work necessary to provide horizontal and vertical control for photogrammetric mapping; and
- maintaining the IDOT *Survey Manual*.



BUREAU OF DESIGN AND ENVIRONMENT

Figure 1-2.A

1-2.01(b) Product Compilation Unit

The Product Compilation Unit is responsible for the following:

- providing aerial photography and photographic services for the Department and other State agencies.
- maintaining the necessary records and filing systems for all Surveys, Mapping and Modeling Section projects;
- providing precise topographic maps in digital format for use with Computer Aided Design and Drafting (CADD) interactive graphic systems;
- providing digital imagery in raster format for use with CADD graphic systems; and
- preparing specifications and agreements for consultant mapping projects and monitoring compliance.

1-2.01(c) Modeling and Support Unit

The Modeling and Support Unit is responsible for the following:

- setting Computer Aided Design & Drafting (CADD) policy statewide;
- maintaining and updating the IDOT *Computer Aided Design, Drafting, Modeling and Deliverables Manual*;
- ensuring engineering policies are developed and fully integrated into CADD software and processes;
- providing liaison activities between bureaus, districts, consultants, and our CADD software vendor(s);
- maintaining the IDOT CADD workspace environment;
- maintaining 2-D and 3-D CADD cell libraries;
- maintaining 3-D civil cell libraries, including supporting and developing additional civil cells;
- supporting survey and design CADD and Geographic Information System (GIS) functions Department-wide;
- developing and maintaining CADD drawings for the IDOT *Highway Standards*;
- communicating CADD best practices and technological advances to district users;
- fostering communication between software application users and developers;

- providing research, development, and management of both CADD and GIS applications used in the scoping, programming, planning and design activities of roadway and structures improvements within the Department;
- providing necessary CADD and GIS training across the Department; and
- supporting innovative survey and design technologies within the Department.

1-2.02 Project Coordination and Implementation Section

The Project Coordination and Implementation Section consists of three units: the Contracts Unit, Program Management Unit, and Program Support Unit. In addition to these units, the Project Coordination group within the Section is responsible for the following:

- reviewing and checking project plans prepared by the districts and consultants for accuracy, completeness, and engineering validity;
- reviewing special provisions;
- facilitating plan coordination with districts, central office bureaus, and print shop; and
- facilitating changes, revisions, addendums, and updates in plans and special provisions.

1-2.02(a) Program Support Unit

The Program Support Unit is responsible for the following:

- determining project letting dates;
- clearing projects for advertising and awarding;
- processing Certification Acceptance (CA)/Project Status forms;
- determining the proper FHWA funding type and assigning project numbers;
- authorizing project funding;
- obtaining authorization from FHWA for all Federally funded projects;
- monitoring the availability of funds within State and Federal funding categories;
- obtaining approvals from the Governor's Office of Management and Budget for all projects under the State's jurisdiction; and
- ensuring that plans are prepared in accordance with agreements with local agencies or other State agencies.

1-2.02(b) Project Management Unit

The Project Management Unit is responsible for the following:

- determining the official engineer's estimate for all projects offered for letting by the Office of Program Development;
- analyzing bids received on lettings and presenting disposition recommendations to the awards committee;
- maintaining data on price trends;
- reviewing and processing plans during preparation of average unit prices used for cost estimates; and
- determining pay item numbers.

1-2.02(c) Contracts Unit

The Contracts Unit is responsible for the following:

- developing and publishing Invitation for Bid/Transportation Bulletin;
- issuing all electronic notifications;
- maintaining lists of bidders and non-bidders;
- conducting bid letting for Office of Program Development, Office of Highways Project Implementation, Bureau of Aeronautics, and Department of Natural Resources projects;
- reviewing identified low bids for responsiveness and responsibility;
- reviewing proposals and legal contract documents through the letting stage; and
- awarding and executing highway construction contracts.

1-2.03 Location and Environment Section

The Location and Environment Section consists of five units: the Coordination Unit, Cultural Resources Unit, Geological and Waste Assessment Unit, Natural Resources Unit, and Project Development Unit.

1-2.03(a) Coordination Unit

The Coordination Unit is responsible for the following:

- administering the central office review of environmental documents, reviewing and commenting on the disciplines assigned to the Unit, compiling comments from all units in the Location and Environment Section into a unified response and issuing State environmental approvals;
- providing expertise for the Department in the disciplines of socio-economics, agriculture, natural resources, air quality, and noise, including providing guidance on Departmental research in these disciplines;
- attending district coordination meetings and special project meetings to participate in project decisions and to guide project development;
- establishing environmental consultant prequalification criteria and reviewing consultants' Statements of Experience and Financial Condition to determine eligibility of firms requesting prequalification in environmental categories;
- reviewing and commenting on consultant advertisements, proposals, selection, and negotiations for projects involving complex environmental documents;
- providing training in environmental matters;
- providing technical advice to the Environmental Policy Unit in the Policy and Procedures Section;
- preparing specific studies and/or sections of text and participating in ad hoc teams to develop or manage environmental documents as requested; and
- providing liaison with other organization units in IDOT and other local, State, and Federal agencies regarding the disciplines assigned to the unit and regarding procedural matters relating to the environmental process.

1-2.03(b) Natural Resources Unit

The Natural Resources Unit is responsible for the following:

- operating and managing the environmental resource surveys for individual projects to identify impacts on biological and wetland resources;
- providing technical expertise on biological resource identification, impact evaluation, mitigation, protection, and management in project development, plan preparation, construction, and operations for such resources as threatened and endangered species, critical habitat for threatened and endangered species, other important ecosystems (e.g., prairies, savannahs, wetlands), and ecological resources in general;

- providing technical expertise and guidance on water resources including wetlands, water quality, flood plains, and Section 404 permits through the planning, design, construction, and operation phases;
- preparing and/or reviewing all or portions of environmental documents including:
 - Environmental Impact Statements,
 - Environmental Assessments,
 - Categorical Exclusions,
 - 4(f) Reports, and
 - 6(f) Reports;
- preparing and/or reviewing specialized environmental documents:
 - biological assessments,
 - wetland technical reports,
 - wetland banking prospectives,
 - conceptual and final wetland compensation plans,
 - wetland site assessment reports,
 - wetland monitoring reports, and
 - draft 404(b)1 guideline reports;
- providing liaison between the districts and the central office and with local, State, and Federal resource and regulatory agencies (e.g., USFWS, IDNR, USACE, USDOJ-NPS);
- disseminating technical environmental information regarding biological resources, water resources, wetlands, flood plains, and Section 404 permits;
- participating in the development of policies and guidance related to natural resources;
- providing technical training on biological resource identification, impact evaluation, development of mitigation, habitat and species protection, management of biological resources on Department-owned land, and incorporation of appropriate features into contract plans; and
- serving on IDOT's Storm Water Committee.

1-2.03(c) Cultural Resources Unit

The Cultural Resources Unit is responsible for the following:

- directing and managing the cultural resources portion of the Environmental Resource Surveys and Studies Program;
- providing technical expertise regarding prehistoric and historic archaeological sites, historic buildings and bridges, and historic districts to highway districts, Bureau of Local Roads and Streets and, at the direction of the Office of the Secretary and/or Director of

the Office of Program Development, to other divisions and offices and other State agencies. Investigations for possible cultural resources must be conducted for proposed project sites, all borrow pits, economic development sites (DCCA), and for any other site which will involve a State transaction;

- meeting with historic resource agencies at the State and Federal levels to resolve project issues and remaining abreast of regulatory changes;
- providing guidance to district and central offices by:
 - attending district coordination meetings,
 - participating in project field meetings or conducting independent field checks, and
 - providing technical training.
- reviewing environmental documents (EAs, EISs technical reports) prepared by the districts or consultants and preparing sections of environmental documents relating to specific cultural resources; and
- advising districts of appropriate responses including avoidance or preservation of significant resources or specific measures to mitigate negative impacts to cultural properties.

1-2.03(d) Geologic and Waste Assessment Unit

The Geologic and Waste Assessment Unit is responsible for the following:

- managing and directing Geologic and Special Waste Surveys on individual projects to identify potential impacts on special waste sites and geological resources (e.g., groundwater, sand, gravel) and potential impacts from geological hazards (e.g., landslides, mine subsidence, earthquakes);
- providing technical expertise and training on special waste problems and evaluations (e.g., underground storage tanks, public health concerns, asbestos, landfills) and expertise on geologic resources and hazards in Phase I and Phase II project development, construction, and operations;
- developing and promulgating Department criteria on the evaluation of special waste sites and geologic resources/hazards;
- developing and promulgating Department procedures for coordination activities with respect to special waste sites and geologic resources/hazards (e.g., Manual for Preparation of Preliminary Environmental Site Assessment, maintenance of waste site list, CERCLIS);

- managing and directing special waste and geological resource/hazard investigations on individual projects to identify the risk and liabilities of waste/geologic hazard sites and impacts to geological resources that cannot be avoided;
- establishing consultant prequalification criteria and reviewing consultant Statements of Experience and Financial Condition to determine their eligibility for prequalifications, developing Transportation Bulletin advertisements, reviewing statements of interest, and recommending selection priorities for the hazardous waste category; and
- providing liaison between the districts and central office with the appropriate resource and regulatory agencies (e.g., USEPA, IPEA, OSFM, IDNR).

1-2.03(e) Project Development Unit

The Project Development Unit is responsible for the following:

- monitoring, evaluating, and assisting in the development of Phase I engineering studies prepared by district offices and by other transportation modes to ensure uniformity of policy compliance and to assist on special location problems;
- preparing location studies for certain complex, critical, or environmentally sensitive projects;
- attending district coordination meetings to discuss engineering issues and the scope and status of projects;
- reviewing and approving requests for exceptions to design policies;
- assuring Phase I studies are developed and implemented using an interdisciplinary approach to resolve engineering and location problems; and
- reviewing and checking project plans prepared by district offices and consultants for accuracy, completeness, and engineering validity.

1-2.04 Preliminary Engineering Section

The Preliminary Engineering Section consists of three units: the Consultant Services Unit, Agreements Unit, and Electrical and Mechanical Unit.

1-2.04(a) Consultant Services Unit

The Consultant Services Unit is responsible for the following:

- prequalifying of architectural/engineering consultant firms;
- in conjunction with districts/bureaus/offices, compiling, coordinating, and preparing advertisements for publishing the Professional Transportation Bulletin;
- evaluating and preparing data for the selection of consultant firms;
- compiling consultant performance ratings;
- in conjunction with the Agreements Unit, establishing Department policies and procedures for consultant projects; and
- developing statewide policies for design, operations, and monitoring district compliance.

1-2.04(b) Agreements Unit

The Agreements Unit is divided into two sub-units: the Consultant Sub-Unit and the Project Support Sub-Unit.

The Consultant Sub-Unit is responsible for the following:

- developing policies and procedures for the administration of consultant agreements;
- obtaining necessary clearances to proceed with consultant agreements, such as procurements waivers, debt certification, and funding approvals;
- preparing consultant agreements based on the proposal package submitted by the districts, bureaus, and other other State agencies; and
- administering the consultant agreement process within the central office and attaining necessary signatures.

The Project Support Sub-Unit is responsible for the following:

- developing policies and procedures for the administration of the utility, railroad, and local agency agreements;
- reviewing, evaluating, and approving agreements with utility companies, railroad companies, local agencies, other State agencies, and other states submitted by the districts; and
- administering the agreement process within the central office and obtaining necessary signatures.

1-2.04(c) Electrical and Mechanical Unit

The Electrical and Mechanical Unit (E&MU) provides assistance on electrical, lighting, and pump station (EL&P) projects. Work performed by E&MU is for Districts 2 through 9, unless noted otherwise. More specifically, E&MU is responsible for the following:

- designing all in-house EL&P projects. This includes preparing all plans and contract documents as outlined in Section 56-4.04;
- reviewing all EL&P plans and documents for projects designed by consultants;
- reviewing all shop drawings for technical correctness and specification compliance for materials supplied to EL&P projects;
- developing and disseminating statewide design criteria, practices, and policies on EL&P;
- conducting final inspections and issuing approval recommendations to the Bureau of Construction on projects with EL&P work;
- assisting with updating EL&P portions of the Department documents such as the Standard Specifications, BDE Manual, BLRS Manual, Construction Manual, Operations Manual, and pay item list;
- reviewing and commenting on a proposed EL&P legislation and code changes impacting the Department; and
- interfacing with the districts, central office bureaus, suppliers, electrical contractors, and outside agencies on EL&P issues and assisting them in finding solutions to design, construction, maintenance, and operating problems.

1-2.05 Policy and Procedures Section

The Policy and Procedures Section consists of three units: the Environmental Policy Unit, Engineering Policy Unit, and Standards and Specifications Unit.

1-2.05(a) Environmental Policy Unit

The Environmental Policy Unit is responsible for the following:

- maintaining BDE Manual Part III, Environmental Procedures, and Chapter 19 Public Involvement Guidelines;
- remaining abreast of changes in environmental laws and regulations and determining their impact on Department policies and procedures;

- providing technical assistance to the Environment Section in the central office and to the districts on environmental and public involvement policy and procedural issues; and
- as necessary, publishing explanatory guidance (i.e., as Procedure Memoranda or Information Memoranda) on environmental and public involvement topics.

1-2.05(b) Engineering Policy Unit

The Engineering Policy Unit is responsible for the following:

- researching, preparing, and disseminating design policies and procedures for Phase I and Phase II engineering activities, including Phase I engineering studies, to the districts and central bureaus and providing interpretation of the policies and procedures for case-specific situations;
- developing policies and procedures for the geometric design of highways, intersections, and interchanges which includes alignment and profile guidelines, superelevation design, cross section elements, median types, and capacity analyses;
- remaining abreast of new research developments and incorporating this research, where applicable, into the design policies;
- developing and disseminating procedures for pavement design and rehabilitation;
- developing policies and procedures for 3R, 3P, and SMART projects;
- developing Department policies and criteria for access control on freeways and expressways and for access management on arterial highways;
- developing Department policies and criteria for roadside safety issues including barrier selection and layout, cost/benefit analyses, and clear zones;
- developing Department policies and procedures for special design elements including accessibility standards.
- developing and promulgating Department policy and guidance on the accommodation of bicyclists and pedestrians within the highway program;
- remaining abreast of State and national issues on bicyclist and pedestrian accommodation and determining their impact on Department practices;
- providing technical assistance to the districts on bicyclist and pedestrian issues; and
- ensuring that the Department complies with the regulations and policies governing the FHWA Transportation Enhancement Program.

1-2.05(c) Standards and Specifications Unit

The Standards and Specifications Unit is responsible for the following:

- developing and disseminating the *Highway Standards* used in contract plans to districts and central bureaus;
- developing new or revised roadway standards on the basis of internal needs, safety requirements, and new material or product development;
- initiating or reviewing requests for new or revised *Standard Specifications for Road and Bridge Construction* and evaluating their feasibility and impact;
- obtaining FHWA approval for new specifications;
- initiating or reviewing requests for new or revised special provisions and connected details for road and bridge construction and evaluating their applicability; and
- publishing the *Standard Specifications* and *Supplemental Specifications and Recurring Special Provisions* books as required.