

Appendix J – Environmental Mitigation

Introduction

The transportation system affects and is affected by the natural environment. Beginning with SAFETEA-LU and continuing through to BIL/IIJA, metropolitan transportation plans should discuss “potential mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain environmental functions affected by the Plan.” The purpose of this effort is to identify possible impacts of proposed “improve and expand projects” on environmentally sensitive resources, list useful guidelines for mitigating these impacts, and provide information that may be useful to implementing agencies.

Baseline Data

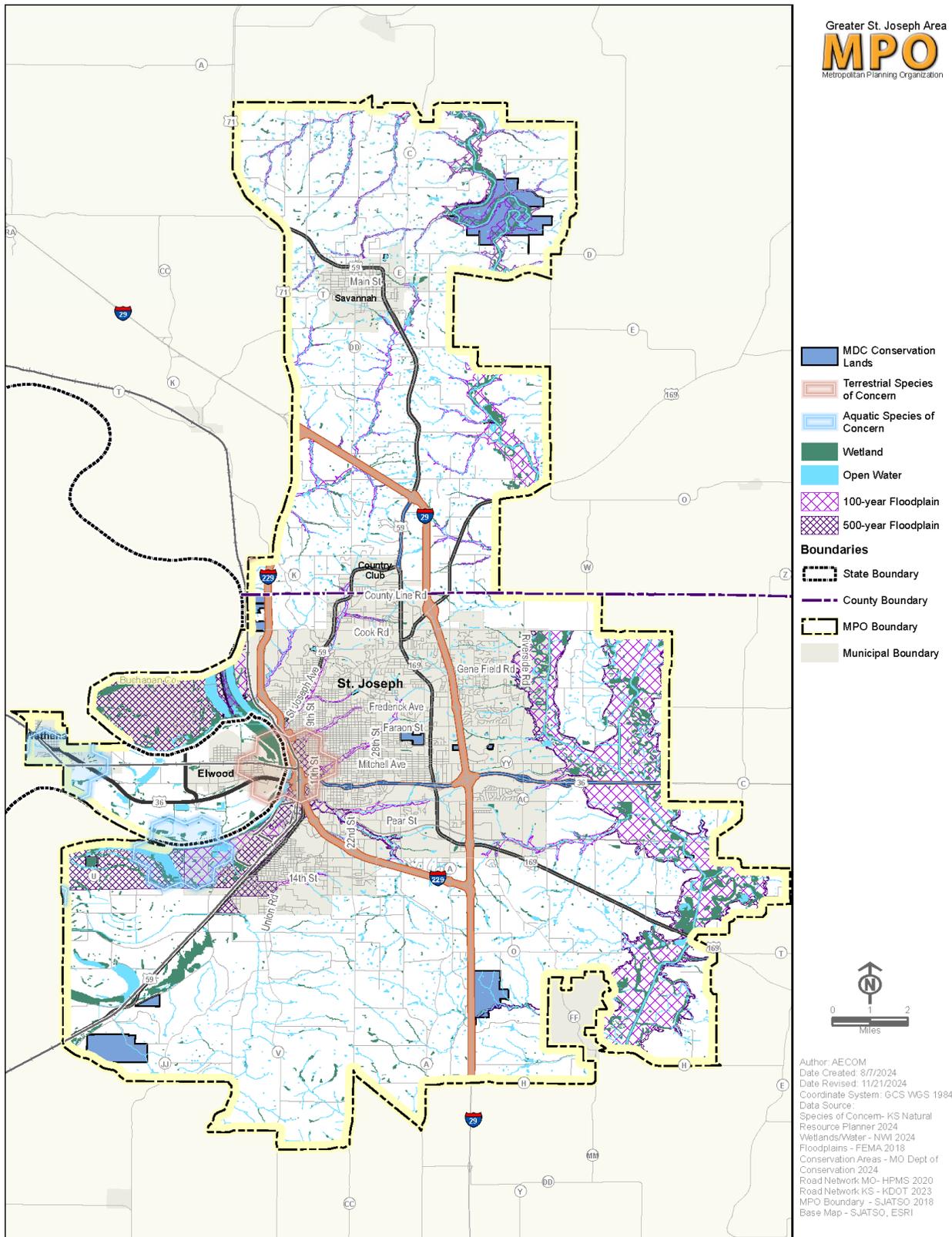
The SJATSO 2050 MTP includes an inventory of environmentally sensitive areas within the St. Joseph metropolitan planning area (MPA). This data allows for the analysis of the 2050 MTP fiscally constrained projects to identify potential impacts on these environmental resources. This analysis, referred to as the environmental mitigation analysis, is conducted at a very high level for the MTP update. The purpose of this effort is to identify potential environmental concerns early in the planning process—it is not the intent of the MTP analysis to solve potential issues, or conflicts. If a potential impact is identified, general guidelines can be introduced for agency consideration during all phases of project planning, design, construction, and maintenance. Furthermore, as projects progress through detailed design and eventually move onto construction, the environmental data layers should be revisited as more current information may be available.

Table 1 identifies the datasets that were used to analyze the environmental features within the SJATSO. These include natural resources, cultural resources, hazardous materials sites, and prime farmland. Figures 1 through 6 display these environmental features within the SJATSO MPA.

Table 1. Natural/Cultural Resource, and Hazardous Materials Sites Map Data

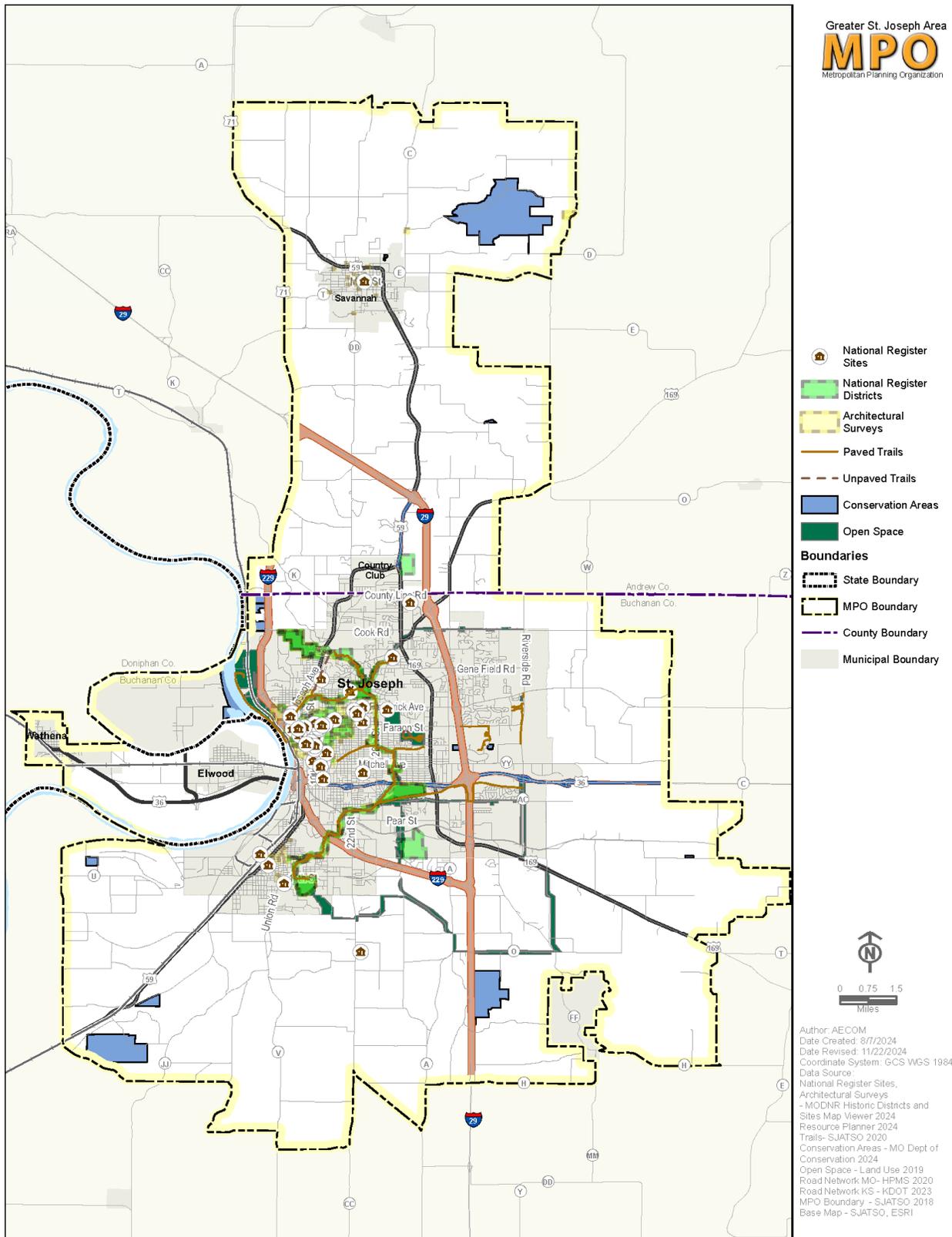
Map	Resources	Data Source
Natural Resources	Open Waters	NWI (open waters), ESRI (Missouri River)
	Streams/Rivers	U.S. Geological Survey, National Hydrography Dataset, Streams
	Conservation Areas	Missouri Department of Conservation
	Wetlands	U.S. Fish & Wildlife Service, National Wetlands Inventory
	Rare Species Locations	Kansas Biological Survey, Kansas Natural Heritage Inventory
Cultural Resources	Public Lands	Buchanan County Assessor, Missouri Department of Natural Resources, Division of State Parks, Land and Water Conservation Projects, Land and Water Conservation Fund Grants: Kansas InvestigateWest website
	Historic Sites	National Park Service, National Register of Historic Places
	Historic Districts	Missouri Department of Natural Resources, Division of State Parks, State Historic Preservation Program
Hazardous Materials Sites	Superfund Sites	U.S. Environmental Protection Agency Superfund Sites Listing
	Hazardous Substance Cleanup and Investigation Sites	Missouri Department of Natural Resources
Prime Farmland	Prime Farmland Farmland of Local Importance Farmland of Statewide Importance Farmland of Unique Importance	U.S. Department of Agriculture

Figure 1. Natural Resources



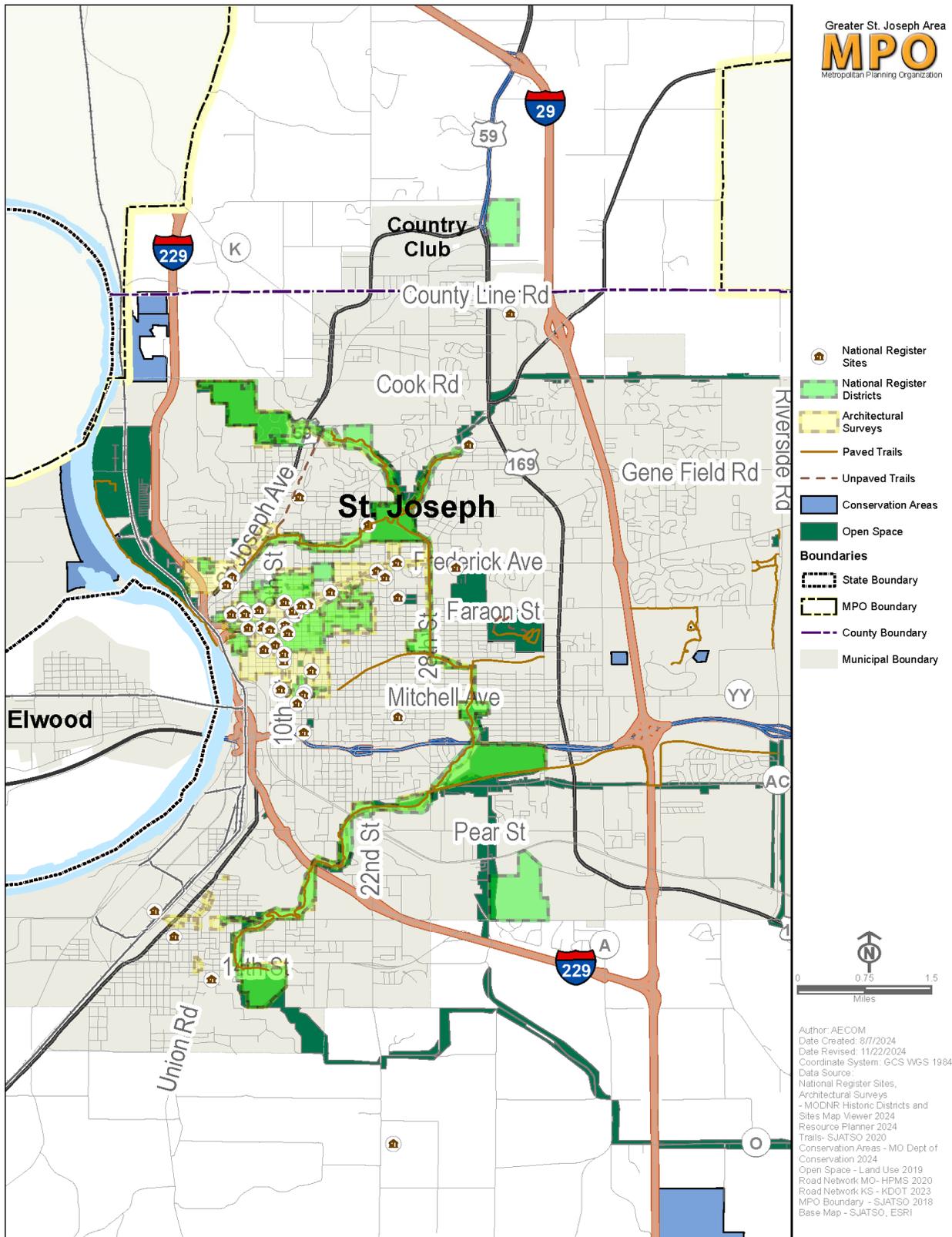
SOURCE: See Table 1.

Figure 2. Cultural Resources



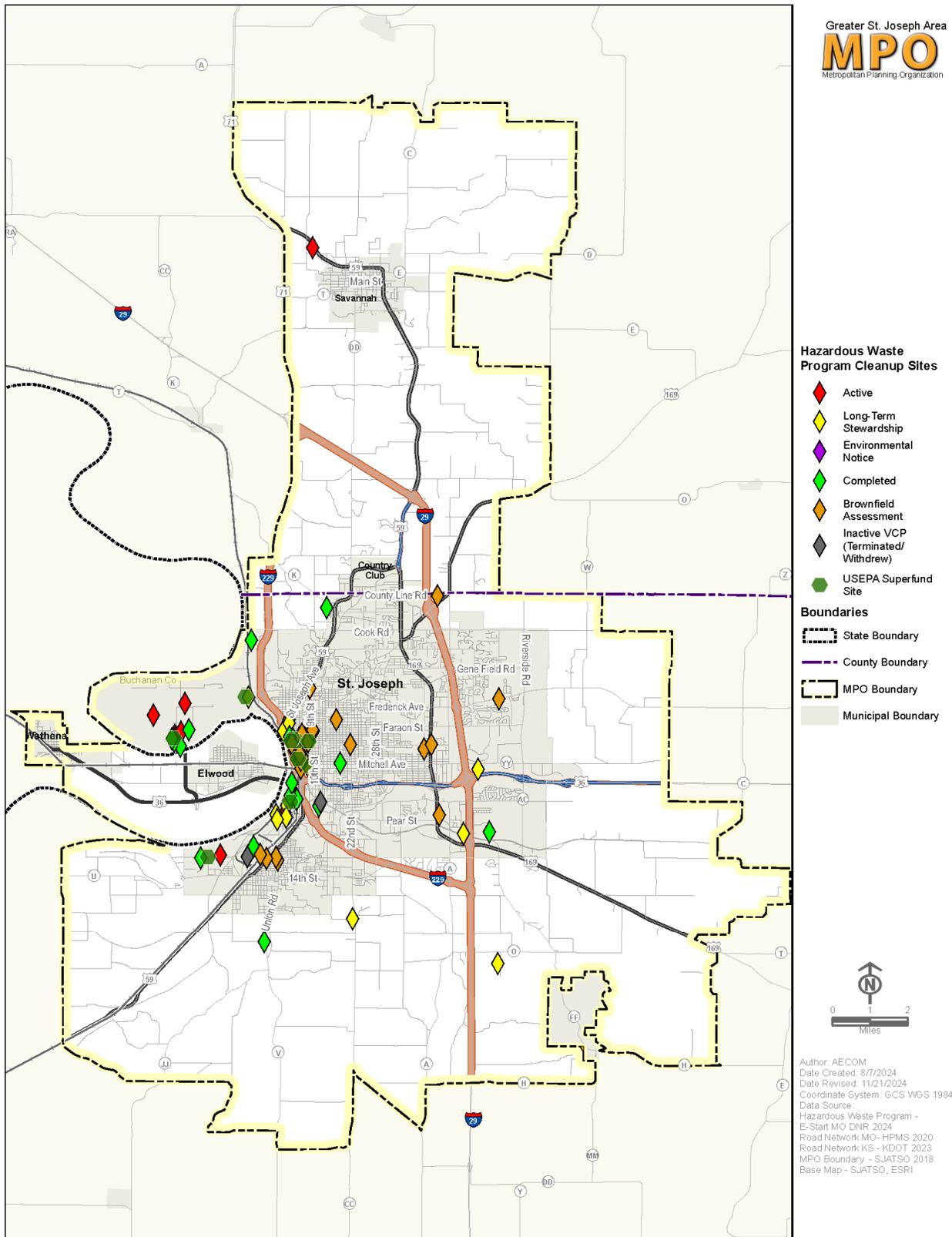
SOURCE: See Table 1.

Figure 3. Cultural Resources (St. Joseph Area)



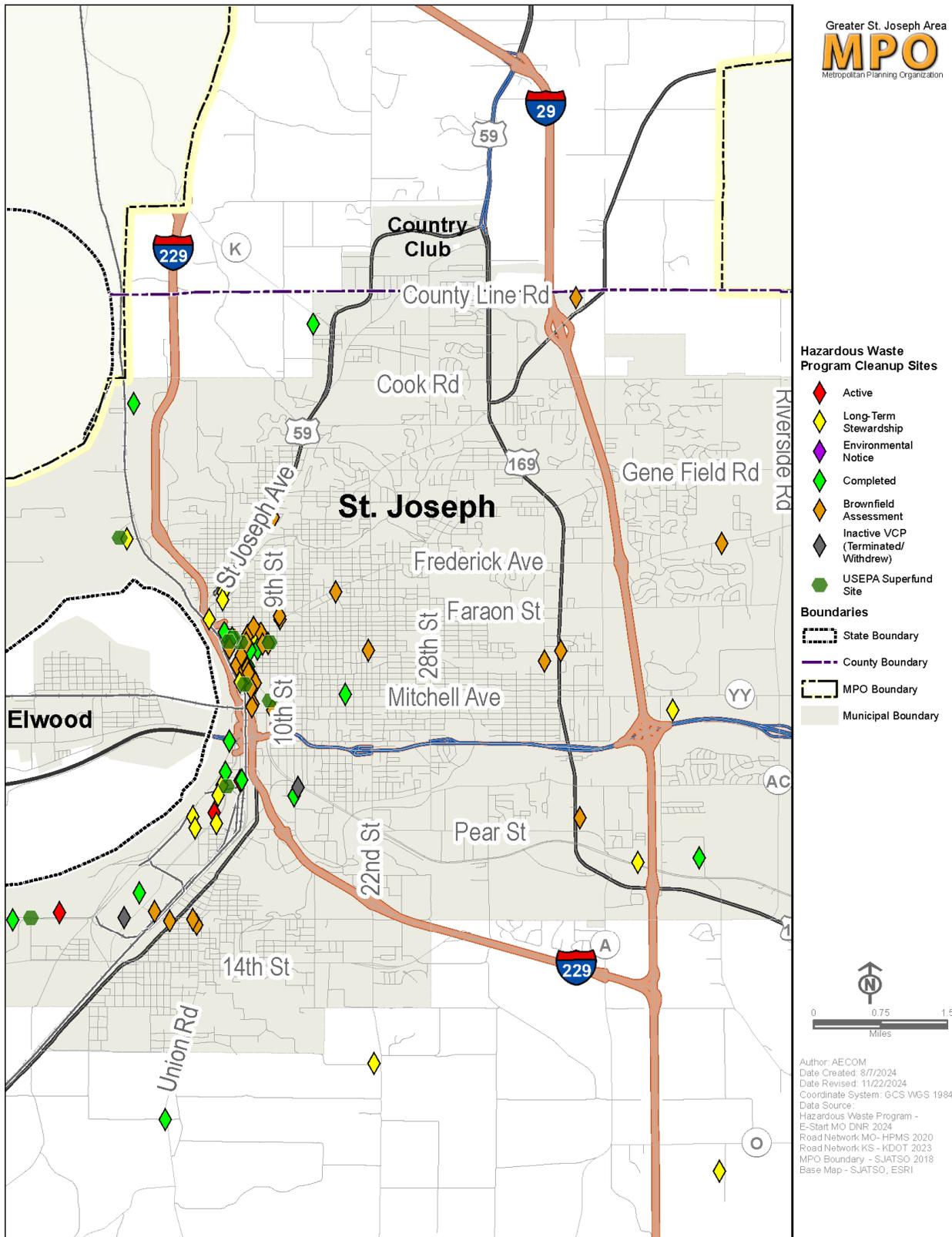
SOURCE: See Table 1.

Figure 4. Hazardous Waste Sites



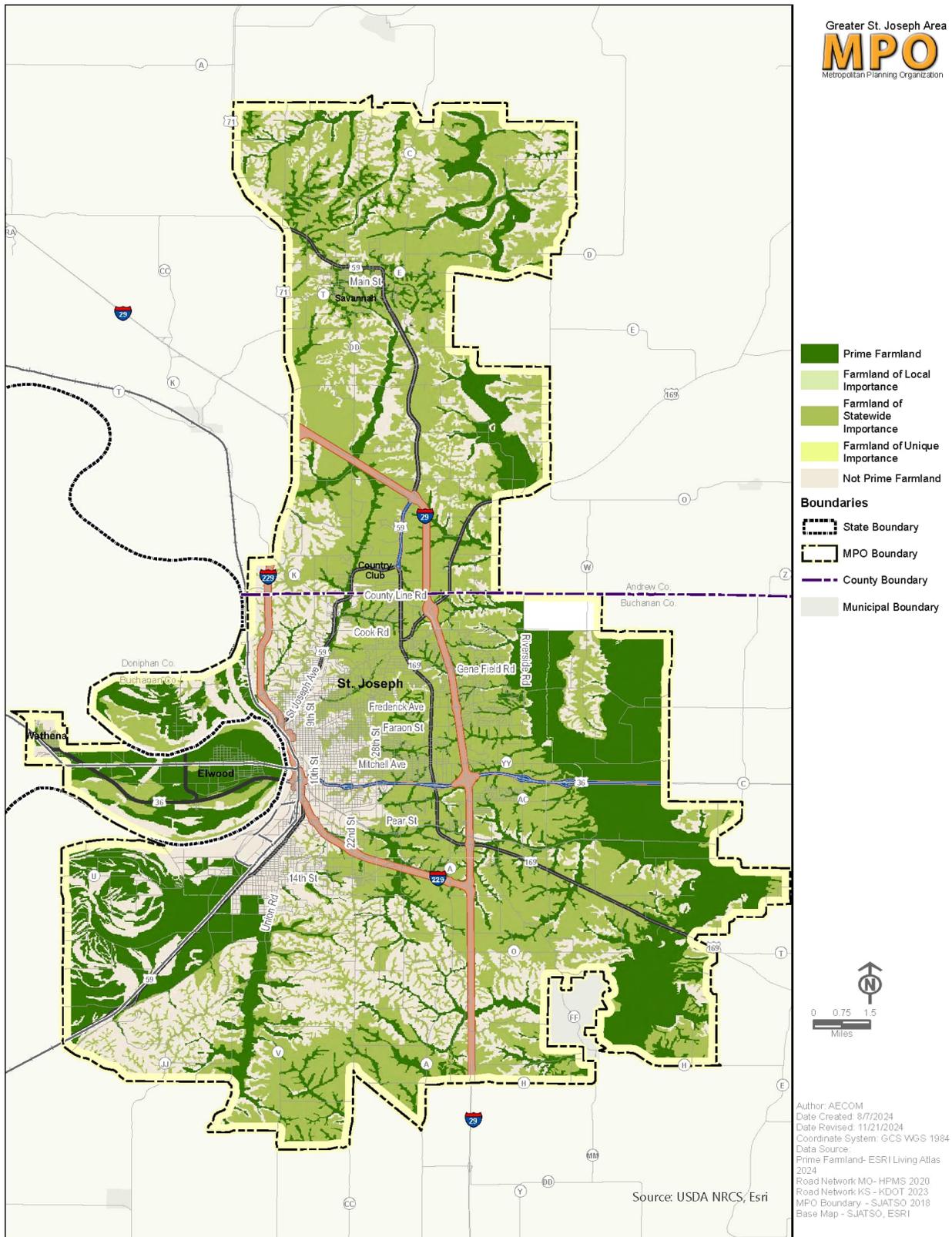
SOURCE: See Table 1.

Figure 5. Hazardous Waste Sites (St. Joseph Area)



SOURCE: See Table 1.

Figure 6. Prime Farmland



SOURCE: See Table 1.

Existing Conditions

Based on the data sources listed in Table 1, and mapped in Figures 1 through 6, the following resources/features were identified within the St. Joseph MPA for avoidance or minimizing impacts.

- The 100- and 500-year floodplains associated with the Missouri River and several of its tributaries. In addition, the eastern portion of the MPA boundary includes a significant area identified within the 100-year floodplain, some of which impacts the norther section of Riverside Road, a corridor that is expected to see residential development along Cook Road, and employment growth to the south.
- Streams including those with and without established 100 and 500-year floodplains;
- Nineteen Missouri Department of Conservation, Conservation Lands (e.g., Pigeon Hill Conservation Area, Bluffwoods Conservation Area, etc.). Conservation lands are owned and managed by state and/or federal agencies for the protection of wildlife as well as habitat and to provide recreational opportunities to the public. Public lands are protected under Section 4(f) of the Department of Transportation (DOT) Act of 1966, which is designed to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Federally funded DOT actions cannot impact Section 4(f) eligible sites unless there is no feasible alternative.

Section 6(f) is part of the Land and Water Conservation Fund (LWCF) Act of 1965, designed to provide restrictions for public recreation facilities funded with LWCF money. The LWCF Act provides funds for acquisition and development of public outdoor recreation facilities that could include community, county, and state parks, trails, fairgrounds, conservation areas, boat ramps, shooting ranges, etc. Facilities that are LWCF assisted must be maintained for outdoor recreation in perpetuity. Impacts to 6(f) lands require mitigation that includes permanent replacement lands of at least equal value and recreation utility.

- Kansas rare species locations for the Pallid Sturgeon, Western Silvery Minnow, Sickelfin Chub, Bigmouth Shiner, and Flathead Chub. In addition to these species, it is possible that the federally threatened Northern Long-Eared Bat and Indiana Bat may be present in forested areas.
- Five different types of wetlands as follows:
 - *Freshwater Emergent Wetlands* consisting of herbaceous marshes, fens, swales or wet meadows;
 - *Freshwater Forested/Shrub Wetland* consisting of woody wetlands, forested swamps, or shrub bogs;
 - *Freshwater Pond* consisting of ponds that may contain fringe wetlands;
 - *Lake* consisting of lakes or reservoir basins with wetland vegetation; and,
 - *Riverine* consisting of rivers or stream channels.

Wetlands are defined (Federal Register, 1982) 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 condition.” Executive Order 11990 Wetlands Protection requires each

Federal agency to provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

Each agency, to the extent permitted by law, must avoid undertaking or avoiding assistance for new construction located in wetlands unless the head of the agency finds: there is no practicable alternative to such construction; and the proposed action includes all practical measures to minimize harm to wetlands that may result from such use. Section 404 of the Clean Water Act authorizes the United States Army Corps of Engineers (USACE) to regulate impacts to waters of the United States through a permitting process. Waters of the U.S. is an inclusive term that covers streams, rivers, wetlands, and other aquatic sites that are under the USACE's jurisdiction.

- Twenty-one historic districts as follows:
 - Walnut Park Farm Historic District
 - Market Square Historic District
 - Missouri Valley Trust Company Historic District
 - Wholesale Row Historic District
 - Robidoux Hill Historic District
 - Central/North Commercial Historic District
 - Museum Hill Historic District
 - South Fourth Street Commercial Historic District
 - St. Joseph Park and Parkway System
 - St. Joseph's Commerce and Banking Historic District
 - Patee Town Historic District
 - Dewey Avenue-West Rosine Historic District
 - Krug Park Place Historic District
 - Kemper Addition Historic District
 - St. Joseph Park and Parkway System
 - Nelson-Pettis Farmsteads Historic District
 - Harris Addition Historic District
 - Cathedral Hill Historic District
 - Hall Street Historic District
 - Mount Mora Cemetery
 - Museum Hill Historic District (Boundary Increase)
- Designated multi-purpose trails, including the St. Joseph Urban Area Trail.
- Forty-two buildings on the National Register of Historic Places as follows:
 - Andrew County Courthouse
 - Buchanan County Courthouse (Boundary Decrease)
 - Buchanan County Courthouse and Jail
 - Buchanan County Infirmary
 - Buddy, Charles A. and Annie, House
 - Burnside--Sandusky Gothic House
 - Central Police Station
 - Century Apartments

- Christian Sachau Saloon
 - City Hose Company No. 9
 - Corby-Forsee Building
 - Eckel, Edmond Jacques, House
 - Everett School
 - Geiger, Dr. Jacob, House--Maud Wyeth Painter House
 - German-American Bank Building
 - Hall School
 - Herbert, Alois, Double House
 - James, Jesse, House
 - Lawler Motor Company Building
 - Livestock Exchange Building
 - Logan, John Sublett Jr. and Caroline Ashton, House
 - Maple Grove
 - McIntyre--Burri House
 - Miller, Issac, House
 - Miller-Porter-Lacy House
 - Missouri Theater and Missouri Theater Building
 - Patee, John, House
 - Pleasant Ridge School
 - Pony Express Stables
 - Richardson, John D., Dry Goods Company
 - Robidoux Row
 - Robidoux School
 - Ryan Block
 - St. Joseph City Hall
 - St. Joseph Public Library
 - St. Joseph Public Library--Carnegie Branch
 - Thompson-Brown-Sandusky House
 - Virginia Flats
 - Vosteen-Hauck House
 - Wathena Fruit Growers' Association Building
 - Western Tablet and Stationery Company, Building #2
 - Wyeth Flats
- Over 300 public lands that generally include city parks (e.g., Krug Park, Hyde Park, etc.) and public facilities (e.g., Rosecrans Memorial Airport, Buchanan County Courthouse, etc.).
 - Twenty-four U.S. Environmental Protection Agency Superfund sites and 29 Missouri Department of Natural Resource sites that are either active hazardous substance investigation and cleanup sites or have long term stewardship restrictions. The majority of which are located along the Missouri River (including areas near downtown St. Joseph and the Stockyards Industrial area to the south).
 - Widespread areas of prime farmland, unique farmland, and farmland of local/statewide importance.

- Prime farmland is a designation assigned by the U.S. Department of Agriculture defining land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and is also available for these land uses.
- Unique farmland is land other than prime farmland that is used for production of specific high value food and fiber crops. In some areas, land that does not meet the criteria for prime or unique farmland considered to be farmland of local or statewide importance for the production of food, feed, fiber, forage, and oilseed crops.
- Farmland of local or statewide importance may include tracts of land that have been designated for agriculture by local or state law.

Air Quality

The SJATSO MPA is located in a non-classified area as defined by the Environmental Protection Agency through the Clean Air Act. This means that the area is compliant with the National Ambient Air Quality Standards and no air quality analysis is required.

Environmental Mitigation Analysis – Fiscally Constrained MTP Projects

The approximate limits of the fiscally constrained 2050 MTP projects were overlaid on top of the environmental resources. Using GIS analysis, quarter-mile buffers were established around each fiscally constrained MTP project. A potential impact was recorded whenever a mapped resource intersected with a proposed project within the quarter-mile buffer.

Figure 7 displays these projects in proximity to the environmental resources, while Table 2 summarizes the approximate environmental areas that could be impacted.

Figure 7. Fiscally Constrained MTP Projects (with Environmental Resources)

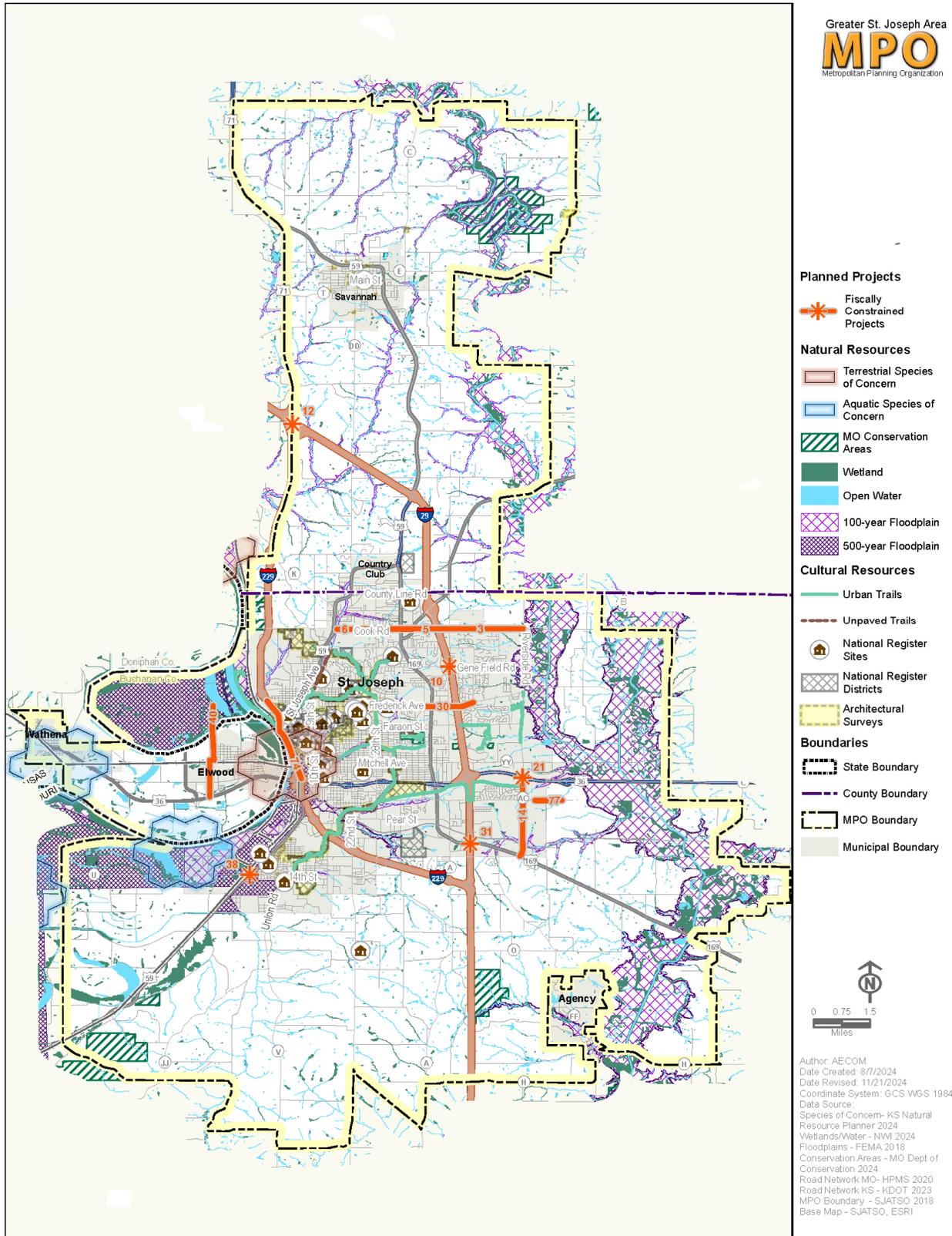


Table 2. Fiscally Constrained Projects Resource Matrix

ID	Project (Approximate Limits)	Rivers/Streams (number)	Conservation Areas (number)	Wetlands (approx. acres)	100-year Floodplain (number of crossings)	500-year Floodplain (number of crossings)	Rare Species Locations (number) * See Note on Following Page	Public Lands (parcels)	Historic Sites (number)	Historic Districts (number)	Superfund Sites (number)	Hazardous Substance Cleanup & Investigation Sites (number)	Prime Farmland (approx. acres)
3	Cook Road (Woodbine to Riverside)	1	0	10.0	1	1	Level 3	12	0	0	0	0	68.3
5	Cook Road (US-169 to I-29)	2	0	2.7	0	0	Level 3	1	0	0	0	0	28.3
6	Cook Road (US-59 to US-169)	4	0	3.1	1	0	Level 3	7	0	0	0	0	52.9
10	Gene Field Road (Bridge at I-29)	1	0	0.3	0	0	Level 2	7	0	0	0	0	7.6
12	I-29/I-229/US-71 Interchange Improvement	1	0	0.4	0	0	Level 2	0	0	0	0	0	0.0
14	Riverside Road (Route AC) (US-36 to Pickett Rd)	7	0	0.9	1	0	Level 2	0	0	0	0	0	56.0
21	Riverside Road (Route AC) (US-36 Interchange/Bridge)	1	0	0	0	0	Level 2	0	0	0	0	0	0.0
30	Frederick Avenue (36 th St. and Leonard)	1	0	0	0	0	Level 2	5	0	0	0	0	50.1
31	I-29 (US-169)	1	0	0	0	1	Level 2	0	0	0	0	0	0.0
38	Alabama Street (Near US-59)	1	0	3.4	0	0	Level 3 + Bald Eagle and Pallid Sturgeon	1	0	0	0	0	0.0
40	New Airport Causeway (Location TBD)	1	1	91.3	2	1	Level 3 + Bald Eagle and Pallid Sturgeon	2	0	0	0	0	93.7
74	I-229 (Double Decker) (I-229/US-59 to I-229/US-36/US-59 interchange)	1	0	77.3	2	2	Level 3 + Bald Eagle and Pallid Sturgeon	23	1	7	4	74	53.8
77	Pickett Road (Route AC to Craig Parkway)	2	0	0.2	0	0	Level 3	0	0	0	0	0	13.3

Source: AECOM.

Additional Information Regarding Rare Species Locations

Level 3: There are records of species listed under the Federal Endangered Species Act, and possibly also records for species listed Endangered by the state, or Missouri Species and/or Natural Communities of Conservation Concern within or near the defined project area. Contact the U.S. Fish and Wildlife Service and the Missouri Department of Conservation for further coordination.

Level 2: There are records of state-listed Endangered Species, or Missouri Species or Natural Communities of Conservation Concern within or near the defined project area. Contact the Missouri Department of Conservation for further coordination.

Bald Eagle: The project location submitted and evaluated is within the geographic range of nesting bald eagles in Missouri. Bald eagles (*Haliaeetus leucocephalus*) may nest near streams or water bodies in the project area. Nests are large and fairly easy to identify. Adults begin nesting activity in late December and January and young birds leave the nest in late spring to early summer. While no longer listed as endangered, eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection Act. Work managers should be alert for nesting areas within 1500 meters of project activities, and follow federal guidelines at: Do I need an eagle take permit? | U.S. Fish & Wildlife Service (fws.gov) if eagle nests are seen.

Pallid Sturgeon: The project location submitted and evaluated is located within or adjacent to the Mississippi or Missouri rivers. Pallid sturgeons (*Scaphirhynchus albus*, federal- and state-listed endangered) are big river fish that range widely in the Mississippi and Missouri River system (including parts of some major tributaries). Any project that modifies big river habitat or impacts water quality should consider the possible impact to pallid sturgeon populations. See Pallid Sturgeon Best Management Practices (mo.gov) for Best Management Practices. Additional coordination with the U.S. Fish and Wildlife Service under the Endangered Species Act may be necessary (U.S. Fish and Wildlife Service, Ecological Services, 101 Park DeVillie Drive, Suite A, Columbia, Missouri 65203-0007; phone 573-234-2132.)

Analysis

Most of the fiscally constrained projects do not appear to have significant impacts on the environmentally sensitive areas. Six projects that would potentially be impacted by floodplain issues include Projects 3 (Woodbine to Riverside Road), 6 (Cook Road US-59 to US-169), 14 (Riverside Road (US-36 to Pickett Rd), 31 (I-29), 40 (New Airport Causeway) and 74 (I-229 Double Decker I-229/US 59 to I-229/US 36/US 59 interchange). All six projects fall within either the 100-year or 500-year floodplains which should be considered in further planning and project design. The airport access road project (40) also potentially impacts significant areas of wetlands, which should also be accounted for in future planning and design.

Planning Guidance

The purpose of the environmental mitigation analysis is to identify the projects that may have the potential to impact environmentally sensitive areas within the SJATSO MPA. However, the identification of a potential impact does not mean that the project cannot advance for further study, or eventually be implemented. Having identified potential impacts, planning guidelines can be introduced for agency consideration during all phases of project planning, design, construction, and maintenance.

From a high-level perspective, the 2050 MTP projects should be analyzed more closely as they move further into the stages of development to determine whether negative environmental impacts will be realized by the surrounding area. SJATSO staff will use the environmental mitigation analysis information to consult with the appropriate local, state, and federal agencies to minimize the impact the transportation projects may have on the environment.

The guidelines for evaluating potential impacts to sensitive resources establish a three-step approach, commonly called sequencing. The first step is to avoid the resource whenever or wherever possible. If a sensitive resource cannot be avoided, then the second step is to minimize the impact to the greatest extent possible. The third step is to consider compensatory mitigation to offset harm to the resource from those impacts that remain after steps one and two.

Regardless of the type of project or the resource that may be impacted, the guidelines deserve consideration during the planning, design, construction, and maintenance of the MTP projects. Guidelines developed by the Missouri Department of Transportation (MoDOT) and AASHTO are presented below for reference. SJATSO can only recommend that these guidelines be followed by the implementing agencies during the project planning and development process. The following “best practice” guidelines will help to ensure good planning practices that will assist in the overall quality of the area’s environment. Furthermore, SJATSO encourages all implementing agencies to check that the planning and design guidelines reflect the most recent guidance/policy.

Planning & Design Guidelines

- Utilize Context Sensitive Solutions (CSS) throughout the planning and project development process. CSS identifies the physical, visual, and social context in which

a project is situated while involving all stakeholders in a collaborative process in developing transportation projects.

- Identify the area of potential impact as it relates to each transportation project, including the immediate project area as well as related project development areas.
- Continue to update the environmental sensitive inventory to determine if any of the identified resources may be impacted by proposed projects.
- Coordinate with the Buchanan, Andrew, Doniphan County Hazard Mitigation Plans as appropriate.
- Coordinate the transportation projects with local comprehensive and master plans, watershed management plans, recreation and non-motorized plans, etc.
- Prior to project construction, collaborate with local community officials, contractors, and other relevant stakeholders to review and discuss environmental issues and goals.
- If it all possible, avoid impacts to environmental resources through project design and/or through the implementation of all possible mitigation measures.
- Incorporate stormwater and erosion control management into the project design. The emphasis on better stormwater management was a new focus area of FAST Act and it continues under the BIL/IJA.
- Reduce the size and need for culverts when and where possible.
- Upgrade to current Americans with Disabilities Act of 1990 (ADA) standards for any sidewalks that are within right of way and the project construction limits.
- Consider resiliency during transportation planning processes. Project development should assess ways to protect, preserve, and improve regional assets in the face of increasing climate change and extreme weather events. As an example, agencies may want to approach development within floodplains from a different perspective to address more frequent flooding events. Additional guidance can be found at: <https://www.fhwa.dot.gov/environment/sustainability/resilience/>

Construction & Maintenance Guidelines

- Include all special requirements that address environmentally sensitive resources into plans and estimates used by contractors and subcontractors. Specifically identify/highlight the types of activities that are not appropriate in environmentally sensitive areas.
- Minimize the size of the construction and staging area with clearly marked boundaries using fencing or flagging around sensitive areas as necessary to prevent intrusions.
- Use the least intrusive construction materials and techniques.
- Avoid disturbing the construction site as much as possible by:
 - Protecting established vegetation and natural habitat. If disruption is unavoidable, replace with native species as soon as possible.
 - Implementing sediment and soil erosion control measures as required.
 - Not stockpiling materials in sensitive areas.
 - Protecting water quality by controlling direct runoff, sweeping streets to reduce sediment, implement salt management techniques, and control storm water drains from construction debris.

- Protecting cultural and historic resources.
- Minimizing noise and vibration.
- Providing for solid waste disposal.
- Conducting on-site monitoring during and after construction to ensure protection of environmental resources as planned.
- Maintaining equipment in good working condition and avoid fueling or maintenance near environmentally sensitive areas.
- Reducing land disturbances through the efficient organization of construction activities.

Conclusion

The purpose of this environmental mitigation review is to identify potential impacts the fiscally constrained 2050 MTP projects may have on the area's environmentally sensitive resources and to provide useful guidelines for mitigating the impacts to the implementing agencies. The 2050 MTP fiscally constrained projects, along with any future projects that might be identified and added to future MTP updates, should continue to be analyzed closely as they move into the respective development stages to determine whether negative environmental impacts will affect the surrounding area.

NOTE: Figure 8 on the following page includes a map showing all potential 2050 MTP projects overlaid with environmental resources. This map is provided for informational purposes only as the environmental mitigation analysis is focused on the 2050 MTP fiscally constrained projects.

Figure 8. Potential MTP Projects (with Environmental Resources)

