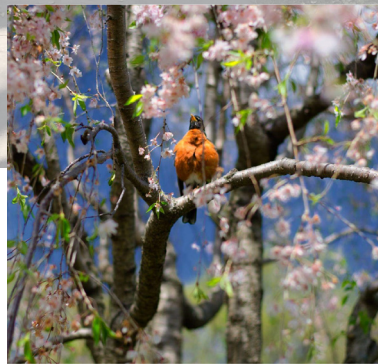


Champaign County Regional Environmental Framework

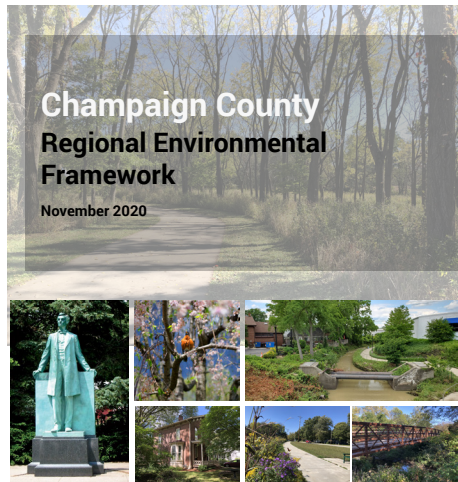
November 2020



CHAMPAIGN COUNTY
REGIONAL PLANNING
COMMISSION

This report was prepared with funding from the
Illinois Department of Transportation (IDOT)
by staff from the
Champaign County Regional Planning Commission (CCRPC).





CHAMPAIGN COUNTY REGIONAL ENVIRONMENTAL FRAMEWORK

PLAN FUNDED BY & PREPARED FOR

Illinois Department of Transportation (IDOT)

PLAN PREPARED BY

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Cover Page:

Stand of walnut trees at Meadowbrook Park in Urbana, IL

(From Left to Right)

- 1. Lincoln the Lawyer, by Lorado Taft (Urbana Park District)*
- 2. American robin at the Japanese Gardens (Kazmee, Hasan)*
- 3. Historic Clark R. Griggs House*
- 4. Boneyard Creek Crossing*
- 5. Weaver Park shared-use path*
- 6. Bridge at Meadowbrook Park*

CHAMPAIGN COUNTY

REGIONAL ENVIRONMENTAL FRAMEWORK

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TABLE OF CONTENTS

Chapter 1: Introduction	12
1.1 Regional Overview	12
1.2 Report Outline	13
 Chapter 2: Guidelines and Requirements Review.....	16
2.1 IDOT Environmental Surveys	16
2.1.1 Environmental Survey Request (ESR).....	16
2.1.2 Addendum Environmental Survey Request (AESR)	18
2.2 Preliminary Environmental Site Assessment (PESA).....	18
2.3 Planning & Environment Linkages (PEL)	19
2.4 National Environmental Policy Act (NEPA) Environmental Review.....	23
2.4.1 NEPA Authority and Terminology.....	24
2.4.2 The NEPA Process: Class of Action Determination	25
2.4.3 Key Components of the NEPA Process.....	29
2.4.4 General NEPA Guidelines	32
2.4.5 Integrating NEPA and Transportation Planning	32
2. 5 Other Laws and Requirements	33
2.5.1 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU):.....	33
2.5.2 Moving Ahead for Progress in the 21 st Century Act (MAP-21):.....	35
2.5.3 Section 4(f) of the Department of Transportation Act of 1966:.....	35
2.5.4 Section 404 of the Clean Water Act:	36
2.5.5 Section 106 of the National Historic Preservation Act of 1966:.....	36
2.5.6 Executive Order 12898- Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations:.....	37
2.5.7 Executive Order 11988: Floodplain Management	38
2.5.8 Interagency Wetlands Policy Act of 1989:	38

Chapter 3: Topography and Soil	42
3.1 Topography	42
3.2 Soil.....	44
3.2.1 Soil Development Potential.....	44
3.2.2 Soil Associations.....	45
 Chapter 4: Hydrology.....	 49
4.1 Major Waterways	49
4.2 Flood Hazard Areas	49
4.3 Biologically Diverse Streams.....	51
4.4 Wetlands	53
4.5 Watersheds	55
4.6 Water quality	58
4.7 Mahomet Aquifer.....	62
 Chapter 5: Cultural Resources	 66
5.1 Historic Bridges	68
5.1.1 The Hazen Bridge.....	68
5.1.2 The East Street Bridge	69
5.1.2 The Old Stone Arch Bridge	69
5.2 Historic Places	70
5.3 Cemeteries.....	73
5.4 Archeological Area	73
 Chapter 6: Wildlife and Vegetation Habitat	 77
6.1 Natural Areas	77
6.1.1 Illinois Nature Preserves Commission (INPC) Protected Areas	80
6.1.2 Illinois Natural Areas Inventory	80
6.1.3 Conservation Easements	82
6.1.4 Conservation Reserve Program	83
6.1.5 Parks and Recreation Areas	83

6.1.6 Grant-Funded Sites.....	84
6.2 Threatened and Endangered Species	86
Chapter 7: Special Waste.....	92
7.1 Underground Storage Tank (UST).....	93
7.2 Leaking Underground Storage Tank (LUST)	97
7.3 Brownfields.....	100
7.4 Superfund Sites	103
7.5 Landfill Sites	104
7.6 Cleanup Sites (Site Remediation Program).....	105
7.7 Resource Conservation and Recovery Act (RCRA)	107
7.8 RCRA Subject to Corrective Action (CORRACTS)	111
7.9 Emergency Response Notification System (ERNS)	111
Chapter 8: Ambient Conditions.....	117
8.1 Air Quality.....	117
8.1.1 Greenhouse Gases (GHG)	118
8.1.2 Criteria Air Pollutants (CAP)	119
8.2 Light Pollution	121
8.3 Noise Pollution.....	124
Chapter 9: Regional Goals & Objectives.....	129
Appendix	135

LIST OF TABLES

Table 2-1: IDOT Environmental Survey Request Conditions	17
Table 2-2: PEL Planning Products.....	20
Table 3-1: Soil association groups within Champaign County	45
Table 4-1: Wetland Types in Champaign County.....	53
Table 4-2: HUC Classification System developed by USGS.....	55
Table 4-3: Impaired waters of Champaign County (2018).....	59
Table 4-4: Common sources of transportation pollutants.....	63
Table 5-1: NRHP Sites by Town	71
Table 6-1: Champaign County INAI Sites	81
Table 6-2: Champaign County Conservation Easements	82
Table 6-3: Champaign County Forest Preserves	83
Table 6-4: Champaign County Grant-Funded Sites	84
Table 6-5: List of Endangered and Threatened Species in Champaign County	88
Table 7-1: Special Waste Minimum Search Distances	93
Table 7-2: USTs by Status	94
Table 7-3: USTs by Facility Types.....	96
Table 7-4: Champaign County facilities with highest amounts of USTs.....	96
Table 7-5: Sites with Significant Numbers of LUST Incidents recorded between 1986 and 2020	100
Table 7-6: SRP Sites in Champaign County	107
Table 7-7: RCRA Sites in Champaign County	108
Table 7-8: RCRA Facility Types	109
Table 7-9: ERNS Incidents by type of oil leak	113
Table 7-10: ERNS Incidents Locations in Champaign County	113
Table 7-11: Type of ERNS Incidents in Champaign County.....	114
Table 7-12: ERNS Incidents Causes	114
Table 8-1: Summary of National and Illinois Ambient Air Quality Standards	119
Table 8-2: Champaign County CAP Testing Sites.....	120
Table 8-3: Air Quality Index Health Concerns	120
Table 8-4: Comparison of Light Pollution in Illinois Counties	122

Table 8-5: Noise Abatement Criteria	126
Table 9-1: REF Conservation & Mitigation Strategies	129
Table A-1: Champaign County Soil Types: sorted by hydric or non-hydric and by area occupied	136
Table A-2: Assessed Water Segments for Designated Uses in Champaign County, 2018	139
Table A-3: NRHP Listed Sites in Champaign from 1968 to 2016	141
Table A-4: Identified Cemeteries in Champaign County	143
Table A-5: Air Pollution Control Programs.....	145
Table A-6: FRS Energy/Technology Regulation Programs	147
Table A-7: FRS Hazardous/Toxic Waste Control Programs.....	149
Table A-8: FRS Water Pollution Control Programs	151

LIST OF FIGURES

Figure 1-1: Regional Overview	14
Figure 2-1: PEL Decision Matrix	21
Figure 2-2: CDOT PEL Process Flowchart.....	22
Figure 2-3: The NEPA Process.....	23
Figure 2-4: NEPA Authority.....	24
Figure 2-5: The NEPA Umbrella	25
Figure: 2-6: NEPA Classes of Action.....	26
Figure 2-7: C-List & D-List Categorical Exclusions.....	27
Figure 2-8: The EA Process	28
Figure 2-9: The EIS Process	29
Figure 2-10: Integrating Planning and NEPA	32
Figure 3-1: Topography of Champaign County	43
Figure 3-2: Soil Associations within Champaign County	46
Figure 4-1: Waterways in Champaign County	50
Figure 4-2: Biologically Diverse Streams in Champaign County.....	52
Figure 4-3: Wetland Types in Champaign County	54
Figure 4-4: Watersheds in Champaign County.....	57
Figure 4-5: County Waterways, Designated Use Assessments, 2010-2018.....	59
Figure 4-6: Water Quality Assessment in 2018.....	61
Figure 4-7: Mahomet Aquifer and Champaign County	62
Figure 5-1: Cultural Resources within Champaign County.....	67
Figure 5-2: Hazen Bridge.....	68
Figure 5-3: East Street Bridge.....	69
Figure 5-4: Old Stone Arch Bridge.....	70
Figure 5-5: Number of NRHP in Champaign County from 1968 to 2016.....	71
Figure 5-6: Lincoln (Statue) in Carle Park, Urbana	72
Figure 5-7: Historic Clark R. Griggs House in Urbana	72
Figure 5-8: Mount Hope Cemetery in Urbana	73
Figure 6-1: Natural Areas in Champaign County.....	79
Figure 6-2: Grant-Funded Sites in Champaign County	85

Figure 6-3: Threatened & Endangered Species in Champaign County.....	86
Figure 6-4: Threatened or Endangered Species Habitat (2020)	87
Figure 7-1: Underground Storage Tanks (USTs) in Champaign County	95
Figure 7-2: Champaign County LUST Incidents from 1986 to 2019.....	97
Figure 7-3: Leaking USTs in Champaign County	98
Figure 7-4: LUSTs Locations in Champaign County	99
Figure 7-5: LUST Incidents by Fuel Type (from 1986 to 2020).....	99
Figure 7-6: BLB General Corporation.....	101
Figure 7-7: Brownfield, Superfund, and Landfill Sites in Champaign County	102
Figure 7-8: Chanute Air Force Base Cleanup	103
Figure 7-9: Cleanup Sites (or Site Remediation Program Sites) in Champaign County.....	106
Figure 7-10: RCRA Sites in Champaign County	110
Figure 7-11: ERNS incidents in Champaign County since 1990.....	112
Figure 7-12: ERNS incidents in Champaign County since 1990.....	113
Figure 8-1: U.S. Greenhouse Gas Emissions by Sector, 2017.....	117
Figure 8-2: U.S. Transportation Greenhouse Gas Emissions by Source, 2017.....	117
Figure 8-3: Champaign County Criteria Air Pollutant Pollution by Vehicle Type 2014-2017.....	118
Figure 8-4: Champaign County Greenhouse Gas Pollution by Vehicle Type 2014-2017	118
Figure 8-5: Champaign County Air Quality 1980-2018	121
Figure 8-6: Champaign County AQI Yearly Percentages 2010-2018.....	121
Figure 8-7: International Dark Sky Association Light Pollution Solution Postcard	122
Figure 8-8: Champaign-Urbana at Night.....	123
Figure 8-9: Night Sky at Middle Fork River Forest Preserve	123
Figure 8-10: Common outdoor and indoor noises.....	124
Figure A-1: Air Pollution Control Programs.....	146
Figure A-2: FRS Energy/Technology Regulation Programs.....	148
Figure A-3: FRS Hazardous/Toxic Waste Control Programs	150
Figure A-4: FRS Water Pollution Control Programs.....	152

Chapter 1: Introduction

Development carries with it the cost of ecological loss that can be difficult to ascertain in both qualitative and quantitative measures. While transportation planning must take into account environmental considerations, prior to 1970 no such requirements existed. The National Environmental Policy Act (NEPA) established the country's first national environmental policies, making environmental considerations of federal actions mandatory prior to decision-making.¹ Signed into law in 1970, NEPA requires an environmental review of all federal actions to address and mitigate adverse environmental impacts caused by such actions.¹ All federal agencies have a responsibility to implement NEPA, including the Federal Highway Administration (FHWA) and Department of Transportation (DOT). These responsibilities extend to state agencies, such as the Illinois DOT (IDOT), meaning all transportation projects directly involving or receiving funds from these agencies must conduct NEPA reviews.² Supplemental environmental review procedures exist for local agencies, such as IDOT, strengthening the consideration process set forth by NEPA of the potential environmental consequences of transportation projects.

As part of federal initiatives to accelerate project delivery, policies and tools have been developed to facilitate the consideration of environmental resources and help mitigate adverse impacts during the planning stages of a project. These resources may be used by local and regional agencies to improve environmental stewardship throughout their planning processes if they have sufficient resources to complete the prescribed steps.

One such resource is the Eco-Logical approach, a methodology developed by the FHWA to integrate environmental needs during infrastructure development.³ By following FHWA's Eco-Logical approach for addressing natural resource identification, avoidance, and mitigation, RPC staff developed the Champaign County Regional Environmental Framework (REF). The REF is a centralized resource for local agencies, transportation planners, and engineers to more efficiently access data regarding ecological, cultural, and regulated-waste resources in Champaign County. With this resource, CCRPC member agencies and other local transportation planners and engineers will be able to make informed decisions that generate sustainable transportation projects in a reduced timeframe, while making strong initial strides in both the NEPA and IDOT environmental review processes. The REF is a comprehensive report on these resources within Champaign County supplemented with maps detailing the spatial layout of each feature that combine federal, state, and public records research tools with other agency-approved sources.

1.1 Regional Overview

The REF considers a regional view of ecological, social, and regulated-substance resources encompassing the entirety of Champaign County. Champaign County is located in the heart of east-central Illinois, surrounded by Piatt, Ford, Vermilion, and Douglas Counties (Figure 1-1). It is the fifth largest county in the State of Illinois, with approximately 638,528 acres, or 998 square miles. Champaign and Urbana, the primary cities of Champaign County, are approximately 136 miles south of Chicago, 120 miles west of Indianapolis, Indiana and 165 miles north-northeast of St. Louis, Missouri. Champaign County is part of the Illinois Department of Transportation District

5, which also includes DeWitt, Douglas, Edgar, McLean, Piatt, and Vermilion Counties. Within Champaign County, the Metropolitan Planning Area (MPA) serves as a long range transportation planning boundary that encompasses the Champaign-Urbana Urbanized Area as delineated by the 2010 U.S. Census (Figure 1-1).⁴

Over 2,600 miles of roadways cross Champaign County, making it a statewide transportation hub. These roadways consist of federal and state highways, and county and township roads, including Interstate Highways 57, 72, and 74, as well as Federal Highways 45, 136, and 150.⁵ Many miles of railroads provide freight service as well as passenger travel. The Willard Airport, south of Savoy, and several smaller airports throughout the County provide commercial and private passenger air service.⁵ Originally an expanse of marshy wetlands complemented with woodlands and tallgrass prairie, Champaign County experienced mass drainage efforts in the 1800s leading to the proliferation of agricultural land seen today.⁵ The soil of the county is its most valuable natural resource, providing the base for the mainstay of the economy, agriculture.

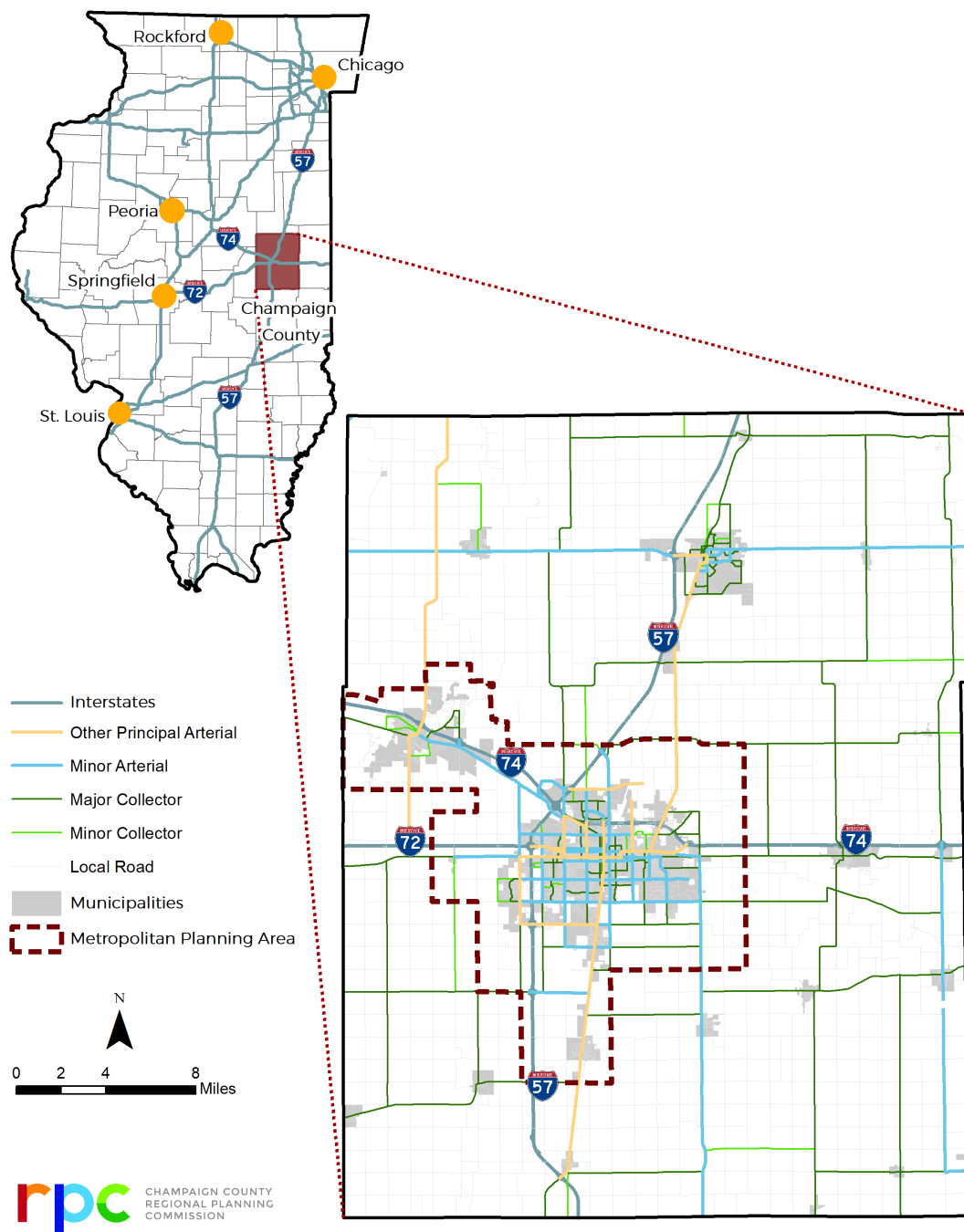
1.2 Report Outline

The REF report begins with an overview of state and federal environmental review guidelines and requirements relevant to transportation. Included are supporting planning approaches that helped shape the resource analyses and considerations addressed (Chapter 2). The next six chapters cover the regional ecological, cultural, and regulated-substance resource reports. First, the geology resource category provides information on existing topography and soil conditions and their connection to sustainable transportation planning (Chapter 3). Hydrological resources are considered next, encompassing waterways, flood zones, Biologically Diverse Streams, wetlands, watersheds, water quality, and the Mahomet Aquifer (Chapter 4). Following is a discussion on cultural resources within the County. This includes historic bridges, historic places, cemeteries, and archaeological areas (Chapter 5). The REF then considers the existing conditions of wildlife and vegetation, specifically the designated natural areas and threatened and endangered species habitat found throughout the County (Chapter 6). Regulated substances, or special waste sites, are discussed next. Locations of sites containing special waste are provided, as well as an overview of the individual programs under which they are regulated (Chapter 7). Concluding the resource reports, ambient conditions in the County are discussed. These include air quality, light pollution, and noise pollution. Current levels and standards (if applicable) are described, as well as how transportation projects influence regional ambient environmental conditions (Chapter 8). Finally, an overarching regional conservation and mitigation goal is included to advance the stewardship component of the REF scope of services. To compliment the goal, resource-specific conservation and mitigation objectives and strategies are included for planners to consider when undertaking new transportation projects (Chapter 9).

Staff ran into the following limitations while developing the REF. Resource databases do not all provide uniform or regularly updated information; because of this, the data utilized reflects only the most current and verifiable information available. When possible, historic data was used to establish resource trends in the County, but for most resources historic data was not available.

In addition, staff were unable to identify ecologically vulnerable areas for the overall County as this information did not exist beyond what could be confirmed through regulatory or designated protections.

Figure 1-1: Regional Overview



Source: IDOT, CCGISC

References

¹ EPA (2017). *What is the National Environmental Policy Act?* Retrieved January 21, 2020, from <https://www.epa.gov/nepa/what-national-environmental-policy-act>

² FHWA. *Integrating Transportation Planning & NEPA Decision-Making* (2008). Retrieved from https://environment.transportation.org/center/products_programs/webinars/integrating_webcast.aspx

³ Federal Highway Administration (FHWA). (2017, June). *Implementing Eco-Logical: 2015/2016 Annual Report*. Retrieved from https://www.environment.fhwa.dot.gov/env_initiatives/eco-logical/AnnualReports/annualreport_2015-16.aspx

⁴ CCRPC. *Long Range Transportation Plan: 2045* (Dec 2019). Retrieved from <https://ccrpc.gitlab.io/lrtp2045/overview/introduction/>

⁵ NRCS. *Soil Survey of Champaign County* (1999). Retrieved from https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/illinois/IL019/0/champaign_IL.pdf

Chapter 2: Guidelines and Requirements Review

Metropolitan planning organizations need to coordinate with and follow guidelines from federal and state agencies to facilitate efficient and effective environmental reviews. The keystone environmental review legislation, the National Environmental Policy Act (NEPA) forms the basis upon which guidelines and requirements are considered throughout this chapter. Coordinating with the Illinois Department of Transportation (IDOT) and other agencies on these reviews, analyses, and permitting actions is essential to meet the mandates for transportation projects covered through the NEPA environmental review process, and IDOT Environmental Survey process. This chapter will cover these processes through discussions on NEPA, and IDOT Environmental Survey Requests, Addendum Environmental Survey Requests, and Preliminary Environmental Site Assessments. This chapter will also cover relevant state and federal laws and requirements, and how the REF can inform proper compliance. State and federal laws and requirements covered in this chapter include: SAFETEA-LU, MAP-21, Section 4(f) of the DOT Act of 1966, Section 404 of the Clean Water Act, Section 106 of the National Historic Preservation Act of 1966, Executive Orders 12898 and 11988, and the Interagency Wetlands Policy Act of 1989.

2.1 IDOT Environmental Surveys

IDOT procedures determine the initiation of the process for environmental survey when transportation projects may involve 1) cultural, archaeological, or historical resources, 2) natural resources (e.g., threatened or endangered species habitat, Illinois Natural Areas Inventory sites, Nature Preserves, streams, wetlands, and floodplains), and 3) presence of regulated substances (i.e., special and other regulated waste).¹ Two types of general environmental surveys exist:²

- Environmental Survey Request (ESR)
- Addendum Environmental Screening Request (AESR)

IDOT may require additional surveys or screenings that are initiated through an ESR. The Bureau of Local Roads and Streets Manual (BLRS), [Chapter 20](#): Special Environmental Studies, and the Bureau of Design and Environment Manual (BDE), [Chapter 27](#): Environmental Surveys provides more detailed instructions. Professionals in the field of natural resources, archaeology, architecture, and regulated substances review project-specific locations to determine the level of detail needed for a survey.

2.1.1 Environmental Survey Request (ESR)

An Environmental Survey Request (ESR) is the first step in cultural, biological, and special waste resource screening for a project. An ESR is essentially a checklist of conditions that determine whether IDOT needs to further review impacts of a transportation project. If any criteria on the form are met, then an ESR is undertaken (Table 2-1). Following are the conditions to consider for screening applicability:²

Table 2-1: IDOT Environmental Survey Request Conditions

Condition
<ul style="list-style-type: none"> Is there acquisition of new right of way or easements; including construction activities outside of existing right of way?
<ul style="list-style-type: none"> Is drainage structure necessary or in-stream work?
<ul style="list-style-type: none"> Does the project potentially affect an INAI or Dedicated Nature Preserve, wetland, or location where a state or federal listed species is known to occur?
<ul style="list-style-type: none"> Does the site have the potential to affect a historic property listed on, eligible for listing, or potentially eligible for listing on the National Register of Historic Places (NRHP) including all National Historic Landmarks?
<ul style="list-style-type: none"> Does it involve a bridge or culvert currently listed in IDOT's Historic Bridge List?
<ul style="list-style-type: none"> Does it involve any Section 404, Section 4(f), or Section 6(f) (LAWCON) properties?
<ul style="list-style-type: none"> What is the expected NEPA class of action?
<ul style="list-style-type: none"> ESR is required even if new right of way isn't needed, but project is located within/adjoining a historic property or in-stream work.

Upon submitting the ESR, the BDE will, as needed, consult with the IDNR to determine if more field surveys are necessary. The field surveys are carried out by the Illinois Natural History Survey (INHS) on behalf of the BDE. If the BDE determines that no adverse effects (listed in BDE Manual 27-1.03(b)) will occur to the resources listed above, then the project will be given a biological resource clearance, valid for two years. If the BDE determines that an adverse effect will occur to any of the resources listed above, the BDE submits the projects to IDNR. IDNR then will issue one of the following responses:¹

- Adverse effects unlikely – consultation terminated
- Additional information or biological survey requested
- Minimization of adverse effects through IDNR recommended methods

All of the maps included in the REF can be utilized to identify ESR-triggering sites within a project area. For example; Figure 4-1: Waterways in Champaign County for streams or waterways within a project area that may require in-stream work; Figure 4-3: Wetland Types in Champaign County for wetland sites that may be impacted by a project; Figure 6-1: Natural Areas in Champaign County for INAI sites, Nature Preserves, LAWCON sites, or other sites that may contain essential habitat (CRP, Conservation Easements, Wooded Areas); Figure 6-3: Threatened or Endangered (T&E) Species Habitat (2020) for T&E species habitat; and Figure 5-1: Cultural Resources within Champaign County to identify sites listed on the NRHP, historic bridges, or potential archaeological areas that may be impacted by a project.

The REF can reduce the need to visit multiple resource-screening sites listed on the ESR by providing accurate maps of these resources in a single location. REF resource narratives can also inform certain ESR responses:

- The NEPA narrative to understand what class of action may be appropriate
- The Section 404 and 4(f) narratives to understand what sites might be protected under those programs
- Any of the resource narratives associated with the maps listed above

2.1.2 Addendum Environmental Survey Request (AESR)

An AESR is only necessary when changes in the project will affect areas outside the original area surveyed or if the scope of work changes, potentially triggering a different criterion from the original survey request. An expired survey does not trigger an AESR.²

2.2 Preliminary Environmental Site Assessment (PESA)

Prior to acquisition of a right-of-way (ROW) or improvements to existing state-owned property, IDOT must conduct a Preliminary Environmental Site Assessment (PESA). The purpose of a PESA is to identify and assess environmental risks and liabilities of a property to protect worker and public safety, reduce IDOT liability, and minimize delays through efficient and cost-effective operating procedures.³

Under the Illinois Environmental Protection Act and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), landowners (including IDOT) must be aware of the environmental conditions of the property they own or control. A PESA fulfills that requirement.³

Conducted by the Illinois State Geological Survey (ISGS) on behalf of IDOT, a PESA is triggered when an Environmental Survey Request (ESR) identifies the likelihood a Recognized Environmental Condition (REC) or other natural hazard associated with a property or ROW.⁴ PESAs take about six months to complete, adding significant amounts of time and money to a project's total cost.

Recognized Environmental Condition (REC): *"The presence or likely presence of any regulated substances on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any regulated substances into structures on the property or into the ground, groundwater, or surface water of the property. The term includes regulated substances even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment, and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."*⁵

Special Waste is always considered an REC. REF Special Waste maps and narratives will provide information on potential RECs within a project area. A list of the RECs are provided in the Table 7-1: Special Waste Minimum Search Distances in Chapter 7: Special Waste.

PESAs result in one of two findings:⁴

- No REC Finding: If a PESA does not identify any RECs (other than de minimis) within the project area then no further action is necessary. New circumstances can trigger a re-evaluation and are listed in the BDE Manual: Chapter 23-3.03(c).
- REC Finding: If a PESA identifies a REC within the project area, then further consultation is necessary. A Preliminary Site Investigation may be necessary, which includes soil, sediment, and groundwater sampling.

Planners can reduce the need for a PESA, minimizing project delay, by identifying RECs or natural hazards and developing plans and alternatives that avoid them. Early identification saves a project time and money, and through the REF, planners can understand and takes steps to avoid potentially hazardous sites.

2.3 Planning & Environment Linkages (PEL)

Planning & Environment Linkages (PEL) represent a holistic and cooperative approach to transportation decision-making that (1) considers environmental, community, and economic goals early in the transportation planning process; and (2) uses the information, analysis, and products developed during planning to inform the environmental review process.⁶ IDOT guidance on appropriate application of PEL can be found in the Bureau of Design and Environment Manual, Chapter 11.

PEL was born out of requirements to better address environmental concerns in statewide and metropolitan planning and to streamline the National Environmental Policy Act (NEPA) review process. PEL offers a flexible approach for the following:⁶

- Minimize duplication of efforts -
 - PEL improves information sharing and early consultation, reducing the work needed for the NEPA process.
- Improve documentation -
 - Documentation generated using PEL is acceptable for NEPA review.
- Decision and analysis development to inform NEPA -
 - Purpose and Need development.
 - Identification of preliminary alternatives.
 - Elimination of unreasonable alternatives.
- Remain adaptable to a range of approaches depending on an agency's needs -
 - Several methods of implementing PEL exist and can even be used to supplement existing processes.
- Enhance community development -
 - PEL offers an opportunity for early public input and response.
- Improve relationships and coordination with partner agencies -
 - Information sharing and agency communication strengthens.
- Achieve stronger overall environmental outcomes -

- Incorporating environmental issues during the planning stage and carrying them throughout the lifetime of the project can result in stronger environmental outcomes.

PEL can be applied to multimodal, systems-level, corridor, or subarea planning studies. The resulting planning products may be adopted or incorporated by reference in NEPA review.⁷ Feasibility and corridor studies commonly use the PEL approach, however, it is important to note that neither feasibility nor corridor studies are NEPA-ready. Using PEL encourages the link between project planning and the NEPA process by producing NEPA-ready documents.

Under regulations issued through MAP-21 and revised in the FAST-Act, differences exist between what planning products that a lead agency and that a cooperating agency may adopt or incorporate by reference in NEPA proceedings. The full provisions on authority are listed under 23 USC 168.⁷ (See 2.5.2 MAP-21 for more information)

PEL can develop planning products that facilitate NEPA review. Planning products result from a metropolitan planning organization, state, or transit agency evaluation, and can be subdivided into (1) planning decisions and (2) planning analysis (Table 2-2).

The PEL approach provides transportation and environmental context to make decisions and analyses. These planning products help set the stage for future projects by improving the understanding of needs, logical termini, and/or improvement alternatives.⁸

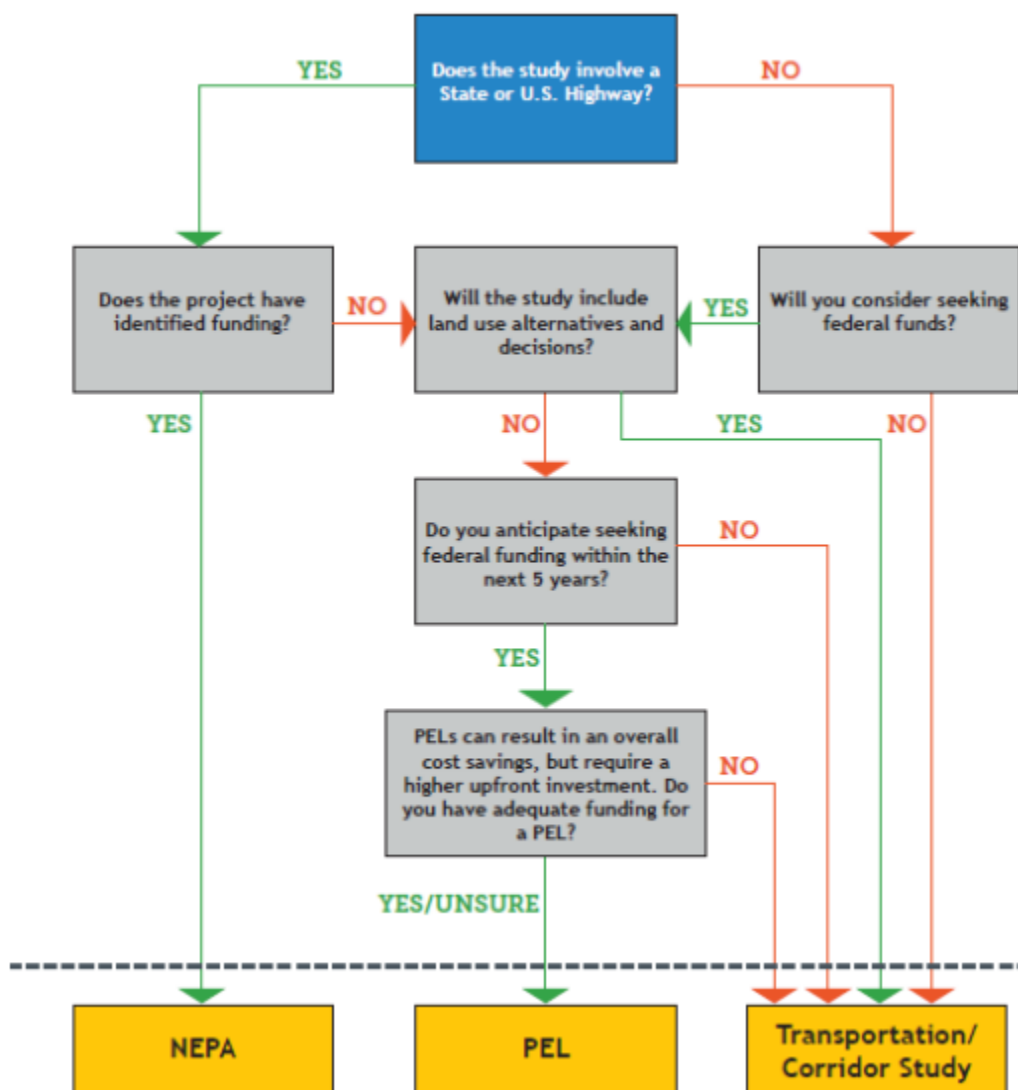
Table 2-2: PEL Planning Products

Planning Decisions: ⁹	Planning Analyses: ¹⁰
Project funding decisions (tolling, grants, etc.)	Travel demands
Travel corridor, modal choice, or decision to implement subarea study recommendations	Local land use, growth management, and development
Purpose and Need for proposed action	Regional development and growth
Preliminary screening of alternatives and elimination of unreasonable alternatives	Environmental resources and sensitive areas
Basic environmental setting description	Population and employment
Deciding methodologies for analysis	Potential environmental impacts (direct and indirect)
Programmatic level mitigation for potential project impacts determined by lead agency to be most effectively addressed at a national or regional scale	Mitigation needs for potential impacts determined by lead agency to be most effectively addressed at a national or regional scale

Certain conditions need to be met in order to use these planning products throughout the environmental review process. Under PEL, if (1) the ten conditions set forth in 23 USC 168(d) are met then the products may be adopted or incorporated by reference.¹¹ Similarly, if the six statutory conditions for elimination of an unreasonable alternative are met as outlined in 23 USC 139(f)(4)(E)(ii), then PEL products may also be used in NEPA alternative screening.¹¹

Project funding source is a key component of understanding whether or not PEL is the right tool for a specific project (Figure 2-1). Prior to initiation of NEPA, planning funds may be used for PEL studies including Metropolitan Planning [PL] grants, State Planning and Research [SPR] grants, and Surface Transportation Program Block Grant [STPBG] grants.⁶ However, once the NEPA process has been initiated, actions taken for a project are no longer eligible for these funding sources.¹¹

Figure 2-1: PEL Decision Matrix



Source: IDOT. Planning & Environment Linkages (PEL) Presentation. (2018).

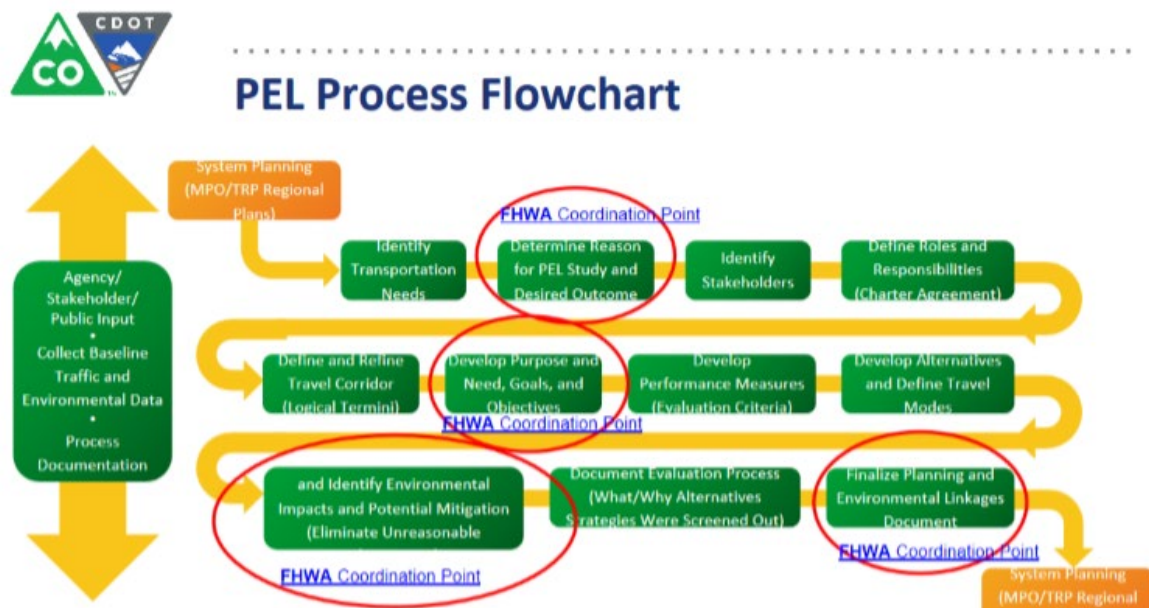
PEL planning products often occur before NEPA, before project funding or issues have been identified, and before solutions have been considered.¹¹ Prior to implementing PEL, a pre-scoping process is required to document the reason for and expected outcomes of a PEL study. Often the reason and expected outcomes revolve around streamlining future NEPA processes, but PEL

does not guarantee federal funding. Outcomes of a PEL study need not be directly NEPA-related to have value such as; improvements identification and prioritization of long-term transportation needs, as well as a no-build recommendation because (1) the needs do not warrant immediate action, or (2) the potential project costs, controversy, or environmental impacts are too great.¹¹

While outcomes of PEL planning products do not advance a project directly into the NEPA process, they do provide context for future NEPA decisions. As such, PEL is often used as a tool to prioritize improvements by creating a basic description of an environmental setting and the resources within an area, outlining potential methodologies for analysis, and identifying programmatic level mitigation for potential impacts.¹¹ Data obtained from a PEL study remains NEPA-viable for five years. Past that five-year mark, NEPA requires the data to be revisited, updated, and supplemented as necessary.¹¹

Carrying PEL planning products forward into the NEPA process requires coordination, documentation, and data collection throughout. At certain points during the process FHWA input and approval are required, such as documenting the basis for conducting the PEL study. With regards to documentation, FHWA recommends documenting planning-level analysis for NEPA where the level of documentation needed depends on how the information will be used in a subsequent NEPA process. The most robust documentation is required when the goal is to make a decision in planning that will be accepted with no further analysis in NEPA.¹¹ The Colorado Department of Transportation (CDOT) created a PEL Process Flowchart that illustrates these points of coordination with the FHWA, as well as the general steps for undertaking a PEL study (Figure 2-2). CDOT also authored a [PEL Handbook](#), which should be consulted when undertaking a PEL study.¹¹

Figure 2-2: CDOT PEL Process Flowchart



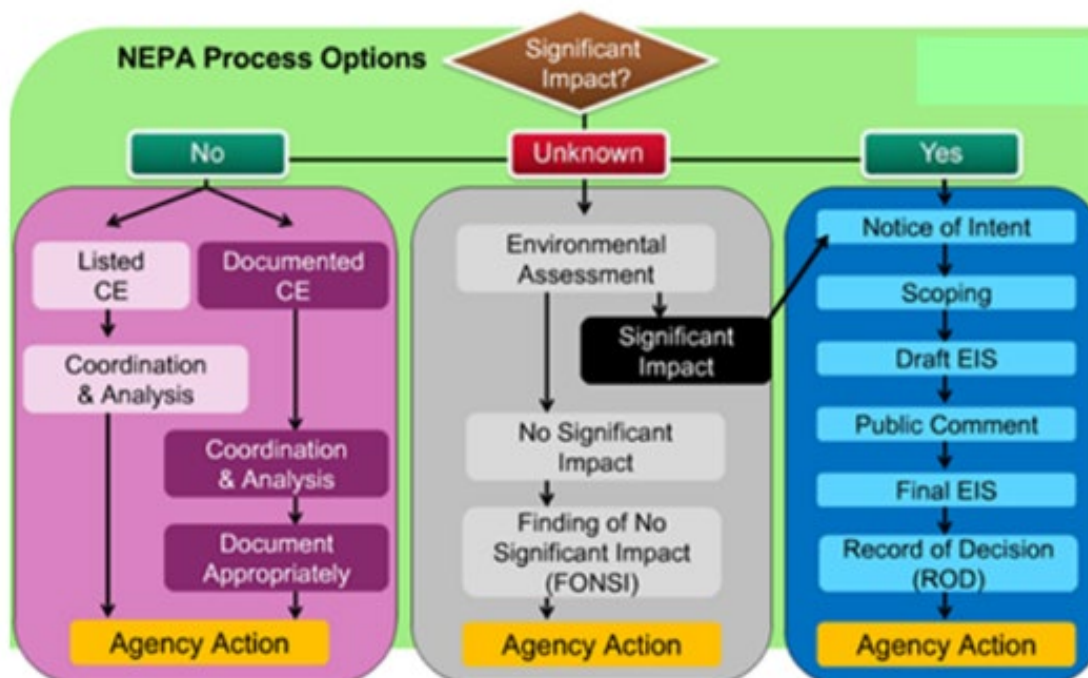
Source: IDOT. Illinois Peer Exchange: Planning and Environment Linkages (PEL). (Dec. 2018).

Public involvement is key to an effective PEL study. In general, when conducting a PEL study, planning agencies must provide (1) a public notice of the study, (2) opportunity for public review and comment (including federal, state, local, and tribal governments), and (3) a thorough consideration of all comments.¹¹ Transportation and planning agencies have great flexibility in how this involvement and outreach is undertaken. They may pick from a variety of outreach techniques, meetings, hearings, and/or utilize a combination of techniques. Regulations regarding public involvement during PEL can be found in 23 USC 168 (d)(4 and 5).⁷ The intent is that the chosen plan be relevant to the community affected.

2.4 National Environmental Policy Act (NEPA) Environmental Review

The National Environmental Policy Act (NEPA) set forth a national policy regulating major Federal actions that could result in significant environmental effect.¹² For NEPA purposes, a Federal “action” refers to “an activity or decision subject to Federal control and responsibility.”¹⁹ NEPA establishes a process for integrating environmental considerations into federal planning and decision-making to foster harmony between the social, economic, and other requirements of Americans and those of the natural world.¹³ The NEPA process for achieving such goals comes through a thoroughly documented analysis of impacts and alternatives, consultation with other resource and affected agencies, and a public comment period prior to any project implementation.¹⁴ Figure 2-3 summarizes the NEPA process.

Figure 2-3: The NEPA Process



Source: NHI. *Introduction to NEPA and Transportation Decisionmaking* (n.d.)

2.4.1 NEPA Authority and Terminology

The federal authority overseeing NEPA implementation rests with the Council on Environmental Quality (CEQ) and it's issued implementation regulations (Figure 2-4). Lead agencies designated by the CEQ hold the responsibility to follow these regulations and supervise a thorough preparation of an environmental analysis for NEPA by the applicant or project sponsor.¹⁵

Figure 2-4: NEPA Authority



Source: NHI. Introduction to NEPA and Transportation Decisionmaking (n.d.)

In Champaign County, the lead agency is the Federal Highway Administration (FHWA).¹⁶ The FHWA, in association with the Federal Transit Administration (FTA), drafted policies and procedures for transportation projects to implement NEPA and meet CEQ criteria, as well as guidance on preparation of documents related to NEPA and Section 4(f) of the Department of Transportation Act of 1966.¹² As a direct recipient of most FHWA funds, the Illinois Department of Transportation (IDOT) is responsible for ensuring NEPA compliance.¹⁷ A programmatic agreement with the FHWA allows IDOT to identify/confirm certain classes of action, prepare environmental studies and documentation on behalf of the FHWA, as well as serve as a joint lead agency when 6002 Environmental Review Process applies.¹⁷

The CEQ advised agencies to develop implementation procedures specific to their field that meet the minimum requirements of both NEPA and existing agency-specific obligations and mandates.¹² NEPA application varies from agency to agency, so FHWA's standards may be different than other agency's standards.¹⁸ The REF only summarizes FHWA-NEPA procedures. For more detailed information consult FHWA Environmental Impact and Related Procedures (23 CFR 771).

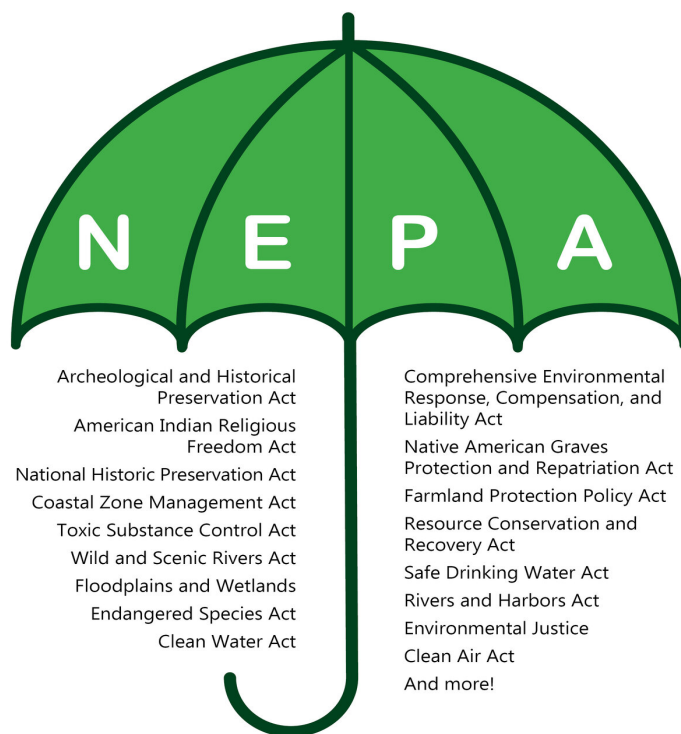
NEPA practitioners and regulatory reviewers require proper use of terminology, so planners must be sure to use NEPA-terms as defined in the regulations. For example, the terms "impact" and "effect" (used interchangeably) are defined as:

"...changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives." – 40 CFR 1508.1

The term “significant”, defined at 40 CFR 1508.27, refers to a determination that takes into account both “context” and “intensity” of an impact. The “context” can be that of the world, the region, or the local of a project. The “intensity” of an impact, beneficial or adverse, has 10 specific sub-considerations that must be taken into account including threatened and endangered species habitat, public health, sites listed or eligible to be listed in the National Register of Historic Places, and more.

During the transportation project development process, NEPA ensures considerations of environmental consequences on the human environment, “comprehensively the natural and physical environment and the relationship of present and future generations of Americans with that environment”.¹⁹ Responsibilities concerning many of these environmental factors fall under other laws, executive orders, and regulations. NEPA establishes a collective compliance process with other requirements known as “umbrella concept” (Figure 2-5). Under the NEPA “umbrella” default compliance is achieved with other environmental regulations and policy, such as the Clean Water Act, Endangered Species Act, and Resource Conservation and Recovery Act through the preparation of an Environmental Impact Statement (EIS).²⁰

Figure 2-5: The NEPA Umbrella



Source: Wetland Studies and Solutions, Inc. Field Notes Vol. 28, NO. 1 (Jan 2020).

2.4.2 The NEPA Process: Class of Action Determination

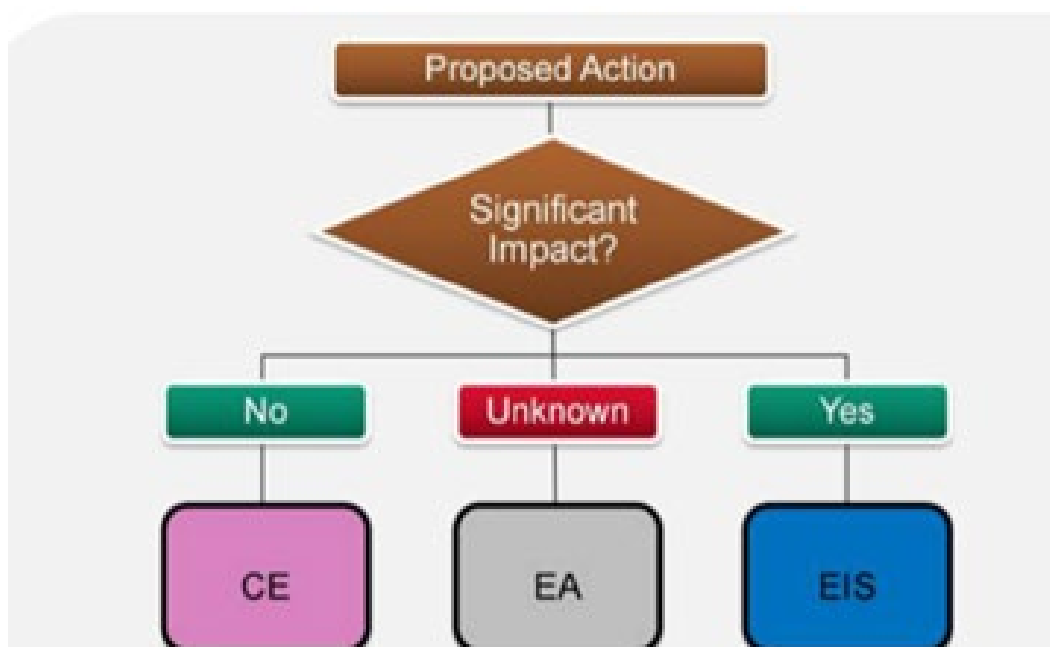
Transportation projects can have varying degrees of impacts on the environment from minor to significant. A “class of action” indicates the seriousness of a project’s environmental impacts, as

well as the level and type of environmental documentation required under NEPA. NEPA documentation defines three different classes of action for different situations (Figure 2-6):

- Categorical Exclusion, or CE;
- Environmental Assessment, or EA; and
- Environment Impact Statement, or EIS.

Different classes of action require different levels of documentation, analysis, and coordination. The NEPA process begins when applications for federal or state funding of a project are submitted. The lead agency will review project grant application documents. If the documentation proves sufficient in describing the project and its impacts, the lead agency will provide a probable class of action and the subsequent documentation required for NEPA review.²¹

Figure: 2-6: NEPA Classes of Action



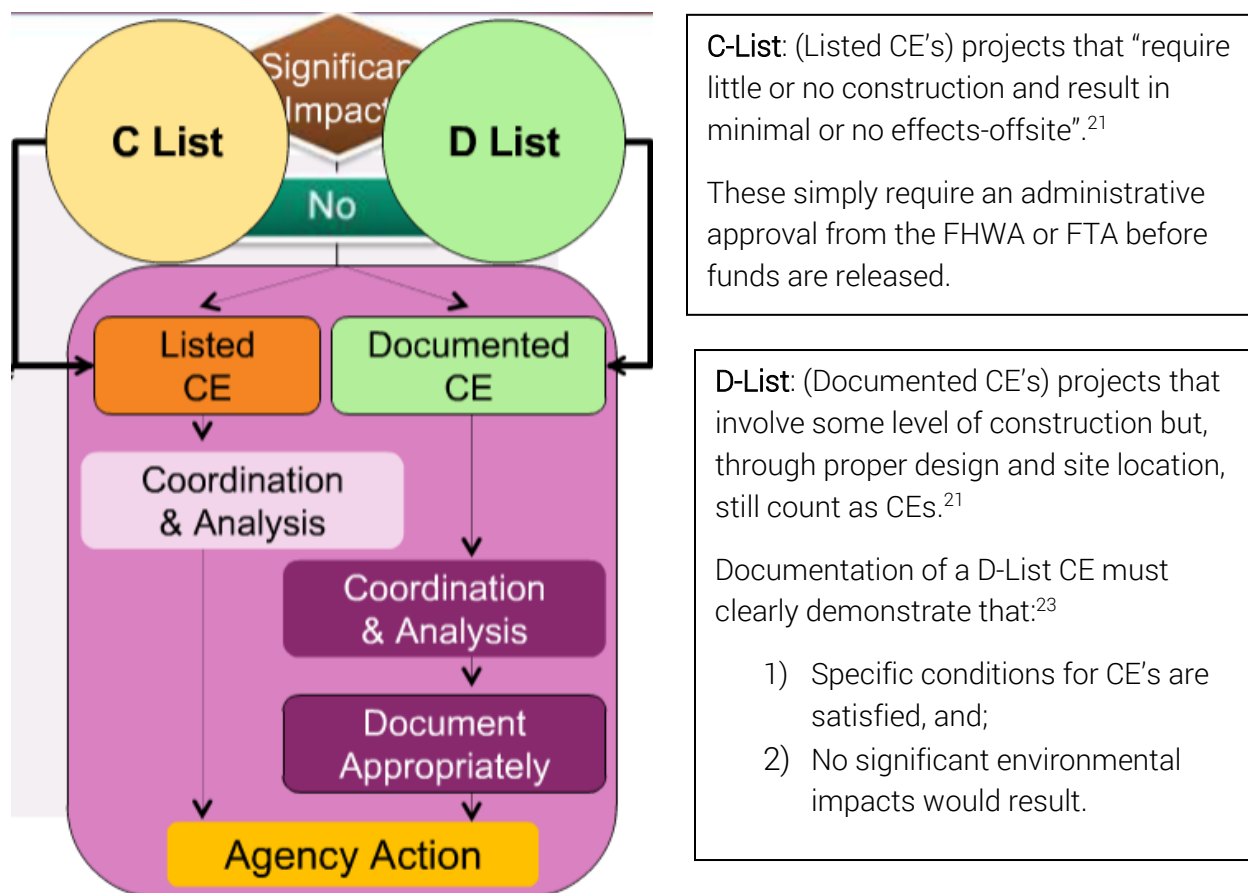
Source: NHI. *Introduction to NEPA and Transportation Decision making* (n.d.).

Use REF maps and resource reports to identify important environmental features and considerations that will inform a class of action determination.

Categorical Exclusions: Categorical Exclusions (CE) are actions that do not significantly impact the environment individually or cumulatively. CEs reduce paperwork and project delay when an in-depth environmental review is clearly not needed.¹² Once a project officially receives this class of action it requires no further NEPA approvals. The FTA/FHWA may then act on any applications for financial assistance.²²

The FHWA/FTA determine CEs on a case-by-case basis but provide an extensive list of examples of CEs in 23 CFR 771.117(c) and (d). The list is broken into two project types (1) C-List and (2) D-List (Figure 2-7). Consult with the regional FTA office to understand their particular CE approval process, as processes vary across the country.²³

Figure 2-7: C-List & D-List Categorical Exclusions

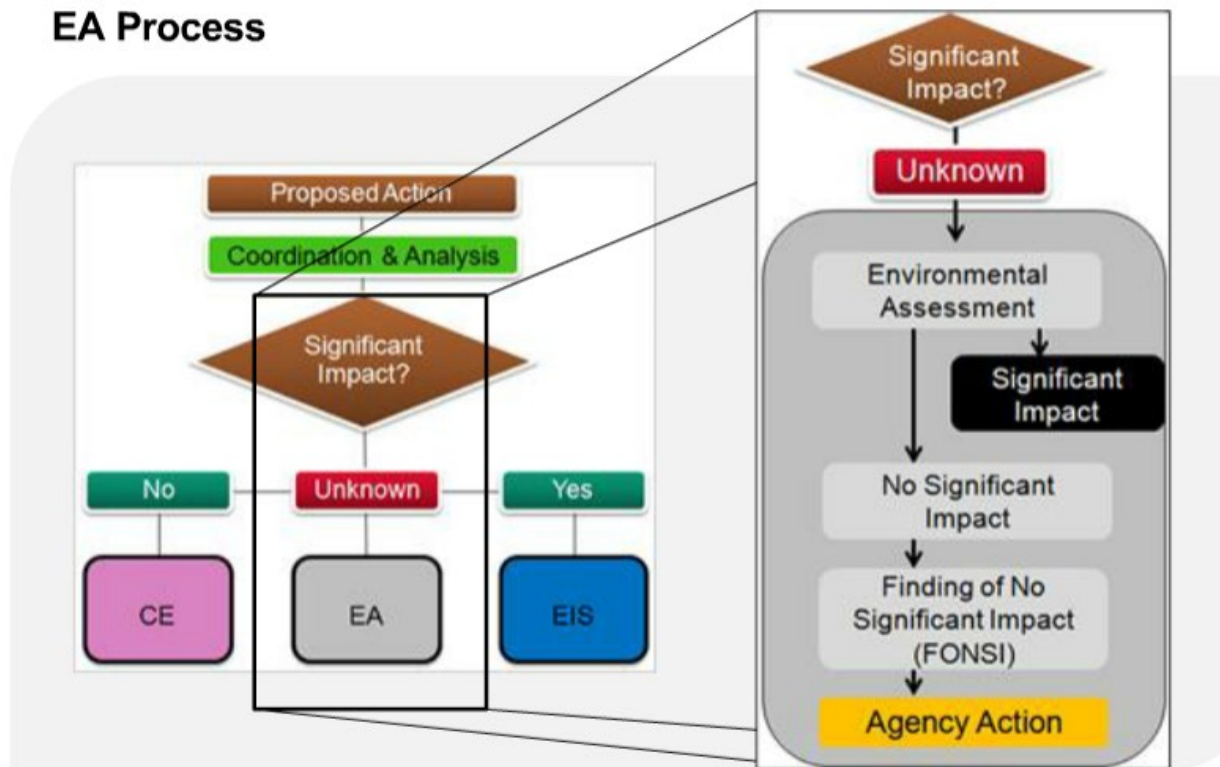


Source: NHI. *Introduction to NEPA and Transportation Decisionmaking* (n.d.).

Compare CE criteria to identified environmental features or conditions within applicable REF maps to inform a project's environmental impact. Document this work to show the FHWA/FTA that considerations were made early.

Environmental Assessments (23 CFR 771.119): Environmental Assessments (EA) are the class of action given when it is unknown whether a project will cause a significant environmental impact. If the lead agency finds a high probability of a significant environmental impact occurring, then an EIS is performed (EA documentation facilitates EIS preparation). If the lead agency finds little evidence to warrant an EIS, then a Finding of No Significant Impact (FONSI) is issued (Figure 2-8).¹²

Figure 2-8: The EA Process



Source: NHI. *Introduction to NEPA and Transportation Decision making* (n.d.)

Both the CEQ and FHWA emphasize the need for EA documentation to be brief and stay specific to the resources or features that may be impacted. EAs help the lead agency make determinations on the necessity for an EIS and need not contain detailed descriptions or analyses.²⁴ It is imperative that EA applicants consult with the FWHA and other interested agencies “at the earliest appropriate time,” to determine the following:²⁵

- The potential for social, economic, or environmental impact.
- Alternatives or mitigation actions that can be taken to minimize environmental impacts.
- If the project is subject to any other environmental regulations or requirements.

Consult appropriate REF maps to see areas of potential environmental impact. Use the maps to help develop project alternatives that avoid identified environmental features. Consult Chapter 9: Goals and Objectives to start thinking about potential alternatives and mitigation actions for the project.

Environmental Impact Statements (40 CFR 1508.11): Environmental Impact Statements (EIS) are the class of action given when a project will likely cause a significant environmental impact. This class of action requires substantial technical analysis and a lengthy public and agency review process in order to determine reasonable alternatives, identify potential impacts (social, economic, and environmental), and come up with mitigation or avoidance strategies for said impacts.²² The level of detail needed in an EIS far surpasses the amount for a CE and EA. In broad terms, an EIS must: (1) inform the public and decision maker(s) of the environmental

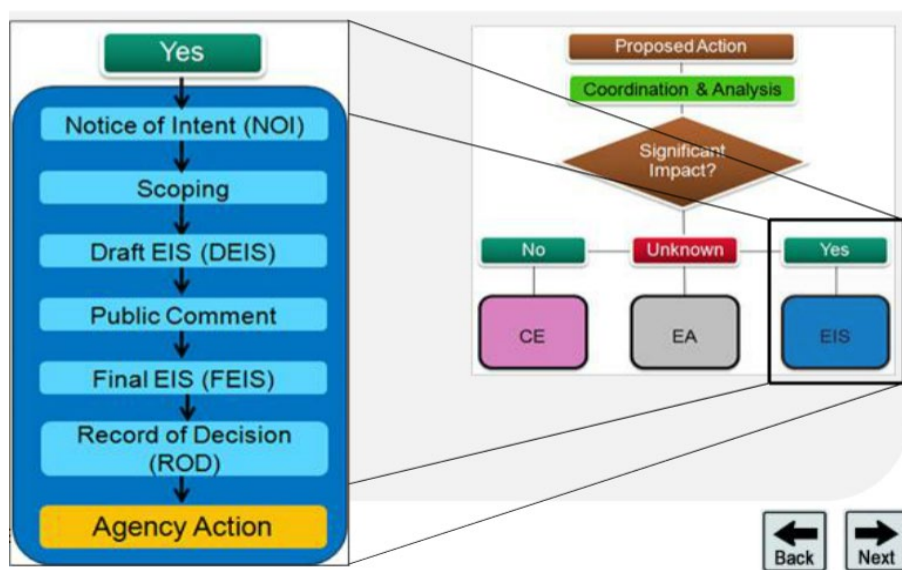
impacts of the proposed action, and (2) aid in agency considerations of avoidance, mitigation, and minimization of adverse effects.¹²

EIS's should be:¹²

- Analytic instead of encyclopedic.
- Concise and avoid verbosity.
- Only briefly touch on non-important issues.
- Incorporate materials by reference.

After publishing a Notice of Intent (NOI) to complete an EIS in the Federal Register, the applicant collaborates with the public to define what issues and alternatives should be addressed in the EIS in what is called scoping. The applicant then prepares a draft EIS and provides it for public review and comment. Following this period, a final EIS is published with responses to substantive public and agency comments. Finally, after a 30-day waiting period, the lead agency issues a Record of Decision (ROD) detailing the alternative that was chosen and under what conditions it may move forward, in order to minimize and mitigate impacts (Figure 2-9).²⁶

Figure 2-9: The EIS Process



Source: NHI. *Introduction to NEPA and Transportation Decision making* (n.d.)

2.4.3 Key Components of the NEPA Process.

The NEPA review process involves a multitude of components; documents, considerations, and statutory and regulatory requirements. Once determined that an EIS is necessary, the lead agency must establish a Purpose and Need statement defining the problem and how that problem will be addressed through the action. Lead agencies must then evaluate all reasonable alternatives to the action, as well as the potentially affected environment and any environmental consequences. Finally, impact mitigation and resource conservation strategies need to be considered for all adverse impacts of the proposed action.²⁴

Purpose of and Need (40 CFR 1502.13): The Purpose and Need statement defines the problem, or need, that requires fixing through the proposed action, as well as the objectives, or purpose, of the project.²⁷ It should be a full and honest explanation of why the action is necessary and the associated objectives. Additionally, the Purpose and Need statement should summarize the project status to date, describe the scoping/public involvement process, and identify any other pending requirements, permits, regulations, or mandates. It is essential in forming the basis for proposed alternatives, including the 'no action' alternative.²⁷

Alternatives (40 CFR 1502.14): A rigorous and objective evaluation of "all reasonable alternatives" to the proposed action, (including those not within jurisdiction of the lead agency) and why other alternatives were eliminated from consideration.²⁸

Alternatives should be compared in terms of (1) environmental impact and (2) achievement of objectives.²⁷ The profile of alternatives should list actions, outputs, and all required mitigations for EACH. Alternatives must "connect logical termini, have independent utility, and not restrict the consideration of future transportation alternatives".²⁹

For elimination of an alternative, that alternative must be shown to clearly not meet the Purpose and Need statement. Therefore, the Purpose and Need statement must be extremely well defined and justified with alternatives in mind, in order to use it as a litmus test for this section. NEPA uses several terms to describe acceptable alternatives:

- a. Reasonable
- b. Feasible
- c. Prudent
- d. Practicable

For NEPA purposes, these terms mean essentially the same thing: An alternative is not reasonable, feasible, prudent or practicable when it cannot realistically be carried out due to technical, economic, or environmental factors. If common sense, rather than just the desired outcome of the application, shows that an alternative does not meet the need for action then it can be eliminated.²⁴

Eliminating alternatives because they do not avoid significant environmental impacts can be done using the appropriate REF maps. Identify the project area for an alternative and what environmental features could be impacted from that alternative. Document this process, as NEPA reviewers will be more likely to give agency deference if the agency can show early considerations like these.

Identifying possible alternatives can be done using the appropriate REF maps. Using the location of the project, identify environmental features potentially impacted. From there, design several alternatives based around avoiding the resources. Consult with Chapter 9: Goals and Objectives when designing alternatives. This chapter will aid in understanding ways to avoid or offset impacts while also promoting conservation. Document this work, as showing these considerations early in the process develops a stronger case for alternatives during NEPA review, especially finding ways to promote conservation through the project.

Affected Environment (40 CFR 1502.15): The affected environment is the potentially affected area and its existing social, economic, and environmental components including how those components would affect the alternatives if implemented.²⁷ Agencies should complete a succinct and concise description that focuses on the general project area, as well as a description of the general population the project intends to serve and/or affect.²⁴ Agencies should report the location and demographic data to make sure no environmental justice violations occur. Other federal activities contributing to the impact should be identified, as well as any particularly sensitive locations impacted, including, but not limited to:²⁴

- a. Historic resources
- b. Minority or elderly groups
- c. Public parks
- d. Hazardous material sites
- e. Wetlands
- f. Threatened species habitat

Consult the appropriate REF maps to identify particularly sensitive sites, as well as 2.5: Other Laws and Requirements to see if other sites qualify (4(f), 404, etc.).

Environmental Consequences (40 CFR 1502.16): The direct and indirect impacts of a proposed action on all environmental, social, and economic resources.²⁹ Without duplicating information from previous sections, discuss unavoidable environmental effects of the proposal, including “irreversible or irretrievable commitments of resources.” Include how the project’s short-term use of the environment relates to the “maintenance and enhancement of long-term productivity” of that environment.³⁰

The direct and indirect effects of the proposed action and their significance must be discussed for each reasonable alternative. Additionally, potential interference with existing land use plans, policies, or controls should be discussed, as well as requirements (energy, natural/depletable resource) of the project.

Mitigation and Conservation Strategies (40 CFR 1508.20): Conservation potential and mitigation strategies for adverse environmental, social, and economic impacts. These strategies must aid in:³¹

- a. Avoiding the impact altogether by not taking a certain action or parts of an action.
- b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- e. Compensating for the impact by replacing or providing substitute resources or environments.

Consult Chapter 9: Goals and Objectives to begin designing appropriate strategies. Document all considerations accordingly.

2.4.4 General NEPA Guidelines

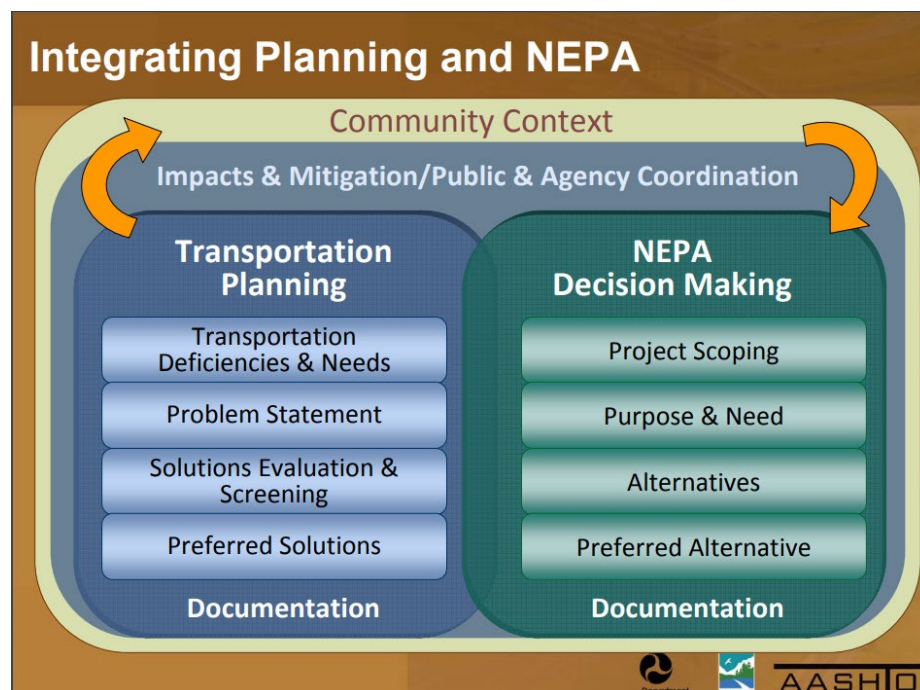
To facilitate quality review that benefits all involved, several guidelines exist for NEPA documents. A high-quality NEPA document is one that:³²

- Is readily understandable by all audiences, including those without technical expertise,
- Provides key information in an easy-to-navigate format,
- Focuses on pertinent information and avoids unnecessary bulk,
- Includes supporting technical information in appendices, and
- Meets all legal requirements.

2.4.5 Integrating NEPA and Transportation Planning

NEPA regulations as well as statewide metropolitan planning regulations all encourage the use of planning products (Table 2-2) to facilitate the NEPA process.³³ Both NEPA practitioners and planners benefit from integrating the two (Figure 2-10). The NEPA process benefits by reducing project delivery time, effort, and controversy, and the planning process can benefit by producing more immediate and relevant products. Integration of the NEPA review process and the planning process is a shared responsibility of both parties. It can be achieved through (1) proper and strong documentation of analyses done during planning, (2) analyses and studies performed in a way that meets NEPA requirements, and (3) incorporation of a robust public and agency coordination effort.³³

Figure 2-10: Integrating Planning and NEPA



Source: FHWA. *Integrating Planning and NEPA* (2008)

The key components of the NEPA review process link with key transportation planning steps. Planning products give NEPA practitioners some baseline information that can be carried through review. Information gained from planning products includes the environmental, social, and economic context, transportation deficiencies and needs, and an alternative/solution analysis.³³

Environmental, social, and economic context - Understanding the affected environment is crucial to a NEPA review. Planning uses more general analyses than a NEPA review, so information found during planning studies informs how best to address scoping for a specific area, and refines the purpose and need. This information should be strongly documented and incorporated by reference in NEPA documentation.

Transportation deficiencies and needs - The deficiencies and needs identified during the planning phase lead to a problem statement. This problem statement can inform or be substituted for a purpose and need statement where a planning study and initiation of a project are very close together. However, time sensitive information (crash data, etc.) cannot be used if too much time has passed between the planning process and the NEPA review process. NEPA practitioner evaluation is required to determine what information needs to be updated or what can be used. Again, strong documentation and adherence to NEPA requirements is needed to use a planning problem statement as a purpose and need statement.

Alternative/Solution analysis - Alternatives (solutions) analysis devised in planning can carry over into NEPA alternative analysis and preliminary screening. Planning analyses can be summarized and incorporated by reference into NEPA without the need for the study to be redone as long as it was performed and documented in a way that meets NEPA requirements. The same goes for screening of alternatives. All alternatives must be studied to the same level of detail during the planning process in order to count in the NEPA review process. Particularly for alternative analysis and screening in the planning phase, a robust public and agency coordination effort and strong documentation are needed to be incorporated into a NEPA review. However, if there is a glaring difference in alternative impacts (i.e. 200 parcels impacted vs. 30 parcels impacted) then the NEPA process will most likely not review the alternative with greater impact, as the distinctly greater impact can be avoided by pursuing a different alternative. Screening of alternatives during planning must demonstrate that the dismissal of an alternative was done through analysis and not opinion.

The locally preferred alternative identified in the planning process will not automatically be the preferred alternative identified in the NEPA review process. The preferred alternative identified in the NEPA process must meet criteria of regulations under the NEPA umbrella and go through review by resource agencies.

2. 5 Other Laws and Requirements

2.5.1 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU):

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law in 2005 and addresses a wide range of issues including new

funding options for highway and transit programs, streamlining of environmental reviews, environmental planning provisions, and transportation planning provisions.³⁴ Sections 6002 and 6001 of SAFETEA-LU provide guidance on these issues.

Section 6002 of SAFETEA-LU informs National Environmental Policy Act (NEPA) updates for funding and lead and participating agency responsibilities during the environmental review process.⁴⁰ When federal funds are provided, the recipient must serve as a joint lead agency during the environmental review process. Lead agencies must request participation in the process from any agency with an interest in the project, and those agencies are classified as the new category, “participating agencies.” Purpose and need, and reasonable range of alternatives can only be determined by lead agencies after an “opportunity for involvement” by participating agencies and the public. Participating agencies must receive information about (1) the resources in the project area and (2) general locations of alternatives early in the planning process from lead agencies. Section 6002 also broadens funding for federal and state agencies to support endeavors to expedite the NEPA process outside of the NEPA process (pre-NEPA planning, programmatic agreements, PEL, etc.).⁴⁰

Section 6001 of SAFETEA-LU contains planning provisions aimed at increasing the environmental stewardship of transportation planning.⁴⁰ Long-range plans (LRPs) must consider environmental mitigation activities and where they could be done. Section 6001 also requires MPO’s to consult with appropriate land use and natural resource management, environmental protection, conservation, and historic preservation agencies for LRPs.⁴⁰

Relevance to Champaign County REF

Regarding Section 6002 updates to NEPA, IDOT often serves as a joint lead agency on NEPA projects within Champaign County as they are often the direct recipient of federal funds.⁴⁰ The Regional Planning Commission (RPC) could be considered a participating agency if they are invited by a lead agency within RPC’s special expertise or jurisdiction.⁴⁰ The maps and resource information in the REF can be used by agencies to help inform the different steps of the NEPA review process, particularly a Purpose and Need statement, and alternative development/preliminary screening. RPC’s Public Participation Plan can help carry out successful public participation required under Section 6002. The REF can also provide lead and participating agencies with project-area resource information and inform the general locations of alternatives.

Regarding Section 6001 planning provisions, the REF can provide information on environmental resources and how impacts can be mitigated for future inclusion in LRPs. The regional conservation and mitigation goals, objectives, and strategies will inform mitigation considerations for RPC’s next LRTP. Additionally, the REF resource narratives inform which agencies to contact regarding these considerations.

2.5.2 Moving Ahead for Progress in the 21st Century Act (MAP-21):

Signed into law in 2012, MAP-21 funded surface transportation programs, and created a streamlined, performance-based, and multimodal program to improve the U.S. transportation system. Strategies to streamline environmental review included expanding the definition of Categorical Exclusions, where no full NEPA review is required.³⁵ This expanded definition includes projects built on existing IDOT land, multimodal projects, projects to repair roads damaged in declared disasters, and if a project 1) costs less than \$5 million or 2) whose federal funding is less than 15 percent of total project and costs less than \$30 million. MAP-21 also removed requirements to analyze alternatives as long as the preferred solution was previously analyzed during the long-range transportation planning process.⁴²

Relevance to Champaign County REF: If a project falls into the expanded list of FHWA Categorical Exclusions, found in 23 CFR 771.117, then they are considered to not involve significant environmental impacts. In this case, use of the REF is not necessary, as no NEPA review is required.

2.5.3 Section 4(f) of the Department of Transportation Act of 1966:

Section 4(f) of the Department of Transportation Act of 1966 is meant to improve protection of park and recreation lands, wildlife and waterfowl refuges, and historic sites during transportation project development. This is done through consideration of Section 4(f) properties during project planning. Found in 23 CFR 774, Section 4(f) regulations are implemented by the FHWA and FTA.⁴²

Section 4(f) applies to projects receiving funding or approval requirements from the U.S. DOT. If such a project potentially impacts a Section 4(f) property, then the FHWA will issue one of two findings:³⁶

1. De Minimis Impact: the use of the property will result in no adverse impact to the activities, features, or attributes of the site. De minimis findings vary by the property type, and the regulation should be consulted. If this is the case, then the Section 4(f) process is complete.
2. Avoidance evaluation: use of the Section 4(f) property will result in substantial impairment of the site. If this is the case, then a detailed analysis of feasible and prudent avoidance alternatives occurs.

Section 4(f) properties must be publicly owned, open to the public, have its major purpose be for a park, recreation, or refuge activities, and it must be significant.⁴³ This definition includes historic sites listed or eligible for listing in the National Register of Historic Places (NRHP).⁴³

In order for a project to use a Section 4(f) property the agency or agencies that own or administer the property (Officials of Jurisdiction) must be identified. The Officials of Jurisdiction must then verify that the site is in fact, functioning as a Section 4(f) property.⁴³ It must be then determined if the project will actually use land from the Section 4(f) property (permanent or temporary use). Projects that cause de minimis impact or have performed a feasible and prudent avoidance evaluation are more likely to get approval to use the property.⁴³

Relevance to Champaign County REF:

The REF maps can be used to locate potential Section 4(f) properties. Section 4(f) properties are not explicitly highlighted because Section 4(f) is a case-by-case determination, however potential Section 4(f) sites mapped by the REF include; OSLAD, LAWCON, and RTP properties, wooded areas and conservation easements, nature preserves, Natural Area Inventory sites (Figure 6-1: Natural Areas in Champaign County), and NRHP sites (Figure 5-1: Cultural Resources within Champaign County). When considering alternatives, REF maps can be used to avoid locations that may be Section 4(f) properties or confirm that feasible and prudent avoidance is impossible. IDOT guidelines on Section 4(f) evaluations and determinations can be found in Ch. 26-2 of the Bureau of Design and Environment (BDE) Manual.⁴³

2.5.4 Section 404 of the Clean Water Act:

Section 404 of the Clean Water Act (CWA) is a permit program that regulates dredge or fill material discharged into waters of the United States, including wetlands. A Section 404 permit must be obtained from the U.S. Army Corp of Engineers before discharging into waters of the United States, with certain exemptions.³⁷

For a project to receive this permit they must show that, to the extent practicable, steps have been taken to avoid wetland impacts, potential impacts on wetlands have been minimized, and compensation for unavoidable impacts has been made.³⁸ Individual permits are issued when a project will have a potentially significant impact. General permits are issued when a project will have only minimal adverse effects. These are the most common and apply to projects such as minor road activities.⁴⁵

Wetlands subject to Section 404 are defined as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”³⁹

Relevance to Champaign County REF:

Wetlands and hydrologic resources that may require a Section 404 permit can be identified using REF maps. Section 404 permits are a case-specific determination, so a survey will need to be performed to confirm if specific sites are affected. Potential sites affected within Champaign County are streams, lakes, ponds, wetlands, and high-quality natural areas such as nature preserves, Natural Areas Inventory sites, and threatened and endangered species habitat. The REF can also inform where to locate alternatives that avoid or minimize impact to waters of the United States. Potential avoidance and mitigation strategies are discussed in Chapter 9: Goals and Strategies.

2.5.5 Section 106 of the National Historic Preservation Act of 1966:

The purpose of Section 106 is to protect and maintain historic properties throughout the United States.⁴⁶ Federally assisted projects must consider effects to historic properties under Section 106. Properties falling under Section 106 requirements are those listed or eligible for listing in the NRHP.⁴⁶ Should a project receive federal assistance, the local public agency in-charge of the project must undergo a consultation process in four basic steps:⁴⁰

1. Initiate Consultation: The local agency will contact the State DOT and State Historic Preservation Office (SHPO) about a project that may affect a historic property.
2. Identify Properties: A qualified employee of the local agency or a consultant will conduct research to determine what properties within the project area are listed or eligible for the NRHP.
3. Assess Effects: If adverse effects are likely, the project team must look at what those effects may be, with an opportunity for public comment.
4. Resolve Effects: Possible alternatives to the potential impacts must be considered. A memorandum of agreement is issued when the local agency and consulting agencies reach a conclusion on how to proceed with the project.

Relevance to Champaign County REF:

The REF identifies listed historic places and potential archaeological areas, which are eligible for Section 106 protection in Chapter 5: Cultural Resources. If a project may impact a Section 106 site, IDOT should be consulted to determine best practices for conducting a site investigation. With public and agency input, planners should devise alternatives to avoid, minimize or mitigate impacting the site. Relevant consulting agencies include: IDOT, SHPO, FHWA, Illinois Historic Preservation Agency, or Illinois State Archaeological Survey. IDOT guidelines and relevant definitions on Historic Act compliance can be found in Ch. 26-5 of the BDE Manuel.⁴⁵

2.5.6 Executive Order 12898- Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations:

This Executive Order (EO), issued in 1994, directs federal agencies to promote nondiscrimination in federal programs and actions. This is done through identifying and addressing disproportionate effects to human and environmental health felt by minority and low-income populations.⁴¹ Stemming from EO 12898, the U.S. DOT developed an environmental justice strategy that sets forth guidance on determining whether a transportation decision, program, or policy is likely to have a disproportionate effect on minority or low-income populations, and how to avoid, reduce, or mitigate those effects.⁴²

Relevance to Champaign County REF:

Demographics are not currently reflected in the REF documentation; however environmental justice is an integral consideration in the planning process. Steps can be taken during the planning process to address environmental justice within Champaign County. When developing project alternatives, planners should consider the demographics of an area, and whether or not the human or environmental health of a low-income or minority population is being affected disproportionately. When gathering public input, planners should be sure to provide opportunities for participation and comment for members of these communities ensuring their voices are heard during the transportation planning process.

2.5.7 Executive Order 11988: Floodplain Management

Executive Order 11988 requires that federal agencies adopt practicable alternatives, when available, to potential long and short-term adverse impacts to floodplains. Adverse impacts, direct and indirect, to floodplains inhibit ecological function. This increases risks of flooding that affect human safety, health, and welfare, and reduce benefits provided by floodplains.⁴³

Section 2(a) of the Order outlines the decision-making process.⁵⁰ First, it must be determined if a project area is within the 100-year floodplain. Next, early public review, including public notice should be conducted. Finally, practicable alternatives to project locations within the floodplain must be identified.⁵⁰

Relevance to Champaign County REF:

The REF Floodplain map and narrative sections can help determine if a proposed project exists within the 100-year floodplain and relevant floodplain development considerations. The REF Floodplain map and narrative section in Chapter 4: Hydrology, as well as the Chapter 9: Goals and Strategies can also inform potential alternatives to project implementation within the 100-year floodplain.

2.5.8 Interagency Wetlands Policy Act of 1989:

The Interagency Wetlands Policy Act of 1989 (IWPA) allows for the regulation of state-funded actions that impact state wetlands to be regulated by IDNR.⁵¹ Separate from the Section 404 permitting program, the IWPA set the definition of Illinois wetlands to mean “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.”⁴⁴ The goal of the IWPA is to make sure that state projects and state funded projects achieve no net loss of wetlands. IWPA achieves “no net loss” through a review process for projects that could potentially adversely impact a wetland. If an impact is likely, then the IWPA guidelines for wetland compensation plans must be followed.⁵¹

Relevance to Champaign County REF:

Using the REF Wetlands map in Chapter 4: Hydrology, wetlands that may potentially be impacted by a project can be identified. Once identified, practicable alternatives can be developed to avoid potentially impacting any wetlands. Figure 3.2: Soil Associations within Champaign County and Chapter 3: Topography and Soils are also of use in this process, as areas of predominantly hydric soil can qualify as wetlands based off of the IWPA wetlands definition. Chapter 9: Goals, Objectives and Strategies can assist in alternative development by providing information and strategies on conserving wetland resources and mitigating negative impacts.

References:

¹ IDOT. *BDE Manual, Chapter 27: Environmental Surveys* (Dec, 2019). Retrieved from <http://idot.illinois.gov/doing-business/procurements/engineering-architectural-professional-services/Consultants-Resources/index>

² IDOT. *On-Line Forms for Environmental Surveys* (2017). Retrieved from <http://apps.dot.illinois.gov/environment/onlineforms.asp>

³ ISGS. *A Manual for Conducting Preliminary Site Assessments for Illinois Department of Transportation Infrastructure Projects* (2014). Retrieved from <https://www.ideals.illinois.edu/bitstream/handle/2142/50120/c585.pdf?sequence=2>

⁴ IDOT. *BDE Manual Chapter 27-3.03: Preliminary Environmental Site Assessment* (Dec. 2019). Retrieved from <http://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2027%20Environmental%20Surveys.pdf>

⁵ IDOT. *BLRS Manual Chapter 20-12(2)* (Jul. 2013). Retrieved from <http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Guides-&-Handbooks/Highways/Local-Roads-and-Streets/Local%20Roads%20and%20Streets%20Manual.pdf>

⁶ FHWA. *PEL Fact Sheet*. (March, 2019). Retrieved from https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_fact_sheet.pdf

⁷ FHWA. *Planning and Environment Linkages – Questions and Answers* (Nov. 2016) Retrieved from <https://www.fhwa.dot.gov/hep/guidance/pel/pelfaq16nov.cfm#q1>

⁸ IDOT. *Illinois Peer Exchange: Planning and Environment Linkages (PEL)* (Dec, 2018). Retrieved from https://www.environment.fhwa.dot.gov/env_initiatives/pel/peer_exch_FHWA-IL_12-10-18.aspx

⁹ 23 U.S.C. 168(c)(1)

¹⁰ 23 U.S.C. 168(c)(2).

¹¹ FHWA, IDOT. *Planning & Environment Linkages (PEL)* (2018). Retrieved from <file:///L:/Regional%20Environmental%20Framework/Resources/IDOT%20NEPA&PEL/IDOT%20Planning%20&%20Environmental%20Linkages.pdf>

¹² Center for Environmental Excellence (n.d.). *NEPA Process*. Retrieved January 2020, from https://environment.transportation.org/environmental_topics/nepa_process/overview.aspx

¹³ *National Environmental Policy Act of 1970*, 42 U.S.C. § 4331(a).

¹⁴ Council on Environmental Quality (n.d.) *NEPA: National Environmental Policy Act*. Retrieved from <https://ceq.doe.gov/index.html>

¹⁵ EPA (2017). *What is the National Environmental Policy Act?* Retrieved January 21, 2020, from <https://www.epa.gov/nepa/what-national-environmental-policy-act>

¹⁶ FHWA. Overview of NEPA as Applied to Transportation Projects - Environment- Federal-aid Essentials for Local Public Agencies. (n.d.). Retrieved from <https://www.fhwa.dot.gov/federal-aidessentials/catmod.cfm?id=35>

¹⁷ Vanderhoof, M. (2020, 06). Personal interview with J. Sullivan.

¹⁸ James M. Phipps, Action Forcing Under NEPA: Beyond the Environmental Impact Statement, 14 Urb. L. Ann. 137 (1977) Available at: https://openscholarship.wustl.edu/law_urbanlaw/vol14/iss1/7

¹⁹ Protection of Environment, 40 C.F.R. § 1508.1. (2020).

²⁰ Protection of Environment, 40 C.F.R. § 1502.25. (2020).

²¹ FTA (2015). Determining NEPA Class of Action. Retrieved from <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/determining-nepa-class-action>

²² FTA (2015). National Environmental Policy Act. Retrieved January 21, 2020, from <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/national-environmental-policy-act>

²³ FTA (2016) Categorical Exclusions. Retrieved from <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/categorical-exclusion>

²⁴ FHWA (1987). NEPA Implementation. Retrieved January 21, 2020, from https://www.environment.fhwa.dot.gov/legislation/nepa/guidance_preparing_env_documents.aspx#ce

²⁵ FHWA (2001). Planning, Environment, & Realty. Retrieved from <https://www.fhwa.dot.gov/hep/guidance/superseded/23cfr771.cfm>

²⁶ EPA (2017). National Environmental Policy Act Review Process. Retrieved from <https://www.epa.gov/nepa/national-environmental-policy-act-review-process>

²⁷ Freeman, L. H., & Jensen, S. L. (2003). How to write quality EISs and EAs. (3rd ed.). Woods Cross, UT: The Shipley Group.

²⁸ Highways, 23 C.F.R. § 771.123(c) (2020).

²⁹ Highways, 23 C.F.R. § 771.111(f) (2020).

³⁰ Protection of Environment, 40 C.F.R. § 1502.16 (2020).

³¹ Protection of Environment, 40 C.F.R. § 1508.20 (2020).

³² Highways, 23 C.F.R. § 771.127 (2020).

³³ FHWA. Integrating Transportation Planning & NEPA Decision-Making (2008). Retrieved from https://environment.transportation.org/center/products_programs/webinars/integrating_webcast.aspx

³⁴ AASHTO. Center for Environmental Excellence: SAFETEA-LU (n.d.). Retrieved from https://environment.transportation.org/pdf/map_21/safetea-lu2.pdf

³⁵ FHWA. Section 4(f) Tutorial (n.d.). Retrieved from https://www.environment.fhwa.dot.gov/env_topics/4f_tutorial/default.aspx

³⁶ IDOT. BDE Manual, Chapter 26: Special Environmental Analysis (Aug, 2019). Retrieved from <http://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2026%20Special%20Environmental%20Analyses.pdf>

³⁷ EPA. Wetland Regulatory Authority (n.d.). Retrieved from https://www.epa.gov/sites/production/files/2015-03/documents/404_reg_authority_fact_sheet.pdf

³⁸ FHWA. Section 404 of the Clean Water Act (Oct. 2016). Retrieved from <https://www.youtube.com/watch?v=jPBV8x985p0>

³⁹ ACHP. An Introduction to Section 106 (n.d.). Retrieved from <https://www.achp.gov/protecting-historic-properties/section-106-process/introduction-section-106>

⁴⁰ FHWA. Section 106 of the National Historic Preservation Act (Oct. 2016). Retrieved from <https://www.youtube.com/watch?v=0ayArv5ZTAc>

⁴¹ EPA. Summary of Executive Order 12898 (Sept. 2018). Retrieved from <https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice>

⁴² USDOT. Environmental Justice Strategy (Jan. 2017). Retrieved from <https://www.transportation.gov/transportation-policy/environmental-justice/environmental-justice-strategy>

⁴³ FEMA. Executive Order 11988 (April 2015). Retrieved from <https://www.fema.gov/executive-order-11988-floodplain-management>

⁴⁴ ASWM. Illinois State Wetland Program Summary (n.d.). Retrieved from https://www.aswm.org/pdf_lib/state_summaries/illinois_state_wetland_program_summary_083115.pdf

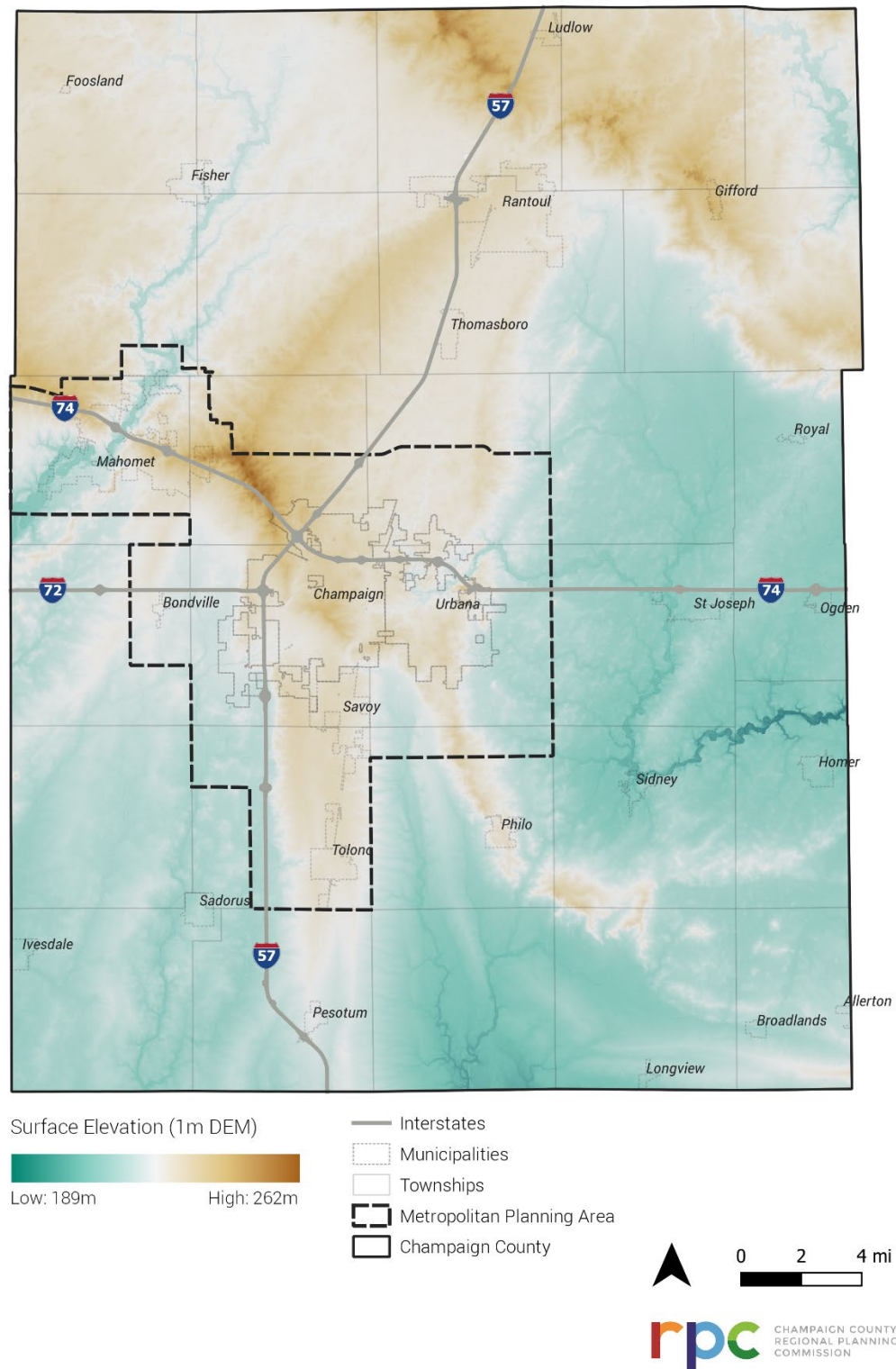
3.1 Topography

Champaign County is known for its flat, expansive agricultural character. The geography is characterized by glaciation, occurring over 12,500 years ago, and by the extensive agricultural development it has seen. Over its 998 square mile area, Champaign County is one of the flattest areas in Illinois with elevations ranging from approximately 262 meters (860 feet) above mean sea level near the north of Rising Township to 189 meters (620 feet) above mean sea level near the Salt Fork River in Homer Township.¹ The relief, highest elevation minus the lowest, is only 75 m (246 feet). Relief effects drainage, runoff, erosion, and deposition.²

Figure 3-1 shows the highest elevation is in Rising on an unnamed Hilltop along the Champaign Moraine (just north of Champaign in the west-central part of the state. A moraine is a deposit of sediment and rock left by glacial movement. The lowest elevation is in Homer, along the Salt Fork River as it leaves the County. This point is in the alluvium (deposits of soil from moving water) of a valley within the Salt Fork River.³ Areas of low elevation tend to be outwash plains with higher chance of flooding and water-related issues. However, the relief is so minimal that there is not much distinction between the areas of high and low elevation.² The southeast portion of the County is the lowest, following the flow of the Embarrass, Vermilion, and Salt Fork Rivers.

Elevation is important to consider when looking at flood potential and foundation stabilization of a built project. Areas of low elevation tend to be along rivers and near bodies of standing water. This means that areas of low elevation are more likely to be within a floodplain. Planners should be sure to note the flooding potential of an area to help develop project alternatives to avoid working within floodplains or areas in low elevation at risk of flooding. Low elevation, in combination with flooding, also often means that hydric soils are present. Hydric soils have severely limited building potential, and planners should be aware of these soils in order to develop alternatives that utilize a firmer soil foundation.

Figure 3-1: Topography of Champaign County



Source: USGS TNM Downloader⁴

3.2 Soil

Soils are living systems; a combination of minerals, organic compounds, and living organisms responding to stresses. Products of glacial deposits from the Wisconsinan glaciation (12.5-22,000 years ago), Champaign County soils formed in medium textured loess, drift, and till material under tall grass prairie species and wetland conditions, with deciduous hardwood stands dotting the landscape. Extensive draining efforts in the late 1800s diverted much of the surface and groundwater leaving incredibly productive soils thick in organic material and nutrients.⁵

Champaign County is comprised of 75 different soil types based on the taxonomic classification of the dominant soil (Appendix, Table A-1).⁶ Drummer silty clay loam with 0 to 2 percent slopes makes up 40 percent of the area in the County. This is a hydric soil, meaning that it is saturated with water for part or all of the year and has very limited development potential. Flanagan silt loam with 0 to 2 percent slopes, a non-hydric yet poorly drained soil with limited development potential, makes up the second largest share (16 percent). The Champaign County area is also split half and half between hydric and non-hydric soils; much of the hydric soil coverage is from Drummer silty clay loam (397.63 sq. miles).

Hydric soils: formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions within the top 20 inches of soil depth²

- Limited infiltration of water resulting from oversaturated pores that can cause surface ponding, flooding, weak structure, and are highly erodible⁷
- Very limited development potential
- Most common in low-lying areas, wetlands, and near waterbodies

3.2.1 Soil Development Potential

Champaign County soils have been rated on their development potential for three building types: 1) dwellings without basements, 2) dwellings with basements, and 3) small commercial buildings.⁶ Soil development potential refers to the ability of the soil to support a load without movement. Development potential of each soil is characterized as 1) Not limited, 2) Somewhat limited, or 3) Very limited. Limitations can usually be overcome or minimized by special planning, design, or installation.⁶ Limitations are commonly due to the following⁵:

- Ponding: Buildup of surface water through improper drainage
- Depth to Saturated Zone: Depth from surface to where all soil pores are filled with water.
- Shrink-swell: Extent to which soil will expand when wet and retract when dry; also referred to as linear extensibility
- Flooding: Oversaturation of water
- Slope: Angle of incline or decline, expressed in the percent of rise or fall of the soil surface from the horizontal over a distance of 100 feet. Slope affects the surface water movement that can cause erosion, drainage, and stability issues.

While the majority of soils in the County are not ideal for development due to their hydric characteristics, much of the County soil is tile drained, increasing the development potential. Tile

maps from the Champaign County Soil and Water Conservation District can help identify the location of tiles, in relation to a project site. The specific characteristics of each soil type within the Champaign County area are described in the Champaign County Soil Survey. The specific characteristics of each soil type within the Champaign County area are described in the Champaign County Soil Survey.

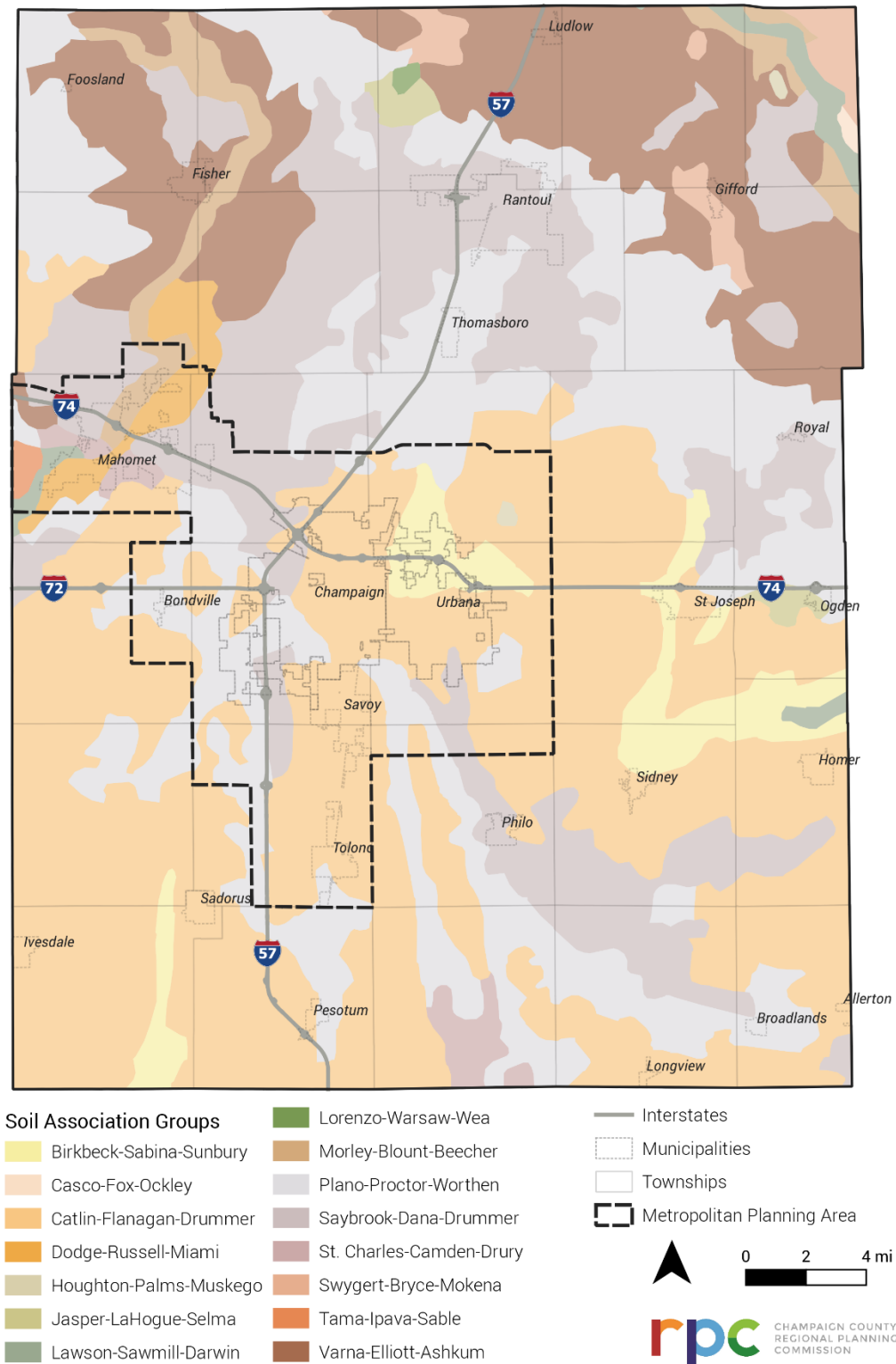
3.2.2 Soil Associations

Based on the Illinois Soil Associations Map, Champaign County soils are classified into 15 general associations, named for the dominant soil types of an area (Figure 3-2). Soil associations are groups of related soils that generally occur in landscapes with characteristic topographic features, slopes, and parent materials, and give an overview of the soils present.⁸ The proportions of each distinct soil type within an association are not uniform across the entire delineation. This means that management of a specific project area requires considering the properties of each soil component within the association. The area and percent coverage of each association is contained in Table 3-1.

Table 3-1: Soil association groups within Champaign County

Association	Area (sq. miles)	Percentage
Catlin-Flanagan-Drummer	369.08	36.97%
Plano-Proctor-Worthen	224.25	22.46%
Saybrook-Dana-Drummer	173.65	17.39%
Varna-Elliott-Ashkum	125.54	12.57%
Birkbeck-Sabina-Sunbury	34.38	3.44%
Morley-Blount-Beecher	21.58	2.16%
Swygert-Bryce-Mokena	12.03	1.20%
Dodge-Russell-Miami	11.8	1.18%
St. Charles-Camden-Drury	9.32	0.93%
Lawson-Sawmill-Darwin	8.26	0.83%
Jasper-LaHogue-Selma	4.97	0.50%
Tama-Ipava-Sable	1.44	0.14%
Houghton-Palms-Muskego	0.81	0.08%
Lorenzo-Warsaw-Wea	0.7	0.07%
Casco-Fox-Ockley	0.64	0.06%
	998.42	100.00%

Figure 3-2: Soil Associations within Champaign County



Source: USDA Web Soil Survey

a. Catlin-Flanagan-Drummer

Occurring mainly in the central and central-southern portion of the County (heavily near St. Joseph and Stanton), including much of the Champaign-Urbana Metro area, these dark soils have high available water holding capacity and moderate permeability. This association is a mixture of moderately well-drained Catlin soils, somewhat poorly drained Flanagan soils, and poorly drained Drummer soils. Drummer tends to be the dominant soil in this association, and runoff tends to be slow and ponding occurs frequently. Among the most productive in the state, they are subject to erosion but respond well to surface ditches and tile drainage.⁹ Development potential ranges from very limited to somewhat limited because of shrink-swell, ponding, and depth to saturated zone.

b. Plano-Proctor-Worthen

Occurring mainly in north, north-eastern portion of the County (near Rantoul and Compromise), with smaller veins running into the south-central areas, this dark-colored association contains over 20 different soil types and is moderately permeable. Because of the diverse makeup of this association, drainage characteristics vary. However, in general, a high representation of hydric soils results in poor drainage for this group. Erosion control is often needed, especially on sloping aspects. Development potential data for the County is only available for Proctor soil, which is somewhat limited to not limited. However, the amount of hydric soils and issues with erosion makes this a less than ideal foundation.

c. Saybrook-Dana-Drummer

Occurring in mainly the northern portion of the County and following the veins of Plano-Proctor-Worthen into the south-central portions, these dark-colored prairie soils have moderate to high available water holding capacities, and moderate permeability. Drainage ranges from moderate to well drained, with the exception of the Drummer major component, and Pella minor component which are both hydric with poor drainage. Soil erosion is the principle soil management issue due to many sloping aspects in this association. Development potential data only exists for Dana and Drummer soils, but in general is very limited due to shrink-swell, ponding, and depth to saturated zone.

d. Varna-Elliott-Ashkum

Occurring only in the northernmost portions of the County, these dark-colored soils have moderately slow permeability and somewhat restricted penetration due to relatively high clay content. Drainage is poor throughout the association, and components tend to be shallow (18-30 in). Erosion issues occur frequently, and control measures are important to improve use. Development potential ranges from very limited to somewhat limited due to shrink-swell, depth to saturated zone, and sloping.

References

¹ Champaign County Regional Planning Commission. (2010). *Champaign County Land Resource Management Plan (LRMP)*. Retrieved from <https://ccrpc.org/documents/champaign-county-land-resource-management-plan/>

² NRCS. *Champaign County Soil Survey (1998)*. Retrieved from https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/illinois/IL019/0/champaign_IL.pdf

³ ISGS. *Lowest and Highest Points in Champaign County (2020)*. Retrieved from <http://isgs.illinois.edu/maps/illinois-high-and-low/champaign>

⁴ USGS TNM Downloader. Retrieved from <https://viewer.nationalmap.gov/basic/>

⁵ USDA, NRCS. *Champaign County Soil Survey (1998)*. Retrieved from https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/illinois/IL019/0/champaign_IL.pdf

⁶ USDA, NRCS. *Custom Soil Resource Report for Champaign County, IL (2019)*. Retrieved from <http://www.ccsxcd.com/MapsData/>

⁷ NRCS, *Soil Science Manual – Ch8. Interpretations: The Impact of Soil on Properties of Land Use*. (n.d.) <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcseprd1343020>

⁸ U.S. Department of Agriculture, Natural Resources Conservation Service. *National soil survey handbook*, title 430-VI (2012).

⁹ Fehrenbacher, et al. *University of Illinois College of Agriculture. Soils of Illinois (1984)*. Retrieved from https://efotg.sc.egov.usda.gov/references/Agency/IL/Soils_of_Illinois_Bulletin_778.pdf

4.1 Major Waterways

There are approximately 1,309 miles of streams within Champaign County according to the USGS's National Hydrography Dataset.¹ Major County waterways include the Sangamon River, the Kaskaskia River, the Embarras River, the Salt Fork River split, and the Middle Fork River. These major waterways, along with many smaller rivers and streams, can be seen in Figure 4-1. The map also depicts waterways as either perennial or intermittent. Perennial streams consist of those where water is flowing year-round.² Intermittent streams are those that only flow at certain times during the year. In Champaign County, intermittent streams account for 636 miles, and perennial streams 673 miles. Both types of streams are fed by upstream and groundwater sources, as well as supplements from rainfall and other precipitation.² Intermittent streams are more dependent on seasonal precipitation and are all off-shoots of larger perennial streams. Many of these sources are located in the County. For example, the headwaters for the Upper Sangamon, Embarras, Upper Kaskaskia, and Little Vermillion Rivers are all found within the County borders.³

Streams provide a plethora of ecosystem services that benefit the residents of Champaign County. Waterways form the backbone of recreational activities in the County, offering extensive swimming, fishing, and boating opportunities. Across Illinois, fishing generates approximately \$3 billion to the state's economy, and nearly 750,000 Illinois anglers were fished in 2016.⁴

Channelization of streams has been a common practice in the history of the County, in order to drain land quicker and increase farm acreage.⁵ These alterations increase the velocity at which water flows downstream, increasing erosion and leading to stronger flooding. Combined with the removal of riparian vegetation along streams, the issue is exacerbated, as natural retention of sediment and slowing of floodwater is lost. Such practices can be found throughout the County, such as the Embarras River, where flood damages can exceed \$4,000,000.⁶

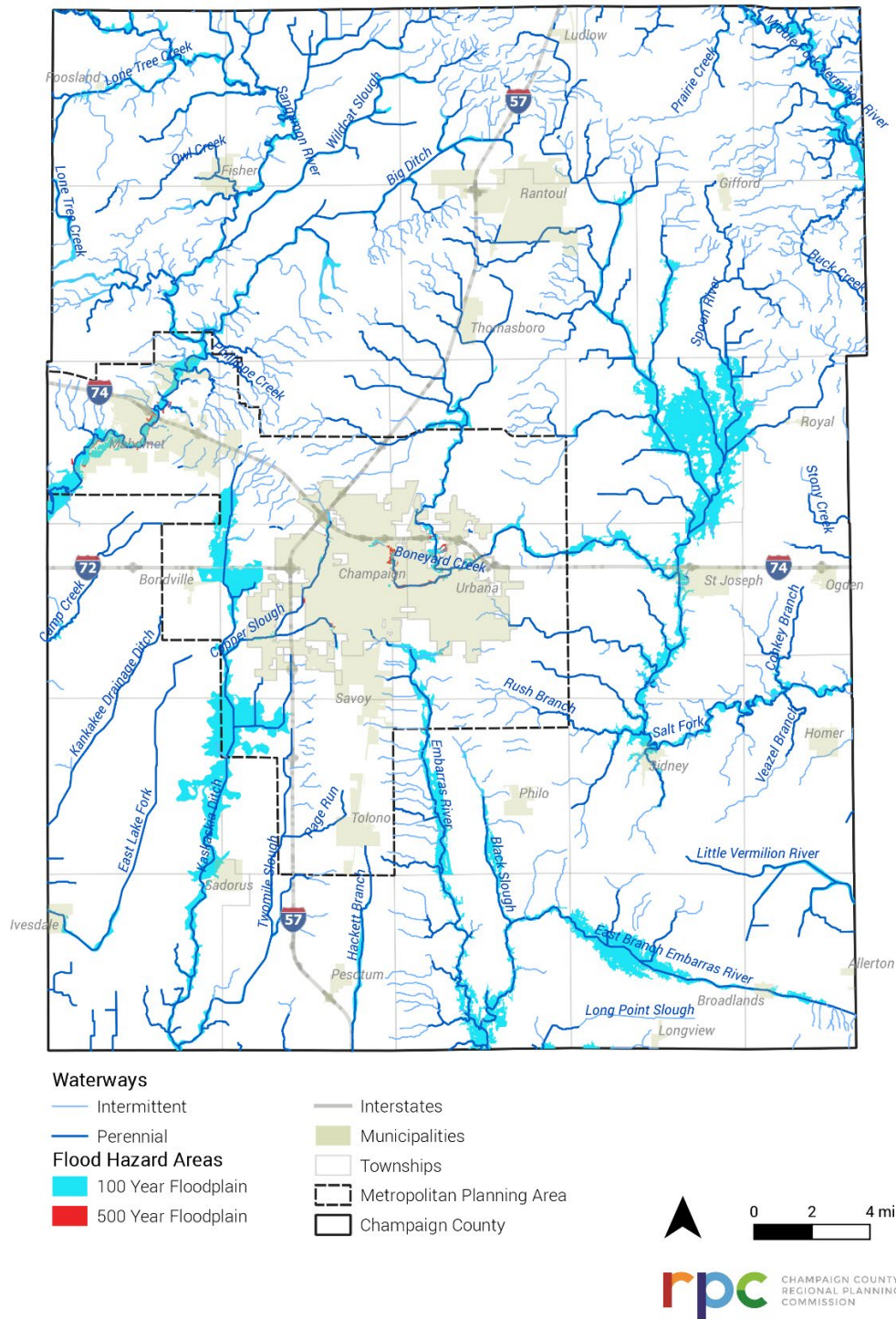
4.2 Flood Hazard Areas

Floodplains are the lowland and relatively flat areas adjoining waterways subject to a one percent or greater chance of flooding in a given year.⁷ Floodplains serve to absorb and moderate the flow of significant amounts of water from flooding events in adjacent waterways. When projects encroach on the floodplain, either longitudinal or transverse, the floodplain function is altered, often leading to increased flood damages, unpredictability in future flooding events, and habitat loss. Floodplains are categorized based on their probability of annual flooding.⁸

100-Year Floodplain: Also known as the "base floodplain," this is the area subject to a one percent annual chance of flooding (1-in-100). Potential project sites within these areas will have issues with flooding. Insurance for such projects will be costlier, and steps must be taken to avoid negative impacts.

500-Year Floodplain: Appearing on the fringes of the 100-year floodplain, this is the area subject to a 0.2 percent chance of flooding each year (1-in-500). While development is less limited than the 100-year floodplain, flooding issues within the 500-year floodplain are not uncommon.

Figure 4-1: Waterways in Champaign County



Source: USGS. National Hydrography Dataset (2020). Retrieved from <https://viewer.nationalmap.gov/basic/?basemap=b1&category=nhd&title=NHD%20View>

Floodplains follow waterways, and in Champaign County they are most expansive around the Sangamon River, Kaskaskia River, Embarras River, Middle Fork, and Salt Fork. Large portions exist where the Salt Fork branches into the Spoon River, and Flattville Drainage Ditch, crossing Stanton, Compromise, and Rantoul townships. Because of the potential hazards with floodplain encroachment, IDOT requires all projects involving federal and/or state funding to evaluate projects that cross floodplains.

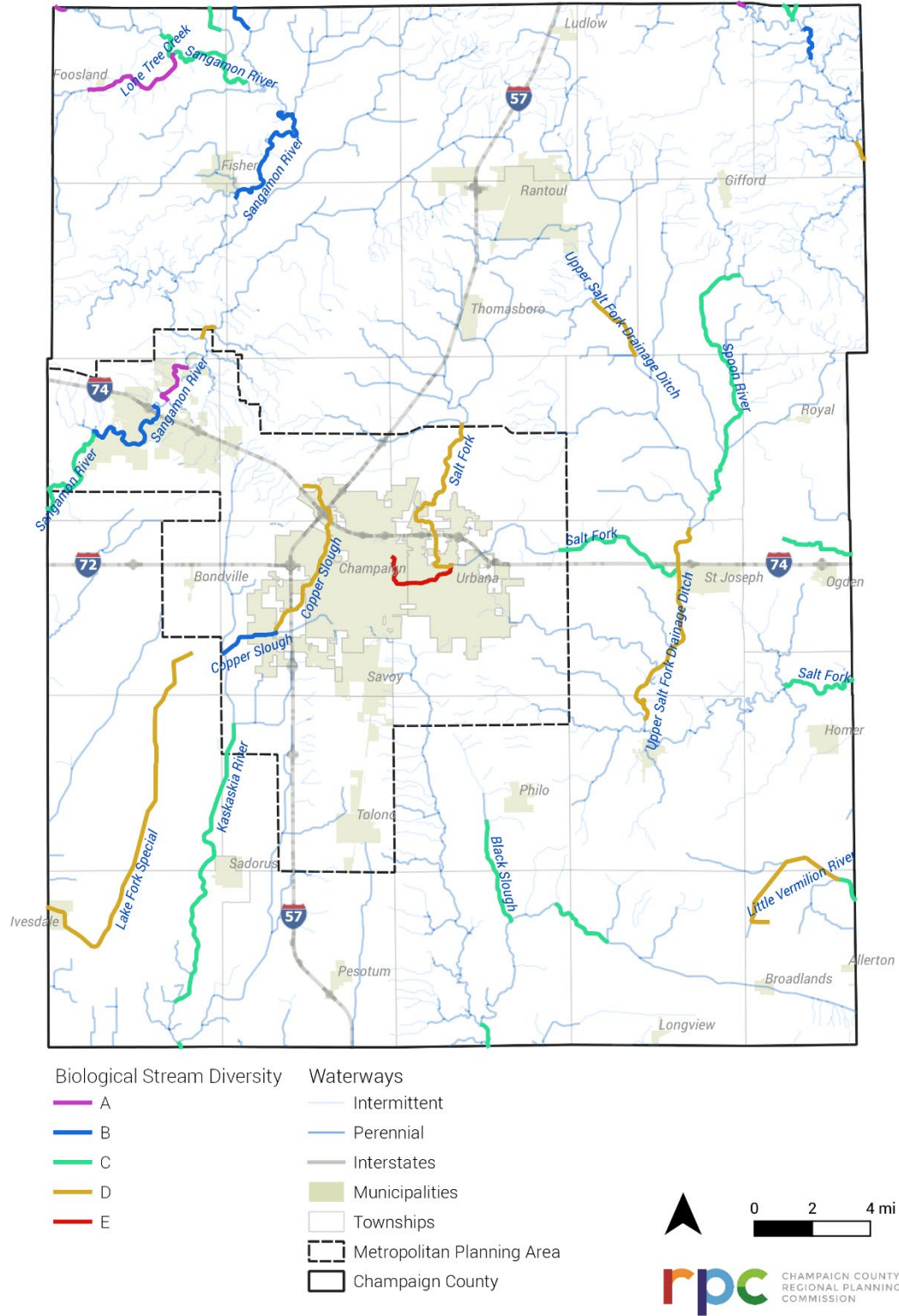
Flooding has historically been a serious issue for Illinois, and with the current and long-term effects of climate change, severity of flooding can be expected to increase. In 1993, significant rainfall in June and July in the Upper Midwest, combined with wet soil conditions, caused severe flooding in the Upper Mississippi River basin constituting one of the worst natural disasters to hit the Midwest. Across the Midwest, 50 deaths were recorded, over 1,000 levees toppled or failed, and damages totaled \$15 billion.⁹ 2008 and 2009 also saw record precipitation, leading to widespread flooding and damage across the entire Midwest.¹⁰ Most of the damage associated with flooding occurs to property and crops. Urban areas are particularly susceptible to flooding because of the expanse of impervious pavement and aging drainage infrastructure. As a result, even properties not within the floodplains face threats from flood events in urban areas. Between 2007 and 2014 over 90 percent of urban flooding damage claims in Illinois were outside the mapped floodplain, and in that period, damages exceeded \$2 billion.¹¹ In Champaign County there have been 1,000-2,499 urban flooding claims between 2007-2014. This is one of the highest rates in the state, outside of the Chicago-land area.¹¹

4.3 Biologically Diverse Streams

In Champaign County 31 stream segments are considered Biologically Diverse Streams (BDS) (Figure 4-2). This designation is part of the Biologically Significant Stream designation developed by the Illinois Department of Natural Resources (IDNR) and denotes streams of uniquely high biodiversity.¹² Implementing the Illinois Wildlife Action plan for conserving biodiversity across the state includes the BDS designation as a major data component.¹² No specific protections come along with BDS, but when developing project alternatives, protection of these streams should be prioritized.

The BDS designation uses fish, macroinvertebrate (including sensitive populations), mussel, crayfish, and threatened and endangered species data.¹³ The primary variable of a BDS is species richness, or the number of different species represented in an ecological community.¹⁴ Streams are graded A-E in terms of individual diversity scores and the distribution of diversity scores found throughout an area, with A being the highest diversity grade possible. The following describes the grading breakdown of the 31 designated BDSs found in the County - A:4, B:5, C:13, D:8, E:1. These streams are located throughout the County, with the northwest portion of the County having the highest rated stream segments, along the Sangamon River. The only E-graded stream segment is the Boneyard Creek.

Figure 4-2: Biologically Diverse Streams in Champaign County



Source: IDNR. Biological Stream Ratings (2020). Retrieved from <https://www2.illinois.gov/dnr/conservation/BiologicalStreamratings/Pages/default.aspx>

4.4 Wetlands

Wetlands are defined by IDOT as those areas that are “inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”¹⁵ This definition includes restored or created wetlands resulting from mitigation or planned construction projects even when all three parameters (hydric soils, inundation or saturation by surface or groundwater, and prevalence of hydrophytic vegetation) are not present.¹⁵ Wetlands provide a host of ecological services that have social, economic, and ecological benefits including flood control, nutrient cycling, pollution and contaminant filtering, wildlife habitat, groundwater discharge and recharge, and recreation.¹⁴ While not all wetlands perform all services, or perform all services equally well, they are among the most productive and important ecosystems in the County. Their continued function is dependent upon strong wetland health and planning efforts to reduce wetland encroachment and minimize impacts from transportation projects.

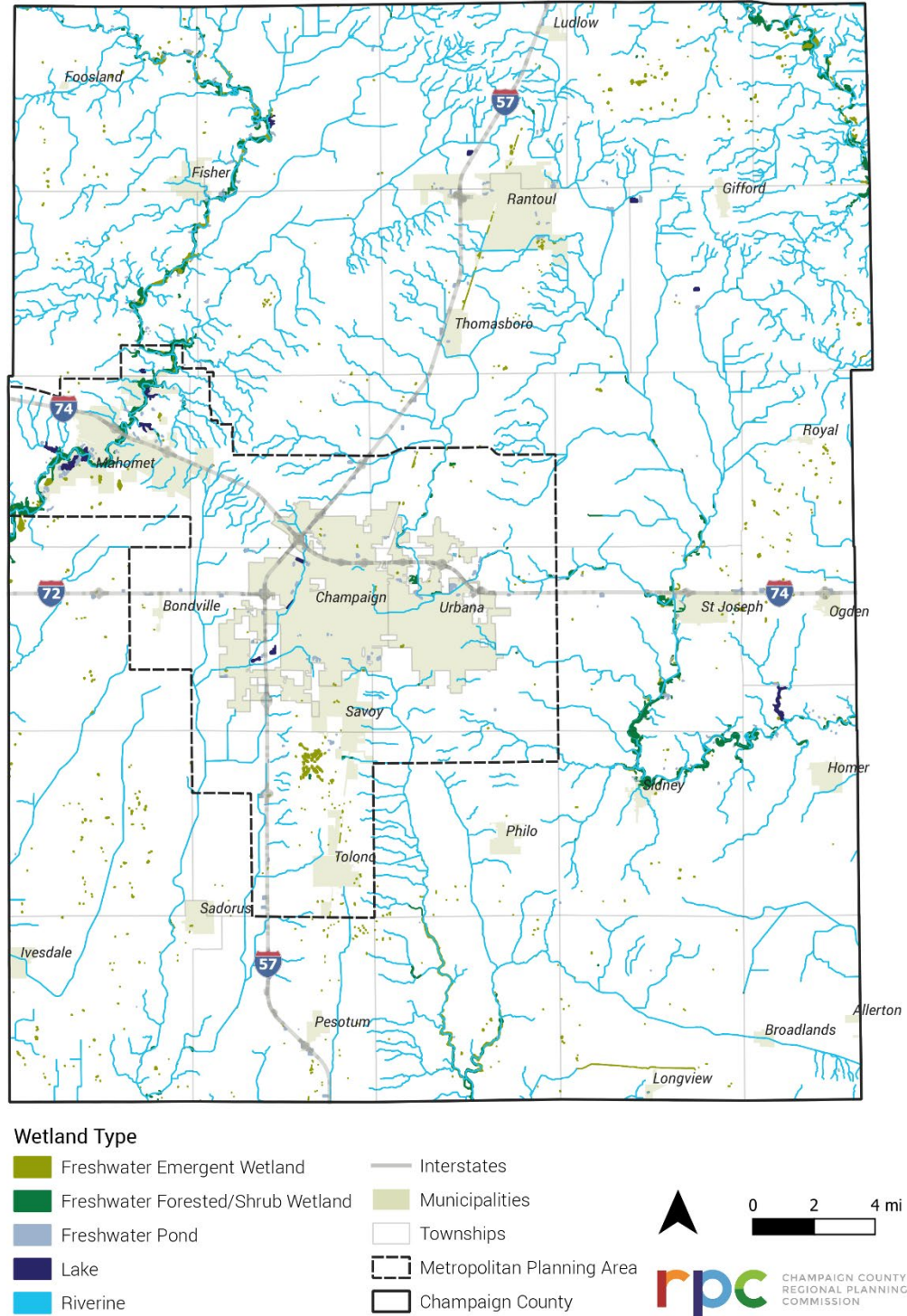
Wetlands used to be abundant in Illinois and Champaign County, specifically. However, Illinois has experienced a 90 percent loss in wetlands due to agriculture and development since the 1800s.¹⁶ In Champaign County, 40-60 percent have been lost, and the remaining wetlands have been seriously fragmented.¹⁷ Over half of the County’s wetlands now cover less than an acre in size.¹⁴ Table 4-1 lists the wetland types within the County. The majority of the wetlands are riverine (43 percent) and freshwater forested shrub habitats (31 percent). Freshwater emergent, freshwater pond, and lake habitats make up the remaining percentages. Sand and gravel mining operations have contributed significantly to the freshwater lakes of the County, and continues to increase those acres, such as Sunset Lake, a former quarry that is now the largest lake in Champaign County. Most of these wetlands can be found along the major rivers and natural areas around the County (Figure 4-3).

Table 4-1: Wetland Types in Champaign County

Wetland Type	Acres	Percent Coverage	Description	Local Examples
Riverine	4,653.76	43%	River or stream channel	<ul style="list-style-type: none"> • Embarras River • Boneyard Creek • Sangamon River
Freshwater Forested and Shrub	3,364.42	31%	Woody wetlands; forested swamp, shrub bog	<ul style="list-style-type: none"> • Barber Park • Along Sangamon River • Along Salt Fork near Deers and Sydney
Freshwater Emergent	1,626.75	15%	Herbaceous marsh, fen, swale, or wet meadow	<ul style="list-style-type: none"> • Willard Airport • South of River Bend Forest Preserve
Freshwater Pond	728.59	7%	Pond	<ul style="list-style-type: none"> • Crystal Lake Park • Several around Lake of the Woods Park
Lake	382.02	4%	Lake or reservoir basin	<ul style="list-style-type: none"> • Homer Lake • Sunset Lake
Total	10,755.54	100%		

Source: National Wetlands Inventory (2020).

Figure 4-3: Wetland Types in Champaign County



Source: U.S. Fish & Wildlife Service. National Wetland Inventory (2020). Retrieved from <https://www.fws.gov/wetlands/index.html>

4.5 Watersheds

Watersheds are the area of land that drains to one stream, lake or river.¹⁸ They affect the water quality of the body of water they surround, as well as provide a host of ecosystem services including:¹⁹ nutrient cycling, carbon storage, erosion/sedimentation control, water storage and filtration, flood control, timber and food resources, and recreational opportunities. Watersheds follow the topography from highest ridgeline of a waterbody, to the lowest point of land where water from that body flows to. Where water flows in two different directions is considered the boundary of a watershed.²⁰ Watersheds are identified by their hydrological unit code (HUC) consisting of two to twelve digits based on six levels of classification, devised by the U.S. Geological Survey (Table 4-2). These levels are based on surface hydrological features and subdividing areas in successively smaller watersheds (smaller HUCs describe a larger area).²⁰ The HUC describes the way smaller watersheds (12-digit HUCs) drain areas that together form larger watersheds (8-digit HUCs).¹⁸

Table 4-2: HUC Classification System developed by USGS

Hydrologic Unit Codes	Classification
2-digit HUC	1. Region
4-digit HUC	2. Subregion
6-digit HUC	3. Accounting Unit
8-digit HUC	4. Cataloguing Unit (Subbasin)
10-digit HUC	5. Watershed
12-digit HUC	6. Subwatershed

Source: NRCS. *Hydrologic Unit Codes* (2007).

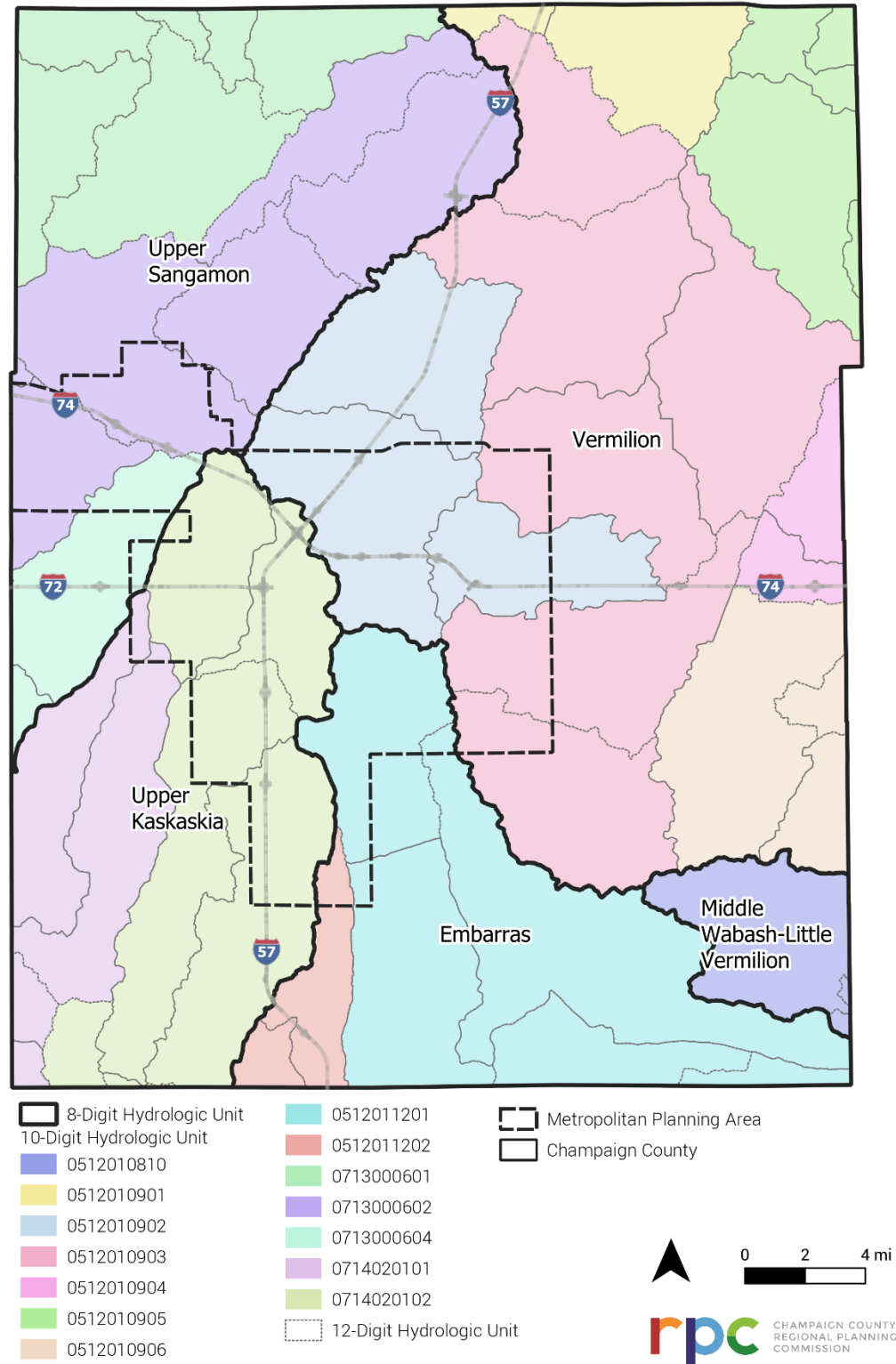
Management of watersheds tends to focus on the eight-digit HUC level (HUC 8). This level maps subbasins of medium-sized river basins and has been completed and certified for the entire United States.^{21, 18} Generally, watersheds are named for the waterbody into which they drain. Five major watersheds (HUC 8) are found within Champaign County (Figure 4-4):

- Upper Sangamon³: The Upper Sangamon watershed drains approximately 925 sq. miles, and crosses seven counties. Located in the northwest portion of the County, it supplies the man-made Lake Decatur reservoir, which provides water to the entire city of Decatur. Major issues with siltation and excessive nitrate levels have occurred, mainly owing to agricultural runoff. The major waterway it drains to is the Sangamon River.
- Upper Kaskaskia³: The Upper Kaskaskia watershed drains approximately 1568 sq. miles, and crosses 11 counties. Located in the southwest portion of the County, 75 percent of the land is in agriculture, 10 percent is forested land, and developed land, grassland, and open water/wetland make up the remaining 15 percent. Agricultural runoff contributes to a large portion of this watershed's impairments, but western expansion of the City of Champaign has increased erosion, volume of storm water runoff, stream flow changes, loss of wildlife habitat, and degraded overall water quality. The major waterway it drains to is the upper

portion of the Kaskaskia River, and has two major impoundments in Lake Shelbyville and Lake Carlyle.

- Vermilion-Wabash: The Vermilion watershed drains approximately 1,300 sq. miles, and crosses five counties.²² Located in the central/eastern part of Champaign County, this watershed accounts for the largest coverage of any watershed in the County. Most of the land within the watershed is in agricultural use, which contributes to impairments through nitrates and pesticide contamination.³ The major waterways it drains are the Middle Fork and Salt Fork of the Vermilion River. The Middle Fork flows southeast to join the Vermilion River toward Danville and is the only river in Illinois designated as a National Wild and Scenic River by the National Park Service, running 58 miles.³ The Salt Fork drains vast upland marshes between Urbana and Rantoul and has been extended by drainage ditches to run 38 miles long.³
- Embarras: The Embarras watershed drains approximately 2,440 sq. miles, and crosses 12 counties.²³ Located in the south-central portion of the County, agriculture is the major land use within the watershed, with roughly 10 percent of watershed being forested.³ The major waterway it drains is the Embarras River. The man-made Lake Charleston is the only major impoundment of the Embarras and the river's sand and gravel bottom provides excellent habitat for rare aquatic species.³
- Middle Wabash-Little Vermilion³: The Middle Wabash-Little Vermilion watershed covers 10 counties, including some in Indiana. This watershed has the smallest coverage within Champaign County, and agriculture is the main land use. Major waterways drained by this watershed are the Middle Wabash River and Little Vermilion River.

Figure 4-4: Watersheds in Champaign County



Source: USGS. National Hydrography Dataset (2020). Retrieved from <https://viewer.nationalmap.gov/basic/?basemap=b1&category=nhd&title=NHD%20View>

4.6 Water quality

In accordance with Sections 305(b) and 303(d) of the Federal Clean Water Act (CWA), the Illinois EPA (IEPA) must report to the USEPA on the quality of Illinois surface water (e.g., lakes, streams, Lake Michigan, wetlands) and groundwater resources [Section 305(b)] and provide a list of those waters where their designated uses are deemed "impaired" [Section 303(d)].²⁴ Water quality information is based on the IEPA's biannual Illinois Integrated Water Quality Report which includes descriptions of Illinois's waterways, the ability of waterways to support designated uses, causes and sources of poor (impaired) water quality, and priority rankings for strategies to meet water quality standards.²⁴

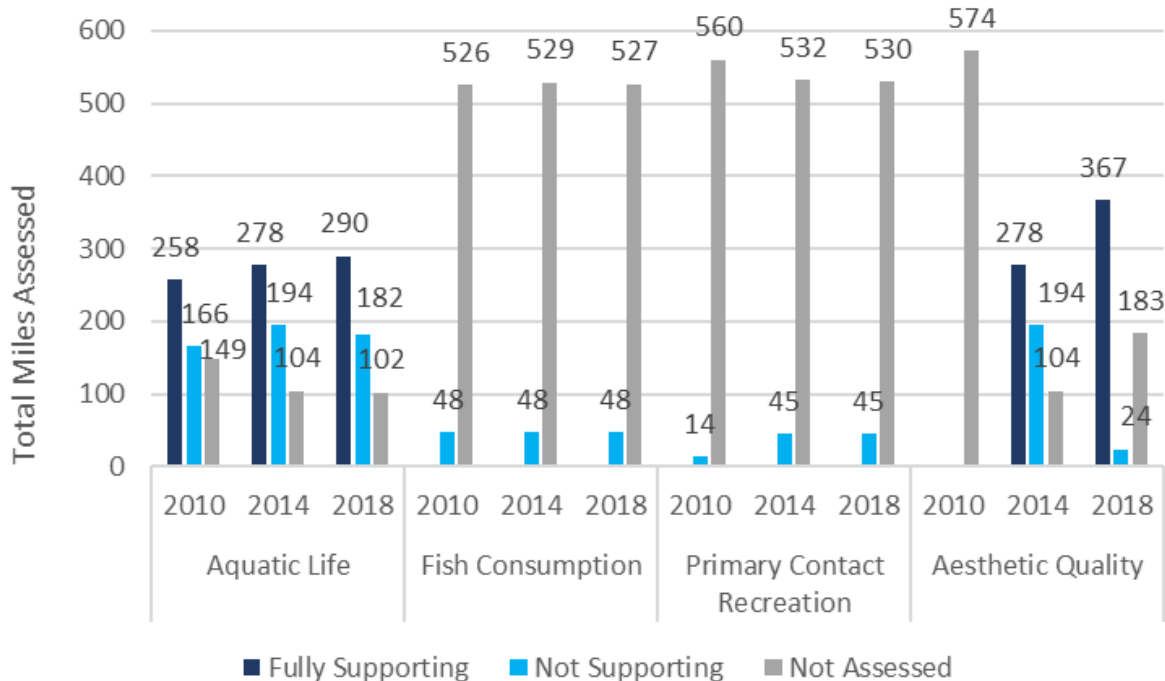
The four designated uses for which Champaign County waterways are evaluated are: aquatic life, fish consumption, primary contact (recreation), and aesthetic quality.²⁵ Designated uses in each segment are assessed as either "Fully Supporting" or "Not Supporting" (Appendix, Table A-2).²⁵ IEPA assesses and monitors water quality from over 40 stations located in Champaign County. Due to limited resources, the IEPA typically assesses approximately 15 percent of Illinois stream miles for at least one designated use during every reporting cycle.²⁵

Figure 4-5 shows the County waterways' assessments for the four designated uses in 2010, 2014, and 2018. Total miles assessed for aquatic life have increased eight percent between 2010 and 2018. The percentage of assessed miles fully supporting or not supportive aquatic life remained relatively stable during the time period.

Only a small portion of the County waterways have been assessed for fish consumption and primary contact (recreation). Of the miles assessed for fish consumption and primary contact (recreation), none have supported these uses. This means individual samples taken in specific locations showed contaminant levels above the state standards; mercury and polychlorinated biphenyls (PCBs) for fish consumption, and fecal coliform for primary contact (recreation).

Aesthetic quality was only assessed in 2014 and 2018. The number of miles assessed and the percentages of fully supporting and not supporting miles changed significantly between those two data points. More data is needed to identify trends in aesthetic quality.

Figure 4-5: County Waterways, Designated Use Assessments, 2010-2018



Source: IEPA, Integrated Water Quality Report and Section 303(d) List – 2018 (2018).

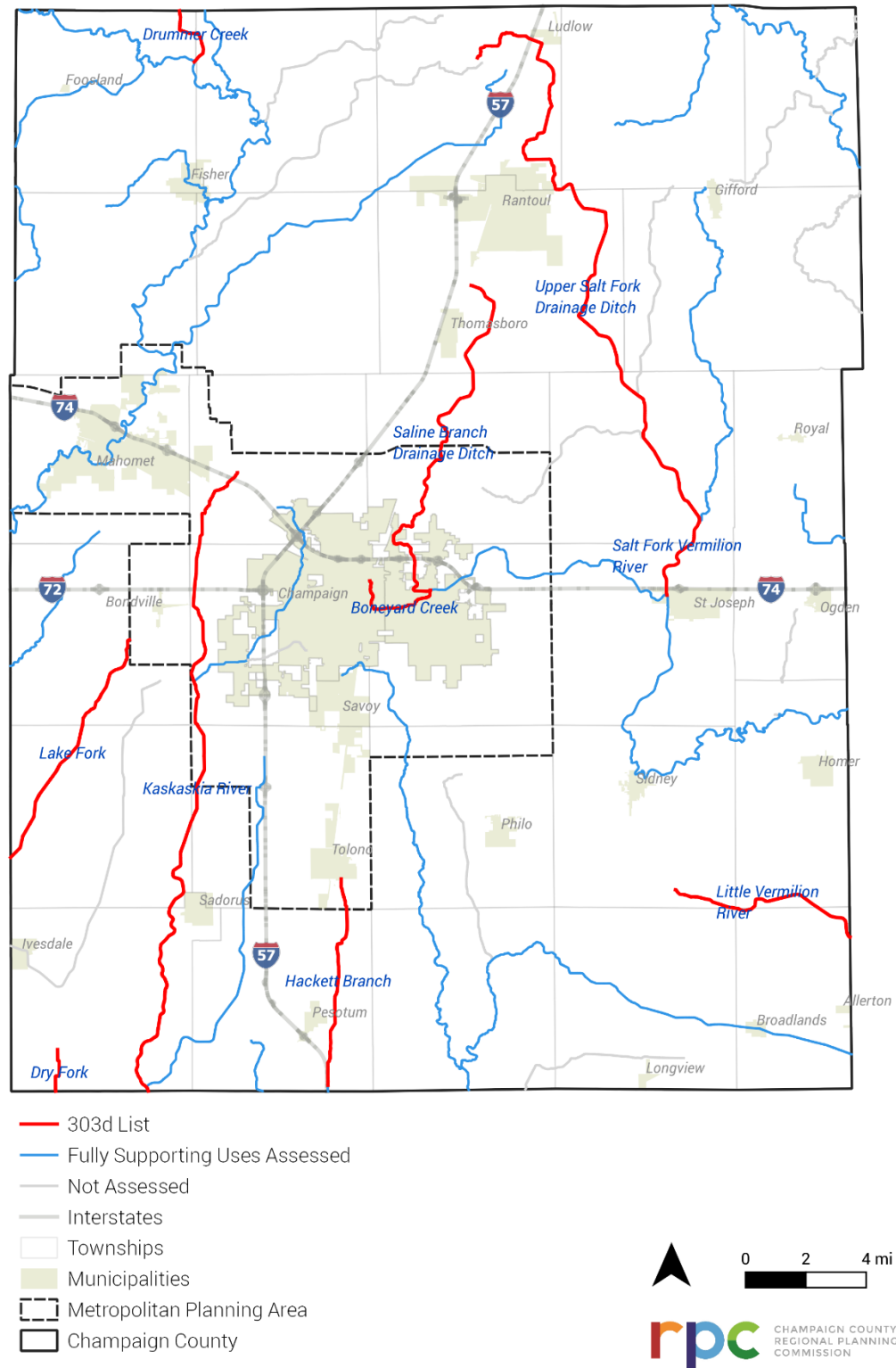
Stream segments specifically identified as not supporting any of the four designated uses are added on the 303(d) List. Waters on the 303(d) List are referred to as “impaired waters.” Table 4-3 shows the list of impaired waters in Champaign County, which only account for those assessed by the IEPA during the 2018 cycle. According to the Illinois EPA’s 2018 Integrated Water Quality Report, of the roughly 1,309 miles of intermittent and perennial waterways within the County, 575 miles of perennial waterways appear in the biannual water quality report. Of those assessed, 148 miles have been listed on the IEPA 303(d) List, which identifies waters that do not meet applicable water quality standards for any one of their designated uses.²⁵ Figure 4-6 shows the relative locations of waterways and their assessment status (impaired, fully supporting uses assessed, or not assessed).

Table 4-3: Impaired waters of Champaign County (2018)

Water Name	Assessment ID (Segment)	Designated Use	Cause	Source of Impairment
Upper Salt Fork Drainage Ditch	IL_BPJG-01	1) Aquatic Life	1) Oxygen, Dissolved, pH, Phosphorus (Total)	Channelization, Municipal Point Source Discharges, Crop Production
		2) Aesthetic Quality	2) Phosphorus (Total)	Channelization, Municipal Point Source Discharges, Crop Production
Salt Fork Vermilion River	IL_BPJ-07	1) Aquatic Life	1) Chloride, Oxygen, Dissolved	Channelization
		2) Primary Contact Recreation	2) Fecal Coliform	Channelization
Saline Branch Drainage Ditch	IL_BPJC-08	Aquatic Life	pH	Channelization
Little Vermilion River	IL_BO-08	Aquatic Life	Oxygen, Dissolved	Channelization, Habitat Modification
Lake Fork	IL_OW-03	Fish Consumption	Mercury, Polychlorinated biphenyls	Channelization, Atmospheric Deposition – Toxics
Dry Fork	IL_OZZW	Aquatic Life	Cause Unknown	Source Unknown
Drummer Creek	IL_EY-01	Aquatic Life	Oxygen, Dissolved	Channelization
Boneyard Creek	IL_BPJCA	Aquatic Life	Oxygen, Dissolved, pH, Phosphorus (Total), Copper	Channelization, Urban Runoff/Storm Sewers
Hackett Branch	IL_BERB-TO-C1 IL_BERB-TO-C1A	Aquatic Life	Oxygen, Dissolved, Phosphorus (Total)	Municipal Point Source Discharges, Urban Runoff/Storm Sewers, Crop Production
Kaskaskia River	IL_O-31	1) Aquatic Life	1) Oxygen, Dissolved, pH	Channelization
		2) Fish Consumption	2) Polychlorinated biphenyls	Channelization
Kaskaskia River	IL_O-35	1) Aquatic Life	1) Oxygen, Dissolved, pH	Channelization
		2) Fish Consumption	2) Polychlorinated biphenyls	
Kaskaskia River	IL_O-37	Fish Consumption	Polychlorinated biphenyls	Channelization

Source: IEPA, Integrated Water Quality Report and Section 303(d) List – 2018

Figure 4-6: Water Quality Assessment in 2018



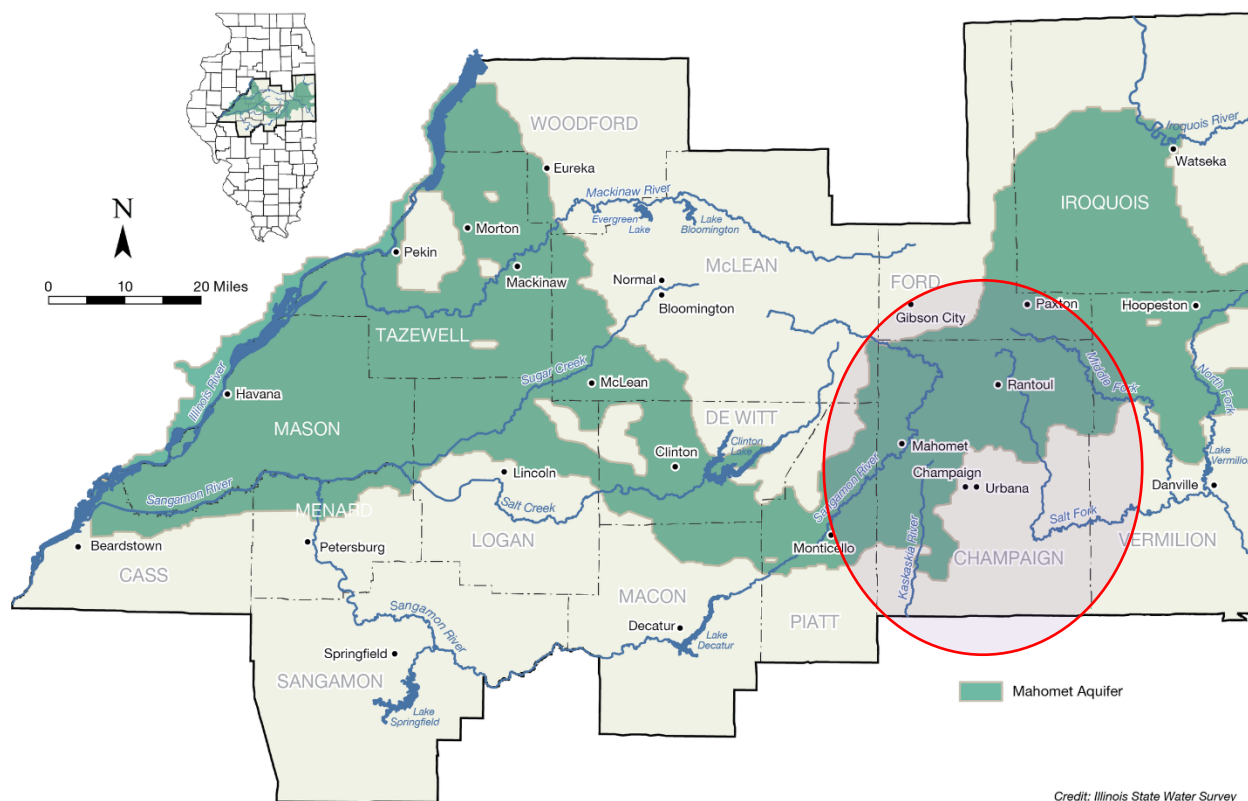
Source: IEPA, Integrated Water Quality Report and Section 303(d) List – 2018 (2018). Retrieved from <https://www2.illinois.gov/epa/topics/water-quality/watershed-management/tmdls/Pages/303d-list.aspx>

4.7 Mahomet Aquifer

At 3,700 sq. miles, the Mahomet Aquifer is one of the largest sand/gravel aquifers in the state (Figure 4-7).³ The aquifer supplies 509,000 people across 14 counties with clean drinking water and is directly fed by the Sangamon River.³ As a Sole Source Aquifer, it supplies at least 50 percent of the drinking water for its service area, and there are no reasonably available alternative drinking water sources should the aquifer become contaminated.²⁶ The quality of the Sangamon River and those waterways connected to the Sangamon all have an influence on what ends up in the Mahomet Aquifer. Thus, Champaign County streams impact the drinking water for most of the County.

Mainly used for municipal and industrial withdrawals, the Mahomet Aquifer has a 600 million gallons per day (mgd) available water supply. The average withdrawals from the Mahomet Aquifer come in at just over 200 mgd.²⁷ Current use is still below the available water supply, but from 1990-2010 water demand has increased by 35 percent and users of the Aquifer has increased 40 percent.³ Planners should be aware of the increasing stress put on the Aquifer and plan projects that minimize water usage and potential contaminants from transportation projects entering both streams and aquifer wells.

Figure 4-7: Mahomet Aquifer and Champaign County



Transportation systems and water quality are inextricably linked, with nearly four million miles of road in the United States crossing and interacting with surface water systems directly and indirectly.²⁸ Champaign County accounts for over 2,600 miles of roadways, the majority of which are non-urban, meaning they run adjacent to open drainage systems, such as ditches, that feed directly to surface water sources.²⁹ Because of this proximity to open drainage systems, transportation related pollutants (Table 4-4) find their way directly into local ponds, streams, rivers, lakes, and aquifers, ultimately entering into a vast network of waterways, impacting both local and downstream communities' health, environment, and economy.³⁰

Direct impacts of the transportation system on water quality include 1) road construction and maintenance, 2) pollutant leaks like exhaust, oil, dirt, and deicing chemicals, 3) leaking underground storage tanks (see REF Chapter 7.2), and 4) oil and chemical spills.³¹ Indirect impacts include 1) atmospheric deposition of air pollutants from vehicles and machinery, especially Average Daily Traffic, and 2) increased urban and suburban sprawl.²⁹ The vast interstate system network, encouraging suburban sprawl, inhibits the natural drainage and filtering function of ecosystems like wetlands. Sprawl also necessarily fills and drains these ecosystems for space, removing plant buffers, trees, and shrubs that store and filter water pollutants, while increasing driving distances that contribute to air and water pollution.²⁹ Transportation facilities, such as vehicle storage and parking, currently account for more paved land area in the U.S. than housing. The impervious nature of most roadways, paths, and parking surfaces allows a faster rate of runoff, lower groundwater recharge, and increased erosion.²⁹

Table 4-4: Common sources of transportation pollutants

Pollutant	Potential Sources
Gross Solids, Sediment, and Floatables	Streets, driveways, roads, construction activities, atmospheric deposition, drainage channel erosion
Pesticides and Herbicides	Roadsides, utility right-of-ways, commercial and industrial landscaped areas, soil wash-off
Metals	Automobiles, bridges, atmospheric deposition, industrial areas, soil erosion, corroding metal surfaces, combustion processes
Oil and Grease/ Organics Associated with Petroleum	Roads, driveways, parking lots, vehicle maintenance areas, gas stations, illicit dumping to storm drains, automobile emissions
Nitrogen, Phosphorus, and Other Nutrients	Landscape fertilizers, atmospheric deposition, automobile exhaust, soil erosion, detergents

Source: U.S. EPA 1999 - Preliminary Data Summary of Urban Storm Water BMPs

These pollutants can have serious impacts on both the environment and public health. Aquatic sediment could become polluted, habitats destroyed, and food webs disrupted killing off

ecologically significant species, and in many cases can result in waterways completely devoid of life, both plant and animal. Humans could then eat these contaminated fish, leading to serious health issues, such as developmental issues in children stemming from polychlorinated biphenyls (PCBs). Conservation and mitigation efforts, such as those described in Chapter 9: Goals and Objectives, can help reduce the impact the transportation system has on waterways. Other local plans such as the Illinois Nutrient Loss Reduction Strategy address nutrient loads in the state, goals of nutrient load reductions from non-point source and point source pollution, and practices that can be implemented to reach the goals.

References

¹ USGS. *National Hydrography Dataset (2020)*. Retrieved from <https://viewer.nationalmap.gov/basic/?basemap=b1&category=nhd&title=NHD%20View>

² EPA. *Water: Rivers and Streams (Oct 2013)*. Retrieved from <https://archive.epa.gov/water/archive/web/html/streams.html>

³ CCRPC. *Champaign Urbana Urbanized Area Transportation Study. Land Resource Management Plan, Chapter 10: Natural Resources. (April 2010)*

⁴ IDNR. *Division of Fisheries 2017-2022 Strategic Plan for the Conservation of Illinois Fisheries Resources (2017)*. Retrieved from <https://www.ifishillinois.org/programs/StrategicPlan2017.pdf>

⁵ Walter K. Dodds, Matt R. Whiles, in *Freshwater Ecology (Third Edition)*, 2020. Retrieved from <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/channelization#:~:text=This%20channelization%20causes%20the%20water,to%20channelize%20their%20stream%20banks.>

⁶ V3 Companies, LTD. *Embarras River Watershed Management Plan (Oct. 2011)*. Retrieved from https://www2.illinois.gov/epa/topics/water-quality/watershed-management/watershed-based-planning/Documents/EmbarrasWMP_final_version110111.pdf

⁷ IDOT. *Bureau of Design and Environment: Chapter 26-7 Floodplain Encroachments (Sept. 2010)*. Retrieved from <http://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2026%20Special%20Environmental%20Analyses.pdf>

⁸ IDNR. *Floodplain Management in Illinois Quick Guide (2001)*. Retrieved from <http://dnr.state.il.us/waterresources>

⁹ NOAA. *Destructive Water: Water-Caused Natural Disasters - Their Abatement and Control (June 1996)*. Retrieved from https://www.nwrfc.noaa.gov/floods/papers/oh_2/great.htm

¹⁰ USGS. *Flooding in the United States Midwest, 2008 (2008)*. Retrieved from <https://pubs.usgs.gov/pp/1775/pdf/pp1775.pdf>

¹¹ IDNR. *Report for the Urban Flooding Awareness Act (2015)*. Retrieved from https://www2.illinois.gov/dnr/WaterResources/Documents/Final_UFAA_Report.pdf

¹² IDNR. *Integrating Multiple Taxa in a Biological Stream Rating System* (2007). Retrieved from <https://www2.illinois.gov/dnr/conservation/BiologicalStreamratings/Documents/StreamRatingReportSept2008.pdf>

¹³ IDNR. *Biological Stream Ratings FAQ* (2020). Retrieved from https://www2.illinois.gov/dnr/conservation/BiologicalStreamratings/Documents/faqs_revised.pdf

¹⁴ Colwell, Robert K. (2009). "Biodiversity: Concepts, Patterns and Measurement". In Simon A. Levin (ed.). *The Princeton Guide to Ecology*. Princeton: Princeton University Press. pp. 257–263

¹⁵ IDOT. *BDE Manuel, Chapter 26: Special Environmental Analysis* (2019). Retrieved from <http://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2026%20Special%20Environmental%20Analyses.pdf>

¹⁶ IDNR. *Illinois Wildlife Action Plan: Wetlands Campaign* (n.d.). Retrieved from <https://idnr.maps.arcgis.com/apps/MapJournal/index.html?appid=cbddf6b4a2574a569d28a268b9909823>

¹⁷ Champaign County Planning Commission. *Active Choices: Champaign County greenways & trails plan, Active Choices: Champaign County greenways & trails plan* (2014). Urbana, IL.

¹⁸ EPA. *Watershed Index Online* (2020). Retrieved from <https://www.epa.gov/waterdata/watershed-index-online>

¹⁹ EPA. *Healthy Watersheds Protection: Benefits of Healthy Watersheds* (March, 2018). Retrieved from <https://www.epa.gov/hwp/benefits-healthy-watersheds#:~:text=Healthy%20watersheds%20provide%20many%20ecosystem,recreation%2C%20as%20well%20as%20reduced>

²⁰ NRCS. *Watersheds, Hydrologic Units, Hydrologic Unit Codes, Watershed Approach, and Rapid Watershed Assessments* (June, 2007). Retrieved from https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1042207.pdf

²¹ EnviroAtlas. *Hydrologic Unit Codes: HUC 4, HUC 8, and HUC 12* (n.d.) Retrieved from https://www.google.com/search?q=enviroatlas+hydrologic+unit+codes&rlz=1C1CHBF_enUS888US888&oq=enviroatlas+hydrologic+unit+codes&aqs=chrome..69i57j116l5j0j7&sourceid=chrome&ie=UTF-8

²² ILRDSS. *Watersheds – Vermilion-Wabash Basin* (2018). Retrieved from <https://ilrdss.isws.illinois.edu/links/watersheds.asp?ws=141>

²³ ILDRSS. *Watersheds – Embarras* (2018). Retrieved from <https://ilrdss.isws.illinois.edu/links/watersheds.asp?ws=140>

²⁴ IEPA, *Water Resource Assessments*. Retrieved from <https://www2.illinois.gov/epa/topics/water-quality/watershed-management/resource-assessments/Pages/default.aspx>.

²⁵ IEPA, *Integrated Water Quality Report and Section 303(d) List – 2018*. (2018).

²⁶ EPA. *Overview of the Drinking Water Sole Source Aquifer Program* (Oct 2018). Retrieved from https://www.epa.gov/dwssa/overview-drinking-water-sole-source-aquifer-program#What_Is_SSA

²⁷ CCRPC. *Regional Water Supply Framework* (2016). Retrieved from https://ccrpc.org/wp-content/uploads/2016/11/Regional-Water-Supply-Framework_2016_FINAL_1108.pdf

²⁸ National Academies of Sciences, Engineering, and Medicine 2006. *Evaluation of Best Management Practices for Highway Runoff Control*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/23211>.

²⁹ CCRPC, Champaign Urbana Urbanized Area Transportation Study. *Land Resource Management Plan, Chapter 9: Transportation*. (2010)

³⁰ National Academies of Sciences, Engineering, and Medicine 2006. *Evaluation of Best Management Practices for Highway Runoff Control*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/23211>.

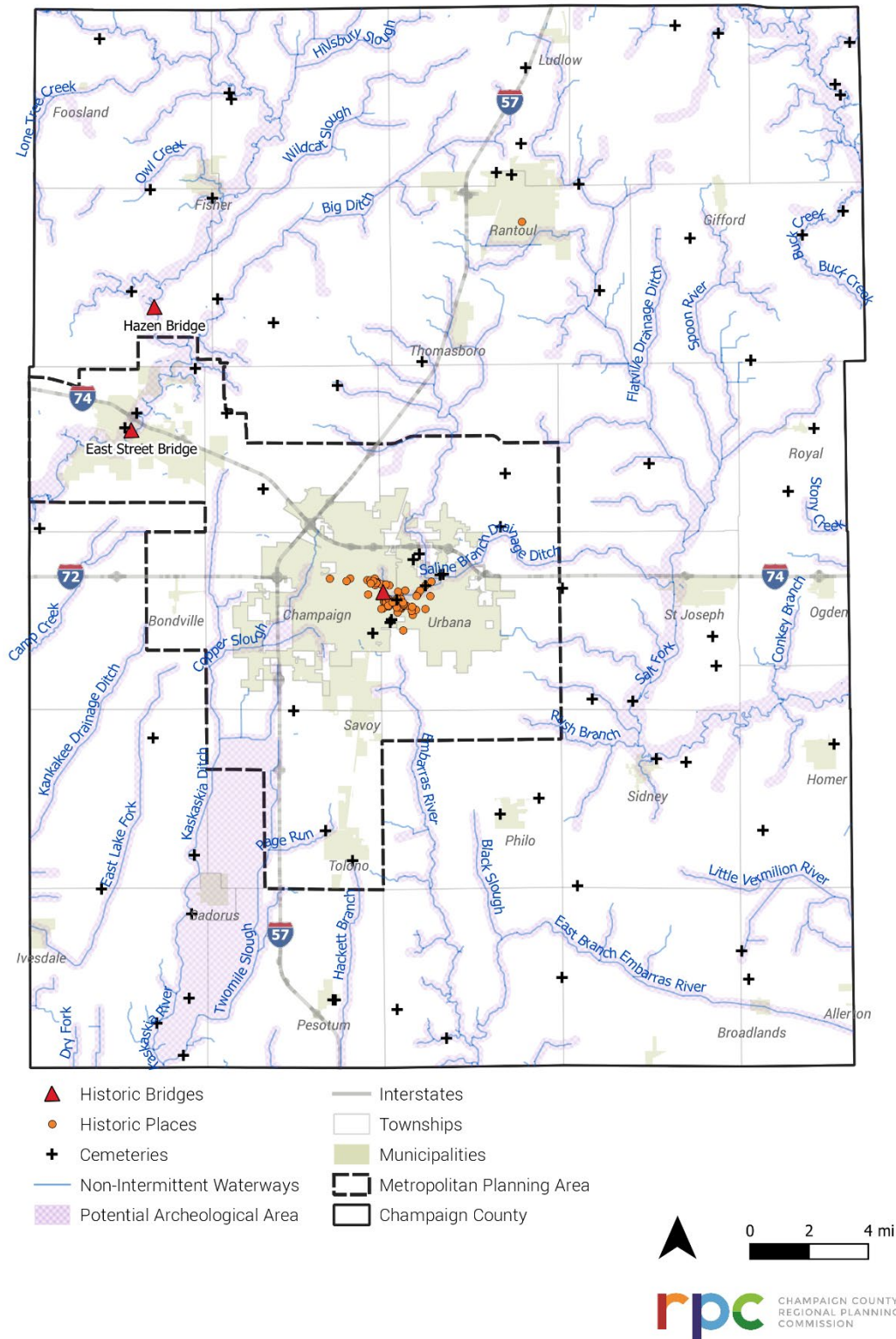
³¹ Bae, C. Trumbull, N. *Transportation and Water Pollution* (Jan 2000). Retrieved from [http://courses.washington.edu/gmforum/topics/trans_water/trans_water.htm#:~:text=According%20to%20the%20EPA%2C%20transportation,2\)%20pollutants%20such%20as%20vehicle](http://courses.washington.edu/gmforum/topics/trans_water/trans_water.htm#:~:text=According%20to%20the%20EPA%2C%20transportation,2)%20pollutants%20such%20as%20vehicle)

Chapter 5: Cultural Resources

Defined by the USDA Natural Resources Conservation Service, cultural resources are evidence of past human activity.¹ Cultural resources contain links to our past and provide an understanding of the prehistory and early history of the area. These resources include sites, structures, buildings, or areas. Cultural resources are classified in this report as historic places listed under the National Register of Historic Places (NRHP), historic bridges listed in HistoricBridges.org, archaeological areas designated by the Illinois Historic Preservation Agency (IHPA), and cemeteries (Figure 5-1). Site investigations are often necessary to determine locations, and certain regulations protecting these sites require consideration of the impacts to such locations, preserving the past to inform the future.

Both Champaign and Urbana are considered Certified Local Governments (CLGs), a program established by the National Historic Preservation Act Amendments of 1980.² This certification allows these cities to play an active role in NRHP decisions, such as being the first to review any potential listings and reviewing proposed alterations to the exterior of local landmarks in order to protect their architectural and historic integrity. Both Champaign and Urbana have a historic preservation ordinance, a preservation review commission, and an active local survey program to identify historic resources and provide for public participation.² Preservation rules for the City of Champaign can be found in [Article IX](#) of Champaign's Code of Ordinances. For Urbana, the [Historic Preservation Plan](#) can be found as an amendment to the Comprehensive Plan of the City of Urbana.

Figure 5-1: Cultural Resources within Champaign County



Source: *HistoricBridges.org, National Park Service, Graveyards of Illinois, and CCRPC*

5.1 Historic Bridges

Three historic bridges exist within the County, only two of which are listed on IDOT's resource for historic bridges, historicbridges.org. Both of these are located in the Village of Mahomet.³ The third historic bridge is listed on the NRHP but not on the IDOT resource.

- Hazen Bridge (Figure 5-2)
- East Street Bridge (Figure 5-3)
- Old Stone Arch Bridge (Figure 5-4)

5.1.1 The Hazen Bridge

Built in 1893 by the Seevers Manufacturing Company, this bridge crosses the Sangamon River and is unique and highly significant for its substructure consisting of cast iron bents. This bridge has been closed to vehicular traffic. This bridge is listed on the NRHP; therefore, Section 106 requirements apply to any project potentially affecting it.

Features:

- Location: CR-2600 North (TR-85) Over Sangamon River
- Structure Type: Metal 6 Panel Pin-Connected Pratt Through Truss, Fixed and Approach Spans: Metal Stringer (Multi-Beam), Fixed
- Structure Length: 359 Ft. Main Span: 120 Ft. Roadway: 13.5 Ft. Main Spans: 1
- Historic Significance Rating (0-10):
 - Local: 9
 - National: 9
- Listed on National Register of Historic Places

Figure 5-2: Hazen Bridge



Source: HistoricBridges.org (2020)

5.1.2 The East Street Bridge

Built in 1921 by the Decatur Bridge Company, this bridge also crosses the Sangamon River, just south of I-74 W. This two span Pratt truss has been closed to vehicular traffic but remains open to pedestrians.

Features:

- Location: East Street (Mahomet Village Bike Trail) Over Sangamon River in Mahomet
- Structure Type: Metal 7 Panel Pin-Connected Pratt Through Truss, Fixed
- Structure Length: 250 ft. Main Span: 125 ft. Roadway: 16 ft. Main Spans: 2
- Historic Significance Rating (0-10):
 - Local: 7
 - National: 6
- NOT listed on National Register of Historic Places

Figure 5-3: East Street Bridge



Source: *HistoricBridges.org* (2020)

5.1.2 The Old Stone Arch Bridge

Posted to the NRHP in 1981, this bridge crosses the Boneyard Creek in Scott Park, in Champaign. A replica of the original, built in 1861, this bridge was rebuilt in 1984 and marks where the original Stone Arch Bridge allowed horse-drawn travel over the Boneyard.⁴ In 2010 it was integrated into

the Boneyard Creek Second Street Basin project to control flooding in the area. This bridge is not listed on IDOT's historic bridge resource, historicbridges.org.

Figure 5-4: Old Stone Arch Bridge



Source: Bridgehunter.com

5.2 Historic Places

The NRHP tracks buildings and sites of historical significance across the County. The designation takes into account the age, significance, and integrity of the site, as described by the U.S. National Park Service: ⁵

Age and Integrity: Is the property old enough to be considered historic (generally at least 50 years old) and does it still look much the way it did in the past?

Significance: Is the property associated with events, activities, or developments that were important in the past? With the lives of people who were important in the past? With significant architectural history, landscape history, or engineering achievements? Does it have the potential to yield information through archeological investigation about our past?"

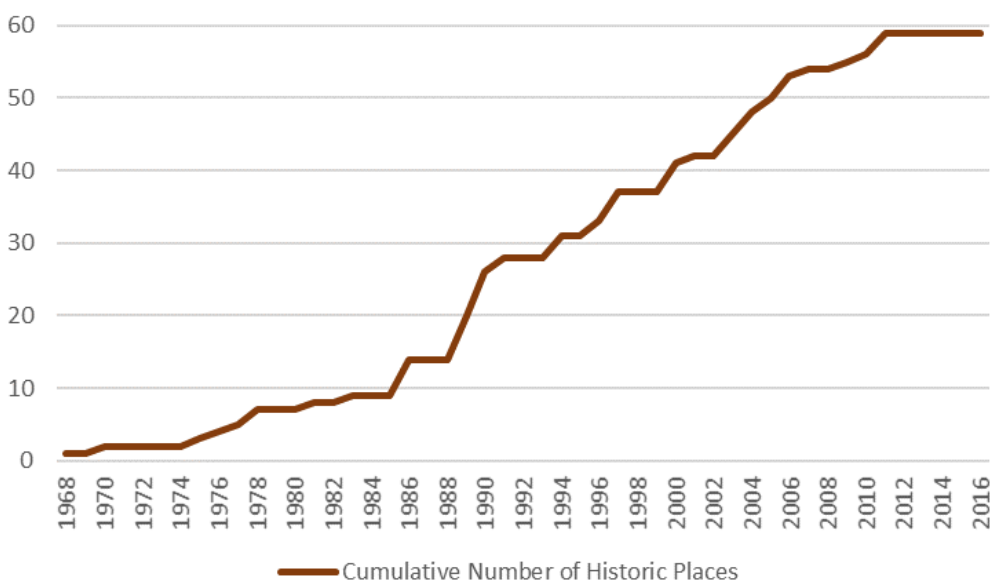
The NRHP lists 59 historic places in Champaign County, including historically significant sites, districts, buildings, structures, and objects. Most of these are located in Champaign and Urbana, but Mahomet and Rantoul each have one, respectively (Table 5-1) (Appendix Table A-3). While 59 places have been listed on the NRHP, many more sites still remain eligible, yet unlisted.

Table 5-1: NRHP Sites by Town

Town	Historic Places Listed in NRHP
Champaign	29
Urbana	28
Mahomet	1
Rantoul	1
Total	59

Source: National Park Service, 2020

Since the passing of the National Historic Preservation Act in 1966, steady increases have been made to the number of NRHP listed sites within Champaign County (Figure 5-5). Additions to the NRHP can be made through a nomination process available to any individual, government agency, or organization. Nomination forms must be submitted to the IHPA who then collaborates with the state's National Register Review Board. Finally, complete nominations are submitted to the National Park Service for a final decision. ⁶

Figure 5-5: Number of NRHP in Champaign County from 1968 to 2016

Source: National Park Service, 2020

Most of the sites within the County are buildings on the University of Illinois Urbana-Champaign campus, such as Altgeld Hall, the Astronomical Observatory, and a host of sorority and fraternity houses. Other non-University related sites can be found across the MPA: the Virginia Theater in downtown Champaign, the Lincoln Statue at Carle Park in Urbana (Figure 5-6), and the Clark R. Griggs House in Urbana (Figure 5-7). Outside of the Urbana-Champaign area there are only two NRHP sites: the Hazen Bridge in Mahomet, and the Chanute Air Force Base in Rantoul.

Figure 5-6: Lincoln (Statue) in Carle Park, Urbana



Source: Urbana Park District (2020)⁷

Figure 5-7: Historic Clark R. Griggs House in Urbana



Source: CCRPC (2020)

5.3 Cemeteries

Champaign County is home to a total of 75 cemeteries⁸, spread out in relative uniformity across the area (Figure 5-1) (Appendix, Table A-4). A well-known example is the Mount Hope Cemetery in Urbana (Figure 5-8). None of these cemeteries are listed on the NRHP, but planners need to be aware of state regulations concerning impacts to these sites.

The Illinois Human Skeletal Remains Protection Act prohibits disturbances to grave sites from any project without a permit from the Illinois Historic Preservation Agency.⁹ This law also pertains to grave markers within unregistered cemeteries over 100 years old on both private and public land. Avoidance procedures must be considered before any work done that may impact a cemetery. If avoidance is impossible, an application for grave and remains removal must be submitted to the IHPA describing the alternatives considered and the reasons the burial site cannot be avoided.

Figure 5-8: Mount Hope Cemetery in Urbana



Source: Hucke, Matt. (2020) ¹⁰

5.4 Archeological Area

The IHPA lists areas with a high probability of containing archaeological sites, sites that contain artifacts, or structures linking to early human settlement or prehistory. This designation uses soil characteristics in addition to geological member and formation data to determine potential locations across the state. In Champaign County, 300 yards¹¹ from the bluff line crest (valley wall) of all streams and rivers, meet the criteria (Figure 5-1).¹² This means the areas around all streams and rivers in the County have the potential to be archaeologically significant, but a site investigation would be necessary to determine whether regulatory protections apply.

Site investigations are triggered by IDOT's Environmental Survey Request and are conducted by IHPA, who also issues permits, allowing work to be done in areas with high archaeological probability. Public data on confirmed sites often remains classified to protect archaeological integrity.

Typically, most archaeological sites in the County are low density scatters of stone tools left by mobile hunting and gathering groups, often found as surface scatters in plowed fields. Sites of particular archaeological significance come from the period prior to intensive Euroamerican settlement in the County around the mid-1800s due to their rarity. Examples include artifacts from early French explorers of Illinois during the 17th century, or from the Kickapoo Indians, who arrived in the late 1700s. Materials from prehistoric farming groups have been found along rivers and streams, though are not common in the County. The Sangamon and Embarrass rivers have yielded much of the archaeological information of the area, and sites dating as far back as 10,000 years ago (Paleoindian Period) have been documented.

References:

¹ NRCS. *Cultural Resources* (n.d.). Retrieved from

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/ecoscience/cultural/>

² IDNR, Historic Preservation Division. *Community Preservation Programs* (2020). Retrieved from

<https://www2.illinois.gov/dnrhistoric/Preserve/Pages/community.aspx>

³ Historic Bridges.org. *Historic Bridges: Champaign County, Illinois* (n.d.). Retrieved from

https://historicbridges.org/b_a_list.php?ct=&c=&ptype=county&pname=Champaign+County,+Illinois

⁴ Bridgehunter.com. *Old Stone Arch Bridge* (2012). Retrieved from <https://bridgehunter.com/il/champaign/old-stone-arch/>

⁵ NPS. *National Register of Historic Places FAQs* (May 2020). Retrieved from

<https://www.nps.gov/subjects/nationalregister/faqs.htm>

⁶ NPS. *National Register of Historic Places: How to List a Property* (Nov. 2019). Retrieved from

<https://www.nps.gov/subjects/nationalregister/how-to-list-a-property.htm>

⁷ UPD. *Parks*. Retrieved from <https://www.urbanaparks.org/parks/carle-park/>

⁸ Graveyards of Illinois. *Cemeteries and Graveyards in Champaign County, Illinois*. Retrieved from

<http://graveyards.com/Illinois/Champaign/list>

⁹ NRCS. *IL Tech Guide, SEC II. Illinois Laws on Historic Preservation: Human Skeletal Remains Protection Act* (June 2002). Retrieved from

https://efotg.sc.egov.usda.gov/references/public/IL/IL_Laws_on_Historic_Preservation.pdf

¹⁰ Huckle, Matt. *Cemeteries and Graveyards in Champaign County, Illinois* Retrieved from

<http://graveyards.com/Illinois/Champaign/list>

¹¹ RPC. *Land Resource Management Plan, Chapter 8: Parks, Recreation, and Cultural Resources* (April 2010). Retrieved from https://ccrpc.org/wp-content/uploads/2010/04/10_v1_Chapter8.pdf

¹² CCRPC. *Active Choices: Champaign County Greenways & Trails Plan* (2014).

Chapter 6: Wildlife and Vegetation Habitat

6.1 Natural Areas

Natural areas and open space provide habitat for a diverse array of plant and animal species within the study area. These areas offer a range of opportunities to see some incredible Midwest species in their natural environment, as well as providing a host of ecosystem services such as the provision of clean air, clean water, flood control, nature-based recreation opportunities, and the production of food, fuel, and fiber.¹ Parks are defined as areas of land with natural features, whose uses include public recreation.

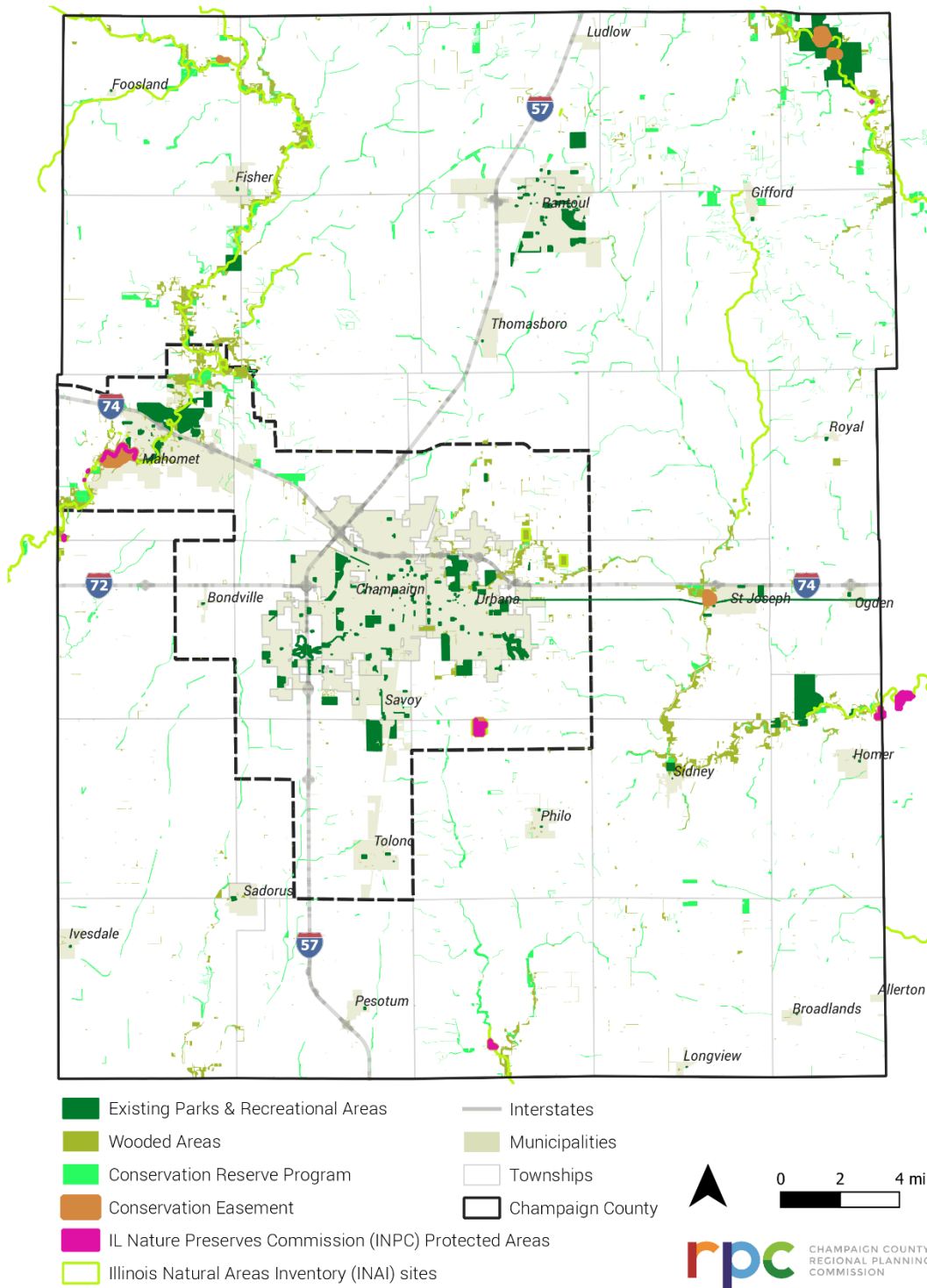
Champaign County sits within the Central Tallgrass Prairie and a small section of the North Central Till Plain ecoregion.² Characterized by a dominance in tallgrass species, long growing seasons, glacial geomorphology, low endemism in plants and animals, and extensive alterations due to agricultural conversion, these ecoregions inform the general makeup of natural areas across the County.^{3, 2}

Champaign County has been transformed over the years, drastically reducing the amount of natural areas and open space including tallgrass prairie, floodplain forests, upland forests, and wetlands. The terms *natural areas* and *open space* are all-encompassing referring to areas with a natural character, as evidenced by the presence of vegetation, including but not limited to public parks. Pre-settlement, the County was approximately 92.5 percent prairie, seven percent forest, with the remaining areas wetland and open water. Now, the ratios are 91.5 percent agricultural land, six percent urban land, one percent forestland, and one percent wetland.⁴ Almost the entire prairie has been replaced with agricultural land, and this loss of habitat has significantly limited native species populations and areas to experience them.⁴

Despite these losses, public park acreage (areas of land open to the public and managed by federal, state, or municipal governments, or private organizations)⁵ has seen a steady increase. From 1970 to 2005, Champaign County public park acreages have increased from 2,644 to 5,706.⁶ More recently, within the past five years, the Champaign County Forest Preserve District (CCFPD) has converted over 160 acres previously in row cropping or grazing to tallgrass prairie.⁷ Additionally, forest and prairie acres are being added by CCFPD through tree planting, understory clearing of invasive species, and prescribed burns allowing regeneration of native ecosystems. Protection and enhancement of natural areas occurs through a variety of different mechanisms. Public and private agencies, such as the Illinois Department of Natural Resources (IDNR), the Nature Conservancy, or CCFPD can purchase land to protect or private landowners can voluntarily dedicate or register lands in programs such as an Illinois Nature Preserve, Illinois Natural Areas Inventory site (INAI), conservation easements, or the Conservation Reserve Program (CRP). Funding sources, such as the Open Space Land Acquisition and Development (OSLAD), the Land and Water Conservation Fund (LAWCON), and Recreational Trails Program (RTP) grant programs carry with them protections, as well. These sites, and their relative

locations throughout the County are shown in Figure 6-1. Another funding source worth recognition, though not defined in Figure 6-1, is the Illinois Clean Energy Community Foundation. They provide over 5,000 grants totaling over \$258 million to improve energy efficiency, advance the development and use of renewable energy resources, and protect natural areas and wildlife habitat in communities across Illinois.⁸ CCFPD is a major recipient of their Natural Areas Program grants, and many CCFPD sites exist due to their contributions to protecting natural area habitats in Champaign County.

Figure 6-1: Natural Areas in Champaign County



Source: CCGIS, CCRPC, Holman, David⁹

6.1.1 Illinois Nature Preserves Commission (INPC) Protected Areas

The Illinois Nature Preserves Commission (INPC), part of the IDNR, provides support for the stewardship, management and protection of high quality natural areas and threatened and endangered species habitat.¹⁰ Public and private landowners wishing to voluntarily dedicate their land may do so through a conservation agreement that protects the natural features of the land and considers the landowners' use of the property.⁸ Public use is considered to be the highest, best, and most important use of nature preserve land. Dedicated nature preserves fall under INPC protection and are subject to the Illinois Natural Areas Preservation Act. The Act states that eminent domain or other means to convert the land use of the area do not apply and are prohibited. Exceptions to the rule exist upon approval from the INPC, the Governor, and any public owner of the dedicated land for any other use except another public use.⁸ Common threats to these sites come from projects on nearby lands, especially transportation projects such as new road installation.¹⁰

Three land protection options are possible for landowners wishing to dedicate land: ¹⁰

- 1) Illinois Nature Preserve (NP): This is the strongest protection, for only the highest-quality natural areas. Landowners retain full custody and can constrict future uses.
- 2) Illinois Land and Water Reserve (LWR): These are lands and waters of Illinois that support significant natural heritage or archaeological resource. Ownership can be public or private, and dedication determines the allowable uses and stipulates management objectives.
- 3) Natural Heritage Landmark (NHL): This protection is designed to allow the state to assist with management of natural areas and preserve the natural features of an area. There are no requirements on public access to private property. Provisions of the conservation agreement must be approved by the landowners and can be modified.

In total, there are seven nature preserves in the County: ¹¹

- River Bend Land and Water Reserve - LWR
- Wolf Ridge Natural Heritage Landmark - NHL
- Barnhart Prairie Restoration Nature Preserve - NP
- Tomlinson Pioneer Cemetery Prairie Nature Preserve - NP
- Smith House Natural Heritage Landmark - NHL
- Edgewood Farm Land and Water Reserve - LWR
- Alexander's Dell Natural Heritage Landmark - NHL

6.1.2 Illinois Natural Areas Inventory

The Illinois Natural Areas Inventory (INAI), an IDNR program within the Division of Natural Heritage, provides information on high quality natural areas, habitats of endangered species, and other significant natural features.¹² Information from the INAI informs the selection and designation of Illinois Nature Preserves, as well as provide guidance and support of land

acquisition and protection programs. No specific protections exist for INAI sites, but many INAI sites have existing protection through other designations, and potential conversion of INAI sites is sure to trigger agency or public resistance.¹³ As such, transportation project alternatives should avoid them as much as is practicable.

Seventeen INAI sites exist within Champaign County (Table 6-1). In total Champaign County has 3,691.76 acres of INAI sites, covering all categories with the exception of Categories V and VII, which are not currently being used by the INAI program.¹²

Table 6-1: Champaign County INAI Sites

No.	INAI Name	Categories	Acreage
1	Barnhart Prairie	II, III	160.39
2	Big Ditch Fisher Reach	II, VI	10.14
3	Brownfield Woods	I	63.2
4	Champaign County Railroad Prairie	I	2.32
5	Edgewood Farm	III	147.5
6	Edna Edwards Burnett	III	18.31
7	Embarras River - Nanney Research Reach	VI	34.77
8	Little Vermilion River	II, III, VI	1209.98
9	Mahomet Botanical Area	II, III	27.77
10	Mahomet Site	II	3.52
11	Middle Fork of the Vermilion River	II, III, IV, VI	453.69
12	Nettie Hart Woodland Memorial	I	39.22
13	Salt Fork Vermilion River Segment	II, III, VI	609.34
14	Sangamon River	II, III, VI	822.39
15	Spoon River	VI	29.35
16	Tomlinson Pioneer Cemetery Prairie	III	0.98
17	Trelease Woods	I	58.89

Source: INAI (2019)¹²

INAI Category Descriptions:

Cat. I = High quality natural community and natural community restorations

Cat. II = Specific suitable habitat for state-listed species or state-listed species relocations

Cat. III = State dedicated Nature Preserves, Land and Water Reserves, & Natural Heritage Landmarks

Cat. IV = Outstanding geological features

Cat. V = Not used at this time

Cat. VI = Unusual concentrations of flora or fauna and high-quality streams

Cat. VII = Not used at this time

6.1.3 Conservation Easements

Conservation easements offer another option to protect the habitat and conservation value of a property. Conservation easements are legally binding agreements that prohibit environmentally damaging land uses from occurring on a property.¹⁴ A landowner may place a conservation easement on his or her property for a specified time or in perpetuity. Local government agencies, land trusts, or other nonprofit organizations typically hold easements, making them responsible for enforcing the agreed upon requirements. Generally, these responsibilities include establishing baselines for the easement, monitoring the land use, collecting and providing data on the easement, running a review and approval process for land activities, and legally enforcing restrictions.¹⁴ New land uses of conservation easements must adhere to language in the legal agreements by the landowner, and must not interfere with the conservation of natural resources on the land.

Thirteen conservation easements exist within Champaign County (Table 6-2). All of them are held by state agencies, with the exception of the Brown and Kerr Township Wetlands Reserve Program sites.

Table 6-2: Champaign County Conservation Easements

No.	Site Name	Organization
1	Riverbend Land and Water Reserve	Illinois Nature Preserves Commission
2	Barnhart Prairie Restoration	Champaign County Soil and Water Conservation District
3	River Bend Forest Preserve Easement	Illinois Department of Natural Resources
4	Barnhart Prairie Easement #1	Illinois Department of Natural Resources
5	St. Joseph Wetland - Marsh Easement	Illinois Department of Natural Resources
6	St. Joseph Wetland - Olson Easement	Illinois Department of Natural Resources
7	Barnhart Prairie Restoration Nature Preserve	Illinois Nature Preserves Commission
8	Edna Edwards Burnett Land and Water Reserve	Illinois Nature Preserves Commission
9	Tomlinson Pioneer Cemetery Prairie Nature Preserve	Illinois Nature Preserves Commission
10	Barnhart Prairie Easement #2	Illinois Department of Natural Resources
11	Edgewood Farm Land and Water Reserve	Illinois Nature Preserves Commission
12	Wetlands Reserve Program (Brown Township)	Natural Resources Conservation Service
13	Wetlands Reserve Program (Kerr Township)	Natural Resources Conservation Service

Source: Liberty Prairie Foundation (2020)

6.1.4 Conservation Reserve Program

The Conservation Reserve Program (CRP), operated through the USDA Farm Service Agency, is a voluntary program where farmers receive yearly rental payments in exchange for removing environmentally sensitive land from agricultural production and planting species that will improve environmental quality.¹⁵ CRP contracts last for 10-15 years, but options exist for 30-year CRP contracts through the CLEAR30 Pilot.¹⁶ Under 7 CFR 1410.63, no uses of any kind are authorized on CRP acreage during the contract period, meaning transportation projects may not interfere with this land, including construction of barrier fencing or boundary limitations that prohibit wildlife access to or from the CRP acreage.¹⁷

There are 10,807 acres of Champaign County farmland that are enrolled in the CRP program. They are spread relatively evenly throughout the County and tend to be around or encompassing intermittent waterways. These waterways are crucial for migratory bird routes and seasonal wildlife refuges.

6.1.5 Parks and Recreation Areas

Other parks and recreation areas exist within the County managed by a variety of different agencies and nonprofits. Prominent agencies involved in parks and recreation area management in the County are the Champaign County Forest Preserve District (CCFPD), Champaign Park District, Urbana Park District, Mahomet Parks and Recreation Department, and the Rantoul Park District/Recreation Department. The Champaign Park District operates 64 different parks over 610 acres¹⁸ and Urbana Park District operates 24 parks distributed over 580 acres.¹⁹ The Mahomet Parks and Recreation Department operates 11 parks over 131 acres, and in Rantoul there are 21 parks over 184 acres.²⁰ The CCFPD operates six forest preserves in Champaign County, as well as the Kickapoo Rail Trail (Table 6-3).²¹

Table 6-3: Champaign County Forest Preserves

Forest Preserve Site	Location	Acres
Lake of the Woods	Mahomet	900
River Bend	Mahomet	280
Heron View Forest Preserve	Mahomet	93
Sangamon River	Fisher	160
Homer Lake	Homer	814
Middle Fork River	Penfield	1,702

Source: CCRPC. *Active Choices: Champaign County Greenways & Trails Plan (2014)*.

Other non-designated wooded areas exist within the County. These sites are not within any extra protection other than standard property rights but are recognized for their open space and natural land use value.

6.1.6 Grant-Funded Sites

Several grant programs exist to help finance natural area, park, and open space projects that carry protections of their own. Three such programs are the Opens Space Land Acquisition and Development (OSLAD), Land and Water Conservation Fund (LAWCON), and Recreational Trails Program (RTP). OSLAD and LAWCON grants are state-financed and provide funding assistance for the development of public parks and open space. Both programs are managed by IDNR and are awarded to local government agencies. These projects can vary from small neighborhood parks to large County parks and natural areas.²² Some local examples include Crystal Lake Park, Meadowbrook Park, and Busey Woods. The RTP grant program gives states the responsibility to fund recreational trail programs across the state. Lands that utilize OSLAD, LAWCON, or RTP funds must remain, in perpetuity, for public outdoor recreation.²² In the case of RTP, this land use falls under the definition of recreational trails, found in 23 USC 206.²³ Transportation projects may not acquire these lands, except in the case where the resulting land use is still public outdoor recreation or the maintenance or expansion of recreational trails.

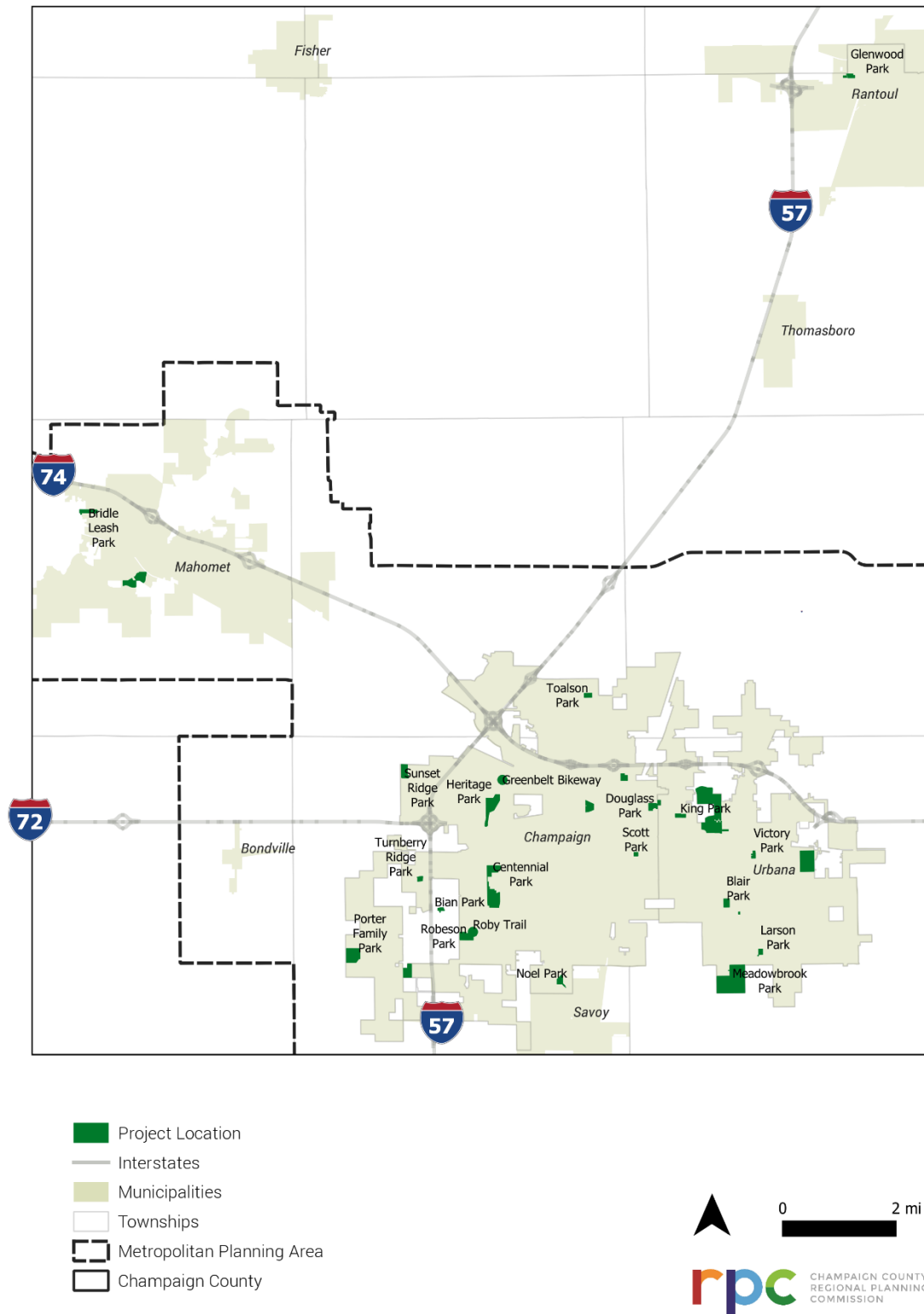
In total, 46 grant-funded sites exist within Champaign County (Table 6-4). Twenty-six of them are OSLAD, 18 are LAWCON, and two are RTP. Data on grant-funded sites was only available for Champaign, Urbana, Mahomet, and Rantoul.

Table 6-4: Champaign County Grant-Funded Sites

Locations	IDNR OSLAD	IDNR RTP	LAWCON	Total
Champaign	12	0	9	21
Urbana	10	0	9	19
Mahomet	3	2	0	5
Rantoul	1	0	0	1
Total	26	2	18	46

Source: Village of Rantoul, Village of Mahomet, CCFPD

Figure 6-2: Grant-Funded Sites in Champaign County

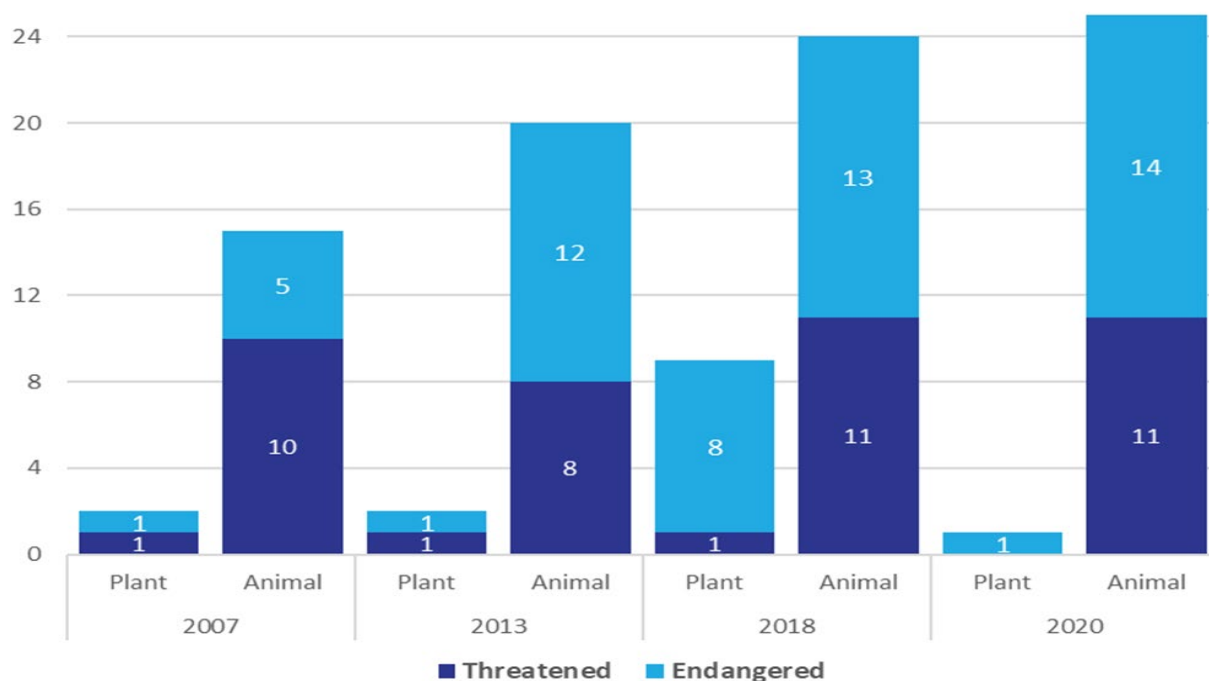


Source: Village of Rantoul, Village of Mahomet, CCFPD

6.2 Threatened and Endangered Species

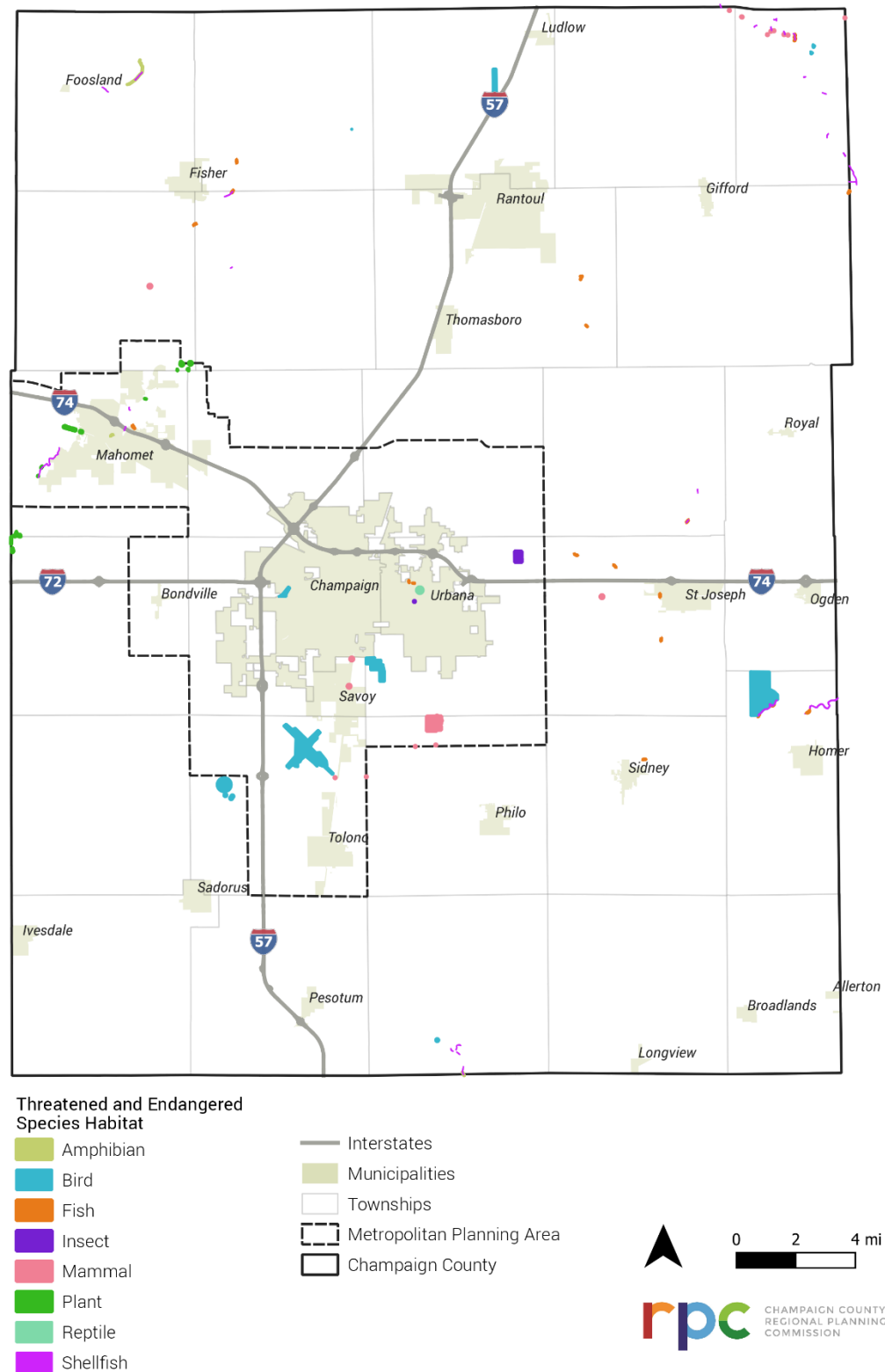
Natural areas like grasslands, woodlands, and wetlands provide optimal conditions for many native plant and animal species. Native species depending on these specific habitats become vulnerable as these habitats are lost to development, pollution, and a changing climate. The current Illinois Department of Natural Resources (IDNR) count of threatened and endangered species in the County lists 26 plants and animals.²⁴ This is a decrease of seven species since 2018. All of the species taken off the list were plants, while the only remaining plant on the list, Sangamon Phlox (*Phlox pilosa* var. *sangamonensis*), went from threatened to endangered in that same time. Currently, one plant and 14 animals are listed as endangered, while 11 animals and no plants are listed as threatened (Figure 6-3). Threatened means a species is likely to become endangered throughout its entire range, and endangered means a species is on the brink of extinction throughout its entire range.²⁵ Figure 6-4 shows the relative location of threatened and endangered species habitat within the County. Large populations of birds can be seen around Willard Airport and Homer Lake, while plant species habitat can be seen around the Sangamon River. A population of threatened or endangered mammals can be seen around Barnhart Prairie just south of Urbana, and a threatened or endangered insect population can be seen near Knott Airport just north of I-74 and east of Urbana. The breakdown of listed animals includes six bird species, six fish species, seven shellfish species, three mammals, one reptile, one amphibian, and one insect (Table 6-5).

Figure 6-3: Threatened & Endangered Species in Champaign County



Source: IDNR (2020)

Figure 6-4: Threatened or Endangered Species Habitat (2020)



Source: IDNR (2020)

Some species classified as threatened or endangered in Champaign County may be more prevalent in other regions of the country or world. Global classifications from the International Union for Conservation of Nature Red List of Threatened Species (IUCN Red List) assist in differentiating which species are of most concern both globally and locally. Established in 1964, the IUCN Red List is one of the most comprehensive information sources on global conservation. In Champaign County, two animal species were both globally and locally endangered: the Rusty Patched Bumble Bee (*Bombus affinis*) and Blanding's Turtle (*Emydoidea blandingii*) (Table 6-5).²⁶

Table 6-5: List of Endangered and Threatened Species in Champaign County

Common Name	Type	IUCN Red List Global Ranking	2020 State Status	Year Last Observed
Loggerhead Shrike	Bird	Near Threatened	Endangered	1991
Northern Harrier	Bird	Least Concern	Endangered	1994
Upland Sandpiper	Bird	Least Concern	Endangered	2013
Yellow-crowned NightHeron	Bird	Least Concern	Endangered	2014
Bigclaw Crayfish	Fish	Least Concern	Endangered	2018
Bigeye Chub	Fish	Least Concern	Endangered	2016
Bluebreast Darter	Fish	Least Concern	Endangered	2014
Pallid Shiner	Fish	Least Concern	Endangered	1928
Rusty Patched Bumble Bee	Insect	Critically Endangered	Endangered	2007
Indiana Bat	Mammal	Near Threatened	Endangered	2015
Sangamon Phlox	Plant	Information Not Available	Endangered	2017
Blanding's Turtle	Reptile	Endangered	Endangered	1953
Northern Riffleshell	Shellfish	Information Not Available	Endangered	2013
Salamander Mussel	Shellfish	Vulnerable	Endangered	2000
Wavy-rayed Lampmussel	Shellfish	Least Concern	Endangered	2014
Mudpuppy	Amphibian	Least Concern	Threatened	2019
Barn Owl	Bird	Least Concern	Threatened	2005
Least Bittern	Bird	Least Concern	Threatened	1993
American Eel	Fish	Endangered	Threatened	1961
Eastern Sand Darter	Fish	Least Concern	Threatened	2019
Franklin's Ground Squirrel	Mammal	Least Concern	Threatened	2010
Northern Long-eared Myotis	Mammal	Near Threatened	Threatened	2014
Little Spectaclecase	Shellfish	Information Not Available	Threatened	2016
Purple Wartyback	Shellfish	Near Threatened	Threatened	2012
Slippershell	Shellfish	Least Concern	Threatened	2015
Spike	Shellfish	Least Concern	Threatened	1988

Source: IDNR (2020)

Protections of threatened and endangered species fall under a variety of legislation and agencies, primarily the Endangered Species Act (ESA), and IDNRs Endangered Species Protection Board.

The ESA requires that any federal action not jeopardize a listed species or “destroy or adversely modify” critical habitat for listed species.²⁷ The language of the ESA specifically prohibits the “take” of a threatened or endangered species. A “take” refers to an action that would harm, hunt, shoot, pursue, lure, wound, kill, destroy, harass, gig, spear, ensnare, trap, capture, collect, or attempt to engage in such conduct for a listed animal.²⁸ For listed plants, a “take” refers to collecting, picking, cutting, digging up, killing, destroying, burying, crushing, or harming in any manner.²⁸ No project, transportation or otherwise, may involve a “take” or “destroy or adversely modify” critical habitat.

The Endangered Species Protection Board, in concert with the Illinois Nature Preserves Commission and Division of Natural Heritage can issue an Incidental Take Authorization, should a “take” be likely to occur but not be the intention of an action.²⁴ Incidental taking of endangered or threatened species is only approved if the applicant submits a conservation plan to IDNR that includes a description of the impact, minimization and mitigation measures, alternative considerations, data justifying the incidental take, and an implementing agreement. Criteria for conservation plans can be found at 17 ILL. Adm. Code Ch. I, Sec. 1080.²⁹

References

¹ MEHAFFEY, M. H., R. Van Remortel, E. R. SMITH, AND R. J. BRUINS. *Developing a Dataset to Assess Ecosystem Services in the Midwest, United States. International Journal of Geographical Information Systems. Taylor & Francis, Inc., Philadelphia, PA, 25(4):681-695, (2011).*

² IDNR. *Illinois Comprehensive Wildlife Conservation Plan & Strategy (2005).* Retrieved from <https://www.ccfpd.org/Portals/0/Assets/PDF/IL-comp-wildlife-cons-plan-and-strategy.pdf>

³ The Nature Conservancy. *The North Central Till Plain Ecoregion: A Conservation Plan (July 2003).* Retrieved from <https://www.conservationgateway.org/ConservationPlanning/SettingPriorities/EcoregionalReports/Documents/NCT0703.pdf>

⁴ CCRPC, *Land Resource Management Plan. Chapter 12: Land Cover and Generalized Land Use (April 2010).* Retrieved from https://ccrpc.org/wp-content/uploads/2010/04/14_v1_Chapter12.pdf

⁵ The Cultural Landscape Foundation. *Public Park (2020).* Retrieved from <https://tclf.org/category/designed-landscape-types/public-park>

⁶ CCRPC. *Land Resource Management Plan Chapter 8: Parks, Recreation and Cultural Resources (2010).* Retrieved from https://ccrpc.org/wp-content/uploads/2010/04/10_v1_Chapter8.pdf

⁷ CCFPD. *Natural Resources Department (2020).* Retrieved from <https://www.ccfpd.org/Natural-Resources/Natural-Resources-Department>

⁸ Illinois Clean Energy Community Foundation. *About the Foundation* (2020). Retrieved from <https://www.illinoiscleanenergy.org/about-foundation>

⁹ Holman, David. *Illinois Protected Lands Geodatabase*. Prairie State Conservation Coalition

¹⁰ IDNR. *Illinois Nature Preserves Commission: Protection* (2020). Retrieved from <https://www2.illinois.gov/dnr/INPC/Pages/Protection.aspx>

¹¹ IDNR. *Illinois Nature Preserves Commission (INPC) Protected Areas in Illinois by County* (Oct 2019). Retrieved from <https://www2.illinois.gov/dnr/conservation/NaturalHeritage/Documents/Database/inpccountylist.pdf>

¹² UIUC. *Illinois Nature Preserves: Illinois Natural Areas Inventory* (2019). Retrieved from <https://guides.library.illinois.edu/illinoisnaturepreserves/inai>

¹³ Anderson, Brian. IDNR. *INAI Workshop: This Ain't Your Grandma's INAI* (July 2007). Retrieved from <https://web.archive.org/web/20140814221140/http://www.inhs.illinois.edu/files/1413/4021/2918/AndersonINAI.pdf>

¹⁴ Schear, P. Blaine, T. University of Illinois Extension. *Local Community Resources: Conservation Easements* (2020). Retrieved from <https://web.extension.illinois.edu/lcr/easement.cfm>

¹⁵ Benefits.gov. *Conservation Reserve Program* (n.d.). Retrieved from <https://www.benefits.gov/benefit/340>

¹⁶ USDA. *Farm Service Agency Conservation Reserve Program: CLEAR30 PILOT Fact Sheet* (April 2020). Retrieved from <https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/crp-clear30-pilot.pdf>

¹⁷ 7 CFR § 1410.63 – Permissive uses.

¹⁸ Champaign Park District. *Champaign Park District Trails Master Plan* (2017). Retrieved from <https://ccrpc.org/wp-content/uploads/2017/06/Champaign-Park-District-Trails-Master-Plan-2017.pdf>

¹⁹ Urbana Park District. *Urbana Park District Trails Master Plan* (2016). Retrieved from https://ccrpc.org/wp-content/uploads/2017/05/UTMP_Report_March_2016.pdf

²⁰ Mahomet Parks and Rec Department. *Facilities* (2020). Retrieved from <https://mahomet.recdesk.com/Community/Facility>

²¹ Champaign County Forest Preserve District. *Homepage* (n.d.). Retrieved from <https://www.ccfpd.org/>

²² IDNR. *Open Space Lands Acquisition and Development Grant and the Land and Water Conservation Fund Grant* (2020). Retrieved from <https://www2.illinois.gov/dnr/grants/Pages/OpenSpaceLandsAquisitionDevelopment-Grant.aspx>

²³ 23 USC § 206 – Recreational Trails Program

²⁴ IDNR. *Illinois Threatened and Endangered Species by County* (July 2020). Retrieved from <https://www2.illinois.gov/dnr/ESPB/Documents/ET%20List%20Review%20and%20Revision/Illinois%20Threatened%20and%20Endangered%20Species%20by%20County.pdf>

²⁵ EPA. *Endangered Species – Learn more about Threatened and Endangered Species* (Aug 2019). Retrieved from <https://www.epa.gov/endangered-species/learn-more-about-threatened-and-endangered-species>

²⁶ CCRPC. *Long Range Transportation Plan 2045: Environment* (2017). Retrieved from <https://ccrpc.gitlab.io/lrtp2045/existing-conditions/environment/>

²⁷ EPA. *About the Endangered Species Protection Program* (May 2018). Retrieved from <https://www.epa.gov/endangered-species/about-endangered-species-protection-program>

²⁸ IDNR. *Do I Need an Incidental Take Authorization or Endangered Species Possession Permit* (2020). Retrieved from <https://www2.illinois.gov/dnr/conservation/NaturalHeritage/Pages/Incidental-take-or-Endangered-Species-Permit.aspx>

²⁹ IDNR. *Applying for an Incidental Take Authorization* (2020). Retrieved from <https://www2.illinois.gov/dnr/conservation/NaturalHeritage/Pages/ApplyingforanIncidentalTakeAuthorization.aspx>

Chapter 7: Special Waste

The information presented in this chapter is a general overview of the statutory and regulatory requirements found in the Illinois Environmental Protection Act and Title 35 governing special waste.

Many different databases were used in order to research accurate special waste data, including EPA Facility Registry Service, IEPA databases, other US EPA databases, and NETROnline. Special waste databases do not all provide uniform or regularly updated information, and because of this not all inquiries can be answered to the same degree. Special waste generated sites are geocoded using the Google Earth Geocoder and represent the approximate location of the sites

The Illinois Environmental Protection Agency (IEPA) defines special waste as any potentially infectious medical waste, hazardous waste, pollution control waste or industrial process waste.¹ Potential presence of hazardous or regulated substances affects both human and ecological health, and work in or around any identified special waste sites can cause a release of contaminants into the air, soil, and/or water. Federal and state regulations require that all currently known and potential special waste sites be identified as part of the environmental review process, so special preparations can be made to handle contaminants appropriately.

WHAT'S SPECIAL WASTE?

Asbestos
Ash
Construction and demolition debris
Contaminated soil
Foundry sands
Grinding residue and grit screenings
Industrial and manufactured process waste
Industrial sludge
Liquid special waste

Source: Advanced Disposal: Special Waste Disposal (2020). Retrieved from <https://www.advanceddisposal.com/for-business/disposal-recycling-services/special-waste.aspx>.

The Illinois Department of Transportation (IDOT) is responsible for reviews of property owned by IDOT, or property IDOT may acquire for highway project purposes to:

1. Identify hazardous conditions which workers and/or the public could encounter during construction;
2. Avoid acquiring land from a potentially contaminated property;
3. Ensure material generated during construction is managed in accordance with state and federal laws.

These reviews are conducted in accordance with Bureau of Design and Environment (BDE) Manual Chapter 27-3 and Bureau of Local Roads and Streets (BLRS) Manual Ch. 20-12. Special waste sites are identified through the completion of a Special Waste Screening form, provided by IDOT. This form outlines two levels of screening criteria IDOT uses to identify special waste sites. If the project involves any of the Level 1 screening criteria, then Level 2 screening is performed. If any of the Level 2 screening criteria are met, then a Preliminary Environmental Site Assessment (PESA) is performed (see PESA in REF Chapter 2: Guidelines and Requirements).²

Level 1: If the project involves any of the following, then Level 2 screening is required.

- 1) Acquisition of additional ROW or easements,
- 2) Railroad ROW, or
- 3) Excavation or subsurface utility relocation

If the project involves none of those 3 criteria, then no further action is required.

Level 2: If any of the following sites are found within the minimum search distance then a Preliminary Environmental Site Assessment (PESA) is required (Table 7-1).

Table 7-1: Special Waste Minimum Search Distances

Minimum Search Distance	Special Waste Category
On-Property & Adjoining Property	1) State UST 2) RCRA Generators 3) Other Env. Conditions*
0.25 Miles	1) Industrial and/or commercial property
0.5 Miles	1) State LUST 2) State Voluntary Cleanup, Brownfield, or Landfills. 3) NPL Delisted 4) CERCLIS 5) CERCLIS NFRAP 6) RCRA non-CORRACTS TSD 7) Federal RCRA Brownfields
1.0 miles	1) Federal NPL 2) RCRA CORRACTS

Source: IDOT Special Waste Screening Form

*Other Environmental Conditions are situations that may negatively affect the property including illicit drug waste (crack or methamphetamine houses), discarded batteries, paint spills, abandoned transformers, surface staining, vegetative damage, etc.

Level 2 screening lists the categories of special waste site that IDOT is required to know about, report, and take action to prevent new transportation projects from causing environmental risks and liabilities:

- Underground Storage Tank (UST)
- Leaking Underground Storage Tank Incidents (LUST)
- Brownfields
- Superfund Sites (CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act)
- Landfill Sites
- Cleanup Sites (Site Remediation Program: SRP)
- Resource Conservation and Recovery Act (RCRA)
- RCRA Subject to Corrective Action
- Emergency Response Notification System (ERNS)

7.1 Underground Storage Tank (UST)

An underground storage tank system (UST) is a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. Federal regulations apply only when either petroleum or certain hazardous substances are stored.³ Most USTs themselves are not dangerous, but the potential for leaks is where the risk to health and the

environment come in. Petroleum or other hazardous substances can seep into the soil and contaminate groundwater, or potentially catch fire and explode. Vulnerable areas of leaks include the bottom of USTs underneath the manhole, UST fill manholes, dispensing pumps, and UST junction points when ground settlement varies. In addition, activities involving tank upgrades or replacements are common sources of releases.⁴

USTs can be regulated under either a federal or state compliance program. Subtitle I of the Solid Waste Disposal Act allows the federal EPA to approve state-run programs to operate in lieu of the federal UST program.⁵ However, federal UST requirements are carried out by state agencies. Several agencies are involved in the UST program. The Illinois EPA oversees developing and evaluating remediation objectives and reports. The Office of the State Fire Marshal regulates daily operation and maintenance of UST systems. The Illinois Emergency Management Agency notifies IEPA to initiate the review process when a leaking UST incident is reported.⁶ A PESA would be required if a UST is located on or adjacent to a proposed project property. A PESA would also be required if a leaking UST is within half a mile of a proposed project property.⁷

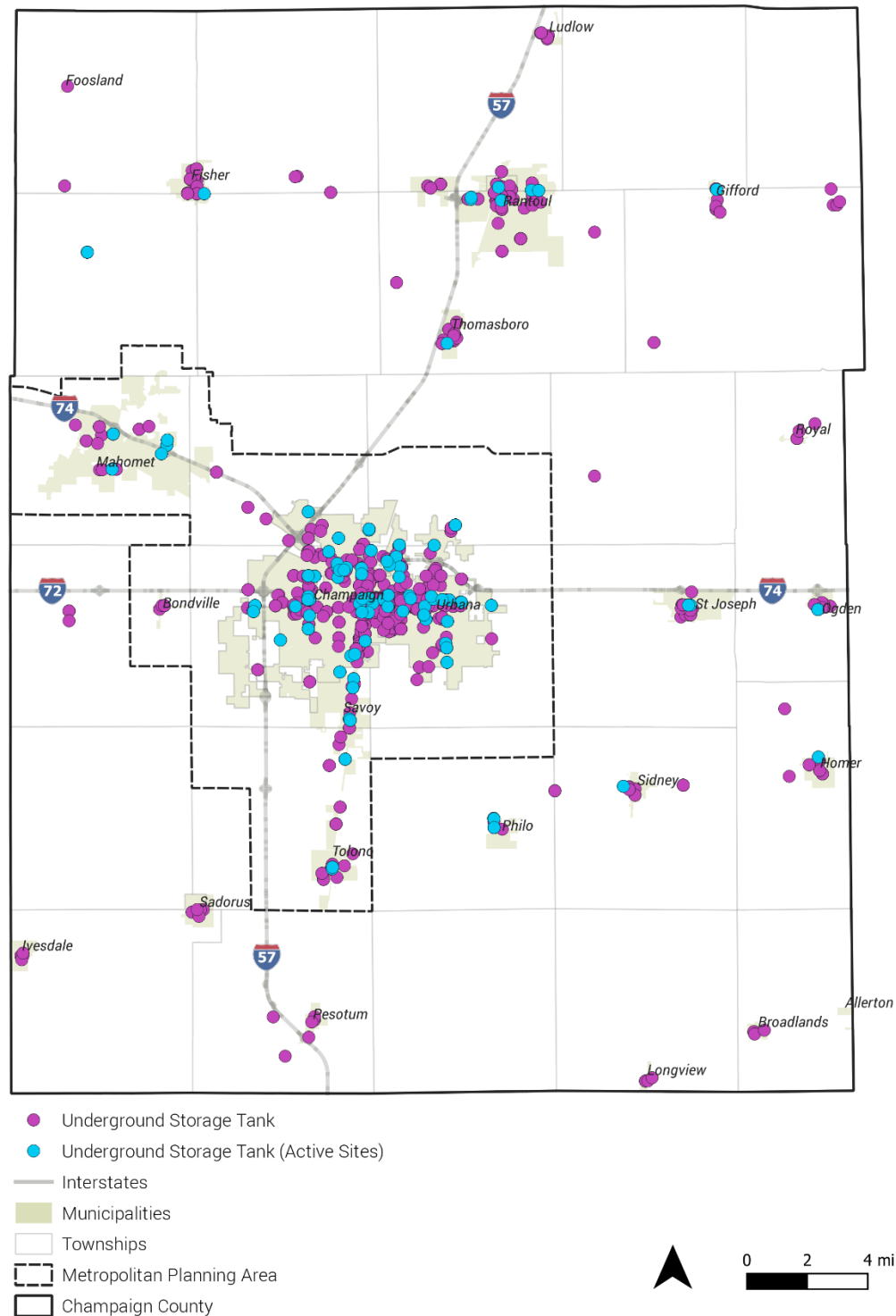
In Champaign County, 621 facilities contain 1,869 USTs (Table 7-2 and Figure 7-1). Most sites within the County are closed, but almost a third are still active. Active sites are those where activities are subject to federal and state regulations. Inactive sites are not subject to these requirements. Closed sites are those that have met cleanup requirements. Sites listed as "Others" may either be exempt from federal UST requirements or data on their status may not be known. All sites will trigger compliance with IDOT Special Waste Screening, regardless of status. Champaign and Urbana have the highest amount of UST facilities.

Table 7-2: USTs by Status

City	Active	Inactive	Closed	Others	Total
Champaign	197	5	370	111	683
Urbana	149	0	232	78	459
Rantoul	36	0	197	28	261
Mahomet	34	0	32	1	67
Savoy	39	0	14	2	55
Fisher	17	0	21	8	46
Tolono	6	0	31	8	45
Other areas	31	1	190	31	253
Total	509	6	1,087	267	1,869

Source: Office of the Illinois State Fire Marshall, 2020.

Figure 7-1: Underground Storage Tanks (USTs) in Champaign County



Source: Office of the Illinois State Fire Marshall. Division of Petroleum & Chemical Safety. UST (2020). Retrieved from <http://webapps.sfm.illinois.gov/ustsearch/Search.aspx>.

Table 7-3 categorizes USTs by facility types. Most of these USTs are located at self-service gas stations, commercial/retail businesses, and military properties.

Table 7-3: USTs by Facility Types

Facility Type	Total
Self-Service Station	489
Commercial / Retail	135
Federal (Military)	84
City / Town	77
Private Institution	72
Industrial / Manufacturing	64
School/College	50
State	43
Auto Dealer	37
Others	818
Total	1,869

Source: Office of the Illinois State Fire Marshall, 2020.

Table 7-4 lists the facilities with the highest numbers of USTs. Chanute Air Force Base has 79 USTs, all of which are closed. Five of the top 12 facilities are self-service stations (Table 7-3).

Table 7-4: Champaign County facilities with highest amounts of USTs

Top Facilities	No. of Total Tanks
Chanute Afb (Closed)	79
Orchard Downs Family Housing (Exempt)	30
Willard Airport (Active)	23
Mac's #38 (Active)	15
Super Valu J M Jones Div (Closed)	15
Manlove Storage Field (Active)	15
Parking Lot G 106 S Chestnut St Champaign (Exempt)	15
Urbana Minimart (Active)	14
The Kraft Heinz Company (Active)	13
Illico 423 (Closed)	12
Circle K #1413 (Active)	12
Circle K #97 (Active)	12

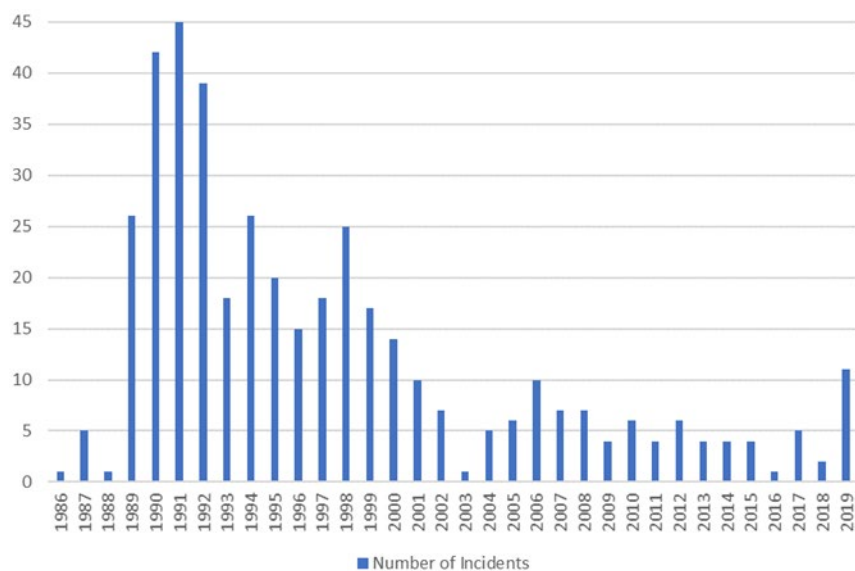
Source: Office of the Illinois State Fire Marshall, 2020.

7.2 Leaking Underground Storage Tank (LUST)

Leaking underground storage tanks (LUSTs) involve the release of a fuel product from a UST that can contaminate surrounding water sources (both surface and ground), soil, or affect indoor air quality.⁴ As mentioned in the UST section above, once the IEPA is notified of a LUST incident, IEPA staff reviews the situation and develops remediation objectives for the site.⁶ Upon the responsible party meeting remediation objectives and requirements, the LUST section of IEPA will issue a No Further Remediation Letter for the site. Planners should be cognizant to avoid identified UST and LUST sites, as these sites could endanger human health and/or the environment.

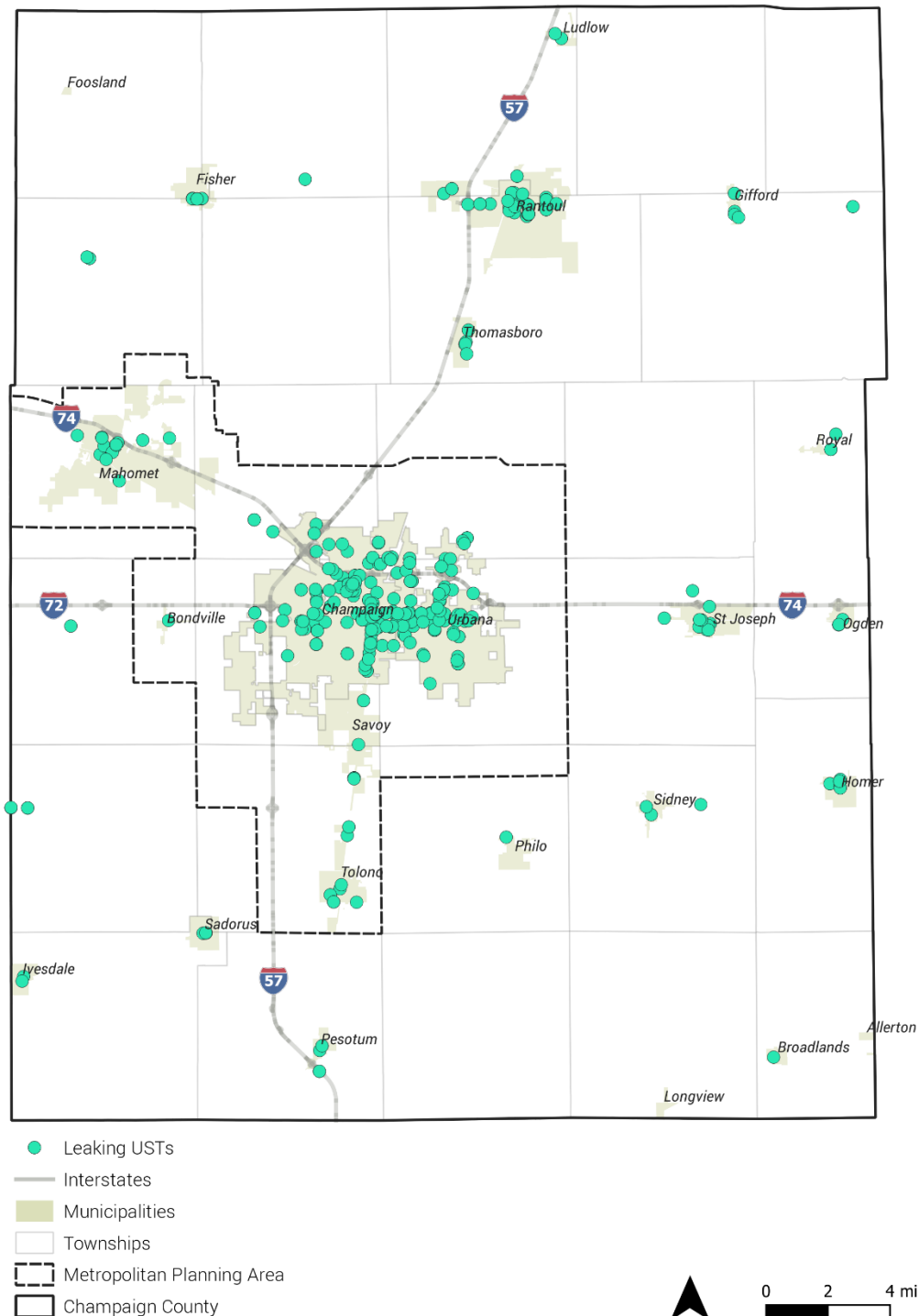
Since 1986, there have been 417 LUST incidents reported in Champaign County (Figure 7-2). The spike in the late 80's-early 90's can be attributed to the first implementation of a federal LUST policy where the program was still gaining traction. There has been a steady decrease in incidents with the highest amount recorded in a single year was 45 in 1991. In the decades following, the reduction in LUSTs has been significant, with six incidents reported in 2010, and 11 reported in 2019, more than a 70 percent reduction from 1991 incident numbers.

Figure 7-2: Champaign County LUST Incidents from 1986 to 2019



Source: IEPA, 2020

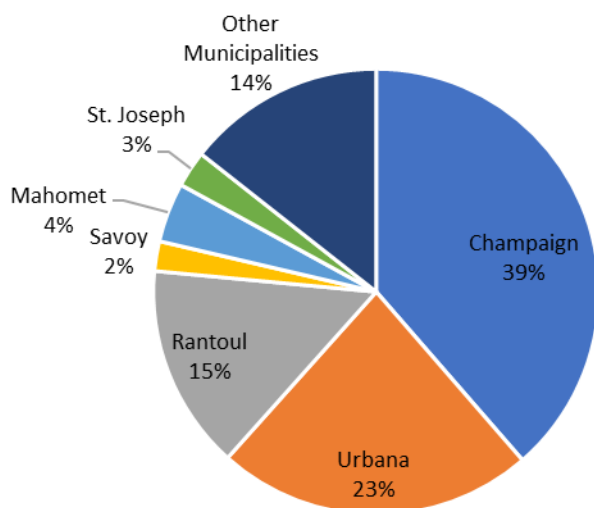
Figure 7-3: Leaking USTs in Champaign County



Source: IEPA. Leaking UST (2020). Retrieved from <https://www2.illinois.gov/epa/topics/cleanup-programs/bol-database/Pages/leaking-ust.aspx>.

Figure 7-3 shows the relative locations of LUSTs in Champaign County, the majority of which are reported in Champaign and Urbana (Figure 7-4). Rantoul has a relatively high number of LUST incidents, but this can be attributed to the closed Chanute Air Force Base, which is also a Superfund Site (See Superfund section).

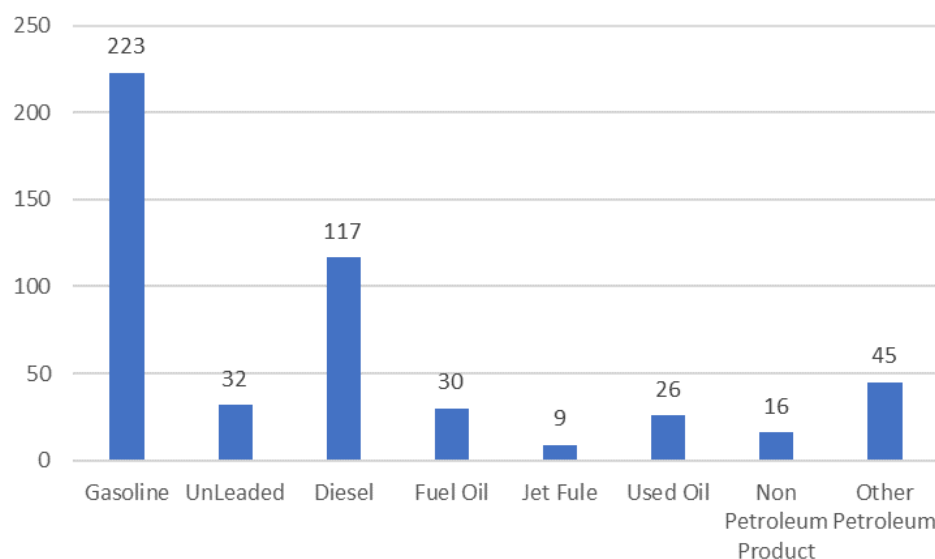
Figure 7-4: LUSTs Locations in Champaign County



Source: IEPA, 2020

Figure 7-5 shows most of the LUSTs incidents contain gasoline and diesel fuels. These fuels are associated with self-service stations, which make up the majority of USTs in the County (Table 7-3). About 45 percent of all LUST incidents since 1986 have been from gasoline tanks, 23 percent have come from diesel tanks, and nine percent from other petroleum (Figure 7-5).

Figure 7-5: LUST Incidents by Fuel Type (from 1986 to 2020)



Source: IEPA, 2020

Table 7-5 list the sites with significant numbers of LUST incidents recorded between 1986 and 2020. Chanute Air Force Base has the most amount of LUSTs, followed by the University of Illinois, City of Champaign, and Clark Retail Enterprises, Inc.

Table 7-5: Sites with Significant Numbers of LUST Incidents recorded between 1986 and 2020

Site Name	No. of Incidents Recorded
Chanute Air Force Base	24
University of Illinois	10
Champaign, City of	6
Clark Retail Enterprises, Inc.	6
Illini FS, Inc.	5
Sarus Oil LLC	5
Colonial Pantry	4
Illinois Bell Telephone	4

Source: IEPA, 2020

7.3 Brownfields

Brownfields are properties where the potential presence of a hazardous substance, pollutant, or contaminant limits reuse or redevelopment.⁸ To address these limitations, the federal EPA developed the Brownfield grant program.⁹ The Brownfield program offers EPA grants to fund environmental assessment, cleanup, and job training activities with the goal of productive reuse of a potentially contaminated site.⁶ The benefits of cleaning up and reinvesting in these sites are:⁶

- Increase local tax bases
- Facilitates job growth
- Utilizes existing infrastructure
- Takes development pressures off of undeveloped, open land
- Improves and protects the environment

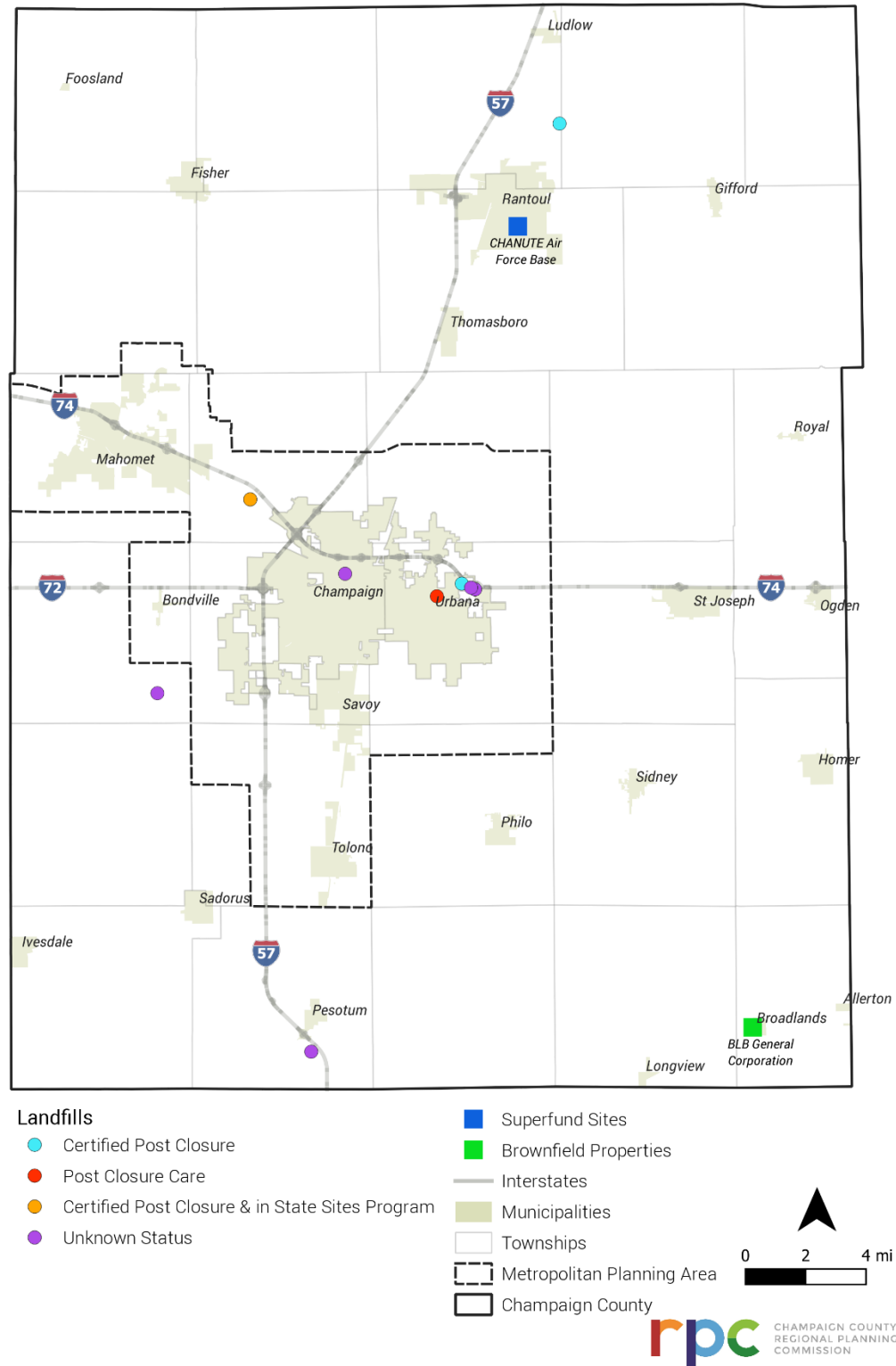
BLB General Corporation in Broadlands is listed as the only Brownfield site within Champaign County. This site is 0.2 acres, and the EPA does not have much information on the site. The last time information was updated was 2012, so that is most likely when it was declared a brownfield, but no exact date is recorded. The brownfield status is related to a leak in a UST from an old service station that existed on the property.¹⁰ The soil and groundwater were contaminated as of 2012 with VOCs (volatile organic compounds) and SVOCs (semi-volatile organic compound). These compounds can cause damage to liver, kidney, central nervous system, as well as being a respiratory irritant.¹¹ No recorded action (assessment or cleanup activities) has been taken at the site, according to the EPA.¹⁰ If a proposed project is within a half-mile of this property, then a PESA must be conducted.²

Figure 7-6: BLB General Corporation



Source: Google Earth Aerial View

Figure 7-7: Brownfield, Superfund, and Landfill Sites in Champaign County



Source: US EPA. Cleanups and Grants Listing Page (2020). Retrieved from <https://ofmpub.epa.gov/apex/cimc/f?p=100:10::NO::>

7.4 Superfund Sites

Sites that are contaminated with hazardous waste that qualify for national funding and cleanup priority due to the severity and danger/scale of the contamination are known as Superfund sites.¹² Superfund is the informal name for sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Under this program, the EPA designates funds to cleanup high priority contaminated sites. Parties who are responsible for the contamination are required to either perform the cleanups or to reimburse the EPA-led cleanups. The goals of the Superfund program are to protect human and environmental health, while holding responsible parties accountable for their actions and returning the site to productive use.⁹

There is only one Superfund site within the County, Chanute Air Force Base (Chanute) in Rantoul (Figure 7-8). Chanute was constructed in 1917 and covers 2,125 acres.¹³ It served many purposes including training, storage, and aircraft maintenance. The base closure began in 1990 and was completed in 1993. Currently, the Air Force is leading the cleanup with IEPA oversight.

Figure 7-8: Chanute Air Force Base Cleanup



Source: Rantoul Press (2018).

Initially, 81 locations within Chanute (buildings, towers, lots, etc.) were identified as contaminated. Currently 32 remain active, while 49 have been closed. Environmental and health concerns with these locations include but are not limited to:¹³

- Contaminated soil, sediment, leachate, and groundwater with hazardous materials
- Contaminants from waste oils and fuels, separator sludge, solvent residues, miscellaneous chemical wastes
- Base lies within the Vermilion watershed (HUC-8) and Salt Fork Creek sub-watershed
 - Salt Fork Creek flows northeasterly across base property, for about 1.9 miles
 - Base storm sewer, numerous subsurface drainage tile systems, surface runoff, seeps, and surface drainage ditches are intermittent tributaries to the Salt Fork Creek

Remediation activities have been conducted by both the federal EPA and Shaw Environmental. Successful remediation activities to date include: ¹³

- Installation of RCRA Subtitle C-compliant landfill caps
- Removal of storage tanks and contaminated soils
- Treatment of 60,000 tons of fuel-contaminated soils
- Retreatment of groundwater
- Demolition of water towers to address lead-based paint concerns

Chanute was proposed for the Superfund National Priorities List (NPL) in 2000. The NPL lists sites of national priority due to the known or potential releases of contaminants, pollutants, or hazardous substances.¹⁴ However, recent progress has sufficiently reduced the human health and environmental risk to no longer warrant potential NPL listing.¹⁰ With the goal of returning a contaminated site to productive use, the Chanute cleanup has made significant progress, with 15 sites currently deemed suitable for reuse.¹³ Several small industries in warehouse operations are currently utilizing existing buildings. Commercial tenants include AT&T, Bell Sports, the University of Illinois Urbana-Champaign, and the Illinois Army National Guard. With several sites already in reuse, development continues to be limited but not impossible. Consultations with the Village of Rantoul or the IEPA are necessary to determine acceptable reuse activities.

7.5 Landfill Sites

Landfills are facilities that have permits to treat, store, and dispose of certain hazardous and non-hazardous wastes.¹⁵ Landfills are required to obtain permits detailing what types of waste are allowed, how much is allowable, how the waste is going to be disposed of, and stabilization plans upon reaching capacity. Permitted landfills have a lifecycle that begins with acquiring the right permits and accepting waste. Once the landfill has reached permitted disposal capacity, it must be closed and covered. Following this period, stabilization actions must be put in place to ensure that the landfill does not leach or expose humans or the environment to any harmful substances. If any landfill sites, regardless of status, are within a half-mile of a proposed project, then a PESA is required.⁹

The Illinois EPA (IEPA) lists 10 landfills within the County. None of them are active, as Champaign County sends the majority of its waste to the City of Danville in Vermilion County. Based on this lifecycle, permitted landfills fall into three categories:

- **Active Landfills:** Permitted to accept waste for disposal. There are no active landfill sites in Champaign County.
- **Landfills in Post-Closure Care:** Permitted disposal capacity has been reached, and the site is closed and covered. Monitoring and maintenance activities continue under a post-closure care plan. While in post-closure, the use of the property may not disturb any containment or monitoring systems unless it is for the protection of human health and the environment.¹⁶ There is one landfill sites in Urbana in Post-Closure Care.
 - Urbana Landfill #3: 1210 E University Ave Urbana, IL 61801

- **Landfills Certified Post Closure:** The post-closure care plan has been completed, releases and leaks have been controlled to permissible extent, and the hazardous waste permit process has been officially terminated. There are three landfill sites in Certified Post-Closure Care and those are:
 - Champaign Municipal: W 1/2 Sect 28 Tns20N R8E Champaign, 61820
 - Rantoul Municipal: Twn 3200N & 1800E Rantoul, IL 61866
 - Urbana Landfill #2: 1210 E University Avenue Urbana, IL 61801 ¹⁶

Figure 7-7 shows the locations of landfills in each of the three categories above. There are also five landfills of unknown status, due to a lack of EPA data, in Champaign County and those are:

- Whetzel Construction Co: 715 W Bradley Champaign, IL 61820
- Ici Americas Inc: 495 Cr 1300N Sadorus, IL 61822
- Illinois Central Gulf Railroad: Pesotum Township Pesotum, IL 61863
- Urbana Municipal: 1210 E University Ave Urbana, IL 61801
- Urbana Landfill: 1210 E University Ave Urbana, IL 61801

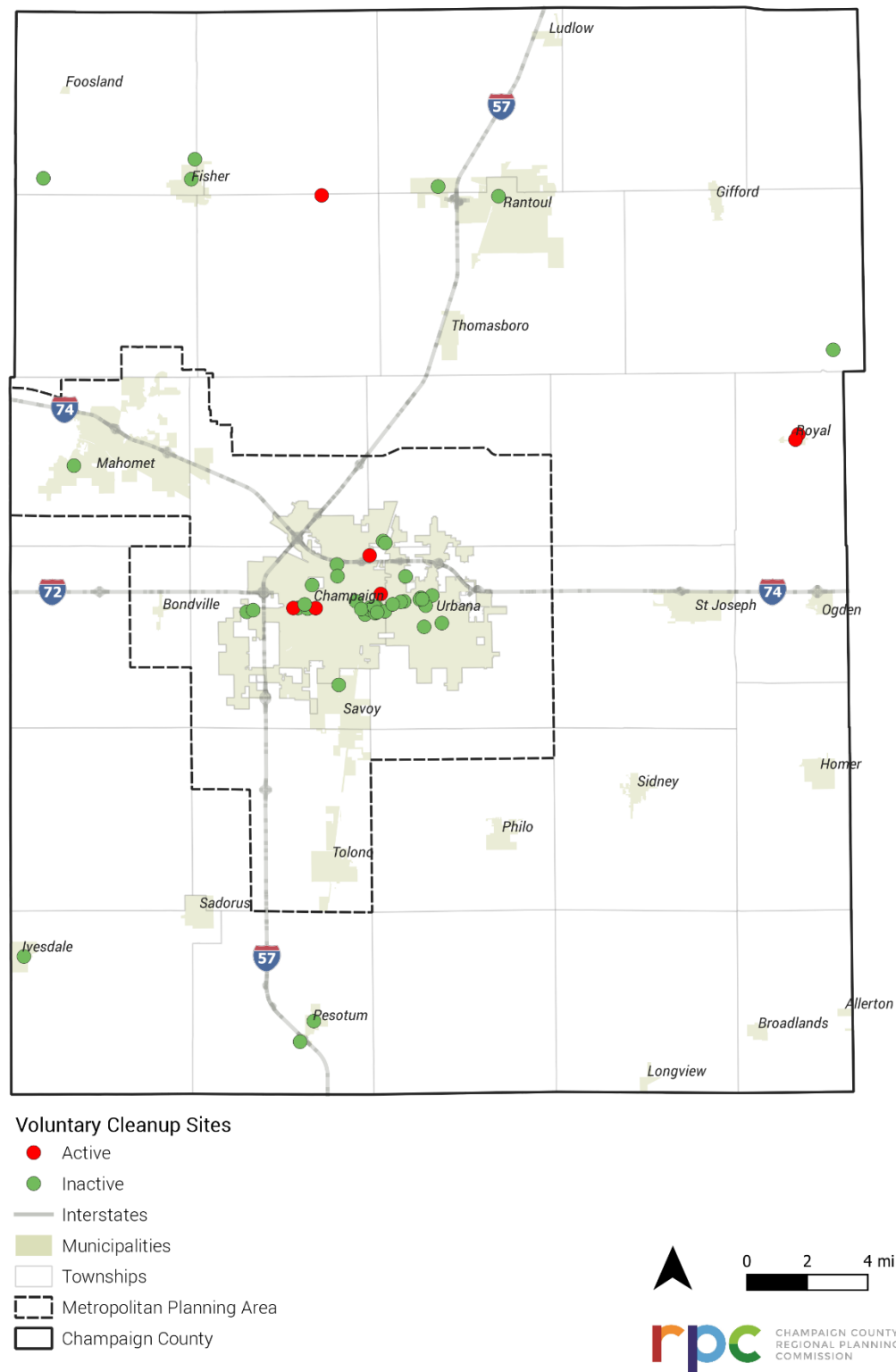
7.6 Cleanup Sites (Site Remediation Program)

The Site Remediation Program (SRP) is a voluntary program that provides State assistance with site investigation, cleanups, and risk management.¹⁷ Sites under this program are also referred to as State Voluntary Cleanup sites.⁹ Administered by the IEPA, this program applies when action is needed to address significant risk to human health and the environment from wastes, and the owner/operator needs assistance reaching targets or required goals. While voluntary, this program may be mandatory according to state or federal requirements, court orders, or permit requirements.¹⁶ The goal of the program is the safe cleanup of hazardous waste sites while being flexible and responsive to the program applicant's needs, constraints, and the site's environmental conditions. Services provided by the SRP includes:

- Review and evaluate site investigation reports, remediation objectives reports, remedial action plans, remedial action completion reports
- Sample collection and analyses
- Assistance with community relations
- Coordination and communication between the applicant and other governmental entities¹⁶

The program is considered successful and complete when a No Further Remediation Letter (NFR) is issued. This is a certification that a site poses no significant risk to human health or the environment.¹⁶

Figure 7-9: Cleanup Sites (or Site Remediation Program Sites) in Champaign County



Source: IEPA. Site Remediation Program Database Search (2020). Retrieved from <https://www2.illinois.gov/epa/topics/cleanup-programs/bol-database/Pages/srp.aspx>.

Within the County there are a total of 49 different sites that currently utilize or have utilized the SRP (Figure 7-9). The majority of these sites are inactive, meaning they have received a NFR (Table 7-6). Other types of special waste sites can be involved in the SRP, such as LUSTs, landfills, RCRA sites, brownfields, and Superfund sites (not on the National Priorities List). Four of the seven active sites in the County are in the City of Champaign. Two are located in Royal, northeast of St. Joseph, and one is located in Dewey, just west of Rantoul. Facility specific information can be found using the IEPA's Site Remediation Program Database.

Table 7-6: SRP Sites in Champaign County

Sites	Count
<i>Inactive Sites</i>	42
<i>Active Site</i>	7
1. Illinois Power Town Gas Plant: 502 East Hill Street Champaign	1
2. 2401 Springfield Avenue: 2401 West Springfield Avenue Champaign	1
3. American Classic: 2000 N Market Street Champaign	1
4. Super Pantry 4: 1601 West Springfield Avenue Champaign	1
5. JBS United, Inc.: 301 North Railroad Street Royal	1
6. JBS United, Inc.: 101 North Railroad Street Royal	1
7. Illini FS: 1009 County Road 3000 North Dewey	1
Total	49

Source: IEPA, 2020

Both active and inactive sites can potentially have special waste on-site, regardless of status. However, inactive sites have been deemed to not present significant risks, so it is less likely that an inactive site will interfere with a proposed project. Active sites have a higher likelihood of causing health or environmental impacts because they have not reached focused or comprehensive cleanup targets. Regardless of status, if an SRP site is within a half-mile of a project, a PESA will be required.⁹

7.7 Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) provides the framework for managing hazardous and other solid wastes from “cradle to grave.” This means that under RCRA, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous and other solid wastes. Sites listed under RCRA are involved with hazardous and/or solid waste at any point in this “cradle to grave” process.¹⁸

In Champaign County there are 507 total RCRA sites, 259 of which are active (Table 7-7). Active sites are currently still generating, treating, storing, or disposing of waste, and are subject to reporting, monitoring, and all other requirements under RCRA. Champaign and Urbana contain roughly 69 percent of RCRA sites in the County and Rantoul contains about 10 percent of total sites (Figure 7-10). Inactive sites may still have waste on the property, but there is not an activity occurring that is subject to RCRA, Subtitle C, or Illinois’ authorized hazardous waste program.¹⁹ There may still be lasting effects from the waste that was associated with a site, so to know the

risk of a specific site, a site inspection is necessary. The RCRA program is not mutually exclusive with all other special waste programs, so other sites previously discussed, such as USTs/LUSTs, landfills, and brownfields, can all be considered RCRA facilities.

Table 7-7: RCRA Sites in Champaign County

City	Active	Inactive	Total
Champaign	121	106	227
Urbana	67	54	121
Rantoul	29	23	52
Mahomet	10	8	18
Savoy	7	7	14
Fisher	5	5	10
Other Areas	20	45	65
Total	259	248	507

Source: US EPA, 2020.

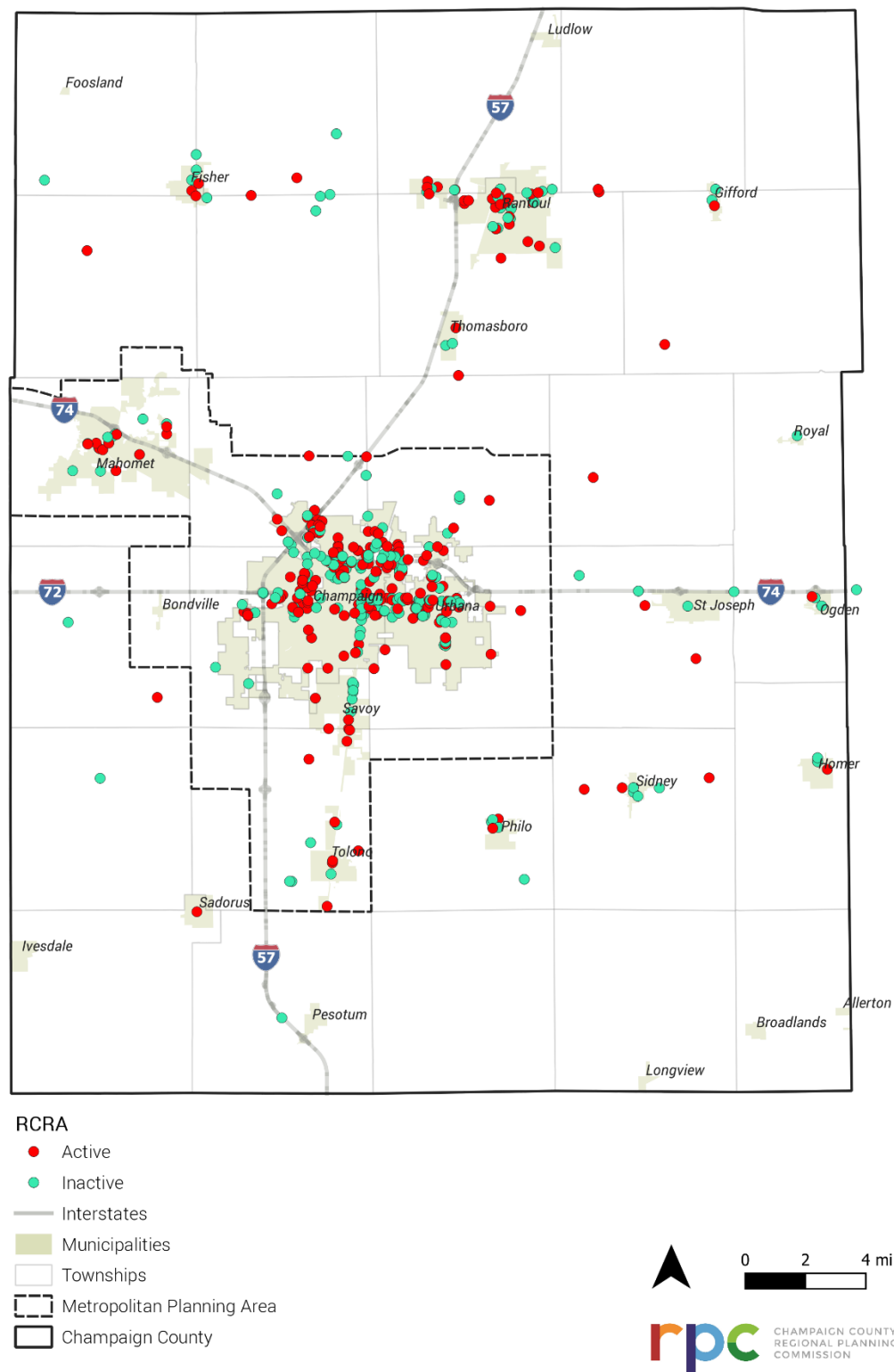
RCRA sites can fall into five general categories, based on the activities involving hazardous or other solid wastes (Table 7-8). Some sites are responsible for generating varying quantities of waste, while others are involved in the transportation and/or storage of waste. Generators are categorized based on the amount of waste that they produce. Most of the sites in Champaign County are Conditionally Exempt Small Quantity Generators (CESQG).²⁰ Different facility types have different requirements, when it comes to IDOT involvement. Projects require a PESA when any of following conditions occur (Table 7-1):

- If a RCRA generator (SQG, LQG, CESQG) is on the property or the adjoining property
- If a RCRA TSD facility is within a half-mile of a project property
- If a RCRA Subject to Corrective Action (CORRACTS) facility is within one mile of a project property²

Table 7-8: RCRA Facility Types

RCRA Facility Types	Definition	Example
Small Quantity Generator (SQG)	100-1,000 kg per month generated of hazardous waste	Target Store 0943 2102 N. Prospect Ave, Champaign 61822
Large Quantity Generator (LQG)	1,000 + kg per month generated of hazardous waste	Combe Laboratories, Inc. 200 Shelhouse Dr., Rantoul 61866
Conditionally Exempt Small Quantity Generator (CESQG)	100 kg or less per month generated of hazardous waste	Caseys General Store Inc. 206 E. Division, Fisher 61843
Transporter	Facility moves hazardous waste by air, rail, highway, or water	UIUC Main Campus 101 S. Gregory St., Urbana 61801
Treatment, Storage, and Disposal Facility (TSD)	Facility, in accordance to 40 CFR 260.10, that performs treatment, storage or disposal activities with hazardous or other solid waste	N/A
Unspecified Universe	Facility not currently classified	Illini Pest Control, Inc. 1430 S. Niel St., Champaign 61820

Figure 7-10: RCRA Sites in Champaign County



Source: US EPA. RCRA Info (2020). Retrieved from <https://enviro.epa.gov/facts/rcrainfo/search.html>

7.8 RCRA Subject to Corrective Action (CORRACTS)

A subsection of RCRA facilities are those that are subject to corrective action, commonly known as CORRACTS facilities. These are facilities where mismanagement of waste has resulted in an identified release of hazardous waste or constituent, or when the EPA is considering a Treatment, Storage, and Disposal (TSD) facility permit application.²¹ Cleanup can be required through an existing RCRA permit, voluntary agreement, order, or administrative judicial action.²² Several types of enforcement actions can trigger and enforce cleanups for a CORRACTS designation:²²

- Administrative Actions: Demanding compliance with permit requirements (EPA issued)
- Civil Judicial Actions: Formal lawsuits filed in district court
- Criminal Actions: Criminal lawsuit against people who knowingly violated RCRA
- Citizen Suits: Citizen brings enforcement lawsuit

Three active CORRACTS sites exist within Champaign County: Chanute Air Force Base, University of Illinois Main Campus (Abbott Power Plant), and Safety-Kleen Systems Inc. These sites are currently involved in fulfilling corrective action requirements. Site specific information on these facilities can be found at US EPA's Cleanups In My Community Map:²³

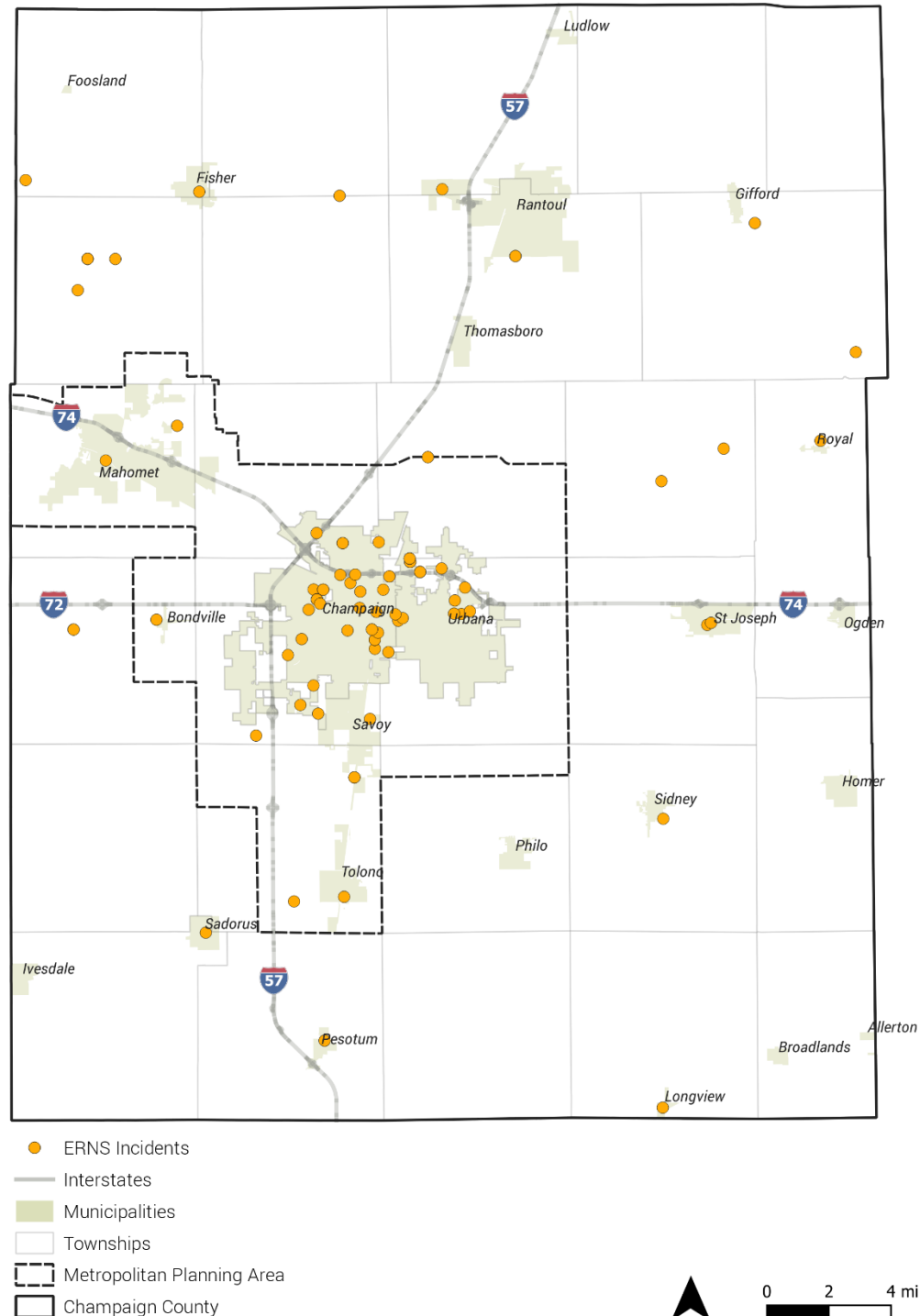
Three inactive CORRACTS sites exist within Champaign County: Bell Sports Co., Kraft Food Ingredients Corp. and Orkin Pest Control Co. Inc. Inactive, in this case, means that they have achieved corrective action requirements. With both RCRA and RCRA CORRACTS facilities, site-specific information will determine whether a site is safe for potential development. Depending on the specific nature of a RCRA site, development may be affected in that area. Overall, a project should not impact a RCRA site in a way that poses a threat to human health or the environment. Determining this impact will require site-specific inquiries.

7.9 Emergency Response Notification System (ERNS)

The Emergency Response Notification System (ERNS) tracks instances of oil discharges and hazardous substance releases.²⁴ Data on discharges and releases are a result of a cooperative data sharing effort among the EPA, Department of Transportation Research and Special Programs Administration, state DOT offices, and the National Response Center. The EPA manages the ERNS program, and since its creation, more than 275,000 release notifications have been entered into ERNS.²⁴

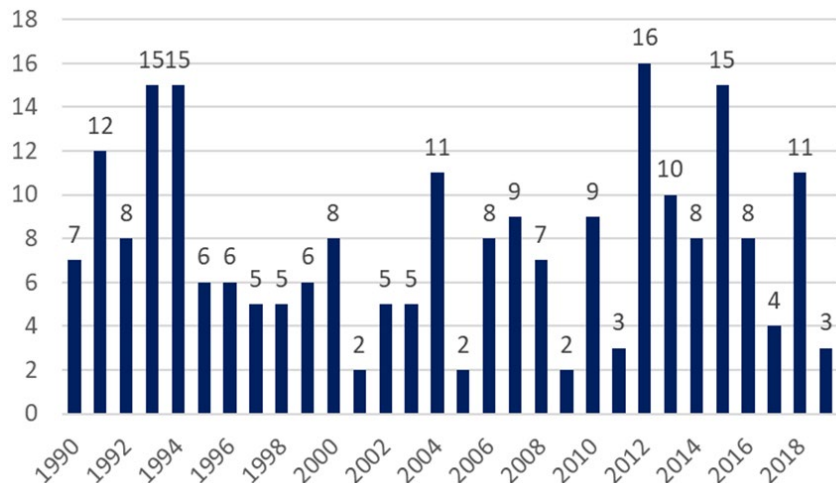
ERNS informs EPA pollution responses and prevention, while supporting other environmental protection programs such as CERCLA, the Clean Water Act, and the Emergency Planning and Community Right-to-Know Act of 1986.²⁵ Data available in ERNS includes the material and quantity released, location and time of the release, what agencies have been notified, and information on property damage, injuries, and deaths due to the release.²⁵ Most sites are located around the MPA (Figure 7-11).

Figure 7-11: ERNS incidents in Champaign County since 1990



Source: National Response Center (2020). Retrieved from <https://nrc.uscg.mil/>
 Since 1990 there have been 232 releases in Champaign County (Figure 7-12).

Figure 7-12: ERNS incidents in Champaign County since 1990



Source: National Response Center, 2020.

Since 1990, the most frequent ERNS incidents have involved anhydrous ammonia (26), diesel oil (24), and natural gas (13). The rest of the releases (169) involve a diverse range of chemicals or information on the release was not available (Table 7-9).

Table 7-9: ERNS Incidents by type of oil leak

Material	Incidents
Anhydrous Ammonia	26
Diesel Oil	24
Natural Gas	13
Others or Unknown	169
Total	232

Source: National Response Center, 2020.

Release incidents center around the Champaign-Urbana area, but others have been recorded throughout the County (Table 7-10). ERNS sites within a project area must be reported when submitting an IDOT Environmental Survey Request.⁷

Table 7-10: ERNS Incidents Locations in Champaign County

City	ERNS Incidents since 1990
Champaign	101
Urbana	21
Tolono	13
Fisher	11
Rantoul	9
Savoy	8
Others	69
Total	232

Source: National Response Center, 2020.

About 33 percent of the ERNS incidents recorded since 1990 were fixed type (Table 7-11) and 29 percent were due to equipment failure (Table 7-12).

Table 7-11: Type of ERNS Incidents in Champaign County

Type of ERNS Incident	Count
Fixed	76
Railroad	51
Mobile	39
Railroad Non-Release	36
Storage Tank	16
Pipeline	9
Unknown Sheen	4
Continuous	1
Total	232

Source: *National Response Center, 2020.*

Table 7-12: ERNS Incidents Causes

Incident Cause	Count
Equipment Failure	68
Unknown	61
Other	37
Transport Accident	16
Operator Error	15
Dumping	12
Trespasser	7
Derailment	6
Natural Phenomenon	5
Suicide	3
Explosion	1
Over Pressuring	1
Total	232

Source: *National Response Center, 2020.*

References

- ¹ IEPA. *Special Waste: Generator, Hauling and Manifest Information* (2020). Retrieved from <https://www2.illinois.gov/epa/topics/waste-management/waste-disposal/special-waste/Pages/default.aspx>
- ² IDOT *Special Waste Screening Form D5 PI0201*
- ³ USEPA. *Learn About Underground Storage Tanks (USTs)* (2019). Retrieved from <https://www.epa.gov/ust/learn-about-underground-storage-tanks-usts>
- ⁴ USEPA. *Leaking Underground Storage Tanks Corrective Action Resources* (2020). Retrieved from <https://www.epa.gov/ust/leaking-underground-storage-tanks-corrective-action-resources#intro>
- ⁵ EPA. *State Underground Storage Tank (UST) Programs* (Aug 2020). Retrieved from <https://www.epa.gov/ust/state-underground-storage-tank-ust-programs>
- ⁶ IEPA. *An Introduction to Leaking Underground Storage Tanks* (2008). Retrieved from <https://www2.illinois.gov/epa/topics/cleanup-programs/lust/publications-regs/Pages/introduction.aspx>
- ⁷ IDOT *Special Waste Screening Form D5 PI0201*
- ⁸ IEPA. *Brownfields* (2020). Retrieved from <https://www2.illinois.gov/epa/topics/cleanup-programs/brownfields/Pages/default.aspx>
- ⁹ EPA. *Overview of EPA's Brownfields Program* (2020). Retrieved from <https://www.epa.gov/brownfields/overview-epas-brownfields-program>
- ¹⁰ EPA. *Brownfields Property Progress Profile: BLB Generation Corporation* (n.d.). Retrieved from https://obipublic.epa.gov/analytics/saw.dll?PortalPages&Action=Navigate&PortalPath=/shared/CIMC/_portal/CIMC&Page=Profile+Page&col1=ACRES_GRANT_EXPORT.PROPERTY_ID&val1=%22131882%22
- ¹¹ EPA. *Volatile Organic Compounds* (2017). Retrieved from <https://www.epa.gov/indoor-air-quality-iaq/volatile-organic-compounds-impact-indoor-air-quality>
- ¹² EPA. *What is Superfund?* (2018). Retrieved from <https://www.epa.gov/superfund/what-superfund>
- ¹³ IEPA. *Chanute Air Force Base* (2020). Retrieved from <https://www2.illinois.gov/epa/topics/community-relations/sites/chanute-afb/Pages/default.aspx>
- ¹⁴ EPA. *Superfund: National Priorities List (NPL)* (June 2018). Retrieved from [https://www.epa.gov/superfund/superfund-national-priorities-list-npl#:~:text=The%20National%20Priorities%20List%20\(NPL,United%20States%20and%20its%20territories.](https://www.epa.gov/superfund/superfund-national-priorities-list-npl#:~:text=The%20National%20Priorities%20List%20(NPL,United%20States%20and%20its%20territories.)
- ¹⁵ EPA. *Basic Information about Landfills* (March 2020). Retrieved from <https://www.epa.gov/landfills/basic-information-about-landfills>

¹⁶ EPA. *Introduction to Closure/Post-Closure (40 CFR Parts 264/265, Subpart G) (2005)*. Retrieved from <https://www.epa.gov/sites/production/files/2015-07/documents/close05.pdf>

¹⁷ IEPA. *Overview of the Site Remediation Program (2020)*. Retrieved from <https://www2.illinois.gov/epa/topics/cleanup-programs/srp/Pages/overview.aspx>

¹⁸ EPA. *Summary of the Resource Conservation and Recovery Act (2019)*. Retrieved from <https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act>

¹⁹ EPA. *RCRAInfo: Glossary of Terms (n.d.)*. Retrieved from https://rcrainfo.epa.gov/rcrainfo/help/generalhelp/glossary_of_terms.htm#L

²⁰ *Federal RCRA generators list*. Retrieved from <https://enviro.epa.gov/facts/rcrainfo/search.html>

²¹ EPA. *Learn about Corrective Action (2020)*. Retrieved from <https://www.epa.gov/hw/learn-about-corrective-action#whatare>

²² EPA. *RCRA Corrective Action Cleanup Enforcement (2020)*. Retrieved from <https://www.epa.gov/enforcement/rcra-corrective-action-cleanup-enforcement>

²³ EPA. *Cleanups In My Community Map (2016)*. Retrieved from https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:73::NO:73:P71_WELSEARCH:Champaign%20County%7CZipcode%7C%7C%7C%7Ctrue%7Ctrue%7Ctrue%7Ctrue%7Ctrue%7C%7C-1%7Csites%7CN%7Cbasic

²⁴ EPA. *Science Inventory: Emergency Response Notification System (ERNS) (Sept. 2020)*. Retrieved from https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=&count=10000&dirEntryId=2874&searchall=&showcriteria=2&simplesearch=0&timstype=

²⁵ EPA. *An Overview of ERNS: ERNS Fact Sheet (March 1995)*. Retrieved from <https://nepis.epa.gov/Exe/ZyNET.exe/910002XE.txt?ZyActionD=ZyDocument&Client=EPA&Index=1995%20Thru%201999&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C95THRU99%5CTXT%5C00000028%5C910002XE.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1>

Chapter 8: Ambient Conditions

Climate change caused by human activities is a growing global threat. The National Oceanic and Atmospheric Administration (NOAA) projects ongoing increases in Illinois temperatures and extreme precipitation events depending on future levels of greenhouse gas emissions.¹ These climate changes and their impact on many industries and different aspects of life are important to consider when improving the sustainability of transportation planning.

At the national level, the transportation sector accounted for the largest portion of total U.S. greenhouse gas emissions in 2017 (Figure 8-1). The most recent data for Illinois shows a similar pattern: in 2016 the transportation sector accounted for the largest share of carbon dioxide emissions. While all types of vehicles contribute to transportation sector emissions, the passenger cars and light-duty trucks most area residents rely on every day are responsible for the majority of emissions within the transportation sector (Figure 8-2).²

Figure 8-1: U.S. Greenhouse Gas Emissions by Sector, 2017

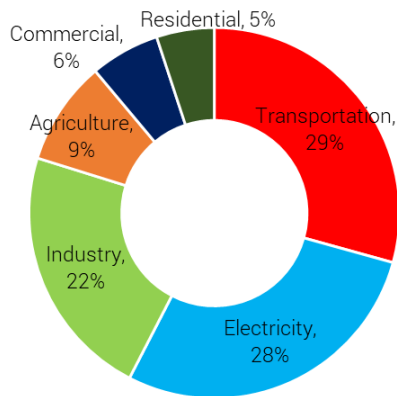
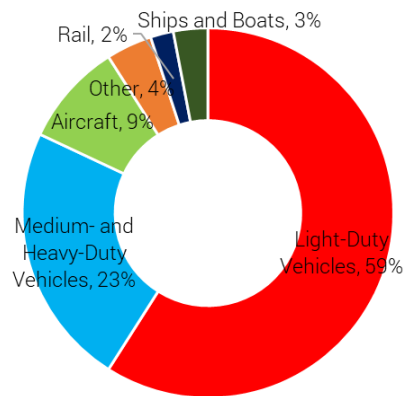


Figure 8-2: U.S. Transportation Greenhouse Gas Emissions by Source, 2017



Source: United States Environmental Protection Agency, Accessed 18 July 2018.

Climate change can impact air quality, and air quality can also impact climate change. For instance, ozone in the atmosphere warms the climate, while different components of particulate matter (PM) can have either warming or cooling effects on the climate.³

8.1 Air Quality

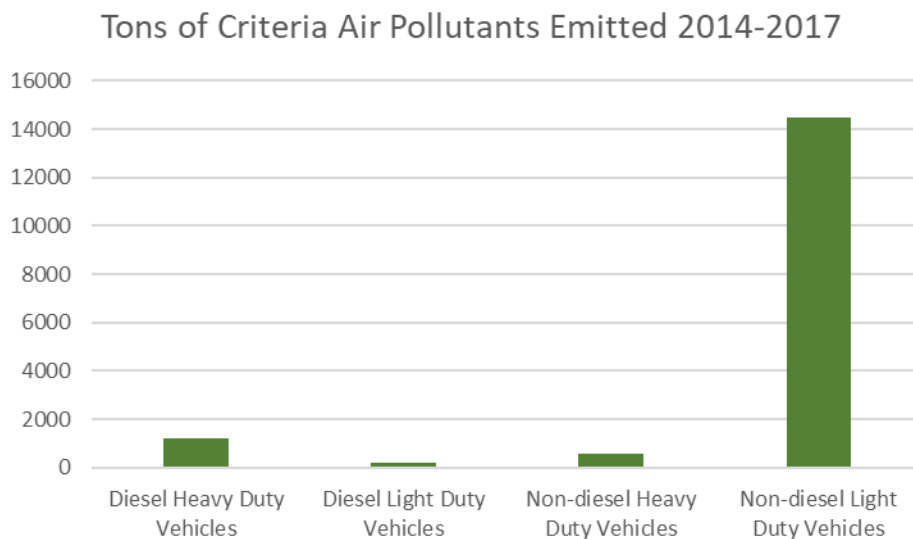
Air quality can be measured in many ways, but transportation contributes to two large categories of air pollutants:

- Greenhouse Gases (GHG)⁴: Gases that trap heat in the atmosphere, contributing to global climate change
- Criteria Air Pollutants (CAP)⁵: Common ambient air pollutants that cause harm to health, the environment, and property

8.1.1 Greenhouse Gases (GHG)

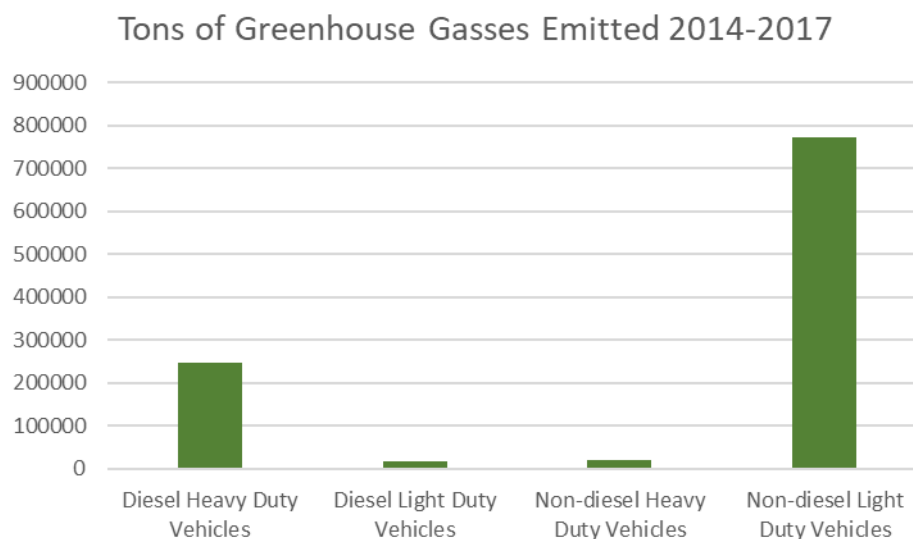
Non-diesel light duty vehicles contribute the vast majority of both CAP and GHG emissions in Champaign County (Figure 8-3 and Figure 8-4). Diesel heavy duty vehicles contribute the next most, but are still dwarfed in comparison.⁶ Non-diesel light duty vehicles are often personal cars, SUVs, and light duty trucks. Traffic and congestion issues with transportation networks exacerbate pollution impacts.

Figure 8-3: Champaign County Criteria Air Pollutant Pollution by Vehicle Type 2014-2017



Source: National Emissions Inventory 2017

Figure 8-4: Champaign County Greenhouse Gas Pollution by Vehicle Type 2014-2017



Source: National Emissions Inventory 2017

8.1.2 Criteria Air Pollutants (CAP)

Under the Clean Air Act, the U.S. EPA set National Ambient Air Quality Standards (NAAQS) for the six “criteria pollutants” deemed most harmful to public health and the environment¹:

- Particulate matter (PM_{2.5}, PM₁₀)
- Nitrogen dioxide (NO₂)
- Ozone (O₃)
- Carbon monoxide (CO)
- Sulfur dioxide (SO₂)
- Lead (Pb)

NAAQS are broken down into primary and secondary standards (Table 8-1). Primary standards provide public health protection, especially those more sensitive to pollution such as asthmatics, children, and the elderly. Secondary Standards provide public welfare protections, such as visibility, and damage to animals, crops, vegetation, and buildings.⁷ Illinois’ current air quality standards are listed below:

Table 8-1: Summary of National and Illinois Ambient Air Quality Standards

Summary of National and Illinois Ambient Air Quality Standards					
Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide		Primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead		Primary and Secondary	Rolling 3- month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide		Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		Primary and Secondary	Annual	53 ppb	Annual Mean
Ozone		Primary and Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution	PM2.5	Primary	Annual	12.0 µg/m ³	Annual mean, averaged over 3 years
		Secondary	Annual	15.0 µg/m ³	Annual mean, averaged over 3 years
		Primary and Secondary	24-hour	35 µg/m ³	98th percentile, averaged over 3 years
	PM10	Primary and Secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year
PM2.5 Standards are referenced to local conditions of temperature and pressure rather than standard road conditions (760 mmHg and 25 degrees Celsius)					

Source: IEPA, Illinois 2018 Annual Air Quality Report Final (2018)

Local governments are responsible for meeting these standards at a county scale. Should air quality measurements fail to meet these standards, that county is designated as a nonattainment area. Nonattainment areas must reach compliance with the Illinois State

Implementation Plan (SIP), meaning mandated pollution control procedures.⁸ Champaign County is currently considered in attainment with all NAAQS.⁹ The Illinois EPA monitors CAPs throughout the year and publishes findings in the Illinois Annual Air Quality Report. In Champaign County these pollutants are measured across three different monitoring sites, and only four of the six criteria pollutants are measured (Table 8-2):

Table 8-2: Champaign County CAP Testing Sites by Criteria Pollutants

Testing Site	CO	O ₃	PM _{2.5} , PM ₁₀	SO ₂	NO ₂	Pb
Champaign			✓			
Bondville	✓	✓	✓	✓		
Thomasboro		✓				

✓ = measured at this site

Source: IEPA, Illinois 2018 Annual Air Quality Report Final (2018)

Air Quality Index

The EPA devised Air Quality Index (AQI) rates air quality on a scale from “Good” to “Hazardous” (Table 8-3). AQI considers concentrations of criteria pollutants and a handful of other heavy metals, volatile organic compounds, and toxic compounds, along with atmospheric and weather conditions. The following, from the 2018 IEPA Air Quality Report, describes this scale:¹

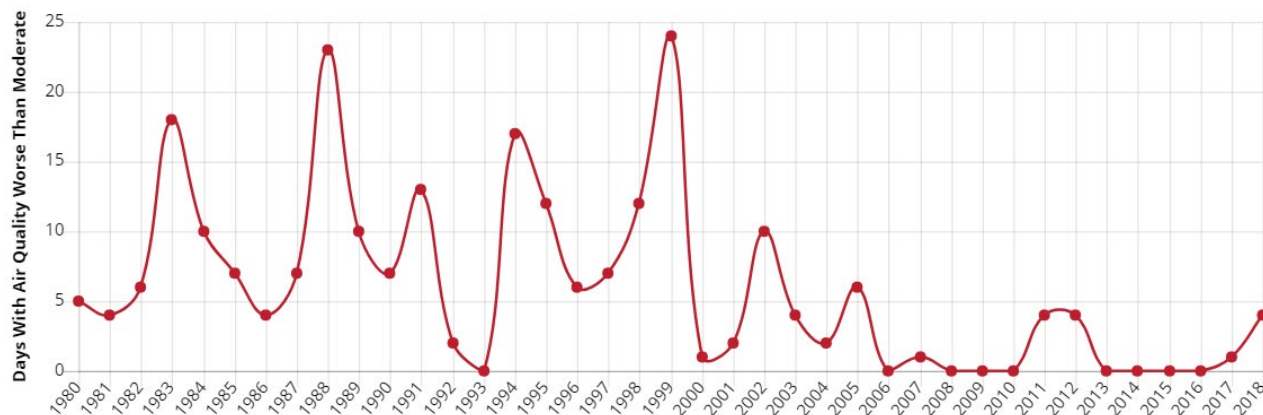
Table 8-3: Air Quality Index Health Concerns

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.
Hazardous	301 to 500	Health alert: everyone may experience more serious health effects.

Source: IEPA, Illinois 2018 Annual Air Quality Report Final (2018)

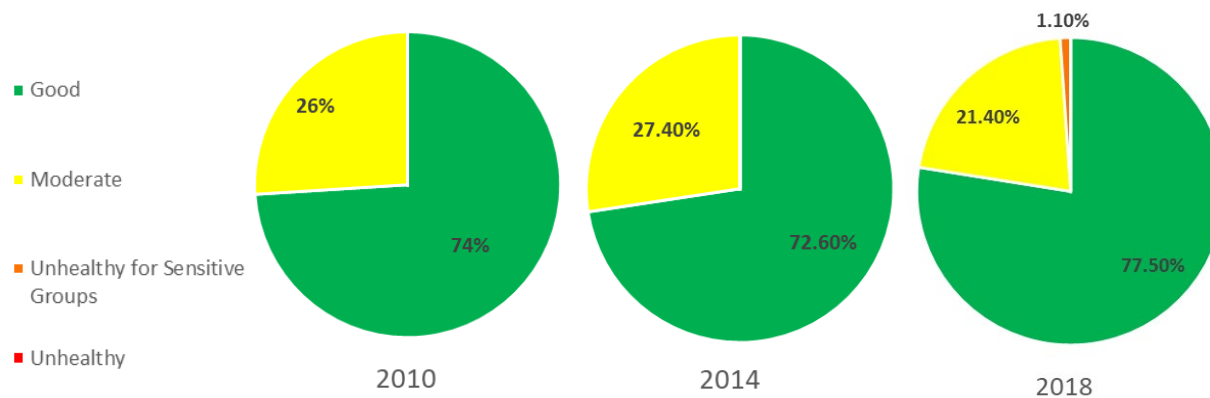
Champaign County's air quality has shown a significant improvement in the last two decades. From 1980-1990, 94 days were rated less than “Moderate”. From 1990-2000, this number increased slightly to 100 days rated less than “Moderate”. However, from 2000-2010, only 26 days were rated less than “Moderate,” and from 2010-2018 (most recent available data) only 13 days have been rated less than “Moderate”.¹⁰ Since 2000, no years have surpassed 10 days with less than “Moderate” air quality and no days were “Unhealthy”. Since 2008, only three years had any days rated less than “Moderate” (Figure 8-5).¹⁰ From 2010 to 2018 over 70 percent of the days have had “Good” air quality (Fig 8-6).¹

Figure 8-5: Champaign County Air Quality 1980-2018



Source: CCRPC. Air Quality (2018)

Figure 8-6: Champaign County AQI Yearly Percentages 2010-2018



Source: IEPA, Illinois 2018 Annual Air Quality Report Final (2018)

8.2 Light Pollution

Perhaps the most noticeable, yet least considered form of pollution comes from the use of artificial lighting, or light pollution. The International Dark-Sky Association (IDA) defines light pollution as the inappropriate or excessive use of artificial lighting.¹¹ Artificial lighting has been linked to human health problems such as depression and insomnia and produces just as salient of hazards to the natural environment.¹² Natural light regulates fundamental biological activities across almost all species which, when disrupted, impedes and prevents biological timing for feeding, finding shelter, migrating, and reproducing.¹³ No national standards exist to regulate the impacts of light pollution on environmental health, so local ordinances must be implemented. The International Dark Sky Association (IDA) provides resources on light pollution and best practices for outdoor lighting installation. Their website includes a catalogue of outdoor lighting fixtures that meet their Fixture Seal of Approval program, designed to minimize glare while reducing light trespass and skyglow.¹⁴ Other resources include publications and infographics explaining light pollution and ways it can be minimized (Figure 8-7).

Figure 8-7: International Dark Sky Association Light Pollution Solution Postcard



Source: International Dark Sky Association – Light Pollution Solution Postcard

Champaign County currently ranks 82nd out of 102 counties statewide in light pollution, with a mean radiance of 368 $\mu\text{cd}/\text{m}^2$ (microcandelas per square meter, the SI Unit of Luminance) (Table 8-4).^{12,10} The least light polluted county is Schuyler County, with a mean radiance of 49 $\mu\text{cd}/\text{m}^2$. The most polluted is Cook County, with a mean radiance of 7025 $\mu\text{cd}/\text{m}^2$. Neighboring Piatt County ranks 38th out of 102, with a mean radiance of 126 $\mu\text{cd}/\text{m}^2$.¹² While Champaign County performs better relative to the most light-polluted county in the state, mitigation strategies should be implemented as a means of best practice and avoidance of environmental impacts (Figure 8-8).

Table 8-4: Comparison of Light Pollution in Illinois Counties

County	Mean Radiance ($\mu\text{cd}/\text{m}^2$)	State Rank (1=least polluted, 102=most polluted)
Schuyler	49	1
Piatt	126	38
Champaign	368	82
Cook	7025	102

Falchi, F. et al (2019)

Figure 8-8: Champaign-Urbana at Night



Source: *Parkland.edu Life in Champaign*

Champaign County has the only designated International Dark Sky Park in Illinois, the Middle Fork River Forest Preserve (Figure 8-9). This designation, bestowed by the IDA, recognizes land possessing an exceptional or distinguished quality of starry nights and a nocturnal environment specifically protected for its scientific, natural, education, cultural heritage, and/or public enjoyment.¹⁵ The Middle Fork River Forest preserve, a 1700-acre site in the northwest corner of the County, in Penfield, is a dark nighttime refuge for wildlife against the light pollution coming from Urbana, Champaign, and Rantoul. Designated in 2018, the Champaign County Forest Preserve District manages the park, and spent over \$20,000 to upgrade outdoor lighting to meet IDA recommendations. Interpretive programs to teach visitors about the benefits of nighttime darkness have also been developed.¹⁶

Figure 8-9: Night Sky at Middle Fork River Forest Preserve



Source: *International Dark Sky Association – Middle Fork River Forest Preserve (U.S.)*

8.3 Noise Pollution

An infrequently considered form of pollution comes from noise. Sustained high noise levels result in health problems like sleep loss, high blood pressure, and even heart disease. Wildlife

impacts include disruptions in the ability to navigate, find food, attract mates, and avoid predators.¹⁷

Damage to human ears from noise begins roughly at 85 decibels, and for wildlife the level varies by species.¹⁸ Noise above 85 decibels for a prolonged period of time can damage hearing, while noises above 120 decibels can cause immediate harm.¹⁸ Typical highways range from 70-80 decibels, potentially impacting both humans and wildlife. Figure 8-10 illustrates noise pollution levels from common sources.

Figure 8-10: Common outdoor and indoor noises

Common Outdoor and Indoor Noises

Outdoor Noises	Sound Pressures (uPa)	Sound Pressure Levels (dB)	Indoor Noises
Jet Flyover at 300 m	6,324,555	110	Rock Band at 5 am
Gas Lawn Mower at 1 m	2,000,000	100	Inside Subway Train (New York)
Diesel Truck at 15	632,456	90	Food Blender at 1 m
Noisy Urban Daytime	200,000	80	Garbage Disposal at 1 m
Gas Lawn Mower at 30 m	63,246	70	Shouting at 1 m
Commercial Area	20,000	60	Vacuum Cleaner at 3 m
Quiet Urban Daytime	6,325	50	Normal Speech at 1 m
Quiet Urban Nighttime	2,000	40	Large Business Office
Quiet Suburban Nighttime	632	30	Dishwasher Next Room
Quiet Rural Nighttime	200	20	Small Theatre, Large Conference Room (Background)
	63	10	Library
	20	0	Bedroom at Night
			Concert Hall (Background)
			Broadcast and Recording Studio
			Theshold of Hearing

Source: FHWA. *Common Outdoor and Indoor Noises* (2017)

Noise analyses must be conducted for all Type I projects* initiated by the Department of Transportation, federally funded projects, or projects requiring FHWA approval, regardless of funding source.¹⁹ Conducted concurrently with development of an EIS, EA, or other environmental report, the analysis must be done in a timely manner to reach milestones related to NEPA or other goals following the guideline of the IDOT Highway Traffic Noise Assessment Manual.²⁰

Areas particularly sensitive to impacts from traffic noise are those with exterior use areas (patios, decks, yards), common areas (benches, playgrounds), and areas with access to the exterior (windows, doors, balconies).¹⁹ When traffic noise impacts are identified, considerations for noise abatement must be evaluated for feasibility and reasonableness as per BDE 26-6.05(d). Community input must be taken into account, although comment solicitation is at the discretion of IDOT and the FHWA.

Noise abatement must be considered when predicted traffic noise levels for the design year approach are within 1 decibel of or exceed the noise abatement criteria listed below, or when the predicted traffic noise levels are substantially higher (more than 14 decibels greater) than the existing noise level.⁴ Table 8-5 lists the equivalent continuous sound level [Leq(h)], or noise threshold, at which certain activities require a noise abatement consideration. Leq(h) represents the average sound energy, converted from decibels, of a given area over a given time.²¹ IDOT has grouped the activities described below into seven categories (A-F), each with different noise thresholds [Leq(h)] that, when approached, trigger noise abatement considerations. Each category, in addition to having a noise threshold [Leq(h)], also has a location where noise evaluations are required to take place.¹⁹

*Type 1 Projects, per 23 CFR 772 *

1. Construction of highways on new location
2. Physical alteration of existing highway – horizontal or vertical
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a HOV lane, High Occupancy Toll (HOT) lane, bus lane, or truck climbing lane; or,
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or,
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or,
6. Restriping existing pavement to add additional through traffic lanes or auxiliary lanes
7. Addition of a new or substantial alteration of weigh stations, rest stops, ride share lots, or toll plazas

Table 8-5: Noise Abatement Criteria

Activity Category	Leq(h)	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential.
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

Source: IDOT. BDE Manual 26-6.05(d)

The Federal Highway Administration (FHWA) deals with noise pollution using three different methods²²:

- Source Control – Decibel limitations on newly manufactured trucks with a weight limit
- Design or Operation Mitigation
 - Restricting truck access
 - Traffic signal timing adjustments
 - Depressing the highway below grade
 - Installing noise barriers (this is the most common method)
- Noise-Compatible Land Use Planning – Locating roads and highways away from sensitive areas

With over 2,600 miles of roadways, including the convergence of interstates and lesser highways, Champaign County's transportation network invites the potential for noise pollution from a diverse range of sources.²³ Three interstates (I-57, I-74, and I-72), three US Routes (US 45, US 150, and US 136), five state highways (10, 47, 49, 54, and 130), over 20 county highways, and 1,500 miles of township roads make up a broad transportation network.²³ Being in such a favorable position for regional commerce and travel, means that planners need to consider the effects of new projects on the noise pollution levels in the County. While many of these roads are rural, minimizing noise pollution is an important part of a socially, economically, and environmentally healthy and prosperous County, and should not be overlooked.

References

¹ *The Particle Pollution Report: Current Understanding of Air Quality and Emissions through 2003*. Neil Frank. 2006. *The Chemical Composition of PM_{2.5} to support PM Implementation*. AQAG/AQAD USEPA. Pompano Beach, FL. Chantara. 2012. *PM₁₀ and Its Chemical Composition*. Chiang Mai University.

² CCRPC. *L RTP 2045: Environment* (Dec. 2019). Retrieved from <https://ccrpc.gitlab.io/lrtp2045/existing-conditions/environment/>

³ United States Fish and Wildlife Service, *National Wetlands Inventory*, Accessed 12/7/2018

⁴ EPA. *Greenhouse Gas Emissions* (May 2020). Retrieved from <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>

⁵ IEPA. *2018 Annual Air Quality Report Final, 2018 Annual Air Quality Report Final* (2018). Springfield, IL.

⁶ EPA. *2017 National Emissions Inventory* (April 2020). Retrieved from <https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data>

⁷ NAAQS Table. (2016, December 20). Retrieved from <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

⁸ NDEQ. *FAQ's about Attainment & Nonattainment* (July 2008). Retrieved from <http://www.deq.state.ne.us/AirWaves.nsf/cf7e4bdd49c643bf8625747f005a1515/3b00b887a2bae40b8625748e005ffbf5>

⁹ EPA. *Green Book: Current Nonattainment Counties for All Criteria Pollutants* (June 2020). Retrieved from <https://www3.epa.gov/airquality/greenbook/ancl.html>

¹⁰ RPC. *Air Quality* (2020). Retrieved from <https://ccrpc.org/data/air-quality/>

¹¹ IDA. *Light Pollution* (n.d.). Retrieved from <https://www.darksky.org/light-pollution/>

¹² Falchi, F., Furgoni, R., Gallaway, T., Rybnikova, N., Portnov, B., Baugh, K., ... Elvidge, C. (2019). *Light pollution in USA and Europe: The good, the bad and the ugly*. *Journal of Environmental Management*, 248. doi: 10.1016/j.jenvman.2019.06.128

¹³ Vandernoot, E. (n.d.). *Light Pollution Harms the Environment*. Florida Atlantic University, Department of Physics. Retrieved November 12, 2019, from <http://cescos.fau.edu/observatory/lightpol-environ.html>.

¹⁴ IDA. *Find Dark Sky Friendly Lighting* (n.d.) Retrieved from <https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/>

¹⁵ IDA. *International Dark Sky Parks* (n.d.) Retrieved from <https://www.darksky.org/our-work/conservation/idsp/parks/>

¹⁶ IDA. *Middle Fork River Forest Preserve* (n.d.) Retrieved from <https://www.darksky.org/our-work/conservation/idsp/parks/middle-fork-river-forest-preserve/>

¹⁷ National Geographic. *Noise Pollution* (n.d.) Retrieved from nationalgeographic.org/encyclopedia/noise-pollution/

¹⁸ HealthLink BC. *Harmful Noise Levels* (n.d.) Retrieved from <https://www.healthlinkbc.ca/health-topics/tf4173>

¹⁹ IDOT. *BDE Manual Chapter 26-6: Noise Analysis* (Dec. 2017). Retrieved from <http://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2026%20Special%20Environmental%20Analyses.pdf>

²⁰ IDOT. *BLRS Manual Chapter 20-6: Noise Analysis* (July 2013). Retrieved from <http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Local-Roads-and-Streets/Chapter%2020.pdf>

²¹ Gracey & Associates. *Sound and Vibration Basics: Leq - Equivalent Continuous Sound Level – Laeq* (n.d.) Retrieved from <http://www.gracey.co.uk/basics/leq-b1.htm>

²² Corbisier, C. *FHWA: Living With Noise*, (Jan. 2017). Retrieved from <https://www.fhwa.dot.gov/publications/publicroads/03jul/06.cfm>

²³ CCRPC. *Land Resource Management Plan, Chapter 9: Transportation* (April 2010). Retrieved from https://ccrpc.org/wp-content/uploads/2010/04/11_v1_Chapter9.pdf

Chapter 9: Regional Goals & Objectives

Regional Conservation and Mitigation Goal:

The REF will seek to foster and maintain conditions for productive harmony between the built and natural environment by reducing environmental impacts of transportation projects within Champaign County, expanding coordination between planning agencies and resource agencies, and incorporating strategies to maintain and improve the ecological function, integrity, and economic value of Champaign County's natural resources.

The regional conservation and mitigation goal advances the stewardship component of the overarching REF goal: "REF will provide comprehensive and centralized information on environmental, social, and cultural resources to understand and incorporate into the transportation planning process, strengthening environmental stewardship and facilitating all levels of environmental reviews."

To compliment the regional conservation goal, the table below includes resource-specific objectives, indicators, and strategies for planners to consider when undertaking new transportation projects (Table 9-1). Not every objective and strategy will be applicable to every project. It is up to the planners and other REF-users to determine how the different strategies could be applied in different contexts to achieve sustainable project outcomes. The indicators presented help gauge how environmental resources can be measured, helping agencies track an individual project's progress toward each objective over time. These indicators will not be tracked within the REF but can be used by agencies carrying out projects to more holistically consider environmental stewardship. For instance, the objectives, indicators, and strategies will inform the Project Priority Guidelines, used by CCRPC (in its role as the Metropolitan Planning Organization) to evaluate and document consistency between the local use of federal Surface Transportation Block Group Program funds and federal and regional transportation goals.

REF strategies were developed in accordance with the following local, state, and federal plans: *CCRPC Long Range Transportation Plan: 2045, 2010 Land Resource Management Plan, Regional Water Supply Framework for Champaign County and East-Central Illinois, Champaign County Greenways and Trails Plan, Illinois Wildlife Action Plan, IDOT Stormwater Management Plan, and FHWA Integrated Approach to Sustainable Roadside Design and Restoration Plan*. Objectives, indicators, and strategies are in no particular order.

Table 9-1: REF Conservation & Mitigation Strategies

Objectives	Indicators	Conservation & Mitigation Strategies
Topography		
1. Reduce road and slope erosion for new and existing transportation projects within Champaign County	1. Slope erosion in grams of sediment collected downslope per roadway project	1. <i>Land Use Planning</i> : Integrate land use planning into project planning through consideration of environmental context.

Objectives	Indicators	Conservation & Mitigation Strategies
	<p>2. Acres disturbed by road construction per year</p> <p>3. Number of vegetated roadsides planted per year</p>	<p>2. <i>Road Design</i>: Use terrain features such as natural benches, ridgetops, and lower-gradient slopes to minimize area of road disturbance.</p> <p>3. <i>Revegetation</i>: Establish a dense vegetative cover (non-invasive) to reduce erosion and increase surface protection.</p>
Soil		
<p>1.Reduce road and slope erosion for new and existing transportation projects within Champaign County</p> <p>2. Prevent loss of productive soil within new project areas</p> <p>3. Maximize ecological potential of project-area soils</p>	<p>1. Slope erosion in grams of sediment collected downslope per roadway project</p> <p>2. Abundance of non-invasive plant species per square yard</p>	<p>1. <i>Temporary Cover</i>: Establish plants (native or non-invasive) for seasonal cover of bare soil where no cover previously existed.</p> <p>2. <i>Conservation Cover</i>: Establish a cover of native plant species on a project site, where applicable.</p> <p>3. <i>Conservation Tillage</i>: Minimize the number of times soil is tilled or disturbed at a project site.</p> <p>4. <i>Buffer Strips</i>: Establish plant buffer strip on land adjacent to waterway, road, or other land use type.</p>
Waterways		
<p>1. Reduce road and slope erosion for new and existing transportation projects within Champaign County</p> <p>2. Increase drainage potential of transportation infrastructure</p> <p>3. Limit potential for transportation projects to negatively impact County waterways</p>	<p>1. Slope erosion in grams of sediment collected downslope per roadway project</p> <p>2. Number of waterways added to the 303d list biannually</p> <p>3. Occurrences per month of roadside mowing</p>	<p>1. <i>Erosion control measures</i>: Design and plan roadsides, medians, and other open spaces to minimize erosion</p> <p>2. <i>Culvert drainage improvements</i>: Plan and design culverts for increased drainage, when emptying into waterways.</p> <p>3. <i>Emphasize redevelopment over new development</i>: Review new development projects near waterways or catchments to decide if an existing site can be redeveloped instead.</p>

Objectives	Indicators	Conservation & Mitigation Strategies
		<p>4. <i>Identify and avoid vulnerable areas:</i> Identify waterways within a project area and avoid any potential impacts through alternative development.</p>
Flood Zones		
<p>1. Curtail impacts of seasonal flooding</p> <p>2. Lower environmental footprint of drainage infrastructure</p>	<p>1. Increase runoff detention area</p> <p>2. Number of storm water trees installed</p> <p>3. Number of redevelopment projects</p>	<p>1. <i>Grey Infrastructure:</i> Built systems employed to collect runoff and discharge it quickly through the system.</p> <p>2. <i>Green Infrastructure:</i> Methods that utilize the natural functions of the environment to reduce flooding and runoff, often at the source.</p> <p>3. <i>Planning Strategies:</i> Growth and development framework to support local solutions to flooding.</p>
Biological Stream Diversity		
<p>1. Increase biodiversity of County waterways</p> <p>2. Reduce road and slope erosion for new and existing transportation projects within Champaign County</p> <p>3. Lower environmental footprint of new transportation projects</p>	<p>1. Abundance of aquatic species of conservation concern per square mile</p> <p>2. Abundance of invasive species per square mile</p> <p>3. Miles of Biologically Diverse Streams per testing cycle (irregular testing cycle)</p>	<p>1. <i>Ecological restoration:</i> Restoring a degraded ecosystem to a reference state or to a desired functional level.</p> <p>2. <i>Emphasize redevelopment over new development:</i> Review new development projects near waterways or catchments to decide if an existing site can be redeveloped instead.</p> <p>3. <i>Erosion control measures:</i> Design and plan roadsides, medians, and other open spaces to minimize erosion.</p> <p>4. <i>Reduce habitat fragmentation:</i> If new development is necessary, consider alternatives to destroying portions of existing wildlife habitat.</p> <p>5. <i>Identify and avoid vulnerable sites:</i> Identify waterways within a project</p>

Objectives	Indicators	Conservation & Mitigation Strategies
		area and avoid any potential impacts through alternative development.
Water Quality & Watersheds		
<p>1. Decrease pollution from point and non-point sources into County waterways and catchments</p> <p>2. Reduce road and slope erosion for new and existing transportation projects within Champaign County</p> <p>3. Promote efficient, natural drainage within Champaign County</p>	<p>1. Acreage of new development within 200 feet of waterways and catchments per year</p> <p>2. Number of waterways added to the 303d list biannually</p> <p>3. Number of TMDLs established biannually</p>	<p>1. <i>Minimum setback zones</i>: Establish a radius around waterways and catchments prohibiting any development that may impact water quality.</p> <p>2. <i>Sustainability Goals</i>: Develop sustainability goals that account for project specific context.</p> <p>3. <i>Erosion control measures</i>: Design and plan roadsides, medians, and other open spaces to minimize erosion.</p> <p>4. <i>Bioretention basins</i>: Establish wetland vegetation basin in locations where run-off accumulates.</p>
Aquifers		
<p>1. Implement sustainable water-use practices within Champaign County</p> <p>2. Decrease groundwater pollution from point and non-point sources within Champaign County</p>	<p>1. Gallons per day of water used</p> <p>2. Number of water-saving appliances installed per year</p> <p>3. PPM of nitrates in groundwater per testing cycle</p>	<p>1. <i>Sustainable Landscaping</i>: Promote use of native plants in landscaping.</p> <p>2. <i>Minimum setback zones</i>: Establish distance around groundwater wells where there can be no development or land use that may impact the groundwater quality.</p> <p>3. <i>Retrofit water-saving appliances</i>: Retrofit faucets and toilets with water-saving versions.</p>
Wetlands		
<p>1. Reduce wetland habitat losses within Champaign County</p> <p>2. Increase abundance of wetland species in Champaign County</p>	<p>1. Wetland habitat per square mile</p> <p>2. Biodiversity of wetland habitat per square mile</p>	<p>1. <i>Ecological restoration</i>: Restore a degraded ecosystem to a reference state or to a desired functional level.</p> <p>2. <i>Mitigation Banking</i>: Pay for establishment or enhancement of an off-site wetland to compensate for impacts to on-site wetlands.</p>

Objectives	Indicators	Conservation & Mitigation Strategies
		3. <i>Protection</i> : Purchase wetland to designate as a Nature Preserve, Natural Area, or easement property.
Air Quality		
<p>1. Maintain attainment status for 8-hour ozone levels for Champaign County each year between 2020 and 2025 (LRTP 2045)</p> <p>2. Increase number of publicly available alternative fueling and charging stations by 15 percent by 2025 (LRTP 2045)</p> <p>3. Increase the proportion of low and zero emission transit vehicles in MTD's fleet to 100 percent by 2025 (LRTP 2045)</p>	<p>1. 8-hour ozone attainment levels per year</p> <p>2. Number of alternative fueling stations</p> <p>3. Percentage of MTD fleet's low and zero emission transit vehicles</p>	<p>1. <i>Develop cleaner travel options</i>: Expand public transportation, improve public transportation service, and develop/improve bicycle and pedestrian infrastructure</p> <p>2. <i>Improve efficiency of land use planning and zoning</i>: Reduce the distance between key destinations and encourage non-motorized vehicle travel.</p> <p>3. <i>Create or support clean fueling infrastructure</i>: Expand electric vehicle charging and hydrogen fueling stations</p> <p>4. <i>Buy green fleet vehicles and equipment</i>: Invest in hybrid and electric vehicles for County facilities</p>
Noise		
1. Maintain average peak-hour traffic noise below 80 decibels for all principal arterial roads within the County	1. Measurements 80+ decibels of peak-hour traffic noise per year	<p>1. <i>Noise Barriers</i>: Construct noise barriers, including acquisition of property rights, either within or outside of the highway right-of-way.</p> <p>2. <i>Traffic management measures</i>: Install traffic infrastructure to reduce traffic volume.</p> <p>3. <i>Roadway Alterations</i>: Alter horizontal and vertical alignments of roadways.</p> <p>4. <i>Noise Buffer Zone</i>: Acquire real property or interests therein to serve as a buffer zone to preempt</p>

Objectives	Indicators	Conservation & Mitigation Strategies
		development that would be adversely impacted by traffic noise.
Light		
1. Limit nighttime light pollution within Champaign County	1. Number of light-timing installations per year 2. Number of light guards installed per year	1. <i>Light Orientation</i> : Orient lights only downward or towards the target to minimize wasted light. 2. <i>Light Technology</i> : Use light-timing and smart technology to keep lights on when needed, and off when not. 3. <i>Light Guards</i> : Use light-guards to focus light and reduce external pollution (i.e. block the back of streetlamps to avoid polluting behind the streetlamp). 4. <i>Alternative Light Sources</i> : Avoid high intensity blue emission sources, like white LEDs. These sources produce the most disruptive spectra of light to organisms.
Natural Areas		
1. Expand protected natural areas within Champaign County 2. Prevent losses in overall biodiversity within Champaign County	1. Abundance of species of conservation concern per square mile 2. Protected natural areas per square mile	1. <i>Protection</i> : Purchase wetland to designate as a Nature Preserve, Natural Area, or easement property. 2. <i>Ecological Restoration</i> : Restore a degraded ecosystem to a reference state or to a desired functional level. 3. <i>Identify and avoid vulnerable sites</i> : Identify natural areas within a project area and avoid any potential impacts through alternative development.
Threatened & Endangered Species Habitat		
1. Increase the number of occurrences of T&E species within Champaign County 2. Increase acreage of continuous wildlife habitat within Champaign County	1. Number of reported occurrences of state listed species within Champaign County per year	1. <i>Habitat Connectivity</i> : Promote connectivity of existing T&E species habitat. 2. <i>Reduce fragmentation</i> : If new development is necessary, consider

Objectives	Indicators	Conservation & Mitigation Strategies
	2. Protected natural areas per square mile	alternatives to destroying portions of existing wildlife habitat. <i>3. Identify and avoid vulnerable sites:</i> Identify T&E species habitat within a project area and avoid any potential impacts through alternative development.
Cultural Resources		
1. Preserve cultural amenities that provide high quality of life for citizens. 2.. Reduce Section 106 Adverse Effect determinations 3. Increase member agency coordination with IDOT, Certified Local Governments, and the State Historic Preservation Office	1. Section 106 Adverse Effect determinations per year	1. <i>Early identification:</i> Identify cultural resources early in the planning process to design avoidance alternatives 2. <i>Avoidance Alternatives:</i> Design project alternatives to avoid impacting cultural resources
Special Waste		
Increase early identification of special waste sites within new project areas	1. Number of special waste sites identified during project planning	1. <i>Early identification:</i> Identify special waste sites early in the planning process to properly address cleanup or avoidance procedures

Appendix

List of Tables

Table A-1: Champaign County Soil Types: sorted by hydric or non-hydric and by area occupied	137
Table A-2: Assessed Water Segments for Designated Uses in Champaign County, 2018	141
Table A-3: NRHP Listed Sites in Champaign from 1968 to 2016	143
Table A-4: Identified Cemeteries in Champaign County	145
Table A-5: Air Pollution Control Programs.....	147
Table A-6: FRS Energy/Technology Regulation Programs.....	14949
Table A-7: FRS Hazardous/Toxic Waste Control Programs.....	151
Table A-8: FRS Water Pollution Control Programs.....	153

List of Figures

Figure A-1: Air Pollution Control Programs	1488
Figure A-2: FRS Energy/Technology Regulation Programs.....	150
Figure A-3: FRS Hazardous/Toxic Waste Control Programs	152
Figure A-4: FRS Water Pollution Control Programs.....	154

Table A-1: Champaign County Soil Types: sorted by hydric or non-hydric and by area occupied

Map Unit Symbol	Map Unit Name	Area (Acres)	Area (%)	Hydric status	Dwellings without basements	Dwellings with basements	Small commercial buildings	Reason
152A	Drummer silty clay loam, 0 to 2 percent slopes	254486.00	39.82	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
154A	Flanagan silt loam, 0 to 2 percent slopes	100535.00	15.73	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
232A	Ashkum silty clay loam, 0 to 2 percent slopes	29196.10	4.57	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
146B2	Elliott silty clay loam, 2 to 4 percent slopes, eroded	28483.10	4.46	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone
481A	Raub silt loam, non-densic substratum, 0 to 2 percent slopes	22903.40	3.58	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
56B	Dana silt loam, 2 to 5 percent slopes	22823.90	3.57	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
198A	Elburn silt loam, 0 to 2 percent slopes	17636.50	2.76	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
171B	Catlin silt loam, 2 to 5 percent slopes	17380.00	2.72	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell
149A	Brenton silt loam, 0 to 2 percent slopes	16465.20	2.58	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	11080.50	1.73	Yes	Very limited	Very limited	Very limited	Ponding, Flooding, Depth to saturated zone, Shrink-swell
663B	Clare silt loam, 2 to 5 percent slopes	8383.79	1.31	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell
223B2	Varna silt loam, 2 to 4 percent slopes, eroded	8039.60	1.26	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell
622B	Wyanet silt loam, 2 to 5 percent slopes	7312.21	1.14	No	Somewhat limited	Not limited	Somewhat limited	Shrink-swell, Slope
153A	Pella silty clay loam, 0 to 2 percent slopes	6421.76	1.00	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
622C2	Wyanet silt loam, 5 to 10 percent slopes, eroded	6330.61	0.99	No	Somewhat limited	Not limited	Somewhat limited	Shrink-swell, Slope
679B	Blackberry silt loam, 2 to 5 percent slopes	4975.11	0.78	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell
291B	Xenia silt loam, Bloomington Ridged Plain, 2	4849.57	0.76	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell, Slope

Map Unit Symbol	Map Unit Name	Area (Acres)	Area (%)	Hydric status	Dwellings without basements	Dwellings with basements	Small commercial buildings	Reason
	to 5 percent slopes							
802B	Orthents, loamy, undulating	4289.82	0.67	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell, Slope
330A	Peotone silty clay loam, 0 to 2 percent slopes	3739.50	0.59	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
223C2	Varna silt loam, 4 to 6 percent slopes, eroded	3116.36	0.49	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell, Slope
623A	Kishwaukee silt loam, 0 to 2 percent slopes	3105.30	0.49	No	Somewhat limited	Somewhat limited	Somewhat limited	Shrink-swell
236A	Sabina silt loam, 0 to 2 percent slopes	3008.79	0.47	No	Very limited	Very limited	Very limited	Depth to saturated zone, Shrink-swell
125A	Selma loam, 0 to 2 percent slopes	2908.39	0.46	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
223D3	Varna silty clay loam, 6 to 12 percent slopes, severely eroded	2826.43	0.44	No	Somewhat limited	Somewhat limited	Very limited	Depth to saturated zone, Slope
3302A	Ambraw silty clay loam, 0 to 2 percent slopes, frequently flooded	2793.54	0.44	Yes	Very limited	Very limited	Very limited	Flooding, Depth to saturated zone, Shrink-swell
91B2	Swygert silty clay loam, 2 to 4 percent slopes, eroded	2791.03	0.44	No	Very limited	Very limited	Very limited	Depth to saturated zone, Shrink-swell
233B	Birkbeck silt loam, 2 to 5 percent slopes	2671.13	0.42	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
206A	Thorp silt loam, 0 to 2 percent slopes	2640.67	0.41	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
687B	Penfield loam, 2 to 5 percent slopes	2326.78	0.36	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell
67A	Harpster silty clay loam, 0 to 2 percent slopes	2152.88	0.34	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
234A	Sunbury silt loam, 0 to 2 percent slopes	2032.11	0.32	No	Very limited	Very limited	Very limited	Depth to saturated zone, Shrink-swell
322C2	Russell silt loam, Bloomington Ridged Plain, 5 to 10 percent slopes, eroded	1939.34	0.30	No	Somewhat limited	Somewhat limited	Very limited	Shrink-swell, Slope
680B	Campton silt loam, 2 to 5 percent slopes	1660.61	0.26	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell, Slope

Map Unit Symbol	Map Unit Name	Area (Acres)	Area (%)	Hydric status	Dwellings without basements	Dwellings with basements	Small commercial buildings	Reason
235A	Bryce silty clay, 0 to 2 percent slopes	1622.73	0.25	Yes	Very limited	Very limited	Very limited	Ponding, Depth to saturated zone, Shrink-swell
533	Urban land	1606.82	0.25	No	Not rated	Not rated	Not rated	
146C2	Elliott silty clay loam, 4 to 6 percent slopes, eroded	1485.07	0.23	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, slope
219A	Millbrook silt loam, 0 to 2 percent slopes	1448.39	0.23	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
242A	Kendall silt loam, 0 to 2 percent slopes	1446.95	0.23	No	Very limited	Very limited	Very limited	Depth to saturated zone, Shrink-swell
102A	La Hogue loam, 0 to 2 percent slopes	1423.41	0.22	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone
W	Water	1321.66	0.21	-	Not rated	Not rated	Not rated	
490A	Odell silt loam, 0 to 2 percent slopes	1268.80	0.20	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone
134B	Camden silt loam, 2 to 5 percent slopes	1206.53	0.19	No	Not limited	Not limited	Not limited	
387B	Ockley silt loam, 2 to 5 percent slopes	1124.56	0.18	No	Somewhat limited	Somewhat limited	Somewhat limited	Shrink-swell
570C2	Martinsville loam, 5 to 10 percent slopes, eroded	1020.57	0.16	No	Somewhat limited	Not limited	Very limited	Shrink-swell, Slope
3473A	Rosburg silt loam, 0 to 2 percent slopes, frequently flooded	982.02	0.15	No	Very limited	Very limited	Very limited	Flooding
618C2	Senachwine silt loam, 5 to 10 percent slopes, eroded	850.42	0.13	No	Not limited	Not limited	Very limited	Slope
687C2	Penfield loam, 5 to 10 percent slopes, eroded	809.31	0.13	No	Somewhat limited	Somewhat limited	Very limited	Depth to saturated zone, Shrink-swell, Slope
23B2	Blount silt loam, Lake Michigan Lobe, 2 to 4 percent slopes, eroded	808.46	0.13	No	Very limited	Very limited	Very limited	Depth to saturated zone
23A	Blount silt loam, Lake Michigan Lobe, 0 to 2 percent slopes	803.83	0.13	No	Very limited	Very limited	Very limited	Depth to saturated zone, Shrink-swell
146A	Elliott silt loam, 0 to 2 percent slopes	761.07	0.12	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone

Map Unit Symbol	Map Unit Name	Area (Acres)	Area (%)	Hydric status	Dwellings without basements	Dwellings with basements	Small commercial buildings	Reason
570B	Martinsville silt loam, 2 to 5 percent slopes	706.72	0.11	No	Not limited	Not limited	Somewhat limited	Slope
618D2	Senachwine silt loam, 10 to 18 percent slopes, eroded	631.53	0.10	No	Somewhat limited	Somewhat limited	Very limited	Slope
530D2	Ozaukee silt loam, 6 to 12 percent slopes, eroded	542.69	0.08	No	Somewhat limited	Somewhat limited	Very limited	Depth to saturated zone, Slope
618E2	Senachwine silt loam, 18 to 25 percent slopes, eroded	510.78	0.08	No	Very limited	Very limited	Very limited	Slope
530B	Ozaukee silt loam, 2 to 4 percent slopes	509.07	0.08	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone
865	Pits, gravel	460.11	0.07	Unranked	Not rated	Not rated	Not rated	
530C2	Ozaukee silt loam, 4 to 6 percent slopes, eroded	411.29	0.06	No	Not limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Slope
91C2	Swygert silty clay loam, 4 to 6 percent slopes, eroded	410.94	0.06	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell, slope
618F	Senachwine silt loam, 18 to 35 percent slopes	397.92	0.06	No	Very limited	Very limited	Very limited	Slope
530E2	Ozaukee silt loam, 12 to 20 percent slopes, eroded	381.97	0.06	No	Very limited	Very limited	Very limited	Depth to saturated zone, Slope
570D2	Martinsville loam, 10 to 18 percent slopes, eroded	360.36	0.06	No	Somewhat limited	Somewhat limited	Very limited	Shrink-swell, Slope
622D3	Wyanet clay loam, 10 to 18 percent slopes, severely eroded	357.42	0.06	No	Somewhat limited	Somewhat limited	Very limited	Slope
387C3	Ockley clay loam, 5 to 10 percent slopes, severely eroded	301.47	0.05	No	Somewhat limited	Somewhat limited	Very limited	Shrink-swell, Slope
150B	Onarga sandy loam, 2 to 5 percent slopes	290.05	0.05	No	Not limited	Not limited	Somewhat limited	Slope
241D3	Chatsworth silty clay, 6 to 12 percent slopes, severely eroded	285.36	0.04	No	Somewhat limited	Somewhat limited	Very limited	Depth to saturated zone, Shrink-swell, Slope
618B	Senachwine silt loam, 2 to 5 percent slopes	269.44	0.04	No	Not limited	Not limited	Somewhat limited	Slope

Map Unit Symbol	Map Unit Name	Area (Acres)	Area (%)	Hydric status	Dwellings without basements	Dwellings with basements	Small commercial buildings	Reason
448B	Mona silt loam, 2 to 5 percent slopes	244.99	0.04	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell
131B	Alvin fine sandy loam, 2 to 5 percent slopes	204.80	0.03	No	Not limited	Not limited	Not limited	
56B2	Dana silt loam, 2 to 5 percent slopes, eroded	135.88	0.02	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell, Slope
830	Landfills	115.13	0.02	Unranked	Not rated	Not rated	Not rated	
91A	Swygert silty clay loam, 0 to 2 percent slopes	73.31	0.01	No	Somewhat limited	Very limited	Somewhat limited	Depth to saturated zone, Shrink-swell
637A+	Muskego silty clay loam, 0 to 2 percent slopes, overwash	47.49	0.01	Yes	Very limited	Very limited	Very limited	Ponding, Subsidence, Depth to saturated zone, Shrink-swell, Organic matter content
241C3	Chatsworth silty clay, 4 to 6 percent slopes, severely eroded	36.14	0.01	No	Somewhat limited	Somewhat limited	Somewhat limited	Depth to saturated zone, Shrink-swell, Slope
148B2	Proctor silt loam, 2 to 5 percent slopes, eroded	28.95	0.005	No	Somewhat limited	Not limited	Somewhat limited	Shrink-swell, Slope
134A	Camden silt loam, 0 to 2 percent slopes	13.92	0.002	No	Somewhat limited	Not limited	Somewhat limited	Shrink-swell
Total		639023.37 acres	100%					

Table A-2: Assessed Water Segments for Designated Uses in Champaign County, 2018

Name	Unit	Ten Digit HUC	Length	Aquatic Life	Fish Consumption	Primary Contact	Aesthetic
Saline Branch Drainage Ditch	IL_BPJC-06	0512010902	10.38	Fully Supporting	Not Assessed		Fully Supporting
Dry Fork	IL_OZZW	0714020102	12.03	Not Supporting	Not Assessed	Not Assessed	Not Assessed
Saline Branch Drainage Ditch	IL_BPJC-08	0512010902	14.11	Not Supporting	Not Assessed	Not Assessed	Fully Supporting
Salt Fork Vermilion River	IL_BPJ-09	0512010903	13.71	Not Supporting	Not Assessed	Not Assessed	Fully Supporting
Salt Fork Vermilion River	IL_BPJ-10	0512010906	13.74	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Conkey Branch	IL_BPJN	0512010906	2.93	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Sangamon River	IL_E-33	0713000601	31.32	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Salt Fork Vermilion River	IL_BPJ-12	0512010906	3.18	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting

Name	Unit	Ten Digit HUC	Length	Aquatic Life	Fish Consumption	Primary Contact	Aesthetic
Sangamon River	IL_E-29	0713000602	41.90	Fully Supporting	Not Assessed	Not Supporting	Fully Supporting
Black Slough	IL_BETA	0512011201	7.10	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Wildcat Slough	IL_EZZF	0713000602	14.42	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Twomile Slough	IL_OZZX-01	0714020102	13.55	Fully Supporting	Not Assessed	Not Assessed	Not Assessed
Hayes Branch	IL_BERC-01	0512011202	11.23	Fully Supporting	Not Assessed	Not Assessed	Not Assessed
Owl Creek	IL_EZV	0713000601	6.57	Not Supporting	Not Assessed	Not Assessed	Not Assessed
Big Ditch	IL_EZU-01	0713000602	18.23	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Salt Fork Vermilion River	IL_BPJ-07	0512010903	3.12	Not Supporting	Not Assessed	Not Supporting	Fully Supporting
Flatville Drainage Ditch	IL_BPJI-02	0512010903	7.89	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Long Point Slough	IL_BESA	0512011201	6.30	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Hackett Branch	IL_BERB-01	0512011202	11.95	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Spoon River	IL_BPJD-02	0512010903	13.92	Not Supporting	Not Assessed	Not Assessed	Fully Supporting
Embarras River	IL_BE-25	0512011201	20.74	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Hillsbury Slough	IL_EZZG	0713000601	8.82	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Dickerson Slough	IL_EZZH-01	0713000601	15.09	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Kaskaskia River	IL_O-35	0714020102	15.25	Not Supporting	Not Supporting	Not Assessed	Fully Supporting
Middle Fork Vermilion River	IL_BPK-14	0512010905	5.06	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Lake Fork	IL_OW-03	0714020101	19.68	Not Supporting	Not Supporting	Not Assessed	Not Assessed
Middle Fork Vermilion River	IL_BPK-13	0512010905	6.71	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Boneyard Creek	IL_BPJCA	0512010902	3.28	Not Supporting	Not Assessed	Not Assessed	Not Assessed
Hackett Branch	IL_BERB-TO-C1A	0512011202	0.57	Not Supporting	Not Assessed	Not Assessed	Not Assessed
Prairie Creek	IL_BPKL-01	0512010901	7.51	Fully Supporting	Not Assessed	Not Assessed	Not Assessed
East Lake Fork	IL_OWB	0714020101	14.52	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Copper Slough	IL_OZYA	0714020102	8.73	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Middle Fork Vermilion River	IL_BPK-15	0512010905	3.96	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting

Name	Unit	Ten Digit HUC	Length	Aquatic Life	Fish Consumption	Primary Contact	Aesthetic
Little Vermilion River	IL_BO-08	0512010810	17.27	Not Supporting	Not Assessed	Not Assessed	Fully Supporting
Stony Creek	IL_BPJB-02	0512010904	14.72	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Phinney Branch	IL_OZYB	0714020102	2.26	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Camp Creek	IL_EW-01	0713000604	16.58	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Kaskaskia River	IL_O-37	0714020102	7.93	Not Supporting	Not Supporting	Not Assessed	Fully Supporting
Sugar Creek	IL_BPKK-01	0512010905	13.89	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Hackett Branch	IL_BERB-TO-C1	0512011202	6.61	Not Supporting	Not Assessed	Not Assessed	Not Assessed
Upper Salt Fork Drainage Ditch	IL_BPJG-01	0512010903	24.05	Not Supporting	Not Assessed	Not Assessed	Not Supporting
Kaskaskia River	IL_O-31	0714020102	5.25	Not Supporting	Not Supporting		Fully Supporting
Lone Tree Creek	IL_EZW	0713000601	15.10	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Union Drainage Ditch #1	IL_BPJM-01	0512010903	7.35	Not Assessed	Not Assessed	Not Assessed	Not Assessed
East Branch Embarras River	IL_BET-01	0512011201	20.33	Fully Supporting	Not Assessed	Not Assessed	Fully Supporting
Kerr Township Creek	IL_BPKR-01	0512010905	6.71	Not Assessed	Not Assessed	Not Assessed	Not Assessed
Drummer Creek	IL_EY-01	0713000601	18.97	Not Supporting	Not Assessed	Not Assessed	Fully Supporting
Buck Creek	IL_BPKJ-01	0512010905	10.23	Not Assessed	Not Assessed	Not Assessed	Not Assessed

Table A-3: NRHP Listed Sites in Champaign from 1968 to 2016

Reference No	Property Name	Address	City	Status Date
03001201	Virginia Theater	203 W. Park Avenue	Champaign	11/28/2003
04000070	Phi Delta Theta Fraternity House	309 E. Chalmers Street	Champaign	2/25/2004
05001250	Alpha Phi Fraternity House–Beta Alpha Chapter	508 E. Amory Avenue	Champaign	11/15/2005
05001260	Georgian, The	1005 S. Sixth Street	Champaign	11/15/2005
07000644	Solon, Francis and Abbie, House	503 South State Street	Champaign	7/3/2007
10000993	Mattis, George and Elsie, House	900 W Park Avenue	Champaign	12/7/2010
11000845	Ahrens, Henry, House	212 E. University Avenue	Champaign	11/22/2011
11000846	Squires, Frederick, House	1003 W. Church Street	Champaign	11/22/2011
11000906	Wee Haven	1509 W. Park Avenue	Champaign	12/15/2011
75000642	Cattle Bank	102 E. University Avenue	Champaign	8/19/1975
76000684	U.S. Post Office	Randolph and Church Street	Champaign	8/17/1976
78001115	Burnham Athenaeum	306 W. Church Street	Champaign	6/7/1978

Reference No	Property Name	Address	City	Status Date
81000210	Stone Arch Bridge	Springfield Avenue and 2nd Street	Champaign	5/14/1981
83000305	Vriner's Confectionery	55 Main Street	Champaign	5/9/1983
86003782	Illinois Traction Building	41 E. University Avenue	Champaign	9/20/2006
89001108	Beta Theta Pi Fraternity House	202 E. Daniel Street	Champaign	8/28/1989
89001109	Kappa Sigma Fraternity House	212 E. Daniel Street	Champaign	8/28/1989
89001732	Inman Hotel	17 E. University Avenue	Champaign	10/20/1989
90000113	Sigma Alpha Epsilon Fraternity House	211 E. Daniel Street	Champaign	2/22/1990
90000114	Delta Kappa Epsilon Fraternity House	313 E. John Street	Champaign	2/22/1990
90000749	Delta Upsilon Fraternity House	312 E. Armory Avenue	Champaign	5/21/1990
90000750	Kappa Delta Rho Fraternity House	1110 S. Second Street	Champaign	5/21/1990
90000752	Alpha Delta Phi Fraternity House	310 E. John Street	Champaign	5/21/1990
91000085	New Orpheum Theatre	346--352 N. Neil Street	Champaign	2/28/1991
96000854	Lincoln Building	44 E. Main Street	Champaign	8/1/1996
97000460	Alpha Rho Chi Fraternity House	1108 S. First Street	Champaign	5/23/1997
97001335	Building at 201 North Market Street	201 N. Market Street	Champaign	11/7/1997
97001336	Building at 203-205 North Market Street	203-205 N. Market Street	Champaign	11/7/1997
97001337	Bailey--Rug Building	219-225 N. Neil Street	Champaign	11/7/1997
94000433	Hazen Bridge	Newcomb Twp. Rd. 85 across the Sangamon R.	Mohomet	5/6/1994
06000594	Chanute Field Historic District	Rantoul National Aviation Center	Rantoul	7/14/2006
00000413	Library--University of Illinois at Urbana-Champaign	1408 W. Gregory Drive	Urbana	8/11/2000
00000681	Elm Street Court	1-8 Elm Street Court	Urbana	6/15/2000
00000682	Ricker, Nathan C., House	612 W. Green Street	Urbana	6/21/2000
00001333	Alpha Delta Pi Sorority House	1202 W. Nevada Street	Urbana	11/8/2000
01000595	Warm Air Research House	1108 W. Stoughton Street	Urbana	6/12/2001
02001751	Women's Gymnasium, University of Illinois at Urbana-Champaign	906 S Goodwin Avenue	Urbana	2/5/2003
02001752	Women's Residence Hall--West Residence Hall, University of Illinois at Urbana-Champaign	1111W Nevada Street	Urbana	2/5/2003
04000074	Kappa Kappa Gamma Sorority House	1102 S. Lincoln Avenue	Urbana	2/25/2004
04000144	Lincoln (Statue)	1000 Blk of S. Race Street	Urbana	3/10/2004
06000778	Urbana--Lincoln Hotel--Lincoln Square Mall	300 S. Broadway Avenue	Urbana	9/8/2006
09000589	Alpha Gamma Delta Fraternity House	1106 S. Lincoln Avenue	Urbana	8/5/2009
68000024	Morrow Plots, University of Illinois	Gregory Dr. at Matthews Avenue	Urbana	5/23/1968
70000229	Altgeld Hall, University of Illinois	University of Illinois campus, corner of Wright and John Street	Urbana	4/17/1970
77000473	Greek Revival Cottage	300 W. University Avenue	Urbana	10/20/1977
78001116	Griggs, Clark R., House	505 W. Main Street	Urbana	11/30/1978
86003141	Metal Shop	102 S. Burrill Avenue	Urbana	11/19/1986
86003144	Military Drill Hall and Men's Gymnasium	1402--1406 W. Springfield	Urbana	11/19/1986
86003147	Natural History Building	1301 W. Green Street	Urbana	11/9/1986
86003148	Chemical Laboratory	1305 W. Green Street	Urbana	11/19/1986
86003155	University of Illinois Astronomical Observatory	901 S. Mathews Avenue	Urbana	11/6/1986

Reference No	Property Name	Address	City	Status Date
89001110	Alpha Xi Delta Sorority Chapter House	715 W. Michigan Avenue	Urbana	8/28/1989
89001728	Farm House	1403 E. Lorado Taft Drive	Urbana	10/31/1989
89002466	University of Illinois Observatory	901 S. Mathews Avenue	Urbana	12/20/1989
90000751	Phi Mu Sorority House	706 W. Ohio Street	Urbana	5/21/1990
91000572	Unitarian Church of Urbana	1209 W. Oregon Street	Urbana	5/13/1991
94000030	University of Illinois Experimental Dairy Farm Historic District	1201 W. Street Mary's Road	Urbana	2/4/1994
94001270	Gamma Phi Beta Sorority House	1110 W. Nevada Street	Urbana	10/28/1994
96000097	Smith, Tina Weedon, Memorial Hall	805 S. Mathews Avenue	Urbana	2/29/1996

Table A-4: Identified Cemeteries in Champaign County

Cemetery Name	Latitude	Longitude	Location
Bailey Memorial Cemetery	39.99559	-88.2742	Tolono
Beckman Cemetery	40.26059	-88.0987	Gifford
Beekman Cemetery	40.35781	-88.3356	Fisher
Bethlehem Cemetery	40.2142	-88.2664	Rising
Bliss Cemetery	40.02892	-88.0442	Saint Joseph
Bryant Cemetery	40.18281	-88.3912	Mahomet
Calvary Cemetery	40.01142	-88.1381	Urbana
Chenoweth Cemetery	40.36142	-87.9473	Penfield
Clements Cemetery	40.14476	-88.1623	Thomasboro
Craw Cemetery	39.98364	-88.3578	Tolono
East Bend Cemetery	40.35476	-88.3342	Fisher
East Lawn Cemetery	40.12114	-88.2009	Urbana
Eden Cemetery	40.31753	-88.1548	Rantoul
Elmwood Cemetery	40.31864	-88.1645	Rantoul
Fisher Cemetery	40.20059	-88.3373	Rising
Grandview Memorial Gardens	40.16337	-88.3139	Rising
Harvey Cemetery	40.12142	-88.1989	Urbana
Harwood Chapel Cemetery	40.3867	-88.022	Paxton
Holy Sepulchre Cemetery	40.31281	-88.1117	Gifford
Homer Grand Army of the Republic Cemetery	40.03753	-87.9498	Homer
Huffman Cemetery	40.39059	-88.0498	Paxton
Huls Cemetery	40.28615	-88.0406	Gifford
Huls Cemetery	40.17559	-88.0673	Flatville
Huss Cemetery	40.06003	-88.1039	Saint Joseph
Immaculate Conception Cemetery	39.92337	-88.1237	Longview
Immanuel Lutheran Cemetery	39.93615	-88.0092	Longview
Jersey Cemetery	40.24503	-88.3073	Rising
Jessee Cemetery	39.89364	-88.1973	Villa Grove NW
Kopman Cemetery	40.22615	-88.002	Flatville
Lincoln Cemetery	40.12864	-88.2181	Thomasboro

Cemetery Name	Latitude	Longitude	Location
Locust Grove Cemetery	40.00364	-88.1628	Urbana
Lost Grove Cemetery	39.99531	-87.9953	Allerton
Ludlow Cemetery	40.37003	-88.1456	Rantoul
Lynn Grove Cemetery	39.96837	-88.1137	Longview
Middletown [Mahomet] Cemetery	40.19337	-88.4023	Mahomet
Maplewood Cemetery	40.33281	-88.1487	Rantoul
Mount Hope Cemetery	40.03059	-88.0631	Saint Joseph
Mount Hope Cemetery	40.0992	-88.232	Urbana
Mount Olive Cemetery	40.11448	-88.1228	Saint Joseph
Naylor Cemetery	40.31031	-88.3862	Foosland
O'Bryan Cemetery	39.88531	-88.3648	Tolono
Old Huss Cemetery	40.05892	-88.0781	Saint Joseph
Patterson Cemetery	40.09059	-88.027	Saint Joseph
Patton Cemetery	40.38198	-87.9378	Rankin
Davis Memorial (aka Pesotum) Cemetery	39.91253	-88.2695	Tolono
Peters Cemetery	40.07614	-88.0248	Saint Joseph
Phillippe Cemetery	40.22253	-88.3573	Rising
Prairieview Cemetery	40.05448	-88.2945	Bondville
Rice Cemetery	39.90114	-88.3817	Ivesdale
Riverside Cemetery	40.20059	-88.3948	Mahomet
Rock Cemetery	39.91336	-88.3612	Tolono
Roselawn Cemetery	40.09781	-88.2328	Urbana
Sadorus Cemetery	39.95475	-88.3595	Tolono
Saint Boniface Cemetery	40.04114	-88.3842	Seymour
Saint Elizabeth Cemetery	40.22587	-88.2123	Thomasboro
Saint John Cemetery	39.92226	-88.0048	Longview
Saint John Lutheran Cemetery	40.19253	-87.9617	Royal
Saint Joseph Cemetery	39.96698	-88.417	Ivesdale
Saint Lawrence Cemetery	40.2992	-87.9425	Penfield
Saint Marys Cemetery	39.90781	-88.2287	Villa Grove NW
Saint Marys Cemetery	40.09253	-88.2439	Urbana
Saint Patrick Cemetery	39.98086	-88.257	Tolono
Seymour Methodist Episcopal Cemetery	40.14392	-88.4567	Mahomet
Shiloh Cemetery	40.26031	-88.3981	Foosland
Stearns Cemetery	40.1617	-87.9784	Royal
Tomlinson Cemetery	40.35615	-87.9439	Penfield
Welles Cemetery	40.28753	-87.9687	Penfield
Willowbrook Cemetery	40.30614	-88.3464	Fisher
Woodlawn Cemetery	40.13142	-88.2142	Thomasboro
Yearsley Cemetery	40.17087	-88.1592	Thomasboro
Saint Marys Cemetery	39.98059	-88.257	Tolono
St Joseph Church Cemetery	39.9125	-88.2681	Pesotum

Cemetery Name	Latitude	Longitude	Location
Leal Park	40.11583	-88.2103	Urbana
John Milton Gregory Grave	40.10889	-88.2286	Urbana
Pusey-Knife Cemetery	40.25667	-88.3431	Mahomet

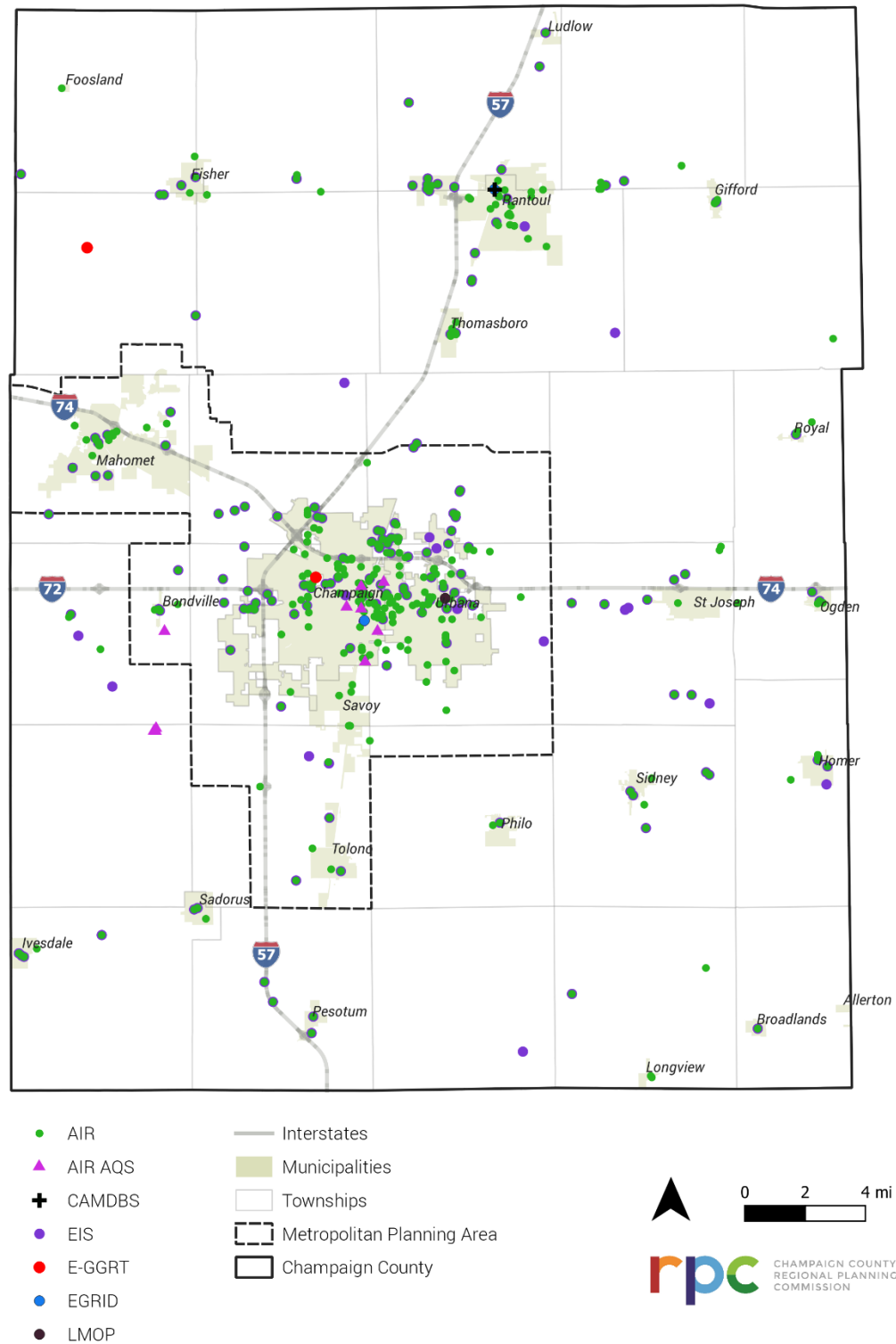
Other Regulated Substances

The Facility Registry Service (FRS) provides an inventory of facilities, sites, or places subject to environmental regulations or of environmental interest. This includes but is not limited to special waste sites. The following section is a listed and mapped inventory of the other EPA facilities included in the FRS data download for Champaign County that are not special waste sites. These sites fall under a range of different programs grouped into common categories: Air Pollution Control Programs, Energy/Technology Regulation Programs, Hazardous/Toxic Waste Control Programs, and Water Pollution Control Programs. These sites are not included in the IDOT ESR, and thus were not discussed in detail in the REF Report. A description of each program and relative locations can be found in the tables and maps below. For more information consult the FRS for specific regulations or requirements according to individual programs.

Table A-5: Air Pollution Control Programs

Program Name	Description	Count
AIR – Integrated Compliance Information System-AIR	Enforcement, compliance, and permit data for stationary sources of air pollution regulated by the EPA, State, and Local air pollution agencies	402
AIR_AQS – Air Quality System	Ambient air pollution data collected by EPA, State, Local, and Tribal air pollution control agencies.	10
CAMDBS – Clean Air Markets Division Business System	A national information system that supports the implementation of market-based air pollution control programs administered by the Clean Air Markets Division, within the Office of Air and Radiation.	1
E_GGRT – Electronic Greenhouse Gas Reporting Tool	Facility and supplier reported information on large sources of greenhouse gas emissions. It supports the EPA Greenhouse Gas Reporting Program.	2
EGRID – Emissions & Generation Resource Database	EGRID contains data on emissions and resource mix for virtually every power plant and company that generates electricity in the United States.	2
EIS – Emission Inventory System	Inventory of large stationary sources and voluntarily-reported smaller sources of air point pollution emitters containing facility location, process, and control information.	248
LMOP – Landfill Methane Outreach Program	Lists participants in a voluntary assistance program that helps to reduce methane emissions from landfills by encouraging the recovery and use of landfill gas (LFG) as an energy resource.	2

Figure A-1: Air Pollution Control Programs

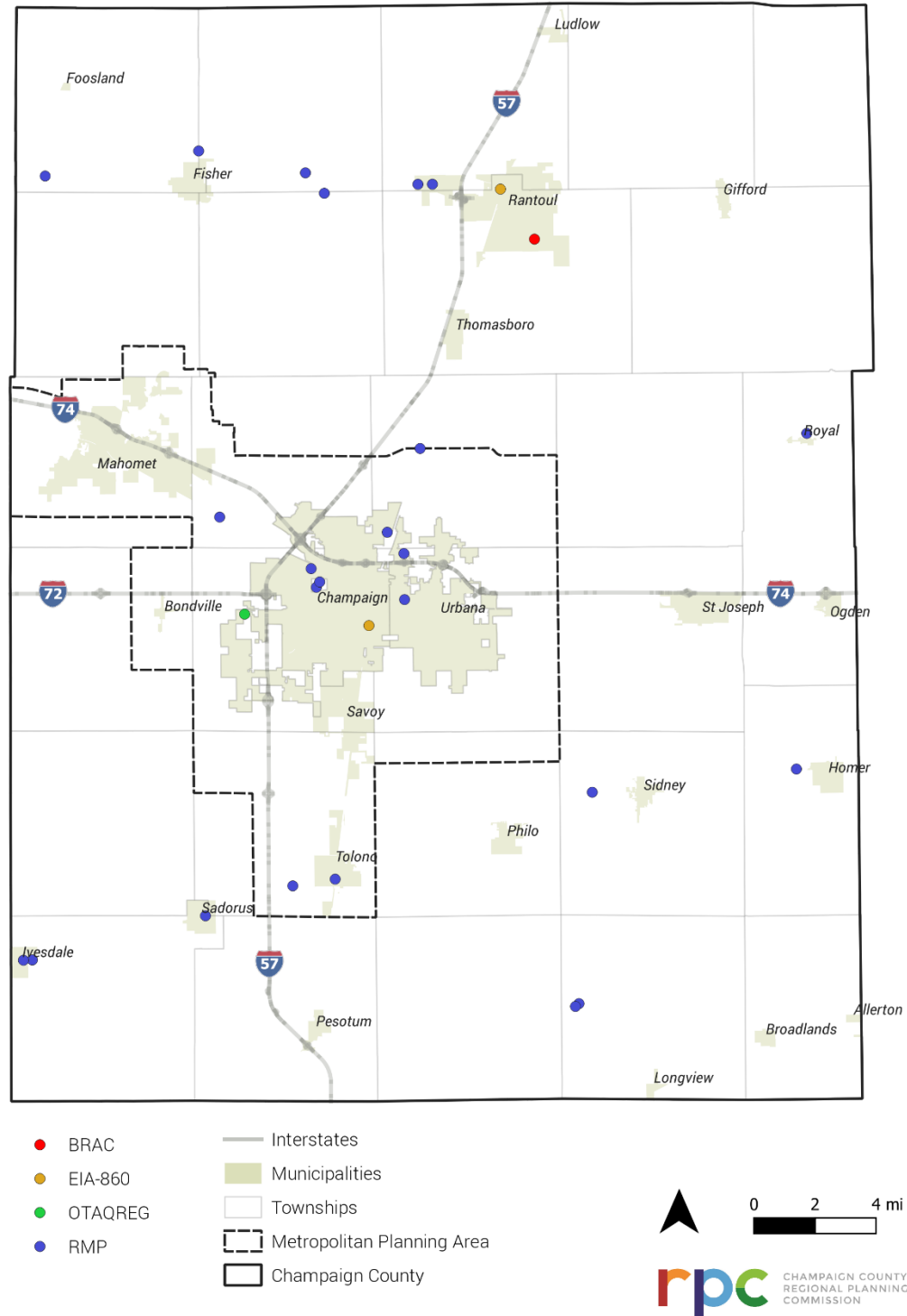


Source: EPA Facility Registry Service

Table A-6: FRS Energy/Technology Regulation Programs

Program Name	Description	Count
BRAC – Base Realignment and Closure	Program used to close excess military installations and realign the total asset inventory to save money on operations and maintenance.	1
EIA-860 – Energy Information Administration-860 Database	Database containing generator-specific data on electric generating plants and associated equipment (utility and non-utility).	2
OTAQREG – Office of Transportation and Air Quality Fuels Registration	List of facilities whose actions require approval based on mobile source-related fuel efficiency and technology standards outlined in the Clean Air Act.	1
RMP – Risk Management Plan	Required plan by facilities that use a threshold quantity of a regulated chemical substance in a process. Plans must identify potential effects of an accident, steps to prevent accidents, and emergency response procedure.	25

Figure A-2: FRS Energy/Technology Regulation Programs

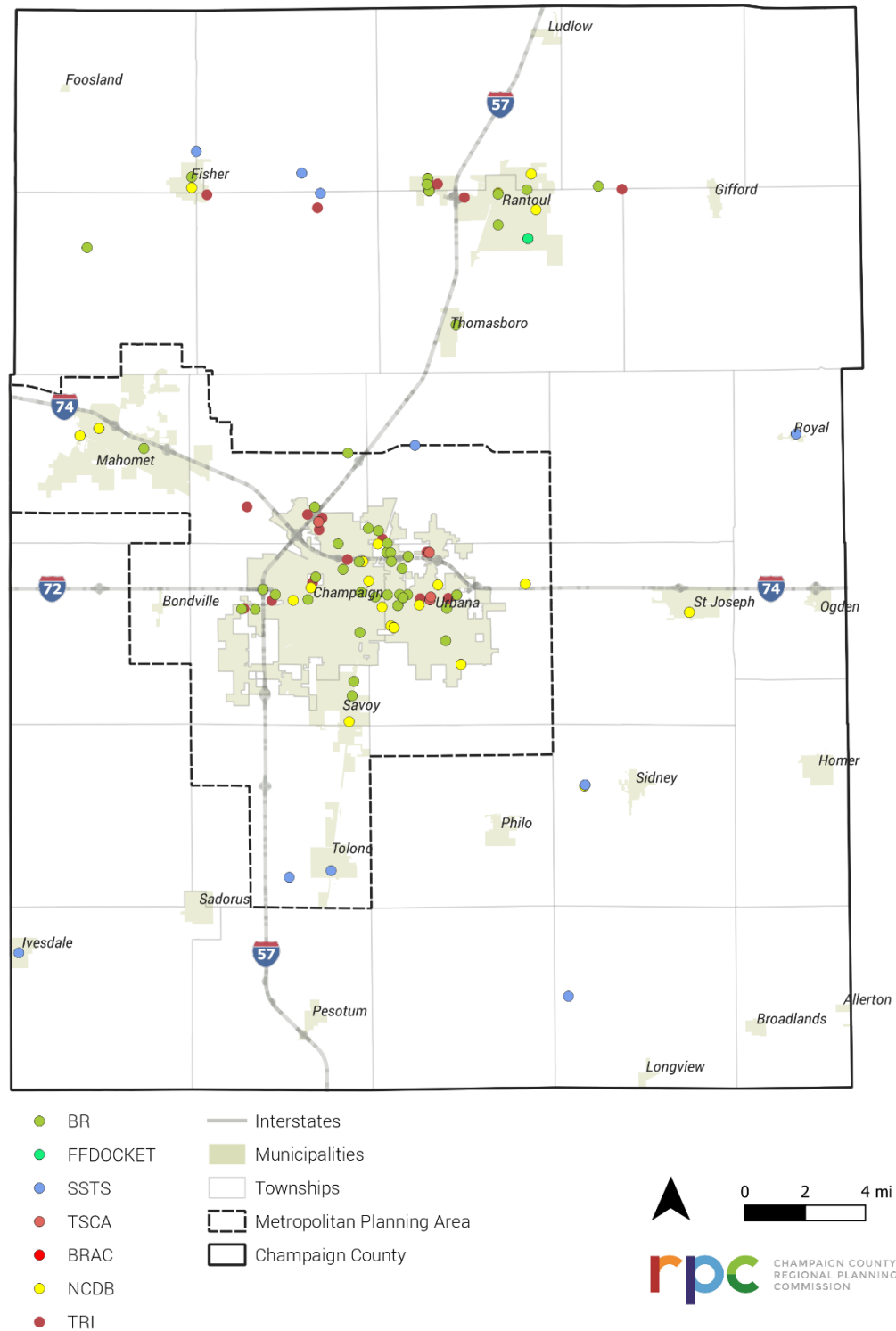


Source: EPA Facility Registry Service

Table A-7: FRS Hazardous/Toxic Waste Control Programs

Program Name	Description	Count
BR – Biennial Reporters	All large quantity generating, treatment, and storage (TSD) facilities must submit an EPA report every two years regarding the nature, quantities and disposition of facility-specific hazardous waste.	47
FFDOCKET – Federal Facility Hazardous Waste Compliance Docket	List of Federal facilities which are managing or have managed hazardous waste; or have had a release of hazardous waste.	1
NCDB – National Compliance Database	Supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). NCDB tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements as they relate to pesticides, and chemical substances and/or mixtures.	41
SSTS – Section Seven Tracking System	Tracks registration of all pesticide-producing establishments and tracks annually the types and amounts of pesticides, active ingredients, and related devices that are produced, sold, or distributed.	11
TRI – Toxic Release Inventory	Tracks certain harmful toxic chemicals and how much is released to the environment and/or managed through recycling, energy recovery and treatment.	28
TSCA – Toxic Substances Control Act	Facilities required to be monitored by the EPA because of the manufacture (including import), processing, distribution in commerce, use, or disposal of chemical substances.	11

Figure A-3: FRS Hazardous/Toxic Waste Control Programs

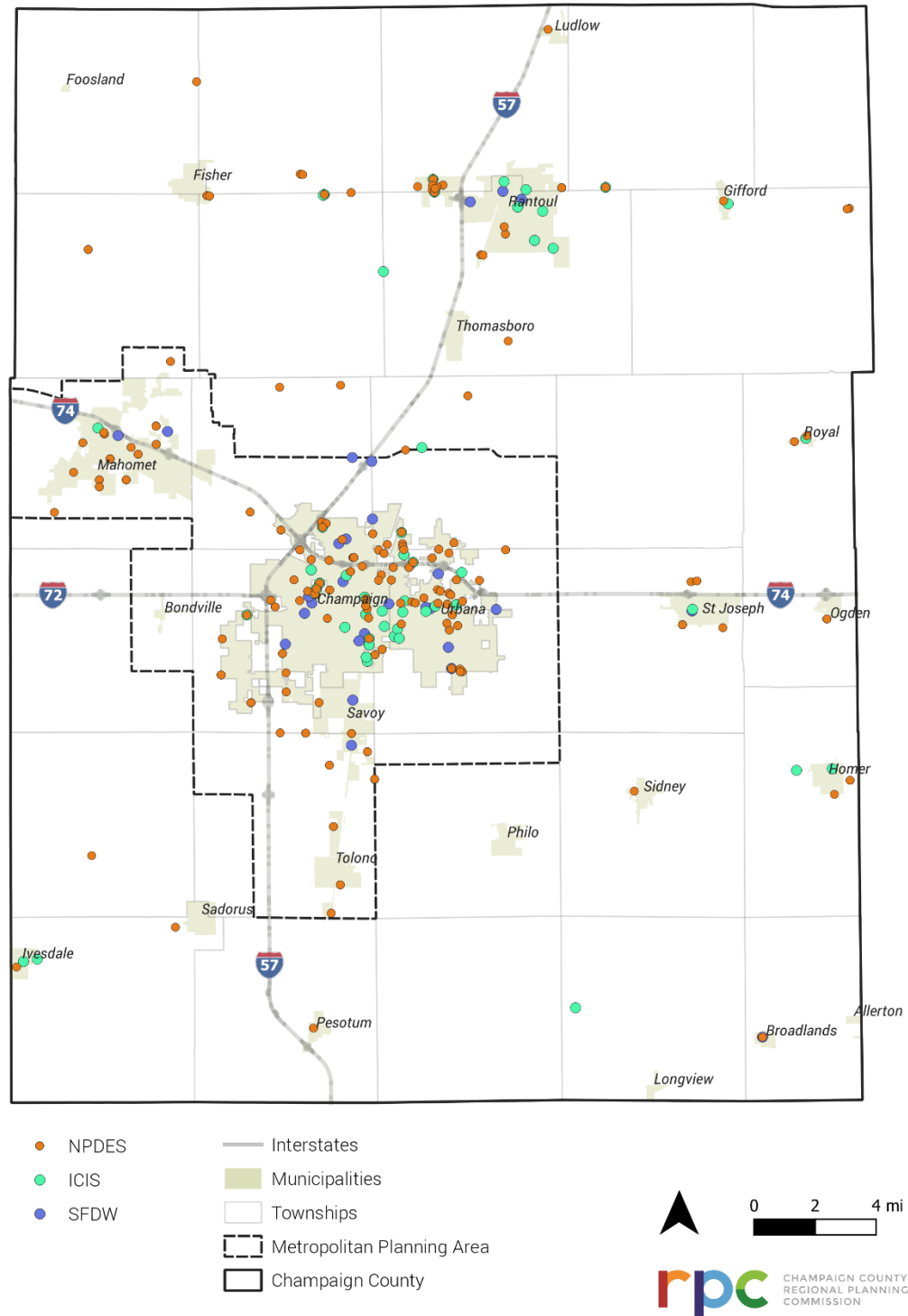


Source: EPA Facility Registry Service

Table A-8: FRS Water Pollution Control Programs

Program Name	Description	Count
ICIS – Integrated Compliance Information System	Database compiling compliance and permitting data for stationary pollution sources into the air or water. Often paired with NPDES permits (ICIS-NPDES), and AIR permits (ICIS-AIR).	63
NPDES – National Pollution Discharge Elimination System	Database containing all facilities that have applied or have already been granted a permit to discharge pollutants from a point source into U.S. waters.	276
SFDW – SDWIS (Safe Drinking Water Information System) Federal Data Warehouse	Contains information about public water systems and their violations of EPA's drinking water regulations.	30

Figure A-4: FRS Water Pollution Control Programs



Source: EPA Facility Registry Service

Special Waste Glossary

The following is a list of terms related to special waste that can assist understanding and planning around special waste sites. This list is not comprehensive but can serve as a basis to continue analyses.

Special Waste: any potentially infectious medical waste (PIMW), hazardous waste, pollution control waste or industrial process waste: ¹

- **Hazardous waste:** A hazardous waste is (1) listed on the Illinois Environmental Protection Agency hazardous waste list which can be obtained from the Office of Small Business or (2) has the characteristic of ignitability, corrosivity, reactivity, or toxicity (determined by generator knowledge or analytical testing in a laboratory).
- **Potentially Infectious Medical Waste (PIMW):** generated in connection with the diagnosis, treatment, or immunization of human beings or animals; medical research; and biological testing. The businesses that typically generate PIMW are hospitals, nursing homes, medical or veterinary clinics, dental offices, clinical or pharmaceutical laboratories, university or research facilities, and other such facilities.
- **Industrial Process Waste:** any liquid, solid, semisolid, or gaseous waste generated when manufacturing a product or performing a service. Examples include cutting oils, paint sludges, equipment cleanings, metallic dust sweepings, used solvents from parts cleaners, and off-specification, contaminated, or recalled wholesale or retail products.
- **Pollution Control Waste:** generated directly or indirectly when businesses remove contaminants from air, soil, or water. Examples include baghouse dust, landfill waste, scrubber sludge, and chemical spill cleaning material.

TSD: Treatment, Storage, and Disposal of Solid Waste: ²

- **Treatment:** Any method, technique, or process, including neutralization, designed to change the physical, chemical or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.
- **Storage:** The holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.
- **Disposal:** The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

Inactive: An indication that there may not be an activity on a site that could be subject to the Resource Conservation and Recovery Act, Subtitle C, or to a state's authorized hazardous waste program. This designation has no legal significance and does not constitute a legally enforceable or binding determination about the status of a particular site or the obligations of an owner or operator.³

Active: The "Active Status" field indicates whether or not the handler is an active hazardous waste site according to current RCRAInfo records. Remember that the Active/Inactive designation is based on the information currently in the RCRAInfo database. This designation is meant to indicate whether a site is *likely* an active site, or *likely* an inactive site. It has no *legal* significance.³

Point Source (according to the Clean Water Act): Any discernible, confined and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, discrete fissure, or container. It also includes vessels or other floating craft from which pollutants are or may be discharged. By law, the term "point source" also includes concentrated animal feeding operations, which are places where animals are confined and fed. By law, agricultural stormwater discharges and return flows from irrigated agriculture are not "point sources."⁴

Pollutant (according to the Clean Water Act): Any type of industrial, municipal, and agricultural waste discharged into water. Some examples are dredged soil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste. By law, a pollutant is not sewage from vessels or discharges incidental to the normal operation of an Armed Forces vessel, or certain materials injected into an oil and gas production well.⁴

¹ IEPA. *Special Waste* (2020). Retrieved from <https://www2.illinois.gov/epa/topics/waste-management/waste-disposal/special-waste/Pages/default.aspx>

² EPA. *Introduction To Treatment, Storage, and Disposal Facilities* (40 CFR Parts 264/265, Subpart A-E). (Sept. 2005). Retrieved from <https://www.epa.gov/sites/production/files/2015-07/documents/tsdf05.pdf>

³ EPA. *RCRA Glossary of Terms* (2020). Retrieved from https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=RCRA%20Glossary%20of%20Terms

⁴ EPA. *National Pollution Discharge Elimination System (NPDES) Permit Basics* (Aug. 2020). Retrieved from <https://www.epa.gov/npdes/npdes-permit-basics>