

Appendix E • Environmental Mitigation & Inventory

Environmental Mitigation

CFR Title 23 Section 450.322(f)(7) requires that potential environmental mitigation activities – whether policies, programs or strategies – shall be discussed and developed in consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies.

The 2nd section of Appendix E identifies an extensive set of environmental resources that need to be considered at different stages of the transportation planning continuum. Identified features include cultural, biological, groundwater, surface water and landform resources. Certain types of resources and planning for the avoidance, minimization, or mitigation of impact to such resources is more appropriately studied at the project level. To encourage the timely and thoughtful consideration of impacts to site-specific resources such as historical sites, fens, existing parks, etc., the plan recommends and supports completion of Early Project Development Process (EPDP) studies as described in Chapter 4 of the plan. This will likely be the most

appropriate vehicle for considering environmental mitigation for many resource types, and the process as structured and executed by ROCOG attempts to draw in all local, state and federal agencies with involvement in resource protection.

Planning for the protection of certain other resources, such as groundwater, rivers and streams, or floodplains, is most appropriately addressed at the system level, and typically uses a definable ecosystem, such as a watershed, as the basis for planning. Olmsted County Planning Department (OCPD) and ROCOG staff have worked with local, state and federal agencies on a number of plans for definable ecosystem areas that identify policies and investment opportunities for protecting water based resources in the ROCOG planning area. Since these efforts are not led by ROCOG, the development of such plans do not coincide directly with preparation of the Long Range Transportation Plan, but the policies and recommendations of these plans are recognized in the Long Range Plan. Prominent among these plans are:

- The South Zumbro Watershed Stormwater and Transportation Management Plan
- The Olmsted County and Rochester Stormwater Pollution Prevention Plans (SWPPP)
- Rochester Regional Stormwater Management Plan
- The Decorah Edge management initiative
- The Minnesota Statewide Conservation and Preservation Plan
- South Zumbro Watershed Stormwater and Transportation Management Plan (SZWS)

The SZWS is a watershed-based plan that integrates storm water management with transportation planning to address the problem of bridges historically being designed to pass flows quickly downstream—a practice that results in hydraulic overloading, channel instability, degradation of recreational waters, and diminished wildlife habitat. This plan was completed in 2003 for the purpose of promoting the integration of multi-agency surface water management objectives with the planning, design and programming of improvements to the transportation related drainage network, including work bridges, culverts and ditch improvements. The plan covers an area of 297 square miles in the Zumbro River watershed in Olmsted and Dodge Counties as illustrated in Figure E-1.

This plan identifies targeted strategies to protect watersheds and investment in roadway infrastructure by:

- Encouraging the protection and restoration of sensitive areas such as wetlands, floodplains, recharge areas and steep slopes
- Providing peak flow reduction facilities such as temporary ponding and flow control structures
- Encouraging a watershed approach to the sizing of bridges and culverts throughout the watershed
- Promote the use of Best Management Practices in terms of stormwater management and erosion control to minimize impact of runoff in the watershed.

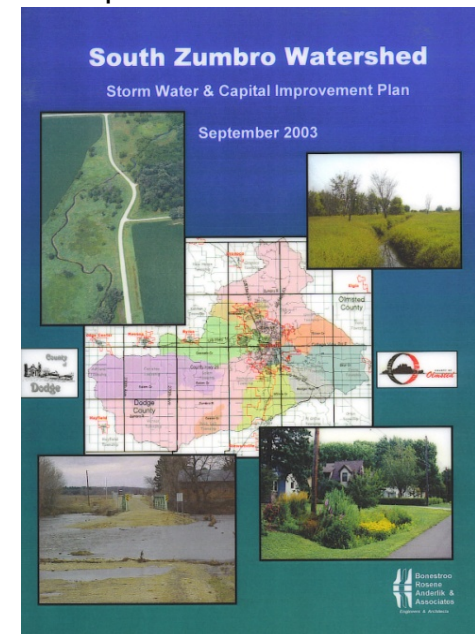
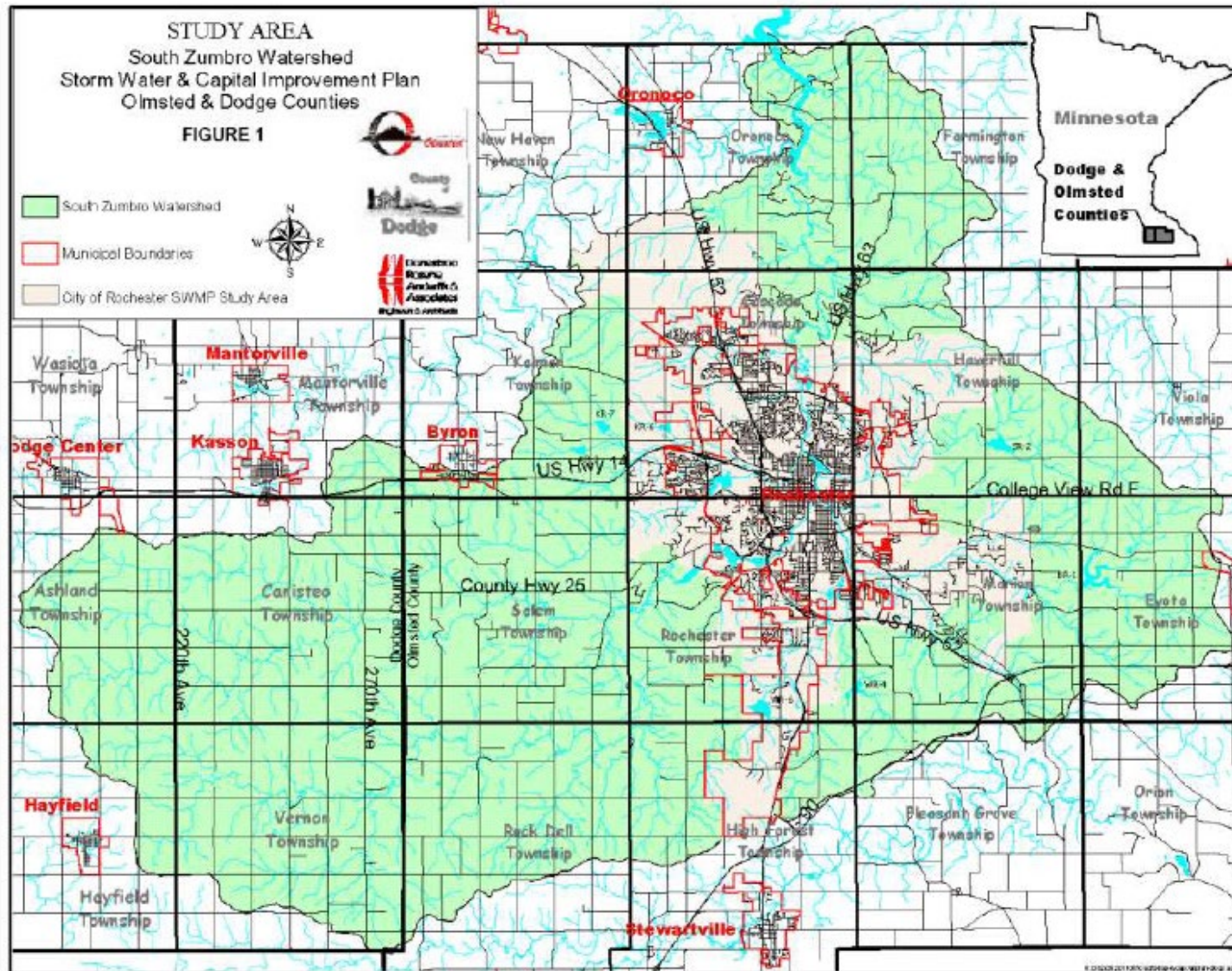


Figure E-1: South Zumbro Watershed Stormwater and Transportation Study Area



Olmsted County and Rochester Stormwater Pollution Prevention Plans (SWPPP)

The city of Rochester, Olmsted County, Mn/DOT District 6, the Rochester University Center and the townships of Cascade, Haverhill, Marion and Rochester abutting Rochester are all subject to the requirements of the National Pollutant Discharge Elimination System (NPDES). Each permit holder individually or in partnership with others must develop an SWPPP. OCPD/ROCOG staff and officials are involved in the development and administration of the program recommendations and strategies. An important component of this program is the management of stormwater runoff from transportation facilities, and the implementation of Best Management Practices including installation of settling ponds or rate control structures as part of roadway projects, and operational practices related to activities such as the timing and frequency of street sweeping, to reduce impact to surface water resources.

Rochester Regional Stormwater Management Plan

A regional approach to stormwater has been developed in the Rochester urbanized area that takes advantage of the economies of scale to provide for storage and treatment of stormwater runoff through a planned system of stormwater infrastructure. This plan is updated periodically, and OCPD/ROCOG staff are one of a large

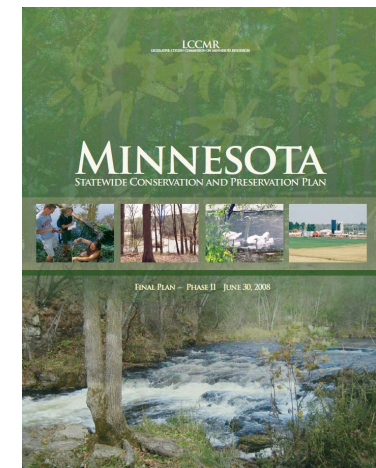
number of stakeholders involved in its updating. Co-location of many stormwater facilities along or abutting transportation corridors has proved to be cost effective in reducing land acquisition and maintenance costs.

The Decorah Edge Management Initiative

This initiative was led by the OCPD, with the assistance of the Olmsted County Environmental Services Division, to address the impact of development including road construction on this critical groundwater recharge resource. OCPD/ROCOG staff were involved in the development of policies and ordinance requirements to protect this resource along with a number of other state and local water resource agencies. Both development and environmental interest groups were heavily involved in discussions leading up to the adopted regulations.

State Conservation Plan

The Minnesota Statewide Conservation and Preservation Plan includes recommended policies to address the impact of surface transportation development on the critical resources of the state. The report contains three recommendations that outline a near-term strategy with long term effects to integrate



transportation system development more effectively with other statewide and local planning and decision-making. These are:

- **Recommendation 1:** Align transportation planning across state agencies and integrate transportation project development and review across state, regional, metropolitan and county/local transportation, land use and conservation programs.
- **Recommendation 2:** Reduce per capita vehicle miles of travel (VMT) through compact mixed-use development and multi- and intermodal transportation systems
- **Recommendation 3:** Develop and implement sustainable transportation research, design, planning, and construction practices, regulations, and competitive incentive funding that minimize impacts on natural resources, especially habitat fragmentation and non-point source water pollution

Other Measures

Measures such as soil erosion and stormwater runoff control and wetland protection are most appropriately addressed through policy, regulation, and the establishment of performance guidelines which land disturbing activities such as roadway improvements must meet. The development of these regulations has been led by OCPD/ROCOG staff through joint efforts with local resource and public works agencies. OCPD staff

administer local ordinances in partnership with building officials (for erosion control), public works agencies (stormwater infrastructure) and the local soil and water conservation district (wetland regulations). These regulations all require consideration of the impact of transportation projects either through individual permits or as part of the NPDES project permits.

A final area of emerging environmental mitigation strategies that ROCOG partners are actively investigating can be referred to as “green” construction initiatives. Probably the most common among these is the use of recycled pavement materials in reconstruction projects. Other examples include the Rochester Public Works Department investigation of permeable pavements as an option for lower volume roads, as well as the potential integration of rain gardens into the stormwater management system. Olmsted County Public Works also participated in an experimental public road paving project involving the use of “warm-mix” asphalt, a type of asphalt production that results in 40% to 50% reduction in fossil fuel use and VOC emissions. Olmsted County is working with the local Soil and Water Conservation District to test the use of different types of native plantings that tolerate harsh environmental conditions along roadsides, and their potential to reduce maintenance costs. Rochester, Olmsted County and Mn/DOT are also investigating the use alternative de-icing materials to reduce the environmental impact of this important safety strategy.

Resource Plans and Inventories of Existing Resources

CFR Title 23 Section 450.322(g) states that MPO's shall "consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of the transportation plan." **This consultation shall involve (as appropriate) a comparison of transportation plans with state conservation plans or maps, and inventories of natural or historic resources, if available.**

ROCOG has built an extensive database of resource mapping in GIS format in cooperation with the City of Rochester and Olmsted County that is utilized throughout the transportation planning process.

This second section of Appendix E provides an inventory of resources categorized into five groups. For each group, a Summary Matrix is provided that highlights key resource information, and mapping is provided highlighting the location of candidate projects for federal transportation funding (from Chapters 10/15) in relation to various resources, showing areas of potential impact that will need to be considered in subsequent project development efforts. The groups include:

- Surface Water Resources
 - ▶ Rivers / Streams / Lakes / Flood Control Reservoirs
 - ▶ Floodplains / Floodprone Areas
 - ▶ Shoreland Areas
 - ▶ Stormwater Management System
- Groundwater Related Resources
 - ▶ Wetlands
 - ▶ Seeps and Springs
 - ▶ Fens
 - ▶ Wellhead Protection Areas
 - ▶ Decorah Edge
- Biological Resources
 - ▶ Endangered, Threatened and Species of Special Concern
 - ▶ Rare & Native Plant Communities
- Cultural Resources
 - ▶ Parks and Trails
 - ▶ Historic Properties
 - ▶ Archaeological Resources
 - ▶ Contaminated Sites
- Landform Features of Importance

- ▶ Sinkholes
- ▶ Karst
- ▶ Steep Slopes
- ▶ Erodible Soils
- ▶ Aggregate Resources

Specific data elements listed in each Summary Matrix include:

- Is there an adopted plan for the resource of interest?
- Are there adopted regulations addressing impact to the resource of interest?
- What is the typical process for considering the resource in the planning process?
- Is there mapping of the resource available in a GIS format?
- Is the resource a factor included in the CLUES Model? The Comprehensive Land Use Evaluation System (CLUES) model is a technical analysis tool utilized by Olmsted County to assist in identification of Resource Protection and Suburban Development Areas in the General Land Use Plan.
- What is the AUAR Significance Rating? As part of recent Alternative Urban Areawide Reviews conducted under the rules of the Minnesota Environmental Quality Board in the Rochester area, resources were assigned a High/Medium/Low rating that highlights

the significance of each resource as a factor in limiting future development and the level of stewardship protection that should be afforded to each resource.

Table E-1: Surface Water Resource Data

Resource	Adopted resource plan?	Adopted regulations?	Typical process for considering plans or regulations	Available mapping?	Factor in CLUES model?	AUAR Significance Rating
Rivers, Lakes, & Streams including Public Waters		Floodplain & shoreland regulations are primary controls	Typically, project level review involves approval of MNDNR Permit for work in Public Waters	ROCOG GIS Map Inventory	Shoreland areas are identified as a protected area	High
Floodway, Floodplain, & Floodprone Corridors	MnDNR Floodplain Management Program	Primarily local responsibility, with regulations contained in City & County zoning ordinances	Local Government permit needed for work in floodplain; on highway projects, 401 Water Quality Certification (MnDNR) Section 404 Permit (US Corp of Engineers) and Permit for work in Public Waters (MnDNR) typically required	ROCOG GIS Map Inventory; includes FEMA mapping and soils data to identify floodprone areas	Not directly except through shoreland and wetland factors	High (Floodway) Moderate (Flood Fringe) Moderate (Flood Prone/rural areas)
Shoreland Areas	MnDNR Shoreland Management Program	Primarily local responsibility, with regulations in City/County Zoning Ordinance	Local government permit needed to permit work in shoreland area	ROCOG GIS Map Inventory	Yes	None assigned
Stormwater Runoff	City of Rochester Stormwater Management Plan (SWMP) Rochester & Olmsted County Stormwater Pollution Prevention Programs (SWPPP)+	Local requirements for runoff control included in grading & site disturbance regs NPDES and Section 404 requirements at state and federal level	At local level, grading plans typically required along with site drainage plans (City of Rochester); For highway projects, a NPDES permit required from MPCA and Section 404 permit required from US Army Corp of Engineers	ROCOG GIS Map Inventory has locations of existing ponds SWMP includes targeted locations for future stormwater management ponds & structures	NA	NA

Figure E-2: Mapping of Surface Water Resources

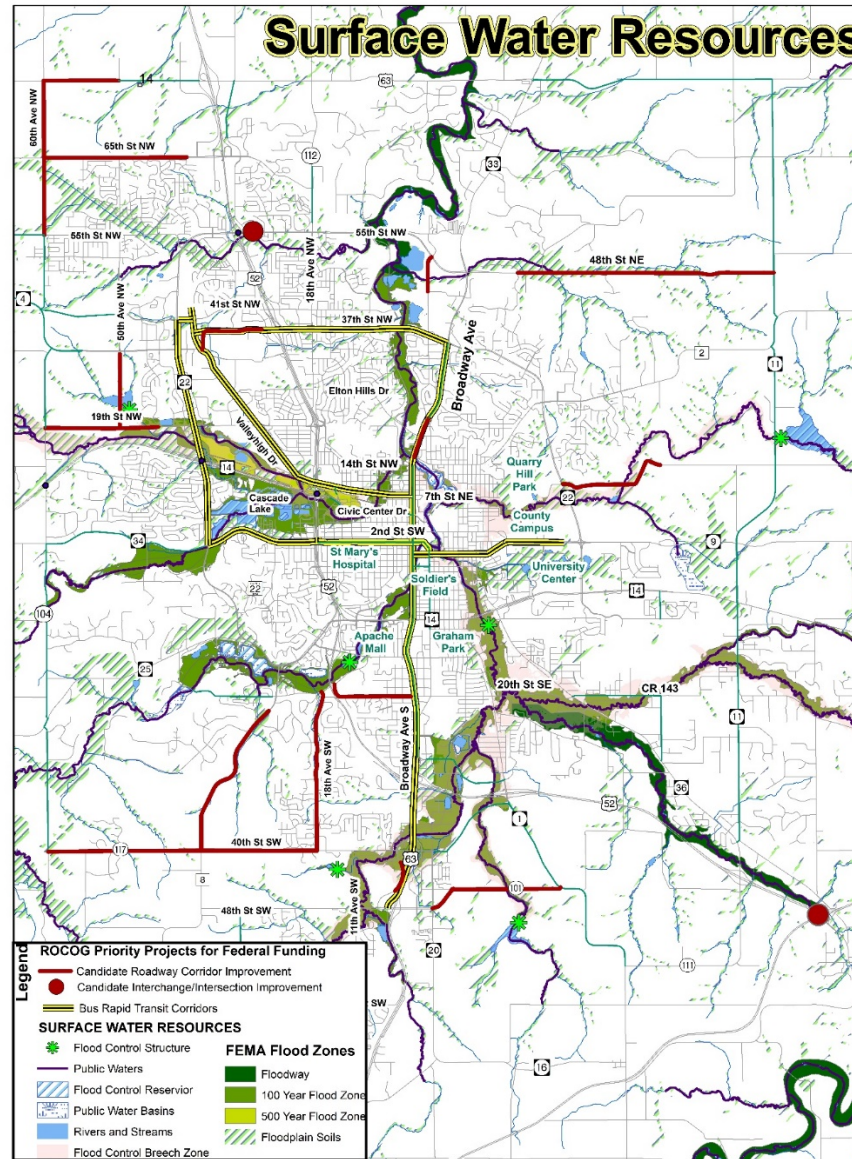


Table E-2: Groundwater Resource Data

Resource	Adopted resource plan?	Adopted regulations?	Typical process for considering plans or regulations	Available mapping?	Factor in CLUES model?	AUAR Significance Rating
Wetlands	City of Rochester has developed a Comprehensive Wetland Management Guide	<ul style="list-style-type: none"> • State Wetland Conservation Act • Rochester - Chap 59 in Code of Ordinances • Olmsted County Wetland Conservation Ordinance 	<ul style="list-style-type: none"> • Section 404 permit from US Army Corp of Engineers typically required for highway projects • Olmsted County Soil and Water Conservation District must approve Exemption, no-loss or replacement plans where wetland impacts are anticipated • Rochester Wetland Permit requires City Council action 	ROCOG GIS Map Inventory includes <ul style="list-style-type: none"> • NWI mapping • Mapping of wetland indicator soils 	Yes	Moderate (NWI mapped areas)
Seeps/Springs	No	Regulated through wetland or Decorah Edge req.	Wetland or Decorah Edge process will apply to seeps or springs where those regulations apply	ROCOG GIS Map Inventory	Yes	Moderate
Fens	No	Fens are protected under Minnesota Wetland Conservation Act	In addition to wetland requirements, Section 401 and 404 permits needed to address impact; and NPDES permit to limit pollution reaching fen resource	Inventory list only – identified to nearest ¼ mile (quarter-quarter section)	No	High
Wellhead Protection	Rochester Wellhead Protection Plan	Wellhead Protection Rules administered by MN Dept of Health	As new community or municipal wells are drilled, they come under State Wellhead Protection Rule requiring emergency response zone and water supply management delineation; vulnerability assessment and source protection BMPs	Rochester Public Utilities	No	NA
Decorah Edge	Available information on Olmsted County Planning Dept. website	Regulation of edge areas integrated in City and County wetland ordinances	City of Rochester requires consideration of Decorah Edge as part of Wetland Permit process; Olmsted County provides plan-based review of Decorah Edge impact	ROCOG GIS Map Inventory	Yes	Moderate-Low
Geologic Sensitivity to Groundwater Pollution	No	No	Geologic Atlas features are map based planning tool utilized in development of County Land Use Plan and Water Resource Plans	ROCOG GIS Map Inventory (derived from MN Geologic Survey)	Yes	Low (in areas where mapping indicates shallow depth to bedrock)

Figure E-3: Mapping of Groundwater Resources

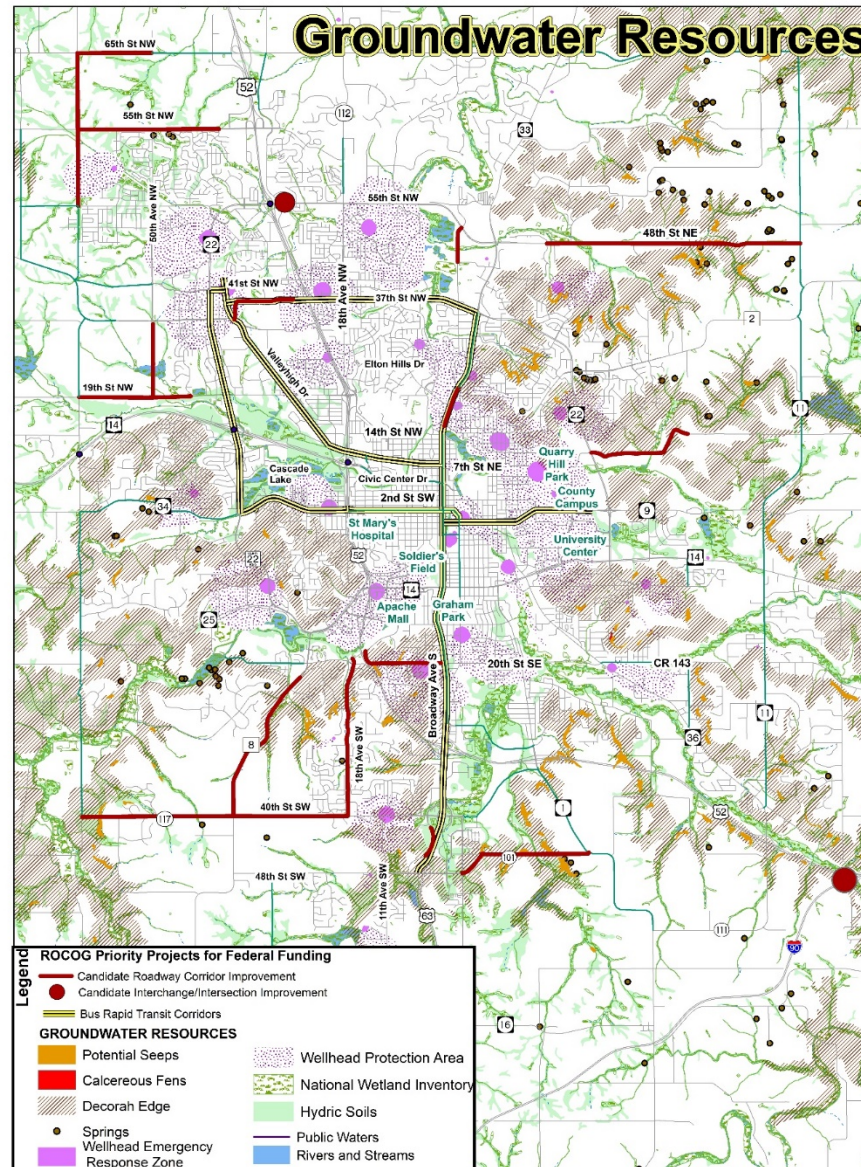


Table E-3: Biological Resource Data

Resource	Adopted resource plan?	Adopted regulations?	Typical process for considering plans or regulations	Is there available mapping?	Factor in CLUES model?	AUAR Significance Rating
Endangered, Threatened & Species of Special Concern	No	Federal Endangered Species Act and State Statute 84.0895 – Protection of Endangered & Threatened species	MnDOT will act as agent for FHWA and USFWS in determination of impact on T&E resources; if impact potential exists MnDOT coordinates with USFWS. Documentation in Biological Opinion or T&E Species Permit.	County Biological Survey Mapping available from MnDNR identifies general locations of T&E species	Yes	High (Endangered) Moderate (Threatened) Low-Moderate (Special Concern)
Native plant communities.	No	No	Assessment of vegetation present is conducted in scoping phase with Vegetation Management Plan developed in areas where high value resources are present.	Resources mapped in Minnesota County Biological Survey by MnDNR	Yes (Unique habitats, biodiverse areas considered)	Low to Moderate
Agricultural Lands/Crop Equivalency Rating	No	Federal Farmland Protection Act and State Agricultural Preservation and Conservation Policy Act	On a highway project, a farmland conversion impact rating will typically be prepared and submitted to Natural Resources Conservation Service for consideration of Farmland Conversion Approval.	Derived from USGS Soils Survey, available through ROCOG GIS	Yes	NA

Figure E-4: Mapping of Biological Resources

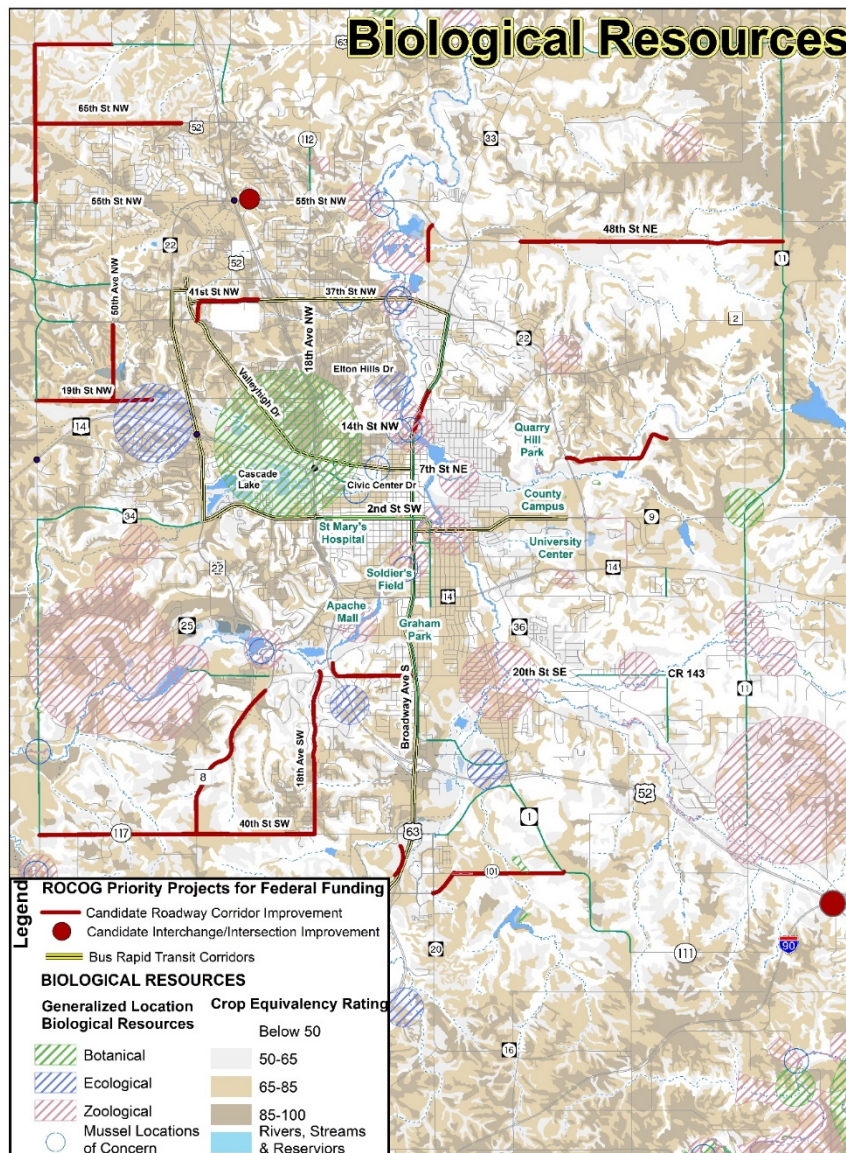


Table E-4: Cultural Resource Data

Resource	Adopted resource plan?	Adopted regulations?	Typical process for considering plans or regulations	Is there available mapping?	Factor in CLUES model?	AUAR Significance Rating
Historic Properties		Federal Section 106 regulations administered by SHPO Office	Section 106 Permit process for determination of No Effect or subsequent Resource Protection Plan	ROCOG GIS Map Inventory	No	Moderate-low
Parks & Trails	City of Rochester P2S 2040 and City Parkland Acquisition Plan	Federal 4(f) and 6(f) regs apply to conversion of parkland or lands for outdoor recreation to transportation purposes	<ul style="list-style-type: none"> • A typical highway project impacting a park or open space resource will require 4(f) of no significant impact by MnDOT with FHWA approval • 6(f) assessment requires mitigation / replacement plan for any affected resource 	ROCOG GIS Map Inventory of city and county parks and trails	Yes	High
Archaeological Resources	No	Section 10 of National Historic Preservation Act; Minnesota Field Archaeological Act; Minnesota Historic Sites Act	On a typical highway project MnDOT Cultural Resources Unit will make a determination as to no effect/potential effect on archaeological resources and mitigation plan if needed	MnModel (MnDOT) for identifying potential presence of archaeological resources	No	NA
Contaminated Sites	No	Federal CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; State MERLA – MN Environmental Response Liability Act; Petroleum Tank Release Cleanup Act	Typical process involves screening based on information in MPCA Inventory of Contaminated Properties and other databases; Phase I study conducted where potential site contamination is identified. Soil/groundwater cleanup plan required where sites confirmed.	Mapping and database information available on MPCA web site	No	NA

Figure E-5: Mapping of Cultural Resources

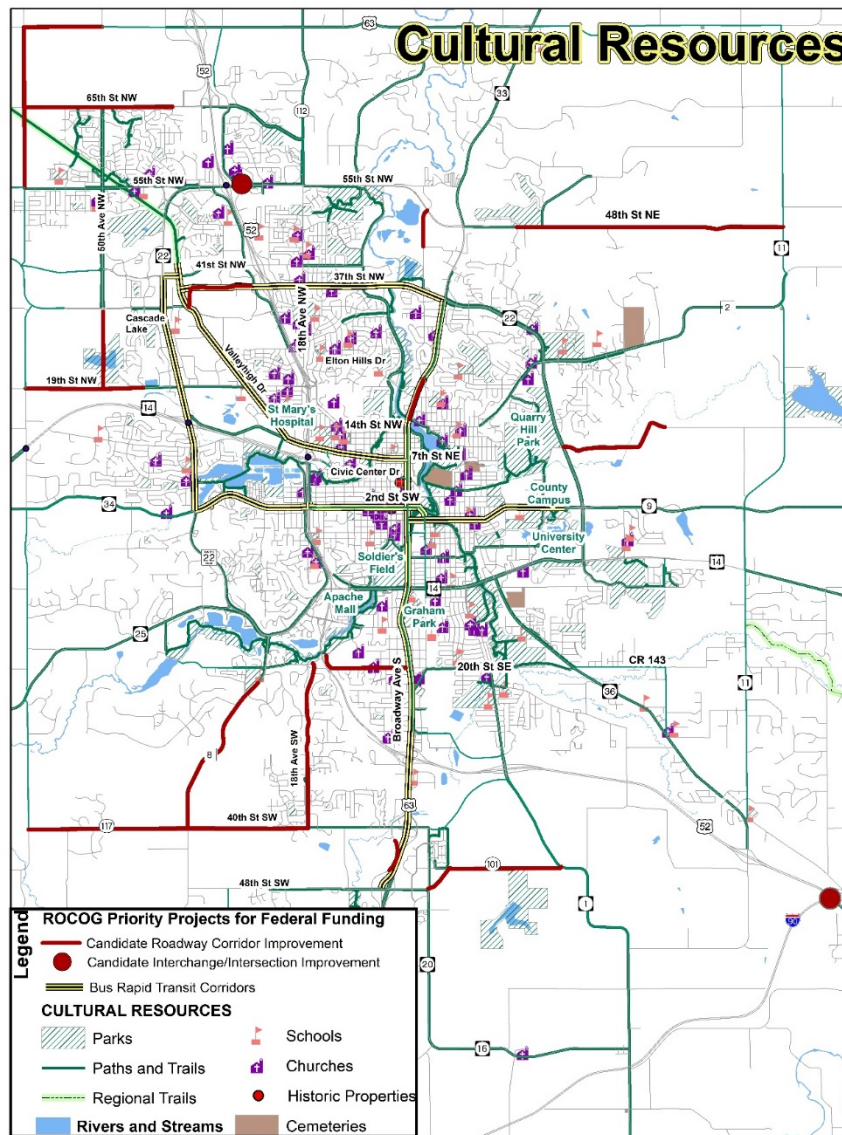


Table E-5: Landform Resource Data

Resource	Adopted resource plan?	Are there adopted regulations?	Typical process for considering plans or regulations	Is there available mapping?	Factor in CLUES model?	AUAR Significance Rating
Sinkholes	No	No	Sinkhole information typically considered in planning and environmental review process as a restriction on development	ROCOG GIS Map Inventory	Yes	Moderate
Karst	No	No	Karst information typically considered in planning for infrastructure planning where potential for spills could result in groundwater contamination	Derived from Minnesota Geological Survey, available in ROCOG GIS Map Inventory	Yes	NA
Steep Slopes	No	City and County sedimentation, erosion control and runoff ordinances and City Hillside Development ordinance; NPDES requirements	Critical issues with steep slopes are potential for erosion and sedimentation along with stormwater runoff, which will be considered in NPDES permits as well as local grading permit requirements and conditional use permit requirements	Derived from USGS Soils Survey, available in ROCOG GIS Map Inventory	Yes	High (> 18% in Shoreland area) High (>26% in other areas) Moderate (18-26% outside shoreland areas)
Erodible Soils	Erosion control addressed in Stormwater Pollution Prevention Programs	Same as for steep slopes – adopted city and county ordinances	Control of erosion is considered in 404 permit (federal), NPDES permit (state) and local permit requirements on grading and site disturbance	Derived from USGS Soils Survey, available in ROCOG GIS Map Inventory	No	NA
Aggregate Resources	No	City/County permits required to establish aggregate mining operations	Location of aggregate resources is a general planning consideration as a protection of resource for future community needs.	Derived from MN Geological Survey and Land Cover Mapping, available in ROCOG GIS Map Inventory	Yes	Moderate-low

Figure E-6: Mapping of Landform Resources

